

Report of Fisheries Investigations  
Inventory of Species Present in Moss Creek Lake near  
Big Spring, Texas

by

James F. Wilcox  
Assistant Project Leader

Dingell-Johnson Project F-5-R-6, Job B-25  
April 16, 1958 - April 15, 1959

H. D. Dodgen - Executive Secretary

Texas Game and Fish Commission  
Austin, Texas

Marion Toole  
Coordinator

Kenneth C. Jurgens & William H. Brown  
Assistant Coordinators



## Job Completion Report

State of TEXAS

Project No. F-5-R-6

Name: Fisheries Investigations and Surveys  
of the Waters of Region 3-B.

Job No. B-25

Title: Inventory of Species Present in Moss  
Creek Lake near Big Spring, Texas.

Period Covered:

April 16, 1958 - April 15, 1959

### Abstract:

Twenty species representing eight families of fish were collected at Moss Creek Lake. Channel catfish (Ictalurus punctatus), white crappie (Pomoxis annularis), and several species of sunfish were found to be the dominant game fishes in the lake. The dominant rough or forage species was the gizzard shad (Dorosoma cepedianum). As a part of the statewide rough fish control program, a selective kill of gizzard shad was recommended and performed during the survey period. Sampling results since indicate that the selective kill was very successful. Largemouth bass (Micropterus salmoides) and redhorse shiners (Notropis lutrensis) were stocked in the lake after the selective kill. At present an excessive amount of speed boating and water skiing are the most serious deterrents to good fishing at this heavily utilized lake.

### Objectives:

To determine the species present and their relative abundance as well as to determine the ecological factors influencing their distribution.

### Procedure:

A total of 33 netting collections was obtained from the lake during the survey period. Of these, 28 were made prior to the selective kill performed on March 24, 1959, and five were obtained afterwards. The nets used were experimental type nylon gill nets, measuring 125 feet in length and eight feet in depth. They were made up in five, 25-foot long sections with mesh sizes varying from one inch square mesh to three inch square mesh, increasing in  $\frac{1}{2}$  inch intervals in each succeeding section. The locations of the netting stations are shown in Figure 2.

With the exception of the fish caught in March, all fish taken in gill nets were weighed, measured, and their sex and condition determined. In addition some species were examined for stomach contents and for parasites. The fish caught in March 1959, were placed in liveboxes to be used as test animals for checking the effectiveness of the rotenone treatment. They were therefore not handled any more than was absolutely necessary.

Thirteen seining collections were made during the course of work on Moss Creek Lake. Each collection consisted of several drags made with varying types of seines at each

station. The types of seines used were a 12 foot commonsense seine, a 30 foot  $\frac{1}{4}$  inch mesh bag seine, and a 150 foot  $\frac{1}{2}$  inch mesh straight seine. Efforts were made to make collections at each of the four seining stations on each trip, however, because of receding water levels, Station 2 was only worked twice and Station 1 could be worked only once. The fish collected in seines were counted by species and a sample of each species was preserved for further study in the laboratory.

In addition to netting and seining, records were made at several times during the course of the survey of the surface water temperature, the pH and the turbidity. Notations concerning the description and general ecological conditions of the lake and surrounding terrain were also recorded. Further ecological and hydrological information was obtained from the City of Big Spring.

#### Findings:

##### Location and Physical Conditions

Moss Creek Lake is approximately nine airline miles east of Big Spring, Texas, located on Moss Creek five miles below the confluence of the North and South Prongs of Moss Creek. (See Figure 1) It is a part of the Colorado River watershed.

At maximum capacity the lake covers 145 surface acres and contains 2,325 acre feet of water with an average depth slightly in excess of 16 feet. In addition to the water supplied the lake by its 27 square mile watershed, there is a flowing spring located about one mile above the head of the lake. This spring ceases to flow during periods of drouth.

Fathometer recordings made during the survey period indicate the lake bottom has accumulated approximately 50 acre feet of silt and sand since the dam was built in 1938. Tables 9 and 10 give pertinent hydrological data concerning the lake.

The area surrounding Moss Creek Lake is composed of plateaus and rolling uplands, with a chain of small mountains lying to the south. The most notable of these is Signal Mountain (Figure 10.) The cover is cedar-grassland and mesquite-grassland association with abundant cacti. Button willows and desert willows are common around the shore of the lake. The soils are chiefly red sandy loams with deposits of clay, caliche, gravel, and limestone.

The recorded pH for the lake is 7.8 and during the project period water temperatures ranged between 33°F. and 87°F. Turbidity ranged between 30 and 42 inches (Secchi).

##### Aquatic Vegetation

Mud plantain (Heteranthera sp. probably Heteranthera dubia), pondweed (Potamogeton sp.) stonewort (Chara sp.) and various forms of algae are the principal vegetative types occurring in Moss Creek Lake. None of these is especially profuse in any area of the lake.

##### History

The dam, impounding Moss Creek Lake, (Figures 3, 4 & 5) was constructed in 1938 by Freeze and Nichols Engineering Co. for the City of Big Spring. The impoundment was to supply water for municipal needs. Since May of 1952, however, Big Spring has obtained water from Lake J. B. Thomas. Moss Creek Lake is now used only as a recreational facility.

The spring, located above the lake, flows out of the side of a cliff into a small natural basin (Figure 8). It has had a history of utilization. The following inscription appears on a granite marker which was erected by the State of Texas in 1936. (Figure 9.)

"MOSS SPRING

INDIAN CAMP SITE AND WATERING PLACE. THE FIRST ROAD FROM FORT SMITH, ARKANSAS TO EL PASO BLAZED BY CAPTAIN RANDOLPH B. MARCH OF THE U. S. ARMY IN 1849, WHICH BECAME KNOWN AS THE NORTH TEXAS EMIGRANT TRAIL OR THE MARCY TRAIL TRAVELED BY MANY IN THE EARLY FIFTIES, PASSED THIS SPRING OF EVERLASTING WATER GUARDED BY ITS SENTRY POST, SIGNAL MOUNTAIN."

Moss Creek Lake went virtually dry in the summer of 1953. It filled up again by May of 1954. Since that time the lake has had a varying amount of water in it and at present is about four feet below spillway level.

Fishing was reportedly very good in 1955. A great many crappie weighing approximately one pound were caught. Since then all species of fish have become more difficult to catch and the size of the crappie caught has diminished.

In July 1957, the lake was opened to use by water skiers. On some weekends, during the spring and summer months, there are more than fifty power boats on the 145 surface acre lake.

