

**San Juan River Basin Recovery Implementation Program - Biology Committee**  
**Farmington, New Mexico**  
**February 24 and 25, 2004**

**MEETING SUMMARY**

Members Present:

David Propst  
Jim Brooks  
Bill Miller  
Ron Bliesner  
Tom Wesche  
Tom Nesler  
Chuck McAda  
Vincent Lamarra  
Tom Chart  
Paul Holden

Representing:

New Mexico Department of Game & Fish  
U.S. Fish & Wildlife Service, Region 2  
Southern Ute Indian Tribe  
U.S. Bureau of Indian Affairs  
Water Development Interests  
Colorado Division of Wildlife  
U.S. Fish & Wildlife Service, Region 6  
Navajo Nation  
U.S. Bureau of Reclamation  
Jicarilla Apache Nation

Peer Review Panel

Mel Warren  
Steve Ross  
Ron Ryel

U.S. Forest Service – Research  
University of Southern Mississippi  
Utah State University

Others Attending

Brian Hanson  
Dale Ryden  
Mike Japhet  
Steve Harris  
Justin Smith  
W. Howard Brandenburg  
Mike Farrington  
Albert Lapahie  
Ernest Teller  
Melissa Trammell  
Julie Jackson  
Jason Davis  
Mike Buntjer  
Mike Golden  
Manuel Ulibarri  
Carl Woolfolk  
Paul Montoia  
Steven Platania  
Brent Uilenberg  
Jeff Cole  
Richard Grimes  
Keith Lawrence

U.S. Fish & Wildlife Service  
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University of New Mexico  
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Navajo Nation Fish & Wildlife Department  
U.S. Bureau of Indian Affairs  
National Park Service  
Utah Division of Wildlife Resources  
U.S. Fish & Wildlife Service  
U.S. Fish & Wildlife Service  
BIO-WEST  
U.S. Fish & Wildlife Service  
Arizona Public Service  
City of Farmington  
University of New Mexico  
U.S. Bureau of Reclamation  
Navajo Nation Fish & Wildlife Department  
Arizona Public Service  
Ecosystems Research Institute

**February 24, 2004**

**Welcome and Review of Agenda – Bill Miller, Committee Chair**

**Update on Program Coordinator and Program Assistant positions.**

Brian Hanson explained that the Program Assistant position has been advertised, and a selection has been made and sent to the Regional Office. The Program Coordinator position, which had some position

description changes, is expected to be advertised within two weeks. Both of these positions are permanent hires. (Subsequent to the meeting Joann Perea-Richmann was announced as the new Program Assistant).

### **Request to restock the Mancos River with Native Fish from the San Juan River**

Mike Japhet, Colorado Division of Wildlife, distributed copies of a letter sent to the Navajo Nation and explained his request for a permit to collect 300 bluehead suckers and 300 flannelmouth suckers from the San Juan River and transport them to the Mancos River in Colorado as part of a larger project to re-establish a native fish community depopulated by drought in 2002. The goal is to do this over two to three years. Fish will be taken from the PNM fish ladder. The Committee concurred with this proposal.

## **MONITORING ACTIVITIES**

### **Report: Physical Habitat Geomorphology – Ron Bliesner**

Flow statistics: The 2,500-cfs criteria were met in 2003. We are at the maximum duration for not meeting the 8,000 cfs release. Peak runoff was 4,000 cfs in spring 2003. However, 20,000 cfs was reached after fall storm.

Relative bed elevation does not change much. Minimum bed elevation was down from 2002, but not as low as in 1995. Net scour and deposition have been relatively stable. The sand bed in reach 1 responds to Lake Powell elevation.

Cobble bars: Still changing at low flows of 2002 and 2003. We are still getting sediment transport at relatively low flows. Fewer cobbles were available after runoff in 2003 than before runoff. Cobble size distribution on bars could be influenced by sampling error.

We need to find new bars for monitoring as per the protocol. Open interstitial space is less than 1.5 cobble diameters. 1.5 diameters was the cutoff for monitoring. Will make proposal to drop the lower mixer location and find a new location for 2005. Is it better to find locations and abundance versus specifics at a point location?

It isn't clear that the bars being monitored are representative on a river wide basis. It may be better to use the resources for the river wide survey in 2005.

Habitat for 2002: Backwater and inundated vegetation is the least abundant. Backwater by count is the same as in 2002. Total numbers are up in reaches 2 and 3 and about the same in reaches 4, 5, and 6.

