

**Project No. 14446-000**  
**Peabody Trout Creek Reservoir**  
**Hydroelectric project**  
**Peabody Trout Creek Reservoir LLC**



**Creek Ranch Owners Association**  
**Steamboat Springs, Colorado**

Creek Ranch Owners Association  
P.O. Box  
Steamboat Springs, Colorado 80477  
MR. Gerry Audiserk President

Federal Energy Regulatory Commission  
Washington D.C. 20426  
In Care of Shana Murray, [shana.murray@ferc.gov](mailto:shana.murray@ferc.gov)

Dear Shana,

The Creek Ranch is a 2400 acre land preservation subdivision located in Routt County Co. It has 40 home sites on 400 acres. The property functions as a working ranch that raises a hay crop and grazes cattle. The ranch contains three miles of Trout Creek and 150 acres of Creek bottom area. We are bordered on the north and west sides by the Peabody property. In 1999 work began to stabilize the creek's channel, improve the width depth ratios and riffle pool ratios, reestablish fisheries habitat and rejuvenate the creek's riparian habitat (please see the attached project documentation). Currently our riparian plantings have 12 years of growth and they form a canopy over the creek channel in many places. The riparian zones also serve to trap significant amounts of sediment generated by our upstream neighbors during the yearly runoff. We currently have six age classes of stream bred Brown Trout as well as two species of cutthroat trout and Rainbows. We utilize a recognized noxious weed control program and year round stewardship activities. Our goal is to make the property the best that it can be. We see a potential for the Peabody project to be a positive complement to our efforts. Whether it does or not will all come down to their planning and execution. We hope that our interest, experience and input will help.

Please find attached comments and suggestion on your preliminary list of alternatives for the Scoping document 1.

Thank you for the opportunity to comment,  
Gerry Audiserk  
President  
The Creek Ranch Owners Association

Bill Chace, Riverkeeper

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**Our comments to Scoping Document 1 for Trout Creek Hydroelectric Project P-14446-000, pertain to section 4.0 SCOPE OF CUMULATIVE EFFECTS AND SITE SPECIFIC RESOURCE ISSUES.**

**Scoping Document 1: 4.1 CUMULATIVE EFFECTS**

*Comment:* Natural resources function smoothly as a system and a systems based approach to changes or modifications is required. Cumulative effects are part of the changes to all components of the project.

**Scoping Document 1: 4.1.1 Resources that Could be Cumulatively Affected**

**Scoping Document 1: 4.1.2 Geographic Scope**

*Comment:* The geographic scope should include the creek channels, riparian habitats and associated wetlands as well as any wetland mitigation areas designed to intercept and contain sediment generated by the current poor conditions of bank stability and riparian habitat of the creeks on the west side of the proposed reservoir.. This would include all of the creeks on the west side of the reservoir that contribute flows to the reservoir.

**Scoping Document 1: 4.1.3 Temporal Scope**

*Comment:* The measure of cubic yards of sediment and nutrient load that will be delivered to the Trout Creek Reservoir by all of its tributaries during the FERC license period will have a significant effect on water quality and reservoir oxygen levels particularly during the winter months when aquatic vegetation is dying and requires significant oxygen to be broken down by aerobic bacteria. A classic example of this condition is clearly demonstrated by a local lake which is hyper Eutrophic due to the continuous introduction of nutrients and a lack of oxygen required to break down the Macrophytes that thrive in the sludge layer that has developed on its bottom. From June through December the Yampa River channel below this particular lake is full of filamentous algae and planktonic algae due to an enormous nutrient load. If the proponent is considering residential/ recreational development of this reservoir they should probably be aware that nutrient rich lakes which host extensive algal blooms in the summer months are not very attractive for recreational activities.

**Scoping Document 1: 4.2.1 Geologic and soil resources**

*Comment:* We believe that sediment related issues will be extremely important due to their interrelationship with other major issues including Water Quality (nutrient levels, temperature and oxygen levels) and Fisheries resources( tubifex worm habitat, the cohost of whirling disease) We are in agreement with the summary and conclusions of GEI consultants in their march 2012

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report (see below) and we support the continuation of sediment studies including inventory of Oligochaeta worm populations and their rates of infectivity throughout their growth cycle in the reservoir.

AQUATIC INVESTIGATIONS – TROUT CREEK RESERVOIR  
MARCH 2012  
GEI Consultants

## **4.0 Summary and Conclusions**

Sediment yield is a combination of stream flow measurements of the granular material being carried by the flow. We were unable to collect sediment samples during the high flow season, thus we have an inadequate amount of information from which to develop a sediment rating curve.

