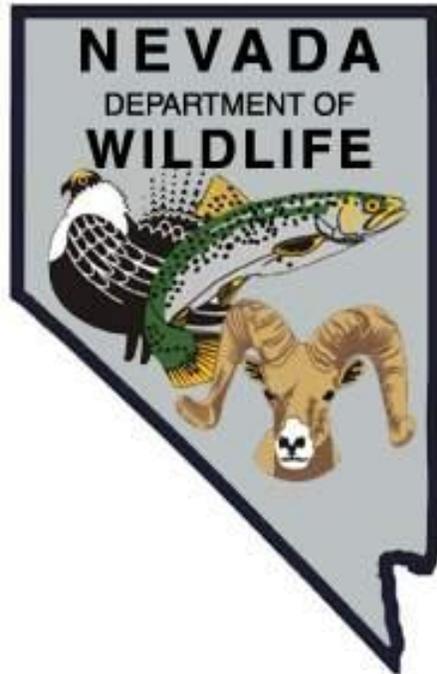


NEVADA DEPARTMENT OF WILDLIFE
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORT
F-20-48
2012

EAST WALKER RIVER
WESTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

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ANNUAL PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION
ANNUAL PROGRESS REPORT**

State: *Nevada*
Project Title: *Statewide Fisheries Program*
Job Title: *East Walker River*
Period Covered: *January 1, 2012 through December 31, 2012*

SUMMARY

The 2012 discharge for the East Walker River was 56,247 acre-ft, which was the lowest in the last five years. The peak flow was recorded in late July to be 216 ft²/s during 2011 peak flow were recorded in late June at 922 ft²/s.

Based on the 2011 Mail-in, Angler Questionnaire Survey, anglers fished 6,118 days with a success of 5.59 fish per angler day. For 2011, angler numbers were estimated at 1,905, which was slightly below the 6 yr average of 1,957. However, fish per day, number of fish caught, and days spent fishing were above the 6 yr averages.

The “general fishery” area (Elbow, Raccoon Beach, and Zanis) continued to produce angler success rates in compliance with the angling objective; anglers yielded catch rates of 1.3 fish per hour and fish averaged 11.6 in (based on roving creel data). Rosaschi Ranch angler success, based on drop-box data, was slightly lower at 1.2 fish per hour; however, anglers fished longer at Rosaschi Ranch and reported 10.5 fish per angler day (nearly double that in 2011). Anglers also caught larger fish at Rosaschi Ranch, greater than 21 in and with an average of 12.2 in.

Electrofishing survey results were consistent with previous data and suggest an increasing trout population from downstream to upstream. Trout per mile estimates ranged from 395 at the Zanis transect to 2,600 at the Rosaschi Ranch transect.

In 2012, the river was stocked with 11,136 rainbow trout, with the majority being stocked at the Elbow. A total of 11,504 fingerling brown trout, averaging 2.4 in, was stocked this year.

A brown trout reproduction study was initiated in 2012. Monitoring of reproductive activity as well as wild and hatchery raised fish was successful. Results of the study will be used to evaluate future stocking needs.

BACKGROUND

The East Walker River originates along the eastern slope of the Sierra-Nevada in California. Bridgeport Reservoir, CA, located 11.3 km (7 mi) upstream from the NV-CA border, supplies irrigation water to farmland in Nevada, and has a maximum volume of $4.993 \times 10^7 \text{ m}^3$ (40,494 acre-ft), of which the Walker River Irrigation District (WRID) can divert to storage $4.895 \times 10^7 \text{ m}^3$ per annum (39,700 acre-ft per annum, afa). However,

WRID only can withdraw $4.439 \times 10^7 \text{ m}^3$ per annum (36,000 afa). The irrigation season generally begins April 1 and ends November 1, and summertime flow typically ranges from 5.66 to $14.16 \text{ m}^3 \times \text{sec}^{-1}$ (200 to 500 cfs) below the reservoir.

The California State Water Board maintains a minimum discharge below Bridgeport Reservoir of $0.57 \text{ m}^3 \times \text{sec}^{-1}$ (20 cfs). When air temperature diminishes below -17.8°C (0°F), the minimum discharge increases to $0.85 \text{ m}^3 \times \text{sec}^{-1}$ (30 cfs). Flows of 30 cfs or above are mandatory from the beginning of November to the end of February in order to reduce anchor ice and to continue providing riffle and pool habitats for trout survival.

