

# **Colorado River Cutthroat Trout**

## **Management in the Northeastern Region**

### **During 2000**



*Colorado River cutthroat trout, Sheep Creek Lake*

*Photo by Ron Stewart*

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**Utah Department of Natural Resources  
Division of Wildlife Resources  
1594 West North Temple, Suite 2110  
Salt Lake City, Utah 84114**

**John F. Kimball, Jr., Director**

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In The Northeastern Region During 2000**

**Kirk Mullins  
Sport Fish Biologist**

**Chad W. Crosby  
Regional Aquatic Program Manager**

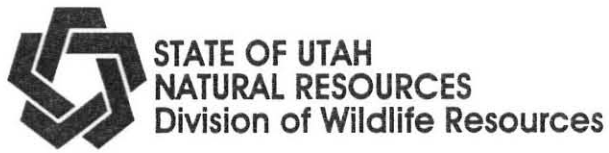
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**Utah Department of Natural Resources  
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1594 West North Temple, Suite 2110  
Salt Lake City, Utah 84114**

**An Equal Opportunity Employer**

**John F. Kimball, Jr.  
Director**



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## INTRODUCTION

In 1995 the Utah Division of Wildlife Resources (UDWR) and other agencies including the United States Fish and Wildlife Service (USF&WS), the United States Forest Service (USFS) and the Bureau of Land Management (BLM) began the process of developing a Conservation Agreement (Lentch and Converse 1997) for the preservation and enhancement of native Colorado River cutthroat trout (CRCT) *Oncorhynchus clarki pluriticus* within the State of Utah. The Agreement was finalized in March 1997. One component of the Agreement is the Conservation Strategy which is an annually updated plan outlining actions to be completed over the next 10-15 years by the various signatory parties. Activities to be completed include identifying populations of CRCT, determining their purity, searching for potential reintroduction sites, developing brood populations, implementing habitat enhancement, controlling nonnative fish, reintroducing CRCT, and monitoring populations. This document lists accomplishments and results of activities completed by the UDWR in the Northeastern Region since 1995, focusing primarily on 2000.

## ACTIVITIES AND ACCOMPLISHMENTS

Work completed during 2000 was conducted in the Northeastern Geographic Management Unit (GMU) for CRCT (Figure 1). Activities occurred at the following locations within the Northeastern GMU:

- (1) Sheep Creek Lake
- (2) South Slope of the Uinta Mountains
- (3) North Slope of the Uinta Mountains
- (4) North Tavaputs Plateau

Activities performed include:

- (1) CRCT spawning operation at Sheep Creek Lake to:
  - (a) Transplant CRCT into numerous lakes on the South Slope of the Uinta Mountains.
  - (b) Provide CRCT eggs and or fingerling to the Ute Tribe for transplanting into streams on the South Slope of the Uinta Mountains.
  - (c) Collect fish for ongoing disease testing to insure disease free fish being considered for transplanting.
- (2) Electrofishing streams to:
  - (a) Inventory for CRCT population status.
  - (b) Survey for population estimate.
  - (c) Survey to determine species composition.
  - (d) Collect Cutthroat trout samples for meristic and genetic testing.
  - (e) Monitor CRCT populations.

- (3) Evaluating habitat suitability of waters for CRCT.
- (4) Enhancing habitat for CRCT by eliminating or significantly reducing cattle grazing on numerous proposed CRCT streams and,
- (5) Controlling the distribution and abundance of nonnative fish by:
  - (a) Ceasing all stocking of Yellowstone cutthroat trout (YCT) throughout the entire Northeastern Region,
  - (b) Designing and getting approval/clearances to construct fish migration barriers,
  - (c) Constructing fish migration barriers and,
  - (d) Inspecting existing fish migration barriers.

### **Sheep Creek Lake**

In 1995, the Northeastern Region began developing Sheep Creek Lake into a CRCT brood lake for the Uinta Mountain South Slope GMU. Historically Sheep Creek Lake had been used as a brood lake for YCT; however, during the early 1980's egg take at Sheep Creek Lake was discontinued. Sheep Creek Lake continued to be stocked with YCT in order to provide sport fishing. In 1986 stocking of YCT was discontinued in Sheep Creek Lake in preparation for converting the lake to a CRCT brood lake. During August and September of 1995, six to twelve gill nets were set and pulled daily for a period of three weeks in an effort to eliminate any remaining YCT. Many cutthroat trout were removed from Sheep Creek Lake. However, it became apparent that it would be very difficult to eliminate all the unwanted fish. It was therefore determined, to insure positive identification, all CRCT would have to be fin clipped prior to their introduction into Sheep Creek Lake. Since fin clipping began, it was noticed that unmarked cutthroat trout were entering Sheep Creek Lake via the canal. During the three years the trap has been operating, approximately 1/3 of the fish entering the trap have been unmarked cutthroat trout. These unmarked trout are used for the required testing for disease pathogens, thereby avoiding having to sacrifice any of the marked CRCT. Because unmarked cutthroat trout continue to enter the lake via the canal the practice of clipping the adipose fin on all CRCT will be maintained to insure that only south slope CRCT are spawned.

During 1995, 1996 and 1997 approximately 500 CRCT were collected from the West Fork of the Duchesne River each summer and transplanted into Sheep Creek Lake. A sample of fish from the West Fork of the Duchesne River was tested for various disease pathogens each year by Dr. Chris Wilson and his staff from the Logan Fisheries Experiment Station (FES). Some of the fish were found to be infested with a tapeworm. No other disease pathogens were detected in any of the fish sampled from the West Fork of the Duchesne River. The fish were fin clipped; and the water used to transport the fish was treated with the drug praziquantel at the rate of 5 milligrams/liter. The drug praziquantel causes the fish to dispel the tapeworm. The fish remained in the treated water for a period of at least 4 hours prior to releasing them into Sheep Creek Lake. The treatments were apparently 100% successful as none of the fish tested from Sheep Creek Lake, in subsequent years, have showed any sign of tapeworms. Disease testing continued at Sheep Creek Lake for an



additional year before the lake could be certified disease free, and thus allowing egg-take and rearing of fish for stocking into various waters on the Uinta South Slope GMU.

