2013 RCMT MEETING

37th Annual Meeting

Hosted by: ***Oregon Dept. Fish & Wildlife***
Location: *McMenamins Edgefield, Troutdale, OR*
Dates: ***April 3,4 2013***

NOTES

For further information see: 2013 RCMT Meeting Webpage.

APR 3: WEDNESDAY: 9:00 AM – 4:00 PM

1. **General Business Items** (George Nandor/PSMFC)
   - Welcome and introductions, review agenda
   - Next year's mtg – 2014 -- is intended to be hosted in California: what dates to consider?
     - Will aim to hold meeting in Santa Cruz during the last week of April
   - The 2015 meeting is intended to be hosted in Alaska;
     - Group would prefer meeting to be held near a major airport (Anchorage?)

2. **Regional Mark Processing Center operations & announcements** (George Nandor)

   A. NWPCC Fish Tagging Forum -- process & current status

   Process started in November 2011, drew up charter, focused on Columbia Basin and its stakeholders/ partners

   1st year of meetings consisted of presentations and explanations regarding different tag types, their uses, and results specific to that type of tagging methodology

   Now they are focusing on what recommendations the Forum should provide to the Council (who then makes funding recommendations to BPA)

   CWT programs are in the cross-hairs (looking to save money)

   What is BPA's fair share/ responsibility for monitoring harvest?

   - BPA feels their responsibility is to mitigate for dams, but that harvest management costs below the dams are the responsibility of the states and that CWT data is harvest related.
   - They aren't saying the data isn't important, just that it isn't their responsibility to pay for it/ collect it and that someone else should
   - I.e. BPA is making the argument that CWTs are primarily for monitoring harvest, but it was indicated that this view is not shared by the agencies.

There has been the trend in the Columbia Basin toward mass-marking in addition to the standard use of CWT. California has taken the (different) approach of constant fractional marking.

B. Status of CWT Datasets (Dan Webb/PSMFC)

PowerPoint Presentation

- Shows trends in releases and recoveries for each agency
- Demonstrates improved reporting capabilities

Is this presentation needed in the future?

- As it stands currently, there is probably too much detail in the presentation for this group
- Going forward, it was agreed that the presentation will be more of a generalized overview of where gaps exist, rather than showing total production trends by mark status.

Tribes are trending towards self-reporting

Recovery counts shown are as of 1 week prior to that year's Mark Committee Meeting (will no longer track the January 31st annual deadline for recoveries)

NMFSNWR = a new Whiting Fishery (by-catch) dataset

Upward trend for all agencies in reporting recoveries

Please let RMPC know as soon as possible if you anticipate missing tag codes

C. Data Integrity Efforts (Dan Webb)

PowerPoint Presentation

- Mapped all release sampling agencies to the agencies that report that data
- Looked at how well all the data in the database validated against PSC standards and corrected errors as needed
- Looked at cleaning up all 'Tag Status 7' records; identified reasons for the status 7 code, notified agencies of releases reported since recovery

D. Reporting Agency Coordination for Release Data (George Nandor)
We wanted to highlight the issue of seeking to improve inter-agency coordination when tag-coded groups are transferred from one agency to another (ex.. transfers from USFWS to NEZP agency, etc., other examples?). These situations can have a significant impact on the RMPC's ability to get coast-wide recovery data validated in a timely manner.

- Run into this situation frequently, and not sure how to fix it (one agency does the rearing/ tagging, and another agency does the releasing without reporting the tag code)

- Most commonly occurs during the hand-off between USFWS (who tags the fish) and Columbia River tribes (who release the fish and are responsible for reporting the release data)

- Consensus was that it is the responsibility of the releasing agency to obtain the transfer records from USFWS and the hatchery managers

- And/ Or… should Fish reared/ tagged by USFWS be tagged with the code of the releasing agency?

- ODFW submitted **Appendix B**- recovery records that do not have release codes

  - These are unreported recoveries because they can't get them into RMIS

  - This information needs to get to the reporting agency- send it to the tag coordinator for the agency so they can track down the missing info

- Who is responsible for tracking this down? Dan? Tag Coordinator?

- It is suggested that the responsibility has always remained with the respective [releasing] agency tag coordinator to resolve the problem. The tag coordinator is in the best position to ferret out the problem(s) for non-reporting and work with the given marking program to get their respective tag release [data] reported.

- It is important to inform Dan at the RMPC of missing tag codes so that the RMPC can assist agencies with submitting the missing codes.

- Regarding the instances of transfers from USFWS to Columbia River Tribes, it is suggested that USFWS standard transfer protocols be updated to require that hatchery managers email tribal tag coordinators whenever a transfer occurs to their tribe noting species, # transferred, date transferred, CWT code(s), and recipient or destination. NOTE: The CRITFC mark coordinator should be copied on these emails. Some kind of an updated procedure would give us more of an electronic paper trail to sleuth these problems out.

3. **New Hatchery: Chief Joseph; Colville Confederated Tribes** (Keith Wolf/COLV)

   The Colville Tribe(s) (current RMIS acronym: COLV) are now opening the new Chief Joseph hatchery & have provided their new fish marking & release information to the RCMT. It is also intended to add Colville Tribes as a new data Reporting Agency. (see addition to tables below). See also the hatchery website: http://www.colvilletribes.com/cjhp.php .

   PowerPoint presentation (notes provided on marking numbers in **Appendix C**)

   The CJHP (Chief Joseph Hatchery Program) is the first hatchery to be operated, upon inception, under guidelines required under the "Hatchery Reform Project." The recommendations of the Hatchery Science Review Group provided specificity and process elements.

The CJHP was first developed under the NPCC's 3-Step process and its Master Plan remains intact. Subsequently, and as the HSRG conducted its basin- wide reviews, additional conservation, culture and program elements, consistent with the HRA, we're incorporated.

One principal focus is to re-establish, re-introduce spring Chinook in the hopes that a naturally spawning Okanagan population will contribute to de-listing.

2013 will be first year of fish in the hatchery (spring Chinook)

M&E program been in place since 2011/2012 (spending $800-$900K annually)

Hatchery is located at the terminus of anadromous migration on the Columbia River in the US

Will release 2.9 million fish each year (starting in April 2014)

Setting up arrays to monitor border crossing fish

4. **Calculation of, and issues with, CWT SAR analyses** (Bill Bosch/YAKA)
   Discuss issues with some Chinook tagging programs in Yakima Basin and how the CWT database is used to produce smolt-to-adult survival analyses [given the type of tagging involved e.g. including non-snout locations, etc.]. Some questions: What constitutes an "adult return" [in these cases]? [Could a meaningful SAR / RMIS SA1 result be obtained from these data]?

The Cle Elum Supplementation and Research Facility (CESRF) spring Chinook program was designed with 18 raceways (9 control/treatment pairs) to test various uncertainties relating to hatchery production and more specifically "integrated" supplementation programs. The CESRF does not release fish from the central facility but rather from three satellite acclimation facilities, the intent of the integrated program being that fish will return to natural spawning beds near their release location and augment the natural spawning population. The first control/treatment design was a test of "optimum conventional" versus "semi-natural" raceway treatments. The scientists who designed the experiment decided it would be convenient to have a non-lethal means to trace fish back to treatment, acclimation site, and raceway of release. Returning fish are sampled in fisheries and at Roza Dam, about 75-150 kilometers downstream from the main spawning areas.

All fish were tagged with coded-wire tags from the program's inception in 1997 with a unique tag code used to denote each of the 18 raceways (release groups). For brood years 1997-2001 (age-3 to age-5 return years 2000-2006), CWTs were placed in one of several non-snout body areas: post- and anterior dorsal, left and right cheeks, anal fin, adipose fin, caudal fin, and nape. Beginning with brood year 2002, a hatchery-control (hatchery-origin as opposed to natural-origin parents) line was established for 2 of the 18 raceways. For brood years 2002-2003 (age-3 to age-5 return years 2005-2008), the CWT was placed in the snout for these 2 raceways, but the various body locations were still used for the remaining 16 "production" (offspring of natural-origin parents) raceways. Finally, beginning with brood year 2004 (to increase CWT recovery information from fisheries), the project decided to use the snout location for the 16 production

raceways, with the 2 hatchery-control raceways using the posterior dorsal location for the CWT. Mark information for all broods from 1997 to present are available upon request.

Thus, it is only for brood years 2004-present (age-3 to age-5 return years 2007-present) that substantial CWT recoveries from fisheries could be expected for this program since fisheries generally only sample for the snout location. For the most part, CWT release data for this program were submitted under 4.0 specifications for RMIS which did not include the 0600 or 5600 (non-snout) mark code. On April 5, 2013 release data for all brood years were re-submitted under specification 4.1 using the appropriate 0600 or 5600 mark code where applicable.

Unfortunately, analysts were conducting smolt-to-adult survival rates (SAR) analysis on these codes. Prior to April 5, 2013, an RMIS-based SAR analysis was obviously not appropriate for these CWT groups.

The committee remarked that this was an unusual use of CWTs, as body tagging is traditionally done with blank wire.

It was suggested that the release data be resubmitted with the mark code for body tagging, with use of the warning flag, and with an explanation in the Comments field. As noted above, this was done on April 5, 2013.

Need to address sub-sampling protocols (Data Standards) : The question was also discussed of how to report Catch/Sample data in the cases of sub-sampling (generally) – i.e. in cases where among positive-signal fish identified, only a fraction (e.g. 1 in 4) had the snout observed and tag read. It was suggested that the sub-sample would need to be regarded as the 'Number Sampled' and the corresponding Number Estimated derived from that. It was noted that this is not clarified or explained adequately in the PSC Format data exchange specifications.

5. **Discussion of California's 25% fractional tagging program** (Ken Johnson)

We are seeing that samplers must take lots of snouts when a fishery encounters large numbers of California fall Chinook. Excessive numbers of snouts taken by sampling crews has a serious impact on reducing the value of those fish for both commercial and sport fishers.

California fishermen expressed the same feelings.

Decision on 25% was made at time of severely reduced recoveries. Is the CFM 25% rate still necessary if runs have improved? The 25% rate stands for now until re-visited by CDFW, others in California.

6. **Update on SFEC Regional Coordination Working Group (RCWG)** (Ron Olson/NWIFC)

PowerPoint presentation

SFEC RCWG is responsible for annually reviewing MM proposals for their impact on the CWT system

Total proposed 2013 MM is for 35 million Coho and 114 million Chinook

"CWT system still remains functional for ad-marked CWT fish. It also is still the only method available to the PST for estimating and monitoring coast wide exploitation rates on individual stocks of coho and Chinook."

Mass Marking, Double Index Tagging, and CWT sampling programs are still not sufficiently coordinated to support analysis by PSC technical committees.

