

**ANNUAL REPORT
1999**

**Ouray National Fish Hatchery
Vernal, Utah**

Project Leader

Date

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Date

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Date

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Introduction

The settlement of the Western United States has brought numerous changes to the landscape, many of which have modified or destroyed the habitat of the resident fish and wildlife. An example of this change is the effort to control the raging Colorado River and its tributaries. The native fish habitat has been altered to the point that four of the fish native to the Colorado River drainage are listed as endangered species. In an attempt to recover these listed species, while allowing for continued development of the river water, a partnership between state and federal fish and wildlife agencies, water development interests, and environmental groups was established. This partnership is called the Colorado River Endangered Fish Recovery Program (Program).

The Program and the Fisheries Division of the U.S. Fish and Wildlife Service (FWS), soon recognized the need to hold some of the endangered fish in a protected refuge (refugia) to prevent extinction and allow for study of the fishes life history. The Vernal Colorado River Fisheries Project (FWS) established a small experimental culture facility in 1987. After good success the decision was made by the FWS to build a permanent facility using "Stewardship" and FWS hatchery construction funds in support of the objectives of the Upper Colorado River Endangered Fish Recovery Program. The hatchery would be used to help recover the endangered Colorado River Fishes followed by the restoration of imperiled fish populations in the Colorado Plateau and Great Basin, preventing listing as endangered species. Preventing listing under the Endangered Species Act decreases the restrictions that need to be implemented on the fishes critical habitat allowing more diversified human activities.

Ouray National Fish Hatchery was officially established in May 1996 as a fish refugia and technology development

facility to assist in the recovery of the four listed Colorado River fish; razorback sucker, Colorado squawfish, bonytail chub, and humpback chub. Once the hatchery is completed and becomes fully functional, additional fish species of concern may be held in refugia, propagated, or used for study to prevent future listing.

Ouray Hatchery has finished construction of 36 lined refugia ponds and is in the final stages of completion of a new hatchery on a site located along the Green River at the north end of Ouray National Wildlife Refuge. The site is located approximately thirty-five miles south of Vernal, Utah. The Ouray section of the Green River has historically been very important as a rearing area for juvenile native fish. As the ponds have been completed and become available for use, adult wild fish are captured and held in refugia while being used to establish future broodstock needed to recover the listed species. A fish culture building and ozone water treatment facilities are currently under construction and should be completed and functional by the spring of 2000 to help biologists do research to learn more about the Colorado River Fishes, assist in the development of future broodstock, and supplement depleted populations. The hatchery shares an office in the town of Vernal with the Colorado river Fish Project, Ouray National Wildlife Refuge, and Jones Hole National Fish Hatchery.

In 1999 the staff of Ouray National Fish Hatchery, once again, had to conducted fish culture and research activities in the midst of the construction process, using available ponds and the two tin sheds at the original experimental facility. In spite of the difficulties with facilities, 1999 was the most successful year for spawning and fish production since the inception of the fish facilities at Ouray in 1987. In order to safeguard the genetic viability of all fish produced by Ouray National Fish Hatchery and in order to meet the needs of fish recovery, fish stocking and fish

production is accomplished in compliance with all the approved plans and is of the highest priority. The Upper Colorado River Endangered Fish Recovery Program has issued an approved "Genetics Management Plan", "Genetics Management Guidelines", and "Coordinated Hatchery Facilities Plan". In addition, the Program reviews and approves an "Annual Propagation Operation Plan". In recent years endangered fish were stocked into the Green River to supplement a declining existing population and into the Gunnison River, San Juan River, Lower Colorado River (Havasu), Salt River, and Verde River, to reestablish depleted populations. Very successful experimental stockings have also been made in wetted bottom lands adjacent to rivers to see if survival can be enhanced.

Station Operations

Finishing the construction and moving into the new hatchery facilities were at the top of the list for Fiscal 1999 at Ouray National Fish Hatchery. Although neither the water treatment building or the hatchery building is fully functional, the hatchery staff used some of the eight foot tanks in the new hatchery building to conduct the fall inventory of all of the pond reared razorback suckers. The completion of the thirty-six lined rearing ponds has allowed for some testing of optimal rearing densities, and enhanced fertilization. Spawning and extensive rearing of young-of-year razorback suckers was very successful in 1999.

