

**Upper Sacramento River Monitoring Project Work Team
2013 Annual Meeting
March 26, 2013**

Hosted by US Fish and Wildlife Service, Red Bluff Fish and Wildlife Office
Moderated by Tom Kisanuki, Bureau of Reclamation, Shasta Dam

List of Participants (italicized names/blue font represents formal presenters)

Alston, Naseem	NMFS-Sacramento (National Marine Fisheries Service)
Anderson, Craig	FWS-BDO (Bay-Delta Office)
Begun, Bryan	NMFS
Bishop, Johnathon	NMFS-Santa Rosa
Blanco, Cesar	FWS-Region 8
<i>Bratcher, Tricia</i>	<i>CDFW-Redding (California Department of Fish and Wildlife)</i>
Brown, Kurt	FWS-Coleman NFHC (National Fish Hatchery Complex)
Brown, Matt	FWS-RBFWO (Red Bluff Fish and Wildlife Office)
Chase, Robert	BOR-Keswick (Bureau of Reclamation)
Coulon, Diane	CDFW
<i>Cranford, Amanda</i>	<i>NMFS-Sacramento</i>
Diridoni, Gary	BLM-Redding (Bureau of Land Management)
<i>Dolan, Jane</i>	<i>SRCAF (Sacramento River Conservation Area Forum)</i>
Earley, James	FWS-RBFWO
Earley, Jim	FWS-RBFWO
Earley, Laurie	FWS-RBFWO
Edwards, George	CDFW
Foott, Scott	
Fortier, Ryan	PSMFC (Pacific States Marine Fisheries Commission)
Frisk, Dan	FWS-SNWRRC (Sacramento National Wildlife Refuge Complex)
Gard, Mark	FWS-SFWO (Sacramento Fish and Wildlife Office)
Gorman, Mike	NSR, Inc. (North State Resources)
Hannon, John	BOR-BDO
Hayes, Sean	NMFS-Santa Cruz
Ingram, Jack	FWS-Lodi
<i>Irwin, Robert</i>	<i>SRCAF</i>
Israel, Josh	BOR-BDO
Jensen, Andrew	CDFW-Redding
Johnson, Joseph	CDFW
<i>Johnson, Matt</i>	<i>CDFW-Redding</i>
<i>Killam, Doug</i>	<i>CDFW-Red Bluff</i>
Kisanuki, Tom	BOR-Shasta Dam
Lester, Aric	DWR-Red Bluff (Department of Water Resources)
Lyon, James	CDFW
<i>Marine, Keith</i>	<i>NSR, Inc.</i>
Mayes, Chris	USFS-LNF (U.S. Forest Service, Lassen National Forest)
McKibbin, Chris	CDFW
McReynolds, Scott	DWR
Miller, Tamara	Deer Cr WC (Watershed Conservancy)
Niemela, Kevin	FWS-RBFWO
Null, Bob	FWS-RBFWO

Olsen, Darin	PSMFC
Olson, Brenda	FWS-RBFWO
Oppenheim, Bruce	NMFS-Sacramento
Parker-Hamelberg, Tricia	FWS-RBFWO
<i>Poytress, Bill</i>	<i>FWS-RBFWO</i>
Purdy, Colin	CDFW
Silvereia, Joe	FWS-SNWRC
Smith, Catfish	FWS-RBFWO
Swart, Brycen	NMFS
Vincik, Robert	CDFW
<i>Woodbury, David</i>	<i>NMFS-Santa Rosa</i>

Other Abbreviations:

AFRP	Anadromous Fish Restoration Program
BDCP	Bay Delta Conservation Plan
CFM	Constant fractional marking
cfs	cubic feet per second
CNFHC	Coleman National Fish Hatchery Complex
DIDSON	Dual-frequency identification sonar
ESA	Endangered Species Act
FCS	Fall Chinook salmon
FRH	Feather River Hatchery
GS	Green sturgeon
LFCS	Late-fall Chinook salmon
LSNFH	Livingston Stone National Fish Hatchery
MS-222	Tricaine-methane-sulfonate
PIT	Passive integrated transponder
PSMFC	Pacific States Marine Fisheries Commission
RBDD	Red Bluff Diversion Dam
SCS	Spring Chinook salmon
TSC	Denver Technical Service Center
SH	Steelhead
SNWRC	Sacramento National Wildlife Refuge Complex
WCS	Winter-run Chinook salmon

Welcome to FWS-RBFWO Project Leader *Jim Smith* welcomed the group - The USRMPWT was formed in the mid-1990's to coordinate fishery monitoring work in the Upper Sacramento River, and to avoid duplication. The team meets on an annual basis, and the local agencies take turns coordinating the meeting.

Individual Updates

Dan Frisk – Refuge Manager, FWS, Sacramento National Wildlife Refuge Complex – Dan is new to the group, and is here to learn about fish issues of the Sacramento River.

