

BIOLOGY COMMITTEE MEETING
MARCH 22 23, 2000
Colorado State University
Fort Collins, Colorado

Participants: Art Roybal, Tim Modde, John Hawkins, Tom Chart, Tom Pitts, Matthew Andersen, Tom Nesler, Paul Dey, Henry Maddux, Robert Muth, Angela Kantola, Tom Czaplá, Pat Nelson, Tom Pruitt, John Hayse, Kirk LaGory, Gerry Roehm, Brian McClure, John Reber, Larry Crist, Kevin Bestgen, Rich Valdez, George Smith, John Wullschleger, Frank Pfeifer, Gary Burton, Chuck McAda, Dan Beyers, and Pete Cavalli (via phone).

Convene: Wednesday (March 22), 10:10 a.m.

1. Revisions/Additions to Agenda - The agenda was modified as it appears below.
2. Approval of February 8-9 Meeting Summary - With the spelling correction of two names (John Wullschleger and Quint Bradswich), the summary was approved as written.
3. Discussion/Approval of Draft Final Report Flow and Temperature Recommendations for Endangered Fishes in the Green River Downstream of Flaming Gorge Dam (Muth et al.), January 2000. Bob Muth gave a PowerPoint presentation on this synthesis report.

Tom Nesler recommended that the synthesis report acknowledge the fact that some of the Utah reports did not demonstrate correlation between changes in habitat and larval pikeminnow abundance.

Tom Pitts asked that reference to flow recommendations on page 5-8 (the third bullet) be struck.

Paul Dey asked a question regarding frequency of in-channel maintenance flows in Reach 1; Muth replied that they believe the current recommendation will provide the needed habitat. Brian asked if preventing channel narrowing is an objective, noting Schmidt's statement that flows > 10,900 (not 8,600) will be needed to reduce vegetation encroachment. John Hawkins asked about operational constraints at the dam dictating the biological recommendations (with reference to the 4,600 and 8,600 recommendations); Muth replied that these are simply the flows at which the measurements were taken, they are not operational constraints. John noted that on page 5-27 the recommended flow patterns are actually examples; Muth said they will clarify that. John asked if the authors could add a simple explanation of how they got from the minimum flow recommendations to the examples; Muth said no, because these are just hypothetical hydrographs of the potentially hundreds of hydrographs which could be generated to meet the recommendations. The recommendations contain flow targets which may not match the natural, unregulated hydrograph (targets which were identified based on observed physical habitat characteristics and biological requirements). The intent is to actively manage the magnitude and duration of flows to perform perhaps even better than natural patterns might have provided. Tim Modde suggested clarifying

that the two weeks (18,600 peak in the wettest years) is designed to provide habitat when razorback sucker larvae are present (on page 5-17, in the wet and moderately wet years for Reach 2, add a note when razorback larvae are present.). Muth will cross-reference Table 5-3. John Hawkins emphasized that when data are lacking, we should fall back on natural conditions. John said he believes that the recommendation for the mean base flow on page 5-18 is much too high (1800 cfs is practically double or triple the natural baseflow condition). The authors countered with evidence of backwater habitat maximized at flows in the recommended range, but John was not convinced (noting that the peak to base flow ratio has decreased from something around 57 (pre-dam) to 12 in these recommendations).

Tom Chart noted that a comparison of the 0.1 meter maximum daily stage change with the 12% used in 1992 opinion would be useful. Since pikeminnow apparently do use habitats that are less than a tenth of a meter, Matthew endorsed further research on whether the 0.1 meter daily change should be limited even further (already identified as an uncertainty in the report). Art noted that WAPA would like to initiate studies right away to further evaluate the the 0.1 meter stage change limit (will analyze the hourly data available for the Jensen gage). WAPA also will evaluate effects of temperature and flow below the dam (bioenergetics modelling for trout and pikeminnow). Both of these studies are being conducted with funding outside the Program, but will be peer reviewed by Program researchers/participants.

John Wullschleger noted that the Park Service submitted comments on the report and the Flaming Gorge team responded (both via listserver), but that response doesn't completely satisfy the Park Service's concerns. They still have concerns about the recommendations for Reach 1 and are not confident that the overall recommendations will address recovery systemwide, so they still recommend against approving the report. Brian noted that Jimmy O'Brien does not believe the thresholds he identified in his report are accurately reflected in the recommendations (Muth will consult with O'Brien on this).

All Committee members present (Modde, Pitts, Dey, Chart, Roybal, Anderson, and Nesler) except John Hawkins believed the report should be finalized with minor revisions. >John Hawkins will file a minority report on his disagreement with the base flow recommendations. The Biology Committee thus referred this to the Management Committee (will be on the Management Committee's April 7 agenda).