Land management status adjacent to the East Walker River varies from U.S. Forest Service, Bureau of Land Management, and private property. In 1995, the American Land Conservancy purchased the Rosaschi Ranch (approximately 3.5 to 13.2 river km, 2.2 to 8.2 mi, below the NV-CA border). This land now is under USFS management, while NDOW manages the fishery as a “quality fishery” having a zero-harvest limit. The Flying-M Ranch allows public access at the Elbow, which is the beginning area of the “general fishery” and anglers can harvest 5 trout and 10 mountain whitefish. The East Walker River flows for about 99.8 km (62 mi) in Nevada before it reaches the confluence with the West Walker River in Mason Valley. Approximately 33.8 river km (21 mi, or 34%) are public; however, through additional cooperation with private landowners, 38 percent of the river is accessible to anglers.

OBJECTIVES

General Management Objectives:

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Maintain and check for returns of angler drop-box surveys when on site.
- Monitor fish populations along the East Fork during three days of tote-barge electroshocking at four established sites during November.

Study Specific Objectives:

- Snorkel during fall to locate spawning adults.
- Tag wild and hatchery raised brown trout (if available) with color and number specific Floy tags.
- Monitor juvenile populations prior to spring runoff during fall electrofishing surveys.

PROCEDURES

General Management Objectives:

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Anglers were contacted primarily at four locations: Rosaschi Ranch, Elbow, Zanis, and Raccoon Beach. Angler creel

information was collected throughout the year. Information obtained from anglers includes type of gear used, number and species of fish caught, size of fish caught, location of fish caught, county of residence, and number of hours fished. Angling questionnaires were mailed at the end of 2011 to 10% of anglers acquiring a Nevada fishing license. Data was received and summarized for estimated number of anglers, fish caught, days spent fishing, and catch rates.

Maintain and check for returns of volunteer, angler drop box surveys when on site. Questionnaires from three streamside drop-boxes located at Rosaschi Ranch not only collected basic creel information, but also collected angler satisfaction ratings (ranked from +2 [highly satisfied] to -2 [dissatisfied]). Data from all drop-boxes were combined.

Monitor fish populations along the East Fork during three days of tote-barge electroshocking at four established sites during November. Historical transects established at Rosaschi Ranch, Elbow, Raccoon Beach, and Zanis were sampled during 2012. This survey was conducted during the first week in November. An electrofishing tote barge was towed for one-pass without the use of block nets and in at least 2-pools and 2-riffles per site. The electroshocker was typically adjusted to 60 ms pulsed DC at 600 V.

Study Specific Objectives:

Snorkel during fall to locate spawning adults. Snorkel surveys were not conducted during 2012. Flows in the river were too low during the fall to snorkel; however, a visual survey to identify spawning activity was conducted. Visual surveys included walking along the riverbank and noting locations of spawning brown trout and redds.

Tag wild and hatchery raised brown trout (if available) with color and number specific Floy tags. On December 11, 2012, fish averaging 7.1 in were tagged at Mason Valley Fish Hatchery and stocked at the Elbow. There were 198 fish given number and color specific Floy tags. On December 12, 2012, 200 wild brown trout were caught through electrofishing, tagged with color and number specific Floy tags and released. Wild fish averaged 6.0 in, had a maximum size of 18 in, and all were caught in the Rosaschi Ranch section from the bridge upstream to approximately 1/2 mi.

Monitor juvenile populations prior to spring runoff during fall electrofishing surveys. Historical transects established at Rosaschi Ranch, Elbow, Raccoon Beach, and Zanis were sampled during 2012. This survey was conducted during the first week in November. An electrofishing tote barge was towed for one-pass without the use of block nets and in at least 2-pools and 2-riffles per site. The electroshocker was typically adjusted to 60 ms pulsed DC at 600 V. All juvenile brown trout were recorded.