Prior to the lake being certified disease free in 1999, neither fish nor eggs could be moved from Sheep Creek Lake. On June 9, 1998 a streamside incubator was set up and approximately 200,000 eggs were placed in the incubator for hatching. It was hoped disease certification would be complete by the time the eggs hatched and fry could be transported to a hatchery for rearing.

Water was piped through the incubator and 200 ML of formilin was run through the incubator twice/day in an effort to control fungus. Unfortunately, by mid June the water temperature in the canal would reach as high as 65 degrees F by late afternoon. The eggs began developing very rapidly, and the formalin drip was unable to control the growth of fungus. By the 7<sup>th</sup> of July almost all the eggs were dead and the operation was aborted.

By 1999, Sheep Creek Lake was certified disease free, and approximately 197,500 CRCT eggs were collected, fertilized and transported to the FES to be reared. In October of 1999, 68,246 CRCT were aerially stocked into 55 different lakes in the Uinta South Slope GMU. An additional 5,000 two inch CRCT were given to the Ute Tribe to be reared to a larger size and then stocked into various streams on the Uinta South Slope GMU. Another 5,000 fish were held at the FES where they were raised to a length of 4"-5", fin clipped and stocked into Sheep Creek Lake, in May of 2000, to maintain the brood population.

In 2000, CRCT were again spawned at Sheep Creek Lake. Approximately 125,000 CRCT eggs were collected, fertilized and transported to the Whiterocks Fish Hatchery to be reared. Approximately 5,000 eggs were given to the Ute tribe to be hatched and reared to a stockable size and then planted into various streams in the Uinta South Slope GMU. In October of 2000, 16,611 CRCT were aerially stocked into 11 different lakes in the Uinta South Slope GMU. Four of the lakes stocked in 2000 had also received partial plants in 1999. An additional 5,000 fish were held at the Whiterocks Fish Hatchery where they will be raised to a length of 4 to 5 inches, fin clipped and stocked in Sheep Creek Lake during the summer of 2001 to maintain the brood population. A large percentage of the eggs collected in 2000 failed to eye-up and it is believed the water temperature in the canal exceeded the tolerance level of the eggs, even though the eggs were still inside the female cutthroat trout. In an effort to correct this problem in the future, more water will be released down the canal to better cool the water and the trap will not be operated beyond a three week period. In most years the fish trap is set up immediately following the Memorial Day weekend and is operated through approximately the middle of June. In 2000, because the ice came off the lake early, the fish trap was set up on the 24th of May and operated through the 15th of June. In 2001, the fish trap will be set up on the 29th of May and the final egg take will take place no later than June 15, 2001. It should be noted that disease certification work has taken place at Sheep Creek Lake since 1998 and will continue as long as we have a need for CRCT for the Uinta South Slope GMU. The disease certification process is necessary in order to maintain Sheep Creek Lake as a brood lake for CRCT for the Uinta South Slope GMU.



## **General Methods**

Electrofishing dates ranged from July 27th to September 13th, 2000. In all cases, electrofishing occurred when water flows and clarity were considered adequate for effective sampling. The number of sampling stations per stream ranged from 1 to 2, passes from 1 to 3, and the segment length ranged from 300 to 1320 feet. Trout collected were counted and measured in total length to the nearest millimeter. Estimates of fish population size were made for all streams. The Zippen Depletion Estimate Technique described in Van Den Avyle (1993) was used to make population estimates with 95% confidence intervals. At most streams where electrofishing resulted in the capture of cutthroat trout, samples were collected for meristic and genetic testing. Samples consisted of whole fish. After samples were collected, they were held on dry ice in the field, stored in a freezer, and subsequently transported on dry ice to UDWR's Salt Lake Office for distribution to meristic and genetic testing labs.

Habitat suitability information was gathered in conjunction with all surveys. Water temperature, mean stream width depth and water flows were estimated on all streams. A habitat quality index rating was given to all streams using the Habitat Quality Index Procedures Manual by N. Allen Binns (1982).

## **South Slope of the Uinta Mountains**

Electrofishing surveys in the south slope of the Uinta Mountains were performed in one stream of the Middle Green River drainage (Hydrologic Unit #14060002), one stream of the Ashley Creek drainage (Hydrologic Unit #14060002), three streams of the Whiterocks River drainage (Hydrologic Unit #14060003), and one stream of the Lake Fork River drainage (Hydrologic Unit #14060003). Samples were collected for meristic and genetic testing from the one stream of the Ashley Creek drainage and one of the streams of the Whiterocks River drainage. The habitat quality index survey was conducted on all streams.

In a cooperative effort with the US Forest Service, two significant stream restoration projects were initiated on the Uinta South Slope GMU. The purpose of these projects is to reduce riparian vegetation impacts associated with livestock overgrazing. One project involves restoring damaged stream and riparian habitat along 0.6 mile of the south fork of Brownie Creek in the Ashley Creek drainage. The project has been planned and will include a log worm fence, stream bank improvement, reestablish riparian vegetation, establish stock watering trough, and a road closure and stabilization. The second project involves improving habitat conditions on 3.21 miles of stream on the Little West Fork of Brush Creek in the Brush Creek drainage. This project involves stabilizing head cuts, repairing and enhancing damaged stream segments, fencing along the riparian zone, and hardening stream crossings, and is at this time approximately 90% completed. Cooperators include USFS, UDWR, The National Fish and Wildlife Foundation and an interagency volunteer crew. On these and other projects in the Northeastern Region the volunteer crew worked a total of 282 days for a total value of \$29,892.

The West Fork of Little Brush Creek will be managed for CRCT. The South Fork of Brownie Creek is an isolated 3.8 mile stream which contains a conservation population of pure CRCT (Toline 1998), and is not contaminated with any other salmonid species.

### **North Slope of the Uinta Mountains**

In the North Slope of the Uinta Mountains one electrofishing survey was performed in the Carter Creek drainage (Hydrologic Unit #14040106). No cutthroat trout were collected. A habitat quality index was completed on one stream in the Sheep Creek drainage.

A significant stream habitat restoration project was planned for Mann Creek in the Sheep Creek drainage. The riparian area has historically been damaged by livestock overgrazing. The goal of the project is to restore damaged stream and riparian habitat, remove non-native trout and restock CRCT to provide the best aquatic habitat possible for a small, at risk population of pure CRCT (Shiozawa and Evans 1997). The planning phase has been completed and a barrier site has been selected. The project will involve fencing, stream bank protection, non-native removal and a barrier. The project involves habitat restoration and/or fencing on 1.4 miles of stream. Cooperators include USFS, UDWR, The National Fish and Wildlife Foundation and an interagency volunteer crew. Mann Creek contains a pure population of CRCT which will benefit from the project. The fish migration barrier was designed by the USFS, and the necessary permits and clearances have been obtained.

