Upper Colorado River Endangered Fish Recovery Program

Revised August 17, 2010

Biology Committee Draft Summary
Holiday Inn Hotel and Suites, Grand Junction, Colorado, May 6–7, 2010

Biology Committee: Melissa Trammell, Dave Speas, Michelle Shaughnessy, Pete Cavalli, Krissy Wilson, Shane Capron (Friday only), Tom Pitts, Brandon Albrecht, and Sherman Hebein. CREDA was not represented at the meeting.

Other participants: Pat Martinez, Larry Kolz, Patty Gelatt, Tom Chart, Tom Czapla, Angela Kantola, Kim Kaal (CDOW), Steve McCall, Rick Krueger, Barb Osmundson, Dean Riggs. Creede Clayton (USFWS). By phone: Kevin Bestgen, John Hawkins, Jana Mohrman, Paul Abate, Kevin McAbee, Tildon Jones, Darrin Brown (Tri-County Health Department [Daggett, Duchesne and Uintah Counties, Utah]), John Isanhart (USFWS), Trina Hedrick, and Brad Hill (Utah).

Assignments are indicated by ">" and at the end of the document.

Thursday, May 6

CONVENE: 12:40 p.m.

1. Review/modify agenda – The agenda was modified as it appears below.

2. Approve Biology Committee March 10-11 meeting summary, review previous meeting assignments (see Attachment 1), review reports due list – Clarifications were made to the Tusher Wash portion of the summary; >Angela Kantola will post the revised summary to the listserver. >Angela also will send the Committee a revised reports due list, and a revised BC list.

3. Report Review: Population status of Colorado pikeminnow in the Green River basin, Utah and Colorado, 2006-2008 (Bestgen et al) – Kevin Bestgen reviewed the major findings, noting they found about a 50% increase in abundance of adult Colorado pikeminnow throughout the Green River Basin over the study period, and about a 70% increase over 2003 estimates. Increased survival rates from 2006 to 2008, along with increased recruitment, were important determinants of increased abundance. Increased survival may be related to increased flows in the 2006 to 2008 period relative to the 2000 to 2003 period and/or ongoing non-native fish removal programs (although Colorado pikeminnow abundance did not increase in the Yampa River where intensive nonnative fish removal occurred). Unanswered questions remain regarding factors influencing adult survival rates and the link between abundance dynamics of early life stages of Colorado pikeminnow and recruitment to later life stages. Dave Speas expressed concern about the weaker database due to reduced effort for this population estimate and recommends that the Committee make sure the problem is remedied for the next set of estimates; Melissa Trammell and Tom Chart agreed. Kevin Bestgen said he and Tildon Jones and Bruce Haines have begun discussing this and may suggest an on-river electrofishing training workshop prior to the onset of sampling next season to share knowledge, experience, methods, protocols, etc. (including block and shock techniques) in order to improve consistency in methods and approach. In addition, PI's will need to make sure that all

sampling trips are carefully planned for adequate sampling time (e.g., returning to the sampling schedules used for the first population estimate, potentially adding a fourth sampling pass, etc.). >The Program Director's office and Kevin Bestgen will work with PI's to identify sampling shortcomings and remedies and report back to the Biology Committee. >Kevin will clarify conclusion #4 and fix a typo Brandon noted. Brandon asked if Kevin had any insight as to why recruitment from the 2000 year class was so good. Kevin said 2000 was a year with a high abundance of adult pikeminnow, but other factors likely played a role, as well (being investigated through the backwater and other studies). The Committee approved the report with the aforementioned revisions. >Kevin will finalize the report and provide a copy to the Program Director's office to post on the web *(done).*

4. Discussion of results of Kolz and Martinez resistance load tests with three VVP-15B units (See Attachment 2) – Pat reviewed their tests of GPP and VVP units. They hope to test an MBS (new manufacturer) unit soon. Neither the GPP or VVP is perfect for all situations. The GPP operates over a wider range of conductivities, but the VVP is more effective at lower conductivities. GPPs potentially could cause more injury to Colorado pikeminnow due to their lower duty cycle. Pat recommends continuing to use the GPP while investigating other units (MBS, VVP).

5. Modification to Yampa River smallmouth bass sampling – The Committee agreed that John Hawkins should conduct an additional marking pass in light of the very low smallmouth bass capture rates on the first pass.

6. Tusher Wash fish screen (See Attachment 3) – Discussion of issues to be resolved (e.g. acceptable levels of mortality for different size classes, potential O&M costs, etc.) Tom Chart asked Kevin Bestgen to share his preliminary risk assessment. Entrainment rates are only rough estimates at this point, and we don't know how they change with flows and seasonal movement or how much of the population may be affected. Tom Pitts said he recalls the irrigation diversion is about 15% (80 cfs) of the total diversion. The risk assessment will be more meaningful when we get actual numbers. Melissa asked if reducing the current potential annual mortality rate of 2% would significantly contribute to recovery. Kevin said that would depend on cumulative effects of other factors affecting adult mortality. The impact of increasing diversions on younger life stages may be an even greater concern. Impacts of Tusher are implicitly included in Kevin's currently estimated survival rates in the pikeminnow population estimate report. Kevin emphasized the need for further discussion and review of the draft risk assessment and noted that considerable literature is likely available on diversion entrainment rates throughout the West. Kevin McAbee agreed the risk assessment is the direction we need to go and asked if the Program believes it would be worthwhile to try to answer some of the uncertainties (e.g., entrainment rates) via studies or literature review (considerable empirical information is available on salmonids). Tom Chart said we know that some pikeminnow have been collected in the irrigation ditch. Kevin M. said Kevin B's Figure 2 begins to get at potential change in percentage of turbine mortality. Tom Pitts suggested that since the Program is responsible for remediating "take" at this historical diversion structure we should review all the options (including off-site) to benefit the species, i.e. there may be a better alternative than constructing a fish screen once we arrive at a better estimate of existing mortality. The Committee agreed. Dave Speas pointed out that in this situation we are not analyzing impacts of a new project, but rather what we might do to *improve existing survival*. Tom Chart referred to his spreadsheet of screening

options (also in Attachment 3) and noted his concern about potential larval mortality in a Grand Valley type fish screen. Melissa suggested Kevin B. might be able to run an analysis on the impacts of the lost larvae to recruitment. Sherm Hebein questioned whether mortality remains linear, and whether any operational changes might be helpful. The Committee agreed that a >small group (Melissa, Kevin McAbee, Dave Speas, Tom Pitts and Tom Czapla) should work with Kevin Bestgen to review/build on his draft analysis, focusing on understanding existing impacts and what could be gained by various screening options. Tentatively, the Committee thought the best choice would be fish friendly runners with a screen on the irrigation ditch (contingent on further analysis).

7. Northern pike exclusion on the Yampa River – Sherm Hebein reviewed CDOW's current proposal as well as additional options to reduce pike spawning habitat on the Yampa River (RM 151). Sherm said Reclamation will be available to review options on site in July (moving gravel from the middle of the backwater into the channels).

8. Upper Yampa northern pike update – Sherm said Bill Atkinson has removed 316 northern pike from Catamount Reservoir thus far this spring; average TL has dropped from 28" to 19" and CPUE has dropped considerably. It appears Billy's work has significantly reduced the Catamount pike population. Billy is also working on other areas. He's isolated a number of meander bends on private property, continued to work on the Chuck Lewis site, and constructed a ditch barrier. In response to discovery of rusty crayfish in the Yampa Basin, CDOW issued an order preventing all live transfer of crayfish in the Yampa River Basin. However, that order has recently been challenged by the public via CDOW's ongoing fishing regulations review. Sherman suggested, and >the PD's office agreed to send a letter to Director Remington supporting his crayfish transfer order. CDOW also is working to determine current distribution and impacts. Krissy Wilson said no rusty crayfish have been detected in Utah (and no live movement of crayfish is allowed in Utah); UDWR is stepping up detection efforts.