Joe Silveira – Wildlife Biologist, USFWS– Sacramento River National Wildlife Refuge) provided an overview of the Bank Swallow (BANS) breeding population on the middle Sacramento River (Red Bluff to Colusa) and an update on the Sacramento River NWR Restoration and Research. Bank Swallow (BANS) breeding population on the middle Sacramento River: Most of the State's BANS population occurs on the Sacramento River below the Keswick Dam and the Feather

River below the Afterbay Outlet. However, the majority of birds and their habitat occur along 100 miles of the Sacramento River between Red Bluff (RM 243) and Colusa (RM 143) where well over 85% of the States BANS population occurs. The population has experienced a drastic 34% decline from 2009 to 2010, but increased 9.8 percent in 2011, and by 28.6% in 2012. Yet, the three-year average shows steep declines for 2010, 2011 and 2012 (13.5, 13.3 and 3.1 percent, respectively). Rocked or rip-rapped bank is the culprit— over 48% of the eroding banks have been rocked between Red Bluff and Colusa. Recent examples of these are River Mile 182 (DWR project) and River Mile 233.5 (private staged rock project). The 2011 survey made observation of bank collapse at colony sites, some with bank swallows perched in trees immediately adjacent to freshly “calved” banks. The long, late wet season, coupled with Shasta Reservoir near capacity may have resulted in combination of flow releases and tributary runoff, which caused bank erosion during nesting activities. The Bank Swallow Technical Advisory Committee continues to work on the draft conservation strategy for the Bank Swallow on the Sacramento River. They also continue to coordinate / advise ACE and DWR bank protection programs, population and habitat monitoring and research, and potentials for both short and long term habitat conservation.

Sacramento River NWR Restoration and Research: Joe summarized research and monitoring activities at several units of the Sacramento River National Wildlife Refuge (NWR). The Army Corp of Engineers has funded the Refuge / CSU Chico to QA / QC pre-GIS Sacramento River Bank Swallow survey legacy data collected by the California Department of Fish & Game from 1986 through 1998. This data will complement the 1999 through 2008 data error-proofed / data-based (complete with metadata) by Dawn Garcia and Colleen Hatfield (CSU Chico). This quality data will be available for CDFG programs (BIOS; NDDDB). Other investigations includes: large mammalian carnivores (San Francisco State U); carbon sequestration in a chrono-sequence of restoration sites (Santa Clara U / CSU Chico); Western Yellow-billed Cuckoo Survey (PRBO Conservation Science); Western Yellow-billed Cuckoo prey availability (CSU Chico); western sycamore genetics / systematics (CSU Chico / TNC); Central Valley riparian land bird legacy sites resurvey (PRBO); and initiation of long-term monitoring (vegetation, birds, small mammals) at grazed and ungrazed refuge management units (TNC / Refuge / PRBO / UC Santa Cruz), two native wildflower research projects (one for restoration implementation and one for vegetation/thatch management), and Valley elderberry longhorn beetle pheromone research.

Joe summarized restoration activities at several units of the Sacramento River NWR. River Partners began restoring 105 acres of riparian floodplain vegetation / habitats at the La BARRANCA Unit. Funding is provided by the Anadromous Fisheries Restoration Program (2009 orchard removal) and California Wildlife Conservation Board (2011 re-vegetation). The Nature Conservancy began restoring 280 acres grasslands, elderberry savanna/oak woodland, mixed riparian forest and cottonwood riparian forest on the Cordova Unit. Vegetation will be planted in a way that will maintain flood flows and will protect the adjacent bridge and levee. TNC has also received funding from the WCB to restore 145 acres of floodplain habitats at the La BARRANCA Unit. Restoration activities such as orchard removal will begin this spring. The USFWS is working with River Partners and the Princeton-Cordora-Glenn and Provident Irrigation Districts (PCGID-PID on project that includes 500 acres of floodplain restoration at the Llano Seco Riparian Sanctuary that will act as a non-structural flow split for the Sacramento River and Butte Basin. This project will also be designed to help sustain hydraulic conditions at the PCGID-PID

Pumping Plant directly across the river at the northwestern end of the project. This involves both bank rock to maintain flows to the pump intakes and riprap removal upstream, which was installed for the flow split, but which is failing and non-functional. This project is in the environmental compliance phase. The USFWS is also in the environmental compliance phase of Chico M&T Ranch / Llano Seco Rancho Pumping Plant protection project)- preferred alternatives selected (EIS/EIR; BA/EFHA).

Matt Brown – Fish Biologist, FWS-Red Bluff – Matt is working on the restoration and monitoring of Clear Creek and Battle Creek. For Battle Cr, a record run of spring-run was observed in 2012, based on 18 years of monitoring; also a record number of redds and carcasses were counted. Matt notes that upstream of Wildcat Dam, a high concentration of adult Chinook salmon were seen. Also, the highest proportion of redds, and absolute numbers of fish were observed there. The first adult spring-run Chinook of 2013 came thru last week in Battle Cr.

Juvenile catch was also relatively high, compared to other years of monitoring. Battle Creek had four instances of high flows in the fall, including a 10K cfs event, we haven't seen flows like that in 16 years.

Clear Creek – The average number of spring-run Chinook was 68 last year, the typical average is about 70 SCS. Water temperatures in the last three years have exceeded the established criteria for Chinook spawning. High flows in Clear Cr, may be decreasing the counts observed in the Rotary Screw Trapping counts. FWS has missed some days off sampling due to high flows. We will have the first scheduled pulse flow event in 2 weeks – 800 cfs, but the estimated flow at the confluence with the Sacramento River will be about 1K cfs. FWS, will be monitoring fish movement with ARIS (similar to DIDSON) sonar, during the flow event. The CDFW will operate the video during fall Chinook passage and the FWS will operate the other 2/3rds of the year for spring Chinook, steelhead, and late-fall Chinook. Also, for last year, steelhead counts in Clear Cr were 50% higher than the 10 year average.