Sediment depth: No relationship across the years. Habitats change between mappings. This data may not be useful for analysis. There may be other quality parameters that are better.

Water depth in backwaters was also variable.

Hydrology: Average annual discharge – 10 previous years. Data point for 2003 is similar to 1961 when dam was constructed. Highest ten year average was in 1988 prior to starting the research.

Habitat versus flow relationships: Total backwater comparison shows that the pre dam era is similar to the 1994 to present time frame. The greatest habitat was available during wet years. The highest flow years seem to be the most important. The 5,000 cfs flow does not appear to be as important as thought during the formulation of the flow recommendations.

It's important to understand the habitat dynamic on the San Juan River. Because it's expensive to get these studies, our recommendation is to back off and put resources to river-wide studies, to see what we have in flow pattern.

## **Report: Adult Monitoring – Dale Ryden**

**2003 Results:** Native to non-native ratio-- more natives than non-native in 2002 and 2003. Flannelmouth sucker, bluehead sucker, channel catfish and common carp made up nearly 95 % of the total catch. Relative abundance of carp and catfish decreased in the last 3 years.

Electrofishing (fish per hour) data shows that numbers have decreased in the past few years. This pattern is the same relationship as the 10 year average annual antecedent conditions.

Carrying capacity is likely not at maximum with the current populations. The low numbers collected in 2002 and 2003 may be due to conditions at or near the time of sampling. There may be an influx from the Animas River and upper San Juan in reach 7. The numbers of adult fish seem to support this hypothesis since the high numbers of flannelmouth adults in 1999 are likely not recruited from the mainstem in reaches 1-6. Juvenile data shows the same response as the adults. Changes that are seen are in all species and life stages.

**REACH COMPARISON:** Flannelmouth are present in reaches 6-3, not many in reaches 1 and 2. Bluehead are present mainly in reaches 5 & 6; drop sharply in reaches 3 & 4, not present in reach 1. Channel catfish: no consistent pattern in any reach. Removal section seems to be repopulated by Reach 5 where adults are plentiful. Common carp: catch 92-98 % adult fish; some juveniles were captured in 2000. Reach 6 numbers have declined where non-native removal is occurring. Drop in other reaches as well. The drop river wide may not be associated with removal. Reach 1 seems to get recruitment from Lake Powell.

**SIZE STRUCTURE:** Flannelmouth show that large numbers recruited in 2000 are moving into the adult population in 2003. Bluehead show the same trend; recruitment of juveniles evident in 2003 but did not see this in the Age 0 fish in 2002. Channel catfish: declining number of large fish and more smaller fish. Size distribution seems to be like an over fished population. Adult fish at less than 5% range but still getting recruitment of juvenile fish. Carp: Show that by age 2 or 3 they become adults. Shows Young of Year fish in 2003.

**RARE FISH:** No wild Colorado pikeminnow have been captured since 1998. No wild razorback suckers since 1996. UNM has documented razorback reproduction since 1998. 2003 data -- 0.3 Colorado pikeminnow (CPM) collected per hour of electrofishing; most fish captured were age 1 fish stocked the previous year. A total of 627 CPM were collected in 2003, most were caught prior to flow spike in the fall.

Stocked Colorado pikeminnow appear to stay in the river after stocking if flows stay low. Razorback suckers seem to be staying in the reach close to where they were stocked. Data show the same low numbers after the fall flow spike as the pikeminnow data.

Flannelmouth sucker x razorback sucker hybrids are starting to appear in the river. Both species spawn at the same time.

Catfish predation on native fish was evident. Colorado pikeminnow documented choking on juvenile channel catfish--143 mm fish in PNM ladder with 34 mm bullhead stuck in mouth.

## **Report: Small-bodied Fish – David Propst**

Same fish species in primary and secondary channels for the native fish community; nonnative species exhibit same abundance in primary and secondary channels. Most abundant non-natives are red shiner, fathead minnow, and western mosquito fish are most abundant. Other non-natives are not abundant.

Density data are highest for red shiner, which may be due to sample locations rather than actual number of fish. Sampling may not reflect the fish community in the river. However, it probably reflects the fish in the microhabitat area sampled.

Averaging data may mask effects of individual years. Red shiners are very high in the catch for in small bodied fish sampling but are rarely collected in adult catch.

Comparison of flow and density showed little relationship to flows less than 5,000 cfs.

### **Report: Water Temperature Modeling – Tom Chart**

Looked at impact from Temperature Control Device (TCD)

Modeled 1995 – 2001. Calibration was limited to a few days of data. Model is within 1.5 degrees of observed data.

