

Upper Sacramento River Monitoring Project Work Team

March 9, 2005

Meeting began at 09:05, in the Conference Room of the Red Bluff Fish and Wildlife Office, Red Bluff, CA

- Tom Kisanuki facilitated the group
- Welcome statement by Project Leader Jim Smith
- House Rules, Introductions

Participants:

California Department of Fish and Game

Rob Titus, Sacramento
Mike Berry, Redding
Randy Benthin, Redding
Colleen Harvey-Arrison, Red Bluff
George Edwards, Sacramento
Paul Ward, Chico
Clint Garmin, Chico
Doug Killam, Red Bluff
James Lyon, Red Bluff
David Grant, Red Bluff

River Partners

Dan Efseaff

California State University Chico/Iron Canyon Alliance Coordinator

Kristen Carter

Department of Water Resources

Ralph Hinton, Red Bluff
Jason Kindolph, Oroville

National Marine Fisheries Service

Mike Tucker

Bureau of Reclamation

Richard Corwin
John Hannon

U.S. Fish and Wildlife Service

Lyn Rosten, CA/NV Fish Health Center
Bob Null, Red Bluff
Jim Smith, Red Bluff

Bill Poytress, Red Bluff
Kurt Brown, Coleman National Fish Hatchery Complex
Lia McLaughlin, Stockton
Jeffrey Herod, Stockton
Jess Newton, Red Bluff
Kevin Niemela, Red Bluff
Jim Earley, Red Bluff
Shea Gaither, Red Bluff
Tom Kisanuki, Red Bluff

Agency Updates

Bill Poytress – FWS operates rotary traps in the mainstem Sacramento River, directly below Red Bluff Diversion Dam. The project monitors the emigration of anadromous salmonids. The data is sent to the IEP database. The project is funded through CALFED and is currently operating on a 9-month amendment to their original contract. FWS is awaiting CALFED acceptance of their 12-month amendment request.

Paul Ward – In Big Chico Creek, they have sampled 1mill fry in hand, marked 400 K; hope to continue marking Chinook for the next 4 years. In Butte Creek, they are seeing adult spring run Chinook as we speak.

Rob Titus – Mentioned that CDFG has submitted a CALFED monitoring proposal to conduct RST work at river mile 88; will talk about it later. For their Knights Landing RST operations, its looking to be a normal year in terms of precipitation & flow patterns, in regards to winter run emigration. They have capture more Coleman NFH steelhead releases coinciding with flow pulses than compared to past years, but not exactly sure why. Traps may be fishing more efficiently than in previous years. They are beginning to pick up in-river produced SH, which they typically see this time of year.

Also CDFG has been running traps on lower American River, this operation has been on-going for 10-12 years. In relation to the Folsom project, production of fall run Chinook has been unusually low, so far. They usually would have seen an emigration peak or the timing would just be coming up. The Dept. is concerned about these low numbers, and the flows have exhibited fluctuations.

Colleen Harvey-Arrison – her project has received funding this fall from IEP to monitor Mill & Deer creeks for outmigrating spring run Chinook. They have received piece-meal funding. CDFG has also put in a proposal thru the CALFED ERP process to conduct fall-run Chinook surveys in the tributaries. Multi-agency efforts in other tributaries are continuing this year.

Doug Killam – is performing mainstem escapement work, and some tributary escapement work. We're into the late-fall Chinook time period, which lasts into April. Thereafter, winter run carcass surveys will start up. Doug noted that its kind of rare for

the Sacramento River to not have flushing flow this time of year. But this has helped for a successful late fall carcass survey. Will be interesting to see how upper river salmon fare. Doug will do snorkel surveys for SH, but this is usually a hit or miss effort, depending on weather conditions. For the past two years, the counts have been almost identical to combined counts; these results may have applications to other creeks that they are unable to monitor.

Doug – late fall adults traditionally haven't been monitored due to difficult environmental conditions associated with their run timing. We've had drastic flow changes. One interesting observation is that in some years, we see few hatchery fish. Late fall have been 100% clipped. Some years you see low ad-clip rates, but this year, have seen higher rates. This year, its 10-15%. Kind of unusual, and don't have a clear idea why.

Randy Benthin – CDFG has a joint study with NMFS' Carlos Garza to do a central valley study genetics work. Results should be interesting in terms of separating out the runs. Spring- and fall-run markers not previously available; we expect new markers to be developed. Hence, we will have the tools soon. Report is expected to be out this summer.