The measured sediment values in combination with the corresponding flow values provide an inadequate amount of information from which to develop a sediment rating curve. In addition, no firm conclusions can be reached on any variation in suspended sediment spatially (between measurement locations) or by flow. The sediment measurements should continue to be taken

Using conventional bed samplers and suspended sediment samplers as flows increase through the spring period of high flows with correspondingly higher sediment loads. When at least one runoff season has been measured the minimum of information needed to develop a first sediment rating curve should be available. Until that time, no reliable estimate of reservoir sedimentation rate can be made.

**Comment:** Creeks delivering the water supply to the Trout Creek Reservoir include the main channel of Trout Creek that flows through the Creek Ranch, Foidel Creek and Middle Creek. Photo # 1 and # 2 Show Foidel Creek in 2012 after the cattle grazing was finished for the year. In all fairness this was a tough year and the cattle had to make the best use of all pasture resources. Cattle using these pastures literally camp out in the creek bottom. The result is high percentage of vertical mass wasting banks and closely cropped grasses. There are few woody shrubs in evidence and they are desperately needed to slow the channels production of sediment. Root systems of the native grasses don't do much to help hold the banks together during spring runoff.

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Photo #1



Photo # 2 Foidel Creek, note that the channel is deeply incised with a great percentage of vertical mass wasting banks particularly on the outside of the meander bends.



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Photo # 3- Pictured below is Trout Creek just upstream from County Road 33 bridge and the proposed south end of the Trout Creek Reservoir, All of the creek channel banks are stable showing no erosion or vertical mass wasting areas. The woody shrubs (willows and alders) on the creek banks and the healthy pasture grasses slow down flood flows during spring runoff and cause deposition sediments on the channel banks .The Creek Ranch has experienced as much as 1.5 feet of bank aggradation in these areas since 2000. Unfortunately the creek still delivers a sediment load to the reservoir site that originates upstream from the Creek Ranch property.



**Comment:** Sediment generated by Foidel Creek , Middle Creek and Trout Creek will follow the creek channels to the reservoir where its velocity will dissipate quickly and it will drop to the bottom in the South west corner and south east corner of the reservoir. At this point the nutrient load in the sediment will foster the growth of aquatic Macrophytes and provide a home for the oligochaetes worms, the cohosts of Whirling Disease. While the resource can tolerate the growth of some aquatic plants, the growth of worm habitat bodes badly for the fishery especially since it is directly adjacent to the reservoir's access to spawning habitat in Trout Creek .Sediment accumulation for the life of the FERC license could precipitate the reservoir becoming hyper Eutrophic.

**Comments and Conclusions on all sediment related issues:** *In addition to data collection efforts to figure out how much sediment will make its way to the reservoir and what can be done about it once it gets there, it would seem to be prudent to work diligently to stop it before it gets there. The proponent could satisfy wetland mitigation requirements by creating wetlands that will facilitate sediment collection and filtering in areas along the creek channels. The proponent could also grade creek banks, fence and replant the creek's riparian areas. In less than 10 years*

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*sediment production would drop to a negligible level. Construction of off channel cattle watering access or breaks in the riparian fencing for stock watering would curtail bank sloughing and erosion. Realignment of historic pastures will make maximum use of all grazing opportunity in relation to water sources. You might even utilize beaver to help you in the construction of filtration ponds. While these activities are costly at first the results would be clean water entering the reservoir, increased diversity and numbers of wildlife species and increased groundwater in the creek valleys. The Creek Ranch has already accomplished three miles of this work for the proponent. , the long term costs required to contract professionals to identify your problems, to stock fish yearly and apply herbicide and algaecide to control unsightly algae blooms in a recreational resource would be every bit as high and would be forever.*

**Scoping Document 1: 4.2.1 Geologic and Soil Resources**

- Effects of construction and operation of the project on downstream river morphology.

**Comment:** The effects of downstream Creek morphology are not clear. In their results section 3-16 of Aquatic Investigations, Trout Creek Reservoir GEI states that Trout Creek is probably a fourth order stream (Horton 1945) and a C2 stream (Rosgen and Fittante 1986). It is a meandering stream with pool-riffle sequences and no exposed bedrock. The floodplain is largely in natural, fallow, pasture and hay meadow use. The generally poorly armored and poorly vegetated stream banks enable the channel to move more freely horizontally as evidenced by viewing aerial photographs and topographic mapping.

The mostly armored bed and the approximate 0.3 percent relatively flat hydraulic grade slope also indicate a relatively stable vertical gradient. Immediately below the proposed dam, a maximum of 3 feet of long term and one foot of short term vertical channel degradation is possible, and at a point approximately 1000 feet downstream of the proposed dam site, the long term vertical degradation should be less than one foot.