Gary Diridoni – BLM, Redding. Last year, BLM acquired the Kramer parcel from the Paynes Creek parcel. There are no longer any private inholdings now, as 1,500 ft of river bank has been added to BLM's ownership. BLM is also attempting to purchase the Shea property parcel along the Clear Creek stream. BLM has submitted a funding request for re-doing their Resource Management Plan. FWS/BOR was identified as partners, along with NMFWS, CDFW, etc. The Battle Creek area is not an acquisition area of interest for BLM.

Aric Lester – DWR, Red Bluff. Aric's update was on redd dewatering, the site assessment was to sustain flows in the fall to prevent redd dewatering, trying to quantify benefits on a pilot scale project the past few years. This study identified susceptible areas of the Sacramento River for dewatering as river flows are decreased. DWR mapped the areas of red dewatering, using GPS, and was able to do assessment of the number of redds dewatered at different river flow levels.

DWR will work with UCD on green sturgeon (GS) surveys, and this will be last year of funding through the USGS/ACOE funding sources. No future funding source has been identified.

Joe Johnson - CDFW - Monitoring at Tisdale. ESA take levels were exceeded at Tisdale and therefore had to cease sampling at two sites. CDFW will need to adjust take issues with NMFS. The Tisdale final report was submitted this morning – will allow the DOS group to evaluate whether to continue sampling at Tisdale or move it up to Moulton for next year. Since there is

potential of UCD work ending in July, Joe is trying to get another partnered project with UCD to do the GS juvenile work. This project work will likely be delayed until next year.

Kurt Brown – CNFHC. Kurt provided updates on the three species raised at CNFHC. Kurt noted that his data is preliminary and subject to revision. Fall-run Chinook – 85,000 came thru hatchery, 43K were males, 19% Jack rate; and they had 15 million eyed eggs. The CWT of juvenile and the CFM is in progress, with the 1st release around April 10-11. For steelhead (SH), 38 were passed upstream of the barrier weir. For the brood year 2013 SH, 2,600 adult (males) and 2,300 adult (female) naturals were passed upstream. Re-conditioned kelts are to be released mid-April. PIT – antennae array is in place at the wasteway to count volitional releases of SH. Fish are held for the required 21 day quarantine due to use of MS-222.

Robert Chase – BOR. The last Red Bluff Pumping report is under preparation. Last was June 21st; total 21 Fall, 1 late fall, 2 Pacific lamprey. Majority of species was prickly sculpin and Sacramento sucker. GS research – finished up with UCD 2012 done. 1 year extension on grant, and UCD is compiling the data.

Research Pumping Plant facility – BOR is currently decommissioning the infrastructure. Working on contracting.

Jim Smith – FWS-RBFWO. The hydraulic monitoring of the fish screens at the new Red Bluff Pumping Plant is on-going. Biological monitoring is scheduled to begin next year. No study plans currently exist, but the planning will be arranged by the FWS and BOR. TSC is currently doing hydraulic monitoring. CVPIA – fish passage act – co-Lead, Lead, currently Don Reck is the lead, Jim is co-lead; how the monitoring is to be done is being discussed.

Bill Poytress - Egg & larval green sturgeon monitoring. Attempted to sample eggs at the Cow Cr confluence with the Sacramento River in 2012. The census did not indicate that the area was being used by sturgeon in that year. FWS reconfirmed spawning sites near Bend, Jelly's Ferry, and reconfirmed the spawning hole above the GCID ox-bow. Larval sampling captured zero sturgeon up at Bonnyview Bridge and Jelly's Ferry, Sampling may have started too late, as 2012 larval migration occurred in May and June compared to June and July based on what we know from 15 yrs of data. Oct-Dec looked at juvenile out-migration, but did not detect any out-migration. Will do more work with AFRP funding for next year.

RST 2012 operations – BY 2011 Fall Chinook run numbers were the lowest they've seen since monitoring work began. BY 2012 much higher abundance indicated as over 20 million estimated this year compared to 8 million for last year.

Jim Smith – Temperature management actions/activities for the mainstem Sacramento River SRTTG – regular talks about temperature management in the river below Keswick Dam, and have been doing this since the team began meeting in 1998. BOR runs a temperature model. Looked like we can maintain 56 degrees down to the Balls Ferry compliance point, but has been a record dry January and February, and the month of March doesn't look too good. Lot of the outcomes will depend on temperatures we observe this summer.

Tom Kisanuki – Has been involved with planning and contracting activities for the CVPIA Clear Creek restoration program. Has submitted a purchase requisition for this year's gravel project at Keswick (9,000 tons base, and an additional 5,000 ton option, contingent upon funding). Also have been working on a fish feed contract for Trinity Fish Hatchery, as well as purchasing a replacement tractor for the hatchery.

Tamra Miller – Tamra is new to the Deer Creek Conservancy and the USRMPWT.

