

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Division of Fishery Services
Vernal, Utah

Progress Report 1966

F I S H E R Y M A N A G E M E N T R E P O R T

Creeel Census
Uintah and Ouray Indian Reservation
Utah

February 1967

Progress Report
Fishery Management Program
Uintah and Ouray Indian Reservation
Utah

Phillip B. Summers
Fishery Management Biologist

Abstract

Waters of the Uintah and Ouray Indian Reservation sustained 36,660 man-days of fishing in 1966. The average fishing day amounted to 5.3 hours, with a catch rate of .91 fish per hour of effort for all waters. An estimated 65.1 percent of all anglers interviewed were Tribal permit fishermen. A nine year creel census summary indicated a total of 192,346 man-days of fishing expended on Reservation waters. Average annual increase in fisherman-use approached 23.0 percent, with a high of 56.0 percent in 1958 and a low of 5.3 percent in 1965. The status of current investigations on reservoirs to be constructed on Reservation lands as mitigation for loss of habitat under the Central Utah Project have been presented. Current investigations are in progress on the Uintah Unit, the first development of the Ultimate Phase of the Central Utah Project which provides irrigation water to the Ute Indian Tribe and non-Indian users. The First Inter-Tribal Training Workshop hosted by the Ute Indian Tribe in August of 1966 was held on the Reservation and will serve as the threshold for future training programs of the Intermountain Tribes on fish and wildlife recreation development on Indian lands.

PROGRESS REPORT - 1966

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Creel Census - Uintah and Ouray Indian Reservation
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Introduction

Fishery management assistance and incremental stocking have been provided to the Uintah and Ouray Indian Reservation, Fort Duchesne, Utah since 1958 (Figure 1). Technical fishery management assistance to the Reservation sport fishery resources was promulgated through a working agreement between the Ute Indian Tribe and the Bureau of Sport Fisheries and Wildlife, dated January 9, 1959. Departmental Manual Release, Part 501 Indian Fish and Wildlife Resources, states the responsibility of the Bureau of Sport Fisheries and Wildlife to the Bureau of Indian Affairs for such assistance on fish and wildlife matters. Annual creel census investigations on the Reservation provide indices to stocking needs, fishing pressure trends, and the developmental progress of the sport fishery.

Creel Census Methods

Creel census methods utilized in 1966 were essentially the same as those described in the Bureau of Sport Fisheries and Wildlife special report entitled, "Creel Census Report - 1964, Uintah and Ouray Indian Reservation". A portion of the funds for censusing personnel and related costs were provided through Section 8 of the Colorado River Storage Project Act.

Personnel utilized in conducting roadblock interviews on Reservation resources in 1966 was limited to one trainee, Mr. Thomas Twedt, a senior fisheries student from the University of Iowa, Ames, Iowa.

A total of ten traffic counters were used in the management study areas, and they were placed primarily on single access roads leading to the fishing waters. Roadblock censusing interviews were established on a seasonal schedule of dates, times, and locations. Information relating to fishing success, numbers of fishermen, and the time devoted to a fishing day were recorded on separate interview forms for respective management areas (Table 7). Traffic counter totals were corrected to compensate the use by non-fishermen and trailer traffic from the roadblock information. Management areas having multiple access roads were checked periodically with traffic counters, Tribal game warden interviews, and scheduled observations by the creel census clerk.

Creel Census Findings

Waters of the Uintah and Ouray Indian Reservation received an approximate 36,660 man-days of fishing in the 1966 season (Table 1). The average fishing day amounted to 5.3 hours with an average catch per hour of .91 fish for all Reservation waters. Angler-use trends for the year indicate an increase of 10 percent, which is generally representative of the percentage of increase in fishing pressure received over the past three years. Creel census information was collected from May 21 to August 31, 1966; interviews were conducted on 12 weekends or holidays and 43 weekdays.

Fisherman profiles by drainages, as recorded from roadblock interviews, indicate 56.3 percent of the fishermen traveled 10-50 miles to reach the Reservation resources, 42.2 percent traveled 100-180 miles, while only 1.5 percent represented out-of-state angler-use. See Table 2. A slight increase was evidenced this year in the number of anglers traveling 100-180 miles to fish Reservation waters as compared to 1965.

Of the total fishermen 12 years of age and over interviewed during the roadblock census procedures, 65.1 percent held Tribal permits. Tribal members 12 years of age or older represented 9.2 percent of the total, while children 12 years of age and under contributed 25.5 percent. This group is divided into two categories, Tribal children 1.8 percent, and non-Tribal children 23.7 percent.

Assimilation of the roadblock census data shows a total of 433 vehicles checked during 55 roadblock interviews (Table 3). Approximately 37.2 percent of the vehicles checked contained fishermen, with an average number of 2.98 fishermen per vehicle. Only the major drainages were included in the roadblock interview summary. Towave and Weaver Reservoirs located in the Hill Creek Extension Area of the Reservation were excluded.

A nine year summary of fisherman distribution in man-days of fishing for management areas on the Uintah and Ouray Indian Reservation is presented in Table 4. In 1958, the initial year of the sport fishing program on Reservation waters, the limited facility supported 1,780 man-days of fishing. Through intensified management practices and water resource

developments the Reservation sport fishery has progressed to a total angler-use level of 36,660 days. This represents an average annual increase of approximately 23.0 percent, fluctuating from a high of 56.0 percent in 1958 to a low of 5.3 percent in 1965. The average annual increase in man-days of fishing on Reservation waters appears to have stabilized at an estimated 10 percent. An estimated 192,346 man-days of fishing have been expended on Tribal water resources during the nine years.

A summary of catch per hour of effort and fishing man-day length is presented in Tables 5 and 6 for a nine year period. A minimum amount of variation is evident in the averaged values of both tables. The pronounced lack of information on certain management areas in the early years merely indicates the undeveloped status of the resource at that time.

Central Utah Project
Bonneville Unit (Initial Phase)

The Central Utah Project, a major water resource development in Utah, is primarily directed toward the beneficial use of Colorado River water. The authorized initial phase of the Central Utah Project includes four individual units, the Vernal, Bonneville, Upalco, and Jensen Units. The water resources on the Uintah and Ouray Indian Reservation have been affected by construction proposals of the Upalco and Bonneville Units of the initial phase. Water resources will be further altered with authorization of the Ultimate Phase of the Central Utah Project and ensuing construction of the Uintah and Ute Indian Units.

A total of 800 surface acres of fishing impoundments have been established as mitigating criteria for the fishery loss on Rock Creek from construction of the Bonneville Unit, Central Utah Project (Bureau of Sport Fisheries and Wildlife Special Report, Sport Fishery Potential, Rock Creek, Uintah and Ouray Indian Reservation, January 9, 1964).

A meeting was held in Salt Lake City, Utah, on August 30, 1966, to re-evaluate planning and selection of reservoir sites mitigating fishery habitat loss on Rock Creek. Participating agencies included the Bureau of Reclamation, Bureau of Indian Affairs, the Ute Indian Tribe, and the Bureau of Sport Fisheries and Wildlife. Estimated cost projections for Bottle Hollow Reservoir (420 surface acres) and Rock Creek No. II Wanrodes (110 surface acres) by the Bureau of Reclamation totalled \$5,160,000 for the aggregate 530 surface acres. Tribal officials pointed out during the meeting that the 530 surface acres of impoundments would not be acceptable restitution for losses incurred on Rock Creek. Further size expansion of the Rock Creek No. II reservoir site was deemed impractical by the Bureau of Reclamation due to the geological and physical features of the site. Projected estimated costs of construction for the site totalled \$3,800,000. Excessive cost estimates were attributed to a \$2,000,000 assessment for spillway and outlet works. Deletion of the Rock Creek site as part of the mitigating request of 800 surface acres necessitated the selection of an alternative site on Rock Creek. The Bureau of Reclamation suggested a re-appraisal of the Lower Stillwater site, located approximately two miles upstream from the Rock Creek No. II site. This location has an estimated

reservoir potential of about 440 surface acres, with high quality developmental prospects similar to that of Rock Creek No. II. However, for the Ute Indian Tribe to have complete control of the reservoir perimeter would require acquisition of approximately 660 acres of Forest Service and private lands. Required land needs would have to be purchased or otherwise acquired through land exchange, etc. from the U. S. Forest Service (500 acres) and from private lands (160 acres).

Agreement was reached between the Bureau of Reclamation, Bureau of Indian Affairs, and the Ute Indian Tribe relating to the mitigation for loss of fish habitat in Rock Creek and included the following generalizations: (A) That 800 surface acres of reservoirs were the original commitment to the Ute Indian Tribe for loss of fishery habitat on Rock Creek and would be adhered to by the Federal Government. (B) Construction efforts should continue on Bottle Hollow Reservoir and initiated at the earliest possible date. (C) Advocated the re-examination of the Lower Stillwater site with a complete physical release of the land title to the Ute Indian Tribe. (D) If, with further investigation, the Lower Stillwater site proves unfeasible as a construction unit, the Bureau of Reclamation should complete the Rock Creek No. II site and an additional 270 acres of small lakes to satisfy the total mitigation request of 800 surface acres.

In anticipation of the proposed construction of Bottle Hollow Reservoir near Fort Duchesne, Utah, in 1968, the Ute Indian Tribe has submitted a proposal through the Economic Development Administration, Department

of Commerce, for a grant or loan to develop reservoir recreation facilities. The Tribe has approved an application to EDA for a 65 percent loan of the estimated project cost of \$525,000 for industrial and commercial development of the Nu Pah-Gath-Ti-Ket (Ute Indian Lake) complex. A direct loan of \$341,000 would be necessary with the remaining 35 percent obligation to the Tribe as a \$100,000 cash outlay and \$83,800 as contribution "in kind" for construction materials and other services.

"Nu Pah-Gath-Ti-Ket" or Ute Indian Lake complex will be developed on Bottle Hollow Reservoir, 440 surface acres (Figures 2 and 3). Plans for the complex development are comprehensive and include, in part, a Ute Indian Cultural Park, depicting the Ute Indian history, motel, swimming pool, restaurant, service station, boating facilities and campgrounds. The reservoir damsite will be located about one mile west of Fort Duchesne, Utah, with the lake area extending to within one-half mile of U.S. Highway 40, a major avenue of travel across Utah from east coast to west coast.

The recreation-tourism complex of Bottle Hollow Reservoir, as described in the Economic Development Administration proposal, could be a valuable income and employment producing enterprise for the Ute Indian Tribe.

Bottle Hollow Reservoir will have a stable water level, since irrigation withdrawals are not contemplated in the operation planning. Water source for the reservoir will be a direct diversion from the

Uintah River, via the Bench Canal System. After the lake is initially inundated, supplemental inflows will be necessary only for replacement of water losses from evaporation and percolation. The reservoir will tentatively have a top elevation of 5,100 feet, with a maximum water depth of 50 feet near the area of the dam. A constant water level and adequate depth preclude the possibility of a fish loss from excessive ice-cover conditions. Due to the gentle slope of the topography on the north, west, and south sides of the reservoir, excessive aquatic plant growth can be expected in the littoral zone. In all likelihood, conditions will require annual aquatic vegetation control measures to maintain acceptable tolerance levels for the fishermen and general recreationists.

Angling use on Bottle Hollow Reservoir could be expected to reach 100 man-days per surface acre with intensive fishery management practices. This represents approximately 40,000 man-days of fishing-use annually, resulting in a substantial monetary return to the Ute Indian Tribe. However, it should be emphasized that only through the offering of goods and services can long term financial gain be realized by the Tribe. Obviously, the Bottle Hollow complex offers the opportunity to develop such an enterprise based on the sale of goods and services, and will provide employment benefits to Tribal members as the program expands.

Uintah Unit (Ultimate Phase)

The Uintah Unit proposal would be developed to supply supplemental irrigation water to approximately 34,152 acres of Indian land and 26,500 acres of non-Indian lands. The unit is the first of the Ultimate Phase units to be investigated by the Bureau of Reclamation under the Central Utah Project.

Expressions of need and approval for the development have been shown by various groups including the Utah Water Conservancy District, Uintah Water Conservancy District, the Ute Indian Tribe, Bureau of Indian Affairs, and the local non-Indian water users.

The project would store early spring flows of the Uintah and Whiterocks Rivers in reservoirs constructed on the respective river systems (Figure 4). Uintah Reservoir would have a total capacity of 72,000 acre-feet and an active capacity of 60,000 acre-feet. The reservoir would be built on the Uintah and Ouray Indian Reservation at a point eight miles northwest of the town of Neola, Utah. Whiterocks Reservoir would be located on U.S. National Forest lands about three miles north of the upper Reservation boundary. Total capacity of the reservoir would be 31,000 acre-feet, with an active capacity of 25,000 acre-feet. Unit investigations of the project are preliminary at this time and further modifications will be developed as various agencies interested in the project express their needs, etc.

Foreseeing the de-watering aspects of the Uintah Unit on the Uintah and Whiterocks Rivers, cooperative efforts to monitor the hydrology and habitat conditions of both streams have been implemented with the U.S. Forest Service. Field cross-sections of the habitat have been correlated with historical water flow conditions of the respective streams in an effort to determine the minimum flow requirements with-the-project operation. Stream habitat inventory methods used during the study limit acceptable reduction or loss of habitat to 20 percent. It should be

remembered that the reduction in stream flows will occur during the winter, for a period of approximately six months. Presumably, the peak spring flows of both streams under reservoir operation would be lessened, thereby allowing early fisherman utilization and fish stocking which heretofore has been indeterminable. Recommendations for minimum flow requirements on both streams to retain 80 percent of the desired fish stream habitat will be presented to the Ute Indian Tribe in a forthcoming report.

First Inter-Tribal Training Workshop

During the first week in August 1966, the Ute Indian Tribe sponsored the First Inter-Tribal Training Workshop. This initial workshop was directed toward the training of Tribal game wardens and Tribal managers having the responsibility for development and operation of programs based on sport fishing, hunting, and general recreation. Program activities during the session included the following: (1) a general introduction of the conferees and their presentations, (2) a field trip to the northern sector of the Reservation to observe fish and wildlife developments currently in the program operation, (3) water development projects were visited which would be constructed under the Central Utah Project on the Reservation, (4) an overnight field trip to the Hill Creek Extension Area of the Uintah and Ouray Indian Reservation to observe fish and wildlife developments. The night was spent at the Hill Creek Hunting Camp; slide presentations were shown of the Fort Apache, Navajo, and the Ute Indian Reservations' recreation programs. (5) A discussion of jurisdictional aspects on Indian lands was held at the hunting camp, before the return trip to Fort Duchesne for adjournment.

The Ute Indian Tribe should be commended on their efforts in the presentation of a very informative program. A great deal of planning and preparation was required of the Tribal members, as well as representatives of the Bureau of Indian Affairs, to effectively coordinate the program activities. In time, this interchange of information between Intermountain Tribes and other conservation groups will generate constructive recreation management guidelines for Indian lands. It is hoped that the annual meetings will continue with each Tribe assuming the responsibility for sponsorship.

Lake and Stream Conditions

Generally, water conditions were considered below normal on the Uintah and Ouray Indian Reservation in 1966. Inadequate amounts of snowfall during the winter created additional demands for irrigation water throughout the summer months. This situation resulted in major water level reductions on many of the fishing waters on the Reservation.

Towave Reservoir

Towave Reservoir developed a serious seepage problem near the west end of the dam in 1966. The reservoir water level dropped approximately 10 feet and appeared to stabilize at that point. Repairs required the unearthing of a section on the inside toe of the dam and a replacement of the excavated materials with bentonite. The water loss in the reservoir was regained in about sixty days following repair measures by the Bureau of Indian Affairs.

Estimated fisherman-use on Towave Reservoir remained similar to that received in 1965, approximately 1,000 man-days. Electrofishing investigations in Hill Creek during early spring indicated excellent populations of cutthroat trout; average length of the fish was 15 inches. Hill Creek provides the water inflow for the reservoir. An access road to the reservoir was completed during the year; road travel from Fort Duchesne was reduced by 20 miles. This improved route of travel should increase fisherman-use in 1967.

Florence Creek

A survey of Florence Creek was conducted by electrofishing methods during May of this year. The small creek is a tributary to the Green River System and located in the Hill Creek Extension Area of the Uintah and Ouray Indian Reservation. Survey investigations were initiated to confirm reported catches of brown trout from the stream. However, survey findings revealed only a limited population of mountain suckers in the lower reaches of the stream. Time did not permit further investigation in the upper portion of the stream due to the inaccessibility. The stream was estimated to have a flow of 2 to 3 cubic feet per second. Elevation of the stream varies from 4,000 feet near the mouth of the Green River to 8,900 feet at the Florence Spring headwaters, presumably furnishing the majority of the stream flow.

It is planned in 1967 to re-investigate the stream to the headwaters for an index to the species composition. If exhaustive sampling measures on the stream do not indicate an established population of trout, an attempt will be made to establish one in the fall of the year. The stream appears

to be potentially suited for the introduction of a rare or endangered species of fish, since the area is remote and provides the physical aspects for such a quality fishery.

Twin Potts Reservoir

Water volume of Twin Potts Reservoir was drastically reduced during the season as a result of irrigation withdrawals. The reservoir receded into the "Twin Potts" condition in mid-summer. However, the sport fishery received 6,969 man-days of fishing despite the low water condition.

A netting survey was conducted on the reservoir in late fall, with moderate catch success. Kokanee salmon continue to be strongly represented in the sampling, as are lake and rainbow trout. Salmon were observed attempting to spawn along the lake shore during the survey period. Approximately 65,000 salmon fry were planted in Moon Lake in 1961. The lake is located several miles above Twin Potts Reservoir on the Lake Fork River. Salmon gained access to the reservoir through a canal system carrying Lake Fork River water.

Cedarview Reservoir

Cedarview received an estimated 4,194 man-days of fishing during the 1966 season. Water content of the reservoir progressively decreased throughout the summer months. Vertical measurements in late fall indicated the maximum depth of the reservoir to be approximately 12 feet, with a 15-inch ice cover. An aqua-air system may be installed in the reservoir sometime in February, to insure a carryover of the trout population.

Expected runoff on the Cedarview watershed was not received this year; the lake basin has not reached volume capacity since the dam was increased in 1965. However, snowpack at elevations near 10,000 feet is over 170 percent, as of January 1, 1967, increasing the prospects for an above normal spring runoff and possible filling of the reservoir this spring.

Discussion

Advancement of the sport fishing program on the Uintah and Ouray Indian Reservation continues with the construction of small reservoirs and access road improvement to major recreation areas. Long term success of the recreation program, however, will depend almost entirely upon providing goods and services to the using public through Tribal outlets. The opportunity for such a development of enterprises can certainly become a reality on reservoirs constructed under the Central Utah Project. To date, projected Tribal planning includes maximum recreation facility development on all of the potential sites.

In December of 1966, affiliate Ute trusts of the Rock Creek Area of the Uintah and Ouray Indian Reservation were returned to the Ute Indian Tribe. Heretofore, the land ownership was with the Affiliated Ute Indian Tribal members separated from the Tribe in 1962. Stocking recommendations for Rock Creek have been submitted for the 1967 fishing season and the area will be included as an integral management unit under the Ute Tribal sport fishing program.

Suggestions and Recommendations

1. Continued release of sport fishing activities on the Uintah and Ouray Indian Reservation to major sports writers for presentation in the Salt Lake Valley newspapers.
2. Cattle guards will need to be placed at entrance roads to the Power House Canal, Pole Creek and the Uintah River along the Neola and White-rocks road. The existing gates could be a problem factor in the administration of recreational areas.
3. Consideration for limiting the diversion from Pole Creek to the waters actually needed at the Uintah Power and Light penstock header. The water volume presently wasted at the penstock header should be allowed to flow down the natural channel of Pole Creek.
4. Close supervision of the drainage ditches during the high runoff period on the Cedarview watershed, repair of washouts and removal of debris will be necessary to insure maximum water transportation to the reservoir.
5. Personnel for the collection of creel census data on Reservation waters will be needed in the 1967 season. Section 8 funds under the Central Utah Project generally used for this purpose are exhausted and no additional funds are available.

Phillip B. Summers
Fishery Management Biologist

APPROVED:

Jack E. Hemphill
Regional Supervisor

Date _____

Distribution:

Washington Office - 3
Ute Tribe - 4
U&O Reservation B.I.A. - 3
Phoenix Area Office B.I.A. - 2
Regional Office - 4
Fishery Services Field Offices - 12
Vernal Field Office - 10

Table 1.--Fisherman Distribution - 1966

| | Percent of Fishermen | | | Man-days of fishing | Length of Man-day (hours) | Catch Per Hour |
|---------------------------------------|----------------------|---------|--------------|------------------------|---------------------------------|-------------------|
| | Weekend | Weekday | Per Drainage | | | |
| <u>Uintah River System</u> | | | | | | |
| Section I | | | 11.24 | 1034 | 5.26 | 1.21 |
| Section II | | | 35.50 | 3266 | 4.50 | 1.03 |
| Section III | | | 7.10 | 653 | 6.60 | .71 |
| Powerhouse Canal | | | 14.20 | 1306 | 2.40 | 1.80 |
| Pole Creek | | | 3.55 | 327 | 3.50 | 1.30 |
| Big Springs Ponds | | | 28.41 | 2612 | 5.08 | 1.04 |
| Sub-total | 68 | 31 | | 9198 | 5.05 Mn.* | 1.10 Mn.* |
| <u>Lake Fork System</u> | | | | | | |
| Section I | | | 11.44 | 1608 | 6.5 | .80 |
| Section II | | | 18.16 | 2553 | 6.5 | .77 |
| Section III | | | --- | --- | --- | --- |
| Yellowstone A | | | 7.39 | 1040 | 2.0 | 1.50 |
| Yellowstone B | | | 13.45 | 1891 | 5.6 | .93 |
| Twin Potts Reservoir | | | 49.56 | 6969 | 7.6 | .77 |
| Sub-total | 57 | 43 | | 14061 | 6.46 Mn.* | .92 Mn.* |
| <u>Whiterocks River System</u> | | | | | | |
| Whiterocks A | | | 59.96 | 313 | 4.2 | .60 |
| Whiterocks C | | | 40.04 | 209 | 4.2 | .60 |
| Sub-total | 79 | 21 | | 522 | 4.2 | .60 |
| <u>Cedarview Reservoir</u> | 61 | 39 | | 4194 | 5.21 | .80 |
| <u>Bench Canal</u> | 68 | 32 | | 1516 | 3.8 | .87 |
| <u>Uintah Canal</u> | --- | --- | | 2780 | --- | --- |
| <u>Rock Creek</u> | --- | --- | | 2859 | 2.16 | .69 |
| <u>Weaver & SMC (Towave) Res.</u> | --- | --- | | 1530 | --- | --- |

* mean number

Total--

36660

5.27 Mn.*

.91 Mn.*

Table 2.--Fisherman Profile by Drainage - 1966

| <u>Management Area</u> | Percent of Fishermen | | | | | |
|-----------------------------|----------------------|------------------|-----------------|-------------|---------------|---------------------|
| | <u>Permit 1/</u> | <u>Tribal 2/</u> | <u>Child 3/</u> | (10-50 mi.) | (100-180 mi.) | <u>Out State 4/</u> |
| <u>Uintah River System</u> | 58.0 | 10.6 | 31.4 | 56.2 | 42.6 | 1.18 |
| <u>Lake Fork System</u> | 74.4 | 8.5 | 17.1 | 56.6 | 41.9 | 1.55 |
| <u>Twin Potts Reservoir</u> | 85.0 | 6.7 | 8.3 | 60.0 | 40.0 | 0.0 |
| <u>Yellowstone River</u> | 63.2 | 0.0 | 36.8 | 26.3 | 73.7 | 0.0 |
| <u>Powerhouse Canal</u> | 52.9 | 11.8 | 35.3 | 64.7 | 35.3 | 0.0 |
| <u>Dedarview Reservoir</u> | 53.8 | 7.7 | 38.5 | 69.2 | 30.8 | 0.0 |
| <u>Bench Canal</u> | 44.4 | 36.2 | 19.4 | 87.8 | 12.2 | 0.0 |
| Mean | 65.1 | 9.2 | 25.5 | 56.3 | 42.2 | 1.5 |

1/ Fishermen 12 years of age or older that possess a Tribal fishing permit.

2/ Tribal members 12 years of age or older.

3/ Children under 12 years of age. The total of the tabulation includes 1.8 percent Tribal children and 23.7 percent non-Tribal children.

4/ Fishermen from the states of Colorado, Wyoming and Vermont.

Table 3.--Road Block Census Summary - 1966

| Management Area <u>1/</u> | Number of Vehicles Checked <u>2/</u> | Number of Blocks Per Season <u>3/</u> | Percent of Vehicles With Fishermen | Number of Fishermen Per Vehicle | Half of the Traffic Counter Total | Number of Possible Fishermen <u>4/</u> |
|------------------------------|---|--|---|---------------------------------------|--|---|
| Uintah River System | 223 | 13 | 25.1 | 3.03 | 12,094 | 9,198 |
| Lake Fork River System | 134 | 13 | 35.1 | 3.03 | 13,225 | 14,061 |
| Cedarview Reservoir | 42 | 8 | 92.0 | 2.7 | 1,688 | 4,194 |
| Bench Canal | 18 | 5 | 78.0 | 3.24 | 600 | 1,516 |
| Uintah Canal | - | - | 90.0 est. | 2.98 Mn | 1,036 | 2,780 |
| Sub-total | 417 | 39 | 37.2 Mn | 2.98 Mn | 28,643 | 31,749 |
| Whiterocks River | 3 | 8 | - | - | - | 522 |
| Rock Creek | 13 | 8 | - | - | - | 2,859 |
| Total | 433 | 55 | 37.2 | 2.98 Mn | 28,643 | 35,130 |

1/ Only management waters of each major drainage system. Hill Creek and Weaver and Towave Reservoirs were not included in the roadblock census method.

2/ Includes vehicles leaving the management area through the roadblock.

3/ Census information was obtained from May 21 to August 31, 1966. During this period interviews were held on 12 week-ends or holidays and 43 weekdays.

4/ Based on half the traffic counter total multiplied by the percentage of fisherman cars checked and then multiplied by the average number of fishermen per car.

Table 4.--Fisherman Distribution in Man-days 1958-1966

| | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | Total |
|------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Uintah River-Sec. I | *966 | 4,362 | 2,221 | 2,384 | 2,000 | 3,230 | 3,695 | 1,094 | 1,034 | 20,986 |
| **Uintah River-Sec. II | ----- | 998 | 1,925 | 1,896 | 1,400 | 2,730 | 2,294 | 3,663 | 3,266 | 18,172 |
| Uintah River-Sec. III | ----- | ----- | ----- | ----- | ----- | 690 | 723 | 518 | 653 | 2,584 |
| Powerhouse Canal | ----- | 1,170 | 1,015 | 1,100 | 1,850 | 1,450 | 2,789 | 915 | 1,306 | 11,595 |
| Pole Creek | ----- | ----- | 660 | 690 | 1,150 | 900 | 310 | 170 | 327 | 4,207 |
| Big Springs Ponds | ----- | ----- | ----- | ----- | ----- | ----- | 516 | 2,744 | 2,612 | 5,872 |
| Bench Canal | ----- | 350 | 1,785 | 3,000 | 3,500 | 3,700 | 1,275 | 685 | 1,516 | 15,811 |
| Uintah Canal | ----- | 150 | 100 | ----- | ----- | ----- | 1,177 | 2,180 | 2,780 | 6,387 |
| Whiterocks River A | *78 | 915 | 400 | *360 | *600 | 700 | 559 | 572 | 313 | 4,497 |
| Whiterocks River C | ----- | 50 | ----- | ----- | ----- | ----- | 500 | 261 | 209 | 1,020 |
| Cedarview Reservoir | 550 | ----- | 975 | 1,750 | 4,595 | 5,800 | 6,505 | 3,223 | 4,194 | 27,592 |
| Lake Fork River-Sec. I | *77 | 30 | ----- | ----- | *2,050 | *1,850 | 160 | 514 | 1,608 | 6,289 |
| **Lake Fork River-Sec. II | ----- | 2,300 | 1,613 | 1,335 | ----- | ----- | 1,830 | 4,190 | 2,553 | 13,829 |
| Lake Fork River-Sec. III | ----- | 60 | 613 | 575 | ----- | ----- | 160 | 153 | ----- | 1,561 |
| Yellowstone River A | *109 | 200 | *300 | *450 | *950 | *1,650 | 859 | 1,962 | 1,040 | 7,520 |
| Yellowstone River B | ----- | 910 | ----- | ----- | ----- | ----- | 979 | 1,715 | 1,891 | 5,495 |
| Twin Potts Reservoir | ----- | ----- | ----- | ----- | 2,532 | 3,400 | 5,995 | 5,120 | 6,969 | 24,016 |
| Weaver and Towave Reservoirs | ----- | ----- | 1,018 | 1,050 | 1,200 | 1,000 | 1,170 | 1,000 | 1,530 | 7,968 |
| (Hill Creek) | ----- | 300 | 220 | 200 | 250 | 300 | 150 | ----- | ----- | 1,420 |
| Rock Creek | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 2,666 | 2,859 | 5,525 |
| Total | 1,780 | 11,795 | 12,845 | 14,790 | 22,077 | 27,400 | 31,654 | 33,345 | 36,660 | 192,346 |
| Annual Percentage Increase | 56.26 | 8.9 | 15.1 | 49.26 | 24.1 | 15.5 | 5.3 | 9.9 | | |

* Tabulation represents total usage-days for the system.