Ellsworth Peck Construction Company from American Fork Utah, continues to work with the Provo Office of the Bureau of Reclamation to try and make the ozone water treatment facility functional. This contract was awarded as a performance design, in which guidelines were given for treatment of the water to remove pathogens and removal of high concentrations of iron and manganese using ozone. The contractor designed the treatment facility to operate using side stream

ozonation. The side stream treatment created pink water caused by high permanganate levels. These high permanganate levels were high enough to be toxic to fish under chronic exposure. After assembling a team of experts from the U.S. Fish and Wildlife Service, along with other nationally recognized authorities, and contracting two outside private engineering firms we seem to have come up with a sensible solution. The ozone system will be operated a very low level that will not generate the overabundance of permanganate, while it will make a particulate out of excess iron and manganese. The particulates will be removed from the water when it passes through the sand filtration system. The reduced ozonation levels will not be sufficient to eliminate the problem pathogens, so an additional ultraviolet filter will be attached after the deozonation tower to take care of the pathogens. A additional problem has recently emerged that had been previously overlooked by the contractor. This problem was recognized recently by the hatchery staff, the problem is reduced water pressure at the water treatment building. There is 25-30 psi at the wet well pump, which supplies water for all hatchery operations, and only 4-6 psi at the water treatment building. The pressure loss is two to three times what it should be according to calculations by several different engineers. The low pressure level will not operate the sand filters properly. Without increasing the pressure the sand filters will not remove the particulate from the water supply. The modifications are scheduled for completion by the end of January 2000. The treatment facility is located at the northeastern corner of the ponds so inflowing water can be treated before use in the ponds or the new fish hatchery building. The treatment facilities consist of a large liquid oxygen tank, ozone generators, side-stream ozonation contact chamber, sand filters, a clear well collection sump with pumps, and a back-wash settling pond. The original contract was scheduled for completion in October of 1997.

After four years of trying to obtain a hatchery building at Ouray NFH, construction was finally completed on first part or Phase I of a 65 foot by 150 foot fish culture facility in February 1998. The contract for Phase II was let to Marietta E&C from Salt Lake City to finish the inside of the building, including rearing facilities and re-use system (Phase II). The contract was scheduled for completion in July 1998. After many problems and construction delays, the hatchery building had an new expected completion date in the spring 1999. In the summer of 1999, with the hatchery building still not complete, Marietta E&C went out of business and the contract was returned to the bonding company. Negotiations with the bonding company have allowed the FWS, to use the little funding retained in Contracting, to finish the hatchery building. The reuse portion of the hatchery building water supply is not functional and will take major renovation to make it work. Much of the work will have to be accomplished by the hatchery staff due to the limited funds available.

A contract with the Provo Bureau of Reclamation (BOR) Office to reconstruct the 6.5 miles of gravel road accessing Ouray NFH was completed in late 1998. Ouray hatchery staff worked closely with BOR engineers in designing the road to meet the needs of all-season access to the new hatchery site. The Green River Drainage experienced high snow pack and associated high runoff in May and June of 1998. The Green River peaked at nearly 22,000 cfs at the Jensen gage, and all of Leota Bottoms was flooded. The new road seemed to withstand the high water very well and access was maintained to the new hatchery site.

In the midst of all the construction, the Ouray hatchery staff was still able to conduct spawning and fish culture activities. A major effort was made to collect and spawn wild razorback suckers from the middle Green River in 1999. Fifteen days and one night were spent electrofishing the Razorback Bar area of the Middle Green

River in Dinosaur National Monument by CRFP, UDWR, and Ouray NFH crews, from April 20, 1999 through May 24, 1999. In addition, all crews involved in ISMP, Basinwide Monitoring, and Levee Removal projects in April and May 1999, have maintained contact with Ouray NFH staff, so any usable razorback suckers collected in conjunction with these projects could be utilized for spawning.

A total of thirty-two adult razorbacks were collected throughout the spring season. Twenty-two of these fish were transported and held at Ouray NFH. Six of the twenty-two fish were wild adult females. All six of the females were crossed with previously unused wild males to produce single-mated-pair crosses. Two additional wild adult females were captured by the Basinwide monitoring crew at Greasewood Corral, near Old Charlie Wash, on consecutive days in late May. Both fish were no longer expressing eggs. Neither had been previously captured, so they were tagged and returned to the river. Three previously PIT tagged and unused wild adult males were captured and returned to the river. Several unused ripe males were being held at Ouray NFH, so these fish were unneeded and exceeded the three males per female guideline set by the Biology Committee.