### **North Tavaputs Plateau**

Electrofishing in the North Tavaputs Plateau was performed in two streams of the Willow Creek drainage (Hydrologic Unit #14060006). Samples were collected for meristic and genetic testing from both streams. Habitat quality index classification was completed on both streams.

A fish migration barrier was repaired by the UDWR on Meadow Creek of the Willow Creek drainage. The planning phase of a project on Timber Canyon Creek, a tributary to the Strawberry River drainage, was completed. The riparian area has been damaged by livestock grazing, and brown trout have recently invaded from the Strawberry River. The goal of the project is to protect an at risk population of CRCT from competition with brown trout, improve riparian habitat conditions, and reduce sediment loads to the stream. This will be accomplished by constructing five miles of riparian fence, repairing the existing riparian fence, establishing seven settling ponds and constructing one medium sized fish migration barrier. This project is essential to maintaining the very vulnerable CRCT population and providing it with the best chance possible to persist. Timber Canyon Creek contains a pure population of pure CRCT (Shiozawa and Evans 1995).

A portion of Timber Canyon Creek was electrofished in an effort to determine the amount of brown trout invasion. In the portion of stream that was electrofished, brown trout made up approximately 60% of the population. Approximately 0.25 mile of Shotgun Creek was electrofished from its confluence with Timber Canyon Creek in an effort to determine brown trout infestation. In the section of Shotgun Creek electrofished, brown trout made up approximately 1/12th of the

population. The only salmonid species found in both Timber Canyon Creek and Shotgun Creek were brown trout and CRCT.

## FINDINGS AND DISCUSSION

### South Slope of the Uinta Mountains - Middle Green River Drainage

Francis Creek contained rainbow trout and brook trout (Table 2). The population estimate was 698 trout per mile, rainbow trout made up 70% of the catch and brook trout composed 30% of the catch. A healthy population of mottled sculpin *Cottus bairdi* were also present. Average total length of rainbow trout was 227 mm (range 178-270 mm) (Table 3). Average total length of brook trout was 179 mm (range 141-218 mm) (Table 3). Francis Creek contains suitable habitat to maintain a strong population of CRCT. Francis Creek is a tributary of Cart Creek. Both Cart Creek and Francis Creek will need to be chemically treated to remove existing rainbow and brook trout populations after which CRCT can be reintroduced. A sample of fish was collected for whirling disease testing; however no results have been received to date.

### South Slope of the Uinta Mountains - Ashley Creek Drainage

Rainbow and cutthroat trout were found in the North Fork of Ashley Creek (Table 2). The trout population estimate was 440 trout per mile, rainbow trout composed 80% of the catch while cutthroat trout comprised 20%. Average total length of rainbow trout was 233 mm (range 181-273 mm) (Table 3), compared to an average total length for cutthroat trout of 154 mm (range 127-174 mm) (Table 3). A sample of 31 cutthroat trout was collected for meristic and genetic testing (Table 4). Mottled sculpin were also found in abundant numbers. This stream is part of the conservation strategy for CRCT.

### South Slope of the Uinta Mountains - Whiterocks River Drainage

Brook trout and mottled sculpin were collected in the West Fork of the Whiterocks River (Table 2). The population estimate for this stream was 625 trout per mile. Average total length was 149 mm (range 65-218 mm) (Table 3). The West Fork of the Whiterocks River is part of the conservation strategy for the restoration of CRCT.

Cutthroat trout, brook trout and mottled sculpin were found in the East Fork of the Whiterocks River (Table 2). The population estimate for this stream was 1178 trout per mile. Brook trout comprised 98% of the catch while the remaining 2% were cutthroat trout. Average total length of the brook trout was 189 mm (range 79-310 mm), and the average length for cutthroat trout was 147 mm (range 122-172 mm) (Table 3). Because only two cutthroat trout were found no samples were collected for genetic testing. The stream is part of the conservation strategy for the restoration of CRCT.

Cutthroat trout was the only fish species found in Lynn Creek (Table 2). The population

estimate for this stream was 346 trout per mile. Average total length was 170 mm (range 41-246 mm) (Table 3). A 34 fish sample was collected for meristic and genetic testing (Table 4). Habitat characteristics of Lynn Creek appear to be suitable for trout. It had a late summer water temperature of 51F, adequate flow, a mean width of 9.9ft and a mean depth of 0.40. However, the substrate and cover ratings were poor (Table 5). This stream should be added to the conservation strategy.

#### **South Slope of the Uinta Mountains - Lake Fork Drainage**

No fish were collected in Cabin Creek (Table 2). The survey, however, indicated that Cabin Creek is suitable to sustain a trout population. It is speculated that high run off may result in flushing fish from Cabin Creek into the Lake Fork River. Cabin Creek had a mid-summer temperature of 46F, adequate flow, a mean width of 9.9ft, a mean depth of 0.31 ft, a fair substrate rating, and a good cover rating (Table 5). This stream is part of the conservation strategy for the re-introduction of CRCT.

#### **North Slope of the Uinta Mountains - Carter Creek Drainage**

Brook trout was the only fish specie found in Weyman Creek (Table 2). Population estimate for this stream was 160 trout per mile. Average total length was 153 mm (range 102-205 mm) (Table 3). Weyman Creek had a late summer water temperature of 57F, and estimated flow of 0.35cfs, a mean width of 4.0ft, a mean depth of 0.21 ft, a poor substrate rating and a fair cover rating (Table 5). Although flow is limited, Weyman Creek appears to have adequate habitat to support a small population of CRCT. Weyman Creek is part of the conservation strategy for the restoration of CRCT.