** Sections contain beaver pond usage totals.

Table 5.--Average Catch Per Hour 1958-1966

| | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Uintah River-Sec. I | 1.80 | 1.80 | 1.10 | .99 | .49 | .83 | 1.18 | 1.20 | 1.21 |
| Uintah River-Sec. II | 1.86 | 1.80 | 1.10 | .99 | .49 | .83 | 1.39 | 1.30 | 1.03 |
| Uintah River-Sec. III | .85 | ----- | ----- | ----- | ----- | .83 | 1.00 | 1.00 | .71 |
| Powerhouse Canal | 4.00 | 1.80 | 1.10 | .96 | .64 | 1.01 | 1.40 | 1.10 | 1.80 |
| Pole Creek | ----- | ----- | 1.10 | 1.50 | 1.00 | .93 | 1.25 | .91 | 1.30 |
| Big Springs Ponds | ----- | ----- | ----- | ----- | ----- | ----- | 1.43 | .97 | 1.04 |
| Bench Canal | ----- | ----- | 1.10 | ----- | .85 | .50 | .89 | 1.70 | .87 |
| Uintah Canal | ----- | 1.80 | 1.10 | ----- | ----- | ----- | .79 | 1.02 | .91 |
| Whiterocks River A | 1.40 | 1.80 | 1.10 | ----- | .87 | .65 | .79 | 1.40 | .60 |
| Whiterocks River C | 1.40 | 1.80 | 1.10 | ----- | .87 | .65 | .79 | 1.35 | .60 |
| Cedarview Reservoir | 1.20 | ----- | 1.10 | .78 | .59 | .40 | .66 | .98 | .80 |
| Lake Fork River-Sec. I | 2.80 | 1.80 | ----- | ----- | 1.09 | .83 | .65 | 1.30 | .77 |
| Lake Fork River-Sec. II | 2.80 | 1.80 | 1.10 | .98 | 1.09 | .83 | .99 | .88 | .80 |
| Lake Fork River-Sec. III | 2.80 | 1.80 | 1.10 | .98 | 1.09 | .83 | .67 | 1.50 | ----- |
| Yellowstone River A | 1.30 | 1.80 | 1.10 | 1.10 | 1.19 | 1.17 | .65 | .96 | 1.50 |
| Yellowstone River B | 1.30 | 1.80 | 1.10 | 1.10 | 1.19 | 1.17 | .51 | 1.10 | .93 |
| Twin Potts Reservoir | ----- | ----- | ----- | ----- | .90 | .46 | .92 | .83 | .77 |
| Weaver and Towave Reservoirs (Hill Creek) | ----- | ----- | 1.10 | ----- | 1.64 | 1.00 | .83 | ----- | ----- |
| Rock Creek | ----- | 1.80 | 1.10 | ----- | 1.64 | .90 | ----- | ----- | ----- |
| | ----- | ----- | ----- | ----- | ----- | ----- | ----- | .97 | .69 |
| Mean Catch Per Hour | 1.96 | 1.80 | 1.10 | 1.00 | .90 | .63 | .94 | 1.02 | .91 |

Table 6.--Average Man-Day Length 1958-1966

| | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 |
|------------------------------|----------------|------|------|------|------|------|------|------|------|
| Uintah River-Section I | 2.67 | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 4.5 | 5.26 |
| Uintah River Section II | 3.83 | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 4.0 | 4.50 |
| Uintah River Section III | 3.50 | --- | --- | --- | --- | 5.0 | 3.5 | 6.2 | 6.60 |
| Uintah River Section IV | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Powerhouse Canal | 2.11 | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 5.8 | 2.40 |
| Pole Creek | --- | --- | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 6.8 | 3.50 |
| Big Springs Ponds | --- | --- | --- | --- | --- | --- | 3.5 | 3.8 | 5.08 |
| Bench Canal | --- | --- | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 5.8 | 3.80 |
| Uintah Canal | --- | 4.0 | 4.5 | --- | --- | --- | 3.5 | 4.8 | 5.27 |
| Cedarview Reservoir | 4.82 | --- | 4.5 | 4.75 | 6.42 | 5.0 | 5.4 | 5.4 | 5.21 |
| Weaver and Towave Reservoirs | --- | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | --- | --- |
| Whiterocks River-Sec. A | 2.5 <u>1</u> / | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 4.0 | 4.20 |
| Whiterocks River-Sec. C | --- | 4.0 | 4.5 | 4.75 | 6.42 | 5.0 | 3.5 | 4.0 | 4.20 |
| Mean Man-Day Length-Hours | 3.97 | 4.0 | 4.5 | 4.75 | 6.38 | 5.0 | 5.1 | 4.8 | 5.27 |

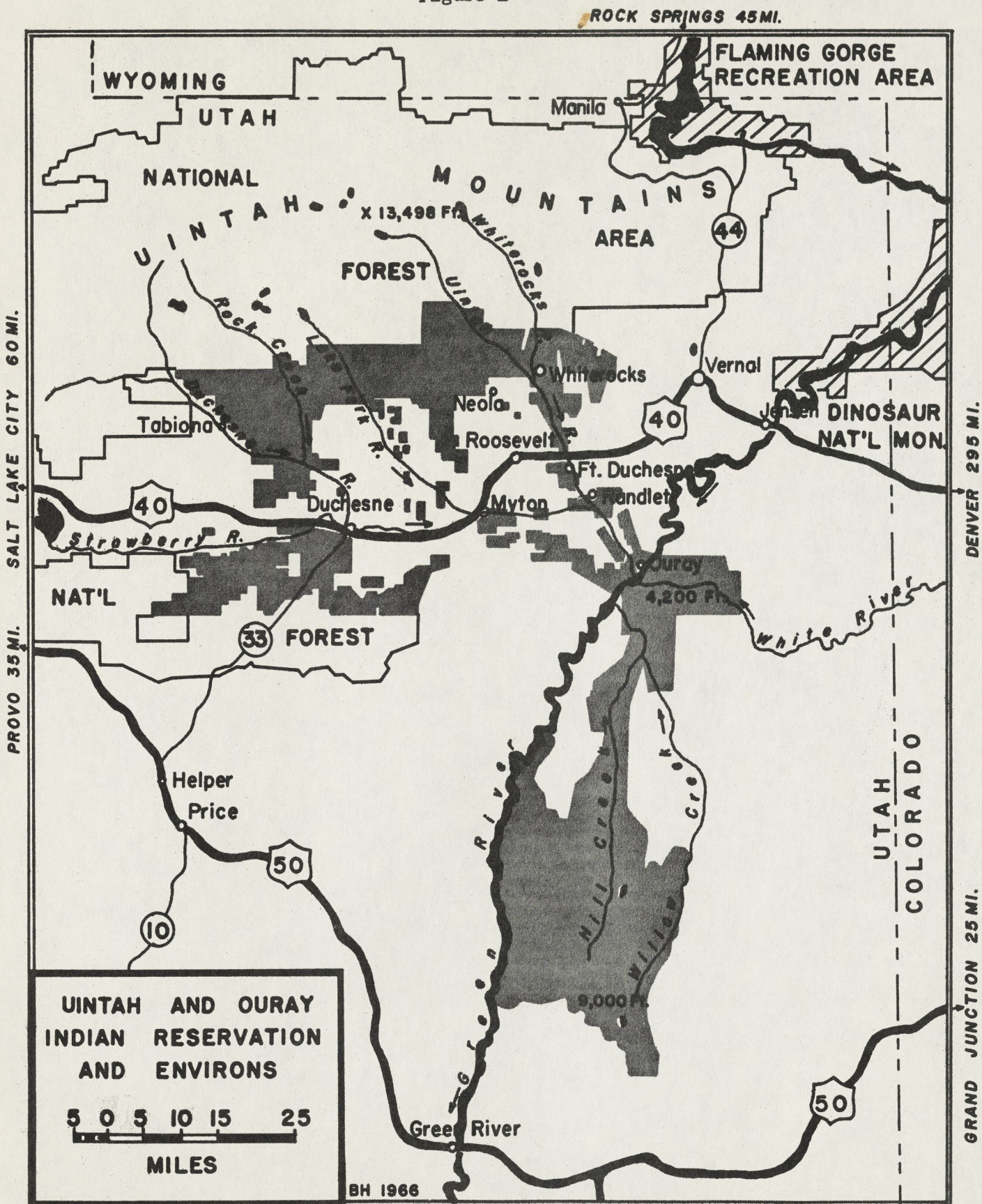
1/ Represents average length of a man-day for both sections of the Whiterocks River.

Table 7.--Description of Reservation Management Areas-1966

| Unit | Reservoir or Lake Surface Acres Max. Av. | Stream Section Length | Description |
|------------------------------|--|-----------------------------|---|
| * <u>Uintah River</u> | | | |
| Section I | | 5.10 | Upper Reservation boundary to confluence of Pole Creek. |
| Section II | | 3.03 | Confluence of Pole Creek to Uintah Canal take-off. |
| Section III | | 4.70 | Uintah Canal take-off to confluence of Whiterocks River. |
| Powerhouse Canal | | 3.65 | Upper Reservation boundary to Uintah Power & Light take-off. |
| Uintah Canal | | 1.99 | Uintah River take-off to Reservation boundary. |
| Bench Canal | | 2.10 | Uintah River take-off south for 3.53 miles. 2.1 miles accessibl |
| Pole Creek-A | | 2.33 | Reservation boundary to Uintah Power & Light diversion. |
| Pole Creek-B | | 2.62 | Pole Creek diversion to confluence of the Uintah River. |
| <u>Whiterocks River-A</u> | | 1.65 | Upper Reservation boundary to take-off of Duncan Canal. |
| <u>Whiterocks River-B</u> | | 4.75 | West branch of river below Duncan Canal to Uintah R.confluence. |
| <u>Whiterocks River-C</u> | | 5.15 | East branch of river below Duncan Canal to Uintah R.confluence. |
| <u>Yellowstone River-A</u> | | 3.02 | Upper Reservation boundary to Payne Canal diversion. |
| <u>Yellowstone River-B</u> | | 2.40 | Payne Canal diversion to confluence with Lake Fork River. |
| <u>Lake Fork River-I</u> | | 1.70 | Upper Reservation boundary to first road 2 miles downstream. |
| <u>Lake Fork River-II</u> | | 3.95 | Two miles downstream from boundary to Yellowstone R.confluence. |
| <u>Lake Fork River-III</u> | | 3.05 | Confluence of Yellowstone River to the southern boundary. |
| <u>Rock Creek-I</u> | | 4.00 | Upper Reservation boundary to the second bridge downstream. |
| <u>Rock Creek-II</u> | | 3.10 | From the second bridge downstream to Reservation boundary. |
| <u>Rock Creek-III</u> | | 8.97 | From the third bridge downstream to Reservation boundary. |
| <u>Cedarview Reservoir</u> | 200 80 | | Located in the northern portion of the Reservation. |
| <u>Big Springs Ponds (6)</u> | 10 10 | | Six ponds located on the northern boundary of the Reservation. |
| <u>Beaver Ponds</u> | | | Numerous on the Uintah and Lake Fork Rivers. |
| <u>Clay Basin #1</u> | 7 7 | | Clay Basin of the Reservation western boundary. |
| <u>Twin Potts Reservoir</u> | 200 80 | | North of Duchesne, Utah on the Lake Fork River drainage. |
| <u>Lake Fork Ponds (2)</u> | 4 4 | | Off-stream ponds on the Lake Fork River. |
| <u>Towave Reservoir</u> | 40 25 | | Located in the Hill Creek Extension area of the Reservation. |
| <u>Weaver Reservoir</u> | 30 30 | | Located in the Hill Creek Extension area of the Reservation. |

*Stream section lengths represent approximately 70 percent of the stockable stream area of the Reservation.

Figure 1



NU PAH-GATH-TI-KET
SITE PLAN

| | |
|-------------------|------|
| COMFORT STATION | CS |
| CABIN | C |
| CHANGE HOUSE & CS | CHCS |
| FENCE | — |
| FLOATING DOCK | F.D. |
| HYDRANT | SH |
| PARKING AREA | □ |

Figure 2

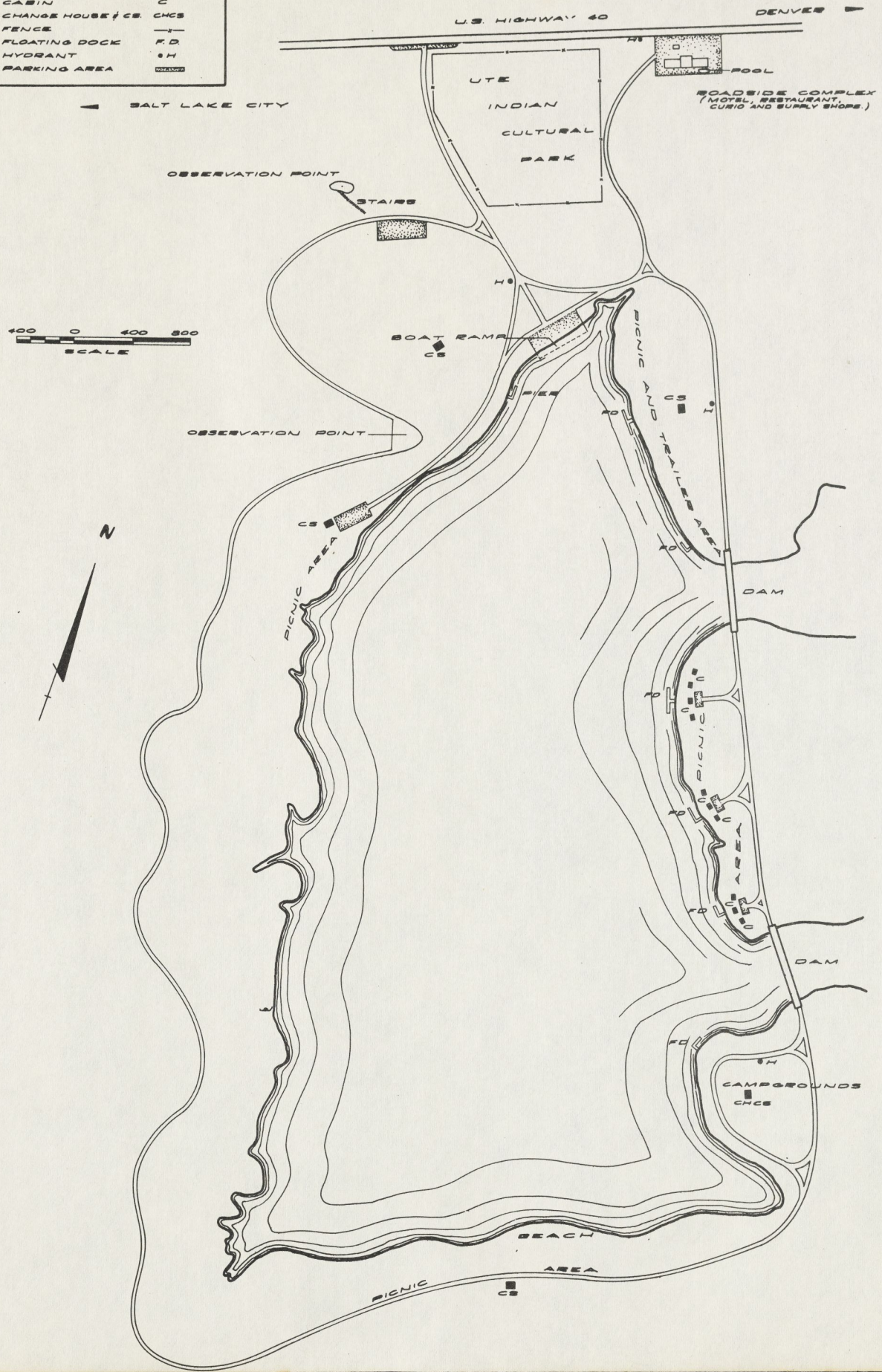
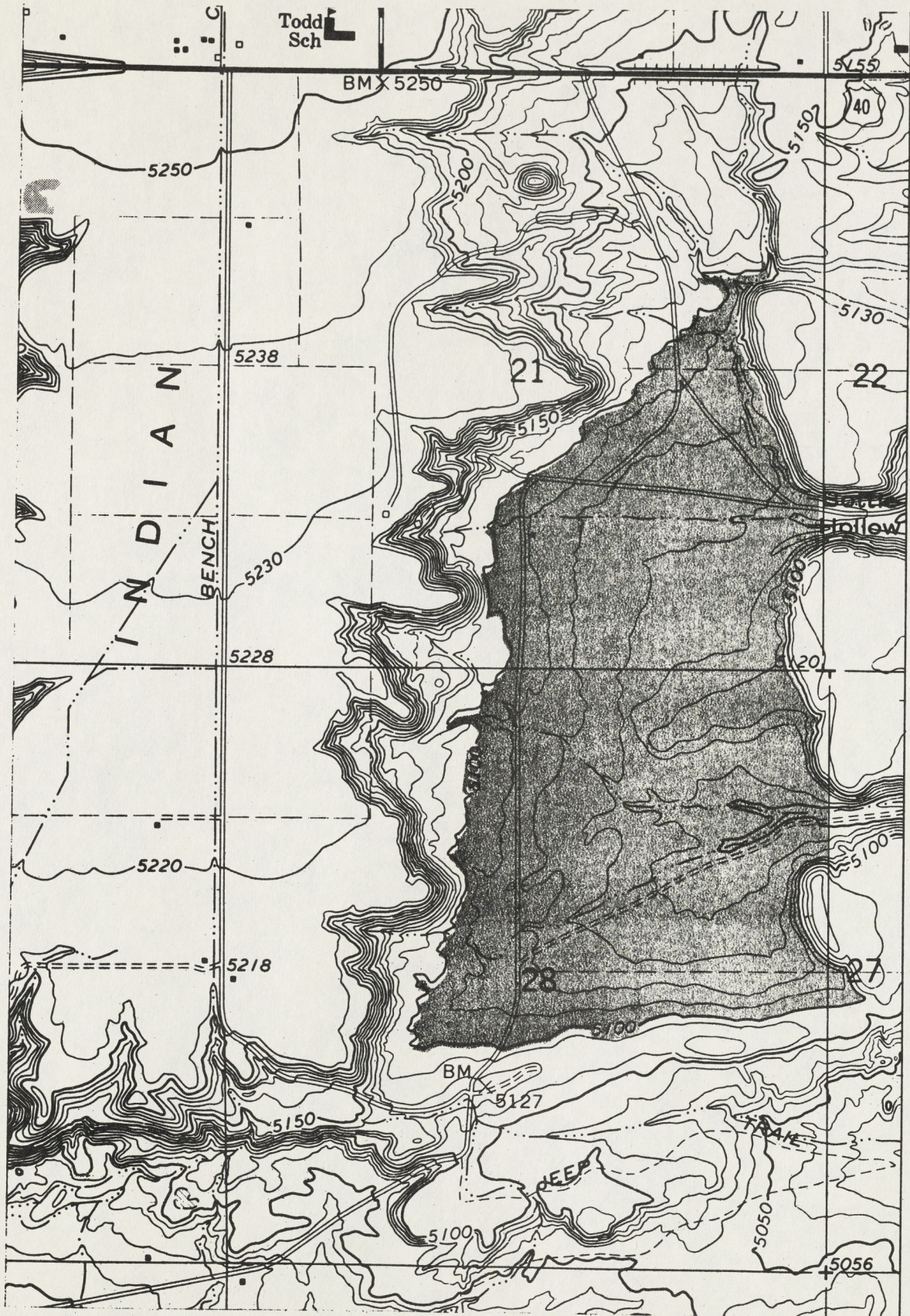
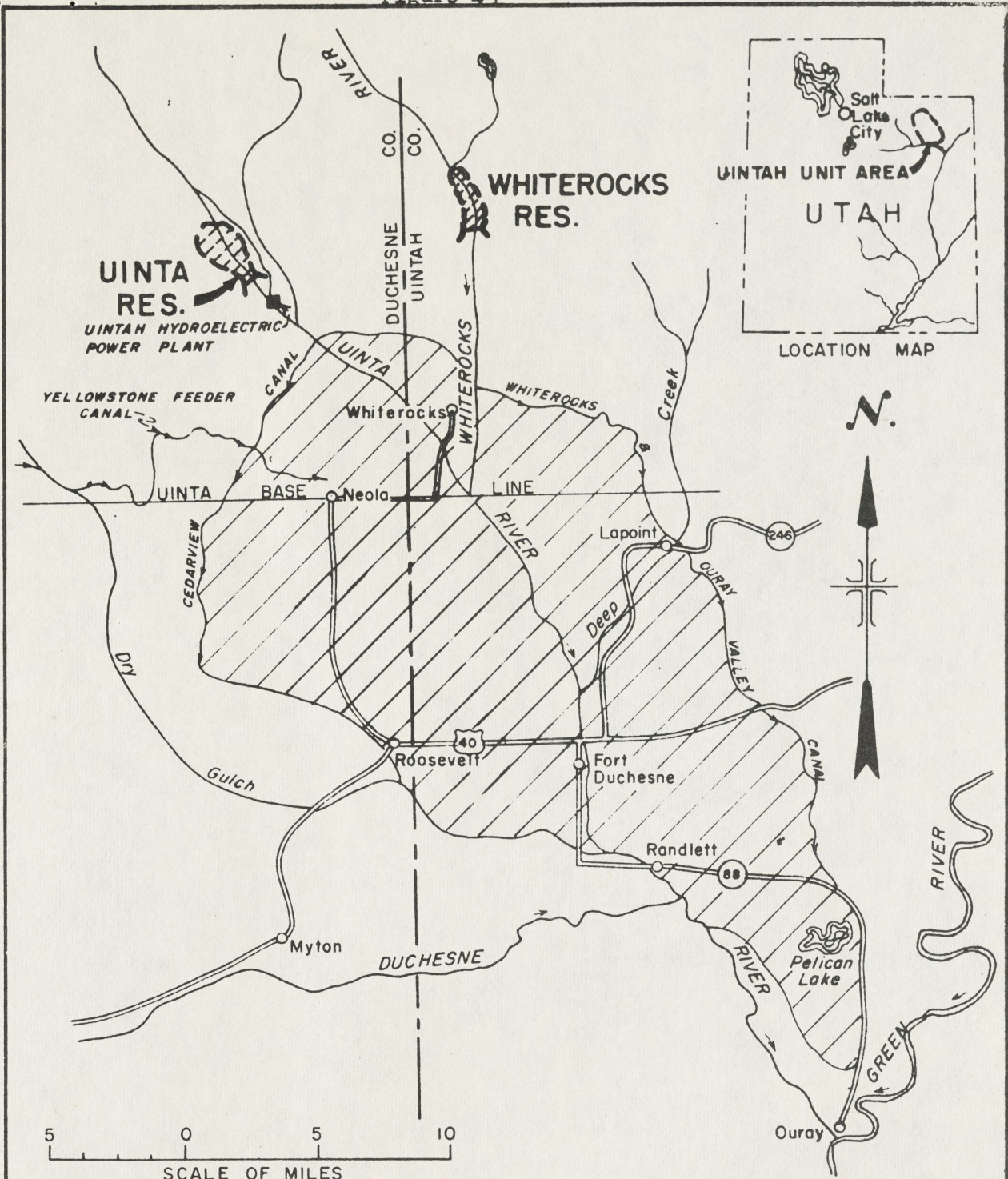


Figure 3






UTE INDIAN LAKE

Figure 4



EXPLANATION

-  Proposed Reservoir
-  Project Area
-  Existing Powerplant (Private)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

CENTRAL UTAH PROJECT

UINTAH UNIT AREA

DEC., 1966



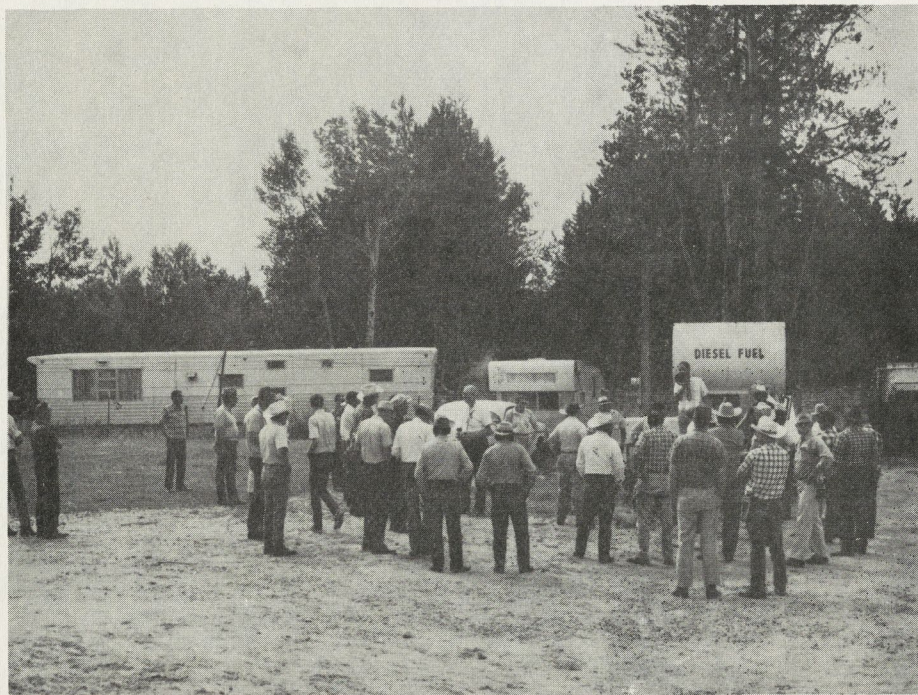
Potential site of the Uintah Reservoir currently under investigation, Central Utah Project (Ultimate Phase). The photograph depicts a northerly direction, area of the Uintah River shown is located about 8 miles northwest of the town of Neola, Uintah and Ouray Indian Reservation.



Bottle Hollow Reservoir site, 420 surface acres, to be constructed under the Bonneville Unit, Central Utah Project. Preliminary funds are expected in 1968.



Inter-Tribal Training Workshop conferees discussing jurisdictional aspects of Indian lands, Uintah and Ouray Indian Reservation



Inter-Tribal Training Workshop field trip tour of fish holding facilities, Uintah and Ouray Indian Reservation



Electrofishing survey of Florence Creek conducted during the spring of 1966. The small creek is located in the Hill Creek Extension Area of the Indian Reservation and a tributary to the Green River.



Examining a catch of small mountain suckers captured in Florence Creek by electrofishing methods. A salmonid stocking will be made in the high mountain stream during 1967.



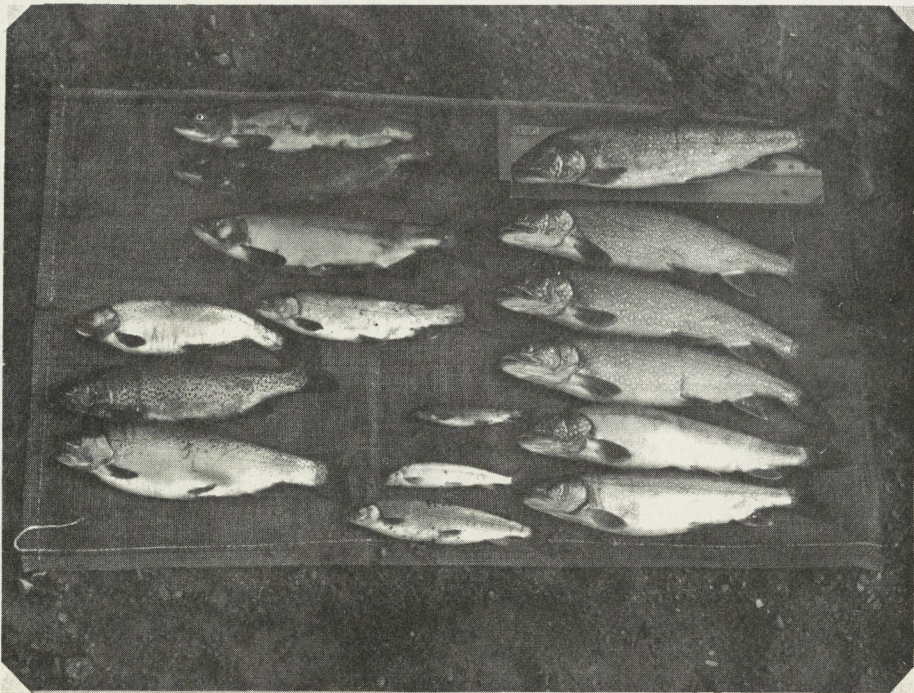
Towave Reservoir, 40 surface acres, located in the Hill Creek Extension Area of the Uintah and Ouray Indian Reservation. The reservoir contains a well established cutthroat population.