7. **Update on SFEC Analytical Working Group (AWG)** (Marianna Alexandersdottir/NWIFC)

PowerPoint presentation

AWG is responsible for reviewing Mark Selective Fishery proposals and evaluating the impacts of MSFs

Recreational Angling Impact Database (RAID) provides estimates of sport fishery impact, CWT observations

RAID Link - http://access.nwifc.org (See 'Menu / Internal Resources / Web Applications')

RAID Login and password – 'guest'

For questions concerning the RAID link, login & password, please contact Marianne at malexand@nwifc.org

8. **Update & discussion -- Double Index Tagging** (Marianna Alexandersdottir)

PowerPoint presentation

Most indicator stocks are hatchery releases- basic assumption is that the tagged and natural stocks have the same exploitation patterns

CWTs are the only source of data on fisheries from Alaska to California that can give exploitation rates

Trend is that proportion of fish taken from MSF annually is increasing

9. All-Agency Update on: (Tag-Coordination Representative, ALL-AGENCY Participation)

- Tagging Levels for 2013.....see tables below
- Mass Marking for 2013.....see tables below
- Mark-Selective Fishery Plans &/or Comments.....see tables below

Member agencies:

Agency or Organization	2013 Tagging Levels, Mass Marking, MSF Plans, Comments
[NWR / National Marine Fisheries Service, NW]	**No update provided**
NMFS / National Marine Fisheries Service, Alaska	**215K Chinook CWT**
NIFC / Northwest Indian Fisheries Commission	**Slight increase in Chinook MM & tagging; info incorporated into WDFW Handout, Appendix C**
WDFW / Washington Dept. Fish & Wildlife	**Handout, Appendix C**
ODFW / Oregon Dept. Fish & Wildlife	**Handout, Appendix C**
ADFG / Alaska Dept. Fish & Game	**Very few changes for this year; Excel file provided, Appendix C**
[BCFW / B.C. Ministry of Env., Fish & Wildlife]	**No update provided; focus only on Steelhead**
MIC / Metlakatla Indian Community	**No change from past years; required to thermal mark starting with current brood year (25% now, then 100% = 40 million)**
IDFG / Idaho Dept. Fish & Game	**Handout provided, Appendix C (new Springfield hatchery coming online; full production expected by 2015)**
CRFC / Columbia River Intertribal Fish Commission	**No update provided**
CDFO / Canada Department of Fisheries & Oceans	**Update provided, Appendix C** **Doubled amount of tagging on all their indicators (will revert back after end of CWTIT funding)**
CDFW / California Department of Fish & Wildlife	**25% cwt + ad clip Chinook; no changes from 2012 levels, no MSF**
FWS / U.S. Fish & Wildlife Service	**MM all fish; exp. to forward info to RMPC later**

Other reporting agencies:

Agency or Organization	2013 Tagging Levels, Mass Marking, MSF Plans, Comments
NEZP / Nez Perce Tribe	**No update provided**
YAKA / Yakama Nation	**Notes provided, Appendix C**
COLV / Colville Tribe(s)	**At 60% capacity for 2013, info provided as part of presentation notes, Appendix C**

APR 4: THURSDAY: 8:00 AM – NOON

10. Update & Discussion of CWTIT Program & Project Status (Ken Johnson, Kathy Fraser /CDFO)

US CWTIT report summarized funding status for proposals received (**Appendix D**)

- Received 19 proposals for 2013, funded 14 of them
- Have previously been encouraged to fund equipment proposals, so those types of proposals ranked highest
- 2014 is final year for this program in US
- Gary Morishima proposed a CWT workshop/ conference to share tips, tools, techniques amongst groups- need to figure out funding, location, etc. Want to do it before US funding runs out

PowerPoint presentation on CDFO CWTIT

Reviewed program history and process of allocating funds- 2013 is final year in Canada

CDFO has spent $5.5 million on tagging and sampling improvements, and $500K on data management and reporting improvements

2013 Project Spending: $345K on marking, $175K on escapement sampling, $325K on sampling support/ improvements/ staffing, $200K on recovery costs/ head lab, $375K on other sampling improvements, $20K on archiving, $60K on equipment (T-wands)

Developing Issues addressed in Bi-Lateral Report:

- US faces delays in timing and availability of funds due to their grant/ budget processes
- Inflation has led to increased costs for personnel, equipment, etc.

- Knew from the beginning that 5 years of $1.5 million per agency was not going to be enough to make needed, lasting improvements to the CWT program just for Chinook
- Improvements are needed for Coho and in systemic programs that affect multiple species
- Future reductions in funding

Long Term Issues:

- CWTs remain only tool that can provide the info needed for coast wide fishery management and assessment
- CWTs provide stock and age specific information without error
- Means for continued, long-term funding is needed in order for improvements to be maintained
- 'CWT Improvement Funding Recommendations' (Feb 2013) and 'Bilateral CWTIT Report, January 2013' are available on the RMPC website
- See also: PSC Tech report #25 (Action Plan in Response to Coded Wire Tag (CWT) Expert Panel Recommendations. A Report of the Pacific Salmon Commission CWT Workgroup).

11. Special Marking Requests & Announcements for 2013: (George Nandor)

- **Requests & Announcements received to date:**
  - Received 1 to date (from a student at Oregon State University) for study of juvenile Coho in the Copper River in Alaska. Her project would involve tagging 1600 young-of-the-year coho this summer with dorsal tags. The Committee felt that this small number of fish with a body tagging location would have inconsequential impacts to the coastwide CWT program.

- **Other requests/ updates?**
  - ODFW- use of a ventral clip in NE Oregon Steelhead will no longer indicate the presence of a tag
  - ODFW reported that the 2013 use of Agency only (i.e. 'blank wire') tagging at Umatilla Hatchery will be same as that done in 2012 for releases of both fall Chinook and spring Chinook into the Umatilla River. 300,000 fall Chinook juvenile fish will be marked with Agency only tags in conjunction with another 300,000 fish tagged with full code CWTs. An additional 20,000 spring Chinook will also be marked with Agency only tags for release into the Umatilla River for conservation purposes.
  - The McKenzie River program in Oregon is no longer using blank wire

12. Status Update on PSC Data Sharing and Data Standards Groups (George Nandor)

Last Data Sharing meeting was held in 2011 in conjunction with the Victoria, Canada RMCT meeting

Last Data Standards meeting was held in October 2012, where they discussed:

- Blank wire & agency-only wire and how to identify appropriately in the database for easier retrieval

- New co-efficient of variation field to improve analyses
- Modification of location codes to remove embedded blanks

Plan to have conference call this summer to rank the proposed changes that were identified at the 2012 meeting and develop an implementation timeline for those changes

First step is to complete and distribute the minutes for review by the Data Standards committee members

13. **Tag placement problems identified in CWT labs** (Kathy Fraser/CDFO)

Some labs in Canada have identified an issue with tag placement -- observing an increasing percentage of misplaced tags.

*Showed video/ images of damaged tags that were recovered (NMT attributes the damages to a wire spooling issue- working to correct this with modifications to the spooling mechanism)

PowerPoint presentation

Have an ongoing study/ report that documents the number of CWTs decoded and the percentage of those that have issues with scratching, placement, etc.

Overall frequency of mechanical scratching is fairly low

Is the tag really migrating when placed initially into the target area? Is there any documentation of that occurring? Or is it an issue with poor initial tag placement?

If so, is the poor initial tag placement due to an issue with fish not fitting properly into the head mold? Is this a fish size issue?

Would be a good agenda topic for the proposed CWT workshop (discussion of QC protocols)

Upside is that the tags are at least still being recovered!

14. **Discussion of rules for sending back tags to other agencies** (Ken Johnson/ODFW)

Do they really want them returned? Probably some agencies will. However, we are fine without physically having other agencies send our tags back as we no longer read the tags that are sent back. That doesn't make much sense with the easily read decimal tags today. In addition, some don't have the luxury of funding nor staff time to spend on re-reading tags. We probably will want to talk about our move to just tape recovered tags to a page (50/page) and store them in binders rather than in Kodak slide type boxes that take up a huge amount of space over time. Instead, we just sort the tags by sampled fishery and snout id label. That saves us a ton of time as it eliminates a lot of non-productive sorting.

Agency or Organization	Wants Old Tags Returned?	Will Keep Recovered Tags for:
CDFO / Canada Department of Fisheries & Oceans	**Yes**	**5 years**
CDFW / California Department of Fish & Wildlife	**Yes**	**5 years**
USFWS / U.S. Fish & Wildlife Service	**Yes**	**5 years**
ADFG / Alaska Dept. Fish & Game	**Yes**	**5 years**
ODFW / Oregon Dept. Fish & Wildlife	**No**	**5 years**
WDFW / Washington Dept. Fish & Wildlife	**No**	**7 years**
IDFG / Idaho Dept. Fish & Game	**No**	**5 years**
CRITFC / Columbia River Intertribal Fish Commission	**No**	**5 years**
NWIFC / Northwest Indian Fisheries Commission	**No**	**5 years**
MIC / Metlakatla Indian Community	**No**	**NA**
NMFS / National Marine Fisheries Service, Alaska	**No**	**5 years**

Agencies will archive tags for minimum of years indicated, then either return them to the agency that wants them back or get rid of them if the agency doesn't want them back.

15. Update on High Seas CWT Sampling and Recovery Program (Adrian Celewycz/NMFS-AK)

See PowerPoint presentation

Canada stopped using agency-only tags out of Whitehorse, so should expect to see future Yukon River Chinook CWT recoveries in the Bering Sea

ADFG stopped tagging Cook Inlet Chinook after 2008 brood year, so don't expect to see any future CWT Cook Inlet Chinook recoveries

New detection and increased number of fish examined can account for the increasing numbers encountered- doesn't yet want to expand results of tunnel detector tests to the entire fishery, but it's an interesting change to note

16. Presentation on Testing of new NMT T-Wands (Geraldine Vander Haegen/NMT)

NMT began field testing the T-Wand in the fall of 2010, and continued testing through 2011. Based on this work, comments collected, and some modifications made, NMT presents the conclusions regarding the T-Wand.

No new equipment announcements for this year

Wand testing finished in 2011- summary report provided as **Appendix E**

Wand testing occurred during the development phase

- Did most of sampling at hatcheries
- T-wand has much better detection range, but also more sensitive to surrounding interference (watches, steel posts, etc)
- Fine-tuned wanding techniques (speed, angle, etc); it is not necessary to mouth wand
- Stored wands in freezers, threw them off docks, kept in buckets of water- held up just fine
- Now in full production mode (sold 325, 5 were returned- 3 had nothing wrong, 2 had failed processers)
- Saw need for training for those using the wands- open invitation for NMT to come give training on proper use of T-wands. Instructions are out there, but one-on-one training is generally more effective.

17. Northwest Marine Technology (Geraldine Vander Haegen)

- Product update
    - Working on improvements to wire spools and gaining better tension control- should be able to implement soon
    - Revised head molds for 300# fish manual tagging, and looking at revising their method for making all head molds in the future
    - Great Lakes project- training has finished up, trailers working well for steelhead and lake trout
    - Still give away free tags every year
    - For conservation programs using blank/ agency-only wire, they are prepared to offer full coding at agency-only pricing

- Question and Answer session

- Anything being done with radio frequency tags? NMT is not currently pursuing them
- Research is being done to figure out what that 'next tag' is (they have identified the need for a smaller tag with greater detection and a more cost-effective means of sampling)
- Looking for a tag with PIT tag capabilities that's smaller than current CWT

APR 4: AFTERNOON

Field trips: ~1:30pm - 4:00pm (Ken Johnson)

There are arranged visits to these facilities for anyone interested:

1. Bonneville Hatchery complex (inside tour + visit to tagging trailer);
2. Cascade Hatchery;
3. Oxbow facility (incl. Herman Cr. ponds).