George Edwards – otolith study is going on for determining resident vs. anadromous trout. Colleen H.-A., Doug K., and Bob N. have been providing samples. Yuba River – Mike T. has been helping collect fish, doing rod and reel surveys. So far, the specimens examined primarily appear to be resident fish. Samples have been sent to their USGS lab. Unfortunately, the lab has been down due to technical issues & personnel losses. They have many back-logged samples. CDFG will work with Carlos Garza to collect samples primarily from the San Joaquin area, and also Mill, Deer creeks for DNA analysis. The work will look at steelhead relationships between lower and upper reach populations. This work will examine 18 micro-satellite sites versus the 11 sites performed by Jennifer Neilsen's lab. Collected otolith and DNA samples from fish above the first dam, which is a migrational barrier.

Mike Berry - work primarily on restoration projects on Clear, Battle, and Butte creeks. Long-term goals are to remove 5 dams in Battle Cr, and put screens/ladders on 3 other structures. Supplemental report was put out last week for a 60 day review. Plan now is to start construction in 2006 (next spring). Writing up a feasibility study to reintroduce winter run into the area, and write a comprehensive overall strategy for Chinook runs.

Another is the modification of the Coleman Barrier Weir and Dam. That's in the final stages of environmental review and project design is complete. Flow capacity is currently 40 cfs and capability will be increased to 300 cfs to improve passage at the weir, and the plan is to install a lip to prevent fish from going over the weir at flows up to 800 cfs. That will give us more flexibility in ability to control passage and blockage of fish.

Jim Smith - notes that flow will increase too. Currently, the FERC minimum flows are 3 up to 5 cfs, below some diversions! With new restoration project flows, will go from 10

to 15 X over minimum flows. Things are already much better, there are interim flows instituted on the lower two diversions. Jim also notes that the Supplemental report may be available on-line on the CALFED website.

Jim Earley – in Battle Creek, FWS has conducted annual steelhead and spring run Chinook snorkel adult surveys. This year, the counts have been phenomenal, based on lack of water, but still have been able to do a lot of observations of successful spawning. Over 100 redds observed. Hopefully, we will see a lot of juveniles.

Jim S. – CNFH did not pass hatchery steelhead over the hatchery weir.

Jim E. – very few carcasses observed above weir. About 270 fish passed over this year.

Jim E. – monitoring salmonids with 2 RST's above weir, one below at river mile 2.8, operating year-round. Barrier weir operations are still currently on-going. FWS is monitoring primarily steelhead, spring- and fall-run Chinook, collecting genetic samples for run determinations, also looking for spring run escapement into the upper watershed. Barrier weir is also used for blocking hatchery fish from going upstream. Flows are at 30 cfs in the south & north forks of Battle Creek; appear to be enough for now.

Jim E. - SH redds are concentrated in Reach 2 of N.F. Battle Cr.; and seeing a few in the lower reach. Anywhere between/around/below Baldwin Cr. Also, seeing a few in Reach 1; mostly in the lower areas of Reach 1. Shea Gaither recently found a SH carcass there. They do not know whether the redds are of anadromous or resident origin.

Randy - noted that in the upper Sacramento, they see large rainbows after storms. Mike B. rescued RT out of Sulpher Creek, up to 24 inches. Caution here is that in the tributaries, they can be packed with large trout after storms. By hatchery accounts, anything over 18" would have been considered a "steelhead".

Doug – late April through early may is when in-river large rainbows appear to spawn. Also, river trout swim up into the tributaries (small tribs); as many as 30-40 large trout have been seen spawning in January, and December. Its difficult to look at a fish and say its a "trout" or "steelhead".

Randy – CDFG got a small grant from the Canterra Loop funds to look at **scales** of trout, to determine whether sport-caught fish in the mainstem Sacramento River are residents, or anadromous, samples are being taken in the reach near Deschutes Road.

Mike T. – seems logical that trout spawning in the small tributaries that are prone to warm early would need to spawn earlier than their counterparts that spawn in the mainstem where conditions remain favorable all year. Thus, if a population of small tributary spawners were to perpetuate themselves, only the progeny from the adults that

can successfully spawn and produce offspring before the stream goes dry (or before the tributary becomes too warm) would be the one to survive to repeat the process.

Kevin Niemela - FWS has been challenged with finding “a home” for post-spawned steelhead; this past season, an experiment was conducted to put SH into Keswick reservoir, with the idea that the SH would provide anglers with a fishery, but unexpectedly, over a dozen post-spawned SH were recaptured below Keswick Dam. Some SH even showed up in small tributaries, in the mainstem, and only one was creeled in Keswick Reservoir. The first fish took 2 days to get back to CNFH. There were no spills over Keswick during the time of study. The SH ranged 16-30 inches in length. These fish passed through 8 ft turbines and survived. A total of 15 returned to hatchery out of 200 fish released. This experiment has been terminated and will not be repeated. Steelhead are now put into “reconditioning” ponds, and then the survivors are released back into Battle Creek, below the hatchery.