Doug Killam - Central Valley angler survey – 1.5 million angler hours of effort for the Central Valley wide area has been the average, with an estimated salmon harvest of 83,100+ = 6 salmon per 100 anglers. Clip rate of 29.3%, and a 68.0 cm Jack cutoff length. Last season was shortened to avoid contact with winter run Chinook. July 16 to December 16 will be the angling season for this year

Matt Johnson – has been monitoring spring run Chinook in Mill Creek; will install a DIDSON this week, to monitor during turbid water events. For this year, the Department has been operating a DIDSON in Deer Creek since February 19 for escapement/run timing, at the RM 2.5 location.

Chris Mayes, USFS Chester – USFS has federal lands surrounding Deer and Mill creeks; they are doing habitat monitoring for spring run Chinook. Recent wildfire areas are being monitored to determine their sediment contribution. They have seen sediment in stream flow pulses immediately after wildfires, but these steams tend to return back to cleaner conditions after couple of years post-fire.

Chris McKibbin, USFS, Chester - WCS juveniles – month late for them, exceeded their take limit for WCS, approaching their SCS take; getting close; traps out of water. Will adjust take,

Mark Gard – Mark and his crew have been working for two programs within the CVPIA, and starting this year, they have a new contract with CDFW Water Branch division. Mark's CVPIA report will be coming out this thurs on their website. For the Cottonwood Creek system, the main highlight of their work was seeing spring run in NF Cottonwood Creek, which would be the first confirmed sighting for this location. For their contract with CDFW, working on a instream flow study in Butte Creek. They are also planning and staging up for a telemetry study to apply acoustic tags into 10-20 fall run Chinook for this coming fall. Next spring, they desire to tag 100-200 spring run adult. This effort will also look at the Durham Mutual's dam, and its volcanic hard formation, which in the past has been a confirmed partial barrier for SCS. Also, Mark says NF Cottonwood Creek habitat is marginal due to temperatures in the 73 F range; however there is about one mile of habitat below the (?) falls, which is the uppermost barrier to salmonid migration. Doug Killam says Beegum Creek typically has better habitat than N.F. Cottonwood Creek for spawning/rearing. Worst case temperatures in Beegum Creek are about 73. For Cottonwood Creek, at flows about 8000 cfs, some fish were able to get past the Hammer Diversion dam. However, there have been no formal past surveys above dam, only anecdotal reports.

Ryan Fortier, PSMFC – The steelhead powerpoint has been finished, and comments have been received (?) this month. Independent review with IP going thru; document discussed in PWT for April, should be complete, done by end of June.

Dianne Coulon – The Tisdale trap has been fishing a few days a week, at 8 hr intervals, and doing some day/night fishing. So far 4 SCS, 1WCS, 1 4FCS have been captured, and they are experimenting to determine when fish are moving.

Colin Purdy - update on Tisdale and Fremont weirs. These two sites have been poised to put in a DIDSON. This has been a pretty dry season, with no sustained flood events to allow monitoring. This year, will look to start 2nd year of juvenile fall run barging Feather River fall

Chinook starting in the Varona/Elkhorn boat launch areas, downstream to the Golden Gate Bridge. Intent is to avoid sources of predation.

Robert Vincik – Update on the Tisdale Weir. Three adults were tagged with Floy tags, and 2 weeks later, these fish ended up at the Coleman NFHC.

Tricia Bratcher – Update on the CVPIA – AFRP; we fund projects in phases, initial phases are data collection, fish passage assessment to various projects. Deer, Mill, Cottonwood, Antelope, and Cow Cr. Antelope Cr had a low-water crossing barrier that was removed and replaced with a bridge. Snorkel surveys conducted by CDFW annually, and Mark Gard has been collecting channel morphological information.

Amanda Crawford – NMFS. This has been an interesting WCS year – few winter-run sized fish observed this year in RST operations. Genetic samples taken to verify if they are WCS, or whether this indicative of flaws in size-at-length criteria?

Dry Creek – saw WCS juveniles. American River RST's are running below Watt Avenue; are about 50% take level; and also doing genetic sampling. WCS fish are popping up where least expected.

Kevin Niemela – reported on couple of project; FWS is sampling all Chinook runs at Coleman NFHC; and LSNFH adult broodstock collections are on-going. FWS will continue sampling into July. Population estimates are obtained by operating a video wiew in lower Battle Creek; also do walking surveys to estimate proportion of clipped/non-clip fish. Conducted carcass surveys in Cottonwood Cr last two years, and downstream of Battle Creek confluence with the Sacramento River, downstream to Los Molinos. The purpose was to capitalize on CFM program to determine proportion of hatchery fish spawning in that area.

Fish not retained for broodstock at hatchery are released back into the Sacramento River, these fish receive white dart tags/double tagged. Originally captured at the trap at Keswick Dam. Some fish will get Vemco acoustic tagged, and their movements throughout the river will be tracked. Release announcements are made by RBFWO; about a week before they happen.

Jim Early – Works on Battle Cr RST, fish timing data and juvenile FCS timing. Generally found that run timing is being followed; upper trap focuses on SCS (CC and BC). High flows 10K flows, followed by a 8K cfs event. Still caught a lot of fall fish for mark and recapture trials. Pointed out that good spawning success was observed. Good news that fish were still being trapped after the high flow events.