#### **North Tavaputs Plateau - Willow Creek Drainage**

A survey of She Creek located two natural waterfalls as upstream migration barriers. She Creek section 1 contained no fish (Table 2). Habitat characteristics although marginal appeared suitable for trout. She Creek section 1 had a mid-summer water temperature of 64F, adequate flow, a mean width of 3.8ft, a mean depth of 0.34ft, and a poor substrate and cover rating. Plans will be made to re-introduce CRCT into this section. She Creek, section 2 below both natural waterfalls contained cutthroat trout and speckled dace *Rhinichthys osculus* (Table 2). The second natural waterfall is located approximately 1½ miles above the confluence with Fish Creek. The trout population estimate was 245 fish per mile (Table 2). Average total length of the cutthroat trout was 212 mm (range 125-272 mm) (Table 3). A sample of 30 fish was collected for meristic and genetic testing (Table 4). She Creek section 2 had a mid-summer water temperature of 70F, adequate flow, a mean width of 4.8ft, a mean depth of 0.43ft, and poor substrate and cover ratings (Table 5). She Creek is included in the conservation strategy for the recovery of CRCT.

Cutthroat and brook trout were found in Steer Gulch Creek below a natural waterfall (Table 2). The waterfall is located approximately 1¼ miles above the confluence with West Willow Creek. The population estimate was 712 trout per mile with brook trout making up 62% of the sample and

cutthroat comprising the remaining 38% (Table 2). Average total length of the cutthroat trout was 189 mm (range 117-263 mm), the average total length of brook trout was 194 mm (range 148-270 mm) (Table 3). A sample of 30 cutthroat trout was collected for meristic and genetic testing (Table 4). Steer Gultch Creek had a mid-summer water temperature of 61F, adequate flow, a mean width of 3.6ft, a mean depth of 0.67ft, a good substrate rating and a fair cover rating (Table 5). The majority of this stream is contained within the Ute Indian Reservation. The Ute Tribe should be contacted and if amenable this stream should be added to the conservation strategy.

#### **North Tavaputs Plateau - Strawberry River Drainage**

Timber Canyon Creek was sampled with electrofishing gear for species inventory only (Table 1). Two sections were surveyed, one section approximately 1 mile below its confluence with Shotgun Creek and one section approximately 1/4 mile below its confluence with Shotgun Creek. Both sections showed the composition of approximately 60% brown trout and 40% cutthroat trout (Table 2). Timber Canyon Creek has been genetically tested and determined to contain a 100% pure population of CRCT. Barrier and stream restoration work are slated to be conducted on Timber Canyon Creek during the summer of 2001. The Northeastern Region is also in the process of developing a brood lake for the North Tavaputs Plateau CRCT to be stocked with fish from Timber Canyon Creek.

Shotgun Creek was sampled with electrofishing gear for species inventory only (Table 1). One station was surveyed beginning at the culvert on the Timber Canyon road crossing and continuing up stream approximately 1320ft. The survey found the fish population to be composed of approximately 98% cutthroat trout and 2% brown trout (Table 2). Although Shotgun Creek has not been genetically tested, because of its proximity to Timber Canyon Creek, it is very likely to contain a pure population of CRCT. This stream should be added to the conservation strategy. A barrier needs to be put in place to prohibit any further upstream invasion from brown trout.

#### **High Lakes of the South Slope of the Uinta Mountains**

Beginning in 1999, the Northeastern Region began stocking various lakes in the Uinta South Slope GMU with CRCT, from spawn collected from Sheep Creek Lake. The lakes on the South Slope of the Uinta Mountains, stocked with CRCT, were lakes that had historically been stocked with yellowstone cutthroat trout (YCT). In 1993, the Northeastern Region discontinued stocking YCT in the Uinta Mountains. The majority of the lakes stocked have little or no natural reproduction. The lakes are managed as sport fish populations. Refer to Table 7 for a complete list of all lakes stocked to date with CRCT.



## RECOMMENDATIONS

The Northeastern Region is current with respect to the original conservation strategy schedule with regard to surveys. Because of difficulties in completing the NEPA process for chemical removal, progress has been delayed with respect to non-native control efforts and CRCT re-introductions. Delays in obtaining genetic testing results is also causing a bottleneck. During the year 2001, the Northeastern Region will concentrate on surveys for fish, macro-invertebrates and amphibians in the Sheep Creek Drainage. All water sources, the PH of the water sources and the amount in each water source will be mapped out in preparation for a drainage wide treatment to be completed in 2002 or 2003, pending completion of the NEPA process by the USFS.

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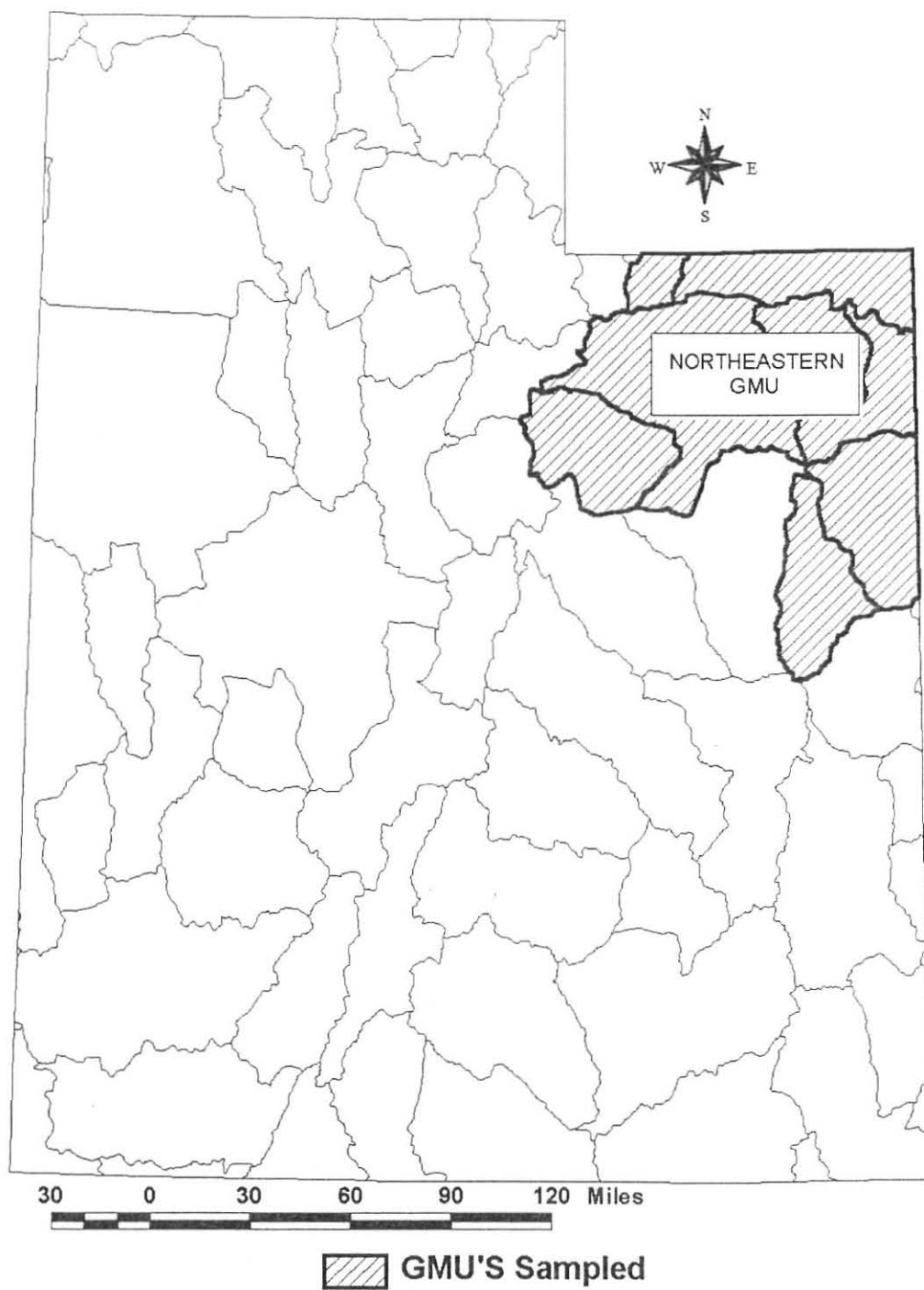
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**Figure 1.** Areas where Colorado River cutthroat trout investigations occurred during 2000