Kevin N. – in the past, SH were sacrificed after spawning, but a few years ago, they began live-spawning them. Old studies indicated 1% of the released spawners would return for multiple spawning. FWS studies found much higher return rates;

Kurt Brown – noted that as high as 13% of the “reconditioned” fish have returned to CNFH.

Kevin N. – approximately 30% of all reconditioned fish have returned back to the hatchery. FWS has completed only one year of this study, and the results should be viewed as tentative. The “reconditioning” process seems like an appealing way of meeting CNFHC’s mitigation needs. However, we don’t know where these fish are going. Prior questions have arisen as to why don’t we tag these SH, and we are doing just that; teaming up with U.C. Davis and NMFS. FWS will be putting acoustic tags in 30 reconditioned kelts (male SH). These fish will be released in April, and FWS will monitor their movements. These fish can be individually identified, through externally applied floy tags and ad-clips. The fish will be fitted with hydroacoustic internal tags; the floy tags will not have a number. To date, 136 reconditioned fish have been released since last year. Reconditioned fish are feeding ravenously, they have not been treated with polyaquas, and are very healthy fish.

Jess Newton – provided Clear Creek monitoring project updates. There are 11 different survey activities on-going - evaluate different restoration projects. Gravel augmentation, stream channel reconstruction, flow augmentation, and providing cold water to benefit all salmonids. Snorkel & kayak stream surveys of the lower 18 miles take place from Dec. to April, and snorkel surveys are conducted the remainder of the year to monitor “*O. mykiss*”. FWS monitors three runs of Chinook - spring, late-fall, and fall.

Jess N. - last year was the largest spring run index. Still below 100 fish, one adult fish was from Butte Cr., and Jess joked that they welcome all strays. The objective is to allow fish populations to return on their own. Other surveys are focused on stream spawning area mapping to determine effects of reconstruction efforts, before and after

spawning use, juvenile habitat use in reconstructed and control reaches. Upstream and downstream controls, before and after controls. Next phase of channel reconstruction is being designed right now. Next couple of years, will have one more year of before, and have two years of after control. We've also completed 2nd year of operating a temporary picket weir from September to October to prevent fall & spring run hybridization. Also, trying to reserve the upper 8 miles of the creek for spring run spawning. The picket weir was flattened for 2 days, but saving grace was that spring fish had already spawned.

Jess N. - two RST's operate in Clear Creek; one at the picket weir site, and one in the lower reaches of Clear Cr. FWS is evaluating floodplain stranding in natural versus reconstructed floodplain areas. Still might get some additional storms to do some comparative work. Mark Gard of the FWS' Sacramento office is doing a complete instream-flow study. Red Bluff FWO staff are doing the specific habitat suitability determinations. Monitor water temps, to determine effects on early life stages incubation, rearing, etc. *O. mykiss* index work occurs throughout the winter months. Redds counts for *O. mykiss* and the basis of the index is for the entire season. Redd sizes vary from 2 feet to 13 feet in length. Similar to last year, they have done a calibration survey between their kayak method and snorkel surveys. Kayak surveys saw 60-70% of the redds that were seen during the snorkel surveys.

Mike T. - asked a question on how we're assessing the impacts of warm-water events. Jess responded that it's a relative assessment, looking at the literature, water temperature values, and the Picket site RST has seen spring run juveniles.

Lynn Ralston – the CA/NV Fish Health Center looked at South Fork Battle Creek, and did not find whirling disease, although this disease is found there historically. No IHN upstream, examined steelhead in CNFH, and found some IHN.

Lia McLaughlin – will be coordinating HACCP (Hazard Analysis and Critical Control Point) training, and want to be sure that as scientists, we don't spread unwanted vectors. In the upcoming American Fisheries Society meeting in Sacramento, they will have a HACCP workshop, and another workshop will be held in the Red Bluff FWO office in May. The May meeting will focus on the FWS personnel, but will have additional openings for other agency staff. Contact Lia or David Bergendorf of the Stockton FWO for more information. There will be additional opportunities for HACCP training; FWS is coordinating with Susan Ellis, who is the CDFG head for their invasive species program.

Ralph Hinton – in addition to normal monitoring, most of the DWR staff are involved in the Oroville relicensing effort. The remainder of the staff is working on the Sites EIR, and is about half-written, but CALFED and stakeholders can't decide how the reservoir will be operated. Thus, if you don't know how it'll be operated, you can't determine what the impacts might be, and consequently cannot write an EIR.

Someone - asked a question in regards to a NMFS proposal to put spring Chinook above Oroville Reservoir?