9. CDOW fishing regulations – Sherm Hebein said Colorado already has no bag or possession limits on the nonnative fish in several reaches. Sherm is not sure if this applies to Elkhead Creek, but agreed that it should. With regard to CDOW's plans for Rifle Gap (lake management plan and how they will do a screen), Tom Chart suggested this should be reviewed by the Nonnative Fish Stocking Procedures signatories (States and the Service). Tom Pitts asked if northern pike in Stagecoach are addressed in the draft Aquatic Management Plan; Sherm said they have an active northern pike removal program from Catamount and Stagecoach flows into Catamount. With regard to live bait, Sherm said it's not allowed on the west slope, but CDOW has not yet been able to regulate beyond that.

10. Nonnative Fish Subcommittee (NNFSC) update: approval of 2008 and 2009 nonnative fish workshop summaries – On the 2009 summary, Brandon Albrecht should be shown as representing the environmental groups and Paul Holden should be shown as representing BioWest. The Committee approved the summary, as revised above. >The Program Director's office will post the revised summaries to the web. >Dave Speas is working to tabulate the recommendations from the 2008 and 2009 workshops and outline how to implement them and the NNFSC will meet to discuss this on June 30. In the future, >the Program Director's office will quickly complete these workshop summaries and the recommendations included as part of the annual and final report summaries. The

recommendations can then be considered by the Biology Committee for inclusion in revised nonnative SOWs.

11. Capital projects (See Attachment 4 for list of remaining scheduled capital projects and budget summary) – (Update on pond construction – they can't begin construction until December; Brent is applying for a waiver to carry over the funds. >The Service will make recommendations for how/where to manage the fish spawned this year at the Grand Valley facility and bring those back to the Biology Committee.) Approximately $6M (and potentially more, in light of indexing) may remain after capital projects currently on the list are completed. Some funds will be needed for potential rehab of existing facilities, but if additional projects are needed to achieve recovery, we should develop a prioritized list. Michelle asked if a rehab/replacement schedule has been developed for existing projects; Tom Pitts said not for any projects other than the Highline Net. Additional potential capital projects the Program may want to consider include weirs for nonnative fish management, floodplain management/construction/purchase, PIT-tag reader at Maybell Ditch to monitor entrainment (and potential screen or other exclusion device, if needed), Wahweap use/hatchery building, etc. The Committee brainstormed other potential projects, including: additional propagation facilities for humpback chub (although Horsethief ponds and Ouray may meet some of these concerns), PIT-tag antennas for the bypass (return tubes) on the fish screens, a remote PIT-tag reader at Stewart Lake, reservoir screens, and additional water management options to provide still-unmet instream flows. >The Committee will work on prioritizing this list at a future meeting.

ADJOURN 5:15 p.m.

Friday, May 7

CONVENE: 8:00 a.m.

12. Aspinall PBO Study Plan development (All, 1.5 hour) – The Aspinall (Gunnison River Basin) PBO calls for a Study Plan to evaluate the effects of the proposed operations of the Aspinall Unit and how it improves habitat and thereby contributes to recovery. (See summary in Attachment 5.) The Study Plan is to be completed by December 2010 and should focus on previously identified uncertainties related to geomorphic processes, floodplain inundation, and temperatures (see the Uncertainties section of the PBO). The Study Plan also should include an evaluation of the effects of Aspinall reoperation on critical habitat in the Colorado River from the Gunnison River confluence to Lake Powell. A study plan was developed for the Green River in 2007; and Tom Chart said he anticipates using a similar process to develop the Aspinall Study Plan following the Green River template. A major component of the Green River Study Plan was the EIS and the uncertainties it identified; however, the EIS is not yet finalized for Aspinall. Steve said the draft final EIS has been in review in D.C. since January and Reclamation hopes the EIS and ROD will be finalized by Christmas. Reclamation supports moving forward with developing the study plan in the interim. With regard to the contaminants component, Barb Osmundson said the Selenium Task Force is already very active, increasing our need to begin collecting baseline data. Data are being collected for surrogates and Barb is working to tap into that sampling (including carp as a surrogate for razorbacks [blueheads and flannelmouths aren't accumulating selenium). Barb has submitted a proposal for analysis of these data, but has no guarantee for funding (the

samples can be stored frozen until funds are found for analysis, however).

The Aspinall Study Plan work group participants will include: Reclamation (Dave Speas and Steve McCall), the Service (Barb Osmundson, Patty Gelatt, Doug Osmundson, and Michelle Shaughnessy), Western (Shane Capron), Kirk LaGory, Colorado (Sherm Hebein) Tom Pitts, Park Service (Melissa Trammell and/or Mark Wondzell). The Program Director's office (Tom Chart, Angela Kantola, the new nonnative fish/instream flow coordinator, and potentially contract help) will provide staff support to the work group. With regard to input from John Pitlick, since his time is so limited, our best bet will be to ask him to review a draft document. A kick-off meeting will be held in Grand Junction at CDOW's conference room June 15-16 beginning at 12:30p.m. on June 15th and adjourning by noon on the 16th. (Sherm noted that Pat's Martinez' retirement party will be held the evening of the 17th.) >No later than two weeks prior to the kick-off meeting, the Program Director's office will provide a review package for Study Plan participants, to include: Gunnison River PBO, flow recommendations, floodplain mgmt plan, LaGory's geomorphology report, recent reports (e.g. #121 Gunnison River larval sampling), and a list of uncertainties identified in the flow recommendations, PBO, and draft EIS. Dave Speas noted that a major focus will need to be translating these uncertainties into hypotheses. Patty pointed out a difference between the Green and Gunnison is that the Recovery Program had more work already in progress on the Green River. We will want to tap into work CDOW has been doing on the Gunnison.

The Committee discussed the fish community monitoring proposal drafted by Doug Osmundson. Michelle said they would collect baseline presence/absence data in the first year (FY 2011). The selenium analysis in this scope of work would only be for samples from endangered fish and carp (but not other surrogates). Tom Chart indicated that in the PBO, the Recovery Program is committed to the collection of tissues for selenium analysis. His assumption was that the actual analysis would be part of the Selenium Management Program, and encouraged Barb to seek other funding sources for that task. This scope may need to take into consideration recommendations in the pending basinwide razorback monitoring plan. Tom Czapla said we will need to begin to do larval sampling in the Colorado River, also. Michelle agreed it may make more sense to just look at this as an FY 11 SOW, since work in FY 12 and beyond will be contingent on a number of factors. (Michelle will have Doug modify the scope of work accordingly, but won't bring it back to the Committee until after the Ad Hoc Study Plan group has met). Michelle said the first year CPUE would indicate whether or not population estimates are possible. Tom Chart emphasized that when the Recovery Program determines that population estimates for endangered fish are necessary on the Gunnison River they should be synchronized with the Colorado River estimate (conduct these estimates in the same, rather than opposite, years). Tom reiterated that the Recovery Program relies on CPUE to monitor fish community responses in Lodore and Whirlpool Canyons (Project # FR-115) to the Green River flow and temperature recommendations. Sherm mentioned that CDOW's captured seven razorback last year in sampling half of the river (>he will provide the Committee a copy of the output/report as soon as he receives it). Barb emphasized the need to determine both the effects of implementing the flow recommendations as well as selenium remediation. Whether or not we implement this proposed scope of work in FY 11 will depend on how it fits into the Aspinall Study Plan. Patty said she thinks the proposed FY 11 work would help guide future studies.