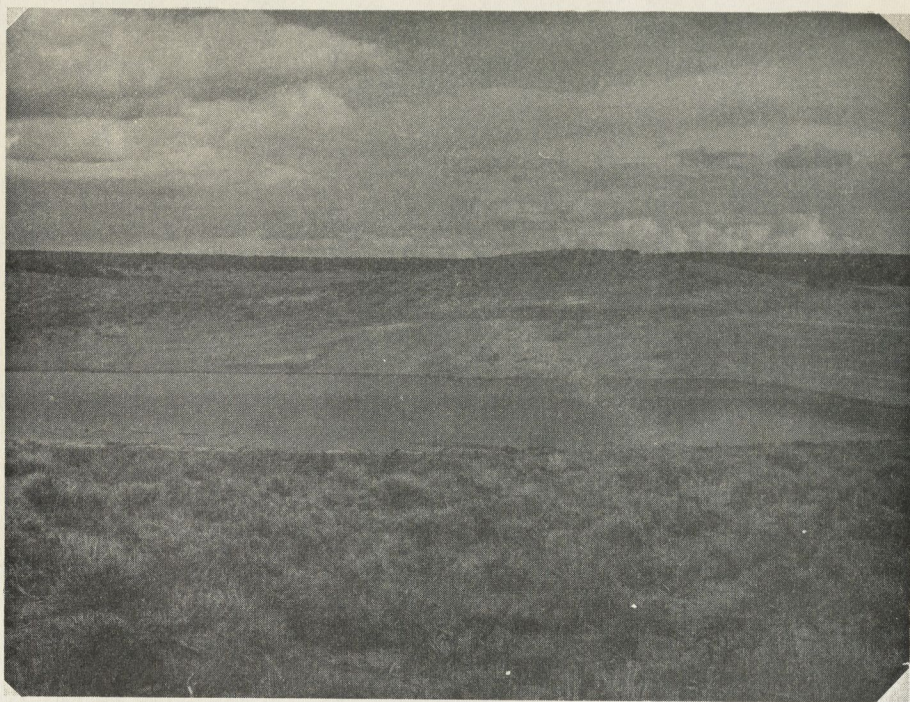
Electrofishing methods employed in a spring fishery survey of Hill Creek. The small stream provides the water inflow for Towave Reservoir.



Twin Potts Reservoir, 200 surface acres, irrigation demands in 1966 reduced the surface area of the impoundment to 80 acres. The channel dividing the two bodies of water is indicated at the left of the parked vehicle.



A portion of a gill net catch taken from Twin Potts Reservoir during the 1966 fall fishery survey. Composition of the catch included kokanee salmon, whitefish, lake and rainbow trout.



The lake was constructed by the Bureau of Indian Affairs in the Clay Basin Area of the Reservation during 1966. An initial stock of warm water species were planted in the 7 surface acre impoundment during the year.



The dam of this 3 surface acre lake was renovated by the Bureau of Indian Affairs in 1966. Stocking of the lake will be implemented after stable water supply conditions have been established.

Summary of annual reports on
Weaver Reservoir

- 1958 Upper Hill Creek Res plans to construct; 27.2 SA, max depth 4'
- 1959 One trap in Oct to area to observe new reservoir; 850 AF; max depth 42'; inflow $1\frac{1}{2}$ CF 5; bottom cleared of brush before filling; should provide 630 man-days of fishing; dam 47' high, 205' long, 44,000 cu yd of fill

Weaver Reservoir

1961

probably RBT

An allocation of 3,000 catchable size fish was scheduled for Weaver Reservoir during the year but only 925 fish were stocked. The full allocation of fish was not made because of the bridge wash-out and weather-road conditions. Growth rate of fish stocked in 1960 did not reach their anticipated size. Fish taken in June ranged from 6 $\frac{3}{4}$ inches to 11 inches in length. The Tribal Youth Camp near the reservoir has continued to contribute the major fishing pressure of the reservoir. Hunters have also been fishing the reservoir during the fall elk and deer seasons. A store-gasoline station near the reservoir has been in operation during the year along with the rental of the Youth Camp buildings during the hunting season. Further enterprise development of the Weaver Reservoir has been contemplated by the Tribe.

| Year | Fishesman days | 5 | |
|------|----------------|---|--|
| 1960 | | | Aquatic plants 85-90% of bottom. Water |
| 1961 | | | Scythopus dominant; algae, |
| 1962 | | | snags, chum & smeltweed abundant |
| 1963 | 1,000 | | |
| 1964 | 1,170 | | Najas - abundant |
| 1965 | 1,000 | | microalgae - " |
| 1966 | 1,530 | | Chironomus abundant |
| 1967 | 750 | | snails abundant |
| 1968 | 1,000 | | |
| 1969 | 1,673 | | |
| 1970 | 2,465 | | |
| 1971 | 1,557 | | |

Weaver Reservoir

1962

An allocation of 3,500 catchable size fish were scheduled for Weaver Reservoir during the year, but only 1,530 were delivered. The full allocation was not stocked due to a drop in fishing pressure in the area. The Tribal Youth Camp near the reservoir has continued to contribute the major fishing use to the reservoir. Hunters have also been fishing the reservoir during the fall elk and deer seasons. A store-gasoline station near the reservoir has been in operation during the year along with the rental of the Youth Camp buildings during the hunting season. A trip was made into this area in August by the Advisory Committee for the Ute Tribal Commercial Recreational Program. The fishery management biologist accompanying the committee inspected the food production of the reservoir and found a lack of aquatic organisms. Fertilizing of the lake may become necessary to maintain the productivity of the lake at a more desirable level.

Weaver Reservoir

1963

Since the operation of Hill Creek Youth Camp has been discontinued, the fishing pressure on this impoundment has been largely limited to the late summer and early fall months. It is estimated that this reservoir received 1,000 fisherman-days of use during 1963. Very little census information was collected for this reservoir during the year. Information gathered for this lake is primarily based on voluntary registration.

A complete biological survey was made on this reservoir in June. It had been previously reported that there was a shortage of fish food organisms in prior years, but at the time of the survey fish food was found to be sufficient, and fish caught were in good condition. Plans for next year include fertilization of the reservoir that is intended to produce trophy size fish.

Weaver Reservoir

Weaver Reservoir is located in the lower section of the Hill Creek extension area and contains approximately 30 surface acres. Fisherman utilization on the Reservoir occurs primarily in the fall by sportsmen participating in the special Tribal enterprise hunt. Fishery survey findings in 1965 indicated a reduction in the stocking to more efficiently manage the sport fishing program. This consideration has been included in the 1966 stocking recommendations. With increases in fisherman utilization, limited recreation facility development will be appropriate on the Reservoir.

Sport fishing at the present time is restricted due to an excessive aquatic vegetation growth. Chemical control of the vegetation should be initiated in the spring of 1966 for effective management and sport fish harvesting.

Summers 1965 (66) annual report

1971

Weaver Reservoir

An estimated 1,600 angler trips were made to Weaver Reservoir in 1971. Average catch rate was 0.52 fish per hour and the average number creeled was 2.8 fish per trip. Stocking continues to be two plants consisting of 1,000 seven inch size cutthroat trout in each June and August planting, totaling 2,000 trout.

Cutthroats from this reservoir are smaller than those from Towave. High altitude (8,000 feet), colder water temperatures and short growing season limit growth rates. In addition, the population density cannot be controlled because of varied natural reproductive success. In spite of this, fishing is generally good, with the average size of cutthroat harvested being 11.7 inches and 14% of these trout being 14 inches or larger.

One other species of trout is of importance to this fishery. A ^{not repr} small population of rainbows from the 1961-63 stockings still persists which apparently spawn successfully on a limited basis. The inflow stream provides less than one mile of suitable spawning water and rainbow spawners must compete with cutthroat spawners. Gill netting information indicates rainbow trout numbers represent 17-22% of the population; however, creel census records show rainbow trout making up less than 5% of the total harvest. This could be a bias coming from gill netting or mis-identification on creel census checks. Nevertheless, a small but important part of the harvest are these few large rainbows caught each season (22 measured by the warden in 1971 averaged 15.7 inches).

A substantial part of the fishing pressure continues to be fishermen traveling from the Green River - Moab area. When the south road is open it is 40 miles shorter to reach the reservoir from this direction than the 125 mile drive from U.S. 40 to the north. The reservoir is also close to the Tribal Nu-Ta-Veep hunting camp which could receive additional fishing pressure from hunters during the fall season.

Hill Creek, located below the reservoir, supports an excellent population of brook trout. Sampling by use of a back-pack shocker indicates a substantial population of 5-10 inch trout distributed downstream for at least eight miles. It is unfortunate that little fishing interest is given to this species. Warden checks show there is little fishing pressure exerted on this remote part of Hill Creek.

3 gill nets - 6:00 AM - 7:30 AM

FISH SAMPLE TOTAL LENGTH FREQUENCIES (INCHES)

water temp. 52°

WATER: Wearies Res TOWN: _____ SPECIES: _____ DATE: 6 9 71
 METHOD OF COLLECTION: 3 gill nets 6:30 PM - 7:30 AM No. TOTAL

| Length Range (inches) | Counts | Species | Counts |
|-----------------------|--------|------------|--------|
| 1.0-1.4 | | | |
| 1.5-1.9 | | <u>RBT</u> | |
| 2.0-2.4 | | | |
| 2.5-2.9 | | | |
| 3.0-3.4 | | | |
| 3.5-3.9 | | | |
| 4.0-4.4 | | | |
| 4.5-4.9 | | | |
| 5.0-5.4 | | | |
| 5.5-5.9 | | | |
| 6.0-6.4 | | | |
| 6.5-6.9 | | | |
| 7.0-7.4 | | | |
| 7.5-7.9 | | | |
| 8.0-8.4 | | | |
| 8.5-8.9 | | | |
| 9.0-9.4 | | | |
| 9.5-9.9 | | | |
| 10.0-10.4 | | | |
| 10.5-10.9 | | | |
| 11.0-11.4 | | | |
| 11.5-11.9 | | | |
| 12.0-12.4 | | | |
| 12.5-12.9 | | | |
| 13.0-13.4 | | | |
| 13.5-13.9 | | | |
| 14.0-14.4 | | | |
| 14.5-14.9 | | | |
| 15.0-15.4 | | | |
| 15.5-15.9 | | | |
| 16.0-16.4 | | | |
| 16.5-16.9 | | | |
| 17.0-17.4 | | | |
| 17.5-17.9 | | | |
| 18.0-18.4 | | | |
| 18.5-18.9 | | | |

Total No. 72 16 3

all fish in excellent shape. larger cuts & RBT appear to be spent.

Sub Totals (each method): Wgt. (lbs.): _____ No. _____ Wgt. (lbs.): _____ No. _____
 Grand Total (all fish combined): Weight (lbs.): _____ Number: _____

75% of stomach volume snails

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

WATER: W. cover TOWN: 3 nets - 7:30 PM - 8:00 AM. SPECIES: 4 mosquitoeel DATE: 8 9 69

| METHOD OF COLLECTION | Species | Length (inches) | Count | Notes |
|----------------------|----------------|-----------------|-------------------|--------------------------------|
| | <u>Ants</u> | 1.0-1.4 | | |
| | <u>Rainbow</u> | 1.5-1.9 | | |
| | | 2.0-2.4 | | |
| | | 2.5-2.9 | | |
| | | 3.0-3.4 | | |
| | | 3.5-3.9 | | <u>Food - stomach</u> |
| | | 4.0-4.4 | | <u>large ants</u> |
| | | 4.5-4.9 | | <u>large rainbow</u> |
| | | 5.0-5.4 | | |
| | | 5.5-5.9 | | |
| | | 6.0-6.4 | | <u>all fish full of snails</u> |
| | | 6.5-6.9 | | <u>on some snails</u> |
| | | 7.0-7.4 | | |
| | | 7.5-7.9 | | |
| | | 8.0-8.4 | | |
| | | 8.5-8.9 | <u>11</u> | |
| | | 9.0-9.4 | <u>111</u> | |
| | | 9.5-9.9 | <u>1111111111</u> | |
| | | 10.0-10.4 | <u>111</u> | |
| | | 10.5-10.9 | <u>111</u> | |
| | | 11.0-11.4 | <u>1111</u> | |
| | | 11.5-11.9 | <u>1111</u> | |
| | | 12.0-12.4 | <u>1111</u> | |
| | | 12.5-12.9 | <u>1111</u> | |
| | | 13.0-13.4 | <u>1111</u> | |
| | | 13.5-13.9 | <u>1111</u> | |
| | | 14.0-14.4 | <u>1111</u> | |
| | | 14.5-14.9 | <u>1111</u> | |
| | | 15.0-15.4 | <u>1111</u> | |
| | | 15.5-15.9 | <u>1111</u> | |
| | | 16.0-16.4 | <u>1111</u> | |
| | | 16.5-16.9 | <u>1111</u> | |
| | | 17.0-17.4 | <u>1111</u> | |
| | | 17.5-17.9 | <u>1111</u> | |
| | | 18.0-18.4 | <u>1111</u> | |
| | | 18.5-18.9 | <u>1111</u> | |
| | | | <u>45</u> | <u>8</u> |

Total (fish method): Wgt. (lbs.): _____ No. _____ Wgt. (lbs.): _____ No. _____
 and Total (all fish combined): Weight (lbs.): _____ Number: _____

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

WATER Wauver TOWN WFO SPECIES _____ DATE 7/14/72
 METHOD OF COLLECTION 3 gill nets 6PM - 8AM Mo. 7 D. 14 Yr. 72
 TOTAL

| Length Range (inches) | Frequency (Tally) | Species |
|-----------------------|-------------------|---------|
| 1.0-1.4 | | |
| 1.5-1.9 | | |
| 2.0-2.4 | | |
| 2.5-2.9 | | |
| 3.0-3.4 | | |
| 3.5-3.9 | | |
| 4.0-4.4 | | |
| 4.5-4.9 | | |
| 5.0-5.4 | | |
| 5.5-5.9 | | |
| 6.0-6.4 | | |
| 6.5-6.9 | | |
| 7.0-7.4 | | |
| 7.5-7.9 | | |
| 8.0-8.4 | | |
| 8.5-8.9 | | |
| 9.0-9.4 | | |
| 9.5-9.9 | | |
| 10.0-10.4 | | |
| 10.5-10.9 | | |
| 11.0-11.4 | | |
| 11.5-11.9 | | |
| 12.0-12.4 | | |
| 12.5-12.9 | | |
| 13.0-13.4 | | |
| 13.5-13.9 | | |
| 14.0-14.4 | | |
| 14.5-14.9 | | |
| 15.0-15.4 | | |
| 15.5-15.9 | | |
| 16.0-16.4 | | |
| 16.5-16.9 | | |
| 17.0-17.4 | | |
| 17.5-17.9 | | |
| 18.0-18.4 | | |
| 18.5-18.9 | | |

Air Temp = 47
 1 = 68.5
 6 = 67.5
 15 = 64.0
 20 = 62.0
 25 = 61.0
 Temp. = 22'
 pH = 8.2 - 1'
 Cond. = 290
 Alk = 173 ppm
 Hard = 187

No. Species 53 Catfish

9 Rainbow

Sub Totals (Each method): Wgt (lbs) _____ No. _____
 Grand Total (all fish combined): 90% of rd bottom Wgt (lbs) _____ Number _____

Need problem, mainly water battery up Most all fish needed for
 Rehab, so no observation on food & they fish had spawned

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

WATER: Weaver TOWN: _____ SPECIES: _____ DATE: 1971
 METHOD OF COLLECTION: Tribal warden, Allen Tabque, length frequency No. 1971 D. 1971 Yr. 1971

| Length Range (inches) | 6/19/71 | 6/26 | 7/4 | 8/7 | 9/23 | 10/10 | | | | | | | | | |
|-----------------------|---------|------|-----|-----|------|-------|----|----|----|---|----|---|-----|---|----|
| 1.0-1.4 | | | | | | | | | | | | | | | |
| 1.5-1.9 | | | | | | | | | | | | | | | |
| 2.0-2.4 | | | | | | | | | | | | | | | |
| 2.5-2.9 | | | | | | | | | | | | | | | |
| 3.0-3.4 | | | | | | | | | | | | | | | |
| 3.5-3.9 | | | | | | | | | | | | | | | |
| 4.0-4.4 | | | | | | | | | | | | | | | |
| 4.5-4.9 | | | | | | | | | | | | | | | |
| 5.0-5.4 | | | | | | | | | | | | | | | |
| 5.5-5.9 | | | | | | | | | | | | | | | |
| 6.0-6.4 | | | | | | | | | | | | | | | |
| 6.5-6.9 | | | | | | | | | | | | | | | |
| 7.0-7.4 | | | | | | | | | | | | | | | |
| 7.5-7.9 | | | | | | | | | | | | | | | |
| 8.0-8.4 | 4 | 1 | 4 | | | | | | | | | | | | |
| 8.5-8.9 | | | | | | | | | | | | | | | |
| 9.0-9.4 | | 6 | 2 | | | | | | | | | | | | |
| 9.5-9.9 | | | | | | | | | | | | | | | |
| 10.0-10.4 | 4 | 9 | 4 | ① | 14 | | | 1 | | | | | | | |
| 10.5-10.9 | | | | | | 10 | | | | | | | | | |
| 11.0-11.4 | | 1 | 6 | ① | 8 | 10 | | 12 | | | | | | | |
| 11.5-11.9 | | | | | | | | | | | | | | | |
| 12.0-12.4 | 5 | ① | 9 | 14 | ① | 6 | 8 | 7 | | | | | | | |
| 12.5-12.9 | | | | | | | | 2 | | | | | | | |
| 13.0-13.4 | 3 | 2 | 4 | 2 | | 1 | | 9 | | | | | | | |
| 13.5-13.9 | | | | | | | | | | | | | | | |
| 14.0-14.4 | 3 | | 6 | ③ | 6 | 6 | | 20 | | | | | | | |
| 14.5-14.9 | | | | | | | | | | | | | | | |
| 15.0-15.4 | | 4 | | ① | | 1 | | 11 | | | | | | | |
| 15.5-15.9 | | | | | | | | | | | | | | | |
| 16.0-16.4 | | 1 | | | ① | 3 | | 11 | ② | | | | | | |
| 16.5-16.9 | | | | | | | | 1 | ② | | | | | | |
| 17.0-17.4 | | 1 | 1 | ① | | | | 1 | | | | | | | |
| 17.5-17.9 | | | | | | | | | | | | | | | |
| 18.0-18.4 | ① | | 2 | ① | | | | | | | | | | | |
| 18.5-18.9 | | | | | | | | | ① | | | | | | |
| Sub Totals | 19 | ② | 34 | ① | 43 | ② | 36 | ① | 39 | ① | 75 | ③ | 246 | ① | 17 |

*circled numbers are numbers
 others are catch counts*

Sub Totals (Each method): Wgt. (lbs.): _____ No. _____ Wgt. (lbs.): _____ No. _____
 Grand Total (all fish combined): Weight (lbs.): _____ Number: _____

1117

Above Towzer on Hill Cr.
Reprod. in inlet

WEAVER

27.2 acres

42' max depth.

70° ^{Max.} Surface Temp Summer

Elev. ~~8170~~ 8170'

Jun-Oct 71

Angler Catch (90 sp. composition)
93.5% cutt } unknown no. of hybrids also included
6.5% Rb }

Sampled 14 July 72

Rb

Age I

298mm 1 fish

Age III

411mm (365-445)

Rb-SR
Hybrids

Age I

220mm (192-247)

SR

Age I

251mm (214-285)

Age II

324mm (320-328)
2 fish

→ + 73mm/12mos

Age III

355mm (318-409)

→ + 31mm/12mos.

Do not use growth rates in this lake because figures for SR do not represent a normal growth increment from age II to age III. Obviously there is some error in aging because of this low growth increment (31mm/yr) and also there should have been a higher representation of age II fish in the sample.

Weaver Res.

30 acres

Stocking At least 2455 catchable Rb stocked in 1961, 1962.

Miller -
stocking
records

Cutthroat stocking @ 2000/yr. (7"), but number of years not mentioned.

Since some 18-18.4" cutts in 1971 creel census data, ^{so} cutt stocking probably began in 1968.

1971

Creel Census
(?)

Cutt:Rb = 246:17 = 14.47:1

Rb evidently reproducing if 1st stocking was 1962 or 1963. (71 report states an ave. of 15.7")

Difficult to ascertain age groups of cutthroats, but 1971 report states cutts are also reproducing naturally.

Frig. v. r. t. s. (all sizes inclusive)

Gill Net stats (Ratio within nets only)

6/9/71

Rb - at least 3 age classes

Cutt - " "

Cutt:Rb = 76:16 = ~~4.75~~ 4.75:1

2 hybrids (?)

8/9/69

Rb - ≥ 3 age classes

Cutt - ≥ 3 age classes

Cutt:Rb = 45:8 = 5.63

7/14/72

Rb ≥ 4 age classes

Cutt ≥ 4 age classes

Cutt:Rb = 53:9 = 5.89

Weaver Res. (cont)

Need ^{more} specific data on cutthroat ^(dates of nos.) stocking to be able to differentiate age classes and possibly achieve an understanding of natural stock produced. It is evident at least 3 age classes always exist for Rb and cutts. With natural reproduction occurring (and young of year not being ^{gill} netted), it ~~is~~ ^{is} evident ^{some} cutthroat + Rb are both ^(ratio) surviving at least 4 yrs. The low number of rainbow could be attributed to discontinued stocking. Discontinued cutthroat stocking would give a better indication of survival and other relationships of naturally reproduced Rb + Cutts. ~~is~~

The relatively stable Cutt:Rb ratios (4.75:1, 5.63:1, + 5.89:1) may indicate a relationship that would exist even if cutthroat stocking were discontinued. Again, however, more information on stocking would have to be obtained to draw this conclusion.

~~Even if cutt stocked had occurred for 5 consecutive yrs (at 2000/yr), the~~
Need to age samples to establish growth patterns of Rb + Cutt

WEAVER RES

COLLECTED 7/14/72

178mm

| FISH No. | Age | Length | Terrest. | Gastr. | Damsel. Odon. | Odon. Lg. Dragonfly | Macroph. | Algae | (Aq) Copept. | Chin.L. | Chin.P. |
|------------------|-----|--------|-----------------------------|--------|------------------|------------------------|----------|-------|-----------------|---------|---------|
| Cat 9 | 3 | 359 | .35 | 4.2 | .05 | | | | | | |
| 7 | 3 | 398 | | 1.5 | | | | | | | |
| 8 | 1 | 285 | | | .15 | | | | | | .55 |
| 6' | 1 | 269 | | | .50 | | | + | | | |
| 13 | 3 | 388 | | .40 | .20 | | | + | | | |
| 12 | 3 | 409 | | 6.00 | .05 | | | | | | |
| 14 | 2 | 328 | | 3.50 | .01 | | | | | | |
| 2 | 2 | 320 | | | | | | + | | | |
| 15 | 3 | 368 | | | .50 | | | | | | .20 |
| 7 | 1 | 251 | | .50 | .01 | | | | | | |
| 11 | 1 | 252 | ^{Odonates} 2.20 | .30 | | | | | 1 ea Adult | | |
| 3 | 1 | 232 | ^{Odon.} 1.50 | | | | | | | | |
| 5 | 1 | 214 | | | | | | | | | Negl. |
| 6' | 3 | 365 | ^{Odon.} .40 | | .20 | | | | | | |
| 8' | 3 | 343 | | | | | | | | | .70 |
| 9' | 3 | 331 | | | | | | | | | .35 |
| 2' | 3 | 323 | | .40 | .10 | | | | | | .30 |
| 13' | 3 | 318 | | 2.50 | | | | | | | |
| 1 | 3 | 343 | | Negl. | | | | | | | Negl. |
| 10 | 3 | 360 | | | Negl. | | | | | | .50 |
| 12' | 3 | 326 | ^{Odon.} 3.20 | | | | | | | | |
| 14' | 3 | 322 | | .60 | | | | | | | Negl. |
| 4 | 3 | 375 | | 2.55 | | | | | | | |
| Rb. 1 | 3 | 365 | | | .60 | | | + | | | |
| 3 | 3 | 439 | | 1.80 | | | | | | | |
| 10 | 3 | 445 | | 6.50 | .05 | | | | | | |
| 5 | 3 | 396 | | 4.40 | | | | | | | |
| 19 | 1 | 298 | | | Negl. | | | + | | | |
| Hybrids 11 | 1 | 247 | | | | 4.40 | | | | | |
| 4 | 1 | 197 | | | | | | | | | .50 |
| 18 | 1 | 243 | | | .50 | 1.10 | | | | | |
| 17 | 1 | 192 | | | .75 | | | | | | |

Unknown what
fish are stocked
because natural
reproduction
is occurring

WEAVER

COLLECTED 7/14/72

Cut. I

Total Volume 3.82 ml.

% by Volume

Surface (densel Adults) $\frac{1.70}{3.82}$ 44.5%
 Benthic $\frac{1.46}{3.82}$ 38.2% } 17.3% densel naizid
 Pelagic (CP) $\frac{.56}{3.82}$ 14.7% } 20.9% Gastrop.
 Nekton (Ag. Coleop.) 2.6%

1 w/ Algae

Frequency

Surface $\frac{2}{6}$ 33.3%
 Densel Naizid $\frac{3}{6}$ 50.0% } Benthic $\frac{4}{6}$ 66.7%
 Gast. $\frac{2}{6}$ 33.3%
 Pelagic $\frac{2}{6}$ 33.3%
 Nekton $\frac{1}{6}$ 16.7%

Cut II

2 fish 1 w/ only algae

other w/ Gast. & densel naizid (Benthic)

Cut III

Total Volume 25.29 ml

% by Volume

Surface (densel Adults) $\frac{3.95}{25.29}$ 15.6%
 Pelagic (CP) $\frac{2.07}{25.29}$ 8.2%
 Benthic $\frac{19.27}{25.29}$ 76.2% } 71.8% Gast.
 4.4% Odon.

1 w/ Algae

Frequency

Surface $\frac{3}{15}$ 20%
 Gast. $\frac{9}{15}$ 60.0% } Benthic $\frac{12}{15}$ 80.0%
 Densel naizid $\frac{7}{15}$ 46.7%
 Pelagic $\frac{7}{15}$ 46.7%

R6 I & III

102 400

Total Volume 13.36 ml

Benthic $\frac{13.36}{13.36}$ 100% } 95.1% Gastrop
 4.9% densel naizid

Frequency

Gast. $\frac{3}{5}$ 60% } Benthic $\frac{5}{5}$ 100%
 Densel naizid $\frac{3}{5}$ 60%

2 w/ Algae

R6-Cut Hyb I

Total Volume 7.25

Benthic $\frac{6.75}{7.25}$ 93.1% } densel naizid 17.2%
 dragon naizid 75.9%
 Pelagic CP $\frac{.50}{7.25}$ 6.9%

Freq.

densel naizid $\frac{2}{4}$ 50% } Benthic $\frac{3}{4}$ 75%
 dragon naizid $\frac{2}{4}$ 50%
 Pelagic CP $\frac{1}{4}$ 25%

It should be noted the large dragon naizids were found only in the hybrids

WEAVER

Creel Censur data

Jun - Oct 71 93.5% cutt } includes unknown
6.5% rb. } no. of hybrids

Gill Net Data

Hybrids ??

7/14/72 53/62
8/9/69 45/53
6/9/71 72/90

~~2/6/72~~ 95.5% SR 14.5% RB
~~8/5/72~~ 14.5% RB 85.5% SR
~~8/5/72~~ 84.9% SR 15.1% RB
~~8/5/72~~ 75.1% RB 89.9% SR
~~10/1/72~~ 18.2% RB 81.8% SR
80% SR 20% RB + Hybrids

From sample (7/14/72) analyzed

~~52/28~~ 23/32 71.9% SR 28.1% RB + Hyb.
~~28/21~~

193 / 237 81.4% SR
18.6% RB + Hybrids

Comments + Answer to your questions

Weaver Res.

- ① Available summer water temperatures attached
- ②/③ Stocking attached. These records are poor. Apparently D.F.S. biologists do not believe in keeping records of what actually is stocked, although one shows in schedules. Stocking has consisted of 2,000 cuts since I came here in 1968, with two plants made. Normally fish are 6-7 inches; the Jackson Hatchery apparently has trouble raising large fish. Fish are delivered to the holding area and then taken by Indian truck to the reservoir - almost 200 miles round trip. What kind of truck survival incomes is another good question, but on average they ice, etc, and I guess they do alright.

Stocking History Weaver Reservoir Constructed 1958

Coville's Great Salt Lake

- 1959 Apparently construction completed but not stocked
- 1960 (Tom Chappone just came in and he tells me that when first completed stocked heavily with fry rainbows from Springfield, Mo's unknown)
- 1961 925 fish (?) stocked (probably rainbows) but 3000 scheduled
- 1962 1530 fish (?) " " " " " 3500 "
- 1963 1500 July, 1000 Aug, 1000 Sept (whether scheduled or stocked unknown)
- 1964 Scheduled 10,000 5-7" cutts May-June
" 2,000 8-9" cutts Aug-Sept
However, apparently not stocked due to some kind of construction activity.
- 1965 14,000 cutthroat from Jackson Hatchery
- 1966 same

1967 ?