No evidence of FCS getting upstream of the Barrier Weir during the high flow events, but Jim says we'll likely see the juveniles in the upper traps.

Gary Diridoni – provided update on the Bend Irrigation ditch; lampreys were entrained in the ditch, 2 age classes seen. The ditch is a part of Paynes Creek (?).

Bruce Oppenheim – Delta fish salvage facility; the salvage season started Oct 1. Overall, the loss of endangered species has been really low compared to previous years. This year, for WCS sized fish, cumulative is 614 fish; total unclipped SH (wild SH) was 276. For SCS estimates, used hatchery surrogates; so far under 1st concern level of half a percent. Still getting surrogate releases, still showing up. No BO triggered yet. Also saw first WCS hatchery fish observed on 3/25/12 at the state project; these were from the Caldwell Park release.

No green or white surgeon showed up at pumping facility this year, since October 1. Has been a low year for sturgeon. Sturgeon usually show up by now. Matt Brown asked about restrictions on pumping related to smelt. Bruce said export pumping has been reduced for Delta smelt requirements. This has caused a similar decrease in number of Chinook seen in the recovery facility. 1st action for SH this year, still going on - exports were curtailed for 5 days.

This year's flow ratio is 1:1.

Scott Foott – Reported that last year, during their wild fish survey, found high prevalence of *Ceratomyxa* collected from Knights Landing RST; also worked on the Feather River, 60% rate at the Knights Landing site. This year, trying to collect fish at Tisdale trap; Scott would like to get samples from Jim Johnson. This particular parasite displays high mortalities in the Klamath River.

John Hannon – working on feasibility of fish passage above Shasta Dam has part of the water operations RPA, and this project has been on-going for a few years. A contractor will be coming on board in a few months and will consist of a 18 month Statement of Work to do outreach coordination, work with landowners for access, and habitat assessment. They will pick a spot for initial worksite assessments, and will be a 3 year pilot study to get fish successfully upstream, etc. All of this needs to be worked out thru the contract, do NEPA, etc.

PRESENTATIONS:

Jane Dolan – Jane is the new Executive Director of the SRCAF. They have called themselves the “forum” for the past two years. They have been prominent in working on legislative matters during the 1980's and 1990's, as they became increasingly concerned about purchase of lands for habitat. The local counties/local governments felt economic impacts due to loss of revenues of land conversions. Senator Jim Nielsen introduced Senate Bill 1086, a 3 year life span bill that created a advisory council of 30 people that were charged with delivering a Upper Sacramento Management Plan. This plan is on SRCAF's website and still has an identification of an array of issues. A report the SB 1086 Upper Sacramento River Riparian and Fisheries Management Plan was delivered in 1989 to then Governor Deukmejian and to the State Secretary of Resources. SRCAF was incorporated as a non-profit NGO in 2002, and has a Board of Directors comprised of 15 people, whereby 7 counties appoint 2 persons per county. 11 members concerned that the forum was not doing enough to abolish the ESA. Landowner representatives did not leave the organization. Recently, several agencies were identified for to serve on the Board of Directors (e.g.) DWR, ACOE, etc.

The SRCAF tries to inform, advise, outreach, facilitate workshops, studies, website info, balance habitat/agric/community concerns. Three specific efforts: bring information to stakeholders, implement programmatic Safe Harbor, (note: they have website data) www.sacramentoriver.org/srcaf, facilitate/coordinate directed action projects and actions, and outreach to local government landowners. Investigate potential for a corridor management plan.

Rob Irwin – Presented on the SRCAF's GIS information from their website, such as shape file downloads, map viewer for data, and also has used California atlas geospatial clearinghouse. Working on Sacramento River library and have over 800 documents, maps, jpeg images.

Matt Brown asked about how this relates to SWIM; Rob says its parallel efforts/sharing data, says trying to make it work for both efforts, and trying to avoid overlap.

Tricia Bratcher – Is voluntarily presenting on behalf of several people requesting to present anonymously on a Sacramento River subject of both professional/personal interest for these people. The group has no intentions to insult people with past/current efforts/programs related to USRMPWT. Tricia points out that the original reason for the USRMPWT group, was (e.g.) a monitoring project for gravel; pingers were being tracked, but was moving upstream direction. Eventually, it was discovered that two different agencies were conducting studies using the pingers, for different purposes. This example points out the importance of people coordinating.

Tricia explained that many different groups, forums, Sacramento River watershed programs, CVPIA b2 interagency teams, b13 gravel program, SRRTG, oversight by NMFS of RPA's, recovery planning for listed species, AFRP, bank swallow, DWR flood planning group, IRWG, BDC plan, SLWRI, NODOS, etc are all working on the Sacramento River, addressing and sharing various issues with monitoring group, but is there something missing here? Despite all of these efforts, have we made great leaps ahead? Some folks feel something is missing, e.g. a larger decision making group? CCTWG success; regulatory mechanism contributed to their success. But we do not have a larger regulatory mechanism for either coordinating or managing the overall Sacramento River activities.