Jason Kindolph – responded that its at a standstill, but not completely off the table.

Paul - says there may be some reduction in flows in Butte Cr. if some answers aren't obtained soon.

Aric Lester – in regards to Sites, they have not been doing monitoring, but have been looking at monitoring data, and part of the NOSDOS plan is to take water from Stony Cr./Black Butte Reservoir and move it into Sites Reservoir, and take water from TCC, and control water flows within Stony Creek. The planning process has been bogging down, looking for beneficiaries, and in regards to environmental concerns/issues of the water users.

Mike T. – real problem with Stony Cr is its “feast or famine”. Stony Cr. has huge flow pulses in winter. The Sites project would take the peaks off of the huge pulses, would get rid of the smaller diversions on the lower creek, and get rid of the fish passage barriers. The project may also provide flood control benefits by providing an extra “release valve” for Black Butte, which would equate to having more water at certain times of the year. If done correctly, the Sites Reservoir project could be beneficial for fish in Stony Cr. However, fish would not be able to get above Black Butte Dam. The project would help fall-run Chinook, and possibly help steelhead. Steelhead that do not spawn before March would not be successful. No year-round flows would result from the Sites project plan. Black Butte water gets so warm that no amount of flows could make this area into useable habitat in the summertime.

Randy – noted that surface water and groundwater rights in the Black Butte basin are “sacred” water; and that it would be a miracle to get any water out of this system in the summer months.

Mike T. – the benefits to salmonids on Stony Creek could be enhanced in the fall if the CHO (constant head orifice, Stony Cr.) could be used as it was intended for (to divert water from the TCC into Stony Cr.) once the water temps in the TCC become suitable for adult migration. Then fish would cue into Stony Creek.

Paul – commented that the lower Stony Creek alluvial fan is so coarse, that during certain times, water would not get to the Sacramento River.

Richard Corwin – also, water temperatures in Stony Cr. were real high, up until October.

Morning break

Jason - steelhead redd surveys were conducted mid-December; creel surveys in Feather River, and DWR has taken that one over. Spring run fish ladder investigations – opening up the ladder allows springs access. Any fish coming in before July will get a special identification tag. 3,600 fish were tagged last year and presumed to be spring

Chinook. 32% returned or were found in the river. DWR will repeat the effort, and plan to tag up to 6,000 fish. DWR will also conduct PIT tagging of SH/resident trout, and monitoring their movement through the Feather River. DWR will do thermal marking of about 100K fish. Steelhead will be monitored at the low & high flow channel locations of the river.

Richard – Stoney Cr. monitoring is finished up, and the final report has been issued. BOR will continue to monitor the Stoney Cr. CHO, and the North Canal, and Research Pumping Plant (at Red Bluff Diversion Dam) operations. BOR has begun installing a new pump at RBDD; this installation should be finished by 2006. The new pump will add an additional 70 cfs to the pumping plant. Also NMFS is recommending fish passage improvements at RBDD; funding will become available for studies that are approved by NMFS.

Tom K. – asked Mike T. if NMFS has developed any plans/templates for how and what kind of projects will be approved by NMFS.

Mike T. - responded “No, not to his knowledge” to Tom’s question. Mike received a call from Paul Freeman of BOR, asking Mike about the meaning of the “terms and conditions” in the Biological Opinion to the BOR’s OCAP document? Mike explained that he had not written these terms and conditions and was not sure who had. The studies alluded to refers to the BO statement relating to: “continue to investigate fish passage improvement at Red Bluff, and study impacts of current passage problems on spring run salmon. Two other main things are required per the OCAP BO. Restart the fish passage improvement program, get the fish passage team back together, finish up the EIS/EIR (for the TCCA’s “Fish Passage Improvement Project at RBDD”), and come up with a plan to address the former subject. Mike qualified that his explanation is totally his personal view of what it means, and not an official NMFS view. For the latter process, Mike stated that the EIS/EIR process would need to be an inter-agency effort. Mike also lamented that NMFS typically does not do any monitoring, and they do not have any field crews.

Mike B. – asked a question about the recovery plans for the listed salmonids and the progress of the Technical Recovery Team (TRT).

Mike T. – the TRT is comprised of agency and non-agency folks. They’re getting stuff done, coming up with viability criteria, hoping recovery criteria would be derived, but hasn’t happened yet.

Kristin Carter – is part of the Chico State faculty and also an Alliance Board member working on Iron Canyon fish passage issue – the alliance submitted a CALFED monitoring proposal. The proposal will be developed over the next couple of months, in conjunction with Chico State, UC Davis, and DWR. The proposal will evaluate and assess the various projects that are being conducted in the Sacramento River system. Their proposal should be available on the CALFED website. The work will evaluate channel morphology, channel large debris, variety of on-the-ground land surveys, look

at amphibians, mapping, update existing mapping and current aerial photos, and bring mapping data up-to-date. Kristin will be working with the Sacramento River Forum group. The proposal framework applies to future projects in addition to evaluating existing projects.