Since 1955, the number of recreational permits sold by the lake's two patrolmen has steadily decreased. Two factors can account for this decline. One is the opening of the large, new Lake J. B. Thomas to fishing and the other is the increasingly poorer success of anglers in catching fish from Moss Creek Lake. Many of the permits now sold are for boating rather than for fishing. Even with the decrease in sales of permits the lake is still heavily used by the people of Big Spring and the surrounding area.

Monies collected from the sale of recreational permits, which sell for fifty cents per day, are used to improve and maintain the recreational facilities at the lake and to pay the salaries of the two lake patrolmen. During the past year such improvements as the construction of a highly improved boat launching area (Figure 6), a number of picnic shelters with tables and barbecue pits (Figure 7).

The recommendations given near the end of the report were made to the City Commission of Big Spring prior to the writing of this report and have already been complied with.

On March 24, 1959, a selective kill of gizzard shad was conducted as a part of the Statewide Rough Fish Control Project F-14-D-3. Following this, the lake was closed to fishing and boating from April 13 through May 13, 1959, by order of the City Commission in order to prevent wave action from interfering with the spawning activities of large-mouth bass and minnows indigenous to the lake. During this closed period redhorse shiners and largemouth bass fry were also stocked in the lake in a further attempt to

utilize the growing room created by the shad eradication program. The results of this management work in terms of increased harvest of desirable fish by anglers cannot yet be known because at the time this report is being written the lake is still closed.

#### Netting

Tables 2, 3, 4, 5, and 6 present data obtained from netting collections and Figure 2 shows the locations of the netting stations. Since a selective kill of gizzard shad was performed during the survey period, data obtained from netting before and after the selective kill are separated. Of the 621 fish collected in nets before the selective kill, 64.41% were rough and/or forage species. Only 53 fish were collected in the five nets set after the rotenone treatment and 11.32% of these were rough and/or forage species. There were no gizzard shad found in the netting samples obtained after the selective kill.

There were 3,500 feet of net set prior to the selective kill. These contained an average of 17.7 fish per 100 feet of net. The 625 feet of net set after the selective kill contained an average of 8.5 fish per 100 feet of net.

#### Descriptions of Netting Stations

Station 1 - Because of shallow water at the shoreline, nets used at this station were set approximately 100 feet from the bank and were anchored in approximately 8 feet of water. The bottom here was chiefly sand, clay and gravel. No aquatic vegetation was apparent and the station was used twice during May 1958, and once in October 1959.

Station 2 - One end of the nets used at this station was tied off a rocky, gravelly bluff and the other end was anchored in deeper water. The average depth of the water at this station was 10 feet. The bottom was sand and coarse gravel, with second growth cedar stumps in fair abundance. The station was netted only in May.

Station 3 - One end of the nets used at this station was tied to a willow tree on a steep, red clay bluff. The other end was anchored out from the shore, near the creek channel. With an average depth of about 12 feet, the bottom here was silt and sand covered with second growth cedar stumps. This station was used every time the lake was netted.

Station 4 - This station was located in the creek channel near the head of the lake. One end of the net was tied on the shore at some large boulders and the net was stretched across the creek channel to a slight cut bank. The bottom was silt and sand in the middle of the channel with willow and cedar stumps along the edges. The water averaged eight feet deep. Station 4 was used during January, March and April.

Station 5 - Located at the deep edge of a shallow flat adjacent to the creek channel, the water at this station averaged approximately seven feet deep. One end of the net was tied to a willow tree growing at the edge of the water and the other end was anchored in deeper water. The bottom was sand covered with second growth vegetation and various types of submerged vegetation. Nets were set at this station in May, October and April.

Station 6 - One end of the nets set at this station was tied to a willow tree on the side of a clay, gravel and rubble covered slope. The other end was anchored in the creek channel, in water over 20 feet deep. There were logs and tree limbs lying on the sand and silt bottom. This station was netted during the May, October and April inventory trips to the lake.

Station 7 - This netting station was located at the spillway on the northwest end of the dam. One end of the net was tied to a group of willow trees on the edge of the dam and the other end was stretched out close to the spillway in water approximately 30 feet deep. There were some mud plantain and pondweed near the corner of the dam. The bottom was sand, clay and silt. The station was used in May, October and January.

Station 8 - Located at the middle of the dam, one end of the net used here was tied to the rip rap on the dam and the other was stretched out into water approximately 25 feet deep. Much of the net was over rip rap. This station was used every time netting data was collected at Moss Creek Lake.

Station 9 - This station was located towards the south-east end of the dam and was similar to Station 8 except that the deep end of the net was set in water approximately 20 feet deep. This station was used only during the October netting collections.

#### Seining

Extensive seining collections were made with 8 foot long commonsense minnow seines, 30 foot long bag seines and a 150 foot long straight seine. Four seining stations were established and the results of seining are divided into pre- and post-selective kill results.

In all a total of 979 specimens were collected in seines prior to the selective kill of gizzard shad and 189 specimens were taken after the selective kill. The relative clarity of the water and the bogginess of the bottom at some of the seining stations somewhat limited the number of fish taken in seines. Tables 7 and 8 give the results of seining and Figure 2 shows the locations of the seining stations.

#### Description of Seining Stations

Station 1 - The water at this station was about 5 feet deep approximately 50 feet from the shoreline and gradually became shallower towards the shore. The bottom was firm, composed of sand and gravel, with no aquatic vegetation present. This station was located at the lake's boat launching ramp and was actually a man-made beach (Figure 6).

Station 2 - Approximately 100 feet from the shore, water at this station was three feet deep and gradually became shallower towards the shore. The bottom was composed of packed sand and, other than algae, there was no aquatic vegetation present.

Station 3 - This station was located in the creek channel at the upper end of the lake. The water ranged in depth from 5 feet, at a cut bank at one side of the channel, to zero feet at a sandy beach on the other side of the channel. The bottom was sand and silt and, other than some small plots of pondweed, there was no aquatic vegetation.

Station 4 - This station was located in an inlet off the creek channel near the head of the lake. The water here was about three feet deep and the bottom was sand and silt. Adjacent to the seining beach the water contained second growth cedar, algae and stonewort.