Appendix A

2013 Mark Meeting Attendees

***Committee Member**

Name	Agency	Mailing Address/ Telephone/E-mail Address
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Appendix B

ODFW Recovery Records lacking Release Codes

Recent ODFW Recoveries of CWTs Lacking Any Release Data

Agency Code	Release Agency	Recovery Years	Tag Code	Total Tags	Species	**Fishery
05	USFWS?	2010	053586	6		
05	USFWS?	2010	053587	12		
05	USFWS?	2010	053588	22		
05	USFWS?	2010	053589	18		
05	USFWS?	2011-12	054369	30		
05	USFWS?	2012	055587	1		
22	NEZP?	2012-13	220000	19		
22	NEZP?	2012-13	220001	18		
61	NEZP?	2011-12	612756	44		
61	NEZP?	2011-12	612757	25		
	NEZP?	2011-12	612758	37		
61	NEZP?	2011-12	612759	44		
61	NEZP?	2010-12	612775	51		
			Total:	**327**		

****The vast majority of the tags were recovered in Columbia River fisheries.**

Other ODFW Recoveries of CWTs Lacking Any Release Data

Agency Code	Release Agency	Recovery Years	Tag Code	Total Tags	Species	**Fishery
05	USFWS/NEZP?		052599			
22	NEZP?		221021			
10	IDFG?		101682			
63	WDFW?		633786			

April 3, 2013

Appendix C

Agency Updates on 2013 Marking & Tagging Levels

WDFW and TRIBAL PUGET SOUND CHINOOK MASS MARKING and CODED-WIRE TAGGING 2013

Species: Chinook
Area: Puget Sound
Brood: 2012
Releases 2013 and 2014

Data from 2012 Future Brood Document

4/1/2013

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT		Total Production	Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped			
WDFW	Kendall Creek	NF Nooksack springs	200,000	**0**	**550,000**	0	750,000	Y	Y
Tribal	Skookum Creek	SF Nooksack springs	0	**250,000**	0	0	250,000	NA	NA
WDFW	Marblemount *	Skagit River springs	**277,500**	**200,000**	**110,000**	**0**	**587,500**	Y	Y
WDFW	**Minter Creek**	White River springs	0	400,000	0	0	400,000	NA	NA
Tribal	White River	White River springs	0	340,000	0	0	340,000	NA	NA
Tribal	White River	White River springs 1+	0	55,000	0	0	55,000	NA	NA
WDFW	Dungeness	Dungeness River springs	0	50,000	0	0	50,000	NA	NA
WDFW	Hurd Creek	Dungeness River springs 1+	0	50,000	0	0	50,000	NA	NA
WDFW	Greywolf Acclimation	Dungeness River springs 0+	0	**50,000**	0	0	**50,000**	NA	NA
WDFW	Upper Dungeness Acc Pond	Dungeness River springs 0+	0	**50,000**	0	0	**50,000**	NA	NA
		Total spring chinook	477,500	1,445,000	660,000	0	2,582,500		
WDFW	Marblemount	Skagit River summers	200,000	0	0	0	200,000	Y	Y
Tribal	Whitehorse	NF Stillaguamish River summers	220,000	0	0	0	220,000	Y	Y
Tribal	Bernie Gobin	Skykomish River summers	100,000	0	1,600,000	0	1,700,000	Y	Y
WDFW	Wallace River*	Skykomish River summers	200,000	200,000	600,000	0	1,000,000	Y	Y
WDFW	Wallace River	Skykomish River summers 1+	0	0	500,000	0	500,000	Y	Y
		Total summer chinook	720,000	200,000	2,700,000	0	3,620,000		
WDFW	Glenwood Springs	Glenwood Springs falls	100,000	0	450,000	0	550,000	Y	Y
Tribal	Lummi Bay Sea Ponds	Samish River (Friday Creek) falls	0	0	**500,000**	0	**500,000**	Y	Y
WDFW	Whatcom Creek	Samish River (Friday Creek) falls	0	0	**500,000**	0	**500,000**	Y	Y
WDFW	Samish*	Samish River falls	200,000	200,000	3,600,000	0	4,000,000	Y	Y
WDFW	Soos Creek*	Big Soos Creek falls	200,000	200,000	2,800,000	0	3,200,000	Y	Y
WDFW	Icy Creek	Big Soos Creek falls 1+	0	0	300,000	0	300,000	Y	Y
Tribal	Palmer Pond / Keta Creek	Big Soos Creek falls	0	0	1,000,000	0	1,000,000	Y	Y
WDFW	Issaquah	Issaquah Creek falls	0	0	1,500,000	0	1,500,000	Y	Y
WDFW	**Minter Creek**	**Minter Creek falls 0+**	**0**	**0**	**1,400,000**	**0**	**1,400,000**	**Y**	**NA**
WDFW	**Hupp Springs**	Minter Creek falls 1+	75,000	0	45,000	0	120,000	Y	Y

Tribal	Gorst Creek	Grovers Creek falls	**0**	0	**1,580,000**	0	**1,580,000**	Y	Y
Tribal	Grovers Creek *	Grovers Creek falls	200,000	200,000	350,000	0	750,000	Y	Y
Tribal	Clarks Creek	Puyallup River falls	**0**	0	**1,220,000**	0	**1,220,000**	Y	Y
WDFW	Voights Creek	Voights Creek falls	90,000	0	**310,000**	**0**	**400,000**	Y	Y
WDFW	Garrison Springs	Garrison Springs falls	90,000	0	760,000	**0**	850,000	Y	Y
Tribal	Clear Creek *	Clear Creek falls	200,000	200,000	3,100,000	0	3,500,000	Y	Y
Tribal	Kalama Creek	Kalama Creek falls	100,000	0	300,000	**0**	400,000	Y	Y
WDFW	Tumwater Falls	Deschutes River falls	0	0	3,800,000	0	3,800,000	Y	Y
WDFW	George Adams *	George Adams falls	225,000	225,000	3,350,000	0	3,800,000	Y	Y
WDFW	RFEG 6	George Adams falls	0	80,000	0	0	80,000	NA	Y
WDFW	Hoodsport	Hoodsport falls	200,000	0	2,600,000	0	2,800,000	Y	Y
WDFW	Hoodsport	Hoodsport falls 1+	0	0	120,000	0	120,000	Y	Y
WDFW	Morse Creek	Elwha River falls 1+	0	200,000	0	0	200,000	NA	NA
WDFW	Elwha	Elwha River falls	0	0	0	2,500,000	2,500,000	NA	NA
WDFW	Elwha	Elwha River falls 1+	0	200,000	0	0	200,000	NA	NA
Tribal	Hoko Falls	Hoko River falls	200,000	0	220,000	0	420,000	Y	Y
		Total fall chinook	1,880,000	1,505,000	29,805,000	2,500,000	35,690,000		
	Total		**3,077,500**	**3,150,000**	**33,165,000**	**2,500,000**	**41,892,500**		
	Total Chinook Production				**41,892,500**				
	Percent Marked				**87%**				

* DIT group

WDFW and TRIBAL PUGET SOUND COHO MASS MARKING and CODED-WIRE TAGGING 2013

Species: Coho
Area: Puget Sound
Brood: 2012
Release Year: 2014

Data from 2012 Future Brood Document

4/1/2013

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT			Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped	Total Production		
Coop	Baker Lake	Baker River	0	0	58,992	0	58,992	Y	Y
WDFW	Glenwood Springs	Glenwood Springs	0	0	100,000	0	100,000	Y	Y
Tribal	Lummi Bay Sea Pens	Lummi Bay	50,000	0	950,000	0	1,000,000	Y	Y
Tribal	Skookum Creek	Skookum Creek	50,000	**0**	950,000	0	1,000,000	Y	Y
WDFW	Marblemount*	Skagit (Clark Creek)	45,000	45,000	160,000	0	250,000	Y	Y
Tribal	North Fork (Stillaguamish)	Fortson Creek	50,000	0	0	0	50,000	Y	Y
WDFW	Wallace River*	Skykomish (May Creek)	45,000	45,000	60,000	0	150,000	Y	Y
Tribal	Bernie Gobin	Skykomish (May Creek)	50,000	0	**950,000**	**0**	1,000,000	Y	Y
WDFW	NWSSC Everett Net Pens	Skykomish (May Creek)	0	0	20,000		20,000	Y	Y
WDFW	Seattle Poggie Club	Skykomish (May Creek)	0	0	54,000	0	54,000	Y	Y
WDFW	Laebugten Net Pens	Issaquah Creek	0	0	**25,000**	0	25,000	Y	Y
WDFW	Issaquah	Issaquah Creek	**50,000**	0	**400,000**	0	450,000	Y	Y
WDFW	Soos Creek*	Green River (Soos Creek)	45,000	45,000	510,000	0	600,000	Y	Y
Tribal	Crisp Creek	Green River (Soos Creek)	**0**	0	**500,000**	0	500,000	Y	Y
Tribal	Elliott Bay Net Pens	Green River (Soos Creek)	**0**	0	**395,000**	0	395,000	Y	Y
WDFW	NWSSC Des Moines	Green River (Soos Creek)	0	0	30,000	0	30,000	Y	Y
WDFW	Marine Tech Center	MTC / Soos Creek	0	0	10,000	0	10,000	Y	Y
WDFW	Voights Creek*	Puyallup (Voights Creek)	45,000	45,000	690,000	0	780,000	Y	Y
Tribal	Puyallup Tribal (Rushing)	Puyallup (Voights Creek)	100,000	0	0	0	100,000	Y	Y
WDFW	Minter Creek	Minter Creek	**50,000**	0	**450,000**	0	500,000	Y	Y
WDFW/Tribal	SSNP/Squaxin Net Pens	Skykomish (May Creek)	50,000	0	1,750,000	0	1,800,000	Y	Y

Tribal	Agate Pass Sea Pens	Minter Creek	50,000	0	180,000	0	230,000	Y	Y
Tribal	Kalama Creek	Kalama Creek	45,000	0	355,000	0	400,000	Y	Y
WDFW	George Adams*	George Adams (Purdy Creek)	45,000	45,000	210,000	0	300,000	Y	Y
WDFW-Tribal	Port Gamble Net Pens	Big Quilcene River	45,000	0	355,000	0	400,000	Y	Y
Tribal	Quilcene Bay Net Pens	George Adams (Purdy Creek)	40,000	0	110,000	0	150,000	Y	Y
WDFW	Dungeness	Dungeness	0	0	500,000	0	500,000	Y	Y
Tribal	Lower Elwha*	Elwha River	75,000	75,000	600,000	0	750,000	NA	NA

* = DIT Group

Total	**930,000**	**300,000**	**10,372,992**	**0**	**11,602,992**	

Total Coho Production	**11,602,992**
Percent marked	**97%**

WDFW and TRIBAL COASTAL CHINOOK MASS MARKING and CODED-WIRE TAGGING 2013

Species: Chinook
Area: Coastal Washington
Brood: 2012
Releases: 2013 and 2014 Data from 2012 Future Brood Document

10/26/2012

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT		Total Production	Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped			
Tribal	Educket Creek	Sooes River falls	0	0	100,000	0	100,000	Y	Y
Tribal	SolDuc	SolDuc summers 0+	70,000		0	0	70,000	Y	Y
Tribal/WDFW	SolDuc	SolDuc summers 1+	80,000	0	170,000	0	250,000	Y	Y
Tribal	Bear Springs	SolDuc spring/summers	0	**50,000**	**0**	0	50,000	Y	Y
Tribal	Salmon River	Queets River falls	200,000	0	0	0	200,000	Y	Y
Tribal	Quinault River*	Quinault River falls	200,000	200,000	**300,000**	0	**700,000**	Y	Y
WDFW	Humptulips	Humptulips River falls	0	0	500,000	0	500,000	Y	Y
WDFW	Lake Aberdeen	Van Winkle Creek falls	0	0	50,000	0	50,000	Y	Y
WDFW	Wishkah (Mayr Bros)	Wishkah River falls	0	0	200,000	0	200,000	Y	Y
WDFW	Bingham Creek	Satsop River falls	**0**	**0**	**200,000**	0	200,000	Y	Y
WDFW	Satsop Springs	Satsop River falls	0	0	300,000	0	300,000	Y	Y
WDFW	Forks Creek*	Willapa River falls	200,000	200,000	2,800,000	0	3,200,000	Y	Y
WDFW	Nemah	Nemah River falls	0	0	3,000,000	0	3,000,000	Y	Y
WDFW	Naselle	Naselle River falls	100,000	0	700,000	0	800,000	Y	Y
	Total		**850,000**	**450,000**	**8,320,000**	**0**	**9,620,000**		