River modeling: Qual2K model steady state model. San Juan River 26 segments between Navajo and Shiprock. Riverware was used for inputs. Results: Good fit in calibration.

Could get release temperature of up to 20 degrees with TCD device. Need to reconcile the difference between actual hydrology and modeled hydrology.

The best use of TCD would be to get warmer temperature in the runoff period not during the base flow period. There is a change in reservoir heat budget with the TCD.

At the dam the temperature is about 5 degrees lower than ambient conditions. Equilibrium conditions are met near Shiprock.

**Selection of new Biology Committee Chairperson:** Chuck McAda and Tom Nesler were nominated; Chuck will be the new chair.

**Naming of an Alternate to Attend Meetings:** The committee agreed that each Program participant should nominate an alternate committee member who would attend when the principal member could not. The committee will approve the alternates based on qualifications. After approval, the alternate will have voting power.

### **Report: Larval Monitoring – Razorback Sucker (RZ), Howard Brandenburg**

Sampling was done in April, May and June. Trips were longer in duration than previous years. Sampling was done with larval seines, 1 m<sup>2</sup>. A total of 34,430 non native cyprinids were captured – mainly red shiner.

Trip 1: no razorback suckers, 13,000 adult red shiner.

Trip 2: 353 razorback suckers, nearly 12,000 adult red shiner.

Trip 3: 109 razorback suckers, 1,945 flannelmouth suckers.

Eleven juvenile RZ were collected this year.

No razorback suckers were collected in reaches 4 or 5. Reach 1 density 0.305 RZ/m<sup>2</sup>; Reach 2 density 0.045 RZ/m<sup>2</sup>; Reach 3 density 0.082 RZ/m<sup>2</sup>

Flannelmouth sucker density: Reach 1, 0.083 FM/m<sup>2</sup>; Reach 2, 0.157 FM/m<sup>2</sup>; Reach 3, 1.25 FM/m<sup>2</sup>; Reach 4, 1.035 FM/m<sup>2</sup>; Reach 5, 0.062 FM/m<sup>2</sup>.

Bluehead sucker density: Reach 1, 0.008 BH/m<sup>2</sup>; Reach 2, 0.022 BH/m<sup>2</sup>; Reach 3, 0.136 BH/m<sup>2</sup>; Reach 4, 0.199 BH/m<sup>2</sup>; Reach 5, 0.030 BH/m<sup>2</sup>.

We could look at otoliths to get a hatch date. Flannelmouth suckers spawn first and then razorback and bluehead. Bluehead spawn later in the summer than the others.

**Report: Larval Monitoring Colorado pikeminnow -- Michael Farrington**

Sampling trips in July, August and September: September trip delayed due to flow spike.

Trip 1: 34,758 specimens, 80.6% red shiner, 1 Colorado pikeminnow 200 mm

Trip 2: 27,461 specimens, 69.5% red shiner, 24.3% fathead minnow.

Trip 3: 8,134 specimens, 75.5% red shiner, 12.3% fathead minnow

Reach 1: Red shiner dominant

Reach 2: Green sunfish prevalent

Reach 3: Best reach for bluehead and flannelmouth suckers.

Reach 4: Second highest catch per unit effort (cpue) mostly non-native

Reach 5: Average of other reaches.

Total 70,352(?) specimens, 75.7% red shiner, 18.4 % fathead minnow.

**Report: Geographic Information System (GIS) Database – Justin Smith**

New web site: [www.msb-fish.unm.edu/sjr](http://www.msb-fish.unm.edu/sjr)

Will be able to search by section, search fields and preset queries.

GIS is being developed at this time. Data can be searched by project or data set as well. Can get map output.

Data accounting section is being developed. This will show the status of each data set. Downloads will be developed for extraction of data sets. Still need to get all the data into the data base. They will integrate spatial data with dynamic data base.

**Report: Update on Integration - Bill Miller**

Integration draft report is due out by April 15. Members should review report and be prepared to discuss at May meeting.

**RECOVERY ACTIVITIES**

**Report: Razorback Sucker Augmentation - Dale Ryden**

Six pack ponds have a small amount of vegetation but are still relatively barren.

Experimental stocking 1994-1996: 940 fish 5 year plan 1997-2001, 73,000+ required, ~6,000 actually were stocked.

Interim Period (2002-2003): A total of 1,027 fish stocked.

8 year plan (2004-2011): Calls for 11,400/year for eight years.