Annotated Species ListClupeidae (herrings)

Dorosoma cepedianum (gizzard shad) - The gizzard shad was the dominant fish species taken in nets prior to the selective kill. It comprised 54.6% of the total fish netted. It was the second most numerous fish taken in the seining collections. Shad were being utilized as food by the larger game fishes to such an extent that it was extremely difficult for an angler to catch a large game fish. At the same time, the various sunfishes in the lake were not being preyed upon and were becoming extremely overabundant. The selective kill of shad was recommended in an effort to reduce or eradicate the shad population and thus, also cause the sunfishes to be preyed upon. Though no gizzard shad were taken in post-kill netting collections or seining collections, it cannot be assumed that they have been entirely eradicated until further population sampling has been done.

Catostomidae (suckers and buffalofishes)

Carpiodes carpio (river carpsucker) - Three individuals of this species were collected in May 1958. None have been collected since. The specimens collected each weighed over two pounds and the largest, which weighed 3 pounds and 3 ounces, was sexually mature. These fish were probably introduced as bait or entered the lake naturally during flooding or by some other natural means. The lake patrolmen, in an effort to prevent the entry of undesirable fish species, carefully examine all bait buckets and replace goldfish and sucker-type minnows with redhorse shiners. Regardless of how this species was introduced, there is no apparent reason at present why they have not as yet become more abundant, as they are in most other West Texas lakes.

Cyprinidae (shiners and minnows)

Carassius auratus (goldfish) - A single goldfish weighing 1 pound and 5 ounces was obtained in the netting samples. The lake patrolman explained the presence of this specimen by relating the story of a woman who, when leaving town, placed her pet goldfish in the lake and afterwards told the patrolman of the act and admonished him to "take good care of them". This species does not appear to have successfully reproduced as yet in this lake.

Notemigonus crysoleucas (golden shiner) - A small number of these fish were found both in the netting and seining samples. The indication from these samples that these fish are relatively few makes this species fairly unimportant in Moss Creek Lake.

Notropis lutrensis (redhorse shiner) - A few individuals of this species were obtained by seining. This species is apparently a good forage fish for bass, crappie and some sunfishes. Several gallons of these shiners have been introduced into the lake by the lake patrolmen since this survey was completed.

Pimephales vigilax (parrot minnow) - Several fish of this species were collected in the seining sample but not enough to indicate that these "minnows" are very abundant or very important in Moss Creek Lake.

Ameiuridae (freshwater catfishes)

Ictalurus punctatus (channel catfish) - This species was taken frequently in the netting collections and was the most abundant game species collected by this method. None were

taken by seining. All sizes were collected in the nets ranging from 2 ounces to 7 pounds. The sampling indication is that, outside of the sunfishes, this species is the dominant game fish in the lake. The fact that not many channel catfish were caught by anglers before the selective kill can probably be explained by the presence of so many gizzard shad. Most channel catfish stomachs examined contained these forage fish.

Ictalurus melas (black bullhead) - The netting and seining samples both indicate that these fish are fairly abundant in Moss Creek Lake even though there are some yellow catfish in the lake which probably serve as a partial control on them. The average black bullhead collected weighed only 2.8 ounces.

Pylodictus olivaris (yellow catfish) - Four individuals of this species were collected by netting. Two of these were returned to the lake and the other two were examined for stomach contents and sexual maturity. Bullhead catfish were found in both stomachs examined. No sexual development was observed. The average size of the fish caught was 5 pounds and 4 ounces. A yellow catfish was caught by an angler when the lake was nearly dry in 1953 that weighed 57 pounds.

#### Poeciliidae (mosquitofishes)

Gambusia affinis (common mosquitofish) - These fish were very abundant in some seining collections and completely absent in others. According to the stomach contents of the various game species examined, they are seldom utilized for food by other species in this lake.

#### Serranidae (basses)

Roccus chrysops (white bass) - Twelve white bass were obtained in the netting collections and none in the seining collections. Some of these fish were in the early stages of sexual development. The small size of the lake and the rare occasions when water runs into the lake probably limit the natural reproduction of this species. Several individuals, weighing over 2 pounds, were collected. This species was most likely introduced by local anglers since there had been several requests by them to the lake patrolmen that white bass be stocked in the lake.

#### Centrarchidae (black basses and sunfishes)

Micropterus salmoides (largemouth bass) - This lake appears to have a fairly large population of this species since 29 individuals were taken by netting and 54 by seining. Fingerlings are stocked each fall from the State Fish Hatcheries, however, and for that reason it is difficult to determine spawning success of this species in Moss Creek Lake. It is possible that speed boating, water skiing, swimming and wading during spring and summer at this small lake might interfere with their spawning success. The lake patrolmen have reported observing this species on spawning nests during the fall of the year and the sizes of fish seined this spring further substantiates the possibility that a fall spawn occurred. Bass checked for sexual development during the spring when the water was 71 degrees Fahrenheit still had not spawned although they were sexually mature. Several largemouth bass weighing 10 pounds have been reported caught by anglers from Moss Creek Lake and one such fish was examined by this observer.

Chaenobryttus gulosus (warmouth) - Several small individuals of this species were seined. They appear to be sub-dominant among the sunfish in this lake and do not reach a large enough size to be of any importance to fishermen.

Lepomis cyanellus (green sunfish) - These fish were taken by netting and seining. Most individuals were very small and must be considered fairly undesirable in this lake.

Lepomis microlophus (redeer sunfish) - This is the only sunfish that consistently attains a large enough size in this lake to be considered desirable. Several individuals weighing over one pound were obtained by netting. They are not numerically dominant among the sunfishes but the lake apparently has a relatively large population.

Lepomis macrochirus (bluegill) - This is the dominant sunfish in the lake and, since the selective kill of gizzard shad, is probably the lake's most numerous species. Because of overabundance, few of these fish ever reach a desirable size. Bluegills only two inches in total length have been observed to be sexually mature and as many as 50 spawning nests have been observed in an area not over 10 feet square.

Lepomis humilis (orangespotted sunfish) - Too small to catch in gill nets, a large sample of these fish was obtained by seining. This species does not attain a desirable size in lakes where they are not over-crowded. They are extremely small in Moss Creek Lake.

Lepomis megalotis (longear sunfish) - This species appears to be more of a stream fish and is sub-dominant among the sunfish in Moss Creek Lake. No individuals of a desirable size were taken.

Pomoxis annularis (white crappie) - These fish appear to be overabundant in Moss Creek Lake. Only a very few large crappie were taken. Most individuals were very small. Even the crappie taken in nets averaged only 3.6 ounces each. The few large crappie taken are believed to have been individuals spawned soon after the lake filled up after the drouth. Crappie as small as three inches in total length have been observed spawning in Moss Creek Lake.