John Hannon – John and Jim Destaso are involved in a CVPIA section B(13) gravel augmentation project. BOR puts in gravel at two locations in the Sacramento River.

Tom K. – asked John if a final report for the Bureau’s gravel monitoring project work that Stuart Angerer was involved with was available.

John H. – explained that BOR had “pingers” in some of the gravel, and various sites were looked at last summer, and was determined that the batteries were dead. A one-year report of the gravel study summary was available.

Dan Efseaff - representing the River Partners.

Paul W. – reports that GCID trapping operations have been cut back to 4 days week. GCID has agreed to provide additional funds to make a “24 & 7” sampling possible. Also, Dave Vogel is continuing evaluation of the GCID fish screens, and will be on-going this summer. David Vogel will also be marking more sturgeon in the Sacramento River.

Rob Titus- Presentation on CDFG’s proposal to CALFED

Rob Titus and CDFG’s proposal to CALFED to monitor juvenile migration in the lower Sacramento. This work is proposed in collaboration with PSMFC. The monitoring operations at Knights Landing (river mile 88) have been on-going since November of 1995. The original impetus for this proposal came out of the Central Valley parent salmonid work team for the IEP. The original 1995 work was looking at juvenile salmonid production in the upper Sacramento basin. The work would serve as an early warning station to assess the winter run. Also the site was above the influences of the American and Feather rivers, but above the delta to give folks in water and fish management a few days of “heads up” action opportunity to minimize impacts to fish as they moved into the delta. Actions such as closing the cross delta gates, reducing water exports to the south delta, etc. Data is provided to the CALFED DAT team on a near real-time basis.

The work focuses on timing, life history, size, life stage composition as they migrate downstream, responses as a function of flow, and plumbing of the system becomes complex. Less known influences to work results are the buffering effects of the bypasses, located 30 miles upstream from Knights Landing. Around river flows of (?) cfs, water is shunted into Sutter Bypass. The bypass’ good points are that it buffers the high flows, but increases uncertainty of what is being seen at Knights Landing. So, it’s a complicated situation.

Knights Landing project has been deemed as a top priority project. Key monitoring point, over time, in spite of relative success achieved, areas of uncertainty have arisen. (e.g.) detection of emigrating Chinook during periods of “high” water clarity. Water clarity at Knights Landing is never very high. The Colusa Drain enters one mile upstream. Secchi-disk readings of 1-3 feet would be considered high clarity at Knights Landing. Most times, its less than a foot.

Knights Landing counts of winter run emigration have been compared in relation to counts taken at the Balls Ferry, and RBDD trapping operations. The distance between GCID and Knights Landing is about 120 river miles; and equates to a migration delay of 2 to 3 months, depending on flow conditions. Seems fish are hanging somewhere between GCID and Knights Landing. Also, it has been alleged that winter run fish are “sneaking around Knights Landing traps”.

Efficiency trials are used. Index. size, age, gear selectivity, statistical procedures are all used for estimating abundance, temporal scale, and how we ultimately apply them to generate an estimate. To date, they have seen weaker relationships, and the 120 river mile gap is a concern.

Migration patterns observed. Pattern #1 - Late fall moves past Knights Landing from about week 40 through week 2, and 4. Rob showed cumulative catch versus flow for 1998-1999. Pattern #2 – later emigration with later flow increase in river flows. Winter fish are waiting until sharp peaks in flow before they move out; appears to be cueing in on high flows. Whereas late-fall Chinook timing appears more linked to time of year versus high flows.

Rob showed a decrease in survival index with delayed emigration to Knights Landing. We don't know what this really means in terms of overall population dynamics.

The study proposed 3 tasks –

1. Sampling gear assessments at Knights Landing.
 - a. RST vs fykes vs. Kodiak trawl.
 - b. Arranged releases of clipped and tagged juvenile Chinook, and SH releases from CHNFHC.

RST's appear to represent what is coming down the river. Trawl tended to catch fewer and smaller fish. Arranged releases have not been available, and thus not looked at.

2. reconnaissance monitoring between GCID and Knights Landing
 - a. trap placement in relation to riparian attributes. Are there gross attributes that might jump out at us? Between GCID and KL, there are 3 major riparian zones.
 - b. Chico Landing (rm 195) and Colusa (rm 144) levees come into the picture, but are set back a distance from the main channel.