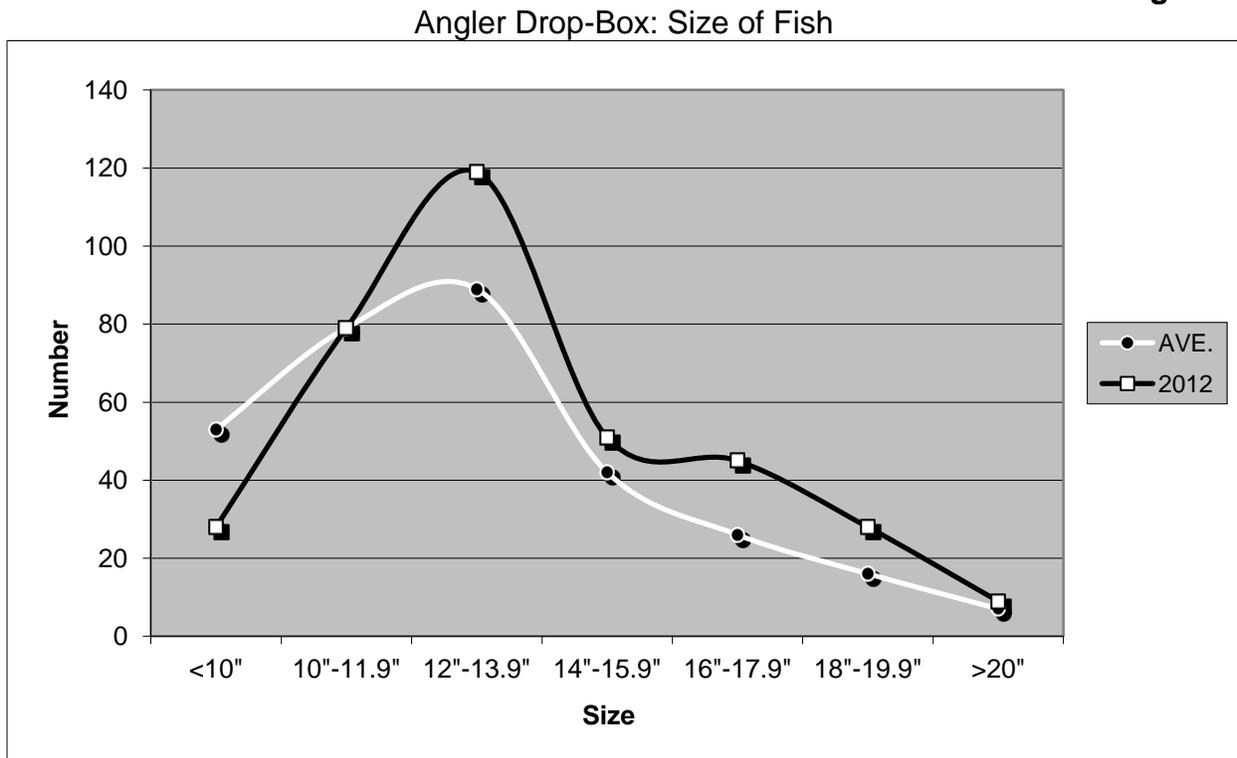
FINDINGS

General Management Objectives:

Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data. Opportunistic angler contacts made during 2012 showed anglers fishing the Rosaschi Ranch section had a catch rate of 1.2 fish per hour. The Rosaschi Ranch section is managed under the Coldwater, Trophy Fishery Concept, which states, “a trophy fishery provides a significant portion of the harvest as fish of a size most anglers remember catching, while a trophy fish is one of a size worthy of acknowledgment. Sustained carryover of fish from one season to another for a significant portion of the population and exceptional fish growth potential are generally characteristics of a trophy fishery ... Minimum size for trout (rainbow, brown, and cutthroat) should be 16.0 inches or approximately five pounds in weight. Angler success rates should range between 0.5 and 1.7 fish per hour and 0 and 1.0 fish per angler day.” Catch rates derived from creel data collected during 2012 suggest that the Rosaschi Ranch has met the catch rate criteria for a trophy fishery.

Fish measured during angler contacts (primarily from coordinated volunteer angling efforts and hook-and-line surveys) along the Rosaschi Ranch section averaged 12.2 in. This average might seem to suggest that the size of fish caught at Rosaschi Ranch is not meeting the criteria of a trophy fishery; however, angler drop-box reports show there is a portion of the trout population being caught that meets the trophy criteria (minimum of 16 in) (Figure 1).