Total Chinook Production **9,620,000**
Percent Marked **95%**

* DIT

WDFW and TRIBAL COASTAL COHO MASS MARKING and CODED-WIRE TAGGING 2013

Species: Coho
Area: Coastal Washington
Brood: 2012
Release Year: 2014

Data from 2012 Future Brood Document

10/26/2012

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT		Total Production	Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped			
Tribal	Educket Creek	Sooes River	0	0	40,000	0	40,000	Y	Y
WDFW	Solduc	Solduc summers	0	0	100,000	0	100,000	Y	Y
WDFW	Solduc *	Solduc falls	75,000	75,000	**250,000**	0	**400,000**	Y	Y
Tribal	Salmon River *	Salmon River	75,000	75,000	500,000	0	650,000	Y	Y
WDFW	Humptulips	Humptulips	0	0	400,000	0	400,000	Y	Y
WDFW	Humptulips	Humptulips lates	**50,000**	0	**50,000**	0	**100,000**	Y	Y
WDFW	Friends Landing	Satsop River	0	0	25,000	0	25,000	Y	Y
WDFW	Mayr Brothers	Wishkah River	0	0	300,000	0	300,000	Y	Y
WDFW	Buzzard Creek	Wishkah River	0	0	25,000	0	25,000	Y	Y
WDFW	Lake Aberdeen	Van Winkle	0	0	30,000	0	30,000	Y	Y
WDFW	Bingham Creek *	Satsop River	75,000	75,000	0	0	150,000	Y	Y
WDFW	Bingham Creek	Satsop Lates	**0**		150,000	0	150,000	Y	Y
WDFW	Heimbigner Project	Satsop River	0	0	**30,000**	0	**30,000**	Y	Y
WDFW	Satsop Springs	Satsop River	**0**	0	450,000	0	450,000	Y	Y
WDFW	Skookumchuck	Satsop River	**0**	0	**50,000**	0	50,000	Y	Y
WDFW	Skookumchuck	Satsop lates	**50,000**	0	**0**	0	50,000	Y	Y
WDFW	Carlisle Lake	Satsop River	0	0	50,000	0	50,000	Y	Y
WDFW	Carlisle Lake	Satsop lates	0	0	50,000	0	50,000	Y	Y
WDFW	Eight Creek	Satsop lates	0	0	100,000	0	100,000	Y	Y
WDFW	Forks Creek *	Willapa River	75,000	75,000	50,000	0	200,000	Y	Y
WDFW	Forks Creek	Willapa lates	0	0	100,000	0	100,000	Y	Y
WDFW	Naselle	Naselle River	0	0	1,200,000	0	1,200,000	Y	Y
WDFW	Naselle	Naselle River lates	0	0	200,000	0	200,000	Y	Y
WDFW	Westport Net Pens	Humptulips River	0	0	100,000	0	100,000	Y	Y
	Total		**400,000**	**300,000**	**4,250,000**	**0**	**4,950,000**		

Total Coho Production **4,950,000**
Percent Marked **94%**

* DIT groups

WDFW and TRIBAL COLUMBIA RIVER CHINOOK MASS MARKING and CODED-WIRE TAGGING 2013

Species: Chinook
Area: Columbia River
Brood: 2012
Release Year: 2013 and 2014

Data from 2012 Future Brood Document

10/26/2012

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT		Total Production	Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped			
WDFW	Deep River Net Pens	Elochoman - Falls	90,000	0	910,000	0	1,000,000	Y	Y
WDFW	Cowlitz	Cowlitz - Falls	**200,000**	0	**1,300,000**	0	**1,500,000**	Y	Y
WDFW	N Toutle	Toutle - Falls	95,000	0	1,305,000	0	1,400,000	Y	Y
WDFW	Kalama Falls	Kalama - Falls	95,000	0	3,405,000	0	3,500,000	Y	Y
WDFW	Fallert Creek	Kalama - Falls	95,000	0	3,405,000	0	3,500,000	Y	Y
WDFW	Lewis River	Lewis River - Falls (wild)	100,000	0	0	0	100,000	NA	NA
WDFW	Washougal	Washougal - Falls	95,000	0	2,905,000	0	3,000,000	Y	Y
Tribal	Klickitat	Klickitat - falls	**622,900**	0	**3,427,100**	**0**	4,050,000	Y	Partial
Tribal	Hanford Reach	Hanford - Wild	200,000	0	0	0	200,000	NA	NA
WDFW	Lyons Ferry	Lyons Ferry - Falls	400,000	0	0	0	400,000	NA	NA
WDFW	Lyons Ferry	Lyons Ferry - Falls 1+	225,000	225,000	0	0	450,000	NA	NA
WDFW	Ringold **	URBs	200,000	0	3,250,000	0	3,450,000	Y	Y
WDFW	Priest Rapids	Priest Rapids - URBs	600,000	600,000	5,500,000	0	6,700,000	Y	Partial
		Total Fall Chinook	**3,017,900**	**825,000**	**25,407,100**	**0**	**29,250,000**		
		Total Percent Marked	**97%**						
WDFW	Chelan Falls	Wells - summers 1+	**576,000**	0	0	0	**576,000**	NA	NA
WDFW	Dryden Pond	Wenatchee - summers 1+	864,000	0	0	0	864,000	NA	NA
WDFW	Wells	Wells - summers	484,000	0	0	0	484,000	NA	NA
WDFW	Wells	Wells - summers 1+	320,000	0	0	0	320,000	NA	NA
WDFW	Carlton Pond	Methow / Okanogan - summers 1+	**200,000**	0	0	0	**200,000**	NA	NA
WDFW	Similkameen Pond	Methow / Okanogan - summers 1+	**167,000**	0	0	0	167,000	NA	NA
		Total Summer Chinook	**2,611,000**	**0**	**0**	**0**	**2,611,000**		
		Total Percent Marked	**100%**						
WDFW	Deep River Net Pens	Cowlitz - springs 1+	50,000	0	350,000	0	400,000	Y	Y
WDFW	Cowlitz	**Cowlitz - springs fall release**	**100,000**	**0**	**400,000**	**0**	**500,000**	Y	Y
WDFW	Cowlitz	Cowlitz - springs 1+	**200,000**		**1,042,115**		**1,242,115**	Y	Y
WDFW	Friends of the Cowlitz	Cowlitz - springs 1+	0	0	55,000	0	55,000	Y	Y

WDFW	Fallert Creek	Kalama - springs 1+	**125,000**	0	**0**	0	125,000	Y	Y
WDFW	Gobar Pond	Kalama - springs 1+	125,000	0	250,000	0	375,000	Y	Y
WDFW	Lewis River*	Lewis River - springs 1+	150,000	150,000	**800,000**	0	1,100,000	Y	Y
WDFW	**Muddy River Acc Pond**	Lewis River - springs 1+	0	0	**50,000**	0	**50,000**	Y	NA
WDFW	Echo Net Pens	Lewis River - springs 1+	0	0	150,000	0	150,000	Y	Y
WDFW	**Clear Creek Acc Pond**	**Lewis River - springs 1+**	**0**	**0**	**35,000**	**0**	**35,000**	**Y**	**NA**
WDFW	Lk Wenatchee Net Pens	White River - springs	0	**0**	0	150,000	150,000	NA	NA
Tribal	Klickitat	Klickitat - springs 1+	**172,900**	0	**427,100**	0	600,000	Y	Y
WDFW	Tucannon	Tucannon - springs 1+	0	225,000	0	0	225,000	NA	NA
WDFW	Chiwawa Pond	Chiwawa - springs 1+	**204,452**	0	0	0	204,452	Y	Y
WDFW	Methow	Methow - springs 1+	0	185,000	0	0	185,000	NA	NA
WDFW	Twisp	Twisp - springs 1+	0	40,000	0	0	40,000	NA	NA
		Total Spring Chinook	**1,127,352**	**600,000**	**3,559,215**	**150,000**	**5,436,567**		
		Total Percent Marked	**86%**						
		Total Chinook	**6,756,252**	**1,425,000**	**28,966,315**	**150,000**	**37,297,567**		
		Total Percent Marked	**96%**						

* DIT group
** marked by ODFW

WDFW and TRIBAL COLUMBIA RIVER COHO MASS MARKING and CODED-WIRE TAGGING 2013

Species: Coho
Area: Columbia River
Brood: 2012
Release Year: 2014

10/26/2012

Data from 2012 Future Brood Document

Agency	Hatchery	Stock	Number of fish to be released with a CWT		Number of fish to be released without a CWT		Total Production	Proposed to be marked this year (Y/N)	Marked in previous year (Y/N)
			Ad Clipped	Unclipped	Ad Clipped	Unclipped			
WDFW	Deep River Net Pens	Type S	30,000	0	770,000	0	800,000	Y	Y
WDFW	Grays River	Grays River - Type N	**33,000**	0	**117,000**	0	150,000	Y	Y
WDFW	Cowlitz	Cowlitz - Type N	90,000	0	**1,110,000**	0	1,200,000	Y	Y
WDFW	Cowlitz	Cowlitz - Type N (wild)	**978,000**	0	0	0	978,000	NA	NA
WDFW	N Toutle	Toutle - Type S	**33,000**	0	**117,000**	0	150,000	Y	Y
WDFW	Kalama Falls	Kalama Falls - Type N	**33,000**	0	**567,000**	0	600,000	Y	Y
WDFW	Fallert Creek	Kalama Falls - Type S	**33,000**	0	**67,000**	0	100,000	Y	Y
WDFW	Lewis River*	Lewis River - Type S	75,000	75,000	**425,000**	0	575,000	Y	Y
WDFW	Lewis River*	Lewis River - Type N	75,000	75,000	700,000	0	850,000	Y	Y
WDFW	Speelyai Bay Net Pens	Lewis River - Type S	0	0	**475,000**	0	475,000	Y	Y
WDFW	Washougal (Klickitat release)	Washougal - Type N	**60,000**	0	**2,440,000**	0	2,500,000	Y	Y
WDFW	Washougal	Washougal - Type N	**30,000**	0	**120,000**	0	150,000	Y	Y
Tribal	Klickitat	Klickitat - Type N	**45,000**	0	**955,000**	0	1,000,000	Y	Y
Tribal	Beaver Creek Acclimation Pond	Mid-Columbia Type S	0	97,000	0	0	97,000	NA	NA
Tribal	Butcher Pond	Mid-Columbia Type S	0	148,000	0	0	148,000	NA	NA
Tribal	Coulter Pond	Mid-Columbia Type S	0	125,000	0	0	125,000	NA	NA
Tribal	Nason Wetlands	Mid-Columbia Type S	0	105,000	0	0	105,000	NA	NA
Tribal	Rolfings Pond	Mid-Columbia Type S	0	100,000	0	0	100,000	NA	NA
WDFW	Wells	Willard - Type S	0	130,000	0	0	130,000	NA	NA
Tribal	Twisp Acclimation Pond	Mid-Columbia Type S	0	90,000	0	0	90,000	NA	NA
		Total	**1,515,000**	**945,000**	**7,863,000**	**0**	**10,323,000**		
		Total Coho Production	**10,323,000**						
	* DIT group	**Percent Marked**	**91%**						