#### Percidae (perches and darters)

Percina caprodes (logperch) - Only a few of these fish were taken in seining but a large number were killed during the selective kill.

#### Conclusions and Recommendations:

The results of the netting and seining samples taken from Moss Creek Lake indicated that: 1. the crappie and sunfish were extremely over abundant and, as a result, are stunted, 2. the largemouth bass and redhorse shiners spawning activity was possibly being impeded by the excessive numbers of speed boats, water skiers, swimmers and waders using the lake during the spring and summer and 3. that gizzard shad were extremely overabundant and, as a result, were crowding the more desirable small fish and retarding their growth and providing so much natural food for the larger bass and catfish that they were difficult for the angler to catch.

These conclusions were presented to officials of the City of Big Spring and it was recommended that a selective kill of gizzard shad be undertaken. Lake Patrolman Frank Covert further suggested to the City Officials that the City close the lake to the public for a period of at least one month and that they also buy several gallons of redhorse shiners to stock in the lake. The City Commission approved these recommendations and on March 24, 1959, a selective kill of gizzard shad was undertaken under Statewide Rough Fish Control Project F-14-D-3. The netting and seining samples taken after the selective kill did not contain shad. It cannot be assumed, however, that no shad are left in the

lake because the samples obtained are too few to be conclusive. On April 13, 1959, the water temperature of Moss Creek Lake reached 60 degrees Fahrenheit and since this was the approximate temperature suggested to Lake Patrolman Covert that largemouth bass begin to spawn, the lake was closed to the public for a period of one month. While closed, a number of redhorse shiners were bought by the City of Big Spring and stocked in the lake. State Fish Hatcheries also stocked the lake with largemouth bass fry.

The forementioned measures were undertaken in an effort to: 1. help the anglers of the area reap a larger harvest of the available bass and catfish contained in the lake, 2. provide more food and growing room for the smaller game fish, and 3. make sure the lake was well stocked with largemouth bass.

The degree that motor boating and other surface activity retards the willingness of fish to take an angler's bait is controversial. It is felt by this observer, however, that the excessive amount of surface activity and the tremendous amount of wave action created by this activity might tend to somewhat impede the fishing success even though the shad population has been drastically reduced. This is a factor that cannot be controlled on this lake. Even so, fishing success was greatly increased during the brief period between the completion of the shad kill and the closing of the lake.

Since the segment period covered by this report closed shortly after the selective kill of gizzard shad, conclusive evidence of its effectiveness in improving fishing could not be obtained. It is therefore recommended that Moss Creek Lake be resurveyed periodically in future segments.

Prepared by James F. Wilcox  
Assistant Project Leader

Approved by Marion Toole  
Director Inland Fisheries Division

Date July 1, 1959

Table 1. A Phylogenetic List of Fish Species Caught by Netting and Seining from Moss Creek Lake from April 16, 1958 through April 15, 1959.

Scientific Name	Common Name
<u>Clupeidae</u> (herrings)	
<u>Dorosoma cepedianum</u>	gizzard shad
<u>Catostomidae</u> (suckers and buffalofishes)	
<u>Carpiodes carpio</u>	river carpsucker
<u>Cyprinidae</u> (shiners and minnows)	
<u>Carassius auratus</u>	goldfish
<u>Notemigonus crysoleucas</u>	golden shiner
<u>Notropis lutrensis</u>	redhorse shiner
<u>Pimephales vigilax</u>	parrot minnow
<u>Ameiuridae</u> (freshwater catfishes)	
<u>Ictalurus punctatus</u>	channel catfish
<u>Ictalurus melas</u>	black bullhead
<u>Pylodictus olivaris</u>	yellow catfish
<u>Poeciliidae</u> (mosquitofishes)	
<u>Gambusia affinis</u>	common mosquitofish
<u>Serranidae</u> (basses)	
<u>Roccus chrysops</u>	white bass
<u>Centrarchidae</u> (black basses and sunfishes)	
<u>Micropterus salmoides</u>	largemouth bass
<u>Chaenobryttus gulosus</u>	warmouth
<u>Lepomis cyanellus</u>	green sunfish
<u>Lepomis microlophus</u>	redeer sunfish
<u>Lepomis macrochirus</u>	bluegill
<u>Lepomis humilis</u>	orangespotted sunfish
<u>Lepomis megalotis</u>	longear sunfish
<u>Pomoxis annularis</u>	white crappie
<u>Percidae</u> (perches and darters)	
<u>Percina caprodes</u>	logperch

Table 2. Results of Monthly Netting Collections taken from Moss Creek Lake from April 16, 1958 through April 15, 1959.

Species	May (13 nets)		Oct. (7 nets)		Jan. (4 nets)		March (4 nets)		April (5 nets)		Total (33 nets)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Gizzard shad	283	67.86	46	40.00	15	39.47	24	47.06	0	0.00	368	54.60
River carpsuckers	3	0.72	0	0.00	0	0.00	0	0.00	0	0.00	3	0.45
Goldfish	1	0.24	0	0.00	0	0.00	0	0.00	0	0.00	1	0.15
Golden shiners	1	0.24	0	0.00	0	0.00	2	3.93	4	7.54	7	1.04
Channel catfish	48	11.50	36	31.30	14	36.85	19	37.25	25	47.16	142	21.06
Yellow catfish	4	0.96	0	0.00	0	0.00	0	0.00	0	0.00	4	0.59
Black bullheads	6	1.44	18	15.65	1	2.63	0	0.00	2	3.78	27	4.00
White bass	5	1.20	2	1.74	1	2.63	0	0.00	4	7.54	12	1.78
Largemouth bass	10	2.40	4	3.48	3	7.90	4	7.84	8	15.10	29	4.31
Green sunfish	4	0.96	0	0.00	0	0.00	0	0.00	0	0.00	4	0.59
Redear sunfish	2	0.48	1	0.87	0	0.00	1	1.96	0	0.00	4	0.59
Bluegills	34	8.16	6	5.22	2	5.26	0	0.00	8	15.10	50	7.42
Longear sunfish	1	0.24	0	0.00	0	0.00	0	0.00	0	0.00	1	0.15
White crappie	15	3.60	2	1.74	2	5.26	1	1.96	2	3.78	22	3.27
Totals	417	100.00	115	100.00	38	100.00	51	100.00	53	100.00	674	100.00

Table 3. Results of Twenty-eight Netting Collections taken from Moss Creek Lake before the Selective Kill of Gizzard Shad Performed on March 24, 1959.