13. Ongoing and potential threats of oil and gas related spills to endangered fish recovery – Personnel from FWS Ecological Service's offices and State personnel joined the Committee to discuss ongoing and potential threats of oil and gas related spills which could impact recovery. Unaddressed threats include existing pipelines and projects with no Federal nexus. The relevant Management Action and tasks from the species' recovery goals are:

Management Action E-2.—Minimize the risk of hazardous-materials spills in critical habitat.

Task E-2.1.—Review and recommend modifications to State and Federal hazardous-materials spills emergency-response plans to ensure adequate protection for razorback sucker populations from hazardous-materials spills, including prevention and quick response to hazardous-materials spills (see section 4.5.2 for discussion of hazardous-materials spills).

Task E-2.2.—Implement State and Federal emergency-response plans that contain the necessary preventive measures (as determined under Task E-2.1) for hazardous-materials spills.

Task E-2.3.—Identify the locations of all petroleum-product pipelines within the 100-year floodplain of critical habitat and assess the need for emergency shut-off valves to minimize the potential for spills.

Task E-2.4.—Install emergency shut-off valves (as determined under Task E-2.3) on problematic petroleum-product pipelines within the 100-year floodplain of critical habitat.

Similar tasks appear in all 4 species recovery goals, but the humpback chub recovery plan has additional tasks related to the railway adjacent to Black Rocks and Westwater Canyon:

Task E-2.3.—Identify measures to minimize the risk of hazardous-materials spills in Black Rocks and Westwater Canyon from transport of materials along the adjacent railway.

Task E-2.4.—Implement measures (as determined under Task E-2.3) to minimize the risk of hazardous-materials spills in Black Rocks and Westwater Canyon from transport of materials along the adjacent railway.

Kim Kaal, CDOW's energy liaison gave a presentation on oil and gas issues that may impact the Colorado River in Colorado. H.B. 1298 didn't provide restricted surface occupancy related to endangered fish critical habitat. Potential problem areas include limited ability to regulate mineral development on private lands, long-term well-bore integrity, erosion/sediment transport, water distribution pipelines, water hauling and disposal, water depletions, evaporation pond pit liner and other breaches, vehicle rollovers, and spill reporting/notification. Barb Osmundson noted they often receive pollution reports from NRC five to six days after a spill event. Avenues for addressing issues include consultation, USGS broad-scale sampling and monitoring programs, use of agency energy liaisons, and participation in planning efforts.

Brad Hill, of Utah's Oil, Gas & Mining Division, addressed State and Federal permits in Utah. The State has exclusive permitting responsibilities on State and private lands where there's not a split estate. The State also permits on Federal lands (focusing on siting and spacing, with the BLM doing the bulk of the permitting). Brad said Utah's O&G program regulates drilling and production locations, injection wells, and waste facilities. They don't

regulate pipelines and don't have specific stormwater rules (but consider stormwater in onsite reviews for drilling permits). Most activity is currently in Uintah County in the Uintah Basin. UDWR doesn't comment on all permits. Brad said they work closely with DEQ on spill response.

Rick Krueger (USFWS) has responded to two fairly significant spills over the years – one in the Yampa River and one in the White River. On the Yampa, an unquantified amount of raw crude oil (not very volatile) affected 20-30 miles of the river before spring runoff. The contractors did a good job of cleanup. No fishery impact was documented and the risk likely was greater to migratory birds. The White River spill was similar to the Yampa, affecting 20-30 miles of river in the mid-1990's with no documented fishery impact. Rick said pipeline crossings and rail and truck accidents have the greatest potential to impact endangered fish. Most companies have shutoff valves, but can't detect small, pinhole leaks which can result in significant spills from high-pressure lines (can happen as a result with problems with the corroding cathode). Inspections don't always catch these problems.

Scott Hacking, Utah DEQ Uintah Basin District Engineer, commented via e-mail that some gaps exist in how DEQ handles spills state-wide, but that the TriCounty Health Department has taken it upon themselves to fill those gaps in Daggett, Duchesne and Uintah Counties, developing better spill procedures than most areas of the State (excluding the Wasatch Front). Darrin Brown of Tri-County said operators in the Uintah Basin didn't clearly understand to whom they should report spills and what clean-up was required. Tri-County has asked that they report to the Health Department who then determines significance and coordinates response. If it's a significant spill, they do a site review and determine appropriate next steps (which agencies are notified, etc.). Most spills are not significant and can be quickly cleaned up. However, the reality is that most spills are not reported or followed up on.

Barb Osmundson said that if the Service responds to an event, they can be reimbursed and if trust resources are lost, they can pursue a natural resource damage assessment (NRDA). Barb said they've seen many small spills, and don't know the cumulative effects of these. Barb said EPA developed a number of spill contingency plans, including one for the Colorado River, which the Service uses. Unfortunately, DOI is pretty far down on the notification list in the plan, the plan is 10 years out of date (thus contact numbers, etc., are out of date) and EPA has not indicated a willingness to update the plans. Contingency plans also exist for the Green and Yampa rivers (similarly out of date), but there are no plans for the White or the San Juan. Barb suggested that the >Recovery Program write EPA and ask them to update these plans. Barb said EPA also used to lead very helpful "tabletop response exercises." Most O&G companies contract with environmental response companies; some of whom Barb said have been very good to work with. Every spill is different, but in some cases, EPA has not been appropriately responsive to FWS personnel on the site of a spill.

Creede Clayton discussed consultations and pipelines. Creede said his focus has been in Garfield County (Rifle to Debeque). This area has 6-7 pipelines he knows of, all but one of which go under the river. Creede believes these pipelines carry only natural gas and produced water. Creede consulted on a FERC-regulated pipeline crossing over the Colorado River (FERC is only involved with large transmission pipelines). This pipeline went in the same right of way as existing lines. The Service requested automatic shutoff valves on both

sides of the river; the company was willing to put a valve on the upstream side of the natural gas pipeline. The valve cost ~$100K, is triggered by a drop in pressure, and takes about a half hour to fully shutoff the line (gas lines do contain some liquids). In Garfield County, ~80% of wells are on private land and even companies putting lines under the river don't notify the Service about these. Generally these lines are bored deep under the river in bedrock. (Others noted that some of these aren't in bedrock and they are high-pressure lines that potentially could contaminate the river if they leak.)

Tom Chart said he talked to Program participants in the fall about the Program writing a letter to the States asking them to consider the effects to critical habitat in their permitting, but that was not well received. Sherm Hebein noted that no one agency permits and inspects all these pipelines or requires ongoing maintenance. The States have some regulatory ability on private lands, where the Service has none. Kevin McAbee said the Service office in Utah has commented on pipelines on private lands through the Utah Stream Alteration permit process. They have been able to get shutoff valves installed in some cases this way.

Dave Speas suggested identifying the unprotected portions of critical habitat along with areas with the greatest risk of spill and greatest risk to endangered fish populations. Barb Osmundson said another concern is hazardous materials routes and railway routes. Barb suggested that we need to determine if the number of populations identified in the Recovery Goals would be sufficient to maintain the species if one population experienced a catastrophic event such as a significant spill. Another need is a map of all pipelines crossing or adjacent to the river.

