



Mora National Fish Hatchery

August 2015

Gila Trout Updates

Brood year 2015 Gila trout fingerlings continued to grow rapidly in August. Great water temperatures due to a cooler summer has allowed the fish to grow slightly faster than normal resulting in fish that are equal in size to last year's fish, even though the fish hatched a month later this year. Mortality has fallen off drastically, and water quality is optimal.

South Diamond

The South Diamond lineage continues to have sufficient numbers for recovery stocking. Approximately 7,300 experimental class fish are currently being used in the conditioning trial that the hatchery staff has continued after Morgan Brizendine's departure. Broodstock fingerlings were pit tagged and genetically sampled in August, and the staff has retained 1,065 fish from 70 families for brood development.

Main Diamond

The Main Diamond lineage continues to have sufficient numbers for recovery stocking. Broodstock fingerlings were pit tagged and genetically sampled in August, and the staff has retained 931 fish from 70 families for brood development.

Whiskey Creek

The Whiskey Creek lineage continues to have sufficient numbers for recovery stocking. Broodstock fingerlings were pit tagged and genetically sampled in August, and the staff has retained 626 fish from 32 families for brood development.

Iron Creek

The captive Iron Creek lineage Gila trout were relocated to improved rearing units that provide increased water quality and better monitoring in August. The fish looked great and appeared to be actively growing.

Spruce Creek

The captive Spruce Creek lineage Gila trout were relocated to improved rearing units that provide increased water quality and better monitoring in August. The fish looked great and appeared to be actively growing.



PIT Tagging Wild Spruce Creek

Staff pit tagged and fin clipped the wild Spruce Creek lineage fish transferred from Ashe Creek, Arizona in November 2014 during August. The fin clips will allow the geneticists at the Southwestern Native ARRC to determine the best crosses for the hatchery to make to retain the genetic variability of this rare lineage.

Hatchery Loft Organized

The hatchery loft located above the Spruce Creek and Iron Creek Isolation Room was cleaned and organized in August. Due to limited access, staff had not been in the loft in “years”. Old items were “discovered” and broken items discarded with the effort leading to a well organized storage area. The inventory record will be maintained and updated in the main office building, where staff will be able to locate that “hard to find item”.



Coldwater Fish Culture Class

Project Leader Nate Wiese was one of the instructors at the biannual Coldwater Fish Culture Course offered by NCTC held this year in Casper, Wyoming. Students were from all over the United States, with most attending from the Wyoming state hatchery system. Nate had the opportunity to visit the Speas State Fish Hatchery, a facility similar in design to Mora.

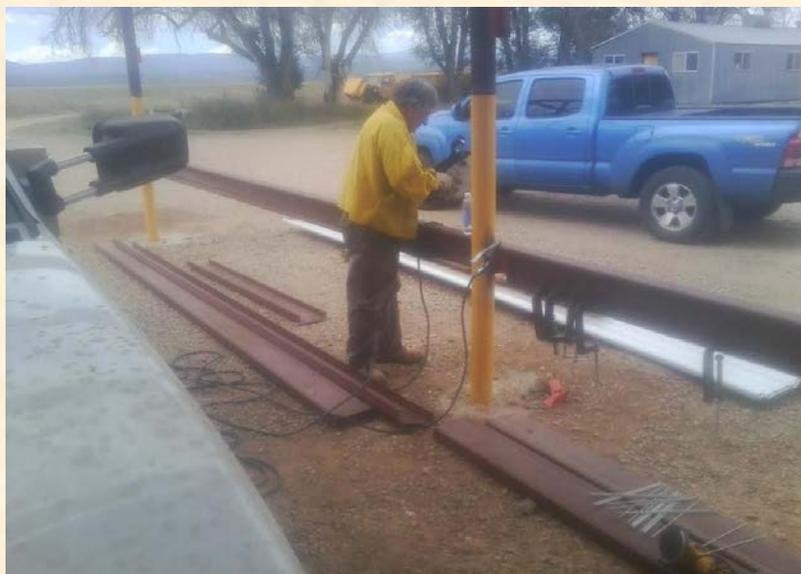
Location	Number	State	Lineage
Ash	1,500	AZ	Whiskey Creek
Frye Mesa*	6,000	AZ	Main/South Diamond
Dude	1,000	AZ	Main/South Diamond
WF Oak*	1,000	AZ	Main/South Diamond
Black Canyon	3,500	NM	Main Diamond
Upper White	3,000	NM	Whiskey Creek
Upper Langstroth	4,000	NM	Main Diamond
Lower West Fork	3,500	NM	Main/South Diamond
Willow Creek	3,050	NM	South Diamond
Willow Creek	2,500	NM	South Diamond
Sapillo	1,450	NM	South/Main Diamond
Little Creek	2,500	NM	Main Diamond
South Diamond	1,500	NM	South Diamond
Mineral	2,500	NM	South Diamond
Sacaton	1,500	NM	Whiskey Creek
Total	38,500		

Fall Distribution

Fall is fast approaching and with it comes distribution season at Mora National Fish Hatchery. Staff will have a very busy season with multiple trips during the same week in several cases. The hatchery is on track to have it's most successful year ever, releasing in excess of 38,000 fish into the waters of Arizona and New Mexico. Sites marked with an asterisk are still tentative and require an approved management plan prior to release.

Broodstock PIT Tagging

Hatchery staff pit tagged 2,641 2015 broodstock in August. This year fish were tagged at a slightly smaller size, per Biomark's recommendations. Hatchery staff could then combine families earlier in the year, allowing diversion of more water flow to the recovery fish increasing water quality. Staff also used Biomark's Tag Manager software that greatly increased data entry and record keeping, reducing tagging time from two weeks to four days.