Figure 1



The East Walker River downstream of Rosaschi Ranch is managed under a Coldwater, General Fishery Concept. The Coldwater, General Fishery Concept states, “less than 30% of the annual stocking would be carried through from one fishing season to the next and the fish generally show minimal growth from stocked size. Angler success rates should range between 0.25 and 0.75 fish per angler hour and 1.00 and 2.00 fish per angler day.” Angler contacts throughout this section show the catch rate during 2012 was 1.3 fish per hour. Most fish measured were rainbow trout caught near the Elbow. The size of fish caught typically averaged 11.6 inches, which was expected of a hatchery supported trout fishery. Data collected within the general regulation area indicates a coldwater General Fishery Concept is being met.

The annual mail-in, angler questionnaire data from 2005 through 2011 is summarized in Table 1. Total number of anglers, number of fish caught, number of angler days decreased from 2010, however, fish per angler day increased slightly and all values were near the 7 yr average.

Table 1

Mail-in, Angler Questionnaire Data

	2005	2006	2007	2008	2009	2010	2011	Ave
Number of Anglers	1,300	1,853	1,897	1,618	3,096	2,030	1,905	1,957
No. Angler Days	4,614	7,226	7,597	7,060	10,137	8,228	6,118	7,283
Total Fish Caught	15,897	32,895	42,722	25,186	54,005	42,889	34,179	35,396
Fish per Angler Day	3.45	4.55	5.62	3.57	5.33	5.21	5.59	4.76

Maintain and check for returns of volunteer, angler drop box surveys when onsite. Volunteer, angler drop-box surveys, which were collected at Rosaschi Ranch from 2006 through 2012, are summarized in Table 2. Angler catch rates suggest that Rosaschi Ranch section met the objectives of a trophy coldwater fishery for each year. Satisfaction results are summarized in Table 3. Satisfaction was high for overall fishing experience, size of trout, and number of trout caught for each year.

Table 2

Rosaschi Ranch Drop-Box Survey Results

	2006	2007	2008	2009	2010	2011	2012
No. Anglers	64	63	60	50	34	26	37
Hrs Fished	300.5	270.25	244.5	203	139.5	131	195
Rainbow	282	249	244	120	142	76	190
Brown	155	175	89	80	63	53	164
Whitefish	24	43	16	5	7	7	18
Fish/Hour	1.53	1.73	1.43	1.01	1.52	1.04	1.91
Fish/Day	7.20	7.41	5.82	4.10	6.24	5.23	10.05

Table 3

Rosaschi Ranch Drop-Box Satisfaction Survey

	Overall Experience	Size of Fish	Number of Fish
2006	1.52	1.16	1.13
2007	1.20	1.02	0.84
2008	1.03	0.61	0.59
2009	0.91	0.81	0.56
2010	1.46	1.20	1.00
2011	1.42	1.12	0.88
2012	1.12	1.19	0.73
AVE	1.24	1.02	0.82

Size of fish caught was also recorded from angler drop-box surveys; the 7 yr average and results from 2012 are represented in Figure 1. The distribution of fish size during 2012 was similar to the 7 yr average; however, catch rates (fish per day and fish per hour) were the highest over the same period. This suggests that the below average number of anglers participating in the drop-box and the mail in angler questionnaire surveys are likely a result of less anglers fishing, even though catch rates, size of fish, and satisfaction was high for those who did fish.

Based on drop-box data, most fish were caught during the fall, with September being the highest month (40% of all fish). This was consistent with previous years' data. Catch rates during September averaged 3.57 fish per hour. The survey also showed anglers were highly satisfied with catching many large fish. Angler drop-box data and mail in, angler questionnaire data from 2006 through 2012 suggest that the Rosaschi Ranch section met all objectives of a coldwater trophy fishery.