Drew Crane, Kevin McAbee, and John Isanhart of USFWS are planning to tackle some of the Green/Colorado/White River oil and gas issues, primarily dealing with existing and proposed pipelines. Kevin asked if we might ask O&G companies to provide funds to accomplish the tasks identified in the recovery goals/RIPRAP. Tom Pitts questioned whether the few projects with a Federal nexus would contribute enough funds to be meaningful, but suggested that the Service could ask companies to provide a map of all their pipelines when they do consult on projects with a Federal nexus. BLM also will be an important resource in mapping all pipeline crossings. Barb suggested that more local supplies for spill response would be helpful (often the necessary booms and other equipment are located in Denver). Melissa suggested that the committee may want to hear from the BLM and EPA on this issue in a future meeting.

14. Discuss purpose and schedule for floodplain review/site tour – The Committee would like to schedule visits to Program floodplain sites with Ryan Mollnow, Ouray NWR, but this likely won't occur until the fall (perhaps conjuction with a Biology Committee meeting). Topics for the review and site tour would include: review of management plans for the Green and Colorado river basins; discussion of options for Baeser Bend and Old Charley Wash (Modde's rotational floodplain management plan); Reclamation's work to implement recommendations from Heitmeyer and Fredrickson 2005; recommendations from the floodplain synthesis report (in review); and continued work to monitor floodplain sites under C-6 Hydro. Michelle suggested that we should discuss an overall floodplain management strategy as part of this review. Tom Chart said the floodplain synthesis report (which should go to the Biology Committee in the next week or so) will pull together some long-term data sets and make recommendations for how we manage Green River flows to connect the

floodplains, but also will address the quality of the habitats themselves. On the Colorado River side, we don't have as much information, therefore we may want to focus this site review on the Green River. The Committee tentatively scheduled a combined Biology Committee meeting with the Floodplain review/tour for a half day on September 28th, all day 29th and a half day on the 30th in Vernal, Utah at UDWR's office; the >Program Director's office will check with Ryan Mollnow regarding his availability in this timeframe.

15. Green River smallmouth bass management (123b) – Krissy Wilson said Trina's office did not budget enough funds for 12 complete passes from Sand Wash to Tabyago. They have enough funds for 8, possibly 9 passes. They might be able to do more with Tribal assistance, but the Tribe uses Service CRFP equipment and personnel which may not be available. Alternatively, Trina said they could put more effort into passes in the Sand Wash to Tabyago reach where they've found such high SMB abundance. In light of the Program's tight budget, Krissy recommended the 8-9 passes, with Trina keeping folks informed about their catch rates and any recommendations to shift focus to the lower reach. The Committee agreed, and recommended focusing on spawning and large adults.

16. Schedule next meeting (All, 5 min): August 17th to 18th in Grand Junction at the Holiday Inn Hotel and Suites 12:30 to noon. Possible option to see Price-Stubb passive PIT tag monitoring system (if installed the week before and we can get access) Agenda items will include update on the Aspinall Study Plan, any major revisions to FY 11 sows, update on nonnative fish plan, and possibly report review for #138 and floodplain synthesis.

ADJOURN 12:00 p.m.

Attachment 1: Assignments

1. *Tom Nesler will check on the status of revision of the Yampa River Aquatic Management Plan. 1/15: To be completed by 5/1/09. 7/8: In CDOW review/revision with commitment to MC to provide by early July. 7/13: Draft will be available for internal review by mid-July. CDOW will send the draft out the States and Service (NNFSP) prior to Greg Gerlich's final approval. 9/21: The draft final will be distributed to the Recovery Program office and the NNFSP Agreement signatories as a courtesy copy for review and comment. Pending comments received and further revision, Greg Gerlich and Tom Nesler will approve the plan. 10/6: The plan has been sent to the Program Director's office and the signatories to the NNFSP for courtesy review (comments due by the end of October). 1/15/10: FWS provided comments in early November. Tom Nesler will check with Sherm to see if Wyoming provided any comments; CDOW will respond to comments and copy the Biology Committee. 3/10:* ***Sherm Hebein*** *said he* ***and Tom Nesler*** *hope to finalize this by March 19. 4/7: Sherm and Tom Nesler reviewed 4/6; Sherm is incorporating changes, reviewing suggested changes that are policy-related within CDOW, and responding to suggested revisions they to which they can't respond. Tom says they expect it will be ready for signature by the end of April 2010 (the 98a synthesis report also will be completed by the end of April). 5/6/10: Sherm still needs to incorporate comments; the Plan will be finalized no later than July 1, 2010. On the 98a final report, CDOW comments are being incorporated and will come to the BC for final review no later than July 1, 2010.*

2. The Program Director's office will work with CDOW and Aaron Webber on the potential for designing a permeable, hydrologically-stable (gravel?) berm to prevent northern pike access to the oxbow slough at RM 151 on the Yampa, and then clean it out once and for all. *10/30 CDOW has contacted the property owners of the RM 151 backwater, but hasn't been able to meet with them yet. Mark Wernke from Reclamation is willing to take a look at the property with CDOW. A fairly long berm would be required (>3,000') and we'll need to determine the best type (more permanent configurations could be very expensive). The funding source would need to be determined, with Partners for Fish and Wildlife, lottery funds, grant funds, etc. as possible sources to be explored. 1/15: Tom Nesler said they plan to get engineers develop specs/estimates this spring for something like a 10-year berm structure; the next step will be to find funding (perhaps as a habitat project through GOCO). This would be the first of three or four such projects. Tom Pitts suggested that if the Program provides some matching funds (annual or capital), it might improve the probability of getting GOCO money. Tom also suggested that if we have a project in the hopper, we might be able to compete for end-of-year Reclamation funds. 2/10: The PD's office considers this a high priority and will contribute funds, if available (see revised FY09 budget). 2/20: Recovery Program funds likely available; CDOW working to get engineers on the ground; Nesler considering different approaches (berm, fill the oxbow, etc.). 4/20: Tom Nesler said they've met with the landowner and Reclamation engineers will do an onsite survey as soon as the snow melts. 1/5/10: Project deferred indefinitely; Reclamation cautions that the lesson from the Butch Craig floodplain site is to be very cautious before considering modifying habitats. Based on the channel dynamics in this area of the Yampa River, it would be unwise to construct an impervious dike at the mouth of this backwater. 1/14/10: The Committee discussed other options to eliminate spawning in this area; the >PD's office will provide Mark's trip report to the BC and work with CDOW to outline options for Committee discussion at the next meeting (options could include: make the entrance too shallow for*

adults; a dike set back instead of right at the river; direct removal/net sets; piscicides, etc.) 2/22: PD's office provided Mark's report. 3/10: ***CDOW*** *will work with Reclamation to flesh out their gravel proposal and also will review additional options (e.g., plant eradication, barriers, etc.). This will be on the May 6-7 Committee agenda. 5/6/10 Sherm Hebein said Reclamation will conduct a site visit with CDOW in July*