ODFW: 2013 FISH MARKING PROGRAM

STOCK	2013 PRODUCTION				
	TAGGED (CWT)		UNTAGGED		
	AD Clipped	Unclipped	AD Clipped	Unclipped	Total Marked
Spring Chinook	[1] 2,825,000	270,000	7,285,000		7,555,000
Fall Chinook	[2] 2,860,000	[3] 440,000	18,740,000	[4] 1,875	18,740,000
Coho	300,000	100,000	5,585,000		5,985,000
Sum. Steelhead	135,000		[5] 1,255,000		135,000
Win. Steelhead	[6] 125,000	510,000	80,000		590,000
Chum		120,000			120,000
Sockeye			120,000		120,000
TOTALS:	6,245,000	1,000,000	33,065,000	1,875	40,311,875

[1] Total includes 20,000 'Agency only' tags

[2] Total includes 300,000 'Agency only' tags

[3] This total includes ODFW's single DIT group of 200,000 (Tule fall Chinook) at Big Creek Hatchery

[4] 100% given a ventral fin clip

[5] 44% (555,000) also received a maxillary clip

[6] 100% marked with 'Agency only' tags

Comparison of Ad+CWT and AD Only Marking Levels in 2011, 2012 and 2013						
	Spring Chinook		Fall Chinook		Coho	
Year	AD+CWT	AD Clip only	AD+CWT	AD Clip only	AD+CWT	AD Clip only
2011	4,130,000	8,600,000	2,665,000	16,760,000	250,000	5,330,000
2012	3,210,000	9,265,000	2,955,000	15,775,000	350,000	5,494,000
2013	2,825,000	7,285,000	2,860,000	18,740,000	300,000	5,585,000

ALASKA TAGGING PLANS 2013 (Ad-Clipped and CWTs)

Species	Rearing Code	2011	2012	Forecast 2013
CHINOOK	H	878,648	948,203	950,000
	W	105,634	91,392	100,000
COHO	H	827,103	781,555	800,000
	W	129,173	96,424	120,000
Totals		1,940,558	1,917,574	1,970,000

IDFG- Brood Year 2012 Chinook and Sockeye Salmon Marking in 2013

			Marks & Tags			
Species	**Fish Hatchery**	**Release Site**	**AD**	**AD/CWT**	**CWT**	**Grand Total**
Sockeye	Eagle/Sawtooth (Sockeye)	Upper Salmon R. Lakes.-Presmolts	60,000			60,000
		Upper Salmon R. & Redfish Lake Cr.	120,000			120,000
		Upper Salmon R. & Redfish Lake Cr.-Oxbow Reared	100,000			100,000
	Eagle/Sawtooth (Sockeye) Total		**280,000**			**280,000**
Spring Chinook	Clearwater	Clear Creek	115,000	120,000		235,000
		Lower Selway R.	145,000	120,000	135,000	400,000
		Powell Pond	280,000	120,000		400,000
		Red River Pond	980,000	120,000		1,100,000
		NPTH		66,000	134,000	200,000
	Clearwater Total		**1,520,000**	**546,000**	**269,000**	**2,335,000**
	Rapid River	Hells Canyon	350,000			350,000
		Little Salmon	150,000			150,000
		Rapid River	2,380,000	120,000		2,500,000
	Rapid River Total		**2,880,000**	**120,000**		**3,000,000**
	Sawtooth	Yankee Fork			200,000	200,000
		Sawtooth weir (Seg)	1,180,000	120,000		1,300,000
		Sawtooth weir (Int)			200,000	200,000
	Sawtooth Total		**1,180,000**	**120,000**	**400,000**	**1,700,000**
Summer Chinook	Clearwater	Crooked River Trap Site			400,000	400,000
	Clearwater Total				**400,000**	**400,000**
	McCall	Knox Bridge S.F. Salmon R. (Seg)	630,000	120,000		750,000
		Knox Bridge S.F. Salmon R. (Int)			250,000	250,000
	McCall Total		**630,000**	**120,000**	**250,000**	**1,000,000**
	Pahsimeroi	Pahsimeroi R. (Seg)	680,000	120,000		800,000
		Pahsimeroi R. (Int)			200,000	200,000
	Pahsimeroi Total		**680,000**	**120,000**	**200,000**	**1,000,000**
Grand Total			7,170,000	1,026,000	1,519,000	9,715,000

IDFG- Brood Year 2013 Steelhead Marking in 2013

		Marks & Tags				
Fish Hatchery	Release Site	AD	AD/CWT	No Clip	CWT Only	Grand Total
Clearwater	Newsome Cr.			123,000		123,000
	Red House Hole	220,000				220,000
	Meadow Cr	290,000		70,000	140,000	500,000
Clearwater Total		510,000		193,000	140,000	843,000
Hagerman National	Sawtooth Weir	1,270,000				1,270,000
	Upper EF.Salmon R. (Weir)				60,000	60,000
	McNabb Point	130,000				130,000
Hagerman National Total		1,400,000			60,000	1,460,000
Magic Valley	Pahsimeroi Trap				186,000	186,000
	Squaw Creek	186,000				186,000
	Red Rock	93,000				93,000
	Shoup Bridge	93,000				93,000
	Colston Corner	93,000				93,000
	Little Salmon R.	403,000				403,000
	Yankee Fork	279,000		217,000		496,000
Magic Valley Total		1,147,000		217,000	186,000	1,550,000
Niagara Springs	Hells Canyon Dam	550,000				550,000
	Pahsimeroi Trap	800,000				800,000
	Little Salmon R.	450,000				450,000
Niagara Springs Total		1,800,000				1,800,000
Grand Total		4,857,000		410,000	386,000	5,653,000

PRELIMINARY 2013 Marking Plans for CDFO

Species	CWT - Ad Clip	CWT - Only	Fin - Ad Only	Fin - Right Ventral	Otolith	Grand Total
Chum	0	0	535,000	0	31,200,000	31,735,000
Chinook	4,750,000	0	0	35,000	24,452,000	29,237,000
Coho	880,500	188,000	4,762,500	0	300,000	6,131,000
Pink	0	0	0	0	7,700,000	7,700,000
Sockeye	50,000	0	2,455,000	0	2,000,000	4,505,000
Grand Total	5,680,500	188,000	7,752,500	35,000	65,652,000	79,308,000

Yakama 2013 Levels

In the Yakima Basin

- Spring Chinook- 100% ad-clip, 720K CWT (snout), 90K CWT (post-dorsal)
- Summer Chinook- 250K released, 90% CWT + no clip
- Coho- 1 mil released, blank wire only/ combination ad-clip + no clip
- Fall Chinook- 1.7 mil release w/ 100% ad-clip and 10% CWT, 250K released unmarked (some w/ PIT tags)

In the Mid-Columbia Basin

- Coho- 1.3 mil released, nearly 100% CWT + no clip

In the Klickitat Basin

- Spring Chinook- 600K released; 100K CWT + ad-clip, 500K ad-clip only
- Coho- 1 mil released, 100% ad-clip, only 40K CWT
- Fall Chinook- 4 mil released; 2.8 mil unmarked, 500K ad-clip only, 700K CWT + ad-clip

George Nandor

From: Keith Wolf <Keith.Wolf@colvilletribes.com>
Sent: Tuesday, March 19, 2013 10:06 AM
To: George Nandor
Subject: CCT tagging and mark plan
Attachments: 2013 Anad Division_CJHP Annual Program Review_Baldwin tagging.pptx

George:

Sorry for the multiple emails, but I can take care of providing you our 2013 plans with this table and the attached .ppt from our recent Annual Program Review.

Tagging Plan; Long term

summer/fall Chinook full program

Mark Group	Target max smolt released	Life-stage released	%CWT	Adipose Fin-Clip	PIT tag
Okanogan Integrated	1,100,000				
Similkameen	250,000	Yearling	100%	100%	5,000
Riverside Pond	275,000	Yearling	100%	100%	5,000
Omak Pond	275,000	Yearling	100%	100%	0
	300,000	Sub-Yearling	100%	100%	5,000
Chief Joseph Segregated	500,000	Yearling	0%	100%	5,000
	400,000	Sub-Yearling	0%	100%	5,000
Natural Origin	Rotary Screw Trap and Confluence Beach Seine				up to 25,000

Keith

Keith Wolf | Colville Tribes Fish and Wildlife
Chief Joseph Hatchery Science Program | 25 B Mission Road, Omak, WA 98841
Fish Biologist IV/Program Manager | 509-422-5657 Office | 509-631-1407 Cell | 509-422-5686 Fax
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2013 Chief Joseph Hatchery Production Summary

(1) Hatchery completion in anticipated by end of April, notwithstanding minor site grading and paving.

(2) First year of production is BY-13 spring Chinook and summer Chinook.

(3) Segregated spring Chinook production (on-station release) will be supported from broodstock to be acquired from Leavenworth National Fish Hatchery in May-June 2013, with on-station release of 420,000 yearling smolts in April of 2015, representing 60% of on-station spring Chinook programmed production. Production of BY-13 segregated spring Chinook is limited to 60% of programmed production as a risk-averse strategy for year-1 operation. Segregated spring Chinook production will be released into the Columbia River directly from CJH.

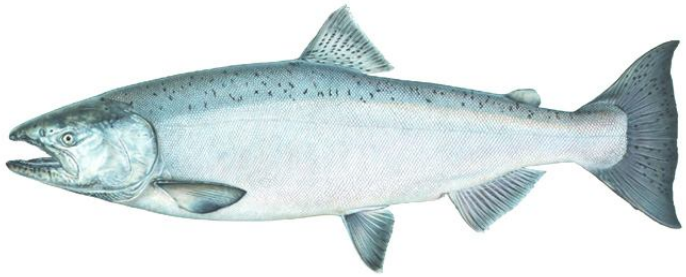
(4) Reintroduction of spring Chinook to the Okanogan River Basin will be supported by Methow Composite Stock from Winthrop National Fish Hatchery. Depending upon HGMP, Section 10 Permit and 10-J permitting schedule, the first release year for spring Chinook reintroduction to the Okanogan River will be April of 2014 or April of 2015. Reintroduction production target is 200,000 yearling smolts and represents 100% of programmed spring Chinook reintroduction production. Releases may occur at one or three locations, including Tonasket Pond, Riverside Pond or Omak Pond.

(5) Segregated summer Chinook production (on-station release) will be supported from broodstock (hatchery origin) collected during July- October from: the purse seine operation at the confluence of the Okanogan River; ladder collections at CJH; collection at the Okanogan pilot weir and tangle netting in the Okanogan River. Target release numbers for on-station releases is 420,000, representing 60% of programmed on-station target production. Production for BY-13 limited to 60% of programmed production as a risk-averse strategy during year-1 operation. Releases will occur into the Columbia River, directly from CJH during June 2014 for sub-yearlings and mid-late April 2015 for yearlings (120,000 and 300,000 smolts, respectively).

(6) Integrated summer Chinook production (Okanogan River releases) will be supported from broodstock (natural origin) collected during July-October from: the purse seine operation at the confluence of the Okanogan River; ladder collections at CJH; collection at the Okanogan pilot weir, tangle netting in the Okanogan River, and potentially Wells Dam. Target release number for on-station releases is 660,000, representing 60% of program target production for Okanogan Basin releases. Production for BY-13 is limited to 60% of programmed production as a risk-averse strategy during year-1 operation. Sub-yearling releases will occur from Omak Pond in June 2014 (180,000 smolts). Yearling releases will occur in mid-late April 2015 from Omak Pond, Similkameen Pond, and Riverside Pond (480,000 smolts).