4. Discussion/Approval of Revised Draft Final Report Effect of Daily Fluctuations from Flaming Gorge Dam on Ice Processes in the Green River (Hayse et al.), December 1999 - On page 30, John Hayse will note that Island Park was outside of the study area. John will make recommendation #1 more explicit, if he can support that. The Committee approved the report as final with those minor revisions.
5. Final Revisions to White River Report based on Tom Pitt's Comments and Utah's Response - Tom Pitts said he's still concerned with conclusions based on the post-dam hydrological analysis (because 5 of the 10 years were drought years). Tom reviewed other comments that still need to

be addressed. Specific Comment 8 suggests that the flow in the Green has decreased since Flaming Gorge was built, but flows are reduced in the Green due to reduced flows from other tributaries. >Matthew will revise the report based on these comments and include a monitoring program and identify research gaps.

6. Interagency Standardized Monitoring Program (ISMP)

1. Kevin Bestgen presented his analysis of the utility of ISMP CPUE data to estimate abundance and survival parameters. About 20% of available habitat is surveyed under ISMP. However, recapture rates are extremely low, so ISMP cannot reliably estimate abundance. There are other useful incidental data in ISMP, however (e.g., movement and home range). Survival estimates: survival was strongly size-dependent; survival rate determined was 0.86 (identical to Osmundson's study); capture probability varied by river; and half of the annual mortality occurs between May and August. Population rate of change compares the numbers of fish in one year with the numbers in the next year (1.0 = stable population); ISMP data showed that populations appear to be increasing.
2. The Program Director's office distributed a draft proposal to get the Committee started on ISMP revision. The Program needs a monitoring program that will track the recovery criteria. Henry said in his opinion we should discontinue ISMP adult sampling in 2001 and replace it with population estimates. Chuck McAda noted that if we did this, we also would be dropping collection of catch rate information on other fish (which was one of Stanford's recommendations). Henry said he thought some of that would still be collected in the population estimates and that we need a separate nonnative control and monitoring plan. The Committee discussed what would be required to get 20% confidence intervals for different population estimates. For populations known to be extremely variable, we may want to relax the confidence interval somewhat. The Committee generally thought a minimum of 3-pass sampling would be reasonable, understanding that won't always result in a 20% confidence interval (especially when sampling, for example, for Colorado pikeminnow over a 185-mile stretch of river). The Committee also acknowledged the impact to the populations of intensive sampling 2 of every 4 years. Kevin recommended that the Committee first agree on the needed level of precision, then design a sampling program to achieve that. Dan added that we need input on the needed level of precision from those who will be responsible to declare the fish recovered and convince people of that truth. The Committee agreed that we should use the confidence interval from Osmundson's work. (Doug's coefficient of variation from 4 years of pikeminnow data was 19% on the lower bound and 38% on the upper bound.) >Rich will incorporate demographic limits and translate Osmundson's results into a lower bound for recovery criteria. The Committee generally agreed to a 2-year on, 2-year off sampling pattern. The 2-year back-to-back sampling provides survival estimates. The Committee unanimously agreed that the ISMP shoreline electrofishing will be discontinued in FY 2001. The Committee then discussed whether to discontinue ISMP shoreline electrofishing this year (2000). >The Program Director's office will develop a recommendation for the Committee's consideration at their April 3 meeting. Angela Kantola noted if FY 2000 work is changed, at this point the

funding targets still need to remain the same.

7. Recovery Goals Update - Rich Valdez gave a presentation on development of the recovery goals. The pikeminnow and humpback reports are out for review. The razorback report will be out by the end of next week, the bonytail report will be out on or before April 15; and Rich will meet with Recovery Team around the first of May. Rich explained that he decided to use an N_e of 500 (not 1000 as used by Crowl and Lentsch) because 500 is most widely used in other vertebrate literature. The inbreeding risk is roughly .1% at an N_e of 500 (and roughly .01% at an N_e of 1000). In developing recovery goals for Colorado, Tom Nesler has used a range of values for N_e , N_e/N , and sex ratio and then compared those to expected carrying capacity to arrive at recommended numbers. Kevin Bestgen expressed concern that carrying capacity is arrived at based on existing conditions in an impaired system. Tom Nesler noted that carrying capacity would have varied in an unimpaired system, also it would for example, be different in a 15 year drought period than in a 15-year wet period. Tom Nesler and Frank do not agree that two pikeminnow genetic refugia in other regions of the Colorado River Basin are required for delisting. Tim said he believes that the biological information that justifies considering the Green and Colorado as separate subpopulations also should justify considering the upper and lower Green River separately. Tim drew a map of the system showing the separate units of pikeminnow on the Green and Colorado rivers, and noted that the survival of age-1 fish in the middle Green is different than those in the lower Green (which is substantiated by Jack Schmidt's data which shows that habitat is formed by different factors in the two areas). From a stock dynamics or stock recruitment perspective, Tim sees three units operating: upper Green, lower Green, and Colorado, with no more information linking the middle and lower Green stocks than linking the lower Green and Colorado river stocks. So, we either have one unit or three, but not two. To consider them as separate units, we would need to monitor them separately, so Rich suggested an arbitrary dividing line of the White/Duchesne (with those above considered associated with the Yampa River spawning area and those below associated with the Green River Three Fords spawning area). Rich said he doesn't think considering them separately would alter the approach to downlisting or delisting, but it would affect the way we monitor the fish. Frank noted that we've already funded two separate population estimates for the middle and lower Green river. However, no one can say which one the White River fish belong to, so the middle and lower Green River stocks have thus far been treated as a sum total of the two. Chuck argued that the bulk of the subadults are in the lower River which he believes come from both the middle and lower Green. Tim said the main reason for his concern is the recommended number of 2700 fish which he believes is much too low. The Committee needs more time to review and discuss the recovery goals documents, so we will meet on Monday, April 3. >Rich will provide tables of the recovery criteria and site-specific management actions for all four species to the Biology and Management committees so that they can focus their discussion on those. (The Committee will have the supporting documentation for the humpback and pikeminnow only.)
8. Facility Needs Tom Czapla provided the information requested at the last meeting on hatchery facility needs. Tom Pitts asked >Tom Czapla to include information on the plan to meet the growout pond needs. Tom Nesler asked if the Committee wants to revisit the stocking targets for Colorado and Utah (Colorado's were based on 5% of biomass and are orders of magnitude