1968 } same as below
1969 }
1970 }

- 1971 1000 cutts 6" June 3rd 120 lbs
1000 " 7 ~~August~~ 7/29 191 lbs
- 1972 1000 cutts 130 lbs 6/5
1000 " 195 lbs 8/5

Summary of annual reports on
Weaver Reservoir

- 1958 Upper Hill Creek Res. plans to construct; 27.2 SA; max depth 41'
- 1959 One trip in Oct to area to observe new reservoir; 850 AF; max depth 42'; inflow $1\frac{1}{2}$ CF S; bottom cleared of brush before filling; should provide 630 man-days of fishing; dam 47' high 285' long, 44,000 cu yd of fill

Weaver Reservoir

1961

probably RBT

An allocation of 3,000 catchable size fish was scheduled for Weaver Reservoir during the year but only 925 fish were stocked. The full allocation of fish was not made because of the bridge wash-out and weather-road conditions. Growth rate of fish stocked in 1960 did not reach their anticipated size. Fish taken in June ranged from 6 $\frac{3}{4}$ inches to 11 inches in length. The Tribal Youth Camp near the reservoir has continued to contribute the major fishing pressure of the reservoir. Hunters have also been fishing the reservoir during the fall elk and deer seasons. A store-gasoline station near the reservoir has been in operation during the year along with the rental of the Youth Camp buildings during the hunting season. Further enterprise development of the Weaver Reservoir has been contemplated by the Tribe.

Weaver Reservoir

1962

An allocation of 3,500 catchable size fish were scheduled for Weaver Reservoir during the year, but only 1,530 were delivered. The full allocation was not stocked due to a drop in fishing pressure in the area. The Tribal Youth Camp near the reservoir has continued to contribute the major fishing use to the reservoir. Hunters have also been fishing the reservoir during the fall elk and deer seasons. A store-gasoline station near the reservoir has been in operation during the year along with the rental of the Youth Camp buildings during the hunting season. A trip was made into this area in August by the Advisory Committee for the Ute Tribal Commercial Recreational Program. The fishery management biologist accompanying the committee inspected the food production of the reservoir and found a lack of aquatic organisms. Fertilizing of the lake may become necessary to maintain the productivity of the lake at a more desirable level.

Weaver Reservoir

1963

food organisms - what?

Since the operation of Hill Creek Youth Camp has been discontinued, the fishing pressure on this impoundment has been largely limited to the late summer and early fall months. It is estimated that this reservoir received 1,000 fisherman-days of use during 1963. Very little census information was collected for this reservoir during the year. Information gathered for this lake is primarily based on voluntary registration.

A complete biological survey was made on this reservoir in June. It had been previously reported that there was a shortage of fish food organisms in prior years, but at the time of the survey fish food was found to be sufficient, and fish caught were in good condition. Plans for next year include fertilization of the reservoir that is intended to produce trophy size fish.

- fertilization take place?

Weaver Reservoir

Weaver Reservoir is located in the lower section of the Hill Creek extension area and contains approximately 30 surface acres. Fisherman utilization on the Reservoir occurs primarily in the fall by sportsmen participating in the special Tribal enterprise hunt. Fishery survey findings in 1965 indicated a reduction in the stocking to more efficiently manage the sport fishing program. This consideration has been included in the 1966 stocking recommendations. With increases in fisherman utilization, limited recreation facility development will be appropriate on the Reservoir.

- weed control?

Sport fishing at the present time is restricted due to an excessive aquatic vegetation growth. Chemical control of the vegetation should be initiated in the spring of 1966 for effective management and sport fish harvesting.

Summers 1965(66) annual report

Weaver Reservoir

1600
2.8
12800
20
4480.0

An estimated 1,600 angler trips were made to Weaver Reservoir in 1971. Average catch rate was 0.52 fish per hour and the average number creeled was 2.8 fish per trip. Stocking continues to be two plants consisting of 1,000 seven inch size cutthroat trout in each June and August planting, totaling 2,000 trout.

2000 stocked
4480
caylon

Cutthroats from this reservoir are smaller than those from Toiyabe. High altitude (8,000 feet), colder water temperatures and short growing season limit growth rates. In addition, the population density cannot be controlled because of varied natural reproductive success. In spite of this, fishing is generally good, with the average size of cutthroat harvested being 11.7 inches and 14% of these trout being 14 inches or larger.

hybrids

One other species of trout is of importance to this fishery. A small population of rainbows from the 1961-63 stockings still persists which apparently spawn successfully on a limited basis. The inflow stream provides less than one mile of suitable spawning water and rainbow spawners must compete with cutthroat spawners. Gill netting information indicates rainbow trout numbers represent 17-22% of the population; however, creel census records show rainbow trout making up less than 5% of the total harvest. This could be a bias coming from gill netting or mis-identification on creel census checks. Nevertheless, a small but important part of the harvest are these few large rainbows caught each season (22 measured by the warden in 1971 averaged 15.7 inches).

rapid natural selection

A substantial part of the fishing pressure continues to be fishermen traveling from the Green River - Moab area. When the south road is open it is 40 miles shorter to reach the reservoir from this direction than the 125 mile drive from U.S. 40 to the north. The reservoir is also close to the Tribal Nu-Ta-Veep hunting camp which could receive additional fishing pressure from hunters during the fall season.

Hill Creek, located below the reservoir, supports an excellent population of brook trout. Sampling by use of a back-pack shocker indicates a substantial population of 5-10 inch trout distributed downstream for at least eight miles. It is unfortunate that little fishing interest is given to this species. Warden checks show there is little fishing pressure exerted on this remote part of Hill Creek.



File

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF INDIAN AFFAIRS
Uintah and Ouray Agency
Fort Duchesne, Utah

84026

IN REPLY REFER TO:

Land Operations
Soils 344.21

August 19, 1963

Mr. Robert L. Azevedo
Bureau of Sport-Fisheries and Wildlife
Springville, Utah

Dear Mr. Azevedo:

We have analysed the soil samples taken at the time you were making studies of the fish in Weaver Reservoir on the land adjacent and surrounding the reservoir.

As a whole the analysis shows high potassium, medium to high phosphate and extremely low nitrogen, indicating the only element needed being nitrogen.

Looking at the analysis from the vegetative needs standpoint, it would be recommended to apply approximately 50 lbs. of available nitrogen (150 lbs. ammonium nitrate - 33 1/3 available N.) per acre to the grassland and assume this would also meet the needs of the reservoir for fish food (indirectly.)

Sincerely yours,

M. M. Zollar
M. M. Zollar
for Superintendent

Mr. Rex Curry
Natural Resources Director
Ute Indian Tribe
Fort Duchesne, Utah

July 6, 1963

Dear Rex:

Sorry we did not meet with you while down in the Hill Creek country the last of June. There are several items that may be of news interest from our surveys in that part of the Reservation.

First, we made an inspection of Weaver Reservoir. Plankton samples taken indicated that the fertility for fish life looks good. Apparently, the fish population is now at a level that is balanced with food production. Fish sampled were in good conditions and averaged from 10 to 12 inches in length. We also noted some natural reproduction, young fish about 3 to 4 inches in length. We have not had time to read scale samples taken from fish sampled but from their general condition factor their growth rate should be about $3/4$ to 1 inch growth for the last two months. The answer to our problem last year at Weaver Reservoir was not enough fishermen for the fish stocked. Enclosed is two photos taken at Weaver Reservoir of Wally and Tommy Ansh holding fish sampled during that day. We used 150 foot gill nets for a five hour set. As you know Tommy is employed by the Bureau of Sport Fisheries and Wildlife this summer as an Fishery Aid.

We also looked into Clear Creek. The only suitable water, beaver ponds, on the total length of stream are two small ponds near Turn's cabin on the lower end of the canyon. All the upper ponds are dry or with very little water.

A quick look into the OCC crossing dam site was made. From rough hand level sites it looks like a 40 foot dam would create a lake over a mile and a half long, with an average depth of 20 to 25 feet. This would require a dam fill of about 225 yards across the canyon. I gather that the B.I.A. has plans to investigate this site. It sure looks good at first sight.

Also attached is a request for permission to water and fish sample the White River at its confluence with the Green. Dr Franklin will be conducting a two to three year study of the Green River from Flaming Gorge Dam downstream to the mouth of the White River.

Bob



UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF INDIAN AFFAIRS

Uintah and Ouray Agency
Fort Duchesne, Utah

IN REPLY REFER TO:

Land Operations
412

October 4, 1962

Mr. R. L. Azevedo
Fishery Management Biologist
Bureau of Sport Fisheries & Wildlife
Springville, Utah

Dear Mr. Azevedo:

On a recent tour of the Uintah and Ouray Reservation with Mr. Jack Hemphill, we examined Weaver Reservoir and the fish growing in it. After the examination Mr. Hemphill suggested that we obtain water samples from the lake and the stream running into it and have them analysed for the mineral content.

The enclosed sheet gives the results of these analyses. The first sample was taken at the spillway, the second at the upper end of the lake and the third out of the stream about one mile above the lake.

Mr. Hemphill stated that if we would send you the results of the analyses that you would be able to make some fertilizer recommendations for the lake. We hope that the information furnished will enable you to make these recommendations.

If possible could you give us in addition to the kinds and amounts of fertilizer, the methods and time of application?

We hope to hear from you in the near future.

Sincerely yours,

B. A. Narcho
B. A. Narcho
Acting Superintendent

Enclosure

FIELD DATA--LAKES, PONDS AND RESERVOIRS

R2-FMS-3

Name Weaver Reservoir Mgt. Area U40 Indian

Location R _____ T _____ S _____ Tributary to Green River

Altitude 8,170 Water Source Hill Creek

Constructed 1958 dam 47' high, 285' long, 44,000 cu yds

Size in Acres 30 Fluctuation one foot

Natural Spawning Yes, inlet Depth: Max. 42 Ave. 28.3' 850 acre ft #20

Temp. Range (vertical) _____

Ranunculus - water buttercup dominant - Algae, Sage, Chen, Smartweed

Plant Cover 85-90 % Pollution also present

Fish Population Rainbow & cutthroat

Planting Policy: Species _____ Size _____ No./Plant _____

Planting Interval _____

T.A. _____ S.F. _____ F.P.F. _____ Stocking Factor _____

| | | | |
|--------------|-------------------------|---------|--------|
| 7/19/67 | Temp 50°F | 7/19/67 | T. 68° |
| | Cond 330 | 6/9/71 | T. 52° |
| | Turbid. 25 | | |
| | O ₂ 16.0 | | |
| | Free CO ₂ 10 | | |
| | Tot. Alk 120 | | |
| | pH 8.75 | | |
| | Tot Hard 170 | | |
| 7/14/72 | Transp. 22' | | |
| 8 AM | pH = 8.2 | | |
| Air T = 47°F | Cond 290 | | |
| 11' = 63.5 | Alk = 170 | | |
| 6' = 63.5 | Hard = 187 | | |
| 15' = 64.6 | | | |
| 20' = 62.6 | | | |
| 25' = 61.0 | | | |

W.P. 52

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

0.3 mi. below Weaver & then bottom

100 gals
DATE 6/2/71
No. D. VI. TOTAL

WATER: Hill Creek TOWN:

SPECIES:

METHOD OF COLLECTION: Secker

| | | | | | |
|-----------|-----|-----|-----|--|--------|
| 1.0-1.4 | | | | | |
| 1.5-1.9 | | | | | |
| 2.0-2.4 | WAT | RBT | RBT | | Hybrid |
| 2.5-2.9 | | | | | |
| 3.0-3.4 | | | | | |
| 3.5-3.9 | | | | | |
| 4.0-4.4 | WAT | | | | |
| 4.5-4.9 | | | | | |
| 5.0-5.4 | | | | | |
| 5.5-5.9 | | | | | |
| 6.0-6.4 | | | | | |
| 6.5-6.9 | | | | | |
| 7.0-7.4 | | | | | |
| 7.5-7.9 | | | | | |
| 8.0-8.4 | | | | | |
| 8.5-8.9 | | | | | |
| 9.0-9.4 | | | | | |
| 9.5-9.9 | | | | | |
| 10.0-10.4 | | | | | |
| 10.5-10.9 | | | | | |
| 11.0-11.4 | | | | | |
| 11.5-11.9 | | | | | |
| 12.0-12.4 | | | | | |
| 12.5-12.9 | | | | | |
| 13.0-13.4 | | | | | |
| 13.5-13.9 | | | | | |
| 14.0-14.4 | | | | | |
| 14.5-14.9 | | | | | |
| 15.0-15.4 | | | | | |
| 15.5-15.9 | | | | | |
| 16.0-16.4 | | | | | |
| 16.5-16.9 | | | | | |
| 17.0-17.4 | | | | | |
| 17.5-17.9 | | | | | |
| 18.0-18.4 | | | | | |
| 18.5-18.9 | | | | | |

Sub Totals (Each method):

Wgt. (lbs.): No: Wgt. (lbs.): No:

Grand Total (all fish combined):

Weight (lbs.): Number:

Above Weaver

Temp. 50

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

that lot from on upper end of Weaver, upstream on Hill Creek about 250 yds

WATER: *Hill Creek*

TOWN:

SPECIES:

DATE

6/8/71
Mo. D. Yr.

METHOD OF COLLECTION:

Shocker

TOTAL

| | | | |
|-----------|------------|--------------|----------------|
| 1.0-1.4 | | | |
| 1.5-1.9 | <i>cut</i> | <i>RBT.</i> | <i>Hybrids</i> |
| 2.0-2.4 | | | |
| 2.5-2.9 | <i> </i> | <i> </i> | |
| 3.0-3.4 | <i> </i> | <i> </i> | |
| 3.5-3.9 | | <i> </i> | |
| 4.0-4.4 | | <i> </i> | |
| 4.5-4.9 | | <i> </i> | |
| 5.0-5.4 | | <i> </i> | |
| 5.5-5.9 | | <i> </i> | |
| 6.0-6.4 | | <i> </i> | |
| 6.5-6.9 | | <i> </i> | |
| 7.0-7.4 | | <i> </i> | |
| 7.5-7.9 | | <i> </i> | |
| 8.0-8.4 | <i> </i> | <i> </i> | <i> </i> |
| 8.5-8.9 | | | |
| 9.0-9.4 | <i> </i> | <i> </i> | |
| 9.5-9.9 | | <i> </i> | <i> </i> |
| 10.0-10.4 | | | <i> </i> |
| 10.5-10.9 | | | |
| 11.0-11.4 | | | |
| 11.5-11.9 | | | |
| 12.0-12.4 | <i> </i> | | |
| 12.5-12.9 | | | |
| 13.0-13.4 | <i> </i> | | |
| 13.5-13.9 | <i> </i> | | |
| 14.0-14.4 | <i> </i> | | |
| 14.5-14.9 | | | |
| 15.0-15.4 | <i> </i> | | |
| 15.5-15.9 | | | |
| 16.0-16.4 | | | |
| 16.5-16.9 | | | |
| 17.0-17.4 | | | |
| 17.5-17.9 | | | |
| 18.0-18.4 | | | |
| 18.5-18.9 | | | |

*Parabola in 4-8" range appeared very deep & fat
all larger cuts were slinky & well spent*

Sub Totals (Each method):

Wgt. (lbs.): _____ No: _____ Wgt. (lbs.): _____ No: _____

Grand Total (all fish combined):

Weight (lbs.): _____ Number: _____

MIDVIEW
Creel Census Data

1970 & 1971 Cumulative

Rb 24.37% of fish stocked
SR 19.39% of fish stocked
1.26:1 ratio Rb:SR

~~Rb. 20886~~

~~Cat 1051~~

This reveals Rb are more susceptible to angling, but regardless of this SR are still showing a much higher survival rate (i.e. SR are there but not being caught). ^{Thus} Rb are being caught in higher proportions + natural mortality claims more fish over winter months.

| | | | | | |
|------|-------------------------|-------|----|------|----|
| 1970 | $\frac{20886}{21,937}$ | 95.2% | Rb | 4.8% | SR |
| 1971 | $\frac{16,868}{17,755}$ | 95.0% | Rb | 5.0% | SR |

Creel Net Data

samples analyzed { 20 Apr 72 3/11 27.3% Rb, 72.7% Catt.
5 Oct 72 11/12 91.7% Rb, 8.3% Bn.

| | | | | |
|----------------------|------------|-------|----------|----------|
| | 8/15/69 | 68/80 | 85% Rb | 15% SR |
| | 10/22/69 | 78/86 | 90.7% Rb | 9.3% SR |
| 57.5% Rb 42.5% SR | { 6/11/70 | 17/30 | 56.7% Rb | 43.3% SR |
| | { 10/13/70 | 25/43 | 58.1% Rb | 41.9% SR |
| 61.7% Rb 38.3% SR | { 5/25/71 | 19/28 | 67.9% Rb | 32.1% SR |
| | { 9/30/71 | 10/19 | 52.6% Rb | 47.4% SR |
| | { 4/19/72 | 14/43 | 32.6% Rb | 67.4% SR |

MIDVIEW

Collected 20 April 72

Cutt IV

Total Food Volume 1.64 ml. (excluding fish)

| | | | |
|---------|---------------------|-------|----------------|
| Pelagic | $\frac{1.32}{1.64}$ | 80.5% | } 9.8% Zoopl. |
| | | | |
| Benthic | $\frac{.11}{1.64}$ | 6.7% | damsel naizel |
| Nekton | $\frac{.21}{1.64}$ | 12.8% | } .6% Amphipod |
| | | | |

Frequency

| | | | | |
|------------------|-----|-------|---------------|-------|
| CP | 1/8 | 75.0% | } Pelagic 7/8 | 87.5% |
| Zoopl. | 2/8 | 25.0% | | |
| Benthic (damsel) | 2/8 | 25.0% | | |
| Amph. | 1/8 | 12.5% | } Nekton 3/8 | 37.5% |
| Hemip. | 2/8 | 25.0% | | |
| Nekton (fish) | 2/8 | 25.0% | | |

Rb II & III

Total Food Volume .51

| | | | |
|---------|-------------------|-------|-----------|
| Benthic | $\frac{.05}{.51}$ | 9.8% | } 5.9% CL |
| | | | |
| Pelagic | $\frac{.46}{.51}$ | 90.2% | } 2.0% CP |
| | | | |

Frequency of occurrence not valid due to only 3 Rb. but Rb fed on CL (cut did not), while cut fed on fish + Hemipteras (Rb did not)

No Cutts

Collected 5 Oct 72

Rb II

1 Fish in stomach

Rb I

Volume very small (limited feeding)

Frequency of occurrence

| | | |
|------------------------------|-----|--------|
| Plant Material (macrophytes) | 8/8 | 100.0% |
| Benthic (Acere) | 1/8 | 12.5% |
| Surface | 2/8 | 25.0% |
| Pelagic (Zoopl.) | 1/8 | 12.5% |

Fish seemed to feed in shallow, well vegetated areas

Rb II

Empty

Rb III

5 Utah chubs

MIDVIEW Res.

Collected 20 April 72

| Fish No. | Age | Length | Chir. L | Chir. P | Amph. | Coleop. | Ephem | Odon. | Gastrop. | Nemip | Fish | Placop. | Zoopl. | Notes |
|----------|-----|--------|---------|-------------|------------|---------|-------|---------------|--------------|--------|-----------------|---------------------------|---------|------------------------------------|
| R6 7 | 2+ | 330 | | | | | | Negl. (1 ea.) | | | | | | Stocked Stocked 1971 |
| 8 | 2+ | 328 | Negl. | | | | | | | | | | | |
| 9 | 3 | 368 | .02 | .01 | | | | .01 | | | | | .45 | Stocked 1970 |
| C3 1 | 4 | 338 | | Pelagic .30 | | | | Benthic | | Nektar | | | Pelagic | Stocked 6/4/69 as |
| 2 | 4 | 354 | | .05 | | | | .10 | | 1 ea | | | .15 | 5" fish |
| 3 | 4 | 337 | | | Negl. 1 ea | | | | | | | | Negl. | |
| 4 | 4 | 345 | | .10 | | | | .01 | | | | | | |
| 5 | 4 | 400 | | .40 | | | | | | | | | | |
| 6 | 4 | 355 | | Negl. | | | | | | Nektar | | | | |
| 10 | 4 | 350 | | | | | | | | 1 ea | 1 ea | | | |
| 11 | 4 | 361 | | .30 | | | | | | | 1 ea | | | |
| | | | | | | | | | | | | Plant Material (Macroph.) | | Collected 5 Oct 72 |
| Bm 1 | 2 | 282 | | | | | | Aceri | Terrat-rizls | | 1 ea. | | | Stocked in 1971 (7") |
| R6 2 | 1 | 215 | | | | | | Negl. | | | | + | Negl | (Probably) Stocked Summer |
| 3 | 1 | 265 | | | | | | | | | | + | | 1972 as |
| 4 | 1 | 268 | | | | | | | | | | + | | catchables |
| 5 | 1 | 260 | | | | | | | | | | + | | |
| 6 | 1 | 265 | | | | | | | | | | + | | |
| 7 | 1 | 277 | | | | | | | | | | + | | |
| 8 | 1 | 270 | | | | | | | | | | + | | |
| 9 | 1 | 271 | | | | | | | | | | + | | |
| 10 | 2 | 325 | | | EMPTY | | | | | | | | | Stocked 1971 |
| 11 | 2 | 330 | | | EMPTY | | | | | | | | | |
| 12 | 3 | 385 | | | | | | | | | Utah chub 5 ea. | | | Stocked 1970 |

MIDVIEW

400 zcves max Ave 350 zcves

COLLECTED 20 Apr 72

Collected 5 Oct 72

Rb II & III Sufficient data is not available to compute growth rates for Age II or Age III Rb

2 Fish Age II (328-330)

2 Fish Age II (325-330)

1 Fish Age III (368)

1 Fish Age III (385)

Age I

261 mm (215-277)

Bn Age II

1 fish (282 mm)

SR Age IV 355 mm (337-400)

228 mm / 34 1/2 mos

6.6 mm / mo. (including

winter) This figure

would not reflect

the growth over summer

months when fish

were younger & experiencing

faster growth in

length.

SR seemed to disappear over summer of 72

127 mm when stocked 6/4/69

Rb do not seem to winter well, as few fish of Age II & III are found in reservoir

MIDVIEW RESERVOIR

| STOCKING | 1969 | | 1969 ^{size} | |
|-------------|--------|---------|-----------------------|--------|
| | Rb | Cumul. | Cutt. ^{date} | Cumul. |
| | 81999 | 81999 | 9994 | 9994 |
| <u>1970</u> | | | | |
| | 22,159 | 104,158 | — | 9994 |
| <u>1971</u> | | | | |
| | 50,752 | 154,910 | — | 9994 |

Rb:Cut 1969 cumul. stocking ratio = 8.20:1
 1969, 1970 " " " = 10.42:1
 1969, 1970, 1971 " " " = 15.50:1

Rb:Cut Angler Susceptibility
 1970 + 1971 cumulative = 1.26:1 = $\frac{24.37\%}{19.39\%}$

| Harvest | w/out susceptibility factor | | with factor |
|---------|-----------------------------|-------|-------------|
| | Rb | Cutt. | Cutts |
| 1970 | 20,886 | 1051 | 1324 |
| 1971 | 16,868 | 887 | 1118 |
| Totals | 37,754 | 1938 | 2442 |

| Survival | Stocked Number | angler harvest (w factor) |
|-------------|----------------|---------------------------|
| | Rb | Cutt |
| end of 1969 | 81999 | 9994 |
| end of 1970 | 83272 | 8670 |
| end of 1971 | 117,156 | 7552 |

Assumes creel census was accurate and efficient.

Corrected Rb - Ct ratios (after subtracting harvest) if survival rates were equal

| | | | |
|-------------|---------|-----------|--------------------|
| End of 1969 | 8.20:1 | ≈ 8.20:1 | Pop. ratio |
| End of 1970 | 9.60:1 | ≈ 10.42:1 | w/out correcting |
| End of 1971 | 15.51:1 | ≈ 15.50:1 | for angler harvest |

* Thus ratios used will be those not incorporating angler harvest

Cat: Rb

→ Survival Ratios computed for each gill net sampling

8/15/69

$$\frac{\left(\frac{34,278}{9,994}\right) 12}{68} = .65$$

low values due probably to some catchable rainbow being stocked ^{in 1969}. These larger Rb would be more susceptible to gill netting

10/22/69

$$\frac{8.20(8)}{78} = .84:1$$

Ratio \approx 1:1

6/11/70

$$\frac{8.20(13)}{17} = 6.27:1$$

Assumes 1970 plants not yet started. If they had started, ratio would be even higher

Ratios in second column use original stocking ratio of 8.20:1. Thus ratios would assume all Rb sampled were from 69 plants. These ratios would thus be an absolute minimum because Rb were surely from 70 + 71 plants also.

10/13/70

$$\frac{10.42(18)}{25} = 7.50:1 \quad 5.90:1$$

5/25/71

$$\frac{10.42(9)}{19} = 4.94:1 \quad 3.88:1$$

9/30/71

$$\frac{15.50(9)}{10} = ~~13.95~~:1 \quad 7.38:1$$

4/19/72

$$\frac{15.50(29)}{14} = 72 - ~~37~~:1 \quad 32.11:1 \quad 16:99$$

69 plants 82,000 Rb - 10,000 = 72
14 none from 69 plants.

Cumulative Average = $\frac{64.77}{5} = 12.95:1$

Should be noted that Rb stocked in 1969 are virtually gone (~~reduced~~ 16 fish in samples of 1972) and that cult. of 1969 still persist in good numbers.

Growth Patterns

| When Stocked | 8/15/69 | 10/22/69 | 6/11/70 | 10/13/70 | 5/25/71 | 9/30/71 | 4/19/72 | | |
|--------------|---------|---|-----------|----------|---------|---------|---------|-----|------|
| Ave length | 8 | 10 | 11 1/4 | 12 1/2 | 14 | 14 | 14 1/2 | | |
| lbs/fish | | | .54 | .73 | 1.0 | .89 | .96 | | |
| | | | <u>Rb</u> | | | | | | |
| lbs/fish | | | .59 | .77 | .95 | .70 | .65 | | |
| lbs/fish | 1.20 | Flannelmouth, Mtn Sucker, & green sunfish | | 1.29 | 1.49 | .61 | .61 | .79 | 1.19 |

$.038 \frac{\text{lb}}{\text{fish}}$

Cutt

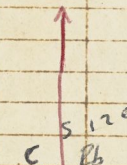
1.0

FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

WATER Midway Res TOWN _____ SPECIES: Cutts DATE 1/1

| METHOD OF COLLECTION | | rainbows 70s 71 | | size variable Singelings - certain | | Mo. | Yr. |
|----------------------|----------------------------|-----------------|--------|------------------------------------|-------|--------|-----------------|
| 1.0-1.4 | rainbows 69 | 22,159 | 50,752 | | | | TOTAL |
| 1.5-1.9 | 81,999 | | | | | | 154,910 |
| 2.0-2.4 | 29,244 lbs | | | | | | |
| 2.5-2.9 | | 12,654 71 | | Harvest | | | creel cens. |
| 3.0-3.4 | | brown 71 | | 1970 | Cutts | 1,051 | Rainbows 20,886 |
| 3.5-3.9 | | | | 1971 | 887 | 16,868 | |
| 4.0-4.4 | | | | Tot | 1938 | 37,754 | |
| 4.5-4.9 | cutts stock 6/4/69 9994 | | | | | | 24% |
| 5.0-5.4 | 380 lbs | | | | | 20% | 24.37 |
| 5.5-5.9 | 6/4/69 | | | | | 19,399 | 90 mix |
| 6.0-6.4 | | | | | | | |
| 6.5-6.9 | | | | | | | |
| 7.0-7.4 | | | | | | | |
| 7.5-7.9 | | | | | | | |
| 8.0-8.4 | | | | | | | |
| 8.5-8.9 | | | | | | | |
| 9.0-9.4 | | | | | | | |
| 9.5-9.9 | | | | | | | |
| 10.0-10.4 | | | | | | | |
| 10.5-10.9 | | | | | | | |
| 11.0-11.4 | | | | | | | |
| 11.5-11.9 | | | | | | | |
| 12.0-12.4 | | | | | | | |
| 12.5-12.9 | | | | | | | |
| 13.0-13.4 | | | | | | | |
| 13.5-13.9 | | | | | | | |
| 14.0-14.4 | | | | | | | |
| 14.5-14.9 | | | | | | | |
| 15.0-15.4 | | | | | | | |
| 15.5-15.9 | | | | | | | |
| 16.0-16.4 | | | | | | | |
| 16.5-16.9 | | | | | | | |
| 17.0-17.4 | | | | | | | |
| 17.5-17.9 | | | | | | | |
| 18.0-18.4 | | | | | | | |
| 18.5-18.9 | | | | | | | |

cutts stock 6/4/69
9994
380 lbs
6/4/69



| | 8/12/69 | 10/22/69 | 6/11/70 | 10/13/70 | 5/27/71 | 9/14/71 | 4/19/72 | |
|----------------|---------|----------|---------|----------|---------|---------|---------|-------------------------------|
| Cutts No cutts | 12 | 8 | 13 | 18 | 9 | 9 | 29 | - only 69 stocking 9,994 |
| Wgt | | | 7.0 lbs | 13.2 | 9 lbs | 8 lbs | 27.9 | |
| No rainbows | 68 | 78 | 17 | 25 | 19 | 10 | 14 | - includes 71 stocking 15,000 |
| Wgt | | 21.5 | 10.0 | 19.3 | 18.0 | 7.0 | 9.1 | |

| Sub Totals (Each method): | | Wgt. (lbs.): | No. | Wgt. (lbs.): | No. |
|----------------------------------|--------|--------------|--------|--------------|------|
| Grand Total (all fish combined): | | | | | |
| Trash No. | 51 | 34 | 47 | 60 | 141 |
| Wgt | 61 lbs | 31 lbs | 70 lbs | 36.5 | 85.5 |
| | | | | | 45 |
| | | | | | 62 |
| | | | | | 75.0 |
| | | | | | 73.7 |

Standard with
intn. sucker
green sunfish

is largely absorbed by the porous soils at the time of snow melt. Much of the drainage has been ditched to increase the water yield to the reservoir with promising results. All time high water levels were achieved and maintained during the past two years, but this has not prevented winterkill of trout due to oxygen depletion prior to the breakup of the ice cover in the spring. In 1969 the ice broke up on April 28-29th, and on May 1, 523 dead trout were counted along the entire shoreline. Determination showed that the oxygen content remained adequate until early April.