Four stocked razorback suckers were captured on Razorback Bar, one adult female and three adult ripe males. An additional wild ripe male was captured at Razorback Bar. This fish had previously been spawned and returned to the river in 1995. All five of these fish were returned to the capture site.

A cross of previously unused Green River razorbacks was made at the Grand Valley Facility and the eggs shipped to Ouray NFH, to bring the total number of new lots created in 1999 to seven. Ouray NFH is currently holding twenty single-mated-pair Green River RBS lots. The number of larvae produced per lot in 1999 ranged from 57 to 20,000. Thirteen 0.2 acre lined ponds at Ouray NFH were stocked with 12,353 larvae for grow out of future broodstock and

yearling production. Stocking rates vary from 57 to 500 for future broodstock ponds and up to 2,300 per pond for yearling production. 56,907 larvae have been stocked directly into the Stirrup Wetland as part of the wetland restoration program evaluation. Total larvae produced at Ouray NFH from wild RBS adults in 1999 was 70,260. Hatching success varied from near 1% to over 95%.

The wild adult RBS females spawned in 1999 appeared to be younger fish than most of the fish previously spawned at Ouray NFH. The six successful females and two unused males are being held at Ouray for transport to the Grand Valley Facility for use on the Upper Colorado River.

Milt was taken from all expressing males as available, extended and used when fresh milt was unavailable. Motility was monitored and either fresh or the best unused extended milt was used in all crosses. The six males used in spawning, plus eight of the unused males were returned to the river after spawning concluded.

Fish health problems were not as prevalent in 1999 as in some past years at the new hatchery site. Reduced loading and a better aeration seemed to have helped. Many of the fish observed from the new site showed external signs of bacterial septicemia, but the problem did not go epizootic and cause high mortality, as it had in the past. We feel the new ozone and ultraviolet filters will help keep the bacterial septicemia under control.

Ouray NFH staff gave many tours of the facilities, participated in the refuge wetlands open house, and gave special tours to many school groups, visiting dignitaries, and wildlife enthusiasts. Project Leader Tom Pruitt is participating in the planning committee for a new Interagency Visitor Center to be established in Vernal, Utah. The Visitor Center will have facilities for fish and wildlife/endangered species education. Tom also participates in the Basin Biologists and Uintah Basin Partners groups which review activities by all

state and federal natural resources agencies. This group includes the county commissioners. Technical assistance was provided by the Ouray Hatchery staff in the design of new endangered fish culture facilities on Utah's Wasatch Front for the Utah Division of Wildlife Resources.

Personnel

One of the vacant Biological Technician (Fisheries) was filled by Thomas Hogan in February of 1999. Thomas had been previously working as a temporary for the U.S. Forest Service in Arizona, but had worked in a private fish hatchery prior to going to work for the Forest Service. Thomas worked as a temporary at Ouray NFH before he was hired on as a permanent. Tom Hatch, after moving over to Ouray NFH from Vernal Colorado River Fish Project, has found a home at Ouray NFH. The maintenance mechanic position, filled by Steve Breakfield, who had been working for the Provo Office, Bureau of Reclamation, is shared equally with Ouray National Wildlife Refuge. Tom Pruitt and Steve Severson continue as Project Leader and Assistant Project Leader, respectively. Pam Burton the Administrative Assistant for Ouray NFH, shared with Ouray NWR, Jones Hole NFH, and Browns Park NWR transferred to Alamosa/Monte Vista NWR in mid August 1999. Pam was replaced by Dolores Manning in early October 1999. Dolores Comes to the FWS after many years with the U.S. Forest Service. Bart Wooley worked diligently on all tasks assigned as a Youth Conservation Corp enrollee in the summer of 1999. Sara Cameron worked as a volunteer for Ouray NFH and also assisted Ouray NWR, Jones Hole NFH. and Vernal Colorado River Fish Project. Eric Ania worked for a short time as a temporary Biological Technician in the fall of 1998. Jennifer DeLeon has been of invaluable in assisting the hatchery with tours and other Information and Education activities.