3. Within the next month, >the **Service and Program Director's office** will provide the Committee a draft addendum to the White River report that will present the measured flow requirements in a historical hydrologic perspective. The Program Director's office also will research where we left Schmidt and Orchard's draft report on peak (channel maintenance) flows and recommend whether to have it reviewed by the geomorphology panel. The Program Director's office will use the information currently available to >develop a position paper on Price River flow recommendations for Committee review. *10/16 Pending; out by the end of ~~November~~ 1/5: February 2009. 2/20: Bob Muth said he's making good progress on this and he'll have a draft to the Committee by ~~early March~~ end of April. 7/8: Mohrman and Chart expect to provide drafts of this and Price River report by the end of August 2009. 7/13: Dave Speas said the goal for the Narrows EIS is to get it out for public review in the fall, so the above schedule should work. The PD's office will keep the Service's SLC-ES shop in the loop on Price River. 9/21: Chart and Mohrman have made good progress on this, but other priorities have so far prevented completion. 1/14/10: still pending and the PD's office will continue to communicate with Reclamation re: Narrows. 3/3/10: PD's office is communicating with SLC-ES to determine the best way to move this position paper forward. 5/6/10: The Program Director's office will complete a position paper (or similar construct) on Price River endangered fish flow needs and submit it for Biology Committee review by September 1, 2010. The Program Director's office will complete the addendum to the White River report and provide a status update and recommendation on the draft Schmidt and Orchard report on peak (channel maintenance) flows for Biology Committee review by December 31, 2010.*

4. *Melissa believes an Environmental Assessment of the impacts of the Humpback chub captivity management plan (also addresses how to deal with captured roundtail chub) will need to be written;* Krissy will work with Melissa on the EA. *7/13: Melissa needs to coordinate with the NPS if this is the case and she intends to do that in the next few weeks. 10/6: John Reber reported that* ***Melissa Trammell*** *will do the EA for this. 5/6/10 Melissa said she would have a draft for the park by the end of May.*

5. **Krissy Wilson** will provide Utah's Health Condition Profile to **Tom Czapla**. *4/20: Krissy has asked for a formal write-up from their hatchery folks. 7/13: Krissy will condense relevant information gleaned from hatchery managers and consider organizing workshop(s) in the future. 10/6: Krissy provided this information to Tom Czapla and will work with Tom to determine if we'll host a workshop for hatchery personnel (pending, will schedule after new hatchery manager is in place at Ouray NFH). 3/10: Workshop on condition measurement for hatchery folks will be scheduled in late summer or early fall, probably in Grand Junction (to allow someone from the Mumma Hatchery to attend); >Tom Czapla will also invite San Juan Program hatchery managers.*

6. The **PD's office** will communicate with Gary White to determine how many and which of the questions from the HBC workshop to focus on. *Pending.* **Derek Elverud** will provide

the database for Westwater for Gary White to combine with Black Rocks, which will require a separate SOW. *10/6: **Travis Francis** said they plan to complete the reports, then revisit a SOW for assistance from Gary White. 3/10: pending. 4/28: Derek Elverud has finished compiling the Westwater data to send to Gary White. Travis Francis is going to combine his Blackrocks data set with the Westwater data (when he has time after he gets out of the field in mid-June).*

7. The **Program Director's office** will review the 121a report recommendations (as well as the Gunnison PBO) and determine what items need to be included in the RIPRAP. *2/22: PD's office recommended this be incorporated into the Gunnison River Study Plan.*

8. The Service will review Modde's plan and develop a plan to implement rotational floodplain management. *2/22: PD's office recommends **Biology Committee** review; Angela Kantola sent to the Committee on 3/10. 3/11: **Angela Kantola** will send the Committee a "Doodle" request to schedule a meeting to visit floodplain sites and review overall floodplain management. **Aaron Webber** will outline a set of options for using Baeser Bend and/or Old Charley as razorback acclimation sites for consideration at the Biology Committee's upcoming meeting focused on floodplain management.*

9. **CDOW** will review the Loudy-Simpson escapement data and make a recommendation for where to translocate fish prior to the field season. *3/10: Sherm said their preliminary work indicated that less than 1% of the fish stocked into Loudy-Simpson 2007-2008 escaped back to the river (p-hat analysis resulted in an estimate of 3 to 8 fish), so they think escapement very minimal. CDOW will continue to evaluate and will defer stocking northern pike into Loudy-Simpson until after the river recedes and no Loudy-Simpson is no longer connected (the same will apply to Yampa R. SWA). In light of likely overwinter survival, Tom Chart asked CDOW to continue to focus on Headquarters Pond as long as it will sustain the number of fish being stocked.*

10. The **Program Director's office** will prepare a list of issues to be resolved regarding Tusher Wash screening (e.g., what levels of mortality are acceptable for what size classes, potential O&M costs, etc.) to help move this decision forward (and provide that to the Biology Committee and the Service). *Done. 5/6/10* A small group (Melissa, Kevin McAbee, Dave Speas, Tom Pitts, and Tom Czapla) will work with Kevin Bestgen to review/build on the risk assessment, focusing on understanding existing impacts and what could be gained by various screening options. Tentatively, it would seem the best choice would be fish friendly runners with a screen on the irrigation ditch (contingent on further analysis).

11. **Angela Kantola** will add a reminder to future annual report requests about the importance of PI's supervisors' reviewing recommendations to be sure that they are grounded in the data and that the Program takes these recommendations seriously. *Pending in 2010 annual report request.*

12. **Michelle Shaughnessy** will provide cost comparisons for O&M of the proposed new Grand Valley fish rearing ponds versus existing ponds as soon as the value engineering study is completed. *Pending; Michelle anticipates ~$30K increase in total costs (primarily fish food).*

13. **Angela Kantola** will post the revised March meeting summary and send the Committee a revised reports due list and revised BC list (*BC list done*).

14. The **Program Director's office** and **Kevin Bestgen** will work with **PI's** to identify sampling shortcomings and remedies for Green River Colorado pikeminnow population estimate and report back to the Biology Committee. >**Kevin** will clarify conclusion #4 in his report and fix a typo Brandon noted, finalize the report and provide a copy to the **PD's office** to post on the web. *Done.*

15. The **Program Director's office** will post the revised 2008 and 2009 nonnative fish workshop summaries to the web. **Dave Speas** is working to tabulate the recommendations from the 2008 and 2009 workshops and outline how to implement them and the NNFSC will meet to discuss this on June 30. In the future, the **PD's office** will quickly complete these workshop summaries and the recommendations included as part of the annual and final report summaries.

16. The **Service** (**GJ-CRFP** and the **Program Director's office**) will make recommendations for how/where to manage the fish spawned this year at the Grand Valley facility and bring those back to the Biology Committee.

17. The **Biology Committee** will work on prioritizing their list of potential additional capital projects at a future meeting.

18. By June 1, the **Program Director's office** will provide a review package for Aspinall Study Plan Ad Hoc Group participants, to include: Gunnison River PBO, flow recommendations, floodplain mgmt plan, LaGory's geomorphology report, recent reports (e.g. #121 Gunnison River larval sampling), and a list of uncertainties identified in the flow recommendations, PBO, and draft EIS.

19. **Sherm Hebein** will provide the Committee a copy of the output/report on CDOW's Gunnison River work (e.g., wherein they captured seven razorback last year in sampling half of the river) as soon as he receives it.

20. The **Program Director's office** will draft a letter from the Recovery Program to EPA asking EPA to update their spill response contingency plans.

21. The **Program Director's office** will check with Ryan Mollnow regarding his availability for a floodplain site review at the end of September.

22. The PD's office agreed to send a letter to Director Remington supporting the CDOW order which prohibits the transfer of live crayfish in the Yampa River drainage.

Attachment 2

Larry and Pat Martinez just completed a discussion of the data, results and implications for Recovery Program electrofishing personnel.

1) The key difference between waveforms of the VVP and the GPP 5.0 is the duty cycle. The field data sheets providing records of electrofisher settings from Walford/Hawkins were essential in helping to identify the significance of this difference.

2) The field observations provided by Cameron in his Researcher's meeting presentation regarding superior taxis of fishes in response to the VVP is attributable to the VVP's capacity to operate at a duty cycle (~30) that is twice that of the GPP (~13). Both levels of duty cycle are within the recommended range (10-50), but higher duty cycles tend to be associated with better electrotaxis of fish within the effective electrical field.