**Comment:** *With the channels stated capacity to move laterally and to change its channel footprint readily the above statements would appear to lose their predictability. The tail water and channel of another local dam at Lake Catamount has degraded 3 ft. to 6 ft. for 2 miles downstream from the dam since it was built in the mid-seventies. Properties 3 miles downstream from the dam are being inundated with gravels in the 10mm to 50 mm range. These gravels have overwhelmed point bars doubling their size in one flood season and pushing the channel thalweg to the opposite side of the river channel where it is destroying river riparian habitat. The smaller rocks have filled in the interstitial spaces of larger cobble that formerly made up the substrate has changed the aquatic invertebrate species composition (EPT) species. and eliminated the Sculpins. When the Catamount dam was built there were no grade controls established .We know now that hardened riffles of larger cobble will function as unobtrusive grade control structures. A good field hydrologist might answer this question and prevent future problems before they begin.*

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**Scoping Document 1: 4.2.2 Water quality**

*Question: Will the winter flows of Trout Creek have enough oxygen to sustain the cold water sport fish (Trout) as well as the suckers( illegally introduced species) and other forage species while at the same time providing sufficient oxygen to break down the dead Macrophytes with aerobic bacteria*

**Scoping Document 1: 4.2.3 Fishery Resources**

**Comment:** Please note, the issues identified by FERC in 4.2.3 are extremely important and require well educated professionals to generate answers. The points we have presented are much more in the commonsense arena and have evolved from experience providing daily stewardship activities for aquatic resources. We have yet to see a fisheries management plan for the Peabody Trout Creek Reservoir. This means that we do not have enough (any) information to compile our comments. However we have numerous questions that might well draw attention to components of the pending plan that need to be included in its development.

**Comment:** Currently there is no mapping that allows us to examine water depths at the various predicted draw down levels that are projected for normal seasonal dam operation. A concise depth profile will allow us to spot potential problem areas quickly!

**Comment:** Trout Creek has a significant diversity of forage fish species; the White Sucker is most predominant. When the reservoir is constructed the current White Sucker habitat will multiply exponentially as will the White Suckers. Their spawning runs have the potential to clog Trout Creek and potentially disrupt the spawning redds left by the Rainbows moving up from the reservoir that may spawn slightly ahead of them. The real concern however is the attendant dramatic Bio-mass increases that that will be created in the reservoir. Cold water species like the trout require 6 PPM oxygen .Any other species that are capable of living in the reservoir require much less. In short if the biomass of fish exceeds the carrying capacity of the reservoir the trout will die first. PTCRP will need to formulate a plan to resolve this potential scenario.

**Comment:** Introduction of non-native species (bucket Biology) please find attached an American Fisheries Society article on the spread and proliferation of illegal stocking of non-native fish species. Local history of this activity assures us that there is a very good chance that it will happen. Looking at the area aerial view maps of the project it would appear that there are two road realignments that will span reservoir arms on the south end of the Lake one is on CR179 and one is on CR33. These two access points will offer the bucket biologist an opportunity to stock fish from a moving vehicle. These road modifications should be fenced to prevent this activity. Remediation for illegal stocking (Pike removal) costs lots of dollars that



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could be better applied to other resource issues. Perhaps hidden cameras in these areas would help and an educational campaign sponsored by the proponent would certainly be in order.

The evolution of a management plan for the reservoir is complicated by several components that are peculiar to this resource at this time. Clearly the resolution of these issues will require an individual or team of biologists that have specialized experience with whirling disease issues as well as remediation of undesirable fish species. While not detracting from any other fishery professionals these peculiar needs point towards a retiree from the CPW that has firsthand experience with WD issues and species remediation.

- The projected biomass of fish that the lake can handle and what the species breakdown will be (considering White suckers and bucket biology)
- Control and prevention of whirling disease, seasonal water temperature studies are needed to qualify the levels of infectivity at different temperatures. Data reflecting the current whirling disease infectivity levels in fish inhabiting Trout Creek above the reservoir is also needed. Numbers and infectivity levels of oligochaetes worms in the accumulated sediment deposited at mouths of creeks entering the Reservoir should be accomplished post runoff .Restoration and riparian rehabilitation activities for the creek channels, to eliminate sediment production should be considered as a part of wetland mitigation planning.
- Control and prevention and remediation methods for undesirable species should be recognized and placed in reservoir maintenance budgets.
- The type, species and availability of fish to be stocked that are whirling disease resistant should be explored.
- The oxygen levels that the reservoir can sustain during low water periods (late summer through winter) from its Trout Creek water supply should be calculated.