We will not meet that level of augmentation in 2004; primarily due to pond productivity. Intensive management of ponds needed for better production

Stocked fish have moved upstream of Hogback diversion--four used PNM fish ladder in 2003.

In 2003, a total of 887 fish were stocked into the San Juan River -- SJRIP ponds (755), Page golf course ponds (121), Colorado Division of Wildlife (CDOW) I&E (11). The biggest fish came from golf course ponds. Best growth from avocet ponds but less numbers from those ponds. 6 pack ponds have better growth in the last two years.

Not much growth into the 400 mm range from the 6-pack ponds.

Hidden Pond was drained and retrofitted with a gravity drain in 2003 – 1,174 fish salvaged were salvaged and stocked into Avocet Ponds.

Conclusions: Not enough fish to meet the stocking goals. 500 pounds per acre was the original goal. However, production was reduced, possibly predation by salamanders when small, and mergansers when larger.

Recommending increased cover in ponds and higher primary productivity. We may need to feed larval fish to increase growth rates.

**Report: Razorback Sucker Monitoring – Dale Ryden**

Sampling was done between RM 158 – 2.9. USFWS and UDWR trips occurred simultaneously. A total of 29 razorback suckers were collected. Five fish were downstream of Mexican Hat. Most razorbacks were between Hogback and Bluff.

Monitoring conclusions: No spawning aggregations were observed in 2003. In the fall of 2003 flow spike appears to have displaced fish of all species downstream.

University of New Mexico documented reproduction in the last 6 years (1998-2000). Two wild juveniles were collected this year (~250mm); smaller than stocked size and no pit tags.

**Report: Colorado Pikeminnow Augmentation – Dale Ryden**

Most fish stocked in 2002 were about 50 mm long.

In 2003 United States Fish and Wildlife Service (USFWS)-Colorado River Fishery Program (CRFP) stocked two equal size groups in two reaches using rafts to distribute among backwaters and other low velocity sites. Bio/West stocked 20,000 fish in backwaters for acclimation studies.

In addition, CDOW (Mumma SFH) stocked ~1,000 age 1 fish at RM 180.2. All fish were pit tagged.

Mean length of fish from Dexter -- 58mm. Mean length of fish from Mumma – 180 mm.

The Augmentation Plan goal is to stock a minimum of 300,000 fish per year. We actually stocked 210,418 fish in 2002 and 176,933 fish in 2003.

A total of 610 from the stocking were subsequently recaptured. The majority were caught with seines by Bio/WEST.

**Report: Pikeminnow Monitoring: Mike Golden - Biowest**

High mortality was experienced by the fish held in the experimental gages to assess initial survival. Initial concern was related to differences between water quality in the San Juan River and Dexter National Fish Hatchery (NFH). A study to test this hypothesis was subsequently conducted.

**Report: Pikeminnow Stocking/Tempering: Paul Holden - Biowest & Dexter**

An experiment was conducted to determine if water quality difference could explain observed mortality. Study attempted to duplicate observations using simulated hauling etc. Controls and treatments were utilized. They were unable to duplicate the mortality observed at the original stocking. They want to replicate the 2003 stocking timeline in the 2004 stocking as well as using new protocols of holding fish longer.

## **Report: San Juan River/Razorback Pond Limnology - Vince Lamarra**

Ernie and Vince are trying to define water quality in ponds because of low growth rate. The objectives of the work were to determine trophic status and temporal patterns of the rearing ponds (water chemistry, food, physical), determine limiting factors, and develop pond management plan to maximize growth.

There appears to be a Dissolve Oxygen (DO) problem in the ponds.

Two sets of ponds: East and West Avocet ponds, difference in the ponds, one has better productivity than the other.

Six pack ponds: wave action has caused some erosion due to wind on one shoreline.

DO and temperature: at times DO is at 50% of saturation. Lowest occurs in winter so the level is still 5-6 mg/l; in summer, DO would be about 3-4 mg/l. At times, razorbacks were observed on the surface gulping to get oxygen.

Hydrology: Ponds filled in the fall, decrease due to evaporation or seepage, refilled in spring when canals flow. New plan is to keep elevations stable using automated valves. There will still be some depletion in the winter. Avocet ponds leak more than the other ponds.

Nitrogen: Several ponds are similar in concentration at low levels. Nitrogen levels vary in the individual six pack ponds. Gradient across the ponds, greatest change is in the six pack ponds.