Appendix D

US CWTIT 2013 Recommendations



PSC Coded Wire Tag Implementation Team

U.S. CWTIT

TO: U.S. Section, Pacific Salmon Commission

FROM: **Scott McPherson, Co-Chair CWTIT and U.S. CWTIT Members**

DATE: February 12, 2013

SUBJECT: 2013 Coded Wire Tag (CWT) Proposed Improvement Funding Recommendations—U.S. projects

The U.S. CWTIT met via teleconference on January 31, 2013 and deliberated on 18 proposals that were received by the close of the US Request For Proposals (Jan. 8th). We recommend funding for 14 of those projects as per Table 1. Rank 15 is not a project, but rather a reserve of about $12,000 to provide funding to defray travel expenses for U.S. CWTIT members for attending workshops. The rankings were determined pooled ranks, then by the consensus during deliberations of the U.S. CWTIT members. Our recommendations total $1,500,000. The total through rank 14 is $1,481,627 and the remainder is $18,373, to be potentially used on the reserve and a portion of Rank 16. We did not recommend funding for the projects ranked 18 and 19. The bilateral CWTIT met via teleconference on February 5, 2013 and the U.S. recommendations were received favorably by the Canadian members after clarifications for some projects.

Briefs for each project are provided in the section after Table 1 that include a description of the project, the intended improvements and the consequences of not funding the project. Projects that are one-time funding requests and those that require future funding are identified at the end of each brief.

Appendix 1 provides additional details and cite the Tech Report 25 issues addressed. The proposals are ordered by rank in Table 1, the project briefs, and Appendix 1.

US CWTIT Members: Scott McPherson (Co-Chair), Gary Morishima, Larrie La Voy, Kristen Ryding, Marianna Alexandersdottir, Marianne McClure, Ken Johnson

Table 1. USCWTIT projects received for FY 2013 and those proposed for funding.

Rank/ Prop #	Agency	Project Type	Project Description	Cost	Fund ?
1/10	WDFW	Equipment	Coded Wire Tag Field Equipment Replacement (85 Wand Detectors)	$248,543	Yes
2/05	WDFW	Sampling	Sampling Washington Ocean Salmon Fisheries	$354,492	Yes
3/11	ADFG	Sampling	SE Alaska Marine Sport Catch Sampling	$57,367	Yes
4/17	ODFW	Ind. Stock	Mid-Oregon Coast (Elk River) CWT Tagging, Recovery, Escapement	$125,195	Yes
5/06	ADFG	Equipment	ADFG MTA Lab Coded Wire Tag Reading Station Upgrades	$29,304	Yes
6/03	ADFG	Sampling	SEAK Commercial Port Sampling No Tags	$58,164	Yes
7/04	ODFW	Equipment	Replace Outdated Handheld CWT (Wand) Detectors - 30 Wands	$101,063	Yes
8/07	ODFW	Equipment	Coded Wire Tag Database Reports, Training and Data Logger Acquisition	$99,653	Yes
9/08	ADFG	Coordination	U.S. CWTIT Co-Chair: Partial Funding	$14,820	Yes
10/16	ADFG	Ind. Stock	Chilkat River Chinook CWT	$86,801	Yes
11/18	ADFG	Ind. Stock	Stikine River Chinook Smolt CWT	$134,562	Yes
12/02	ODFW	Sampling	Oregon CWT Sampling in the Columbia River Ocean Area	$112,597	Yes
13/09	Makah Tribe	Equipment & Sampling	Staff Support and Equipment For Coded-Wire Tag Lab	$46,459	Yes
14/15	Lummi Tribe	Equipment	Lummi CWT Equipment Acquisition	$12,607	Yes
			TOTAL through Rank 14	**$1,481,627**	
NA	Pacific Salmon Commission	Admin	Funding Hold-back for next 2 CWTIT Workshops	$13,200	[1]
16/01	Stillaguamish Tribe	Equipment	Stillaguamish Chinook CWT Processing Improvement Funds	$30,922	[2]
17/12	Lummi Tribe	Sampling	Lummi Harvest By-Catch Sampling	$39,221	[2]
18/14	WDFW	Database	Washington Regulations Database	$125,363	NO
19/13	WDFW	Equipment	Purchase Individual Fish Counters of Mass Marked Hatchery Releases	$177,399	NO
			Total recommended for funding	**$1,500,000**	

[1] This project would provide support costs for two CWTIT Workshops in 2013 and 2014; discussions with U.S. Section TBD at February 2013 PSC Annual Meeting; note that the sum of ranks 1-14 is $18,373 short of $1.5M.

[2] Insufficient funding, but funding may be available for a portion of Rank 16.

* * *

U.S. Project Briefs for 2013 U.S. CWTIT Projects

Primary questions:

1) **Project description.**
2) **Why fund it?**
3) **What happens if we don't fund it?**

Rank	#	Agency	Project Description	Cost	Fund?
1	10	WDFW	CWT field equipment replacement-85 Handheld Wands	$248,543	YES

1. This EQUIPMENT project will purchase 85 new-style NMT "T-wands" at $2,924 (with trade-in) each. Costs include a 10% volume discount contingent on trade-in ($1,000 for working wand).
2. Will increase the accuracy of detecting CWTs in fisheries and on spawning grounds and sampling efficiency, and the ease of handling Chinook salmon for samplers and commercial processors. This project is cost effective as WDFW waived its normal overhead charge of about 28% for this project.
3. WDFW will continue to sample using their old blue "stick" NMT wands which are less sensitive in detecting tags and ergonomically more difficult for field staff.

Overall: This is an equipment purchase that will have lasting benefits to the CWT system; a proposal is expected next cycle.

Rank	#	Agency	Project Description	Cost	Fund?
2	5	WDFW	Sampling Washington ocean salmon fisheries	$354,492	YES

1. This SAMPLING project funds the portion (about 50%) of the base sampling for the WA coast ocean troll and sport fisheries that was lost through the discontinuation of Anadromous Fish Act (AFA) grants 3 years ago. This project was funded in 2011 and 2012 using CWTIT funds with the expectation that WDFW would be able to find replacement funding for the loss of the AFA funds; unfortunately, replacement funding has not been secured.
2. The sampling rates for these fisheries will be less without the CWTIT funding.
3. Sampling rates will be lower and CWT data imprecise without the CWTIT funding.

Overall: This project covers the base funding for WDFW previously provided by the AFA. The Chinook sampling rates in the ocean troll fishery were 41% troll (catch = 27,000) in 2011 and 42% (catch = 37,000) in 2012; the average rate for 2006-2012 is 50%. The sampling rates in the sport fishery was 40% sport (catch = 29,000) in 2011 and 45% (catch = 34,000) in 2012; the average rate for 2006-2012 was 41%. This is a well established and well run project. This project will require future funding.

Rank	#	Agency	Project Description	Cost	Fund?
3	11	ADFG	Southeast Alaska Marine Sport Catch Sampling	$57,367	YES

1. This SAMPLING project increases sport sampling rates in Juneau, Ketchikan and Craig to >20%, by adding 6 catch samplers, who will sample for CWTs and not be involved in creel estimates of harvest. The Chinook sampling rates in Juneau have averaged 12%

over the past 5 years (average harvest = 7,600) and 10% in Ketchikan (average harvest = 14,000). Sampling rates have averaged 21% in Craig (average harvest = 6,200) with its larger mix of PSC indicator stocks.

2. PSC Indicator Stocks are caught in these fisheries and past sampling rates for those stocks averaged 12% in Juneau and 10% in Ketchikan over the past five years.
3. Without funding, the sample rates for these fisheries will not be expected to meet coast wide standards. The Juneau sport fishery will not produce enough CWTs to adequately estimate exploitation by age for the jointly managed Taku transboundary river stock.

Overall: It was noted that SEAK sport was below 20% in TR25, 18-19% overall, but that sampling rates are too low in the ports of Juneau (12%) and Ketchikan (10%), which take about 30-35% of SEAK sport catch. In 2011, with CWTIT funding, sampling rates were raised in those 2 ports; this project fell below the cut line in 2012. This project will require future funding.

Rank	#	Agency	Project Description	Cost	Fund?
4	17	ODFW	Mid-Oregon Coast CWT tagging, recovery, and escapement of Elk River Fall Chinook	$125,195	YES

1. Mid-Oregon Coast (MOC) INDICATOR STOCK—this project covers several aspects needed for an Exploitation Rate Analysis (ERA) indicator stock, including tagging the hatchery stock with CWTs, escapement sampling, and estimation and sampling of the inriver freshwater (terminal) harvest. This stock is used in the ERA by the CTC.
2. A MOC indicator stock would help close a geographic gap in coverage identified in TR25 and by Oregon for the mid-Oregon coast stock aggregate.
3. There won't be a MOC indictor stock without this or alternative funding.

Overall: This project requires future funding and the tags are recovered in PST fisheries in both countries.

Rank	#	Agency	Project Description	Cost	Fund?
5	6	ADFG	ADGF MTA Lab CWT Reading Station Upgrades	$29,304	YES

1. This EQUIPMENT project upgrades 8 outdated CWT reading stations at the Alaska Mark Tag, and Age Lab in Juneau with a digital imaging system (DIS) that will consist of a dissecting microscope equipped with a digital video camera and 10-inch hi-resolution LCD monitor for viewing and reading CWTs.
2. It improves efficiency, accuracy, and timeliness of reading and reporting CWTs from SEAK Chinook fisheries.
3. CWT reading and reporting will be less timely and efficient.

Overall: This is a one-time equipment purchase that will have lasting benefits to the CWT system.

Rank	#	Agency	Project Description	Cost	Fund?
6	3	ADFG	SEAK Commercial Port Sampling NO TAGs	$58,164	YES

1. This SAMPLING project provides sampling costs in commercial fisheries to reduce the impacts and processing costs associated with the increase in Chinook with adipose clips, but no tags present, i.e., NO TAGs. The sampling protocols are to use the new T-Wands from NMT (purchased last year) to eliminate processing and shipping of NO TAGs, in commercial fisheries. The NO TAG rate, for Chinook with adipose clips, has gone from

7% before mass marking in Washington and Oregon to over 50% in the outside troll fishery at present.
2. Will save about $700,000 over next 10 years in NO TAG shipping and processing alone. Also, it will increase sampling efficiency by commercial port samplers, reduce handling of Chinook salmon, and raise sampling rates.
3. The Tag Lab will be overrun with meaningless heads, reporting will be less timely and sampling rates in SEAK commercial fisheries will decrease.

Overall: This project covers part of the cost of dealing with NO TAGs resulting from mass marking in the PNW and creates efficiencies for field sampling and data processing and reporting. This project will require future funding.

Rank	#	Agency	Project Description	Cost	Fund?
7	4	ODFW	Replace Outdated Handheld CWT Wand Detectors	$101,063	YES

1. This EQUIPMENT project proposes to purchase 30 new-style NMT T-Wands at $3,369 (with trade-in and agency overhead) each.
2. Will increase the accuracy and efficiency of detecting CWTs in fisheries and on spawning grounds, and ease the handling of Chinook salmon for samplers and commercial processors.
3. Oregon will continue to sample using their remaining old blue NMT wands which are less sensitive in detecting tags and ergonomically more difficult for field staff. This is an equipment purchase and will have lasting CWT improvements.

Overall: This is an equipment purchase that will have lasting benefits to the CWT system.

