

# Water Quality Assessment Report for the Goshute Reservation (2010)



Goshute Environmental Protection Department  
Confederated Tribes of the Goshute Reservation  
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*This report was prepared under the direction and guidance of  
Mr. Ed Naranjo, Director of the Goshute Environmental Protection Department.*

*Water quality samples were collected by Mr. Clell Pete and Mr. Loren Hooper,  
Environmental Technicians for the Goshute Environmental Protection Department.*

*Cover: Loren Hooper collecting a water sample from Nelms Pond. Photographed by Clell Pete.*

### **1. Name of Tribe**

Confederated Tribes of the Goshute Reservation

### **2. Project Period Used for this Annual Tribal Water Quality Assessment**

From July 1, 2009 to June 30, 2010

### **3. Purpose of the Tribe's Water Quality Monitoring Program**

#### **Goals of the Water Quality Monitoring Program**

The water quality monitoring program goals are to generate sufficient information on water quality conditions within the Goshute Reservation for database generation, assessment and reporting purposes. The following monitoring objectives are designed to meet the needs of these goals.

- Develop a baseline water quality database for Tribal waters on the Goshute Reservation
- Determine beneficial use support for Tribal waters within the Goshute Reservation
- Identify water quality problem areas in need of protection or remedial action
- Track temporal and spatial trends in water quality conditions
- Generate sufficient water quality information to produce annual Tribal assessment reports

#### **Tribally-adopted Water Quality Standards on Monitored Waterbodies**

The Goshute Tribe has tentatively adopted Nevada Water Quality Standards in an effort to assess monitored waterbodies.

### **4. Collaboration/Coordination with Groups on Water Quality Concerns**

#### **Work with any Watershed Groups to Address Water Quality Issues**

The Goshute Tribe is currently working with the U.S. Fish and Wildlife Service to assist in addressing riparian habitat degradation in streams, springs, and ponds that result from high grazing pressures of livestock and elk.

## **Organizations, Stakeholders, and Agencies Located Within the Watershed**

The Goshute Tribe is working with grazing stakeholders located within Tribal watersheds to produce a better grazing management plan for the Goshute Reservation.

## **5. Design of the Tribe's Water Quality Monitoring Program**

### **Approach Used for Selecting Water Quality Monitoring Sites**

Water quality monitoring sites were selected to characterize all major waterbodies within the Goshute Reservation. The Goshute Tribe's intermediate-level water quality monitoring plan follows the Goshute Tribe's QAPP. The following water quality monitoring sites are located within the Goshute Reservation.

- Artesian well behind Mels Place
- Black Canyon Spring
- Broken Pipe Spring
- Chicken Creek
- Chicken Spring
- Dads Creek
- Deep Creek (upper reaches are named Spring Creek)
- Eds Spring
- Fifteen Mile Creek
- Johnson Canyon Spring
- Lamehorse Spring
- Nohorse Spring
- North Fork of Birch Creek
- Sams Creek
- South Fork of Johnson Creek
- Steves Creek
- Studhorse Spring
- Trout Creek
- Four ponds (Nelms, Orchard, Steves, and Day School)
- Three drinking water aquifers (8-Mile, Upper Community, and Lower Community)

### **Approach Used to Determining Sampling Frequency at Monitoring Sites**

A quarterly sampling frequency was selected for surface water monitoring sites while an annual sampling frequency was selected for all ground water monitoring sites. These monitoring frequencies re based on anticipated temporal changes in water quality conditions.

## 6. How Water Quality Data is Interpreted and Managed

### Water Quality Data Interpretation

Water quality indicators to be measured to interpret water quality condition and assess support of designated uses or Tribal goals along with numeric criteria, based on Nevada Water Quality Standards are listed below.

Water Quality Indicator	Units	Aquatic Life (cold)	Contact Recreation (swimming)	Drinking Water Source	Crop Irrigation and Livestock Watering
Arsenic	mg/L	---	---	0.010	0.1 (crops) 0.2 (livestock)
Dissolved Oxygen	mg/L	>6.0	aerobic	aerobic	aerobic
<i>E. coli</i>	MPN/100mL	>6.0	aerobic	aerobic	aerobic
Lead	ug/L	82/3.2 (1)	---	50	5,000 (crops) 100 (livestock)
Metals	mg/L	(2)	---	(3)	(4)
Nitrate + Nitrite	mg/L as N	---	---	10	100 (livestock)
pH	SU	6.5–9.0	6.5–8.3	5.0–9.0	4.5–9.0 (crops) 6.5–9.0 (livestock)
Total Dissolved Solids	mg/L	---	---	500	3,000
Total Nitrogen	mg/L as N	3.00	---	---	---
Total Phosphorus	mg/L as P	1.0	---	---	---
Turbidity	NTU	---	25	5	---
Water Temperature	°C	<20	15-34	---	---