The Tribe should set a maximum priority in having this reservoir filled to capacity, both to benefit the fishery and safeguard the considerable investment to date in a key recreational resource. As things now stand, much of the low-lying shoreline area is liberally sprinkled with broken glass and other trash, significantly subtracting from the spectacular natural setting. This would be eliminated by raising the water level.

Just how the task of filling this reservoir to capacity can be accomplished is not clear. Sealing the bottom of the inflowing stream, diversion of more water from Dark Canyon, increasing timber harvest to increase water yield, further ditching, etc., would all seem to hold promise, but first some sort of engineering study to determine the best action should be instigated, and then acted upon. Short-term remedies, such as the past practise of pumping air through a perforated hose in circumventing winterkill, are really more expensive and do not correct the basic problem of providing adequate water for the reservoir basin.

MIDVIEW RESERVOIR

1969 Annual Report

Four hundred acre Midview Reservoir, built in the 1930's by the Bureau of Reclamation for irrigation, was acquired by the Ute Indian Tribe in an exchange agreement with the Moon Lake Water Users Association in November 1967. This agreement fixed what had been standard operation procedure of negotiating annual exchanges for the last twenty-five years, while transferring jurisdiction of fishing rights from the State to the Tribe. The change in jurisdiction is being contested by the State.

Initial Tribal management consisted of stocking 28,912 catchable size rainbow trout in January through March 1968, partially out of deference to a production problem at the Springville National Fish Hatchery. Usage was estimated not to have exceeded 2,160 angler trips that year.

In the winter of 1969 plans were made in cooperation with Tribal and Bureau of Indian Affairs for drainage and chemical treatment so as to control the abundant rough fish population. This renovation was carried out between late April and May 22, at which time the inlet stream and remaining sump areas were treated with 200 pounds of powder and 25 gallons of emulsified rotenone. Refilling began immediately.

Attempts at salvage of the game fish in the outlet canal demonstrated the fallacy of such technique in circumstances involving a very large rough fish population, coupled with the usual insurmountable silt and mud problems. Typically, too, the drainage was protracted, traceable to return irrigation flow. When finally the fish started to come through the outlet into the canal below, they came in hordes, along with the dregs of the basin bottom, and completely swamped the salvage effort.

About 500 rainbow trout were saved out of an estimated 1,000 remaining from the plants of 1968. A minimum of 40,000 pounds (100 pounds/acre) of carp, flannel mouth sucker, bluehead sucker, Utah chub, plus a scattering of green sunfish, walleye pike and channel catfish were estimated flushed downstream. The maximum weight of fish could have been two to four times that cited. Conspicuous by their large size were an estimated 200 walleye pike, ranging from five to perhaps fifteen pounds in weight, trophies that rarely if ever entered the sport catch. The channel catfish numbered three, but were 14-22 pound fish.

Initial restocking consisted of 44,272 trout planted between June 2 and July 7 (Table 2). Gill net sampling approximately ten weeks later disclosed rapid growth of stocked trout and heavy recontamination with suckers from the Duchesne River during refilling (Table 3). Significantly, no carp were taken, although one Utah chub and one boneytail were. On this assessment an additional 47,721 surplus rainbow trout fingerlings were planted in late August (Table 2). Sampling in late October indicated survival and growth of these fish was also good (Table 3), although the picture attained was not clear due the different sizes of trout stocked, gill net selectivity, and extreme differences in water temperatures prevailing between sampling periods.

Fast growth and the deep, fat condition of the trout sampled belie any lack of an adequate food supply regardless of appearances to the contrary. Natural food organisms normally consist principally of microscopic plankton forms that float free in the water and larger aquatic insect larvae and other small animals that live on or in the reservoir bottom. In the drainage operation such food items were scarce or absent. Examination of the trout collected in August

revealed a diet consisting almost exclusively of backswimmers, an aquatic insect not normally recognized of major importance as a trout food. In October backswimmers were again important in stomach contents, but cladocerans or water fleas (plankton) predominated.

Midview Reservoir should develop into an extremely popular fishing water in the next year or two. Even now the reservoir is supporting more pounds of respectable, eating size trout than in any time in its history, and it is fully capable of sustaining a several-fold increase in angling as a result.

SMALLMOUTH BASS INTRODUCTION

Extensive sampling of the Duchesne River drainage system, both on Indian and non-Indian areas, by personnel of the Vernal office in conjunction with personnel of the Utah Fish and Game Department in 1969, revealed no or very few game fish present. The lack of game fish can no doubt be explained primarily by turbid habitat conditions favoring rough fish and, secondarily, by the lack of a semi-warm water, stream game fish species that is reasonably tolerant to silt and a severely fluctuating temperature regimen. With the recently completed Starvation Reservoir, the siltation problem of the downstream Duchesne River should be mitigated, though not eliminated.

Under these circumstances and considering the many miles of stream involved, it is thought that an introduction of smallmouth bass might more than justify the small expense involved. The smallmouth bass is an excellent game fish that is capable of tolerating extremes in seasonal water temperatures and moderately turbid water conditions for limited periods. It is also primarily a stream fish. Unlike trout, which are readily grown under hatchery conditions, the smallmouth bass is difficult to culture artificially and hatchery production usually is limited to fingerling size fish. This is of small consequence except in effecting an introduction, as once established the species is fully capable of perpetuating its numbers through natural means.

Inasmuch as only a few thousand fingerling size smallmouth can be obtained, it is proposed that these be stocked in the spring of 1970 in the lower Uintah River, south of Route 40, following a partial reduction in the rough fish using rotenone. In view of the anticipated eventual dispersal off Indian waters of this introduction, state concurrence with this proposal has been obtained. Smallmouth bass, insofar as known, do not now occur in the state of Utah.

FLORENCE CREEK

During the past several seasons various activities have been carried out on remote Florence Creek relative to effecting an introduction

Table 2. Record of Restocking of Midview Reservoir, 1969.

| <u>Species</u> | <u>Number</u> | <u>Size</u> (Inches) | <u>Weight</u> (Pounds) | <u>Date</u> |
|-----------------|----------------------------------|-------------------------|------------------------------|-------------|
| Rainbow Trout | 15,070 | 3 | 211 | 6/2 |
| Cutthroat Trout | 9,994 | 5 | 380 | 6/4 |
| Rainbow Trout | 15,016 | 4 | 291 | 6/12 |
| Rainbow Trout | <u>4,192</u> | 8 | <u>765</u> | 7/3 |
| Total: | 44,272 9,994 <u>34,278</u> | | 1,647 380 <u>1,267</u> | |
| Rainbow Trout | 14,703 | 5 | 845 | 8/18 |
| Rainbow Trout | 8,961 | 5 | 515 | 8/20 |
| Rainbow Trout | <u>24,057</u> | 3 | <u>297</u> | 8/20 |
| Total: | 47,721 | | 1,657 | |
| GRAND TOTAL: | 91,993 9,994 <u>81,999</u> | | 3,304 | |

10.2% cutts

Table 3. Fish Samples from Midview Reservoir

| Size (Inches) | 8/15/69 3 Gill Nets Overnight Water Temperature 67-72° F. | | | 10/22/69 3 Gill Nets Overnight Water Temperature 45° F. | | |
|------------------|---|----------------------------|-----------------------|---|----------------------------|-----------------------|
| | <u>Rainbow Trout</u> | <u>Cutthroat Trout</u> | <u>1/ Suckers</u> | <u>Rainbow Trout</u> | <u>Cutthroat Trout</u> | <u>1/ Suckers</u> |
| 5.5-5.9 | 2 | | | 1 | | |
| 6.0-6.4 | 3 | | | 6 | | |
| 6.5-6.9 | 13 | | | 10 | | |
| 7.0-7.4 | 24 | | | 6 | | |
| 7.5-7.9 | 10 | 7 | | 11 | | |
| 8.0-8.4 | 4 | 5 | | 11 | | |
| 8.5-8.9 | 3 | | 1 | 5 | | |
| 9.0-9.4 | 5 | | | 16 | 3 | 1 |
| 9.5-9.9 | 3 | | | 8 | 2 | |
| 10.0-10.4 | 1 | | | 3 | 2 | 1 |
| 10.5-10.9 | | | | 1 | 1 | |
| 11.0-11.4 | | | | | | |
| 11.5-11.9 | | | | | | 1 |
| 12.0-12.4 | | | 2 | | | 1 |
| 12.5-12.9 | | | 4 | | | 2 |
| 13.0-13.4 | | | 2 | | | 3 |
| 13.5-13.9 | | | 7 | | | |
| 14.0-14.4 | | | 2 | | | 2 |
| 14.5-14.9 | | | 5 | | | 1 |
| 15.0-15.4 | | | 6 | | | 3 |
| 15.5-15.9 | | | 4 | | | 3 |
| 16.0-16.4 | | | 5 | | | 4 |
| 16.5-16.9 | | | 4 | | | 1 |
| 17.0-17.4 | | | 5 | | | 1 |
| 17.5-17.9 | — | — | 1 | — | — | — |
| Total No. | 68 | 12 | 48 | 78 | 8 | 24 |
| Total Weight: | 16.0 lbs. | | 61.0 lbs. | 21.5 lbs. | | 31.0 lbs. |

1/ Predominantly flannelmouth, some bluehead.

Table 2. - Fisherman Distribution in Man-days

| Water | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Bench Canal | 3,700 | 1,275 | 685 | 1,516 | 954 | 1,113 | 1,340 | 1,318 | 1,300 |
| Big Springs | -- | 516 | 2,744 | 2,612 | 5,086 | 6,526 | 9,471 | 6,352 | 4,256 |
| Bottle Hollow Reservoir | -- | -- | -- | -- | -- | -- | -- | -- | 2,000 |
| Cedarview Reservoir | 5,800 | 6,505 | 3,223 | 4,194 | 4,199 | 3,972 | 4,126 | 4,197 | 3,120 |
| Clay Basin Reservoir | -- | -- | -- | -- | 500 | 500 | 882 | 2,686 | 1,480 |
| Hill Creek | 300 | 150 | -- | -- | 125 | 200 | 250 | 275 | 300 |
| Lake Fork Ponds | -- | -- | -- | -- | -- | -- | -- | 2,462 | 2,396 |
| Lake Fork River | 1,850 | 2,150 | 4,857 | 4,161 | 3,843 | 2,838 | 2,850 | 2,500 | 2,686 |
| Midview Reservoir | -- | -- | -- | -- | -- | 2,160 | 1,454 | 4,192 | 5,501 |
| Pole Creek | 900 | 310 | 170 | 327 | 1,280 | 567 | 880 | 978 | 500 |
| Powerhouse Canal | 1,450 | 2,789 | 915 | 1,306 | 1,778 | 3,688 | 3,600 | 2,635 | 1,938 |
| Rock Creek | -- | -- | 2,666 | 2,859 | 4,975 | 2,855 | 3,030 | 3,640 | 3,176 |
| Towave Reservoir | -- | -- | -- | -- | 3,900 | 6,690 | 4,750 | 4,860 | 2,834 |
| Twin Potts Reservoir | 3,400 | 5,995 | 5,120 | 6,969 | 4,296 | 1,986 | 4,677 | 4,785 | 5,639 |
| Uintah Canal | -- | 1,177 | 2,180 | 2,780 | 2,823 | 1,937 | 2,263 | 1,060 | 1,060 |
| Uintah River | 6,650 | 6,712 | 5,275 | 4,953 | 2,517 | 4,284 | 4,493 | 4,943 | 4,500 |
| Weaver Reservoir | 1,000 | 1,170 | 1,000 | 1,530 | 750 | 1,000 | 1,673 | 2,465 | 1,557 |
| Whiterocks River | 700 | 1,059 | 833 | 522 | 686 | 717 | 686 | 754 | 750 |
| Yellowstone River | 1,650 | 1,838 | 3,677 | 2,931 | 1,677 | 1,585 | 1,600 | 2,034 | 1,752 |
| Totals | 27,400 | 31,646 | 33,345 | 36,660 | 39,389 | 42,618 | 48,025 | 52,136 | 46,745 |

Recently there has been talk of transferring the warden force to the Branch of Law and Order and to divorce it from all fish and game responsibilities. Obviously this solution stems from the lack of administrative control mentioned. The duties of a warden or conservation officer, as they are more aptly referred to in reflecting everyday practical work, involves only a small percentage of law enforcement. This is even more true of Indian conservation officers because of jurisdictional peculiarities on reservations. Basically, these are the people who handle public relations, make deer surveys, collect creel census information, and perform all the varied field tasks involved in resource management. Turning conservation officers into so called "swamp cops" by administrative decree is not the solution to the problem. The writer had almost eleven years of experience in a state Fish and Game agency that took this route in solving an administrative problem and I can state that separation of the warden force resulted in extravagance, chaos, and no benefits to the fish and game resource or the wardens themselves.

Invariably the slower, more agonizing route of establishing administrative control within a fish and game department by delegation of authority, careful selection and recruitment of personnel, and training pays off. It is not the easy road for a governing body to take, but it is at least painless to consider. Particularly needed now are motivated young people who will respond to training. One such individual deserving of such consideration is Steven Ridley, who worked as a temporary employee on the fish distributional truck last summer.

1970 Annual Report

Midview Reservoir

Midview is a 400-acre irrigation reservoir acquired by the Tribe in 1967. It was drained and treated with rotenone for rough fish control in the spring of 1969. During 1970 there were an estimated 4,761 fishing trips in which about 21,937 trout weighing 9,848 pounds were harvested (Table 1).

Some aspects of the fishery were similar to other Uintah Basin fluctuating reservoirs managed by the state (Table 2). The average length of a fishing trip was only about three hours, and no doubt reflects the easy driving distance from the population centers of Roosevelt and Duchesne. The percent return to the creel of rainbow trout stocked as fingerlings or sub-adults is of about the same magnitude (20-28%), as is the harvest on a pounds (20-30) per acre basis. Such fish readily grow to 9-12 inch size within a year after stocking on a predominant plankton diet of cladocerans, allowing that competition with rough fish is minimal or non-existent. Growth beyond "pan" size is nowhere near as rapid due to the general lack of benthos (aquatic insects, etc.) typical of irrigation reservoirs, and the demonstrated inability of rainbow trout to shift from a diet of plankton to a diet of forage fish, if available. These factors combined with the short life expectancy of the rainbow trout results in very few larger-than-average size fish in the catch.

On the other hand, only fourteen angler trips per surface acre were estimated at Midview Reservoir (Table 2). This index of fishing pressure is considerably below that of most comparable state waters and other Indian reservoirs, as well. Interestingly, the more heavily fished state reservoirs are considered under-fished and under-harvested by state biologists, so it should be clear that the full fishery potential of Midview Reservoir is not being realized. Possibly related to this lack of pressure was the fact that Midview had an appreciably higher catch rate (1.54 trout per hour) than the comparable state reservoirs (0.5 to 0.9 trout per hour). However, the trout caught at Midview were smaller (0.45 pounds) compared to those caught at Big Sandwash and Steinaker Reservoirs (0.61 to 1.2 pounds). The latter is not an unexpected difference considering that the midview was reclaimed in 1969 and contained only fish less than one year of age. Normally, about 10-15 percent of the catch in waters that have been stocked for a number of years consist of larger size, two- and three-year old trout, and though they represent a minor segment of the harvest number-wise, size-wise they do influence the catch statistics.

Perhaps the most striking difference between Indian and non-Indian waters was the seasonal use pattern. Most Indian waters, including Midview, are open to year-round fishing whereas all state reservoirs in the Uintah Basin are open to fishing only from June through November. Almost one-fourth of the total trips and 35% of the harvest occurred at Midview during January and February when sufficient ice cover existed for this type of angling. Although the trout had only been in the reservoir seven to eight months up until this time and were still on the small side (8.0-11.9; 9.5 inch average), the catch rate was a fabulous $2\frac{1}{4}$ fish per hour. As pointed out in previous reports, Midview Reservoir best compliments the competitive advantage of the over-all Tribal fishery program in providing ice fishing opportunity. This is due to location, aesthetics, inherent biological capabilities and unsatisfied demand.

Historically Midview Reservoir was reported as mainly popular with anglers in spring and to a lesser degree in fall, with little or no fishing in summer. Lack of summer use posed the questions as to whether this resulted from lesser appeal of a valley compared to a mountain location during the warmer weather, deterioration in angling quality due to warm water temperatures, or both. Typically, considering comparable Utah reservoirs, fishing pressure, harvest and catch rate declined in the summer months of 1970 at Midview Reservoir, but the quality of fishing available remained at a highly acceptable norm judging from a catch rate of about one trout per hour (Table 1.). This was encouraging information as the new Bottle Hollow Reservoir is located in similar semi-desert terrain having about the same elevation.

Table 1. Midview Creel Census, 1970.

| Month | <u>Jan.-Feb.</u> | <u>Mar.</u> | <u>Apr.</u> | <u>May</u> | <u>June</u> | <u>July</u> | <u>Aug.</u> | <u>Sept.-Dec.15</u> | <u>Total Average</u> |
|-----------------------|------------------|-------------|-------------|------------|-------------|-------------|-------------|---------------------|----------------------|
| Sample: | | | | | | | | | |
| No. anglers | 218 | 69 | 75 | 102 | 101 | 83 | 42 | 70 | 760 |
| No. hours* | 449 | 126 | 187 | 199 | 253 | 217 | 140 | 163 | 1,734 |
| No. fish | 1,013 | 279 | 244 | 338 | 274 | 244 | 133 | 155 | 2,680 |
| Catch/hour | 2.06 | 2.21 | 1.30 | 1.70 | 1.08 | 1.12 | 0.95 | 0.95 | 1.54 |
| Total estimates: | | | | | | | | | |
| No. anglers | 1,147 | 383 | 500 | 680 | 561 | 395 | 263 | 832 | 4,761 |
| No. trout | 7,742 | 2,539 | 1,950 | 3,315 | 1,817 | 1,327 | 825 | | 21,937 |
| Rainbows | 7,730 | 2,539 | 1,917 | 3,258 | 1,494 | 1,006 | 843 | 2,199 | 20,886 |
| Av. size | 9.5 | 10.0 | 9.5 | 10.0 | 11.2 | 11.3 | 11.5 | 12-13 | |
| Cutthroat** | 12 | | 33 | 57 | 223 | 321 | 82 | 223 | 1,051 |
| Av. size | 10.0 | | 12.0 | 12.0 | 12.0 | 12.5 | 13.0 | 12-14 | |
| Total weight of trout | 2,624 | 1,003 | 661 | 1,310 | 1,038 | 758 | 500 | 1,955 | 9,849 |

* Mostly incomplete fishing trips.

** Apparently many of the smaller size cutthroats were mistaken for rainbows.

Table 2. Comparison of Midview Reservoir creel census findings with those of two other irrigation reservoirs located in Uintah Basin.

| | <u>Reservoir Name</u> | | | |
|-------------------------------|-----------------------|--------------|-------------|-------------|
| | Midview | Big Sandwash | Steinaker | |
| <u>Year</u> | <u>1970</u> | <u>1969</u> | <u>1968</u> | <u>1969</u> |
| Capacity surface acres (S.A.) | 400 | 393 | 823 | 826 |
| Average surface acres | 350 | 243 | 630 | 630 |
| Total angler days | 4,761 | 8,625 | 12,574 | 9,307 |
| Angler days/S.A. | 14 | 35 | 20 | 15 |
| Total harvest (number) | 21,937 | 24,729 | 19,169 | 11,895 |
| (pounds) | 9,849 | 15,085 | 18,900 | 14,238 |
| Average catch/hour | 1.54 | 0.91 | 0.69 | 0.49 |
| Yield in pounds/average S.A. | 28.1 | 62 | 30.0 | 22.6 |
| Average weight | 0.45 | 0.61 | 1.0 | 1.2 |
| Average length/angler day | 3.0 | 3.2 | 3.02 | 3.0 |
| Total number trout stocked | 91,993 | 86,396 | 100,000 | 100,000 |
| Total pounds trout stocked | 3,304 | 715 | 827 | 827 |
| Percent return (numbers) | 24% | 28% | 20% | 12% |

Second year attempts at introduction of smallmouth bass into the Uintah River were a failure. A newly built upstream irrigation reservoir broke the day before the scheduled stocking and caused flooding for several days. Then the Cedar Bluff distribution truck hit a cold snap crossing high mountain passes in Colorado and about one-half of the 5,000 small bass died. Survivors were stocked in a small pond on the Ouray National Wildlife Refuge but were subsequently decimated by a flock of 20 blue heron. Attempts to capture any of the few remaining fish for transplanting proved unsuccessful.

Creel Census

1971 Annual Report

In 1971, data from thirteen traffic counters placed on major access roads, ten weeks of road block checks, fishermen interviews by Tribal Conservation Officers, and voluntary creel census stations, all combined to furnish the basis for a fishing use estimate of 47,000 angler trips. Fishing success (0.94 trout per hour) was near the last ten-year average of 1.0 trout per hour, with the average creel and trip length being 3.5 fish and 3.7 hours, respectively. Because of the added information obtained from the road blocks, this is probably the most accurate use estimate since the extensive creel census work done in the years 1964 through 1967.

Although the 1971 use estimate is nearly 5,000 trips lower than 1970 (Table 2), it is more a function of better creel census than any actual drop in fishing pressure. A good creel census is expensive, especially when the fishing waters are as widely dispersed as on the Uintah and Ouray Reservation. Funds for this purpose have not been available in recent years. Ten weeks of road block data obtained by Tribal employees, Steve Ridley and John Arrowchis in 1971, provided a basis for more refined estimates on important fishing waters such as Big Springs, Cedarview Reservoir, and the Uintah River (Tables 3 and 4). In most cases use estimates were revised slightly downward from recent years when good creel census information was usually skimpy or lacking.

Permit sale records returned to their Fish and Game office by vendors through the first nine months of the permit year (starts April 15) show 500 more day permits but 700 fewer season permits than were sold in 1970. With 3½ months of the season remaining it would appear the fishing trips represented by permit holders will be up slightly. The revenue is already equal to last year (\$14,000). This is primarily due to an increase in this years fishing permit fees!

If each season permit sold represents 9.4 angler trips during the season (a Utah state average for all fishermen) and each day permit holder actually fished when he bought a permit, the total potential angler trips from all permit holders would be 31,158 for the year. Road blocks have shown that 73% of reservation fishermen are permit holders (Table 4); the rest are children and Tribal members. Applying this proportion to the potential trips from permit holders results in a total estimate of 42,682 angler trips. Adding the estimated 2,000 angler trips which occurred on Bottle Hollow Reservoir during the season and the trips which occurred on other reservation waters from January 1 through April 15, 1971, would bring the total close to the estimated 47,000 angler trips for 1971.

The Uintah road block was located 10 miles north of Neola at the junction of the Whiterocks and Neola roads. This allowed coverage of several major waters located above that area (Cedarview Reservoir, Big Springs, Powerhouse Canal, and Uintah River). Much useful information was gathered from the 2,000 fishermen checked:

1. 33% of all cars through the road block were fishermen
2. 2% of fishermen cars were pulling trailers
3. 3.64 people per fishermen car
4. 2.51 fishermen per car
5. 73% were fishermen with permits
6. 21% were children (under 12) with no permit
7. 6% were Tribal fishermen
8. 4.94 hours per angler trip
9. 0.86 fish caught per hour
10. 18% of fishermen were non-basin Utahans
11. 4% of fishermen were from out-of-state
12. 96% of the fish caught were rainbows

Voluntary creel census stations were set up on seven reservoirs. Each station contained a supply of creel census forms and a sign explaining the purpose and need for each fisherman to register his use and harvest information. These returns were then correlated with other data obtained from warden interviews, car counters, and population studies to guide management in providing the best fishing possible. Unfortunately, response varied from only fair to poor. Five of the stations had a minimal return (Cedarview, Twin Potts, Clay Basin, Towave, and Weaver) and two (Pole Creek and Big Springs) were a waste of time. Conservation Officers will be instructed to place their emphasis on encouraging fishermen to use these five stations next year. The two remaining poor stations will be discontinued.

*Midview Reservoir
1971 Annual Report*

An intensive creel census of the Midview Reservoir ice fishing was conducted by Conservation Officers, Curtis Cuch and Leroy Topanotes (December 23, 1970 - February 21, 1971). Results showed nearly 1,100 angler trips averaging 2.8 hours each, a catch rate of 1.4 trout per hour, an average creel of 4.0 trout and a total harvest of 4,300 trout. Better than 95% of these fish were rainbow trout, which averaged 10.6 inches in length and weighed 0.5 pounds each.

Much of the creel census information is collected by the Conservation Officers through fishermen interviews. This year three of them did an excellent job and should be commended. They are Allen Tahguv, Curtis Cuch, and Leroy Topanotes. In addition, Steve Ridley, Conservation Aid, collected much reliable information from the Uintah road block and also assisted in several population investigations. As always, cooperation from Tom Chappoose, Fish and Game Director, was excellent in all matters.



Fish taken during fish population investigations are carefully weighed and measured.

Madroiw Res.

- ① no evidence of cuts in Madroiw after 5 Oct 1972
- ② about 4700' elevation
- ③ Summer temperatures perhaps quite warm at times of extreme draw down. Lots of seepage bottom areas of return migration flows. Have always expected a trout die off at such times, but it hasn't occurred and fishermen (the few that fished during such periods) report good fishing.
- ④ Total stocking 1972 95,762 rainbows weighing 9,773. Used it as a catch all for all of the junk from the hatcheries. Rough fish problem acute and fishing apparently was poor on average.
- ⑤ No spawning possibilities

see page 4

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Division of Fishery Services
Vernal, Utah

Midwestern
- Cladocera, major
food - rapid growth
- 12 in.
- lack of benthos
- crayfish introduced
- proposed brown trout introduction

Annual Report

F I S H E R Y M A N A G E M E N T P R O G R A M

Uintah and Ouray Indian Reservation

Uintah and Duchesne Counties
Utah

1970

Annual Report

Fishery Management Program Uintah and Ouray Indian Reservation

by
James W. Mullan
Fishery Management Biologist

Introduction

The new chairman of the Navajo Tribal Council, Peter Macdonald, has described the Tribe's efforts for the better life, "to sail across an ocean in a ship we're still building," which is equally appropriate in describing events on the Uintah and Ouray Reservation in 1970. Construction of the Bottle Hollow Reservoir was completed. Much of the adjacent, multi-million dollar Bottle Hollow motel, restaurant, and service station complex was finished, with operation scheduled for early 1971. Various training programs were underway, including one comprehensive program for forty-five Tribal members to staff the foregoing recreational complex. A \$50,000 federal grant for restoration of the Florence Creek Ranch was received in respect to development of float trips on the Green River. The Ute Fabricating Business showed a profit (Tribe share, about \$24,000) in its first year of operation, with substantial prospect for future expansion. The cattle enterprise experienced a second profitable year. Oil and gas leases jumped to around two million dollars. A fund was established to assist Indians in starting businesses of their own, i.e., the Ouray Trading Post will be Indian owned and operated in 1971. Much new Indian housing sprang up. Revenue from sale of fishing permits about doubled (\$8,000 to about \$14,000). Thus, substantial progress towards the better life was achieved along a broad front.

Fish Stocking

During 1970, 155,948 fish weighing 31,385 pounds were distributed to reservation waters. Most of these fish (132,414) were of catchable size. However, these figures do not include any of the direct plants for Bottle Hollow Reservoir, including those programmed for calendar year 1970 but actually stocked in early winter of 1971.

Incremental stocking of waters, especially streams, is made possible by a fish holding raceway located in Uintah Canyon. Two temporary Tribal employees completed most of the stocking in 8,000 miles of travel with the Tribal fish truck.

Over the last two years there have been many changes in programmed stocking schedules in response to varying circumstances. In the fall of 1969 we had an excess of sub-adult rainbow trout (100,000) due to disinfection of the Springville National Fish Hatchery. Initially the stocking of these smaller size fish created some complaints from fishermen (i.e., Twin Potts Reservoir during the winter ice season), but all subsequent evidence suggests that the use of these fish proved a definite asset over the long run, especially considering the shortage of fish that developed in Bureau hatcheries during 1970. Although the Uintah and Ouray allocations were only minorly affected by this shortage, harvest of the fall planted rainbow trout in the summer of 1970 as catchable size fish did help in taking up what slack did develop.