3) The GPP cannot achieve these higher duty cycles unless it is operated at frequency of 120 Hz. Since the percent of range adjustment is operationally fused with duty cycle in the GPP design, it may not be feasible to operate the GPP at a more favorable, higher duty cycle as it would require adjusting the percent of range upward such that it may be applying too much voltage which may injure fish.

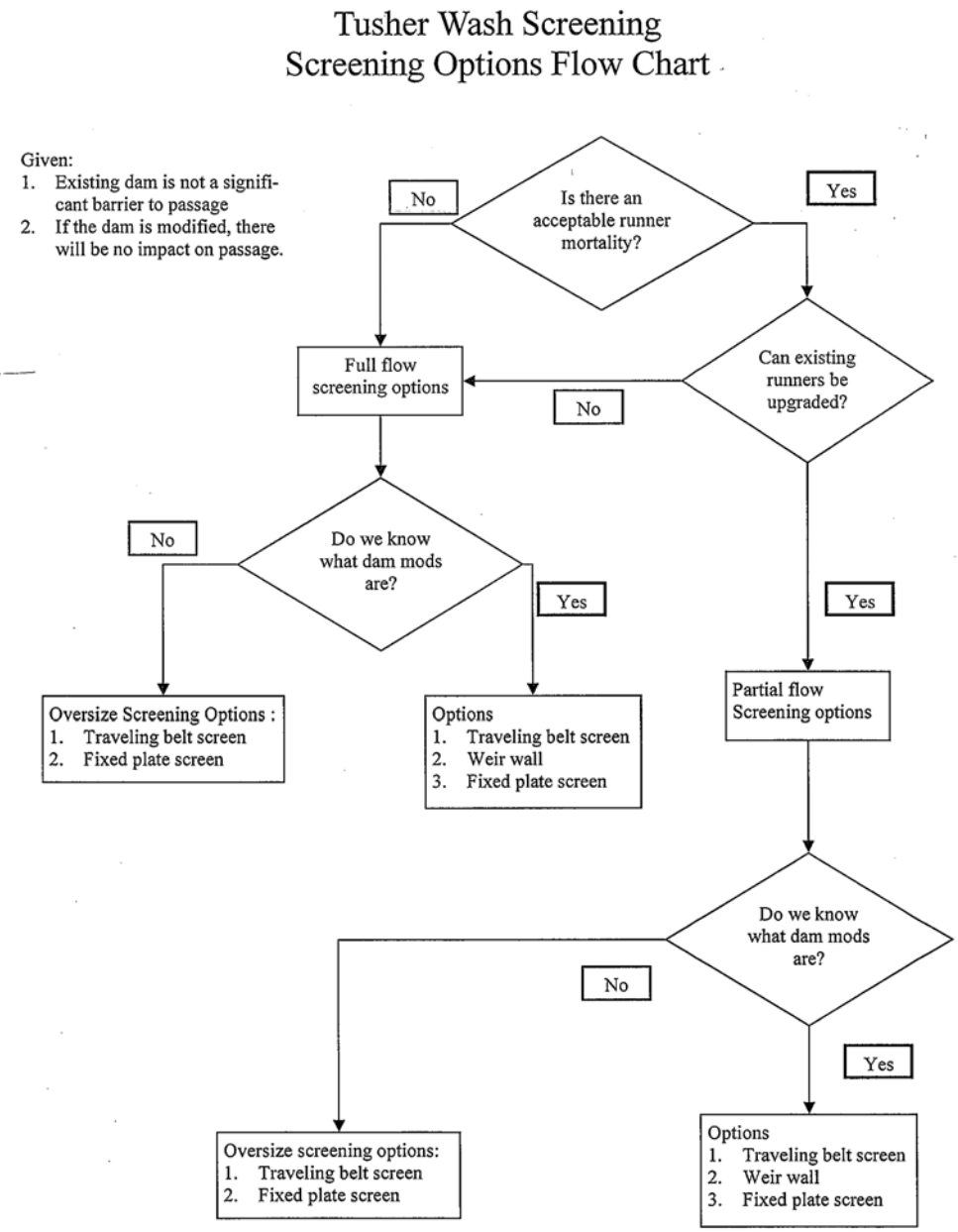
4) Neither the VVP or the GPP offer the best solution to the range of conductivities encountered in UCRB rivers by aluminum-hulled electrofishing boats. The VVP is only able to maintain sufficient power to capture fish up to about 400 µS/cm. The GPP can operate across most of the conductivity range encountered, but the catch by a VVP-15B would be expected to prove consistently higher at the lower conductivities, provided the unit was operated and functioning properly (a range of operational variability was noted in the units tested - Crockett's will require service to correct a faulty duty cycle adjustment knob).

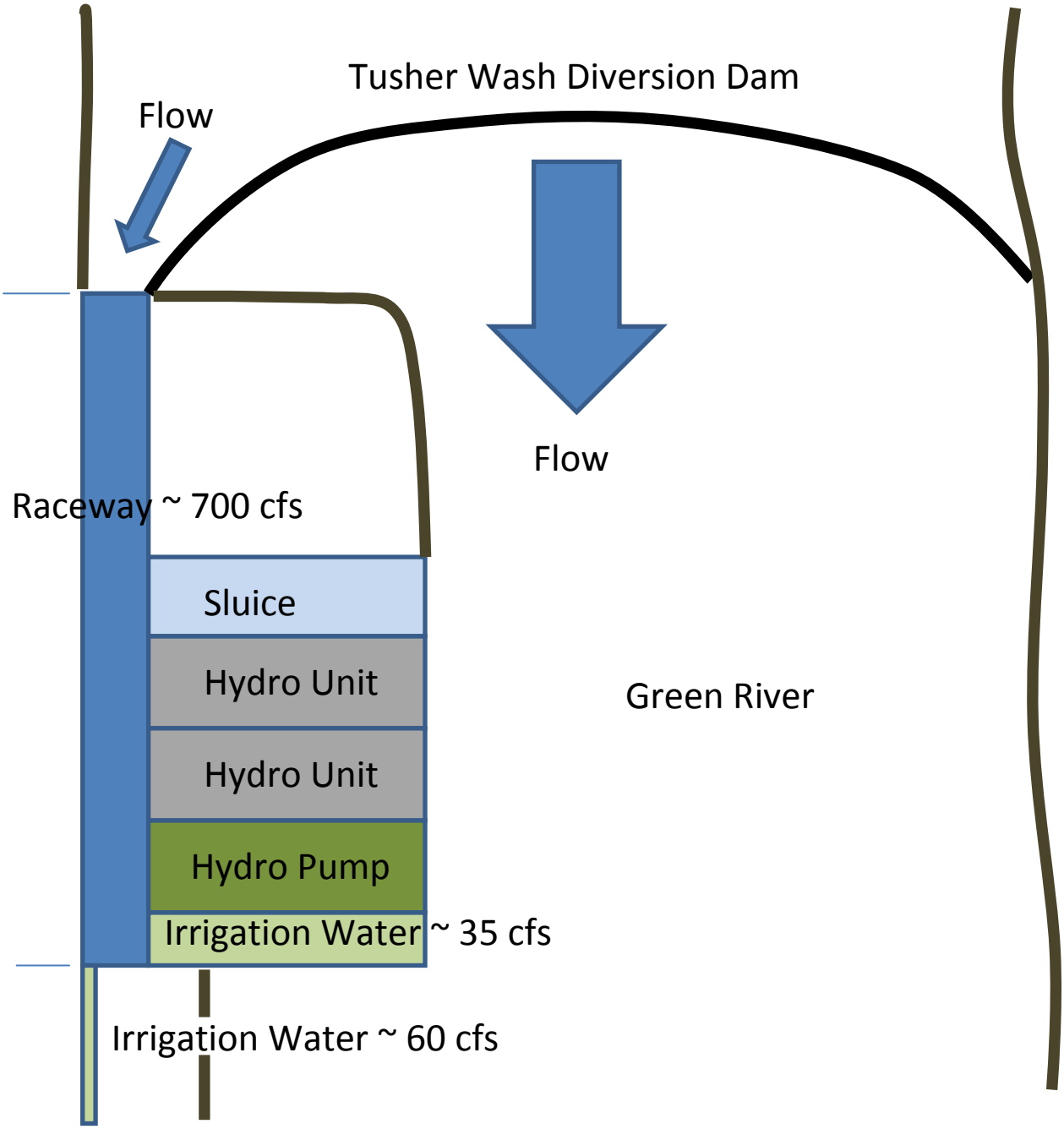
5) For aluminum electrofishing boats operating on UCRB rivers, this issue of electrofisher performance appears to have the most immediate implications for the Yampa River because of its generally lower water conductivity. While boats can be wired to accommodate either system, deploying both on an individual boat is impractical due to the need for two different generators (GPP generators are proprietary). While the use of a VVP may optimize SMB capture at 100-400 µS/cm, its use would become ineffective during early season passes when water conductivities are higher or in high conductivity backwaters which may hold other targeted species (e.g. northern pike).