Phosphorous: Typically the limiting factor in lakes and reservoirs. Avocet west has the highest concentrations of phosphorous -- 650 microgram per liter. Avocet east is .025, even at this level it is mesotrophic. Avocet west is hypereutrophic.

Phytoplankton: Highest numbers are in early spring. Low numbers in midsummer and then increasing into fall. Most ponds are meso or eutrophic. Avocet West (AW) and HP are oligotrophic. There is a high potential for primary productivity.

Zooplankton: Highest values in February prior to stocking. Fish are stocked at a time when density is lower.

Limiting factor: P6 and Avocet East (AE) are phosphorous limited; AW and pond 3 are nitrogen limited. Others are likely limited by both at some time of the year. The ponds may have a diel oxygen change that could be a factor.

Fish growth: Linear increase in Avocet ponds at the same rates for each stocking group. More fish caught in the east pond than in the west pond. Not much difference in the six-pack ponds. Predation could have an impact on growth rates. Need to have the fish in the ponds about 500 days to obtain the length required for stocking. Best growth rate occurs in Pond 1.

Conclusions: The trophic state of the various ponds varies widely. Potential limiting nutrients vary by pond. Fish growth also varies by pond. Potential relationships between trophic factors and fish growth are forth coming.

## **Report: Nonnative Removal – Jason Davis**

2003 was the third year of removal efforts – 2,192 channel catfish and 627 carp were removed. There was little variation in catch per unit effort (cpue) among trips. All trips were less than 11 cpue (carp/hour). There was a general decline in catch rate over the three years for carp, most captured are adults.

Channel catfish: Average cpue was 23.64 per hour. Highest catch rate was in July at 88.59. Discharge increase prior to sampling may affect numbers.

Fish were tagged in the Hogback to Shiprock reach (4,000 catfish and 2,000 carp). Fish movement was documented upstream and downstream of the fish ladder at hogback. Some moved up to PNM weir and were captured there.

#### **Report: Nonnative Removal – Julie Jackson**

Objectives: Remove nonnative species; determine when striped bass move out of Lake Powell and into river; relate striped bass movement out of Lake Powell into San Juan River to lake levels and river conditions (etc.). Study area and sampling methods: electrofished the river from Mexican Hat to Clay Hills, UT.

A total of 9 trips were taken and 8,446 channel catfish and 946 carp were captured and removed. No striped bass or walleye were captured. In 2002, there was a positive relationship between striped bass movement and Lake Powell water temperatures.

There is a new waterfall/fish barrier. The new waterfall is approximately 0.5 miles downstream of the previous barrier.

Two subadult and four adult pikeminnow were captured in 2002, one was a recapture from 1999 when it was originally tagged; three adults were caught in march and April 2003, non of these were recaptures. Seventy-eight age-1 pikeminnow were captured. Captures of these were highest in two sections of river, RM 50-35 and 29-14. Only a few age-1 pikeminnow were caught below RM-14.

Highest numbers of razorback sucker were found in late April, again as in 2002, near Slickhorn Rapid between RM 18 and Rm 17.5. Two razorbacks less than 280 mm total length were collected in July and during the adult monitoring trip in October and are presumed to be wild fish.

#### **February 25, 2004**

#### **Report: Nenahdnezad Fish Passage (PNM Weir) – Albert Lapahie**

##### **Nenahdnezad (long inclined hill)**

Colorado pikeminnow (9), razorback sucker (4), and roundtail chub (1) have used the fish passage. A total of 18,200 fish have used the passage -- 95.5 % native and 4.5 % non-native. 65% of the total catch in June

Still have some needs: electrical power and modify crane.

Need to modify outlet of collection facility to get more gradient and get rid of sand. Sand also accumulates at the bottom of the inlet.

The committee supported the requests for modifications.

#### **RESEARCH**

##### **Report: Update on Population Model – Bill Miller and Vince Lamarra**

A presentation on the population model will be given on the last day of the next Biology Committee (BC) meeting.

##### **Report: Trophic Relationships – David Propst**

Objectives: Characterize prey base, quantify caloric content of different trophic levels, determine suitability of native and nonnative prey for pikeminnow, and quantify use of specific prey.



2003 to 2004 Activities: Stable isotope analysis of consumers and resources, measure caloric content of consumers and resources, feasibility study to evaluate the use of field enclosures, etc. Analysis of caloric content is complete; data is available if desired. A feasibility study was conducted to evaluate field enclosures. Colorado pikeminnow were captured in the enclosures. Lessons on construction were learned. Construction and maintenance of enclosures is feasible.