Table 4

Stocking Totals for 2012

Date	Species	Number	Size (in)
4/20/2012	Brown trout	11,504	2.4
4/25/2012	Rainbow trout	350	13.0
5/7/2012	Rainbow trout	3,300	9.9
6/5/2012	Rainbow trout	4,096	9.9
6/19/2012	Rainbow trout	75	16.0
7/24/2012	Rainbow trout	1,808	10.3
10/22/2012	Rainbow trout	1,507	9.8
12/11/2012	Brown trout	200	7.0
	Total Rainbow	11,136	

Monitor fish populations along the East Fork through 3 days of tote-barge electroshocking at 4 established sites during November. Population monitoring shows fish populations are fluctuating, but stable (Figure 2). A project was completed during 2010, which found that trout populations might be predictable when comparing abundance (trout per mile) with the previous year average monthly discharge. The linear equation is $y=0.244x$, with the y intercept at zero, x is average monthly discharge (cfs taken at noon each day then averaged for the month and converted to acre-ft of water discharged) from the previous year, and y is trout per mile. Although statistically not significant, additional annually input may create a more reliable dataset. Population surveys were not conducted during 2011; however, abundance was calculated using this equation and came to 1,952 fish per mile. During 2012, abundance found during population surveys were estimated to be 395 fish per mile at Zanis, 542 at Raccoon Beach, 1,725 at the Elbow, and 2,600 at Rosaschi Ranch.

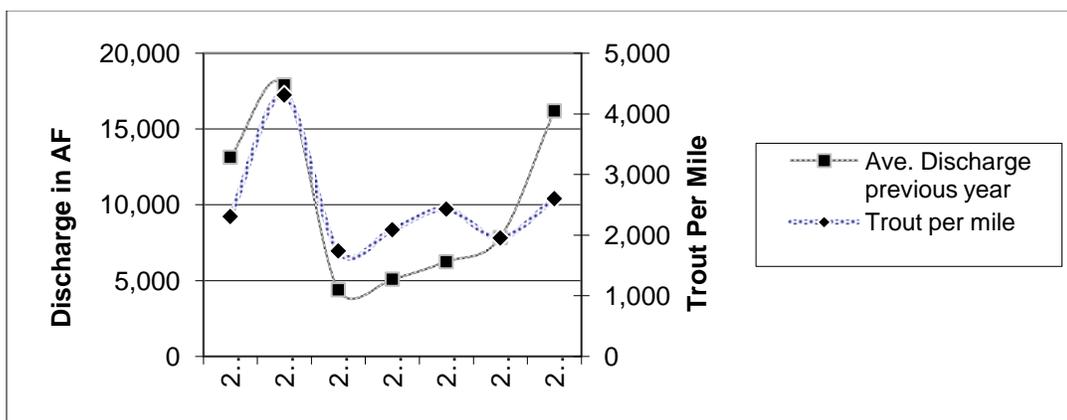
Study Specific Objectives:

Snorkel during fall to locate spawning adults. Flows in the river were too low during the fall to snorkel; however, while walking the shoreline at Rosaschi Ranch, several brown trout pairs on redds were identified. Average distance between active redds was approximately 100 yds throughout the surveyed sections. Redds that were identified, but did not have trout in the immediate vicinity, were also noted. There were several locations with spawning activity that were left “high and dry” as the water level receded with the ending of the irrigation season and subsequent flow reduction.

Tag wild and hatchery raised brown trout (if available) with color and number specific Floy tags. Fish tagged at Mason Valley Fish Hatchery and stocked at the Elbow were given yellow tags numbered 040-250. Wild brown trout caught electrofishing were tagged with green tags numbered 8001-8200. The office phone number of the primary biologist was also included on all tags. Several angling groups that frequent the river were contacted about this project and advised to keep track of their catch and report any tagged fish caught. So far none have been reported.