Rank	#	Agency	Project Description	Cost	Fund?
8	7	ODFW	CWT Database Reports, Training and Data Logger Acquisition	$99,653	YES

1. This EQUIPMENT project funds data loggers and training at 10 hatcheries to transmit tag and recovery CWT data electronically and eliminate the old paper forms. This is part of ODFW's complete overall of their Data Reporting System upgrade. The project also documents all of the next aspects of CWT system to have a permanent working knowledge and transferability of that knowledge to new employees and interested outside parties.
2. Faster, more accurate and timely data, easier input and retrieval.
3. CWT reporting takes longer, less accurate and timely.

Overall: This project will allow ODFW to report CWT data earlier and more accurately, but not by Jan. 31st of the year following collection of data. This is a one-time equipment purchase and will have lasting CWT improvements.

Rank	#	Agency	Project Description	Cost	Fund?
9	8	ADFG	U.S. CWTIT Co-Chair: Partial Funding	$14,820	YES

1. This ADMINISTRATIVE project pays for the U.S. Co-Chair time spent above and beyond that estimated to be spent on average by the other 6 U.S. CWTIT members.
2. Will maintain the ability of the Co-Chair to produce the products of the CWTIT, including production of the annual timeline/work plan, the annual RFP, organizing the

annual workshop, the annual progress report to the PSC each January, development of the draft ranks/recommendations and exchange with Canada, the annual bilateral recommendations document to the PSC each February, and working with the PIs and NOAA on all aspects of producing proposals and obtaining grants through NOAA.

3. Other funding or personnel will need to accomplish these tasks, which are part of the 2009 PST Agreement.

Overall: The CWTIT process was added to the 2009 PST Agreement without any funding to administer it. All of the CWTIT members are on other PSC technical committees; primary administration of the program falls back to the Co-Chair.

Rank	#	Agency	Project Description	Cost	Fund?
10	16	ADFG	Chilkat River Chinook CWT (fall tagging)	$86,801	YES

1. Chilkat INDICATOR STOCK—wild stock capture and tagging of juveniles in fall of 2013 will continue the time series of CWT statistics for this natural stock. This stock is used by the CTC for both an exploitation rate indicator stock and an escapement indicator. It was proposed as a PSC Chinook Model Stock by ADFG in 1998 and the data base has been built by ADFG for that purpose. It is awaiting inclusion as a model stock when the CTC's model improvement workgroup has completed model work to include it as such.
2. To have a Northern SEAK Inside (NSI) exploitation rate indicator stock now and, in the future, a NSI Indicator Model Stock for SEAK.
3. CWT geographic coverage GAP for NSI (Chilkat) stocks in SEAK.

Overall: This project has met tagging goals each year it has been run, including 2010 and 2011 with CWTIT funding. This project was not funded by CWTIT in 2012 as it was below the cut line. Future funding is required to continue to tag this stock; the recovery of tags from adults in ocean, terminal and the escapement is funded by separate agency funding.

Rank	#	Agency	Project Description	Cost	Fund?
11	18	ADFG	Stikine River Chinook Smolt CWT	$134,562	YES

1. This INDICATOR STOCK project funds efforts to capture and CWT wild smolt from the Stikine River stock, with a tagging goal of > 30,000 smolt/year with combined U.S. and Canadian funding. This is a jointly managed transboundary river stock and is an escapement indicator stock for the CTC/PSC.
2. This project provides the ability to jointly manage the terminal run of Stikine River Chinook by providing estimates of harvest, exploitation and total adult and smolt production.
3. Without it, we won't have the data for run reconstruction and harvest sharing, making management of these fisheries difficult.

Notes: This project has been successful as CWT tagging goals have been exceeded over the past 4 years. Funding for tag recovery in marine fisheries, in Canadian fisheries, and in the escapement are in place and funded with other funding sources.

Rank	#	Agency	Project Description	Cost	Fund?
12	2	ODFW	Improvements to Oregon ocean coded wire tag sampling in Columbia River Management Area	$112,597	YES

1. This SAMPLING project funds the portion of the base sampling for the Columbia River mouth and ocean management area in Oregon for ocean troll and sport fisheries that was lost through the Anadromous Fish Act (AFA) 2 years ago. This project was funded in 2011 and 2012 using CWTIT as a stop-gap measure. Note that about 50% of this project represents CWT improvements by continuing full electronic sampling, which began in 2011.
2. To conduct basic sampling in these fisheries and implement full electronic sampling.
3. The sampling rate in these fisheries will drop and estimates based on data from these fisheries will be less precise.

Overall: This project covers half or more of the base funding for ODFW lost through the AFA. The Chinook sampling rates in the troll fishery have averaged 38% for 2006-2012 and 46% in the sport fishery. This is a well established and well run project. This project will require future funding.

Rank	#	Agency	Project Description	Cost	Fund?
13	9	Makah Tribe	Staff Support and Equipment for Coded-Wire Tag Lab	$46,459	YES

1. This EQUIPMENT and SAMPLING project pays for equipment upgrades in the Makah Tribe CWT Lab, including improvements to the electronic reading station, a corer, some sampling costs for the Makah Tribe fisheries, and a T-Wand detector.
2. The harvests in the Makah tribal fisheries are of the magnitude to warrant the equipment upgrades and sampling time. This is a cost-effective project and will increase sampling rates, sampling efficiency, and the timeliness and accuracy of CWT data reporting from the Makah fisheries.
3. Sampling rates will be lower, CWT data will be reported less timely and likely not in time for the PFMC process.

Overall: The equipment portion of this project will provide lasting benefits to the CWT program. Future funding is required for the sampling portion of this proposal

Rank	#	Agency	Project Description	Cost	Fund?
14	15	Lummi Tribe	Lummi CWT Equipment Acquisition	$12,607	YES

1. This EQUIPMENT project funds an electronic reading station with LCD screen and 2 NMT T-Wands for sampling Lummi Chinook by-catch. The Lummi catch of Chinook ranges from < 100 to about 6,000 fish.
2. Sampling will be improved with use of the T-Wands (accuracy) and reading of recovered CWTs will be more accurate, efficient and timely with the new reading station.
3. Data reporting will be less accurate and timely, and sampling of CWTs will be less accurate.

Overall: This equipment purchase will provide lasting benefits to the CWT program.

Rank	#	Agency	Project Description	Cost	Fund?
16	1	Stillaguamish Tribe	Stillaguamish Chinook CWT Processing Improvement Funds	$30,922	TBD

1. This EQUIPMENT and INDICATOR STOCK project seeks funds to buy 2 new electronic reading and dissection stations for the Stillaguamish tag lab and hatchery. Currently, equipment is borrowed and transferred between the lab and the hatchery. It also covers the cost of 35,000 CWTs to begin tagging the fall stock. An upgrade of the electronic database, for standardization and timeliness, is also proposed. The tagging proposed is in addition to the exploitation rate indicator for the Stillaguamish summer Chinook stock.
2. Extraction, reading, and reporting of CWTs from the spawning grounds and terminal fishery would be more efficient and the Stillaguamish lab would have ownership of the equipment.
3. The Stillaguamish will still have to borrow equipment and timeliness of reporting is not improved.

Overall: The equipment purchase would have lasting benefits to the CWT program.

Rank	#	Agency	Project Description	Cost	Fund?
17	12	Lummi Tribe	Lummi Harvest By-Catch Sampling	$39,221	Below cut

1. This SAMPLING project proposes to fund expanded sampling Lummi fisheries for one biologist and 3 technicians and travel costs, in mixed stock fisheries in areas 7 and 7A (WA state). Harvest ranges from < 100 to 6,800.
2. Sampling of these fisheries would increase. Existing rates by WDFW and the Lummi Tribe are 15% to 70%.
3. Sampling rates will be acceptable and likely be near or above 20%.

Overall: Stock composition in these boundary area fisheries is important for ESA considerations (both Puget Sound Chinook and Southern Resident Killer Whale). However, by-catch in this fishery is quite small, ranging from 100 to 6,800 Chinook in recent years so the number of CWT recoveries is anticipated to be small.

Rank	#	Agency	Project Description	Cost	Fund?
18	14	WDFW	Washington Regulation Database	$125,363	NO

1. This DATABASE project provides funding to create a better regulations database for Washington state fisheries. This project would focus on the sport fishery regulations, as a start to the process.
2. Analysts have difficulty in determining regulations for WA state fisheries, particularly where Mark-Selective (MS) and non MS fisheries occur in the same area during a fishing season.
3. Access to WA state fishery regulations will remain cumbersome.

Overall: This project would, if designed correctly, provide access to analysts to incorporate regulations into analysis of CWT data and have long-lasting effects. It needs to be coordinated with the PSC technical committees and RMIS. The USCWTIT determined that without these capabilities the design was incomplete and the price tag too high for the information to be obtained.

Rank	#	Agency	Project Description	Cost	Fund?
19	13	WDFW	Juvenile Fish Counting Systems for Enumerating Releases of Mass Marked Hatchery Releases	$177,399	NO

1. This EQUIPMENT project proposes to fund auto fish counters in 12 of 22 auto marking trailers.
2. More precise estimates of total marked release for mass marking.
3. Some escapement CWT expansions won't be accurate.

Overall: This application is primarily for enumerating release of mass marked fish. The ERA analysis by the CTC is done only on Chinook with CWTs. The US CWTIT does not recommend funding this project.

Appendix 1. Details of proposed projects and funding levels for the CWT Improvement Program in 2013, per USCWTIT recommendations January 31, 2013.

Rank	Project No.	Project Category	TR25 Issue	Project Title	Region / Area	Agency/ Contact	Cost this FY	Project Description	Comments
1	US-10	CWT Equipment Upgrade	12, 13	CWT Field Eq. Replacement: Handheld Wand Detectors (85)	WA	WDFW/ John Kerwin	$248,543	Buys 85 new NMT Handheld Wands with trade-in of 85.	Increases accuracy of detecting CWTs, sampling efficiency, ease of sampling and handling Chinook.
2	US-5	Mixed-stock Sampling	7, 8, 12	Sampling Washington Ocean Salmon Fisheries	WA Coast	WDFW/ Doug Milward	$354,492	Pays about 50% of program to maintain catch sampling rates for ocean troll & sport.	Replaces sampling lost from Anadromous Fish Act. Sampling rates have been >40%.
3	US-11	Mixed-stock Sampling	7, 8	SEAK Marine Sport Catch Sampling	SEAK	ADFG/ Mike Jaenicke	$57,367	Increase catch sampling rates for marine sport.	Rates for SEAK sport have been <20% overall and <15% in some major ports.
4	US-17	Indicator Stock Tagging – without representation	1,3, 4, 6	Mid-Oregon Coast CWT Recovery, and Escapement of Elk River Fall Chinook	ORC	ODFW/ Shelly Miller	$125,195	CWT indicator stock for the mid-Oregon Coast aggregate	Creel survey FW sport, hatchery & esc. CWTs, survey esc. CWT & clip 325,000 presmolts.
5	US-6	CWT Lab Equipment Upgrade	13	ADFG MTA Lab CWT Reading Station Upgrades	SEAK	ADFG/ Dion Oxman	$29,304	Replace CWT reading stations with LCD displays in CWT Lab.	Improves efficiency, accuracy and data reporting of CWTs in SEAK.
6	US-3	Mixed-stock Sampling	4, 7, 13	SEAK Commercial Port Sampling "No Tags"	SEAK	ADFG/ Anne Reynolds	$58,164	Pays for sampling costs associated with about 50% No-Tag rate in commercial fisheries.	Saves about $70,000/year above project cost by not shipping heads with no tags. Increases efficiency of sampling, shipping, reporting and CWT Lab processing.
7	US-15	CWT Equipment Upgrade	12, 13	Replace Outdated CWT Handheld Wand Detectors (30)	OR	ODFW/ Ken Johnson	$101,063	Buys 30 new NMT Handheld Wands with trade-in of 30.	Increases accuracy of detecting CWTs, sampling efficiency and ease of sampling and handling Chinook.
8	US-7	Database Reporting System and Field Data Equipment Upgrade	13, 14, 17, 18	CWT Database Reports, Training and Data Logger Acquisition	OR	ODFW/ Mark Engleking	$99,653	Funds data loggers for 10 hatcheries to electronically upload release & recovery CWT data into new ODFW system.	Replaces archaic paper forms, trains hatchery staff for new equipment & uploading. Documents all aspects of new ODFW CWT processes & systems.
9	US-8	CWTIT Administration	19	U.S. CWTIT Co-Chair Partial	SEAK, S.U.S.	Pacific Salmon Commission /	$14,820	Funds time spent producing U.S.	Products include annual work plan, progress reports,