### **Navajo Environmental Impact Statement (EIS) draft Biological Opinion (BO) – Mike Buntjer and Tom Chart**

Buntjer and Chart summarized the draft BO prepared for the Navajo EIS and pointed out some potential inconsistencies with Recovery Program information. Several committee members also indicated that there were some problems with the draft BO. Ron Bliesner indicated that there about six different areas within the draft BO that contained misinterpretation of Recovery Program recommendations and data summaries. Also, recent analyses would be helpful to the FWS in revising the draft. The committee discussed the different areas and concluded that the committee should submit some general comments pointing out the problem areas and offer to provide additional information. Several committee members had already provided some information and were willing to provide more. Researchers were also encouraged to provide specific comments. The committee agreed that Ron would provide a draft letter and Chuck would send it to the FWS. (Ron provided the draft, several committee members provided comments and Chuck sent the letter via email. The letter was distributed to the committee).

### **IDENTIFICATION OF WORK NEEDED FOR FY2005, INCLUDING RFP'S.**

The committee discussed work to be done in FY 05. New starts were identified last year and requests for proposals were prepared by BR. Final drafts were to be distributed to committee members so that comments could be provided before being released by BR. Discussion pertained to how to review the proposals and indicated that the Coordination Committee has no infrastructure in place to review. We may need to establish subcommittees to review the proposals. Reclamation will have final approval of proposals(?).

#### Peer Reviewer Comments on Work to date and for future.

Steve Ross: Look River wide and include other elements of the watershed. Program has focused on the channel, but not the entire landscape that is affecting the channel.

Where possible, researchers should show variation in the data. If appropriate statistics don't show significant differences then don't say there is an increase or decrease. Focus on the channel and may be over interpreting the data.

Mel Warren: Search for other or multiple response variables. Confidence intervals need to be on the data to add credibility to presentations. If confidence intervals overlap, then there is no difference. Researchers can use the variability to direct the sampling effort. Don't focus on the routine because of past effort.

Ron Ryel: Evaluation of the power of the statistics in detecting change. Need to determine what level of change can be detected with the existing data sets. Need to look across life stages for each species. Future needs will be identified in the integration of the existing data.

#### FY2005 scopes of work

Need to have integration report draft for input into changes in scopes of work. The draft will be out April 15. The committee agreed that we need to review the draft integration report before proposing changes to the FY-05 scopes of work. The integration report will be discussed at the next BC meeting. After discussion, we will review FY04 statement of works (sows) and propose changes for FY05.

**The BC agreed to create subcommittees to review and rate the proposals for each RFP, members who bid on projects would not be on that review subcommittee, and the top 3 proposals for each RFP would be**

given to the Peer Review Panel for review and rating also. This info would then go to the BOR for final selection.

#### Propagation

Should try to get as many fish in the system as possible and then be able to address the needs for monitoring. We may be limited by the facilities at this point. We should raise as many fish as possible to get the number up for stocking.

Could use a safety factor to determine the additional facilities needed to meet the goals. Need to take a position to take a more active role on captive propagation. We could use the extra capacity in the upper basin, if there are extra fish to stock additional fish in the San Juan.

We may need to stock fish at higher levels than the numbers shown in the augmentation plans. Need to be in control of brood stock to regulate the numbers of fish stocked each year.

Upper basin intensive grow out facility could produce more larval fish to provide small fish for the San Juan.

We may need to get into intensive management of existing or new facilities to reach the stocking goals. Centralized propagation facility may be required.

Pikeminnow may need several year classes to get back on track for stocking. May need to take more control of the propagation. No alternative for additional production, can produce larvae but need to get other facilities for grow out.

Should have analysis of what facilities are available now and what could be constructed. Both Colorado and Utah are interested in expanding facilities at Mumma and Wahweap. Program may need to fund a position to coordinate the propagation for the San Juan.

The committee discussed several options for propagation oversight, including a subcommittee for pond construction, propagation subcommittee, hiring a propagation coordinator, and hiring a full-time pond manager (already in the works). <Based on email, we need to discuss this issue again, with final recommendation>

#### **Next Biology Committee meeting:**

Timeframe for the next meeting was discussed. The committee decided to have a 2.5 day meeting. May 4 - 6. Meeting will begin at 8a on Tuesday, May 4 and conclude at 12p on Thursday, May 6. Day one will be a presentation by the integration group and discussion of results. Day two will be a discussion of FY04 sows with consideration of changes for FY05 based on Integration discussion. Day 3 will be a presentation of the Population Model.