The only reason for mentioning such changes is to call attention to the problem of scheduling fish needs two years ahead of time in meeting the needs of a changing fishery program. Further, it is meant to caution that there will be more such changes in the future, the reasons for which will not always be immediately obvious.

Creel Census

An organized creel census is one of the most valuable tools of the fishery manager. It enables him to gain precise information concerning the results of his stocking operations. Only in this way can it be determined what constitutes adequate stocking so as to insure good fishing. Creel census information also has other uses. The now filling Bottle Hollow Reservoir is an excellent example of the value of such information used in obtaining mitigation for fishery losses on Rock Creek under the Central Utah Project.

Unorganized, conflicting individual opinions and reports based on a limited experience within a given fishery are usually of no value what-so-ever, particularly in developing claims for mitigation. Unfortunately, a well designed and executed creel census is an expensive undertaking, particularly on a large land mass with dispersed water areas, such as the Uintah and Ouray Reservation. Over the years the most accurate creel censuses have been in years when funds were most nearly appropriate to the task. These were the years 1964 through 1967; before and after this period reliance was placed on a variety of approaches, yielding information adequate for some purposes but not for others.

In 1970, data from fifteen traffic counters placed on major access roads, fisherman interviews by Tribal wardens, combined with various assumptions concerning important statistics (i.e., number of fishermen per car) gathered from intensive roadblock interviews of past years, formed the basis of the use estimates. These data suggest that somewhere between 50,000 to 52,000 days of excellent (better than 1.0 trout per hour) fishing occurred on reservation waters. These estimates are correlated to some extent by incomplete fishing permit sales as of November 17 (sales run from April 15 through April 14, so while virtually complete concerning fishing activities during calendar 1970, not all receipts were in, i.e., permits

sold in July, etc.). Thus, 3,136 season permits were on record as sold through November, possibly representing 31,360 fishermen-days (3,136 times 10 trips/season/permittee) and 1,660 day permits representing 2,943 fishermen-days. These figures plus a 27% allowance for non-permit fishermen (children under twelve years of age and Tribal members) results in an estimate of 46,990 fishermen-days, a figure that will increase possibly to the 50-52,000 range with tabulation of all permits sold.

However, total fishing permit sales rose about 18% between the years 1968 and 1969 and a similar percentage increase appears in the offerings for the years 1969 to 1970. Such an increase is roughly two to four-fold greater than the estimated increase in fishermen days for these same years. Purpose of this discussion is not to justify how right or how wrong these figures are; hopefully a review analysis will be forthcoming in the next year. Instead, the purpose here is to call attention to the importance of such data, the complexities and expense in gathering it, that the appropriate uses that can be made with it vary with circumstances and objective, and that the Tribe has the means of upgrading the collection of such information at no added expense merely through allowing for better control of the Tribal wardens.

The five-man Tribal warden force has and continues to render invaluable assistance in the collection of creel census information. For example, during 1969 the wardens interviewed 9,475 fishermen. The bulk of these fishermen interview records represented valid data upon which management decisions could be made. Unfortunately, far too many were worthless due to incomplete recording and errors and, in some cases, outright fabrication. To overcome these problems, about four weeks of Vernal Field Station time was devoted to on the job training in creel census techniques and methods for the wardens during 1970. Results of this training were both disappointing and encouraging. Curtis Cuch and LeRoy Topanotes generally did an excellent job and are to be commended.

Organization and Training

Over time it should be possible for the Tribe to develop trained fishery resource managers from among its own members. This is a specific objective of the Bureau's technical assistance program and calls for a meaningful training-work program.

One conclusion was inescapable from the creel census training of the wardens in 1970. Without an organizational structure embodying authority to define and regulate their duties, any training is wasteful and inefficient. In other words, if the wardens are to be allowed to pick and choose what they do and do not do, then the Tribe never will develop professional resource managers of their own.

Recently there has been talk of transferring the warden force to the Branch of Law and Order and to divorce it from all fish and game responsibilities. Obviously this solution stems from the lack of administrative control mentioned. The duties of a warden or conservation officer, as they are more aptly referred to in reflecting everyday practical work, involves only a small percentage of law enforcement. This is even more true of Indian conservation officers because of jurisdictional peculiarities on reservations. Basically, these are the people who handle public relations, make deer surveys, collect creel census information, and perform all the varied field tasks involved in resource management. Turning conservation officers into so called "swamp cops" by administrative decree is not the solution to the problem. The writer had almost eleven years of experience in a state Fish and Game agency that took this route in solving an administrative problem and I can state that separation of the warden force resulted in extravagance, chaos, and no benefits to the fish and game resource or the wardens themselves.

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Perhaps the most striking difference between Indian and non-Indian waters was the seasonal use pattern. Most Indian waters, including Midview, are open to year-round fishing whereas all state reservoirs in the Uintah Basin are open to fishing only from June through November. Almost one-fourth of the total trips and 35% of the harvest occurred at Midview during January and February when sufficient ice cover existed for this type of angling. Although the trout had only been in the reservoir seven to eight months up until this time and were still on the small side (8.0-11.9; 9.5 inch average), the catch rate was a fabulous $2\frac{1}{4}$ fish per hour. As pointed out in previous reports, Midview Reservoir best compliments the competitive advantage of the over-all Tribal fishery program in providing ice fishing opportunity. This is due to location, aesthetics, inherent biological capabilities and unsatisfied demand.

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About 4700'

*crayfish
for introduction
larger food
item.*

On May 8, 1970, 119 crayfish obtained from a lake on the Southern Ute Indian Reservation in Colorado, were stocked into Midview Reservoir. Purpose of this introduction was to establish crayfish as a possible food item for large trout. Larger-than-average size trout are badly needed in this reservoir in developing its full fishery potential, and this means attracting large numbers of fishermen from the Salt Lake Valley for fishing in the winter months. The 1970 season was moderately successful on this score, judging from the substantial increase in day permits sold, with the attraction centering on a fast catch rate of plump, beautifully colored pan size trout. However, with the buildup in rough fish which cannot be permanently eliminated, the success of stocking large numbers of small trout with subsequent growth to acceptable size can be expected to diminish. Thus, some brown trout, which are longer lived and more prone to utilizing rough fish as food than rainbow trout, are needed here. Generally brown trout have not been available through Bureau hatcheries, but this is changing and the species should be available in meeting management needs beginning in 1971.

Smallmouth Bass Introduction, Uintah River

On June 23 the lower reaches of the Uintah River from the Route 40 bridge to the confluence with the Duchesne River was treated with fifteen gallons of emulsifiable rotenone to reduce the abundant rough fish prior to introducing smallmouth bass. On June 25, 5,400 (12 pounds) fingerling ($1\frac{1}{2}$ - 2 inches) smallmouth bass from the Cedar Bluff National Fish Hatcher, Kansas, were restocked at: Route 40 bridge (2,700) in back of Fort Duchesne (1,350); and about two miles below the latter point (1,350). Two to three inch smallmouth bass were readily observed at the last stocking site on one occasion in August by the Director of the Ute Fish and Game, Tom Chapoose. Electro-sampling of the Uintah River in the vicinity of the Route 40 bridge on October 12 resulted in the capture of three smallmouth bass 3.5 to 4.4 inches in length. Although results were inconclusive, they were mildly encouraging from the standpoint that at least a few of the smallmouth bass had survived and grown over the summer; an occurrence, insofar as known, not previously recorded for the state of Utah.

As previously explained, this attempt at introducing a new sport fish species into waters of the reservation lacking in habitat suitable for trout, and lacking in fishes capable of generating angler interest, represents somewhat of a long shot. If successful, it could mean a great deal to the sport fisheries and, if not, the expense involved will have been small.

Bottle Hollow Reservoir

Construction of the Bottle Hollow Reservoir dams and dike was begun in the spring of 1969 at a cost of \$674,800 and the work was completed in October, 1970. This 420 surface acre reservoir was built under contract by the Bureau of Reclamation as partial mitigation for fishery losses on Rock Creek under the Central Utah Project. The north and south dams are 57 and 69 feet high and 476 and 590 feet long, respectively. The dike is 11 feet high and 785 feet long. Total capacity is 11,100 acre feet (26.4 feet average depth), and the outlet works and spillway with capacities of 210 and 30 second-feet, respectively, are located in the south dam and have a combined outlet. The reservoir will be maintained at nearly a constant water level.

Filling began October 23 with water diverted from the Uintah River and carried to the reservoir via the Indian Bench Canal. Just prior to beginning filling about ten miles of the Bench Canal was treated with rotenone so as to retard development of rough fish in the reservoir; namely, the mountain sucker, which is relatively abundant in the drainage upstream. Fortunately, due to small size (5 to 8-½ inches) and dietary habit (largely a plant eater), this species is not the threat to trout such as posed by the sucker species and carp found in Midview Reservoir. Nevertheless, the mountain suckers in the Bench Canal were killed off, along with dace sculpins and a few trout, so as to assure optimum conditions for survival and growth of stocked trout at least in the initial years of the reservoir.

Stocking began on November 4 when 20,000 (725 lbs.) four-inch cutthroat trout (Snake River strain) were planted. We had originally programmed approximately 100,000 fingerling and catchable-size rainbow trout for stocking, figuring a target date for completion of the reservoir in early summer. Many of these fish had to be diverted to other reservation waters due to delays in construction and filling. However, some 56,000 rainbow trout fingerlings were carried over at the Springville National Fish Hatchery and 26,000 (9,000 lbs.) were planted as 9½ inch size fish in January 1971. Filling and initial stocking will no doubt not be completed until the spring of 1971.

Much of the construction of the adjacent two million dollar, 42-unit Bottle Hollow Motel Complex was completed. This recreational complex should be operational in the spring. About 45 Tribal members currently are in training, under the Manpower Development Training Act, to operate the facility. The services of a professional manager have been engaged. Thus, all signs are going on one of the most remarkable Indian ventures into the recreational business in the country.

Cedarview Reservoir

No tangible progress was made in 1970 in correcting the limiting deficiencies of an inadequate water supply for the reservoir. In 1965 the dam was raised increasing the potential area of this mountain reservoir to 200 surface acres, but it has remained shallow, subject to winter kill and has never exceeded 80 surface acres since. The water level dropped extremely low in the late summer and fall of 1970, and was virtually unacceptable for fish management purposes. The Tribe requested an extension on a Land and Water Conservation Fund grant of \$30,000 for an excess loop road, parking spaces, picnic tables, and culinary water and restroom facilities originally scheduled for completion in 1970.

A limited portion of this money was to have been spent in determining the best approach in assuring an adequate water supply for the reservoir. With the extension granted, undoubtedly this will be done in early 1971 now. A meeting with Tribal and B.I.A. officials late in the season brought out the complexities of the problem -- fiscal, legal and engineering, and all in attendance were unanimous that a maximum effort should be made in obtaining adequate water for this reservoir. Mr. Rex Curry, Director of Resources for the Tribe, thought that the Tribe would be able and willing to contribute funds to the project.

This reservoir-recreational complex could be a key element in the over-all reservation recreation resource. Potentially the reservoir is the only high mountain, non-fluctuating reservoir of sufficient size capable of growing appreciable numbers of larger than average size trout. Flat land tourists stopping at the Bottle Hollow Complex, but seeking a quality high mountain country camping vacation, could be directed here without qualm.

On May 8, ninety-nine crayfish obtained from a lake on the Southern Ute Indian Reservation in Colorado were introduced here as a possible future food item for large trout. Unfortunately, these will undoubtedly winterkill due to the low and shallow water conditions prevailing.

Clay Basin Reservoir

This is a 6.5 surface acre desert impoundment built by the Bureau of Indian Affairs at a very nominal cost (\$3,000) in 1966. It has become very popular with fishermen, both winter and summer, with use about doubling annually. In 1970, 1,525 angler days were estimated, with a harvest of 6,097 rainbow trout and a catch rate of 1.2 trout per hour. The dam was originally constructed so that it could be relatively easily raised, possibly doubling the surface area and average depth. In 1970 the B.I.A. programed funds for this added construction and requested a letter from the Tribal Council authorizing the proposed construction. Inasmuch as such a letter was not forthcoming under the new Indian policy of self determination, the work was not done.

It is recommended that the Tribal Council request by letter that the B.I.A. do this work in 1971. Besides adding to the reservation water resource at no cost to the Tribe, increased water depth of this reservoir is urgently needed to control the luxuriant aquatic weed growths that have increased annually since initial construction.

Miscellaneous

The fish populations of several beaver ponds were killed with fish toxicant and recovered to assess stocking practices. These waters have been stocking catchables to a degree in recent years, partly because of an unreliable source for brook trout. Several tentative conclusions are possible from this work. Natural reproduction of trout is non-existent, or virtually so, and these waters need to be stocked at regular intervals to maintain the fisheries. The Snake River strain of cutthroat offers no management advantage over either brook or rainbow trout in such habitat. Rainbow trout appear to do reasonably well in beaver ponds, but not quite as well as brook trout based on a comparison of condition; rainbows tend to be thin. The major error to avoid in managing these waters is overstocking. Beaver ponds should be managed with annual plants of fingerling or sub-adult size brook trout at a rate of no more than 300 per surface acre. The larger the fish desired in the creel, the fewer the trout that should be stocked. Underlying such management procedures are: demonstrated effectiveness, dating back to the initial years of the fish program; diversification of fishing opportunity, essentially wild trout of a different species than found in the predominant put-and-take rainbow fishery of the reservation; and economy.

In the spring the Tribe requested technical assistance on the feasibility of supplying home grown trout for the Bottle Hollow restaurant. Various possibilities were discussed with emphasis placed on pond culture. One new farm pond was stocked and followed to obtain answers to problems raised by such a venture. Six hundred 6.7 inch rainbow trout stocked in June were grown to 8.0 to 12.0 inch size (9.7 inch average) by October with virtually no mortality. This resulted in a standing crop estimate of 150 pounds per acre, which is pretty good without supplemental feeding. It would appear that such a proposal has considerable merit in the light of retaining tourist's dollars on the reservation and providing a specialty food for the restaurant.

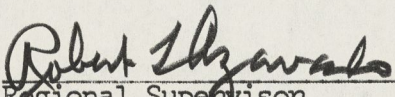
Recommendations

1. Provide an adequate water supply for Cedarview Reservoir so that its full recreational potential can be realized.
2. Request the Bureau of Indian Affairs by letter to raise the dam on Clay Basin Reservoir.
3. Consider some of the points raised in the section on "Organization and Training" relative to upgrading the Tribal game and fish wardens, so

they may better serve the needs of the Tribe and the fish and game resource.

James W. Mullan
Fishery Management Biologist

Reviewed by:


Regional Supervisor
Division of Fishery Services
Date 4/12/71

Distribution:

Washington - 3
Division of Fish Hatcheries - R.O. - 3
Bureau of Indian Affairs, Phoenix - 2
Bureau of Indian Affairs, Fort Duchesne - 2
Division Field Offices - 8
Ute Indian Tribe, Fort Duchesne - 4
Division of Fishery Services - R.O. - 5
Vernal Field Office - 10
Division of Wildlife Services - 1

Table 1. Midview Creel Census, 1970.

| Month | Jan.-Feb. | Mar. | Apr. | May | June | July | Aug. | Sept.-Dec.15 | Total Average |
|-----------------------|-----------|-------|-------|-------|-------|-------|------|--------------|---------------|
| Sample: | | | | | | | | | |
| No. anglers | 218 | 69 | 75 | 102 | 101 | 83 | 42 | 70 | 760 |
| No. hours* | 449 | 126 | 187 | 199 | 253 | 217 | 140 | 163 | 1,734 |
| No. fish | 1,013 | 279 | 244 | 338 | 274 | 244 | 133 | 155 | 2,680 |
| Catch/hour | 2.06 | 2.21 | 1.30 | 1.70 | 1.08 | 1.12 | 0.95 | 0.95 | 1.54 |
| Total estimates: | | | | | | | | | |
| No. anglers | 1,147 | 383 | 500 | 680 | 561 | 395 | 263 | 832 | 4,761 |
| No. trout | 7,742 | 2,539 | 1,950 | 3,315 | 1,817 | 1,327 | 825 | | 21,937 |
| Rainbows | 7,730 | 2,539 | 1,917 | 3,258 | 1,494 | 1,006 | 843 | 2,199 | 20,886 |
| Av. size | 9.5 | 10.0 | 9.5 | 10.0 | 11.2 | 11.3 | 11.5 | 12-13 | |
| Cutthroat** | 12 | | 33 | 57 | 223 | 321 | 82 | 223 | 1,051 |
| Av. size | 10.0 | | 12.0 | 12.0 | 12.0 | 12.5 | 13.0 | 12-14 | |
| Total weight of trout | 2,624 | 1,003 | 661 | 1,310 | 1,038 | 758 | 500 | 1,955 | 9,849 |

* Mostly incomplete fishing trips.

** Apparently many of the smaller size cutthroats were mistaken for rainbows.

Table 2. Comparison of Midview Reservoir creel census findings with those of two other irrigation reservoirs located in Uintah Basin.

| | <u>Reservoir Name</u> | | | |
|-------------------------------|-----------------------|--------------|-------------|-------------|
| | Midview | Big Sandwash | Steinaker | |
| <u>Year</u> | <u>1970</u> | <u>1969</u> | <u>1968</u> | <u>1969</u> |
| Capacity surface acres (S.A.) | 400 | 393 | 823 | 826 |
| Average surface acres | 350 | 243 | 630 | 630 |
| Total angler days | 4,761 | 8,625 | 12,574 | 9,307 |
| Angler days/S.A. | 14 | 35 | 20 | 15 |
| Total harvest (number) | 21,937 | 24,729 | 19,169 | 11,895 |
| (pounds) | 9,849 | 15,085 | 18,900 | 14,238 |
| Average catch/hour | 1.54 | 0.91 | 0.69 | 0.49 |
| Yield in pounds/average S.A. | 28.1 | 62 | 30.0 | 22.6 |
| Average weight | 0.45 | 0.61 | 1.0 | 1.2 |
| Average length/angler day | 3.0 | 3.2 | 3.02 | 3.0 |
| Total number trout stocked | 91,993 | 86,396 | 100,000 | 100,000 |
| Total pounds trout stocked | 3,304 | 715 | 827 | 827 |
| Percent return (numbers) | 24% | 28% | 20% | 12% |

Bottle Hollow Reservoir

① 1972 stocking
Jackson ? → 10/26/72 15,128 cutthroat (5") 3,374 lbs
9/15/72 23,700 brook (5") 2,690 lbs
9/13/72 82,463 rainbow (7") 12,051 lbs

these were from Jones Hole hatchery
we requested 5" fish and only 15,000 EBT
but you take what you get, and typical
of this hatchery they were exceptional fish.

② I doubt if spawning is possible in inlet
of Bottle Hollow. Water turned on for a short
period in spring to bring reservoir level
up to maximum and then turned off. Creation
of rainbows has been observed here during filling
period however.

Nov. 50 checks
in Hill Creek
- in 1964?

Towave Reservoir

- ① Yes, there is evidence of resident rainbow trout population in Hill Creek above Towave. Some population data attached. Also rainbows, up to 56", have been checked in ovel samplings by Indian woodens. However, the stream is not accessible for many miles in some or most areas, and it is really blocked or choked with beaver dams in other areas. Naturally I do not consider the dams barriers to downstream movement, but they must be to upstream movement. Due to extreme drought in 1972, Hill Creek above Towave essentially dried up. A few select anglers who were catching the big rainbows in the beaver ponds expressed the conviction that the resident populations were wiped out early in the summer.
- ② As far as known, only Snake River Cutthroats have been stocked in Towave, starting in 1964.

Abn. Town

FISH SAMPLE, TOTAL LENGTH FREQUENCY (INCHES)

WATER: *Hill Creek - across from mouth of Little Dike*

TOWN: _____

SPECIES: _____

DATE *11/5/70*
Mo. D. Yr.

METHOD OF COLLECTION: *Shoekes - 150 yd. section*

TOTAL

| | | | | |
|-----------|----------------|------------------|-------------------|---|
| 1.0-1.4 | | | | |
| 1.5-1.9 | | | | water temp. 34° |
| 2.0-2.4 | | | | |
| 2.5-2.9 | <i>Rainbow</i> | | <i>MT. sucker</i> | |
| 3.0-3.4 | | | | |
| 3.5-3.9 | | <i>RBT x cut</i> | <i> </i> | |
| 4.0-4.4 | <i> </i> | | <i> </i> | |
| 4.5-4.9 | | | | |
| 5.0-5.4 | <i> </i> | | | |
| 5.5-5.9 | | | <i> </i> | |
| 6.0-6.4 | | | <i> </i> | |
| 6.5-6.9 | | | <i> </i> | |
| 7.0-7.4 | | | | |
| 7.5-7.9 | | | | |
| 8.0-8.4 | | | | |
| 8.5-8.9 | | | | |
| 9.0-9.4 | | | | |
| 9.5-9.9 | | | <i> </i> | |
| 10.0-10.4 | <i> </i> | | | |
| 10.5-10.9 | <i> </i> | | | |
| 11.0-11.4 | <i> </i> | | | |
| 11.5-11.9 | <i> </i> | | | <i>all these fish were in excellent shape</i> |
| 12.0-12.4 | | | | |
| 12.5-12.9 | | | | |
| 13.0-13.4 | | | | |
| 13.5-13.9 | | | | |
| 14.0-14.4 | <i> </i> | | | |
| 14.5-14.9 | <i> </i> | | | |
| 15.0-15.4 | | | | |
| 15.5-15.9 | | | | |
| 16.0-16.4 | | | | |
| 16.5-16.9 | | | | |
| 17.0-17.4 | | | | |
| 17.5-17.9 | | | | |
| 18.0-18.4 | | | | |
| 18.5-18.9 | | | | |

also shocked a 150 yd. stretch at CCC Abn. but only took 1-10" Rainbow x but cold, water was very turbid from cattle. Holes lost here as much cover.

Sub Totals (Each method): Wgt. (lbs.): _____ No: _____ Wgt. (lbs.): _____ No: _____
Grand Total (all fish combined): Weight (lbs.): _____ Number: _____

FISH SAMPLE, TOTAL LENGTH FREQUENCY (INCHES)

WATER: Hill G. - 1/2 mi. above Towne Res. TOWN: _____ SPECIES: Cut DATE: 1/3/70
 METHOD OF COLLECTION: Shoekes - 150 yd. section No. / D. / Yr. / TOTAL

| Length Range (inches) | Observations | Water Temp. | Towne Surface Temp. |
|-----------------------|-------------------------------------|------------------------|--------------------------------|
| 1.0-1.4 | | | |
| 1.5-1.9 | | | |
| 2.0-2.4 | <i>no evidence of reproduction</i> | <u>Water Temp. 36°</u> | |
| 2.5-2.9 | <i>very little gravel available</i> | | <u>Towne Surface Temp. 38°</u> |
| 3.0-3.4 | | | |
| 3.5-3.9 | | | |
| 4.0-4.4 | <u>Cuts</u> | | |
| 4.5-4.9 | | | |
| 5.0-5.4 | | | |
| 5.5-5.9 | | | |
| 6.0-6.4 | | | |
| 6.5-6.9 | | | |
| 7.0-7.4 | | | |
| 7.5-7.9 | | | |
| 8.0-8.4 | | | |
| 8.5-8.9 | | | |
| 9.0-9.4 | <u> </u> | | |
| 9.5-9.9 | | | |
| 10.0-10.4 | | | |
| 10.5-10.9 | | | |
| 11.0-11.4 | | | |
| 11.5-11.9 | | | |
| 12.0-12.4 | | | |
| 12.5-12.9 | <u> </u> | | |
| 13.0-13.4 | | | |
| 13.5-13.9 | | | |
| 14.0-14.4 | | | |
| 14.5-14.9 | | | |
| 15.0-15.4 | <u> </u> | | |
| 15.5-15.9 | | | |
| 16.0-16.4 | | | |
| 16.5-16.9 | | | |
| 17.0-17.4 | | | |
| 17.5-17.9 | | | |
| 18.0-18.4 | | | |
| 18.5-18.9 | | | |

Sub Totals (Each method):

Wgt. (lbs.): _____ No: _____ Wgt. (lbs.): _____ No: _____

Grand Total (all fish combined):

Weight (lbs.): _____ Number: _____



BUREAU OF SPORT FISHERIES AND WILDLIFE
INTER-OFFICE TRANSMITTAL

30930

| | |
|---|---|
| <input type="checkbox"/> Director, _____ | <input type="checkbox"/> Regular Mail |
| <input type="checkbox"/> Regional Director, _____ | <input type="checkbox"/> Air Mail |
| <input type="checkbox"/> Project Leader, _____ | <input type="checkbox"/> Action |
| <input checked="" type="checkbox"/> <i>Bob Behrke</i> | <input checked="" type="checkbox"/> Information |
| From <i>J. W. Muller</i> | Office _____ |
| | Date <i>2/12</i> |

Subject

*data on Snake River Cutts
Bottle Hollow Reservoir data - if you
need or wish more info - explanation etc. - give a ring.
Fall gill netting at Midview Res. failed to
sample any cutthroats, so I guess that stocking (1969)
has run its course.*

3-1908
(Rev. 6/63)

(Attach securely to material to be transmitted & mail through regular channels)

Bottle Hollow Reservoir

Bottle Hollow Reservoir was first opened to fishing when about one-half filled July 5, 1971, in conjunction with the dedication of the adjoining motel complex. There were 1,432 fishing permits sold for the 1971 season, but no catch statistics were collected to allow for a description of the fisheries that developed. This was corrected in 1972, with motel employees Michael Arrowchis and Everett Burson interviewing completed anglers and checking catches almost daily throughout the season.

Table 3 depicts the results of the data collected, which has been expanded to provide a conservative estimate of total use and harvest. This was done using 2,764 adult angler, 291 child angler and 115 Tribal angler interviews, sales of 653 season and 1,197 day permits (through November 24), and assuming that each season permit holder fished an average of six times.

By all standards, fishing was excellent during this first year of maximum water levels (422 surface acres). The catch rate averaged 1.24 trout per hour and only dropped below 1.0 to 0.8 trout per hour in February (Table 3). An average catch rate of one (1.0) trout per hour of fishing is considered excellent; one trout per two hours of fishing (0.5) is much more common, and is generally

$$K = \frac{W^{1.05}}{L^3} \text{ (Tot length) gill net sample 10/4/72}$$

| | | | | |
|-------------|-------|------|-------|-----------|
| 6 cutthroat | av. K | 0.93 | range | 0.84-1.03 |
| 10 rainbow | " " | 1.02 | " | .94-1.09 |
| 10 brook | " " | 1.14 | " | 1.07-1.28 |

Brook trout were stocked to provide diversity of angling opportunity and an easier to catch trout than either rainbow or cutthroat for children. Although they have been reported as popular, especially with transient tourists during the summer months, it is questionable whether the brook trout is as suitable to this fisheries as the cutthroat or the rainbow. Initial growth of the three species is good, but significantly fewer brook trout exceed the 10-11.5 inch mark compared to rainbow or cutthroat trout. At this time, it is impossible to say whether this stems from the short life expectancy of the brook trout, with the majority of individuals succumbing to natural mortality prior to this size, or whether there occurs a "hang-up" in growth. In any event, the end result appears the same. A lot of the food resources of the reservoir is being channeled into a brook trout crop that is not being harvested, and which could be better utilized by rainbow or cutthroat trout.

Average growth rate of all the trout is good, varying between one-half to three-quarters of an inch per month, depending on the particular species and stocking. And no detectable change in growth rate has been discerned between the years 1971 and 1972, despite

considered satisfactory. The average size of the trout caught was large-four-fifths of a pound and slightly better than one foot in length. Trout in the range of 13-16 inches were common. Perhaps 90-95% of the anglers were successful.

Overall, 9,515 angler trips (89 hours per surface acre) are estimated to have occurred through November, with a harvest of 43,668 trout weighing 36,852 pounds (87 pounds per surface acres). Children under 12 years of age made-up 8.6% and Tribal members 4.0% of the total trips.

The catch or harvest consisted of 85% rainbow, 11% cutthroat and 4% brook trout. A total of 198,353 trout, mostly fingerling and sub-adult size, were stocked in 1970 and 1971, and these fish primarily sustained the fishing in 1972. The return of these fish in 1972 was 27% for rainbow trout, 16% for cutthroat trout, and 5% for brook trout.

the predicted contamination of the reservoir with mountain suckers in 1972. Fortunately, due to small size (to 8 $\frac{1}{2}$ ") and dietary habit (largely a plant eater) the mountain sucker is not the threat to trout posed by larger sucker species or carp.