Tricia asked a question to all of us – do you feel the same? Who should be involved, (e.g.) in the identification of monitoring needs, is it to be driven by funding or driven by voluntary planning efforts? (e.g.) in the American River, they are using the focused planning SDM (Structured Decision Making) process – (e.g.) here in the Sacramento River system, are we integrated with the needs of the Trinity Basin? Tricia gave her e-mail address tbratcher@wildlife.ca.gov Tricia will be distributing a questionnaire form seeking your input, ideas, and/or comments - please respond to her, so that she may share the results with the USRMPWT.

Lunch Break 11:48 to 13:00

Matt Johnson – This was Matt's 1st year on his job, and he counted fish in Clear, Mill, Deer, and Antelope creeks. PSMFC crew, and other agencies such as FWS, USFS, were involved in this group survey effort. Doug Killam helped with the data analysis. Results: only one fish in Antelope Cr.; Deer Creek, 734; and both were from snorkel counts. Over 34 miles of stream were surveyed. A video/DIDSON was used in Mill Creek and 768 fish were counted. Antelope Cr, is close to Red Bluff, was the most troubled tributary in the Upper Sacramento River basin. Very recently, AFRP funded construction of a bridge crossing and was completed. This site was formerly a passage barrier during low flows to juveniles and adult salmonids.

There are other problems in the valley floor, overdevelopment, and diversions of water to agriculture. Juveniles are challenged in outmigrating and getting to the Sacramento River, (e.g.) unscreened diversions with no bypasses. It has been slow in planning for putting in bypasses in some screens.

SCS survey; for 2000 to 2012, the high was 102; and a low of 0 in 2009. Appears to be driven by rainfall, and influenced by health of the overall ESU. The population trends doesn't appear to follow cohort replacement. Snorkel survey performed in August; 34 miles of stream.

In Deer Creek, a snorkel count high was 2,759, with declines in 2007 through 2012. There is also a video station at Ward Dam. CDFW also operates a DIDSON during murky periods. March 15, 2013 – saw first spring Chinook salmon.

Mill Creek SCS run size is based on redd counts. Surveyors have hiked 44 miles of habitat, from near Highway 36 near Mineral, all the way down to the Tehama Wildlife Area's Black Rock area. From 1998 to 2012, the high count was 797, and the low was 110 in 2009. Last year (2012) the count was 271, using a one-pass redd survey.

Mill Cr FCS - the fish ladder works, but its not the best ladder around. Ward Dam video was used to count FCS, and downstream redd survey one pass used. 69% were natural, 31% were hatchery strays. These numbers were based upon expansions.

Deer Creek FCS – The Deer Cr irrigation dam (flashboard dam) is located at RM 12, outside of the town of Vina. Fall-run Chinook are significantly blocked by this dam; although SCS can get through. The dam is about 4' high; and has no jump pools. Fall flows do not appear favorable to pass FCS past this dam.

DWR has designed a temporary fish ladder to create jump pools to enable upstream passage. Nancy Snodgrass designed it, and it works; 50 salmon have used the ladder. A few fish have also jumped over the temporary ladder.

Deer Cr FCS – This information was derived by redd counts, kayak surveys and limited DCID video station data. The population estimate was 873; 96% adult, 4% grilse. 773 were natural fish (87%); and 100 were hatchery fish (11%). The high was 1,905, and a low of 58 fish in 2009.

Clear Cr FCS. In 2012, installation of a video-DIDSON “super weir” was installed near the mouth of Clear Creek. Migrating fish were counted by either the video or DIDSON. The station was operated 8/15/12 thru 12/15/12. A population estimate of 857 grilse and 1,089 adults was made. 31 were *O. mykiss* (trout/SH).

Daily FCS passage for late September through October, and run tails out into mid-December.

The 2012 carcass survey population estimate was 7,631, which is about 1K less than the vide weir estimate. Natural origin fish was 3,864 (50.4%) and hatchery origin 3,785 (49.6%). Note: hatchery origin of 11.4% in 2011. Most were Coleman from NFHC, but others were from Feather River Hatchery.

Doug Killam – CDFW's 2012 salmon escapement summary for the Sacramento River. For LFCS 2,869 (2011-2012) 2,690 adults (94%); and 93% were of natural origin.

Cormack-Jolly-Seber estimator was used this year on mainstem counts. The Confidence Intervals for the estimate was 2,468 to 3,175. The survey runs through the end of May.

Sacramento River WCS is from April through early September. For 2012, the total was 2,674, of which 2,529 were adults (95%). 70% were expanded natural origin. Recovered 315 CTW's and they were all LSNFH WCS.

September through mid-January for FCS; 28,701 total, with 26,272 adults (92%); 24% were of hatchery origin. 242 CWT's comprised of 152 from FRH and 86 from CNFHC.

Cow Cr FCS 1,488 total with a CI of 1,215 to 1,810. From R-based GAM program.

Beegum Creek, SCS 2012, only 1 fish! For NF Cottonwood at Upper Falls, 6 adults in 2012. Mark Gard made this discovery, all on private land, and very difficult to get to this area.

Cottonwood Creek. 2012 2,556 fish, of which 80 CWT's were recovered (from FRH and CNFHC) by PSMFC/FWS kayak surveys.