Table 1. Streams surveyed by electrofishing during 2000.

Area	Drainage	Stream name	Water I.D. number	Survey date	Station location	Electro-fishing area
South Slope Uinta Mountains	Middle Green River (14060002)	Francis Creek	II BY 020 01	08/22/00	Beginning where the road crosses the stream to summer cabins and cont. upstream UTM's N4513992 W629037	528 ft
	Ashley Creek (14060002)	North Fork Ashley Creek	II BH 070 01	09/13/00	Beginning at confluence with West Fork of Soldier Creek and cont. upstream UTM's N4513288 W608536	528 ft
	Whiterocks River Drainage (14060003)	West Fork Whiterocks River	II BE 010C 03 01	09/06/00	Beginning 1/8 mile above trailhead where bridge crosses and cont. upstream. Stream was surveyed on a side tributary UTM's N4523714 W599777	528 ft
		East Fork Whiterocks River	II BE 010C 05 01	09/07/00	Beginning at confluence with trib. from Dollar Lake and cont. downstream UTM's N4513088 W585656	528 ft
		Lynn Creek	II BB 010C__	08/29/00	Beginning at road culvert on Chepeta Lake road and continuing upstream	528 ft
	Lake Fork Drainage (14060003)	Cabin Creek	II BE 100H 01	08/10/00	Beginning 1/4 mile above conf. with Rock Creek and cont. upstream UTM's N4493400 W525088	528 ft
North Slope Uinta Mountains	Carter Creek Drainage (14040106)	Weyman Creek	II CH 050A 01	09/05/00	Beginning approximately 125yds. above Brownie Lake road and cont. upstream UTM's N4523711 W599776	528 ft

North Tavaputs Plateau	Willow Creek (14060006)	She Canyon Creek Section 1	II BB 060A 01	07/27/00	Beginning at the first waterfall below Bogart Cyn. and continuing downstream UTM's S4340204 W615758	528 ft
		She Canyon Creek Section 2	II BB 060A 01	07/27/00	Beginning approximately 1½ miles above conf. with Fish Creek and cont. upstream UTM's S4346340 W616411	528 ft
		Steer Gulch Creek	II BB 050F 01	07/28/00	Beginning approximately 3/8 mile above confluence with West Willow Creek and cont. upstream	528 ft
	Strawberry River Drainage (14060004)	Timber Canyon Creek	II BE 060H 02	05/25/00	One section approximately 1 mile below conf. with Shotgun Creek and one section approximately 1/4 mile below conf. with Shotgun Creek	300 ft ca.*
		Shotgun Creek	II BE 060 --	05/25/00	Beginning at Timber Cyn. road crossing and cont. upstream	1320 ft

\*Single pass with electrofishing gear for species inventory only.

Table 2. Population estimates of trout at streams surveyed during 2000. CTT = cutthroat trout, RBT = rainbow trout, BKT = brook trout, BRN = brown trout, MSC = mottled sculpin, SPD = speckled dace.

Area	Drainage	Stream name	Survey Date	Station location	Electrofishing		
					Number of trout per mile	Trout species composition	Other species
South Slope Uinta Mountains	Middle Green River (14060002)	Francis Creek	08/22/00	Beginning where the road crosses the stream to summer cabins and cont. upstream UTM's N4513992 W629037	698	70%RBT 30%BRK	MSC
	Ashley Creek (14060002)	North Fork Ashley Creek	09/13/00	Beginning at confluence with West Fork of Soldier Creek and cont. upstream UTM's N4513288 W608536	440	80%RBT 20%CTT	MSC
	Whiterocks River (14060003)	West Fork Whiterocks River	09/06/00	Beginning 1/8 mile above trailhead where bridge crosses and cont. upstream. Stream was surveyed on a side tributary UTM's N4523714 W599777	625	100%BRK	MSC
		East Fork Whiterocks River	09/07/00	Beginning at confluence with trib. from Dollar Lake and cont. downstream UTM's N4513088 W585656	1178	98%BRK 2%CTT	MSC
		Lynn Creek	08/29/00	Beginning at road culvert on Chepeta Lake road and continuing upstream	346	100%CTT	None
	Lake Fork (14060003)	Cabin Creek	08/10/00	Beginning 1/4 mile above conf. with Rock Creek and cont. upstream UTM's N4493400 W525088	0	-	-
North Slope Uinta Mountains	Carter Creek (14040106)	Weyman Creek	09/05/00	Beginning approximately 125yds. above Brownie Lake road and cont. upstream UTM's N4523711 W599776	160	100%BRK	None