				Funding		Ken Medlock		CWTIT projects above CWTIT member.	annual RFP, annual CWTIT workshop, recommendations documents, assistance.
10	US-16	Indicator Stock Tagging – without hatchery representation	1, 2	Chilkat River Chinook CWT	Northern SEAK	ADFG/ Randy Bachman	$86,801	CWT wild Chinook juveniles for this ERA and escapement indicator stock, and proposed model stock.	Tagging goal has been met in past, tagging rate is about 9% of wild population per brood. Was funded in 2010 and 2011, not 2012.
11	US-18	Indicator Stock Tagging – without hatchery representation	1, 2	Stikine River Chinook Smolt CWT	TBR	ADFG/ Phil Richards	$121,883	CWT wild smolt in spring 2014cooperatively with Canada for TBR stock.	Tagging goal is a minimum of 30,000 yearling wild smolt; goal exceeded last 4 years. Produces run reconstruction and production data for joint management of relatively large stock.
12	US-2	Mixed-stock Sampling	7, 8, 12	Ocean Sampling North of Cape Falcon	N Or Coast	ODFW/ Eric Schindler	$100,101	Maintain catch sampling for Columbia River Management Area, for ocean troll & sport.	Replaces sampling lost from Anadromous Fish Act (about 50% of proposal) and allows full electronic sampling, which started in 2011.
13	US-9	Sampling Mixed-Stock Fisheries & CWT Lab Equipment	7, 10, 13	Staff Support & Equipment for CWT Lab	WACO	Makah Tribe/ Hap Leon	$46,459	Provides and additional sampler for summer season. Lab eq: reading station, ward detector, corer.	Improves fishery sampling rates and timeliness, accuracy and data reporting in Makah Tribe CWT Lab.
14	US-15	CWT Lab & Sampling Equipment	7, 13	Lummi CWT Equipment Acquisition	PS	Lummi Tribe/ Nicholas Kunkel	$12,607	Funds purchase of: 2 NMT T-Wands and Electronic microscope/CWT reading station.	Improves sampling and CWT reading efficiency, accuracy and data reporting in Lummi Tribe CWT Lab.
15				Costs of CWTIT Workshops		CWTIT/ Scott McPherson	$13,200	Funds meeting costs for CWTIT members to attend annual CWTIT workshops.	Discussions pending with U.S. Section.
16	US-1	Indicator Stock Sampling & Tagging	2, 5, 13	Stillaguamish Chinook CWT Processing Improvement Funds	PS	Stillaguamish Tribe/ Jason Griffith	$30,922 [1]	Funds upgrade of CWT database, buys 2 new CWT dissection and reading stations and CWTs for tagging.	Improves the timelines and accuracy of CWT reporting, CWT processing in lab, and provides 35K CWTs for tagging this fall ERA indicator stock.
				U.S. Total			$1,500,000		

[1] A portion of this project will be funded, pending funding amounts above it.

Appendix E

NMT T-Wand Testing Summary Results

T-Wand Detector Testing – Summary for Coded Wire Tag Improvement Team

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NMT began field testing the T-Wand in the fall of 2010, and we continued testing through 2011. In addition to the hatchery sampling described in the table below, we have done extensive laboratory testing, sampled at ports, during stream sampling, at processing plants, and at traps, used the wands as QC devices during tagging, and visited numerous other sampling sites with the T-Wand. The T-Wand was not compared with other detectors during all tests. We collected comments from experienced and inexperienced samplers, and have made extensive modifications to the wand. Based on this work, we conclude the following about the T-Wand:

- The T-Wand is highly accurate when used properly. As with the blue wand, and any other equipment, training is important. We noticed that without instruction, samplers do not necessarily use it in a way that optimizes tag detection.
- The T-Wand has a significantly higher detection range than the blue wand, and this also makes the T-Wand more sensitive to interference from other sources of magnetism. Care must be taken to be aware of these and to arrange sampling areas to minimize interference. There are going to be locations where it is not possible to eliminate interference, but these locations are few. In general, moving a foot or two away from a source of interference is enough to eliminate the problem. It is important to remove watches and to be aware of rain gear snaps and zippers.
- The T-Wand was found to be easier and more comfortable to use than the blue wand by nearly every experienced sampler.
- Sampling live fish is faster and more accurate with the T-Wand compared to the blue wand. Mouth wanding is not really feasible in live fish, and is eliminated with the T-Wand. Sampling live fish works best if the fish is held by one person, and wanded by another.
- The T-Wand is fully waterproof. It has been submerged for extensive periods in fresh and saltwater with no water intrusion. As an additional precaution, the interior electronics are fully coated.
- The T-Wand floats, but it is not suitable for use below 10 feet deep.
- The T-Wand can withstand extensive exposure to a wide range of temperatures.
- The T-Wand is shielded from interference from radio waves.
- The T-Wand case and electronics are better able to withstand impacts than the blue wand.

Hatchery sampling used to test the T-Wand. Sampling is primarily by NMT staff, but with frequent participation by agency staff. This table includes quantitative sampling only. Other hatchery sampling was done to evaluate sampling methods, to expose experienced samplers to the T-wands in order to solicit feedback, and to test aspects of the T-Wand other than tag detection.

Date	Location	Species	Number Sampled	Resampled?	Results and comments
10/26/11	Chilliwack River Hatchery, Chilliwack, BC	Chinook	Hundreds	Sampled first with T-Wand, then with the R9500.	Results were the same between the R9500 and the T-Wand.
1/5/11	Skookumchuck Hatchery, Tenino, WA	Coho	100	No	
1/4/11	Bingham Creek Hatchery, Matlock, WA	Coho	200	Sampled first with T-Wand, then with the R9500.	No fish had tags, and this was correctly verified with the R9500.
12/28/10	Bingham Creek Hatchery, Matlock, WA	Coho	200	Sampled first with T-Wand, then with the R9500.	Found one tag with the T-Wand, this was verified by the R9500.
11/2/10	Little White Salmon NFH, Cook, WA	Chinook	850 males 650 females	Sampled first with T-Wand, then with the R9500.	About 20 to 25% were tagged. Many males were well over 100 cm, and most of the females were over 80 cm. Missed one tag with T-Wand in a very large male (108 cm) because it was not wanded on the sides of the head. With even the largest females, wanding along the top of the head was fine, but males larger than about 90 cm have to be wanded on the sides and top of the head. Worked within 15 feet of an electro-anesthesia unit, but it did not cause interference.
11/1/10	Forks Creek Hatchery, Shelton, WA	Coho		Fish were sorted first with R9500, then with T-Wand.	T-Wands confirmed the R9500 results.
10/28/10	George Adams Hatchery, Shelton, WA	Coho	400	Sampled first with T-Wand, then with the R9500.	Results were the same between the R9500 and the T-Wand. Used only a quick swipe (up and down) across the top of the head.
10/27/10	Bingham Creek Hatchery, Matlock, WA	Coho	Hundreds	Sampled first with T-Wand, then with R9500.	We did not miss any tags, but did have a couple of false positives. These fish were large for coho, but all of the tags were easily found with two passes (up/down) on the back of the head (no side sampling). We find that it is important to hold the fish by the gills rather than the tail. When the

					fish are held by the tail, they tend to swing back during wanding and it is hard to get good contact between the fish and the wand.
10/26/10	Lake Quinault Hatchery, Quinault, WA	Chinook	49 females 25 males	First with blue wand (including mouth wanding), then with T-Wand. (Ron Olson, NWIFC, did all of the wanding)	All fish were very large, at least 80 cm (the threshold at which the samplers have to wand in the mouth). 63 of the 74 fish were tagged. The blue wand detected 62 tags wanding outside, and 63 wanding inside the mouth. The new wand detected all 63. With these large fish, we determined that you must wand across the back of the head, and on each side to ensure the tags are detected, particularly in the males. Two tags were not detected on the first swipe across the back of the head, but were easily found on the side swipes (meaning that the wand was across the eyes). The T-wand easily detected the one tag that the blue wand could find only by mouth wanding. (We resampled this fish with the blue wand to verify that this result was correct). This was a big male. We had a single false positive with the T-Wand, likely interference from raingear. Resampling showed no tag.
10/25/10	Forks Creek Hatchery, Shelton, WA	Chinook	6 totes (about 600-800)	Sampled first with T-Wand, then with R9500.	Results were the same between the R9500 and the T-Wand.
10/20/10	George Adams Hatchery, Matlock, WA	Coho	60 males and 60 females	Sampled first with T-Wand, then with R9500.	One tag was missed when the T-Wand wasn't in good contact with the fish. The tag was detected easily when resampled, otherwise all other results were the same between the T-Wand and the R9500.

10/14/10	Clear Creek Hatchery, Fort Lewis, WA	Chinook	641	Sampled first with T-Wand, then with R9500. Ron Olson (NWIFC) participated in sampling.	We missed 7 tags that were detected by the R9500. When these were resampled with the T-Wand, the tags were easily found. At least two of those fish were missed when one sampler forgot to turn on the sound, and two were missed by one sampler who was moving the wand much slower than the other samplers. All samplers agreed that one quick up/down motion across the back of the head when the fish is held by the gills should be the recommended training. Very large fish should also be wanded on each side of the head.
10/13/10	Forks Creek Hatchery, Shelton, WA	Chinook	575	Sampled first with T-Wand, then with R9500.	We found 73 tags - results were the same between the R9500 and the T-Wand.
10/6/10	Soos Creek Hatchery, Auburn, WA	Chinook	300	The fish had already been sampled with R9500.	Results were the same between the R9500 and the T-Wand. Fish ranged from 18" to fish that were too large to fit in the R9500.
10/6/10	Soos Creek Hatchery, Auburn, WA	Coho	30	The fish had already been sampled with R9500.	These were relatively small fish, and required minimal effort to detect tags. Results were the same between the R9500 and the T-Wand.
10/4/10	Soos Creek Hatchery, Auburn, WA	Chinook	443	Sampled first with T-Wand, then with R9500.	Fish ranged in size from ~18" to fish that were too big to fit through the R9500. We recovered 77 CWT - results were the same between the R9500 and the T-Wand.
10/4/10	Soos Creek Hatchery, Auburn, WA	Coho	158	Sampled first by the hatchery crew with the blue wand, and then we used the T-wand to resample fish in which tags hadn't been detected. The fish were then put through the R9500.	These were relatively small fish, and samplers used the absolute minimal wanding possible – one short swipe over the top of their heads. Recovered three tags with both the T-wand and the R9500.