It has been widely demonstrated that the initial fisheries in new reservoirs undergoes modification with time in response to changes in physical-chemical characteristics, the build-up in fish densities, and the introduction of new organisms and fishes. The Bottle Hollow Reservoir fishery will be no different. It is in a transitional stage now, but prospects for the future look good. All evidence points to the fact that the reservoir can support considerable greater fishing opportunity with only minor, and reasonable, sacrifices, in fishing quality. Trophy size trout would become a bit more common, especially if the additional crayfish (524 salvaged from the Southern Ute Reservation) introduced for forage become established. Regardless of glowing prospect, realization will be heavily dependent on knowing about changes to the fishery before they occur, and if this is not possible, as soon as they do occur

Table 3. Estimated monthly fishing pressure, harvest, and catch statistics, Bottle Hollow Reservoir, Jan.- Nov., 1972.

| Month | Jan | Feb | Mar | Apr | May | June | Jul | Aug | Sep | Oct | Nov | Total or Average |
|----------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| No. adult anglers | 654 | 346 | 1,329 | 1,003 | 1,280 | 829 | 800 | 765 | 752 | 584 | 351 | 8,693 |
| Av. hours fished | 3.2 | 3.4 | 4.0 | 3.8 | 3.9 | 3.8 | 4.0 | 4.1 | 3.9 | 4.8 | 4.0 | 3.9 |
| No. trout caught | 2,720 | 941 | 5,316 | 4,955 | 6,489 | 4,095 | 4,800 | 4,074 | 4,106 | 3,923 | 2,249 | 43,668 |
| % rainbow | 96.6 | 93.2 | 72.5 | 73.8 | 81.6 | 88.4 | 86.8 | 92.2 | 89.8 | 85.9 | 85.2 | 85.0 |
| % cutthroat | 1.5 | 1.4 | 23.4 | 24.7 | 14.4 | 8.0 | 8.6 | 4.9 | 5.9 | 8.3 | 7.2 | 11.0 |
| % brook | 1.9 | 5.4 | 4.1 | 1.5 | 4.0 | 3.6 | 4.6 | 2.9 | 4.3 | 5.8 | 7.6 | 4.0 |
| Catch per hour | 1.3 | 0.8 | 1.0 | 1.3 | 1.3 | 1.3 | 1.5 | 1.3 | 1.4 | 1.4 | 1.6 | 1.24 |
| No fish per trip | 4.2 | 2.7 | 4.0 | 4.9 | 5.1 | 4.9 | 6.0 | 5.3 | 5.5 | 6.7 | 6.4 | 5.0 |
| Tot. pounds caught | 2,620 | 884 | 4,041 | 3,757 | 4,490 | 3,106 | 4,164 | 3,592 | 3,630 | 3,033 | 1,643 | 34,960 |
| No. children anglers | 50 | 49 | 87 | 99 | 111 | 75 | 174 | 90 | 36 | 39 | 12 | 822 |
| Av. hours fished | 2.9 | 4.9 | 4.1 | 5.1 | 3.6 | 3.0 | 4.3 | 4.6 | 3.4 | 5.8 | 2.8 | 4.1 |
| No. trout caught | 150 | 107 | 303 | 363 | 234 | 177 | 489 | 267 | 90 | 102 | 27 | 2,309 |
| % rainbow | 89 | 88 | 56 | 80 | 90 | 88 | 91 | 94 | 100 | 94 | 100 | 85.0 |
| % cutthroat | -- | 1 | 42 | 17 | 5 | 4 | 3 | 1 | -- | 3 | -- | 9.6 |
| % brook | 11 | 11 | 2 | 3 | 5 | 8 | 6 | 5 | -- | 3 | -- | 5.4 |
| Catch per hour | 1.0 | 0.5 | 0.7 | 0.7 | 0.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.5 | 0.9 | 0.66 |
| No fish per trip | 3.0 | 2.2 | 3.5 | 3.7 | 2.1 | 2.4 | 2.8 | 3.0 | 2.5 | 2.6 | 2.3 | 2.8 |
| Tot. pounds caught | 144 | 101 | 230 | 275 | 162 | 134 | 424 | 235 | 80 | 79 | 28 | 1,892 |

*flies in lines -
bait -*

Midriver temp 46°

FISH SAMPLE TOTAL LENGTH FREQUENCIES (INCHES)

WATER: Battle Hollow TOWN _____

H₂O Temp = 58°F Air 60°

DATE 10/14/72

METHOD OF COLLECTION:

SPECIES:

3 gill nets 2 PM to 9 AM net

| Length (inches) | Species | No. | Wgt. (lbs.) | No. | Wgt. (lbs.) |
|-----------------|---------|-------|-------------|-----------|-------------|
| 1.0-1.4 | | | | | |
| 1.5-1.9 | | | | | |
| 2.0-2.4 | | | | | |
| 2.5-2.9 | | | | | |
| 3.0-3.4 | | | | | |
| 3.5-3.9 | | | | | |
| 4.0-4.4 | | | | | |
| 4.5-4.9 | | | | | |
| 5.0-5.4 | | | | | |
| 5.5-5.9 | | | | | |
| 6.0-6.4 | II | II | | II | |
| 6.5-6.9 | IIII | IIII | | IIII | |
| 7.0-7.4 | II | IIII | | IIII | |
| 7.5-7.9 | IIII | I | | | |
| 8.0-8.4 | IIII | IIII | | | |
| 8.5-8.9 | | | | | |
| 9.0-9.4 | | | | | |
| 9.5-9.9 | | | | | |
| 10.0-10.4 | IIII | | | | |
| 10.5-10.9 | IIII | I | | | |
| 11.0-11.4 | IIII | | | | |
| 11.5-11.9 | | I | | I | |
| 12.0-12.4 | | IIII | | | |
| 12.5-12.9 | | IIII | | | |
| 13.0-13.4 | | IIII | | I | |
| 13.5-13.9 | | I | | IIII | |
| 14.0-14.4 | | I | | | |
| 14.5-14.9 | | I | | | |
| 15.0-15.4 | | | | | |
| 15.5-15.9 | | I | | | |
| 16.0-16.4 | | | | | |
| 16.5-16.9 | | | | | |
| 17.0-17.4 | | | | | |
| 17.5-17.9 | | | | | |
| 18.0-18.4 | | | | | |
| 18.5-18.9 | | | | | |
| Species | EBT | 100's | Cyts | MT Sucker | |
| No. | 55 | 43 | 6 | 2 | |
| Wgt. | 18.5 | 71.7 | 45 | | |

19 hrs.
57 net/lrs.

10/26/72 15,128 cells
9/5/72 23
8 7 7
12,05
12

Sub Totals (Each method): Wgt. (lbs.): _____ No. _____ Wgt. (lbs.) _____ No. _____
Grand Total (all fish combined): Weight (lbs.) _____ Number _____

1971 Annual Report

Bottle Hollow

The long awaited opening of this resort complex took place July 5, 1971. The motel, cafe and crafts shop have been favorably accepted by the public and fishing on the reservoir has been excellent. Guests are being offered an array of recreation to favorably influence their visit. This includes game bird and big game hunting during the season, excellent food prepared by a specially hired chef, snowmobile and boat rental, plus year-around fishing at the nearby reservoir. A new Manager, Mr. Benton Hunter, was hired in the fall and is now making many plans for future development.

New features planned for 1972 include a 72 unit high-rise and convention center, an 18 hole golf course, a gravelled air strip, a horseback riding concession, and a trap and skeet range. In addition, Bottle Hollow will be headquarters for guests who are hunting, fishing, or taking the new Green River float trip which will terminate at the new Florence Creek guest ranch. Funding sources for training the anticipated new and replacement employees are now being explored.

Since opening in July, Bottle Hollow Resort has sold over 1,400 of their own season fishing permits which have been separate from regular reservation permits. Prices started at \$4.50 each, however, were soon changed to \$1.00 each for the remainder of the season. This was done to stimulate interest in using the reservoir. The Bottle Hollow Manager plans to start selling new season permits February 15, 1972, which will cost \$4.50 per person. These permits will be good for 14 months and will coincide with the regular permit season starting on April 15, 1973.

The 420 surface acre Bottle Hollow Reservoir was only about 1/3 full when spring runoff ended. Although trout habitat (water under 70°F. and oxygen above 4 ppm) was very restricted during August, no large fish kill occurred and carry over was excellent. Filling resumed in October and was nearly completed before the inflow ditch froze off in late December. The additional 15-20 feet of water depth now present should provide adequate trout water for next season.

Population studies conducted during the season showed, that in spite of low water levels and a relatively dense trout population, growth was good. Most of the rainbows (11-13 inches in September) were very deep bodied and robust, indicating fast growth. Cutthroat trout 9-11 inches in length were slimmer in profile; a condition that is not uncommon for this species in most waters of the Uintah Basin.

In Midview Reservoir they start to fill out when they reach 12-14 inches, a condition that should also occur in Bottle Hollow next season. Brook trout were first stocked as 7 inch fish in September, 1971 and should provide a variety to the creel starting next season. By fall the predominant food organisms being utilized were snails, plankton, and insect larvae.

Total stocking in Bottle Hollow Reservoir through January 1, 1972, has consisted of the following:

| | | | |
|--|--------|-------------------|-----------------------------|
| October ^{November 4} -1970 | 20,000 | 3" | Cutthroat Trout |
| Jan.-Feb.-1971 | 55,013 | 9" ^{10"} | Rainbow Trout |
| May-1971 | 1,500 | 14" | Rainbow Trout - disappeared |
| September-1971 | 31,840 | 7" | Brook Trout |
| October ⁶ -1971 | 10,000 | 4" | Cutthroat Trout |
| October ¹⁷ -1971 | 80,000 | 6" | Rainbow Trout |

gill nets 1 → 5/17/71

gill nets 2 → 9/29/71

gill nets 3 → 4/20/72



Initial stocking of cutthroats in the new Bottle Hollow Reservoir.

1970 Annual Report

Bottle Hollow Reservoir

Construction of the Bottle Hollow Reservoir dams and dike was begun in the spring of 1969 at a cost of \$674,800 and the work was completed in October, 1970. This 420 surface acre reservoir was built under contract by the Bureau of Reclamation as partial mitigation for fishery losses on Rock Creek under the Central Utah Project. The north and south dams are 57 and 69 feet high and 476 and 590 feet long, respectively. The dike is 11 feet high and 785 feet long. Total capacity is 11,100 acre feet (26.4 feet average depth), and the outlet works and spillway with capacities of 210 and 30 second-feet, respectively, are located in the south dam and have a combined outlet. The reservoir will be maintained at nearly a constant water level.

Filling began October 23 with water diverted from the Uintah River and carried to the reservoir via the Indian Bench Canal. Just prior to beginning filling about ten miles of the Bench Canal was treated with rotenone so as to retard development of rough fish in the reservoir; namely, the mountain sucker, which is relatively abundant in the drainage upstream. Fortunately, due to small size (5 to 8-½ inches) and dietary habit (largely a plant eater), this species is not the threat to trout such as posed by the sucker species and carp found in Midview Reservoir. Nevertheless, the mountain suckers in the Bench Canal were killed off, along with dace sculpins and a few trout, so as to assure optimum conditions for survival and growth of stocked trout at least in the initial years of the reservoir.

Stocking began on November 4 when 20,000 (725 lbs.) four-inch cutthroat trout (Snake River strain) were planted. We had originally programmed approximately 100,000 fingerling and catchable-size rainbow trout for stocking, figuring a target date for completion of the reservoir in early summer. Many of these fish had to be diverted to other reservation waters due to delays in construction and filling. However, some 56,000 rainbow trout fingerlings were carried over at the Springville National Fish Hatchery and 26,000 (9,000 lbs.) were planted as 9½ inch size fish in January 1971. Filling and initial stocking will no doubt not be completed until the spring of 1971.

Much of the construction of the adjacent two million dollar, 42-unit Bottle Hollow Motel Complex was completed. This recreational complex should be operational in the spring. About 45 Tribal members currently are in training, under the Manpower Development Training Act, to operate the facility. The services of a professional manager have been engaged. Thus, all signs are go on one of the most remarkable Indian ventures into the recreational business in the country.

Chem data Bottle Hollow Res

| | | | |
|--|---|--|---|
| 11/6/70 2 pits, inundation just starting Air = 40° H ₂ O = 42° pH = 8.0 Cond = 170 Alk = 137 Hard = 103 | 5/7/71 Transp. 4' half-full Air 62° 5' 57° 8.0 7.8 10' 57° 8.0 7.4 20' 56° — 7.6 30' 53° 5.0 7.3 Surface Cond = 201 Alk = 103 Hard = 103 | 7/8/71 pH 8.2 Cond 260 Depth Temp O ₂ Temp O ₂ 5' 76° 8 76° 8.0 5' 75° — 74 — 7' 73.5° 7 73.5 — 10' 73° — 73 7.0 12' 72° 7 72.5 — 15' 72° 5 72.0 6.0 18' 69° 2 70.0 — 20' 67° 1 67.5 2.0 25' — — 64 2.0 30' — — 62.5° 1.0 35' — — 61.5 1.0 40' — — 61.0 0.0 | 8/13/71 O ₂ pH 5 78° 8.0 8.2 5 76° 8.0 — 12 72° — — 15 71° 6.0 — 20 70° 3.0 — 22 68° 1.0 — 25 63° 1.0 — 30' 61° 1.0 — 35' 61° 0.0 — |
| 4/20/72 Cond 250 Alk 136 H ₂ O 57° F pH 8.2 Hard 103 | 3/27/72 54° F | 8/15/72 72° | 6/7/72 Cond DO pH 1' 69° 240 — — 10' 68 240 9.0 8.2 20' 62 240 8.0 8.2 30' 58 275 6.0 7.2 40' 58 275 2.0 7.2 50' 56 280 1.0 7.2 |
| | | | 7/4/72 DO 1' 69° 8.0 4' 69 — 5-6 26' 65 — 4.0 30' 62 — 0 34' 59 — 47' 56 — Transp #1 |
| | | | 9/29/71 H ₂ O 54° |

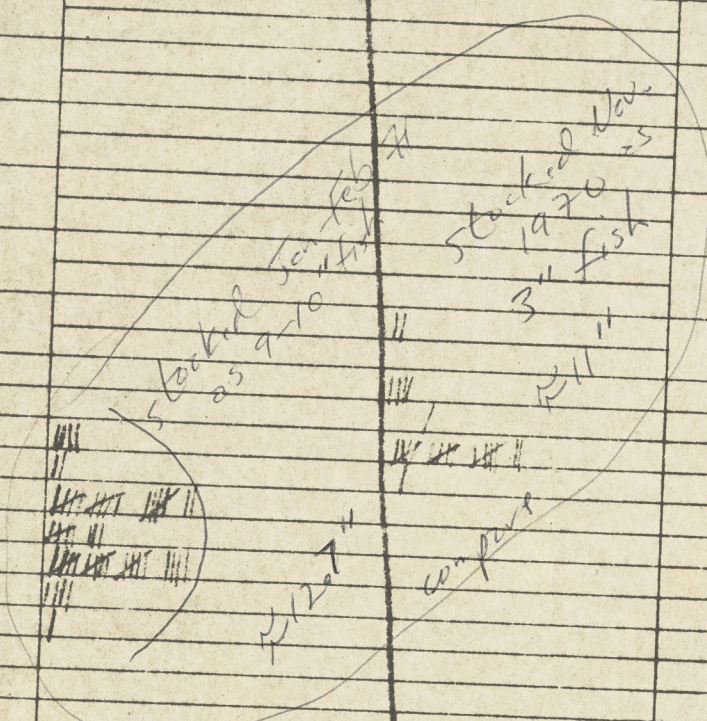
FISH SAMPLE, TOTAL LENGTH FREQUENCIES (INCHES)

WATER: Bottle Hollow

54° H₂O
DATE: 9/29/71

METHOD OF COLLECTION: 3 gill nets overnight 12 hrs. SPECIES: _____

| Length (inches) | RBT | cut | BKT | TOTAL |
|-----------------|-----------------|------------|---------------|----------|
| 1.0-1.4 | | | | |
| 1.5-1.9 | | | | |
| 2.0-2.4 | | | | |
| 2.5-2.9 | | | | Cond 300 |
| 3.0-3.4 | | | | Ph 8.2 |
| 3.5-3.9 | | | | |
| 4.0-4.4 | | | | |
| 4.5-4.9 | | | | |
| 5.0-5.4 | | | | |
| 5.5-5.9 | | | | |
| 6.0-6.4 | | | | |
| 6.5-6.9 | | | | |
| 7.0-7.4 | | | | |
| 7.5-7.9 | | | | |
| 8.0-8.4 | | | | |
| 8.5-8.9 | | | | |
| 9.0-9.4 | | | | |
| 9.5-9.9 | | | | |
| 10.0-10.4 | | | | |
| 10.5-10.9 | | | | |
| 11.0-11.4 | | | | |
| 11.5-11.9 | | | | |
| 12.0-12.4 | | | | |
| 12.5-12.9 | | | | |
| 13.0-13.4 | | | | |
| 13.5-13.9 | | | | |
| 14.0-14.4 | | | | |
| 14.5-14.9 | | | | |
| 15.0-15.4 | | | | |
| 15.5-15.9 | | | | |
| 16.0-16.4 | | | | |
| 16.5-16.9 | | | | |
| 17.0-17.4 | | | | |
| 17.5-17.9 | | | | |
| 18.0-18.4 | | | | |
| 18.5-18.9 | 55 rainbow | 25 cut | 24 brook | |
| | 22 lbs RB | 13 lbs cut | 3 1/2 lbs BKT | |
| | 25 # RB | | | |
| | 47 lbs total RB | | | |



stocked
Sept 1971
fish

stocked 47 brook
Fert Union 9/23/71
S.E. Union

Totals (Each method):
Wgt. (lbs.): _____ No: _____
and Total (all fish combined):
Weight (lbs.): _____ Number: _____
Stomachs analyzed - 50% snails, 30% debris (mostly sticks, leaves etc.)
Plankton
8-91-931, 281

1972 Creel Census Bettlertallow

April 1-15

| Month | Jan 21 to 31st | Feb | March | April 1-15 | April 15- 30th | April 1-15 |
|------------|-------------------|--------|------------|---------------|-------------------|------------|
| No Anglers | 205 | 313 | 370 | 95 | 172 | 267 |
| No hrs | 664 | 1061.5 | 1481 | 344 | 664.5 | 1008.5 |
| hrs/trip | 3.24 | 3.39 | 4.00 | 3.62 | 3.86 | 3.78 |
| No trout | 829 | 857 | 1471 | 422 | 907 | 1329 |
| Rainbows | 800 | 799 | 1066 (72%) | 367 | 622 | 989 |
| Cutts | 13 | 11 | 344 (23%) | 49 | 271 | 320 (24%) |
| Brooks | 16 | 47 | 61 (4%) | 6 | 14 | 20 |
| Catch/hr | 1.25 | 0.81 | 0.99 | 1.23 | 1.36 | 1.32 |

Ice went off
about 19th of March

Tribal Anglers

| | | | | | |
|------------|------------------|-----|------|-----|----|
| No Anglers | 6 | 2 | 13 | 2 | 9 |
| No hrs | 11 11 | 6 | 41 | 5.5 | 47 |
| hrs/trip | 2 | 3.0 | 3.15 | | |
| No trout | 2 21 | 2 | 42 | 7 | 57 |
| Rainbows | 2 21 | 2 | 31 | 5 | 32 |
| Cutts | | | 9 | 2 | 23 |
| Brooks | 2 | | 1 | | 2 |
| Catch/hr | | | 1.02 | | |

Children

| | | | | | |
|------------|-----------------|-----|-------|-----|-------|
| No Anglers | 6 | 44 | 29 | 11 | 22 |
| No hrs | 175 | 216 | 117.5 | 65 | 103.5 |
| hrs/trip | | 4.9 | 4.05 | 5.9 | 4.7 |
| No trout | 28 | 100 | 101 | 45 | 76 |
| Rainbows | 2 16 | 88 | 55 | 38 | 58 |
| Cutts | | 1 | 42 | 5 | 16 |
| Brooks | 2 | 11 | 2 | 2 | 2 |

Adult anglers on 'y Current Creek Census (1972)
Bottle Hollow Res

| Month | May | June | July |
|-------------|--------------|-------|----------|
| No. Anglers | 337 | 237 | 210 |
| No hrs | 1323.5 | 922 | 837.5 |
| hrs/trip | 4.04 | 3.89 | 3.99 |
| No trout | 1768 | 1218 | 1234 |
| Rainbows | 1444 (81.7%) | 1077 | 1060 |
| Cutts | 261 (14.8%) | 98 8% | 115 (9%) |
| Brooks | 63 (3.6%) | 43 4% | 59 (5%) |
| Catch/hr. | 1.30 | 1.32 | 1.47 |

Subed Anglers

| | | | |
|------------|----|----|------|
| No Anglers | 30 | 10 | 19 |
| No hrs | 72 | 21 | 71 |
| hrs/trip | | | 3.74 |
| No trout | 93 | 22 | 109 |
| Rainbows | 76 | 19 | 106 |
| Cutts | 7 | 1 | — |
| Brooks | 10 | 2 | 3 |
| Catch/hr. | | | 1.53 |

Children

| | | | |
|-------------|------|------------------|------|
| No. Anglers | 37 | 25 | 58 |
| No. hrs | 1295 | 72 | 248 |
| hrs/trip | | | 4.28 |
| No trout | 78 | 59 59 | 163 |
| Rainbows | 70 | 52 | 149 |
| Cutts | 4 | 2 | 5 |
| Brooks | 4 | 5 | 9 |
| Catch/hr. | | | 0.15 |

BOTTLE HOLLOW RES (Vol. in ml)

Collected 20 Apr. 71

| FISH No. | Age | Chir. L | Chir. P. | Amph. | Coleop. | Ephem. | Odon. | Gastrop. | Hemip. | Fish | Trichop. | Plecop. | Zoopl. |
|----------|-----------------------|--------------|----------|-------|---------------------------------|--------|-------|----------|--------|-------------|----------|---------|--------|
| BK 8 | 1+ ³⁻⁵ 223 | .01 | .70 | | | | | | | | | | .01 |
| 9 | 1+ ³⁻⁵ 220 | .05 | .35 | | | | | .05 | | | | | |
| 10 | 1+ ³⁻⁵ 201 | | | | | | | | | | .15 | | |
| 12 | 1+ ³⁻⁵ 228 | EMPTY | | | | | | | | | | | |
| 19 | 1+ ³⁻⁵ 216 | | .15 | | | | | | | | | | |
| 22 | 1+ ³⁻⁵ 236 | | | | | | | .25 | | | | | |
| 24 | 1+ ³⁻⁵ 215 | .01 | .35 | | | | | | | | | | |
| 27 | 1+ ³⁻⁵ 240 | | | .01 | | | .01 | | | | | | |
| SR 2 | 2+ 285 | | .80 | | | | | | | | | | |
| 3 | 2+ 314 | .05 | .90 | | | | | | | | | | |
| 4 | 1+ 175 | .10 | .40 | .05 | | .01 | .05 | | | | | | |
| 5 | 2+ 281 | | 1.20 | | | | | | Negl. | | | | |
| 11 | 2+ 294 | .01 | | .10 | | | | .30 | | 1 Ea. Unid. | | | |
| 14 | 1+ 185 | | Negl. | | .01 Adults | | .01 | | | | | | |
| 18 | 2+ 327 | | 1.80 | | | | | .40 | | | | | |
| 20 | 2+ 285 | | .50 | | | | | | Negl. | | | | |
| RB 1 | 1+ 201 | | 1.20 | .75 | | | .15 | | | | | | |
| 6 | 2+ 363 | .01 | 1.05 | | | | 1.05 | .35 | | | | | |
| 7 | 2+ 340 | | .40 | | | | | 3.90 | | | | | |
| 13 | 2+ 338 | | .40 | | | | | | | | | | |
| 15 | 1+ 238 | | | | | | | 1.00 | | | | | |
| 16 | 1+ 223 | | | Negl. | | | | | | | | | |
| 17 | 1+ 226 | .01 | 1.10 | | | | | .01 | | | | | |
| 21 | 1+ 225 | | .50 | .01 | | | | | | | | | |
| 23 | 2+ 313 | .01 | | Negl. | | | Negl. | 1.80 | | | | | |
| 25 | 1+ 233 | Unidentified | | | Do not include in food analysis | | | | | | | | |
| 26 | 1+ 238 | .35 | .20 | | | | | | | | | | |
| 28 | 1+ 230 | | .01 | | | | | | | | | | |

stocked Sept 71
25 7" fish (178mm)

Age I stocked
Oct 71 (4"-102mm)

Age II stocked
Nov 70 (3"-76mm)

Age I stocked
Oct 71 - ~~5"-152mm~~
(6"-152mm)
Hatched? Mar. 71

Age II stocked
Feb 71 (9"-229mm)
Hatched Mar 70

BOTTLE NALLOW RES.

Collected 4 Oct 72

| Fish No | Age & Ln | CL | CP | Gast. | Macro. | Hemip. | Odon. | Algae | | | | | | | | | | | | | |
|---------|----------|-------|-------|-------|--------|--------|-------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Bk 1 | 1+ 273 | | | .80 | | | | | | | | | | | | | | | | | |
| 2 | 1+ 283 | | | .20 | | | | | | | | | | | | | | | | | |
| 3 | 1+ 252 | | | EMPTY | | | | | | | | | | | | | | | | | |
| 4 | 1+ 274 | | | .10 | | | | | | | | | | | | | | | | | |
| 5 | 1+ 285 | | | .10 | + | | | | | | | | | | | | | | | | |
| 6 | 1+ 272 | | | .40 | | | | | | | | | | | | | | | | | |
| 7 | 1+ 267 | | | EMPTY | | | | | | | | | | | | | | | | | |
| 8 | 1+ 273 | | | .05 | | | | | | | | | | | | | | | | | |
| 9 | 1+ 255 | | | EMPTY | | | | | | | | | | | | | | | | | |
| 10 | 1+ 274 | | | .65 | | | | | | | | | | | | | | | | | |
| C 11 | 1+ 283 | | .05 | | | | | | | | | | | | | | | | | | |
| 12 | 2+ 328 | | .01 | | | | | | | | | | | | | | | | | | |
| 13 | 2+ 348 | | Negl. | | | | 1 ea. | | | | | | | | | | | | | | |
| 14 | 2+ 350 | | Negl. | | | | | | | | | | | | | | | | | | |
| 15 | 2+ 347 | | EMPTY | | | | | | | | | | | | | | | | | | |
| 16 | 2+ 341 | | | Negl. | | | 1 ea. | | | | | | | | | | | | | | |
| Rb 17 | 1+ 314 | Negl. | | 2.75 | | | | | | | | | | | | | | | | | |
| 18 | 1+ 335 | | | 3.30 | | | | | | | | | | | | | | | | | |
| 19 | 1+ 310 | | | .20 | + | | | | | | | | | | | | | | | | |
| 20 | 1+ 316 | | | .60 | + | | | | | | | | | | | | | | | | |
| 21 | 1+ 305 | | | .60 | | | | | | | | | | | | | | | | | |
| 22 | 1+ 320 | | | EMPTY | | | | | | | | | | | | | | | | | |
| 23 | 1+ 304 | | | 1.45 | | | | | | | | | | | | | | | | | |
| 24 | 1+ 308 | | | 1.05 | | | | | | | | | | | | | | | | | |
| 25 | 1+ 337 | | | 4.50 | | | | | | | | | | | | | | | | | |
| 26 | 2+ 371 | | | EMPTY | | | | | | | | | | | | | | | | | |

Stacked
Sept 71
25 7" fish
(≈ 178mm)
All mature
Fish
♀ gravid

Age I stacked
Oct 71
Age II stacked
Nov 70

Age I stacked
Oct 71

Age II stacked
Feb 71

BOTTLE HOLLOW

78° F max surface temperature 5,100' elev.

422 acres max. 26.4 Ave. depth

Jan-Nov 72

Return to angler (70 of stocking)

Rb 27%

Cutt 16%

Bk 5%

Return to angler (70 of species in catch)

Rb 85%

Cutt 11%

Bk 4%

Gill Net Catch ratio (10/4/72) Bk Rb Cutt.
55 : 43 : 6

Sp. Size (Gill net of 10/4/72)

4 Oct 72 Sample

20 Apr 72 sample

| | | | |
|-----------|--|--------|--|
| Bk Age I | 271 mm (252-285) 49 mm growth / 5 1/2 mos. 93 mm growth / 13 mos | Age I | 222 mm (201-236) ← since Sept ⁷¹ stocking (178 mm) |
| SR Age I | 283 mm (—) 103 mm growth / 5 1/2 mos. 181 mm / 12 mos | Age I | 180 mm (175-185) ← However, ^{larger} smaller fish were stocked (102 mm) in Oct 71 |
| SR Age II | 343 mm (328-350) 45 mm growth / 5 1/2 mos. 267 mm / 23 mos | Age II | 298 mm (281-327) ← Stocked Nov 70 (76 mm) |
| Rb Age I | 317 mm (304-337) 90 mm growth / 5 1/2 mos. 165 mm / 12 mos | Age I | 227 mm (201-238) ← Stocked Oct 71 (152 mm) |
| Age II | 371 mm (—) 32 mm growth / 5 1/2 mos. 142 mm / 20 mos | Age II | 339 mm (313-363) ← Stocked Feb 71 (229 mm) |

54° 9/29/71 53° 5/7/71
72° 8/15/72 78° 8/3/72

BOTTLE HOLLOW

Creel Census

1972

85% RB

10% SR

4% BK

Creel Net Data

| | | SR | RB | BK |
|----------|-----------|--------------|---------------|---------------|
| samples | 4 Oct 72 | 6/26 (23.1%) | 10/26 (38.5%) | 10/26 (38.5%) |
| analyzed | 20 Apr 72 | 8/28 (28.6%) | 12/28 (42.9%) | 8/28 (28.6%) |

| | | | |
|---------|----------------|----------------|----------------|
| 10/4/72 | 6/104 (5.8%) | 43/104 (41.3%) | 55/104 (52.9%) |
| 4/20/72 | 20/110 (18.2%) | 72/110 (65.5%) | 18/110 (16.4%) |
| 9/29/71 | 25/103 (24.3%) | 55/103 (53.4%) | 24/103 (23.3%) |
| 5/7/71 | 3/83 (3.6%) | 80/83 (96.4%) | |

1972

| | | |
|-------|-------|------|
| SR | RB | BK |
| 12.2% | 53.7% | 34.1 |

BK I
Total Volume 2.10
 Benthic $\frac{.53}{2.10}$ 25.2% } CL 3.3% Gast. 14.3%
 * Pelagic $\frac{1.56}{2.10}$ 74.3% } densel. .5% Trichop. 7.1%
 } Zoopl. .5% CP 73.8%
 Nekton (Amph.) $\frac{.01}{2.10}$.5%

Freq.
 CL $\frac{3}{8}$ 37.5% Densel $\frac{1}{8}$ 12.5% Gast. $\frac{2}{8}$ 25.0% Trich. $\frac{1}{8}$ 12.5% } Benthic $\frac{6}{8}$ 75%
 CP $\frac{4}{8}$ 50.0% Zoopl. $\frac{1}{8}$ 12.5% } Pelagic $\frac{4}{8}$ 50%
 Nekton $\frac{1}{8}$ 12.5%

Cut I & II
Total Volume 6.72 (excluding fish)
 Benthic $\frac{.93}{6.72}$ 13.8% } 2.4% CL densel. .9%
 * Pelagic (CP) $\frac{5.61}{6.72}$ 83.5% } .1% Ephem Gast. 10.4%
 Surface (Colcop. Adult) .1%
 Nekton $\frac{.17}{6.72}$ 2.5% } 2.2% Amph.
 } .3% Hemipt.