Area	Drainage	Stream name	Survey Date	Station location	Electrofishing		
					Number of trout per mile	Trout species composition	Other species
North Tavaputs Plateau	Willow Creek (14060006)	She Canyon Creek Section 1	07/27/00	Beginning at the first waterfall below Bogart Cyn. and continuing downstream UTM's S4340204 W615758	0	-	None
		She Canyon Creek Section 2	07/27/00	Beginning approximately 1½ miles above conf. with Fish Creek and cont. upstream UTM's S4346340 W616411	245	100%CTT	SPD
		Steer Gulch Creek	07/28/00	Beginning approximately 3/8 mile above confluence with West Willow Creek and cont. upstream	712	62%BRK 38%CTT	None
	Strawberry River (14060004)	Timber Canyon Creek	05/25/00	One section approximately 1 mile below conf. with Shotgun Creek and one section approximately 1/4 mile below conf. with Shotgun Creek	0	*60%BRN *40%CTT	None
		Shotgun Creek	05/25/00	Beginning at Timber Cyn. road crossing and cont. upstream	0	*98%CTT *2%BRN	None

\*Single pass with electrofishing gear for species inventory only, composition is an estimate.

Table 3. Average and range in total length of trout sampled from streams during 2000. CTT = cutthroat trout, RBT = rainbow trout, BKT = brook trout, BRN = brown trout.

Area	Drainage	Stream name	Survey date	Station location Table 1. Streams surveyed by electrofishing during 2000.	Species	Sample size (n)	Mean total length (and range) in millimeters
South Slope Uinta Mountains	Middle Green River (14060002)	Francis Creek	08/22/00	Beginning where the road crosses the stream to summer cabins and cont. upstream UTM's N4513992 W629037	RBT BRK	50 15	227 (178-270) 179 (141-218)
	Ashley Creek (14060002)	North Fork Ashley Creek	09/13/00	Beginning at confluence with West Fork of Soldier Creek and cont. upstream UTM's N4513288 W608536	RBT CTT	34 8	233 (181-273) 154 (127-174)
	Whiterocks River (14060003)	West Fork Whiterocks River	09/06/00	Beginning 1/8 mile above trailhead where bridge crosses and cont. upstream. Stream was surveyed on a side tributary UTM's N4523714 W599777	BRK	60	149 (65-218)
		East Fork Whiterocks River	09/07/00	Beginning at confluence with trib. from Dollar Lake and cont. downstream UTM's N4513088 W585656	BRK CTT	115 2	189 (79-310) 147 (122-172)
		Lynn Creek	08/29/00	Beginning at road culvert on Chepeta Lake road and continuing upstream	CTT	34	170 (41-246)
North Slope Uinta Mountains	Carter Creek (14040106)	Weyman Creek	09/05/00	Beginning approximately 125yds. above Brownie Lake road and cont. upstream UTM's N4523711 W599776	BRK	7	153 (102-205)
North Tavaputs Plateau	Willow Creek (14060006)	She Canyon Creek Section 2	07/27/00	Beginning approximately 1½ miles above conf. with Fish Creek and cont. upstream UTM's S4346340 W616411	CTT	13	212 (125-272)

<b>Area</b>	<b>Drainage</b>	<b>Stream name</b>	<b>Survey date</b>	<b>Station location Table 1. Streams surveyed by electrofishing during 2000.</b>	<b>Species</b>	<b>Sample size (n)</b>	<b>Mean total length (and range) in millimeters</b>
North Tavaputs Plateau	Willow Creek (14060006)	Steer Gulch Creek	07/28/00	Beginning approximately 3/8 mile above confluence with West Willow Creek and cont. upstream	CTT BRK	39 24	189 (117-263) 194 (148-270)

Table 4. Cutthroat trout samples collected from streams and lakes during 2000 for meristic and genetic testing.

Area	Drainage	Stream/ Lake name	Survey date	Station location	Number of Whole Fish	Preservation method
South Slope Uinta Mountains	Ashley Creek (14060002)	North Fork Ashley Creek	09/13/00	Beginning at confluence with West Fork of Soldier Creek and cont. upstream UTM's N4513288 W608536	31	Freezing
	Whiterocks River (14060003)	Lynn Creek	08/29/00	Beginning at road culvert on Chepeta Lake road and continuing upstream	34	Freezing
North Slope Uinta Mountains	Sheep Creek (14040106)	Sheep Creek Lake	06/05/00	Sheep Creek Lake spawning trap	30	Freezing
North Tavaputs Plateau	Willow Creek (14060006)	She Canyon Creek Section 2	07/27/00	Beginning approximately 1½ miles above conf. with Fish Creek and cont. upstream UTM's S4346340 W616411	30	Freezing
		Steer Gulch Creek	07/28/00	Beginning approximately 3/8 mile above confluence with West Willow Creek and cont. upstream	30	Freezing



Table 5. Habitat characteristic of streams surveyed during 2000.

Area	Drainage	Stream name	Survey date	Station location	Water temperature (F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
South Slope Uinta Mountains	Middle Green River (14060002)	Francis Creek	08/22/00	Beginning where the road crosses the stream to summer cabins and cont. upstream UTM's N4513992 W629037	58 (noon)	0.35	4.3	0.46	Poor	Good
	Ashley Creek (14060002)	North Fork Ashley Creek	09/13/00	Beginning at confluence with West Fork of Soldier Creek and cont. upstream UTM's N4513288 W608536	60 (2 p.m.)	4.2	22.2	0.27	Poor	Poor
	Whiterocks River (14060003)	West Fork Whiterocks River	09/06/00	Beginning 1/8 mile above trailhead where bridge crosses and cont. upstream. Stream was surveyed on a side tributary UTM's N4523714 W599777	49 (6:30 p.m.)	3.18	12.86	0.31	Poor	Fair
		East Fork Whiterocks River	09/07/00	Beginning at confluence with trib. from Dollar Lake and cont. downstream UTM's N4513088 W585656	50 (3 p.m.)	9.5	13.55	0.64	Poor	Good
		Lynn Creek	08/29/00	Beginning at road culvert on Chepeta Lake road and continuing upstream	51 (11 a.m.)	1.8	9.9	0.40	Poor	Poor