higher than Utah's, which were based on IMO's). The Committee discussed size at stocking and stocking smaller fish first in depression wetlands to allow them to acclimate and grow. John Hawkins questioned whether stocking smaller-sized genetically-surplus fish count toward the stocking goals. Henry said they're surplus to the broodstock development, but they *do* count toward the stocking goals. The Committee approved the first three recommendations and dropped the last one about stocking genetically surplus fish.

9. Discussion/Approval of Draft Final Report Response of the Green River Fish Community to Construction and Re-regulation of Flaming Gorge Dam, 1962- 1996 (Bestgen and Crist), January 2000. Kevin said he thinks he can address Paul Dey's written comments. Tom Nesler asked that the conclusions be put in a bullet format. John Hawkins asked that figures 2 & 3 on page 60-61 identify the gages from whence the data were drawn. Tom Nesler questioned the description of the Lodore pikeminnow population as moderately-sized. Tim Modde pointed out that lower summer base flows may have occurred prior to 1992. Tom Nesler asked that predaceous fishes in the first recommendation be identified. Also explain what is meant by sediment augmentation (or delete this recommendation). The Committee approved the report with these and other minor revisions.

10. Miscellaneous Items

1. Tusher Wash Diversion Dam Passage Review of flow exceedance data for Tusher Wash Diversion Dam and determine the need for passage at Tusher Wash Diversion Dam. Base flows were higher than normal in the year data was collected and some fish did move over the diversion. We don't know if Tusher is a barrier at lower flows and we also don't know when and if fish need to move over the diversion. There's a channel cut on one side which is probably where passage occurs, if it occurs. Tom Chart recommended checking the velocities in that cut during low flows. Tom Nesler noted that Tusher may impede passage, but it's obviously not a complete barrier. We don't have data that suggest Tusher is having a serious impact on pikeminnow in the Green River. The Committee agreed that at this point, passage at Tusher Wash is a low priority since we know the fish can pass at high flows. Additional studies are a possibility, but anyone interested in doing those should first determine the biological significance of fish being able to pass during the low-flow period. Some answers might be found by reviewing length-frequency and capture-recapture data.
2. Methods for USGS razorback sucker radio telemetry proposal - Posting to listserver by Tim Modde -- Tom Nesler questioned whether the external tag will affect the fishes' behavior in a riverine environment. John Hawkins noted that we'll at least likely learn whether or not these tags cause mortality in a riverine environment, which could be valuable to us for future work. The Committee had no objections to the proposal.
3. Frank Pfeifer Posting to listserver - The Committee approved Frank's proposed use of 50-60 captive Colorado pikeminnow in the translocation study.
4. Frank Pfeifer - About 300 of 20,000 pikeminnow larvae are left from last year's work at 24-

Road Hatchery. The Committee approved the proposal for Dan Beyers to use them in his bioenergetics modeling work for FY-2000 SOW entitled, Evaluation of effects of stage fluctuations induced by hydropower operations on overwinter survival of young Colorado pikeminnow (after which they ll go back to the hatchery and be stocked in the Colorado River when they ve grown up to the appropriate size).

5. Anita Martinez Posting to listserver CAP 18/19 SOW Removal and Control of Nonnative Fishes in Source Ponds - Anita needs feedback on developing decision criteria for screening, acceptable screen designs, and use of Recovery Program funds for installation of screens on private land. The Committee did not have time to discuss this, but >Tom Nesler will post something to the listserver.
6. Matthew Andersen - Distributed a proposed scope of work for investigation of potential razorback spawning in the lower San Rafael River (using excess funds identified in tasks 3 & 4 of Project 22c). > Any concerns should be sent to Matt and this will be discussed via listserver if needed.
11. Next Meeting: Monday, April 3 at a hotel near the airport from 8:30 - 4:30 p.m. to discuss the recovery goals for all four species. >The Program Director s office will arrange for a meeting room at a hotel near the airport. At the BC meeting after April 3, two hours will be allotted for a propagation issue and nonnative removal concerns (Tim Modde will provide more definition in advance of that meeting).

Adjourn: Thursday, March 23, 4:00 p.m.