#### Footnote

- (1) Acute/chronic based on a hardness level of 100 mg/L as CaCO<sub>3</sub>
- (2) Nevada aquatic life standards for a cold water fishery
- (3) Nevada Municipal or Domestic Supply standards
- (4) Nevada Irrigation and Watering of Livestock Watering standards

### **Laboratory Support for the Water Quality Program**

The Goshute Tribe has a quality assurance project plan (QAPP) that is under review by EPA. Adherence to the QAPP will ensure the validity of water quality monitoring and analytical laboratory activities. Analytical laboratory support is provided by Aquatic Consulting and Testing, Inc. at the address and phone number listed below:

Aquatic Consulting & Testing, Inc.  
1525 West University, Suite 106  
Tempe, Arizona 85281  
Phone: (480) 921-8044  
Fax: (480) 921-0049  
Email: cchristian@aquaticconsulting.com  
Contact Person: Chris Christian

Aquatic Consulting and Testing, Inc. follows EPA-approved methods of analysis and is included in the Goshute Tribe's QAPP.

### **Water Quality Data Organization**

The Goshute Environmental Protection Department manages its water quality data electronically in MS Word format and through analytical laboratory support provided by Aquatic Consulting and Testing, Inc. in MS Excel format. Water quality data are submitted to EPA in STORET-compatible format.

### **Responsible Party for the Organization and Interpretation of Results**

Organization and interpretation of results is the responsibility of the Goshute Environmental Protection Department. Contractual assistance is provided by Water Quality Environmental, Inc.

## **7. Results of Water Quality Monitoring During the Project Period**

### **Use Support for Streams**

Riparian wetlands along all streams are degraded as a result of high grazing pressures from elk.

### **Use Support for Lakes**

Nelms Pond was sufficiently monitored in 2010 to be assessed. Nelms Ponds is one of three major ponds on the Goshute Reservation that is used to rear the endangered Bonneville Cutthroat Trout. The pond contained extensive floating algal mats throughout the summer months.

### **Use Support for Wetlands**

All wetlands on the Goshute Reservation have been determined to be degraded as a result of high grazing pressures from elk and previously high grazing pressures from livestock.

### **Use Support for Springs**

All springs on the Goshute Reservation have been determined to be degraded as a result of high grazing pressures from elk and previously high grazing pressures from livestock. Water quality indicators of impairment include bacteria (animal defecation has been regularly observed at each spring source), turbidity, and habitat degradation. Seven springs were sampled for water quality during the reporting period as follows: Studhorse Spring, Black Canyon Spring, Lamehorse Spring, Broken Pipe Spring, Johnson Canyon Spring, Eds Spring, and Nohorse Spring. Trampling by wildlife (most likely elk) resulted in turbidity exceedances at Black Canyon Spring and Lamehorse Spring while fifty percent of the turbidity criterion was exceeded at Broken Pipe Spring. Fifty percent of the total nitrogen criterion was also exceeded for Broken Pipe Spring.

### **Use Support for Ground Water**

The three community domestic ground water aquifers were not monitored for drinking water quality in 2010. Previous (2009) water quality data indicated that these ground water aquifers are good sources of domestic drinking water. The community domestic ground water aquifers will be monitored again for water quality during 2011.

### **Water Quality Issues of Concern for Future Water Quality Program Planning**

The water quality concerns listed below for future program planning are the same as those presented in 2009 since environmental staff turnover has resulted in the training of new personnel in 2010.

1. Reduce the accessibility of cattle to streams, ponds, and spring sources to allow these Tribal waters to naturally recover, secure NPS project grants, and establish enforceable grazing management plans
2. Develop EPA-approved water quality standards and authority to administer the Section 401 water quality certifications.
3. Assess the potential for reduced flow alterations in streams, ponds, and spring that could result from the off-reservation groundwater (carbonate-rock aquifer) pumping occurs as a result of the proposed Southern Nevada Water Authority project
4. Evaluate pollutant sources of metals loading to Tribal waters
5. Increase the number of monitor sites to cover all Tribal waterbodies.
6. Develop a technique to monitor *E. coli* in a manner that achieves an acceptable holding time.
7. Characterize lengths or areas for all Tribal streams, springs, wetlands and lakes.