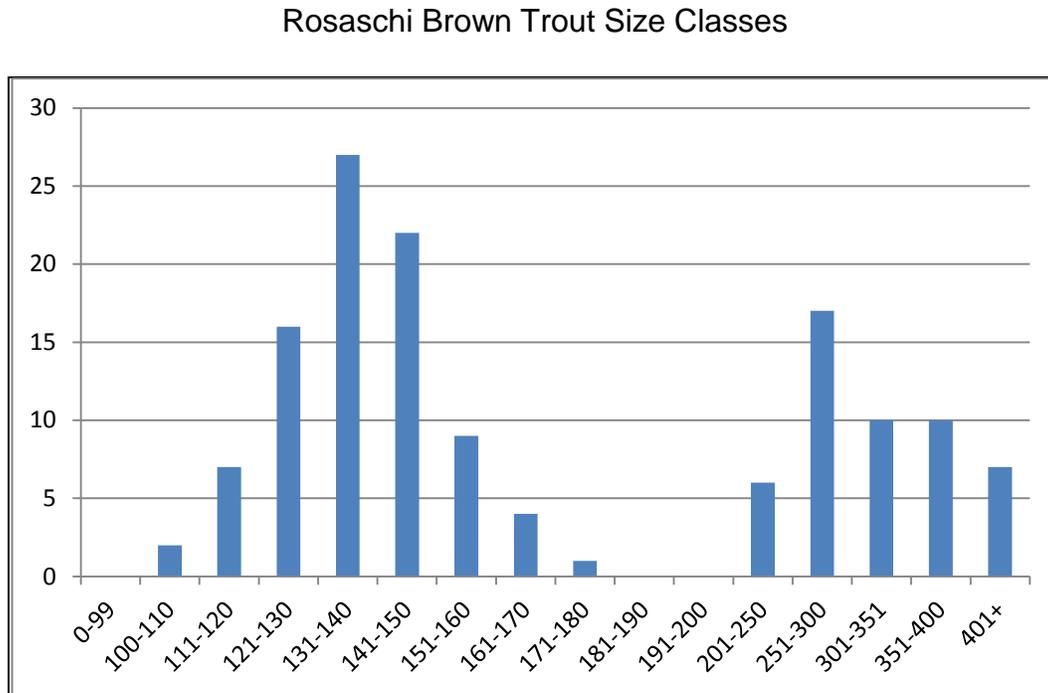
Figure 2

Rosaschi Ranch Population Survey



Monitor juvenile populations prior to spring runoff during fall electrofishing surveys. Brown trout sizes classes were divided into two major groupings; adult and juvenile (Figure 3). The majority of juvenile browns were in the 5 to 5.5 in class (131-140mm); however, a few reached 7 in (180 mm). Total range of juvenile browns was 4 to 7 in, suggesting a long spawning period that may contribute to the overall success of the spawn given temporal changes in water conditions. Flows in the river reduced from 75 cfs in early October to 23 cfs in November, a 70% reduction.

Figure 3



MANAGEMENT REVIEW

The primary work program objectives for the East Walker River were met in 2012 with the exception of snorkel surveys. The data suggests that the East Walker River is meeting the goals and objectives of providing both a coldwater general fishery and a coldwater trophy fishery. Current regulations for both the general fishery and trophy fishery are adequate and should remain unchanged.

Fall electroshocking results are consistent to previous years and suggest that trout population numbers are stable. The typical trend of trout abundance increasing from downstream to upstream was observed again in 2012. Approximately half of the traditional transect at Rosaschi was surveyed due to low flows in the riffle sections, all other transects were surveyed for the entire lengths. Mountain whitefish tended to be further downstream than previous years.

The East Walker River continues to be popular among anglers in western Nevada. Angler success rates and size of fish caught were within the boundaries of the management objectives and anglers expressed overall satisfaction with their fishing experience.

Funding for recreational improvement projects has become available for the East Walker River through the East Walker River Trustee Council, which administers the settlement money from an oil spill that occurred in December, 2000. The Forest Service started organizing the improvement projects around the Rosaschi Ranch section of river and implementation of the construction phase was tentatively scheduled for summer of 2011; however, little progress has been made on the project due to Forest Service personnel commitment to other projects.

In 2012, a study was initiated to determine the future need of stocking hatchery raised brown trout into the East Walker River. Natural reproduction (in California and Nevada) combined with the “catch and release” area may be enough to support an acceptable brown trout population. Shortly after initiation of the project it was learned that California may be stocking more fingerling brown than previously thought. This could impact our findings and a more thorough investigation will be needed during 2013.

RECOMMENDATIONS

General Management Objectives:

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data
- Maintain and check for returns of volunteer, angler drop-box surveys when on site.
- Monitor fish populations along the East Fork through three days of tote-barge electroshocking at four established sites during November.

Study Specific Objectives:

- Visual surveys during fall to locate spawning adults.
- Tag wild and hatchery raised brown trout with color and number specific Floy tags.
- Monitor juvenile populations prior to spring runoff.

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Date: February, 2013