Lot of rip-rap below Colusa, and riparian attributes have been removed from this area. This is definitely a highly impacted part of the system. RST sites would be set up at Chico Landing and Colusa .

c. emphasis on late-fall, winter-, and spring-run Chinook during the fall-early winter emigration period.

3. data synthesis of existing and recent monitoring

a. spawner escapement, juveniles at Balls Ferry, RBDD, GCID, Trisdale, and Knights Landing.

b. logical and useful picture of the production cycles of Chinook

c. if data allows, construct empirical based production models.

Discussion:

The work involves two-8 ft RST's, focusing on discrete runs. Jim Smith asked how we characterize reconnaissance and vs level of effort. Rob replied that the intent would not be permanent sites, and RST's would be used exclusively.

Tom Kisanuki – Led discussion on the “Black Hole” area of the lower Sacramento River.

Tom – provided background information on previous discussion of this subject in past PWT meetings. Past PWT group discussions focused on the need to obtain a better understanding of the dynamics of the river downstream of RBDD. Use of RST's, beach seining, were discussed, but in prior meetings, the group was unable to pin-point more specific data needs, and/or work objectives. Consequently, the group was unable to arrive at the study designs or methods necessary to achieve the objectives. A few years ago, Pat Brandes and Tom Kisanuki presented to the group the concept of using beach seining as a means to obtain general information on the presence and distribution of Chinook in the lower Sacramento River. The concept was not well received, and the consensus of the group was that if any work was to be performed, the use of RST's was advocated as a means to obtain comparable information.

Paul W. - asked about the use of the term “black hole”.

Randy - asked why the group was debating Rob's proposal. Randy stated that the CDFG agency has already endorsed the proposal, and that the proposal was not up for discussion.

Tom K. – explained that his intent was not to debate Rob's proposal, but to focus on data needs within the lower Sacramento River, and obtain some level of consensus from the group whether the perceived information needs had changed in recent years, (i.e.) what kind of objectives do we wish to identify, and where, how would we perform the work?

Mike T. - stated that the beach seine methodology could target a lot of different areas very quickly and could be useful for obtaining indication of presence/absence, where are they, where are they rearing? Mike also expressed that use of RST's will be a key tool for obtaining information.

Rob T. – the proposal identifies a cost of \$900K annually, for 3 years. Rob felt CALFED may not accept the cost – so they broke the work down into 3 discrete tasks. Water temp monitoring, and developing the level of hypothesis-building, etc.

Jim S. - noted that Tom Cannon made a presentation about the fish losses in the bypasses.

Group discussion ensued and it was felt that additional work needed to be done on the bypasses. (e.g.) Fish stranding occurred when water was passing Tisdale, and old river oxbows had no exit routes.

Jim E. - noted that Ted Sommars had done investigations of fish health in the bypasses, and found fish were growing larger, perhaps due to less competition and higher productivity in the bypass areas.

Bob N. – mentioned that Prof. Pete Klimley of UC Davis is involved in another proposal to acoustically tag juvenile late-fall for purposes of monitoring movement.

Bill P. - flooding typically occurs after most of the winter-run juveniles have emigrated through the bypass areas. Thus, there is a particular window of time prior to bypass flooding where detection of winter-run juveniles would be possible in the middle river areas where the work is being proposed.

Lunch

Mike Tucker – guided discussion on using ACID as a fish migration barrier.

Mike T. – the concept is to use ACID as a barrier during a particular time period to provide a refuge for spring run Chinook, by excluding fall-run fish from migrating upstream. The plan is to close the fish ladders at ACID after the spring-run migration is over, and before the fall-run migration occurs. Mike's first thought was around July 15, close the fish ladders until the flash boards are removed sometime during November. Thereafter, removal of the boards would allow fish passage.

The intent is to create a good upstream area for spring-Chinook spawning which would be free of fall-run fish during the spring-run spawning period. There are uncertainties, and possible drawbacks to this plan. We have no idea how many fish migrate into the upper river prior May 15 (when RBDD gates go in) and we don't know the level of hybridization that have already occurred with fall-run. We could do some monitoring of what's up there at ACID to answer some of these questions. Other issue spring-run

would move above ACID, and how many might stay below ACID and thus not benefit from this proposal? By implementing this action, how much of the mainstem population would we be protecting? Are we impacting other runs by doing this? Priority species is the winter-run. Would we be impacting the winter-run? In general, at the time that the ACID ladders would be closed, most winter-run have already spawned or are already in the areas where they will spawn.

Under current operations, fall-run are able to proceed upstream. By excluding the fall fish, about 3.5 miles would become unavailable to them thru mid-November. Mike states there are plenty of good spawning habitat below the ACID. By closing the ACID fish ladders, there should be no issues with fall-run or steelhead.