Species	No.	Percent by No.	Total Wt. Lbs. Ozs.	Avg. Wt. Lbs. Ozs.	Percent by Wt.	Avg. K
Gizzard shad	368	59.25	76 13	3.34	21.22	1.57
River carpsuckers	3	.48	7 5	7.00	2.02	3.22
Goldfish	1	.16	1 5	5.00	.36	4.25
Golden shiners	3	.48	12	4.00	.21	2.05
Channel catfish	117	18.84	183 2	9.04	50.61	2.47
Yellow catfish	4	.65	26	4.00	7.18	2.03
Black bullheads	25	4.02	4 7	2.84	1.23	2.59
White bass	8	1.29	7 4	14.50	2.00	2.78
Largemouth bass	21	3.38	41 9	15.65	11.49	2.73
Green sunfish	4	.65	6	1.50	.10	2.98
Redear sunfish	4	.65	3 13	15.33	1.05	4.73
Bluegills	42	6.76	4 6	1.67	1.21	3.25
Longear sunfish	1	.16	2	2.00	.04	5.00
White crappie	20	3.23	4 10	3.68	1.28	3.20
Totals	621	100.00	361 14		100.00	

Table 4. Results of Five Netting Collections taken from Moss Creek Lake after the Selective Kill of Gizzard Shad Performed on March 24, 1959.

Species	No.	Percent by No.		Total Wt.		Avg. Lbs.	Wt. Ozs.	Percent by Wt.	Avg. K
		Lbs.	Ozs.	Lbs.	Ozs.				
Golden shiners	4	7.54	10	2.55	.97	2.09			
Channel catfish	25	47.18	30	3.56	47.57	2.55			
Black bullheads	2	3.78	4	2.12	.38	2.48			
White bass	4	7.54	6	10.50	10.32	2.73			
Largemouth bass	8	15.09	24	3	37.35	2.88			
Bluegills	8	15.09	11	1.42	1.07	3.19			
White crappie	2	3.78	1	8	12.20	3.47			
Totals	53	100.00	64	4	100.00				

Table 5. A Comparison of Rough and/or Forage Species to Game Species Obtained in Twenty-eight Netting Collections from Moss Creek Lake before the Selective Kill of Gizzard Shad Performed on March 24, 1959.

	No.	Percent by No.	Total Wt. Lbs.	Ozs.	Percent by Wt.
Rough and/or Forage Species (Gizzard Shad, River Carp- suckers, Goldfish, Golden Shiners and Black Bullheads)	400	64.41	90	10	25.04
Game Species (Channel Catfish, Yellow Catfish, White Bass, Largemouth Bass, Sunfish and White Crappie)	221	35.59	271	4	74.96
Totals	621	100.00	361	14	100.00

Table 6. A Comparison of Rough and/or Forage Species to Game Species Obtained in Five Netting Collections from Moss Creek Lake after the Selective Kill of Gizzard Shad Performed on March 24, 1959.

	No.	Percent by No.	Total Wt.		Percent by Wt.
			Lbs.	Ozs.	
Rough and/or Forage Species (Golden Shiners and Black Bullheads)	6	11.32		14	1.36
Game Species (Channel Catfish, White Bass, Largemouth Bass, Bluegills and White Crappie)	47	88.68	63	6	98.64
Totals	53	100.00	64	4	100.00

Table 7. Results of Seining Collections taken from Moss Creek Lake before the Selective Kill of Gizzard Shad Performed on March 24, 1959.

	May 1958				Oct. 1958			
	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 1	Sta. 2	Sta. 3	Sta. 4
Gizzard shad	3	0	3	6	0	2	31	*
Golden shiners	0	0	0	0	2	0	2	*
Redhorse shiners	7	2	0	0	1	1	0	*
Parrot minnows	3	0	2	0	1	0	0	*
Black bullheads	0	0	0	0	3	0	0	*
Common mosquitofish	0	21	60	0	0	12	42	*
Largemouth bass	0	1	6	0	1	2	8	*
Warmouth	0	0	0	4	0	0	6	*
Green sunfish	0	3	8	0	3	0	5	*
Redear sunfish	0	2	19	7	1	0	3	*
Bluegills	12	8	0	45	8	6	71	*
Orangespotted sunfish	0	11	22	18	0	0	14	*
Longear sunfish	0	0	0	8	6	0	8	*
White crappie	0	0	3	11	0	0	28	*
Logperch	4	0	0	0	0	0	2	*
Totals	29	48	123	99	26	23	220	*

\* indicates station was unsuitable for seining due to water level.

Table 7. (Continued)

	Jan. 1959				March 1959 **			
	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 1	Sta. 2	Sta. 3	Sta. 4
Gizzard shad	0	*	42	*	1	*	100	*
Golden shiners	1	*	0	*	0	*	2	*
Redhorse shiners	0	*	0	*	0	*	0	*
Parrot minnows	2	*	0	*	0	*	0	*
Black bullheads	8	*	12	*	0	*	0	*
Common mosquitofish	0	*	0	*	0	*	0	*
Largemouth bass	2	*	9	*	2	*	10	*
Warmouth	0	*	7	*	0	*	0	*
Green sunfish	0	*	11	*	2	*	10	*
Redear sunfish	4	*	9	*	4	*	5	*
Bluegills	0	*	67	*	0	*	30	*
Orangespotted sunfish	0	*	13	*	0	*	0	*
Longear sunfish	2	*	7	*	0	*	0	*
White crappie	0	*	19	*	0	*	20	*
Logperch	1	*	0	*	0	*	3	*
Totals	20	*	196	*	9	*	180	*

\* Indicates numbers of fish were estimated because they were being transported to live boxes as quick as possible for use as test animals.

\* Indicates station was unsuitable for seining due to water level.