Freq.
 CL $\frac{3}{8}$ 37.5% Ephem. $\frac{1}{8}$ 12.5% Densel $\frac{2}{8}$ 25.0% Gast. $\frac{2}{8}$ 25.0% } Benthic $\frac{5}{8}$ 62.5%
 Pelagic $\frac{7}{8}$ 87.5%
 Surface $\frac{1}{8}$ 12.5%
 Amph. $\frac{2}{8}$ 25.0% Hemip. $\frac{2}{8}$ 25.0% Fish $\frac{1}{8}$ 12.5% } Nekton $\frac{4}{8}$ 50.0%

cb I & II
Total Volume 13.89
 * Benthic $\frac{8.65}{13.89}$ 62.3% } 2.7% CL 8.7% densel 50.8% Gast.
 Pelagic (CP) $\frac{4.46}{13.89}$ 32.1%
 Nekton (Amph.) $\frac{.78}{13.89}$ 5.6%

Freq.
 CL $\frac{4}{11}$ 36.4% Densel $\frac{3}{11}$ 27.3% Gast. $\frac{5}{11}$ 45.5% } Benthic $\frac{7}{11}$ 63.6%
 Pelagic $\frac{7}{11}$ 63.6%
 Nekton $\frac{4}{11}$ 36.4%

BOTTLE NOLLOW

4 Oct 72

Bk I

Total Volume 2.30

Benthic (Cest.) $\frac{2.30}{2.30}$ 100.0%

Frag.

Benthic $\frac{7}{10}$ 70%

Macrophytes $\frac{1}{10}$ 10%

Cat I & II

Total Volume .11

Benthic $\frac{.02}{.11}$ 18.2% } 9.1% Cest
9.1% Odon

Pelagic (CP) $\frac{.08}{.11}$ 72.7%

Nekton (Hemp) $\frac{.01}{.11}$ 9.1%

Frag.

Cest. $\frac{1}{6}$ 16.7% Odon. $\frac{1}{6}$ 16.7% } Benthic $\frac{4}{6}$ 33.3%

Pelagic $\frac{4}{6}$ 66.7%

Nekton $\frac{1}{6}$ 16.7%

Rb. I & II

Total Volume 14.46

Benthic $\frac{14.46}{14.46}$ 100% } Cest. 99.9%
CL .1%

Frag.

CL $\frac{1}{10}$ 10% Cest. $\frac{8}{10}$ 80% } Benthic $\frac{8}{10}$ 80%

Macrophytes & Algae $\frac{3}{10}$ 30%

BOTTLE HOLLOW RES

Stocking

As of gill net sample of 5/27/71

Rb.

55,013

Cutt.

20,000

- date stocked
size stocked

Ratio 2.75:1

Stocking

As of gill net sample of 9/29/71

Rb.

31,840

Cutt.

20,000

Ratio 1.59:1

Survival Comparisons between Rb & Cutt
stocked before gill net sample of 5/27/71

5/7/71

$$\frac{3(2.75)}{80} = (.1) = \text{Cutt:Rb.}$$

This ~~fig.~~ figure very biased due to
small size of cutts which would produce
gill netting.

9/29/71

$$\frac{25(2.75)}{55} = (1.25) \text{ Cut:Rb}$$

4/20/72

$$\frac{18(2.75)}{4} = (12.38) \text{ Cut:Rb}$$

Survival Comparisons between Cut & Bk

9/29/71

$$\frac{25(1.59)}{24} = 1.66 \quad \text{Cut: Bk}$$

Possibly biased toward cuts because brooks averaged only 7", which may be slightly smaller than optimum gilling size. However, bias also exists toward brooks because at the time of brook stocking, cut nos. would already be reduced from those stocked.

4/20/72

$$\frac{18(1.59)}{18} = 1.59 \quad \text{Cut: Bk}$$

Biased towards brooks because of lower nos. of cut. at time of Bk stocking.

Growth Patterns

| | Rb (stocked Jan, Feb 71) at .35 lb/fish | Cutt (stocked Nov, 70 at .036 lb/fish) |
|----------------|---|--|
| <u>9/29/71</u> | .85 | .52 |
| <u>4/20/72</u> | .94 | .53 |

| | <u>Bk</u> |
|----------------|-----------|
| <u>9/29/71</u> | .15 |
| : | -.36 |

Cutt growth seemed to level off more, but survival much higher than for Rb (somewhat higher than Bk.)

Behnke
see p. 7 grants of 14/1/72

UNITED STATES DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife
Division of Fishery Services
Vernal, Utah

Annual Report

F I S H E R Y M A N A G E M E N T P R O G R A M

Uintah and Ouray Indian Reservation

Uintah and Duchesne Counties - Utah

1972

Annual Project Report
Fishery Management Program
Uintah and Ouray Indian Reservation
Utah

Don K. Bartschi
Fishery Management Biologist

Introduction

The Uintah and Ouray Indian Reservation (1,600 members) consists of over one million acres, interspersed with non-Indian area, in the Uintah Basin of northeastern Utah. Reservation lands are shaped like an hourglass stretching from the Uintah Mountains in the north to the Tavaputs Plateau in the south (elevations range from 4,500 to 9,500 feet above sea level). Eleven reservoirs (1,300 surface acres) and 100 miles of stream are under fishery management.

Fisherman use of reservation waters increased by 15% to 53,843 trips during 1972 (Table 1). Fishing permit sales exceeded \$17,000 for the first 8 months of the permit season (sales run from April 15 through April 14). Influencing the increased fishing pressure on reservation waters has been the influx of 1,500 families to the Uintah Basin due to employment provided by the present oil boom. Reservation-wide stocking consisted of 412,681 fish weighing 67,628 pounds.

The Ute Tribe completed several major projects during 1972. The Western Soils Analytical Laboratory was completed, the staff trained, and several contracts obtained including a large environmental monitoring project for the Four Corners area. The Ute multi-purpose building (gymnasium, auditorium, offices, and education center) was completed and should be fully operational in the near future. The Florence Creek guest ranch was completed late in the summer and should start operating next season, and the Bottle Hollow Resort and Reservoir completed a successful first year of operation.

Creel Census

The Tribal Fish and Game Department with five conservation officers and a clerk, under the supervision of Director Tom Chapoose, collects most of the creel census data. In addition, two Bottle Hollow Resort employees collect data for the Bottle Hollow Reservoir. Without this valuable help, managing the Reservation fishing waters would be an impossible task.

In 1972, data from thirteen traffic counters placed on major access roads, voluntary creel census stations at six reservoirs, fisherman interviews by Tribal Conservation Officers, combined with the number of permits sold and data obtained from roadblock interviews of past years (i.e., number of fishermen per car) formed the basis for the use estimates. These data indicate that over 53,000 days of fishing occurred on Reservation waters. Fishing success remained near the last ten-year average of 1.0 trout per hour with the average creel and trip length being 3.6 fish and 3.8 hours, respectively.

About 3,200 season and 2,500 day fishing permits were sold by mid-December. Adult season permits were raised from \$4.25 to \$4.50 during 1972. Juvenile season permits (12-16 years of age) remained at \$1.50 and day permits at \$1.50 for the first day and 50 cents for each additional day. Revenue from permit sales exceeded \$17,000 by mid-December (up 10% over 1971), with \$4,700 of this being derived from the sale of special Bottle Hollow fishing permits good only for that reservoir. In addition to a Reservation permit, non-tribal members must also possess a state fishing license.

Fish Stocking

During 1972, 412,681 fish weighing 67,628 pounds were stocked in Reservation waters. These were mostly catchable size rainbow trout (329,353) but also included fingerling and sub-catchable size rainbow, cutthroat, brook and lake trout, plus smallmouth bass (Table 2). Fish were supplied by the following National Fish Hatcheries: Springville, Utah; Jones Hole, Utah; Jackson, Wyoming; Hotchkiss, Colorado; Leadville, Colorado; and Cedar Bluff, Kansas.

Incremental stocking of the many widely scattered Reservation waters is made possible by a fish holding raceway located in Uintah Canyon.

Two Tribal employees, working six months and driving 8-10,000 miles, distribute the fish from a Tribal fish distribution truck. Although most waters are located within 80 miles of the holding raceway, one reservoir, Weaver, is a 270 mile round trip (170 on rough dirt road) requiring 12 hours driving time.



Fish and Game Director Tom Chapoose
stocking Reservation waters.

Bottle Hollow Reservoir

Bottle Hollow Reservoir was first opened to fishing when partially filled on July 5, 1971 in conjunction with the dedication of the adjoining motel complex. There were 1,432 fishing permits sold for the 1971 season, but no catch statistics were collected to allow for a description of the fisheries that developed. This was corrected in 1972 with motel employees Michael Arrowchis, and Everett Burson interviewing anglers and checking catches almost daily throughout the season.

Table 3 depicts the results of the data collected, which has been expanded to provide a conservative estimate of total use and harvest. This was done using 2,764 adult angler, 291 child angler, and 115 Tribal angler interviews, sales of 653 season and 1,197 day permits (through November), and assuming that each season permit holder fished an average of six times.

By all standards fishing was excellent during this first year of maximum water levels (422 surface acres). The catch rate averaged 1.24 trout per hour and only dropped below 1.0 to 0.8 trout per hour in February (Table 3). An average catch rate of one (1.0) trout per hour of fishing is considered excellent; one trout per two hours of fishing (0.5) is much more common, and is generally considered satisfactory. The average size of the trout caught was a large four-fifths of a pound and slightly better than one foot in length. Trout in the range of 13-16 inches were common. Perhaps 90-95% of the anglers were successful.

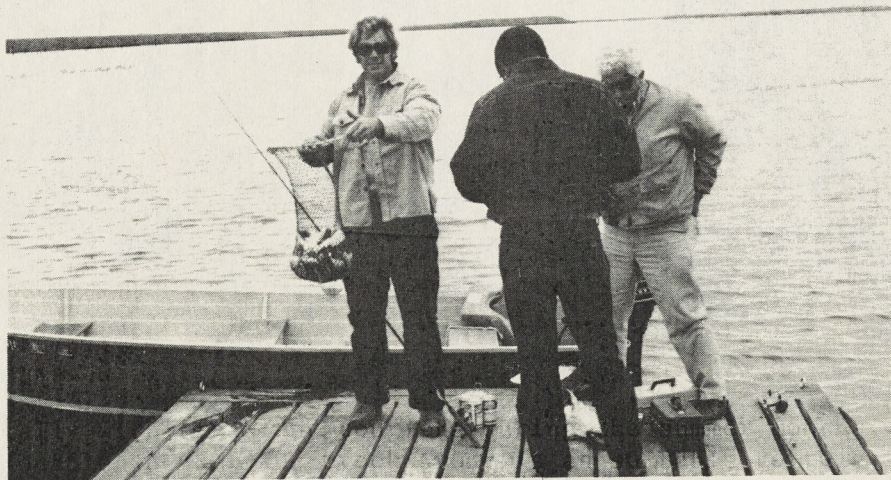
Overall, 9,515 angler trips (89 hours per surface acre) are estimated to have occurred through November, with a harvest of 43,668 trout weighing 36,852 pounds (87 pounds per surface acre). Children under 12 years of age made-up 8.6% and Tribal members 4.0% of the total trips.

The catch or harvest consisted of 85% rainbow, 11% cutthroat and 4% brook trout. A total of 198,353 trout, mostly fingerling and sub-adult size, were stocked in 1970 and 1971, and these fish primarily sustained the fishing in 1972. The return of these fish in 1972 was 27% for rainbow trout, 16% for cutthroat trout, and 5% for brook trout.

Brook trout were stocked to provide diversity of angling opportunity and an easier to catch trout than either rainbow or cutthroat for children. Although they have been reported as popular,

especially with transient tourists during the summer months, it is questionable whether the brook trout is as suitable to this fishery as the cutthroat or the rainbow. Initial growth of the three species is good, but significantly fewer brook trout exceed the 10-11.5 inch mark compared to rainbow or cutthroat trout. At this time, it is impossible to say whether this stems from the short life expectancy of the brook trout, with the majority of individuals succumbing to natural mortality prior to this size, or whether there occurs a "hang-up" in growth. In any event, the end result appears the same. A lot of the food resources of the reservoir are being channeled into a brook trout crop that is not being harvested, and which could be better utilized by rainbow or cutthroat trout.

Average growth rate of all the trout is good, varying between one-half to three-quarters of an inch per month, depending on the particular species and stocking. No detectable change in growth rate has been discerned between the years 1971 and 1972, despite the predicted contamination of the reservoir with mountain suckers in 1972. Fortunately, due to small size (5 to 8") and dietary habit (largely a plant eater) the mountain sucker is not the threat to trout posed by larger sucker species or carp.



Bottle Hollow Reservoir fishery being checked by Bottle Hollow Resort employee, Everett Burson.

It has been widely demonstrated that the initial fisheries in new reservoirs undergoes modification with time in response to changes in physical-chemical characteristics, the build-up in fish densities, and the introduction of new organisms and fishes. The Bottle Hollow Reservoir fishery will be no different. It is in a transitional stage now, but prospects for the future look good. All evidence points to the fact that the reservoir can support considerable greater fishing opportunity with only minor, and reasonable, sacrifices in fishing quality. Trophy size trout would become a bit more common, especially if the additional crayfish (524 salvaged from the Southern Ute Reservation) introduced for forage become established. Regardless of glowing prospects, realization will be heavily dependent on knowing about changes to the fishery before they occur, and if this is not possible as soon as they do occur.

Florence Creek

Greenback cutthroat trout (a rare and endangered species) were stocked in Florence Creek during the fall of 1967 (55 adult fish). Seven of these were observed during the summer of 1968 and four were observed in 1969. Surveys during 1970 and 1971 failed to find any of the original stocked trout and no reproduction was found on any survey during the four years following stocking.

It was felt that the greenback introduction had failed, and realizing that fishing would be needed when the Florence Creek guest ranch was completed in 1972, the stream was stocked with fingerling brook trout in 1971. Surveys have shown this stocking to have been successful and brook trout are now found throughout most of the 8-10 miles of stream.

In May of 1972, three trout that looked like cutthroats were seen in the newly constructed irrigation diversion about two miles above the ranch house. An electro-shocker survey collected one of these fish and it appeared to be a 10" greenback cutthroat trout. With this somewhat surprising find in hand, a more extensive survey was planned for the following month.

On June 15, 1972 a backpack electro-shocker was carried upstream to the confluence of Upper Bear Canyon and Florence Creek. Shocking was then conducted upstream for approximately two-thirds of a mile. Fourteen greenback cutthroat trout were collected, measured, and returned to the stream. There appeared to be two year classes present; nine fish in the 9-10" range and five fish in the 7-8" range. These were apparently offspring of the original stocking and were spawned in 1968 or 1969. Because this same stretch had been extensively surveyed twice before (as late as March 1971), it is assumed the trout were spawned somewhere higher in the drainage and had drifted down.

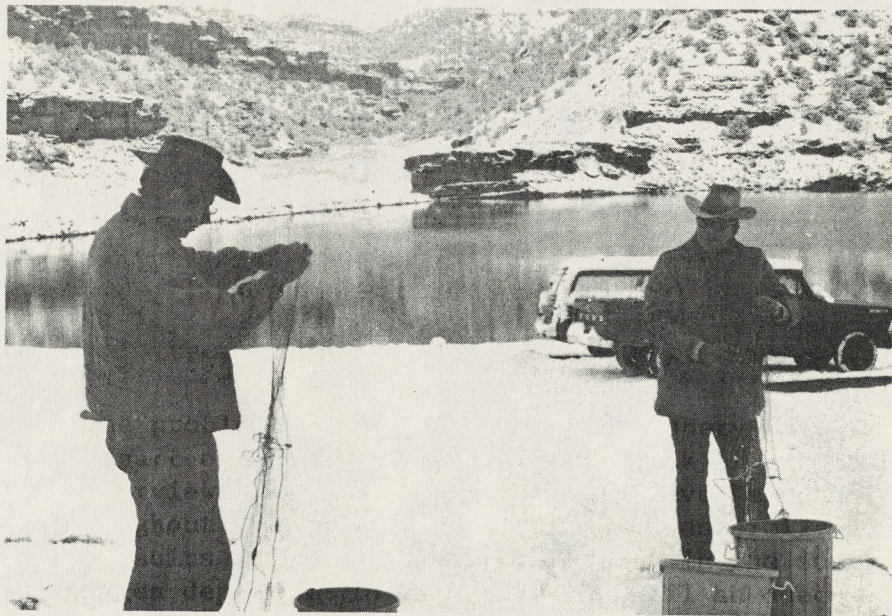
This now presents the unfortunate situation of having brook trout in the stream with the endangered cutthroat. Although brook and cutthroat will not cross because brook trout spawn in the fall and cutthroat spawn in the spring, there will be considerable competition for food and space in this very small stream. Eliminating the brook trout with chemicals is a possibility, but the cutthroat would almost surely be eliminated at the same time. There is some possibility that the cutthroats are established higher up the drainage than the brook trout. Also, the cutthroat may by evolution be better adapted to survival in the higher stream sections. A further survey of the cutthroat's range and the extent of any reproduction will be attempted next year and future management plans will depend on those findings.

Miscellaneous

The number one problem continuing to plague fishery management on the northern part of the Reservation is the lack of adequate water levels in Cedarview Reservoir. Water levels never exceeded 30% of capacity throughout 1972 and recreational use was similarly low. Shallowness results in high water temperatures in the summer and the threat of oxygen depletion in the winter. Until an adequate water level is insured by a better inflow, stocking will by necessity continue to be held at a low level. Remedy of this problem would allow a several-fold increase in the aesthetic appearances of the area, the use by campers and picnickers, and the number of fish stocked and fishing trips expended.

Midview Reservoir is experiencing the large rough fish build-up that was predicted following renovation in 1969. Along with this build-up has come a slowly deteriorating sport fishery. Because entry of rough fish via the inflow canal cannot be stopped, reclamation of the reservoir by drainage and chemical treatment will have to be done approximately every 4-6 years. The next reclamation will be scheduled for 1973 or 1974 depending on the supply of fish, water availability, and irrigation demands.

For the second consecutive year, Towave Reservoir reached critical low water levels due to inadequate inflow during July, August, and September. A combination of drought and dispersion of the inlet streams water by beaver dams caused the problem.



Selecting gill nets for use in sampling
Towave Reservoir the day before
opening April 14, 1972.

During August of 1972 the Ute Tribe and Bureau of Indian Affairs aerial-sprayed dense stands of willow, rosebushes, and creasotebush along much of the Hill Creek bottoms above and below Towave Reservoir with 2,4,5-T. Success appears to have been about 80-90% and a second application with 2,4-D is planned for early 1973. Expected results of the spraying are improved water run-off, less water loss via transpiration, improved range conditions for cattle, and elimination of much of the beaver's food supply. If beaver numbers are reduced along with their food supply, the old dams can be successfully blown to allow better flowage to the reservoir.

The Clay Basin Pond enlargement (from 6-1/2 to 10 surface acres) was completed in 1972 but water was not available to fill it until late in the fishing season. With nearly twice the volume next year (80 acre feet) the pond will accomodate increased fishing pressure. Stocking will continue with catchable size rainbow trout.

Training for the Tribal Fish and Game officers involved on-the-job training through involvement in fishery surveys, fisherman interviews, and routine habitat data collection. Two new conservation officers were hired in 1972, Steven Ridley, and Wayne Perank. All the conservation officers work approximately half the year on fishery related duties and the other half on game duties. One of the most valuable contributions can come from their goodwill contact with non-tribal members.

The Ute Tribe took initial steps in 1972 to secure through the Bureau of Sport Fisheries and Wildlife a much needed game biologist assigned to the U & O Reservation. This request also included positions for two tribal members to train as fish and game technicians so they would be able to assume much of the Tribe's fish and game management in the future. Outcome of this request will depend on availability of funds, congressional support, etc., in 1973.



Preparing to sample Green River
with a boat electro-shocker.

RECOMMENDATION

1. That top priority be given efforts to improve the water source for Cedarview Reservoir.

Submitted by:

Don K. Bartschi

Don K. Bartschi
January 15, 1973

Reviewed by:

Robert L. Azevedo

Robert L. Azevedo
Regional Supervisor
Division of Fishery Services

Distribution:

Washington Office - 3
Region 2, Division of Fishery Services - 4
Region 2, Division of Fish Hatcheries - 3
Region 6, Denver Office - 4
Region 6, Salt Lake Area Office - 3
Ute Indian Tribe, Fort Duchesne - 6
Bureau of Indian Affairs, Phoenix - 2
Vernal Field Office - 8

Table 1 - Fisherman Distribution in Man-days

| Water | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Bench Canal | 3,700 | 1,275 | 685 | 1,516 | 954 | 1,113 | 1,340 | 1,318 | 1,300 | 950 |
| Big Springs | -- | 516 | 2,744 | 2,612 | 5,086 | 6,526 | 9,471 | 6,352 | 4,256 | 4,500 |
| Bottle Hollow Reservoir | -- | -- | -- | -- | -- | -- | -- | -- | 2,000 | 9,515 |
| Cedarview Reservoir | 5,800 | 6,505 | 3,233 | 4,194 | 4,199 | 3,972 | 4,126 | 4,197 | 3,120 | 3,094 |
| Clay Basin Reservoir | -- | -- | -- | -- | 500 | 500 | 882 | 2,686 | 1,480 | 1,200 |
| Hill Creek | 300 | 150 | -- | -- | 125 | 200 | 250 | 275 | 300 | 300 |
| Lake Fork Ponds | -- | -- | -- | -- | -- | -- | -- | 2,462 | 2,396 | 2,450 |
| Lake Fork River | 1,850 | 2,1250 | 4,857 | 4,161 | 3,843 | 2,838 | 2,850 | 2,500 | 2,686 | 2,600 |
| Midview Reservoir | -- | -- | -- | -- | -- | 2,160 | 1,454 | 4,192 | 5,501 | 5,536 |
| Pole Creek | 900 | 310 | 170 | 327 | 1,280 | 567 | 880 | 978 | 500 | 500 |
| Powerhouse Canal | 1,450 | 2,789 | 915 | 1,306 | 1,778 | 3,688 | 3,600 | 2,635 | 1,938 | 2,014 |
| Rock Creek | -- | -- | 2,666 | 2,859 | 4,975 | 2,855 | 3,030 | 3,640 | 3,176 | 3,400 |
| Towave Reservoir | -- | -- | -- | -- | 3,900 | 6,690 | 4,750 | 4,860 | 2,834 | 2,850 |
| Twin Potts Reservoir | 3,400 | 5,995 | 5,120 | 6,969 | 4,296 | 1,986 | 4,677 | 4,785 | 5,639 | 5,600 |
| Unitah Canal | -- | 1,177 | 2,180 | 2,780 | 2,823 | 1,937 | 2,263 | 1,060 | 1,060 | 1,000 |
| Uintah River | 6,650 | 6,712 | 5,275 | 4,953 | 2,517 | 4,284 | 4,493 | 4,943 | 4,500 | 4,300 |
| Weaver Reservoir | 1,000 | 1,170 | 1,000 | 1,530 | 750 | 1,000 | 1,673 | 2,465 | 1,557 | 1,534 |
| Whiterocks River | 700 | 1,059 | 833 | 522 | 686 | 717 | 686 | 754 | 750 | 750 |
| Yellowstone River | 1,650 | 1,838 | 3,677 | 2,931 | 1,677 | 1,585 | 1,600 | 2,034 | 1,752 | 1,750 |
| Totals | 27,400 | 31,646 | 33,345 | 36,660 | 39,389 | 42,618 | 48,025 | 52,136 | 46,745 | 53,843 |

Table 2 - Stocking Record - 1972

| Species | Number | Size | Pounds |
|-----------------|---------|------|--------|
| Smallmouth bass | 25,000 | fry | 1 |
| Lake trout | 2,500 | 2" | 15 |
| Brook trout | 23,700 | 7" | 2,690 |
| Cutthroat trout | 32,128 | 6" | 3,374 |
| Rainbow trout | 82,463 | 6" | 12,051 |
| | 246,890 | 8" | 49,497 |
| Totals | 412,681 | | 67,628 |

Table 3. Estimated monthly fishing pressure, harvest, and catch statistics, Bottle Hollow Reservoir, January - November 1972.

| Month | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Total or Average |
|----------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| No. adult anglers | 654 | 346 | 1,329 | 1,003 | 1,280 | 829 | 800 | 765 | 752 | 584 | 351 | 8,693 |
| Av. hours fished | 3.2 | 3.4 | 4.0 | 3.8 | 3.9 | 3.8 | 4.0 | 4.1 | 3.9 | 4.8 | 4.0 | 3.9 |
| No. trout caught | 2,720 | 941 | 5,316 | 4,955 | 6,489 | 4,095 | 4,800 | 4,074 | 4,106 | 3,923 | 2,249 | 43,668 |
| % rainbow | 96.6 | 93.2 | 72.5 | 73.8 | 81.6 | 88.4 | 86.8 | 92.2 | 89.8 | 85.9 | 85.2 | 85.0 |
| % cutthroat | 1.5 | 1.4 | 23.4 | 24.7 | 14.4 | 8.0 | 8.6 | 4.9 | 5.9 | 8.3 | 7.2 | 11.0 |
| % brook | 1.9 | 5.4 | 4.1 | 1.5 | 4.0 | 3.6 | 4.6 | 2.9 | 4.3 | 5.8 | 7.6 | 4.0 |
| Catch per hour | 1.3 | 0.8 | 1.0 | 1.3 | 1.3 | 1.3 | 1.5 | 1.3 | 1.4 | 1.4 | 1.6 | 1.24 |
| No fish per trip | 4.2 | 2.7 | 4.0 | 4.9 | 5.1 | 4.9 | 6.0 | 5.3 | 5.5 | 6.7 | 6.4 | 5.0 |
| Total pounds caught | 2,260 | 884 | 4,041 | 3,757 | 4,490 | 3,106 | 4,164 | 3,592 | 3,630 | 3,033 | 1,643 | 34,960 |
| No. children anglers | 50 | 49 | 87 | 99 | 111 | 75 | 174 | 90 | 36 | 39 | 12 | 822 |
| Av. hours fished | 2.9 | 4.9 | 4.1 | 5.1 | 3.6 | 3.0 | 4.3 | 4.6 | 3.4 | 5.8 | 2.8 | 4.1 |
| No. trout caught | 150 | 107 | 303 | 363 | 234 | 177 | 489 | 267 | 90 | 102 | 27 | 2,309 |
| % rainbow | 89 | 88 | 56 | 80 | 90 | 88 | 91 | 94 | 100 | 94 | 100 | 85.0 |
| % cutthroat | -- | 1 | 42 | 17 | 5 | 4 | 3 | 1 | -- | 3 | -- | 9.6 |
| % brook | 11 | 11 | 2 | 3 | 5 | 8 | 6 | 5 | -- | 3 | -- | 5.4 |
| Catch per hour | 1.0 | 0.5 | 0.7 | 0.7 | 0.6 | 0.8 | 0.7 | 0.7 | 0.8 | 0.5 | 0.9 | 0.66 |
| No fish per trip | 3.0 | 2.2 | 3.5 | 3.7 | 2.1 | 2.4 | 2.8 | 3.0 | 2.5 | 2.6 | 2.3 | 2.8 |
| Total pounds caught | 144 | 101 | 230 | 275 | 162 | 134 | 424 | 235 | 80 | 79 | 28 | 1,892 |