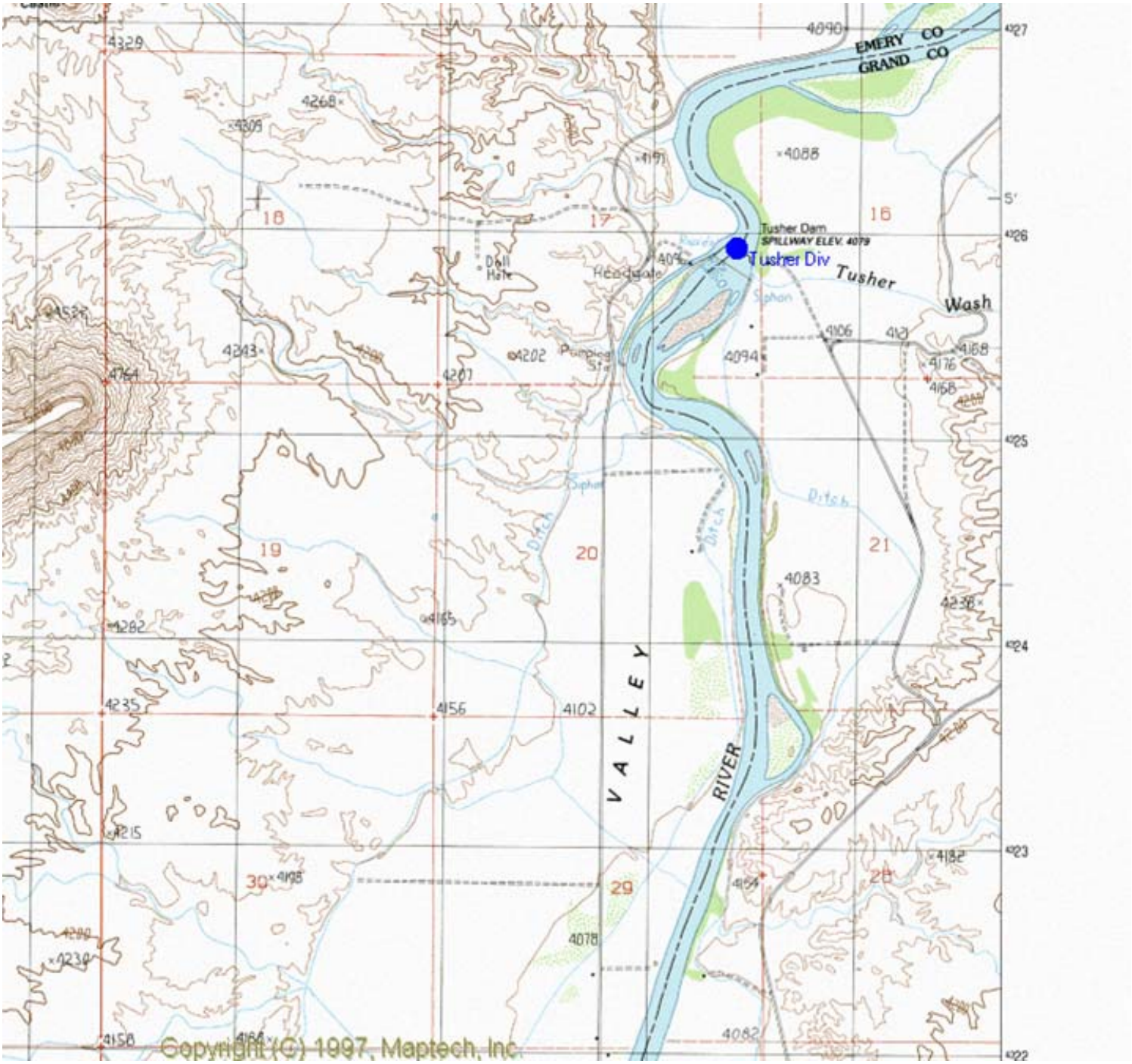
6) Fleet standardization remains a desirable and recommended goal. By standardizing the electrodes, we have been able to provide performance evaluations of the electrofisher options. Reducing anode sizes in an attempt to expand the utility of the VVP is discouraged. This defeats the standardization of the effective field of fish capture by reducing the effective field to boost power output which may result in more fish injury.

7) Further analyses revealed a 17% difference in electrical resistance between half-submerged and fully-submerged spherical anodes. Insulating the top half of the anodes with a non-conducting covering would help stabilize the electrofishing circuit and reduce the degree of power surges due to varying degrees of anode submergence resulting from boat motion or water conditions. This anode treatment would be particularly helpful when operating at maximum power in high conductivity, and may facilitate more effective fish capture under these extreme conditions.

Attachment 3: Tusher Wash Information




Tusher Wash Diversion Dam
Flow
Flow
Raceway ~ 700 cfs
Sluice
Hydro Unit
Hydro Unit
Hydro Pump
Irrigation Water ~ 35 cfs
Green River
Irrigation Water ~ 60 cfs


EMERY CO
GRAND CO
Tusher Dam
SPILLWAY ELEV. 4079
Tusher Div
Tusher
Wash
Headgate
Drill Hole
Pumping Sta
Siphon
Ditch
VALLEY
RIVER
16
17
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Tusher Wash Screening Options

Info for BC and Service to consider:

1. Tusher Diversion is currently affecting Colorado pikeminnow more than other endangered species
    - The Tusher Diversion is unique in that the majority of CPM larvae produced at 3 Fords spawning bar (~25 mile upstream) drift by this site
    - adults are present in this area, but the Lower Green CPM population is comprised mostly of fish <450mm TL
    - juveniles from the lower Green move upstream / over Tusher to repopulate Deso and Middle Green
    - Bestgen et al. 2010 (draft) has demonstrated that under current conditions the Lower Green accounts for enough recruitment to result in pop increases.
        - nevertheless if the diversion was not in place we should assume recruitment would be better.