By blocking fish from going up above ACID after July 15, the majority of fish found spawning upstream of ACID in the fall could then be assumed to be spring-run.

Another thing you could do is to monitor fish at the ladders to see how many fish are going up at what time and genetic markers could also be obtained to further clarify what we have spawning up there. Monitoring could continue while the ladders are closed to sample fish and put them back below, as a means to determine what we are blocking and the potential impacts of this blockage on the three runs. There are no proposals in place to do what Mike is suggesting. Should we proceed further with this concept, we need to answer whether we can we actually start this, how do we implement it, and who will monitor the activity?

Bob N. – mentioned that FWS drafted a letter in support of trapping/monitoring activities at the ACID facility. The purpose would be to get broodstock for the hatchery, also perform different kinds of monitoring work.

Jim S. - what about the fishery management implications associated with this proposal?

Mike T. – its another unknown situation, another “black hole”. Are there springs up there, can the population in this area be restored to the point where they would assist in the recovery of this ESU? This is a listed species, we are the resource stewards, our obligation is to find out what is going on, and do what ever is reasonable to recover these fish. As far as “bang-for-the-buck” is concerned, this would be a relatively inexpensive action that could produce large benefits to spring run. Several thousand fish currently spawn up there and water temps and other factors are favorable and extremely stable (compared to other spring-run spawning areas).

For those who say that this is not feasible because there is no “proof” that spring-run are still up there, I think the burden is on us to prove that this concept is not feasible, not up to the fish to prove that it is.

Jim S. – explained that the agencies are involved in water temperature management in the river. If it turns out that there are no spring-run fish (above ACID), then that makes management of the cold water easier.

Doug K. – feels that you'd have to close the ladders earlier, say in June. Otherwise, you'd be caught between the end of the winter-run, and the beginning of the fall-run. Commented that CWT analysis indicated that hatchery strays – 50% were from Feather River, 25% were CNFH.

Mike T. – discussion ensued on when is the best time to close it? What is a spring-run? Intent would be to give them an area where there would be less competition, and less hybridization between runs. Over time, you could develop a group of fish that would consistently return early. Since we don't know how much good we're going to achieve with this intervention, it should be set up to do minimal harm.

Mike B. - raised a concern that if we were to propose this closure, seems we're getting ahead of the recovery team. Mike B. feels that for something this uncertain and specific, this proposal warrants technical team review.

Randy – also need to factor in water temperature management; need to make sure that the temperature releases would accommodate the habitat area.

Mike T. – right now winter-run is the primary species of concern in that area, and decisions are being made that can have adverse effects on September and October spawning conditions. This another good reason to find out what the spring-run situation and potential is up there so that we can know if resource decisions need to be more balanced between the two species.

Bob – we would need to monitor the population; what is occurring at and above ACID has been going on for some time. Risks are involved, but we need to monitor before the action is taken. Then make a decision based on the new information.

Mike T. – would you do the genetic studies at RBDD or at ACID?

Doug – characteristics of spring-run is that they come in early, and hold over until the water temperature is cool enough. Something else to keep in mind - would they be spawning in August, given that the water is cool enough?

Mike T. – says that's a good point, but we don't know for sure. All of the other spring-run populations (in the tribes) spawn well into October. Due to large numbers of fall-run coming into the area, the time periods that the spring fish are spawning is masked. We need to find the answers.

Randy - believes stepwise approach is wise. Lots of opinions have been expressed, but Doug has a lot of data that we need to look at. We need good science to back it up, be lot more certain before we take action.

Jason – Feather River phenotype exists, if you could mark them in the fall, you'd know that there is a population. We don't know what we'd be taking above the dam. It may

be possible to “re-evolve” the fish. Feather River is pretty cool, low 50’s, and spawning doesn’t occur until September.

Mike T. – capture points are closed until spring-run should already have passed. ACID closed about the 1st of April.

Jeffrey Herod – Presentation on the ANS program and what it can do for you.

What are invasive species? They are aggressive organisms introduced into new areas in which they did not evolve. Prevention is best alternative; eradication is very expensive and not always effective. Over 138 non-native species have been introduced into warm areas (mostly in Florida & California). Economic losses estimated to be as high as \$1 billion dollars annually. It’s the 2nd leading cause of native species extinctions/endorsement

There have been increasing rates of invasions into the San Francisco Bay-delta areas, and this equates significant human health impacts

High profile species are – zebra mussel, arrundo, spartina, Chinese mitten crab. INS is a CALFED funded program. ANS is FWS program.

Jeffrey Herod is the program coordinator; Lia McLaughlin is the watershed coordinator. David Bergendorf is the ANS program assistant for the federal side of the ANS program.