Table 7. (Continued)

	Totals	Percent by No.
Gizzard shad	188	19.32
Golden shiners	7	.72
Redhorse shiners	11	1.13
Parrot minnows	8	.82
Black bullheads	23	2.36
Common mosquitofish	135	13.88
Largemouth bass	41	4.21
Warmouth	17	1.75
Green sunfish	42	4.31
Redear sunfish	54	5.55
Bluegills	247	25.39
Orangespotted sunfish	78	8.02
Longear sunfish	31	3.18
White crappie	81	8.33
Logperch	10	1.03
Totals	973	100.00

Table 8. Results of Seining Collections taken from Moss Creek Lake after the Selective Kill of Gizzard Shad Performed on March 24, 1959. \*

	April 1959		Totals	Percent by No.
	Sta. 1	Sta. 3		
Common mosquitofish	0	19	19	10.05
Largemouth bass	2	11	13	6.88
Warmouth	0	8	8	4.23
Green sunfish	2	7	9	4.76
Redear sunfish	6	3	9	4.76
Bluegills	15	65	80	42.33
Orangespotted sunfish	0	14	14	7.41
Longear sunfish	3	9	12	6.35
White crappie	0	25	25	13.23
Totals	28	161	189	100.00

\* Stations 2 and 4 were unsuitable for seining due to water level.

Table 9. Chart Showing Relation of Volume of Water to Elevation in Feet of Water Level on Spillway Guage in Moss Creek Lake. (Chart compiled in 1939 by Freeze & Nichols Engineering Co.)

Feet	Acre Feet	Feet	Inches	Acre Feet
1	10	24	6	1000
2	20	25		1050
3	25	25	6	1095
4	35	26		1140
5	50	26	6	1195
6	65	27		1250
7	80	27	6	1305
8	100	28		1360
9	130	28	6	1410
10	160	29		1470
11	190	29	6	1520
12	220	30		1590
13	260	30	6	1650
14	305	31		1720
15	350	31	6	1780
16	400	32		1850
17	450	32	6	1915
18	510	33		1990
19	570	33	6	2050
20	640	34		2120
21	710	34	6	2190
22	780	35		2260
23	870	35	6	2325
24	955			

Table 10. Chart Showing the Water Level in Feet of Moss Creek Lake since January 1st of 1956.

<u>Month</u>	<u>Elevation on Spillway Guage</u>	<u>Month</u>	<u>Elevation on Sprillway G.</u>
1956 January	27.9	1958 January	34.0
February	27.8	February	33.8
March	27.3	March	33.7
April	27.0	April	33.5
May	26.0	May	34.0
June	25.6	June	34.3
July	25.8	July	34.0
August	24.2	August	33.0
September	23.1	September	33.0
October	21.8	October	32.6
November	21.8	November	32.4
December	21.1	December	32.1
1957 January	21.0	1959 January	31.8
February	20.2	February	31.4
March	24.0	March	31.4
April	20.0	April	31.0
May	19.8		
June	36.0		
July	35.8		
August	35.0		
September	30.0		
October	32.6		
November	34.0		
December	34.0		

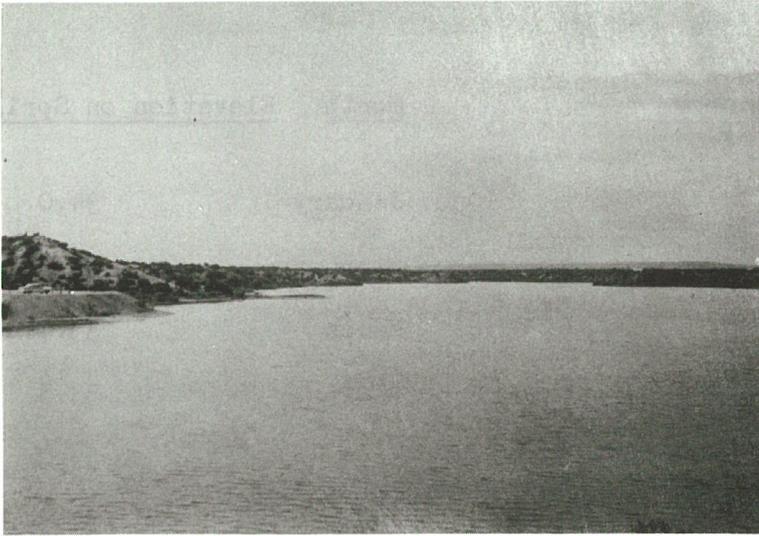


Figure 3  
Moss Creek Lake as Viewed  
from the Dam



Figure 4  
Moss Creek Lake Dam

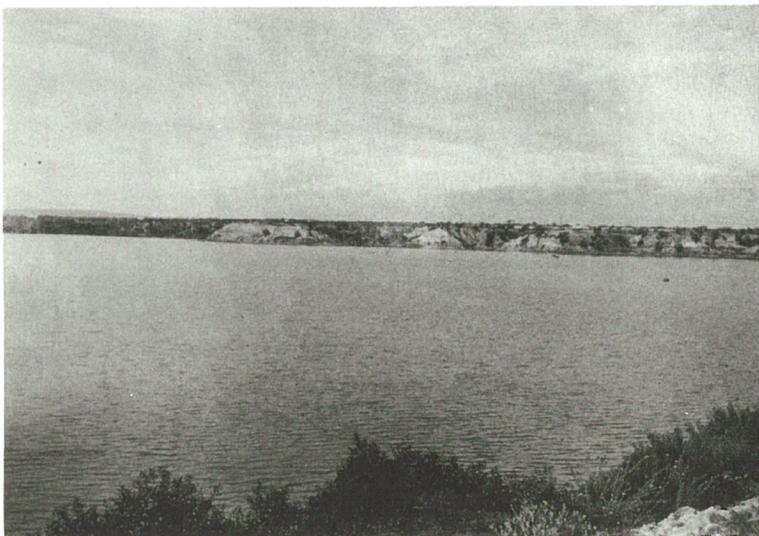


Figure 5  
Picture Showing Steep Bluffs  
on North-west Shore of Lake

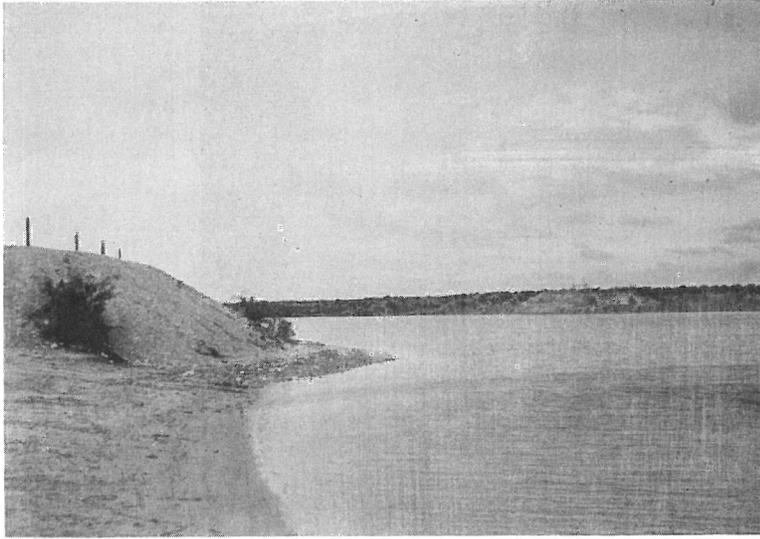


Figure 6  
Seining Station Number One  
and Boat Launching Area

Figure 7  
Picnic Pavilions Built With  
Funds Collected by the Sale  
of Recreational Permits