Station Cyclical Maintenance/Construction

Most of the maintenance and construction taking place at Ouray NFH in Fiscal 1999 has been reviewed under the Station Operations section of this report, since most of the staff time and effort went toward getting the new facilities completed. Some problems with leaking liners, improperly installed valves, and dikes washing out kept the staff busy moving fish so repairs could be made. The construction hampered or delayed the hatchery staff's ability to maximize production and perform normal fish culture activities such as inventory and meeting some stocking deadlines for Fiscal 1999. Efforts to reintroduce native grass and brush continued with very limited success. The new hatchery is being built on some old farm fields which have been growing nothing but non-native annual vegetation, such as Russian thistle, kochia, and tumbling yellow mustard. This vegetation tends to dry out in late summer, break free and tumble into the fish ponds, causing many problems. Fifty acres around the new hatchery was disked, run over with a cultipacker to break up the large clods of earth, and planted with the perennial native vegetation, in an attempt to displace the existing annual plants. Due to limited precipitation in the winter and spring compounded by heavy winds in the spring that tended to blow the earth, no success in the re-vegetation project was achieved. There are still hopes of getting native vegetation surrounding the new fish hatchery sometime in the future.

The new distribution truck was with FY1998 Maintenance Management Funds and arrived in mid-1999. The distribution tank was transferred to the new Ford 3/4 Ton and the old Chevy crewcab was transferred to Vernal CRFP.

A new 32ft x 60ft metal shop and storage building was constructed at the new hatchery site, to the west of the hatchery building. The shop was a prefabricated Butler Building from a FWS contract. The building was supposed to go up in a short time period. The contract was

awarded in April to M13 Construction Springville, Utah with an original completion date of mid-June 1999. As this is written in December 1999, the building is yet to be completed. There have been many problems with the contractor not knowing what was expected of them by the Butler Building contract supplier and there is very little involvement and no inspector from the FWS. I would not recommend going with another contract outside of the FWS Engineers and Contracting Offices.

Future Outlook

Fiscal Year 1999 was the first full year since Ouray National Fish Hatchery was dedicated as the U.S. Fish and Wildlife Services newest National Fish Hatchery. The installation of an ozone water treatment facility at the new site continues to be very controversial within the Recovery Program, due to the cost, but I feel this will hold the answers to increased survival and production for the hatchery. The system should not only eliminate the pathogens from the inflowing water, it will reduce the nutrient loading that has been going into the ponds. This should allow us to have better control of the productivity of the ponds for fertilization and zooplankton production.

The hatchery staff is looking forward to the completion of the water treatment facility and new hatchery building and reuse system in Fiscal 2000. The future holds many challenges to get the new facilities functional. Just having everything located at the same site has help tremendously over what we have been dealing with in the past.

Hatchery propagation activities for 2000 will center around the completion of twenty-five razorback sucker future broodstock lots and the continuation of ongoing

research. A significant effort to collect wild adult razorback suckers from the Green River is planned for spring 2000. The hatchery staff will work with Vernal CRFP staff and Utah Division of Wildlife Resources in collecting fish from the Green River, then attempt to spawn the wild adults and then return them to the river.

There is currently a major debate taking place in the Biology Committee within the Upper Colorado River Recovery Program. The debate is over where the eggs will be taken and the larvae hatched out. We very much hope that the new hatchery building is completed and all of the eggs can be taken to the new Ouray NFH. We hope six to eight lots can be produced in 2000. Other activities will be outlined by the RIP committee process and will depend on available rearing space and the completion of the new hatchery building. These activities will be prioritized by the Utah State Coordinator from the U.S. Fish and Wildlife Service. All involved with the hatchery are very much looking forward to the completion of all facilities and moving ahead with intensive culture in the new hatchery.

Leota 10 Wetland(L10) is being considered for growout of Ouray NFH produced razorback sucker yearlings. Survival in the wild is greatly enhanced if fish are at least 275mm before they are stocked. The average yearling produced by extensive culture is 115mm and 90mm by intensive culture. If these yearlings are allowed to grow one more season in a wetland or growout pond they will exceed 275mm by the fall of the second year. L10 is 150 acre refuge wetland that can be filled with predator and competitor free water from Pelican Lake. It is estimated that L10 could growout 40,000 to 50,000 razorback suckers. Some private ponds with willing participants have been identified in the Ashley Valley and are being pursued for leasing as growout ponds.

Appendix