NIS program – (CALFED program) manages grants and agreements, non-native species, assist watershed groups, coordinating needs of stakeholders. Specimen and reference collections, HACCP training, and public outreach/education.

Federal side of program (coordinated by David Bergendorf), scope is ANS (FWS funded). CNO ANS – staff is Jeffrey and David; encompassing many areas, many issues. Scope of AND is directed thru a task force; they do mitten crab management, and “100th meridian” work (Areas west of 100th longitude meridian). Project dollars supports zebra mussel prevention work, caulerpa mgmt, etc.

Types of assistance: arrundo eradication, zebra mussel rapid response plan, and decontamination of gear (for New Zealand Mussel) for fly fishermen. Outreach materials, reference materials, and future work will use GIS location of NIS.

Watershed Groups Database - 200+ entries in the CALFED side of the program. HACCP training – process that can be overlaid into our operations to identify points we might introduce something we do not intend to do. May 11 – training scheduled at the Red Bluff FWO station.

Technical assistance – they provide review of USGS’s invasive species program; provides help to various groups, on-the-ground mitten crab monitoring. Program can

fund projects that address issues of prevention, control, and eradication of non-invasive species.

Questions: how do we access the funds they have? Answer: go to [grants.gov](https://www.grants.gov) People may compete for these projects. Priorities for certain areas, invasive species are a “big black hole”. FWS ANS funds will become available for HACCP, and New Zealand Mussel. These are internationally based competitions. Sometimes its allocated by region.

Lia – HACCP is meant to be reasonable & feasible. Formalizes processes that are usually in place; doesn't mean necessarily implementing new procedures. HACCP plans created by a group of people; makeup of a team is the field crew, everyone's input is used from the beginning, and working on it. Training is intended to be for someone who has intimate knowledge of the work they're doing. (e.g.) HACCP plan for the mitten crab is 5 pages long.

Jim S. – for the FWS, it is highly desirable if not mandatory to have HACCP plans in place.

Lia – HACCP is one of the tools formal tools to manage for unintended/unwanted introductions. (e.g.) do you know where does your gravel comes from?

Jess – ERP was supposed to come out with a new PSP, later in 2005. Monitoring PSP took a long time to come out.

Rob – if there is a registry of proposals funded for upper Sacramento – overview of activities, for reference for future proposals that would be a very helpful tool.

Jim S. – Alice Low appears to have posted that somewhere.

Rob T. - not just monitoring, but for restoration activities as well.

Jim S. - CALFED has databases as well. Although the PSP process is competitive, may foster competition, but best if we can avoid it, and focus on working together.

Agency Coordination/ Monitoring Needs:

Bob N. - do monitoring before big steps of taking actions. Recommends that if operational modifications are to take place at ACID, build/modify one ladder, not both.

Kevin N. – says he has previously spoken with ACID staff on this subject (of ladder modifications) and they expressed their willingness to work with us. Also, video monitoring work has been done before at ACID.

Doug K. - 2-3 years they've had problems at ACID; its not a good site for tagging work, but doable. Similar to RBDD; in the sense that one ladder works for tagging, one for fish counting.

Aric – mentioned that Stacy Cepello of DWR is working on lower Sacramento River, flow regimes, geomorphic analyses; survival of cottonwoods, and riparian dynamics. He's also looking at relationships between gravel movement and river discharge near Hamilton City.

Colleen - asked Rob T. about looking at spring-sized fish at the lower river monitoring site. Rob responded that genetic work would help, but we do not have a good tool for differentiation. Colleen asked if they will be kept as a conglomerate or would an effort be made to separate them out.

Rob T. - recognizes it's not a perfect tool, but have no other method exists.

Bob N. - suggested stratifying by time, and then do a random analysis. Bob feels that a lower sample size might be possible by the stratification method.

Rob T. - needs e:mail description of "reconditioned" steelhead; he will provide this information for field crews, so that they may be on the alert for these fish. Rob's project sometimes captures down-runner kelts in his traps.

Bob N. - will send out an alert via this group e;mail list.

George - steelhead PWT meeting for April is in need of speakers; anyone willing to offer a presentation?

Kurt – 30% of the fish make it through the reconditioning process. Wild fish are turned loose immediately. Wild fish are released after revival. Wild fish are used for spawning purposes. 60 – 70% mortality of fish that go into the reconditioning ponds. Red color tag identifies them as hatchery origin fish.

Bob N. - will assess floy tag retention.

2006 Meeting – Time/Place/Point-of-Contact:

Aric Lester – Aric and his agency will host the meeting in 2006; Calendars were set for March 9, a Thursday, to be held at the FWS Red Bluff, CA office.