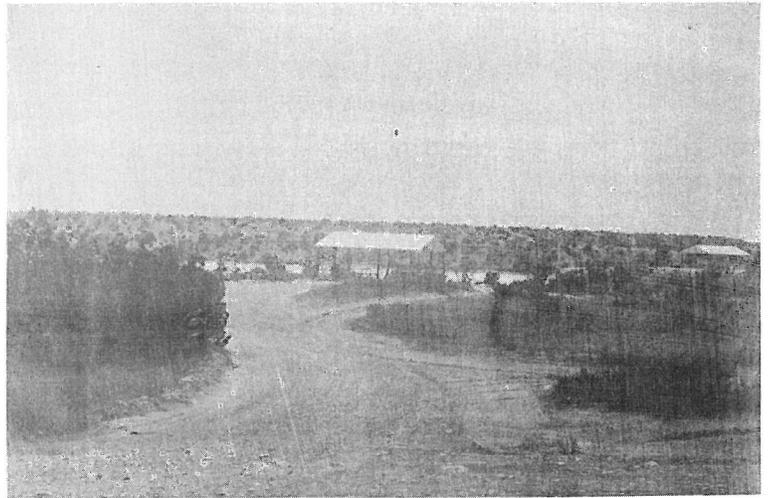


Figure 8  
Pool Created by Moss Spring  
Located Approximately One  
Mile Above Uppermost Part  
of Moss Creek Lake

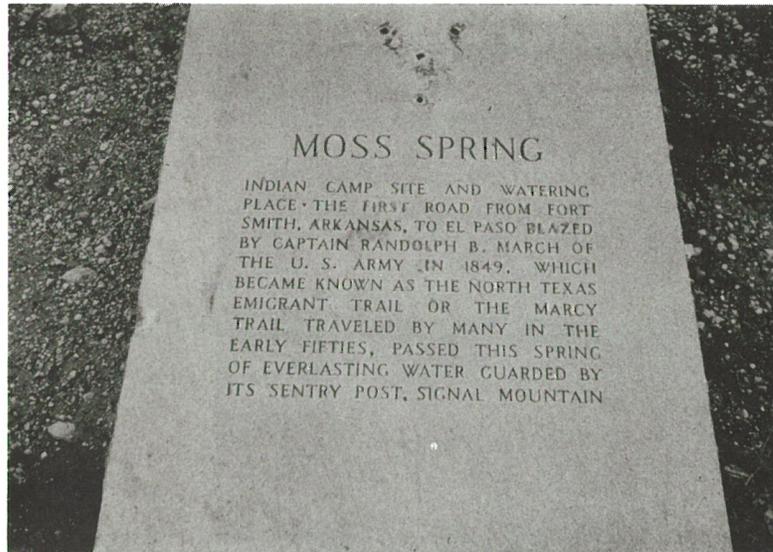


Figure 9  
Monument Erected at Moss Spring by State of Texas

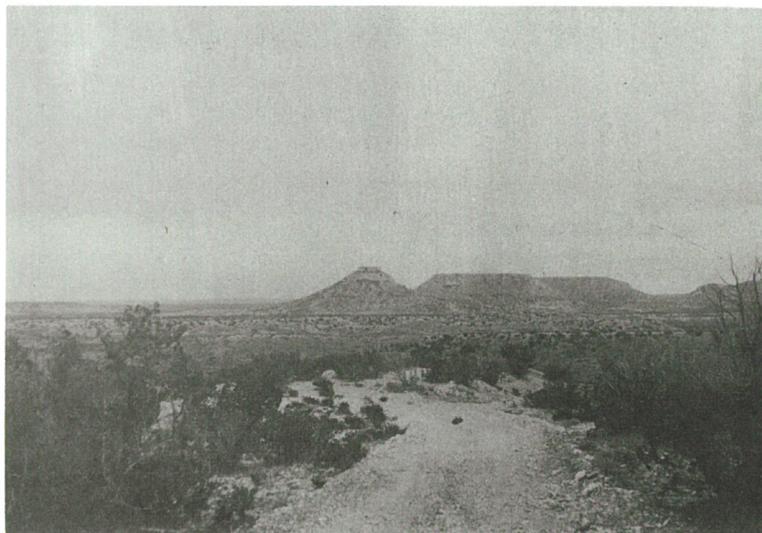
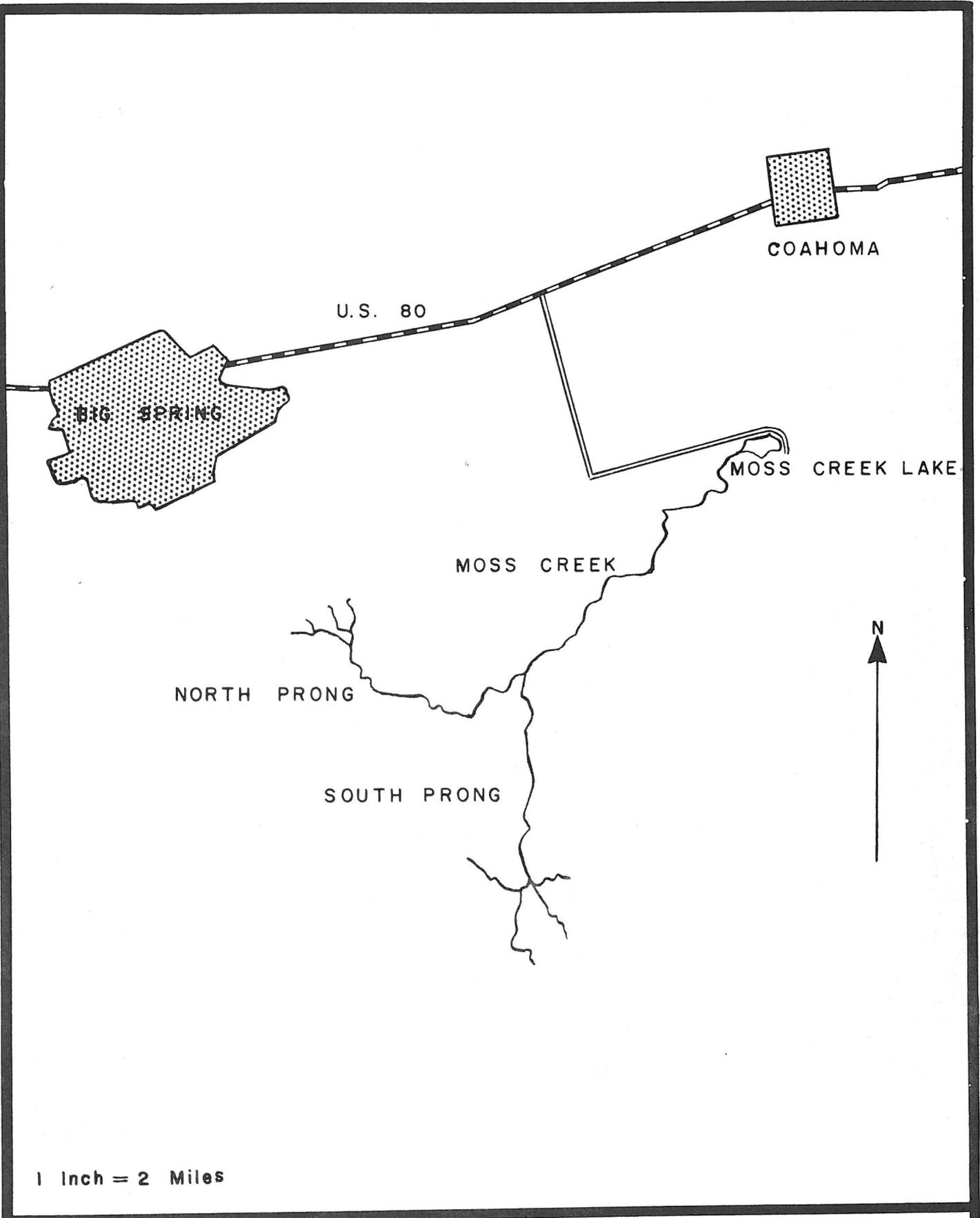