Area	Drainage	Stream name	Survey date	Station location	Water temperature (F)	Water flow (cfs)	Mean width (ft)	Mean depth (ft)	Substrate rating	Cover rating
South Slope Uinta Mountains	Lake Fork (14060003)	Cabin Creek	08/10/00	Beginning 1/4 mile above conf. with Rock Creek and cont. upstream UTM's N4493400 W525088	46 (11 a.m.)	4.3	9.9	0.31	Fair	Good
North Slope Uinta Mountains	Carter Creek (14040106)	Weyman Creek	09/05/00	Beginning approximately 125yds. above Brownie Lake road and cont. upstream UTM's N4523711 W599776	57 (2 p.m.)	0.35	4.0	0.21	Poor	Fair
North Tavaputs Plateau	Willow Creek (14060006)	She Canyon Creek Section 1	07/27/00	Beginning at the first waterfall below Bogart Cyn. and continuing downstream UTM's S4340204 W615758	64 (6 p.m.)	1.1	3.8	0.34	Poor	Poor
		She Canyon Creek Section 2	07/27/00	Beginning approximately 1½ miles above conf. with Fish Creek and cont. upstream UTM's S4346340 W616411	70 (3 p.m.)	2.8	4.8	0.43	Poor	Poor
		Steer Gulch Creek	07/28/00	Beginning approximately 3/8 mile above confluence with West Willow Creek and cont. upstream	61 (1:30 p.m.)	1	3.6	0.67	Good	Fair

Table 6. Current status of streams containing , or which may contain Colorado River cutthroat trout in the Northeastern Region. Barrier codes: 0 = none apparent; 1 = constructed barrier, road culvert, or water diversion; 2 = chemical/temperature/biological barrier; 3 = gradient/velocity barrier; 4 = natural, single-point barrier; 5 = natural, multiple-site barrier; and 6 = no information.

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
South Slope Uinta Mountains Duchesne River (14060003) Little West Fork of the Duchesne River	II BE 150I 01	Wasatch	35 fish sample tested using meristics & allozymes, determined population to be pure CRCT. Additional genetic analysis needed.	1978	Unknown	Unknown	0
Yellowstone River	II BE 020B	Duchesne	32 fish sample tested using MtDNA, determined population to be pure CRCT.	1992	4	Unknown	6
West Fork of the Duchesne River	II BE 150	Wasatch, Duchesne	29 fish sample tested using MtDNA, determined population to be pure CRCT.	1993	18.6	18.6	1
Reader Creek	II BE 010C 06	Duchesne	24 fish sample tested using MtDNA, determined population to be pure CRCT.	1993	5	5	4

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
South Fork of Rock Creek	II BE 100G	Duchesne	10 fish sample tested using MtDNA, determined population to be pure CRCT. Larger sample should be collected for testing.	1994	Unknown	Unknown	6
Uinta River	II BE 010	Duchesne, Uintah	26 fish sample tested using MtDNA, 23 tested as pure CRCT, 3 tested as pure YCT.	1995	Unknown	Unknown	6
Lake Fork River	II BE 020	Duchesne	20 muscle plugs submitted, 10 whole fish needed to complete sample for genetic testing.	1998 & 2001?	Unknown	Unknown	3
Crater Lake Creek	II BE 020??	Duchesne	20 muscle plugs submitted, 10 whole fish needed to complete sample for genetic testing.	1998 & 2001?	Unknown	Unknown	0
Brown Duck Creek	II BE 020D	Duchesne	30 fish sample submitted. Not yet tested.	1999	Unknown	Unknown	6
Milk Creek	II BE 020B 05	Duchesne	30 fish sample submitted. Not yet tested.	1999	Unknown	Unknown	0
Garfield Creek	II BE 020B 04	Duchesne	35 fish sample submitted. Not yet tested.	1999	Unknown	Unknown	0

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
South Slope Uinta Mountains Duchesne River (14060003) Lynn Creek	II BE 010C ??	Duchesne	40 fish sample submitted. Not yet tested.	2000	Unknown	Unknown	4

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
South Slope Uinta Mountains Strawberry River (14060004) Currant Creek HW	II BE 060F	Wasatch	30 fish sample tested using meristics & allozymes, determined population to be pure CRCT. Additional genetic analysis needed.	1987	3.1	3.1	0
Race Track Creek	II BE 060F 01H	Wasatch	30 fish sample tested using MtDNA, determined population to be pure CRCT.	1993	3.1	3.1	0
Right Hand Fk. Currant Creek	II BE 060F 01K	Wasatch	29 fish sample tested using MtDNA, 16 tested as pure CRCT, 13 tested as archaic BCT.	1995	Unknown	Unknown	1
Ashley Creek (140600020) Dry Fork Creek	II BH 010C	Uintah	21 fish sample tested using MtDNA, determined population to be pure CRCT.	1993	7	Unknown	3
South Fork of BrowneCreek	II BH 010B 02	Uintah	32 fish sample tested using Nuclear DNA, MtDNA & meristics, determined population to be pure CRCT.	1996	Unknown	Unknown	2
North Fork of Ashley Creek	II BH 070	Uintah	37 fish sample submitted. Not yet tested.	2000	Unknown	Unknown	0

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
North Slope Uinta Mountains Daggett (14040106) Sears Creek	II BQ 01	Uintah	Stocked with fish from Water Hollow Creek in 1990. 30 fish from Water Hollow were tested in 1990, using allozymes. The fish were determined to be cutthroat trout, but the subspecies could not be determined. Additional genetic analysis needed.	1990	1	Unknown	6
South Fork of Sheep Creek	II CI 030	Daggett	32 fish sample tested using MtDNA & meristics, determined population to be pure CRCT.	1992	2.6	2.6	6
North Fork of Sheep Creek	II CI 050	Daggett	29 fish sample tested using MtDNA & meristics, determined population to be pure CRCT.	1993	Unknown	Unknown	6
Burnt Fork Creek	II CJ 030	Daggett	25 fish sample tested using MtDNA, determined population to be pure CRCT.	1994	10.6	10.6	6



GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
Mann Creek	II CI 025 01	Daggett	24 fish sample tested using MtDNA, determined population to be pure CRCT.	1995	1.6	1.6	0
Elk Creek	II CH 030 01	Daggett	30 fish sample submitted. Not yet tested.	1997	Unknown	Unknown	6
Daggett Creek	II CI 030A	Daggett	28 fish sample tested using Nuclear DNA, MtDNA & meristics, determined population to be 99%+ pure CRCT.	1998	Unknown	Unknown	0
North Tavaputs Plateau Strawberry River (14060004) Avintaquin Creek	II BE 060G	Duchesne	30 fish sample tested using MtDNA, determined population to be pure CRCT.	1994	4	11.8	1
Timber Canyon Creek	II BE 060H	Duchesne	24 fish sample tested using Nuclear DNA, MtDNA & meristics, determined population to be 100% pure CRCT.	1999	Unknown	12.4	0
Mill Hollow Creek	II BE 060G 07	Duchesne	31 fish sample tested using MtDNA, 5 tested as pure CRCT, 26 tested as archaic BCT. Recommend CRCT possibly unique.	1995	Unknown	Unknown	2

GMU Drainage Stream	State Water ID#	County	Status	Conservation population status for 2000			Barrier
				Origin (year identified or transplanted)	Occupied stream miles (Total / allopatric)	Available stream miles	
Willow Creek (14060006) She Canyon Creek	II BB 060A	Grand	30 fish sample submitted. Not yet tested.	2000	Unknown	Unknown	5
Steer Gulch	II BB 050F 01	Grand	30 fish sample submitted. Not yet tested.	2000	Unknown	Unknown	4

Table 7. Current status of lakes containing Colorado River cutthroat trout in the Northeastern Region.

GMU	Drainage	Lake	Surface Acres	State Water ID#	Year Stocked	Number Stocked
Ashley Creek (14060002)	Ashley Creek	Sandy Lake (GR-45)	5.6	II 739A	1999	560
	Dry Fork	DF-4	10	II 717A	1999	750
		Fish Lake (GR-57)	17.5	II 729	1999	850
		Red Belly Lake (GR-51)	6.3	II 739	1999	630
Rock Creek (14060003)	Dry Gulch	Crow Lake (DG-3)	18	II 131	1999	1,800
		DG-6	3	II 131F	1999	600
		DG-9	10	II 131I	1999	1,000
		DG-10	10	II 131J	1999	1,000
		DG-14	2	II 131O	1999	200
		DG-15	2	II 131P	1999	200
		DG-16	2	II 131Q	1999	200
		DG-17	3.5	II 131R	1999	440
	Lake Fork	Brown Duck Lake (X-31)	27	II 113	1999	1,778
		Clements Res. (X-74)	99.2	II 124	1999	3,900
		Island Res. (X-34)	66	II 164	1999	1,087
		Kidney Lake (X-35)	190	II 173	1999	11,514
					2000	7,500
		LF-8	7	II 175AH	1999	700
		Upper Ottoson Lake (X-87)	12.4	II 193BBC	1999	428
					2000	225

GMU	Drainage	Lake	Surface Acres	State Water ID#	Year Stocked	Number Stocked
		X-61	5.2	II 270A	1999	550
		X-62	6	II 270B	1999	600
		X-78	17	II 272	1999	1,700
		X-89	3.5	II 281A	1999	350
	Rock Creek	Arta Lake (RC-23)	5.4	II 98C	1999	540
		Betsey Lake (X-7)	33.8	II 102	1999	2,634
					2000	1,500
		Continent Lake (X-121)	27.4	II 128	2000	2,746
		Fish Hatchery Lake (X-6)	37.2	II 149	1999	2,305
					2000	1,200
		Gibby Lake (RC-30)	1.9	II 154	2000	300
		Heart Lake (X-13)	5.7	II 159	1999	570
		Margo Lake (Z-23)	11.1	II 184A	1999	1,100
		Powell Lake (Z-30)	22.4	II 204	1999	2,700
		Sea Lion Lake (RC-11)	7.9	II 223C	1999	790
		Young Lake (X-100)	4	II 286	1999	600
	Swift Creek	Deer Lake (X-55)	12	II 135	2000	1,000
		East Carroll Lake (X-21)	10	II 116B	1999	800
		X-22	9	II 262A	2000	900
		X-24	21	II 264	1999	1,037
		X-25	17	II 265	1999	1,120
		X-51	4	II 276B	1999	400

GMU	Drainage	Lake	Surface Acres	State Water ID#	Year Stocked	Number Stocked
	Uinta River	Bollie Lake (U-96)	9.8	II 108B	1999	980
		Chain Lake #4 (U-4)	13.5	II 122	1999	700
		Craig Lake (U-85)	9.3	II 128B	1999	313
		Crescent Lake (U-48)	31	II 130	1999	4,600
		Divide Lake (U-59)	18.9	II 137B	1999	1,900
		Okey Doke Lake (U-5)	12.9	II 193B	1999	650
		Penny Nickell Lake (U-98)	11.5	II 197C	1999	600
		Roberts Lake (U-15)	23.3	II 214B	1999	1,200
		U-35	4.4	II 251B	1999	450
		U-38	15.7	II 251E	1999	800
		U-42	7.6	II 251H	1999	750
		U-45	5	II 251I	1999	500
		U-91	6.9	II 251UB	1999	520
		U-93	11.1	II 251V	1999	550
Rock Creek (14060003)	Whiterocks River	Angel Lake (WR-19)	10.4	II 98B	1999	1,000
		Ann Lake (WR-74)	3.4	II 98BD	2000	340
		Katy Lake (WR-34)	9	II 172B	1999	900
		Middle Rock Lake (WR-16)	7.3	II 219B	2000	600
		Nellie Lake (WR-75)	2.7	II 191B	2000	300
		Ogden Lake (WR-5)	13.9	II 193	1999	1,400
		R.C. #1 Lake (WR-2)	10.2	II 210D	1999	1,200
		Tamara Lake (WR-73)	6.9	II 235C	1999	800

GMU	Drainage	Lake	Surface Acres	State Water ID#	Year Stocked	Number Stocked
		Upper Rock Lake (WR-14)	33.3	II 219C	1999	2,000
	Yellowstone River	Kings Lake (Y-22)	10	II 173BA	1999	1,000
Daggett 14040106	Sheep Creek	Sheep Creek Lake- Brood lake for the South Slope Uinta Mts. GMU.	80	II 080C	1995 1996 1997 2000	500 500 500 5,000