2. At some point in the future we can assume that razorback sucker and bonytail could be equally affected.

3. Humpback chub are not likely affected under current conditions and are not likely to be affected in the future.

4. The majority of water diverted at Tusher returns to the river a relatively short distance downstream after being run through hydropower turbines; a smaller portion of water is depleted for irrigation purposes.

5. In the matrix below ITS = Incidental Take Statement

Greatest	Costs / Endangered Fish Protection					Least
OPTION	**Screen Entire Canal (using the Grand Valley model or using a weir)**	**Replace hydroplant with fish friendly turbines + screen irrigation diversion w/ fish returned directly to river**	**Replace hydroplant with fish friendly turbines + screen irrigation diversion w/ fish shunted thru powerplant**	**No change at powerplant - screen irrigation diversion w/fish returned directly to the river**	**No change at powerplant - screen irrigation diversion w/ fish shunted thru the existing power plant.**	**Do nothing**
Construction Timeframes	Would likely need to wait till dam was rebuilt	Could be started immediately	Could be started immediately	Could be started immediately	Could be started immediately	NA
Effect to juveniles and adults	Likely results in the greatest reduction in current rate of mortality	Greatly reduces take associated with entrainment into irrigation canal plus some benefit from reduced mortality with the FF turbines	Reduces take associated with entrainment into irrigation canal plus some benefit from reduced mortality with the FF turbines	Greatly reduces take associated with entrainment into irrigation canal. Current level of mortality at the powerplant (unknown) remains the same.	Reduces take associated with entrainment into the irrigation canal. Current level of mortality at the powerplant (unknown) remains the same.	Existing levels of mortality would continue
Assumption		All fish entrained into irrigation portion of the canal are lost and fish friendly turbines cause less mortality than the current powerplant.	All fish entrained into irrigation portion of the canal are lost and fish friendly turbines cause less mortality than the current powerplant.	All fish entrained into irrigation canal are lost - some unknown % of all life stages are lost in the powerplant	All fish entrained into irrigation canal are lost - some unknown % of all life stages are lost in the powerplant	All fish entrained into irrigation canal are lost - some unknown % of all life stages are lost in the powerplant
Other Consider-ations	Periods of downtime (screen or weir not operating correctly) would return us to the current condition. Recovery Program would not need to conduct mortality tests.	If the Service is comforatble with 2nd assumption there may be no need to conduct mortality tests.	If the Service is comforatble with 2nd assumption there may be no need to conduct mortality tests.	Recovery Program would likey need to quantify mortality at the existing powerplant for the Service's Incidental Take Statement (ITS)	Recovery Program would likey need to quantify mortality at the existing powerplant for the Service ITS	Recovery Program would likely need to characterize mortality (assoc. w/ turbines and irrigation canal) in terms of the existing Lower Green River population; Service would need to consider that level of mortality "acceptable" and incorporate into an ITS.
Effects to larvae	A Grand Valley type screen could drastically increase larval mortality; weir ??	May shunt some larvae that would have been lost in irrigation canal back to river.	No change from current situation	May shunt some larvae that would have been lost in irrigation canal back to river.	No change from current situation	No change from current situation
Recovery Program O&M	Would likely require the most manpower	Would likely require moderate amounts of manpower	Would likely require moderate amounts of manpower	Would likely require moderate amounts of manpower	Would likely require moderate amounts of manpower	Least obligation to the Recovery Program

SAN JUAN AND UPPER COLORADO COST CEILING SUMMARY (Dated 03-30-2010)

	SJRIP	UCRIP	TOTAL
Remaining Cost Ceiling End of FY 2008 1/	$ 15,400,000	$ 28,332,000	$ 43,732,000
P.L. 111-11 Cost Ceiling Increase	$ 12,000,000	$ 15,000,000	$ 27,000,000
FY 2009 Expenditures	$ 285,000	$ 5,999,000	$ 6,284,000
Remaining Cost Ceiling End of FY 2009	$ 27,115,000	$ 37,333,000	$ 64,448,000
Projected Expenditures FY 2010 - 2023 2/			
Farmers Mutual Ditch Repair	$ 9,000,000	$ -	$ 9,000,000
APS Fish Passage	$ 1,500,000	$ -	$ 1,500,000
Fruitland Fish Passage	$ 1,500,000	$ -	$ 1,500,000
Hogback Fish Barrier	$ 2,500,000	$ -	$ 2,500,000
San Juan Capital Projects Management	$ 700,000	$ -	$ 700,000
Horsethief Canyon Rearing Ponds	$ 900,000	$ 4,500,000	$ 5,400,000
Butch Craig Levee Repair	$ -	$ 500,000	$ 500,000
GVIC Fish Screen Retrofit	$ -	$ 400,000	$ 400,000
OMID Canal Automation	$ -	$ 16,500,000	$ 16,500,000
Price-Stubb Fish Passage Pit Tag Reader	$ -	$ 120,000	$ 120,000
Tusher Wash Fish Scrren/Barrier	$ -	$ 8,000,000	$ 8,000,000
Upper Colorado Capital Projects Management	$ -	$ 1,400,000	$ 1,400,000
Projected Expenditure Total	$ 16,100,000	$ 31,420,000	$ 47,520,000
			$ -
Unallocated Remaing Ceiling FY 2010 - 2023	$ 11,015,000	$ 5,913,000	$ 16,928,000

Notes:

1/ Indexed to 2008 price level

2/ Projected costs are based on estimates of varying detail and should be used as approximations only.

Attachment 5

New demands/needs for research, monitoring and other projects from Aspinall PBO

Recovery Program Obligations under the PBO:

Monitor fish populations in Gunnison River: Program monitors pikeminnow populations and is developing a basin-wide razorback monitoring program to include monitoring of multiple life stages. Monitoring program design is expected to be completed in fiscal year 2010. Implementation to begin in 2010 and include multi-life stage monitoring on the lower Gunnison. Density estimates will be developed for Colorado pikeminnow and razorback sucker in the lower Gunnison River.

Collect tissue samples during monitoring: During fish community monitoring in the lower Gunnison River, tissue samples will be collected from razorback suckers, as well as a chosen surrogate species, to determine selenium concentrations.

Assist in development of Study Plan to evaluate effects of Aspinall reoperation and how it improves habitat & contributes to recovery. Complete within one year of PBO. Include an evaluation of the effects of reoperation on critical habitat in the Gunnison River and Colorado River from the Gunnison River confluence to Lake Powell. Focus on previously identified uncertainties related to geomorphic processes, floodplain inundation, and temperatures:

While relationships among initial motion, significant motion and streamflow are well defined, duration of flows necessary to accomplish habitat work is not completely known. Because flow duration recommendations were developed based on a wet period, the recommended durations require a large volume of water that may not always be available.

Water availability may limit the ability of the Gunnison River to meet the Flow Recommendations under certain conditions.

Because of timing and other differences in runoff patterns of the Colorado and Gunnison rivers, it is difficult to predict the effect of Gunnison River flow changes on the Colorado River.

The trade-off facing Colorado pikeminnow between stream bed maintenance and temperature regime in the Gunnison River is an uncertainty that may need to be evaluated by the Recovery Program.

The Recovery Program may need to evaluate the trade-off between high spring flows and base flows needed during the mid- to late summer to operate Redlands (and, to a lesser extent perhaps, maintain movement of sediment through the system).

Conservation Recommendations: (Discretionary agency activities to minimize/ avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.)

Selenium: Recovery Program initiate investigations to determine appropriate levels of selenium to insure recovery of Colorado pikeminnow and razorback sucker. Any new studies would follow established Recovery Program protocol for priority and funding.