Figure 10  
The "Sentry Post," Signal Mountain and Other Terrain Adjacent to Moss Creek Lake



1 Inch = 2 Miles

Figure 1. Map Showing Location of Moss Creek Lake and Its Watershed.

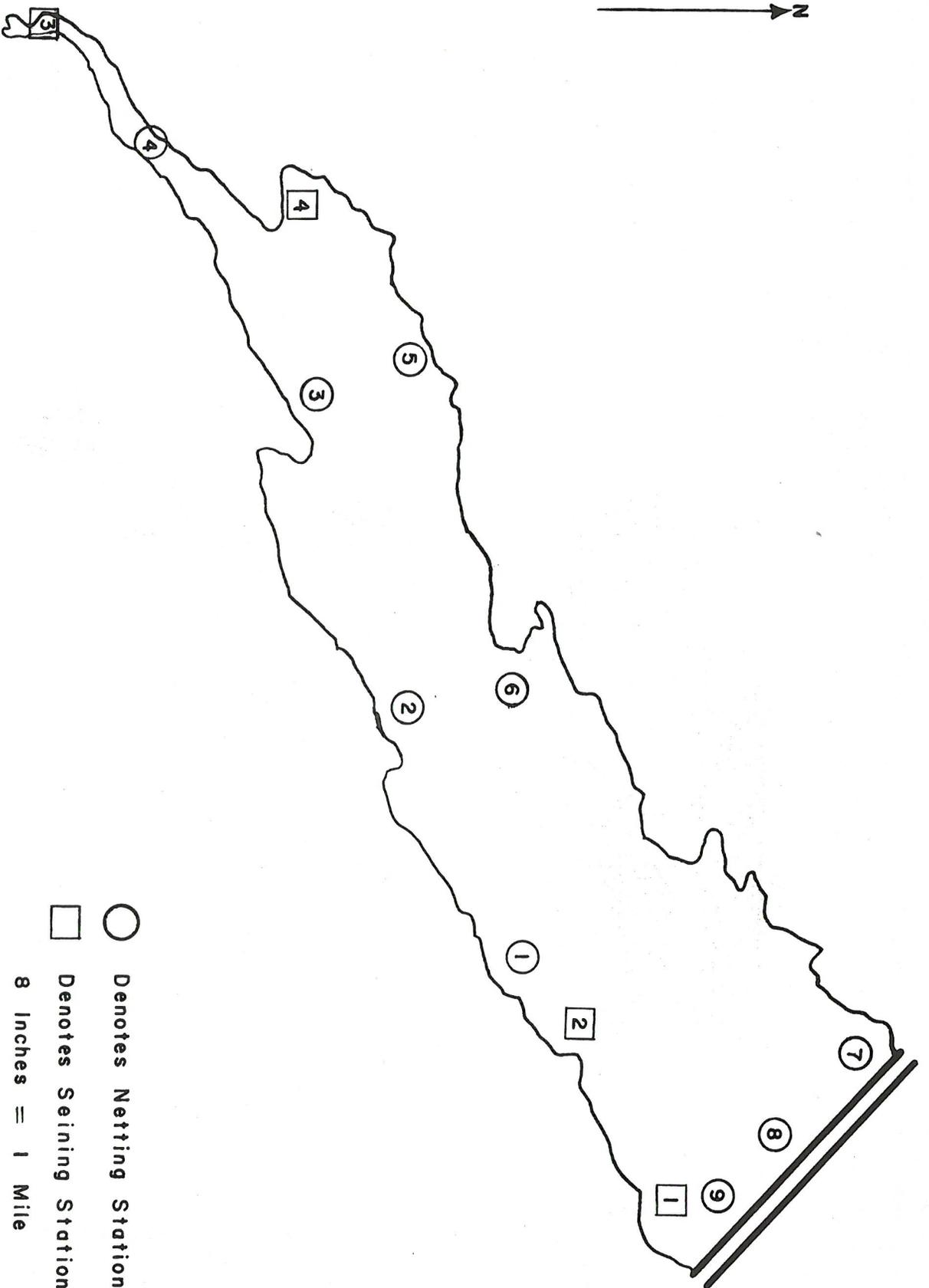


Figure 2. Map Showing Netting and Seining Stations at Moss Creek Lake.