Richie on Detail

Richie Garcia, Maintenance Worker for Mora NFH, accepted a detail position at the Las Vegas National Wildlife Refuge starting on July 28. The detail was originally scheduled for 4 weeks, but was extended to eight weeks during August as Richie assisted with critical projects including planting, building a carport, working on a pipeline, and installing interpretive signs.



Isolation Systems Conversion

In early FY2015, hatchery staff modified the Whiskey creek isolation system by removing substrate (to prevent early spawning), installing a central drain system, and adding inlet jets. This design was suggested by Jack Christinasen, Aquaculture Engineer, to improve water quality. Water quality in Whiskey Creek had deteriorated as the biomass of Whiskey Creek fish had increased substantially over their 3 years of holding. The center drain design with dual stand-pipes pulls waste off the bottom of the tank continuously and sends it to a micro-screen for collection. Water inlet jets thoroughly mix the rearing water to ensure optimum dissolved oxygen conditions in the rearing tank.

During 2015 spawning operations, the Whiskey Creek fish had substantially better cross success than other wild lineages. Cross success (measured by successful female spawns) is very important to ensure maximum genetic diversity in the resulting F1 generations. Staff attributed cross success to improved water quality and subsequent rearing conditions for broodstock during the critical egg development period.

During August 2015, hatchery staff converted the isolation systems in the Visitor's Center and Quarantine Room to this new design for rearing the larger fish. In some cases, rearing tanks were replaced and/or redesigned to provide the best possible water quality for the fish. Sensors for the YSI monitoring system were better positioned to provide increased coverage. A new vacuum degasser design was installed into the visitor's center that should provide energy savings by reducing the number of blowers and pumps needed for degassing.





Production Lineage	Brood Year	Purpose	Location	Number	Mortality	Sample (fpp)	Length (in)	Biomass (lbs)
Main Diamond	2013	Brood	Raceway 5T	466	17*	0.6	15.7	778
	2014	Brood	Raceway 6T	1,072	46*	2.3	10.0	466
	2015	Brood	AQ, 30	931	0	56.3	3.5	16.8
	2015	Recovery	SR, 96, 250	16,961	90*	60	3.5	283.2
	2015	Exper.	2500-3	2,285	10	60.2	3.5	37.9
	Total				21,715	163	13.7	5.7

South Diamond	2012	Wild	Visitor's Center	111	1	1.5	11.9	74
	2013	Brood	Raceway 5B	378	18*	0.8	13.7	473
	2014	Brood	Raceway 7T	739	0	1.8	11	414
	2015	Brood	AQ, 30	1,065	0	55.7	3.6	19.2
	2015	Recovery	SR, 250	12,137	112*	60	3.5	202.7
	2015	Exper.	380, SR	9,230	0	60	3.5	154.1
	Total				23,660	131	17.7	5.2

Whiskey Creek	2011	Wild	Whiskey Creek	100	7	0.4	17.5	250
	2014	Brood	Raceway 8T	597	45*	3.3	8.8	181
	2015	Brood	AQ	626	0	65.1	3.4	9.6
	2015	Recovery	SR, 96	6,386	105*	75	1.9	83
	Total				7,709	157	14.7	5.5

Spruce Creek	2010	Wild	Spruce Creek	25	0	2.5	10	10
	2013	Wild	Spruce Creek	17	1	4	7.9	4.3
	2014	Brood	RW Circular	50	1	1.8	11.3	28
	2014	Wild	Spruce Creek	12	1	9	5.5	1.3
	Total				104	3	2.4	10.1

Iron Creek	2011	Wild	Spruce Creek	32	0	1.1	13.1	23
	Total				32	0	1.1	13.1

Total All Lineages				53,220	454	15.2	5.5	3,510
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Asterisk indicates fish health sampling mortality included in the total

Fish Health Inspection

Mora NFH staff members Grant Langmaid and Stuart Wilkins assisted Southwestern Native ARRC Fish Health Unit biologists Dave Hampton and Jason Woodland with the annual fish health inspection on August 10 and 11. This process ensures that the hatchery continues to stock high quality, disease free fish into waters in Arizona and New Mexico.



Upcoming Events

- Frye Mesa Reservoir, AZ distribution on September 15.
- Memorial Middle School Agriculture Class to visit on September 18.
- Hatchery staff to assist with stream surveys and broodstock collection on September 21 through the 25.
- Hatchery to attend the Concert for the Birds at Las Vegas NWR on September 27.
- Upper White, Langstroth and Ashe Creek distributions to take place September 28 through October 2.
- Lori Casados to host a DAC presentation on September 30.

In Brief

Nate Wiese attended a conference call on Road Inventory and Condition Assessment on August 25.

Daniel Gallegos and Morgan Brizendine attended the Region 2 Student Gathering on August 11 and 12.

Stuart Wilkins will be attending the New Employee Orientation class at NCTC on September 1-3.

Hatchery staff completed quarterly NPDES reporting and the annual WET testing on NETDMR.

Lori Casados attended a DAC conference call on August 20.

Hatchery Staff

Nate Wiese, Project Leader
Lori Casados, Admin. Assistant
Jeff Conway, Fish Biologist
Grant Langmaid, Fish Biologist
Richie Garcia, Maintenance Worker
Stuart Wilkins, Biological Technician
Daniel Gallegos, Intern
Sandy Kalb, Volunteer

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