Battle Creel FCS 2012 – 116,847, of which 31,554 were in the creek, and 85,293 went into CNFHC. The overall adult percentage was 90%. Fish entered volitionally into the hatchery.

Sacramento River dewatered redd survey. CDFW does concurrent study, like the DWR effort. Drops in Keswick flows caused dewatering of redds. Basic problem is dropping of the flows is dewatering redds - we would like to eliminate dropping of flows.

Doug's crew did 34 surveys from RBDD to Keswick Dam in conjunction with their FCS and LFCS carcass surveys.

Doug showed a video on a barrier in Battle Cr, a large rock at a waterfall. Also, green sturgeon at the mouth of Antelope Cr. Clear Cr weir video, Cow creek video shown, and Battle Creek flood video from December 2012 shown.

Sean Hayes - NOAA, SWFSC. Central Valley Chinook telemetry and predation studies. NMFS Team-members contributed to this work.

Some years, only 7% made it to the ocean from the hatchery. New technology JSATS telemetry. Designed for tagging sub-yearling sized fish. Last year, were able to tag fish down to 82 mm; small 3 gram tag. Future 2014 tag will be 0.23 grams. Tags are getting smaller. Tagging goals – ERP contract on-line. 2 releases of CNFHC FCS releases 150 (x 2) early/late April.

Spring run from FRH 100 (x2) April – upper/lower river. 2013, JSATS 150 receivers, and will be wild-tagging fish from Mill Cr. this season, and maybe next year at Deer Creek. Will look at 80 fish at Yolo Bypass area. Feather River Hatchery trucks their production due to serious survival issues (i.e.) survival is poor if they did not truck.

Mill Creek project – CDFW is operating RST at the upper dam site.

Central valley predator issues – receivers placed at Freeport and Sacramento diversion site. Predator aggregation study – used a DIDSON camera, boat-mounted. Looked at relative concentrations of big fish. Mid-channel diversion were not predator aggregators.

Predator diet and tagging – 28 confirmed smolt predators acoustic tagged. Pike minnow tended to be site-residents. Live chinook was tethered and monitored in an effort to obtain relative level of predation near mid-channel diversion. Working to obtain a predator efficiency index.

Freeport diversion BDCP model. Worked here last year. Big log piles to protect system, but makes for great striped bass habitat .

City of Redding Pumphouse #1, and Bella Vista Water District Wintu pump. Conclusions: big trout are not attracted to diversions, their diet is mostly invertebrates. Movement studies are underway.

Whats happening with mortality rate at the Tisdale Weir and Knights Landing area? Maybe a big influx of predators coming in to the area?

Josh Israel asked about disease testing of the fish that are being released? Topic of disease has come up, but appears to be a major source of mortality? CNFHC fish are looked at per Kevin Niemela. Are they reporting it? Josh says study team should look at disease/mortality. Note: CNFHC fish go through pre-release disease scan.

Sean Hayes noted that the fish are “high-graded” for condition.

Keith Marine – NSR, Inc. Keith has been working on the CVPIA b13 spawn gravel restoration monitoring work for the past several years. Keith’s work has focused on two main areas geomorphic and fisheries. Work accomplished to date:

Establish long-term monitoring sites – completed 05, 2nd task cross sections 10 sections 2007. Evaluate use of spawning distribution data for measuring response to restoration FY 2009. Additional cross sections funded 10 more in FY 2009. Objective #5 – work plan and initial data collection for developing a sediment budget and gravel management plan FY 2010-2011. Objective #6 facies mapping, Objective #7, in situ performance, Object #8 22 permanent cross sections were established from Keswick Dam to the Clear Creek confluence area.

2005 – Produced Atlas of historic efforts to restore habitat in upper part of the river.

Summary of recent work for creation of a gravel management plan. Initial data report completed spring 2012.

Two models applicable for this study: Reclamation model and (?)

Initial data collected cross section bulk samples; pebble, sediment facies mapping. Bed mobility transect tracer rock, scour chains . CSU bulk sampler barrel used, scour chain and tracer rocks. 10 mm to 100 mm size range.

Grain size distribution shown, surface sample of bulk sampled, and bottom diagram shows bottom sample distribution.

Keith’s graphics showed lower armoring in “restored” areas, permeability noticeably higher in restored areas.

Feasibility evaluation of new spawning gravel injection sites (pending) – identify new spawning gravel injection and restoration sites. Document land ownership and construction sites.

Feasibility –conveyer belt. Sites that had a reasonable expectation of accessibility, probably require least grooming.

Bill Poytress - 2012 juvenile WCS outmigration – is this year any different? RBDD is an excellent location for monitoring, as it is downstream of all winter Chinook spawning areas. 2012 but where are the winter runs? Typically 50% of the season total are expected to be sampled by September, but in 2012, run peak was in November, 2 months delayed. Bill’s data analysis indicated that median sizes were less, but not statistically significant. 2012 – 55% fry, 45% smolts, typically 80:20.

David Woodbury – Presented on green sturgeon. David is the GS (green sturgeon) recovery coordinator for NMFS. David has looked at historical and contemporary water flow and temperature data for the upper Sacramento River. Question to consider - what did GS prefer before the dam was built? One of the problems is that we don't know what they need.

Current water flow in the Sacramento River was compared to historical, pre-dam, conditions. Data were analyzed from Bend Bridge for five water year types (i.e., wet, above average, below average, dry, and critical dry). He noted the loss of large flow events after Shasta Dam was built. Annually, more water currently flows down the Sacramento River due to the addition of water from the Trinity River starting in 1963. However, a look at flow during the period of time when green sturgeon migrate upriver to spawn (Mar-May) shows that a reduction in flow of around 20% has occurred. Post Shasta Dam, there are far fewer days over 15K cfs flow. Currently, water is being held back in the spring for flood protection and released in the summer for irrigation. Water flow in the summer is several times greater than what it used to be.

Regarding water temperature, the Sacramento River is currently being managed to conserve the endangered winter-run Chinook salmon, thus is maintained during the summer at a very low temperature to resemble the snow-melt waters of the McCloud River, where they used to spawn prior to the construction of Shasta Dam. Although water temperature in the Sacramento River at the time of spawning (i.e., May-June) appears similar to historical levels, the question as to how the larvae are affected by the cold water maintained throughout the summer remains unanswered.

David also looked at water flow and temperature in the Feather and Yuba rivers. The analysis for the Feather River shows a more dramatic reduction in water flow during March-May of 60-70%, with flows during all but the wettest of years now being less than what used to be observed only in critically dry years. Converse to what is observed in the Sacramento River, the water temperature appears to be several degrees too warm in the spring. Only during the wettest of years (i.e., 2011) does it appear that temperature is suitable for successful GS spawning. Both water flow and temperature on the Yuba River appear suitable for GS spawning, however access to upstream spawning sites is a problem (i.e. Daguerre Point Dam).

Amanda Cranford - NOAA permitting specialist, presented on the NMFS' APPS (Authorizations and Permits for Protected Species) database. ESA prohibits take. For incidental take – there are 2 mechanisms, through section 7, and through section 10(a)(1)(b). Incidental take - 10(a)(1)(b) is for non-federal entities or individuals. This can eventually lead to a HCP – large landowners, municipal utility districts.

Direct take: Section 10(a)(1)(a) research permits - <https://apps.nmfs.noaa.gov/>

Section 4(d) of ESA – directs NMFS to conserve species listed as ending or threat. 4(d) rule on 7-2-2010 for green sturgeon. Pacific salmonid rules 4(d) there are limits 3 thru 12, but there are more rules than this. 3-12 are California actions. Limit #5 includes hatchery and genetic management plans, HGMP's to evaluate impacts on listed species. Conservation hatcheries and captive broodstock programs also require an HGMP for evaluation and issuance of ESA section 10.

Rule #7 – research and monitoring applies to only Threatened species. Annual program with state is an annual program January thru December; annual reporting required. Boat e-fishing not an approved activity under 4(d).

Annual CDFW research program both CDFW and NMFS review each application submitted. In the end, NMFS must conduct a section 7 consultation, resulting in a B.O., and must complete NEPA analysis in order to approve the program under the 4(d) rule limit 7.

10(a)(1)(a) research and/or enhancement research can cover both T&E species, longer permit, and is valid for 5 to 10 years. Process takes longer - federal register must be published, 30 day public comment period. NMFS must conduct a section 7 consultation resulting in a B.O.

Since issuance of the permit is federal action, NMFS must conduct NEPA analysis.

Authorization and permits for protected species through the APPS database – increases efficiency and transparency of the permit process and improves constituent service.

Allows for better tracking of approved and actual take. Good search features allows public and agency access.

<https://apps.nmfs.noaa.gov>

Home page features PAG (pre-application guide). List of permit types, laws and regulation page. Records open for public comment. Applicant portfolio. Application is edited as often as needed until it is submitted. Modification of a section 10 permits, modification of 4(d) permits.

APPS search function can search permitted activities by permit holder, activities, expired permits, approved reports, don't have to be part of the system to do this.

NEXT YEAR'S USRMPWT MEETING

Next year's 2014 meeting was set as March 26, 2014, and rotationally, it is NMFS' turn to host the meeting at the FWS Red Bluff, CA location. For 2015, it is CDFW hosting, and for 2016 it will be DWR.

DISCUSSION AND WRAP-UP

For next year, *Jim Earley* recommended using webex. As the departing host, I will recommend to the next host that we use webex for the call-in participants.

Josh Israel noted that other teams meet more than once a year, and asked if our group needs to meet more than once? Also asked that our team respond to Tricia's anonymous subject survey/comment form as quickly as possible.

Joe Johnson – Provided more information regarding adult fish movement/deterrence technology that would allow smaller fish to migrate but block out adults. Proposal is to shunt adult fish to the Mokelumne River, but can be used to steer fish from one side to another (juveniles). *Jim Smith* says small fish are difficult to move around.

Josh Israel - says multiple presentations technical on moving fish; conclusion – you could create a pulse flow, but significant electrocution risks that outweigh the deployment of the technology,

such as worker safety concerns, and on a bigger scale, you would need a 2 dimensional electrical field instead of a single point, and this makes it more challenging.

Joe Johnson says it was done well in a shipping channel in the Chicago Slough area to block Asian carp. Bubble curtains don't work, as current flow picks up.

Meeting adjourned on schedule.