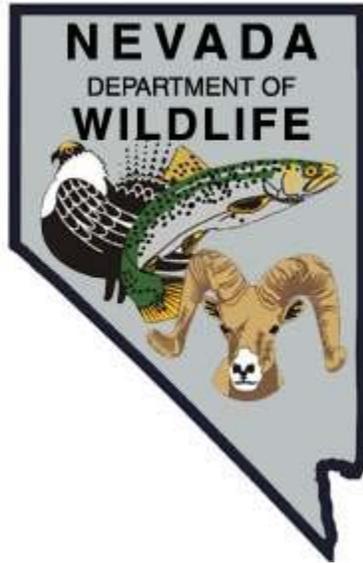


NEVADA DEPARTMENT OF WILDLIFE  
STATEWIDE SPORT FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORT

F-20-53  
2017

SOUTH FORK RESERVOIR  
EASTERN REGION



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

Table of Contents

<u>Contents</u>	<u>Page</u>
SUMMARY .....	1
BACKGROUND .....	2
OBJECTIVES and APPROACHES .....	2
PROCEDURES .....	3
FINDINGS .....	4
MANAGEMENT REVIEW .....	12
RECOMMENDATIONS .....	12

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

List of Figures

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	2017 Angler Use Rainbow Trout Harvest Length Frequency.....	4
2	2017 Game Fish Mercury Concentration Analysis .....	7
3	2017 Population Monitoring – Smallmouth Bass Length Frequency.....	8
4	2017 Population Monitoring – Largemouth Bass Length Frequency .....	9
5	2007 – 2017 Gill Net Rainbow Trout Length Frequency .....	10
6	1996 - 2017 Population Monitoring Frequency – Gill Net Composition ...	11
7	2017 Black Bass Spawning Locations .....	20

List of Tables

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	2017 Angler Use Census and Fish Harvest Summary.....	14
2	2017 South Fork Reservoir Fish Stocking.....	15
3	1989 - 2017 Smallmouth Bass Population Status – Survey Trends.....	16
4	2007 - 2017 Largemouth Bass Population Status – Survey Trends .....	17
5	2017 South Fork Reservoir Fish Population Sampling Catch Record.....	18
6	2017 South Fork Reservoir Fish Mercury Concentration Analysis.....	19

List of Photographs

<u>Number</u>	<u>Title</u>	<u>Page</u>
1	Tagged Wiper No. 462.....	21
2	Stocked Channel Catfish .....	22
3	Salvaged Wiper No. 314 .....	23

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

**State:** *Nevada*  
**Project Title:** *Statewide Fisheries Program*  
**Job Title:** *South Fork Reservoir*  
**Period Covered:** *January 1, 2017 through December 31, 2017*

**SUMMARY**

The fishery of South Fork Reservoir received moderate angler use in 2017 due in part to good water levels, healthy fish stocks, and a close proximity to urban areas in Elko County. With continued recovery from regional drought conditions experienced during 2012 – 2015, South Fork Reservoir finished 2017 at approximately 99% of capacity, with both improved boat ramps in service and no major angler inconveniences observed. Above average amounts of winter precipitation provided for large, spring runoff, with a necessary discharge of excess flows through the spillway. Assessment of reservoir conditions including volume, water quality, temperature, and stocking opportunities was evaluated in March 2017. Coordination with hatchery personnel and NDOW Conservation Education Division regarding preferred stocking dates, fishery conditions, updates, and fishing predictions allowed for maximum use of resources.

Nineteen days of random angler surveys contacted 166 anglers from January through December. Anglers reported fishing 462 hrs to catch 150 fish for annual average catch rates of 0.32 fish per hour and 0.9 fish per angler. The average harvest size for rainbow trout was 17.8 in total length (TL). A total of 108,961 trout (72,732 of catchable size, >8.0 in) and 10,000 6.0-inch channel catfish were stocked during 2017.

Five spring-set gill nets caught 38 rainbow trout, 18 bowcutt trout, 28 wipers, 10 Tahoe suckers, and 10 Lahontan tui chub for a survey total of 104 fish. Rainbow trout ranged from 11.4 to 20.6 in TL and averaged 17.1 in TL, bowcutt trout averaged 16.4 in TL, and wipers averaged 22.1 in TL. The 10 Lahontan tui chub averaged 13.9 in TL and Tahoe suckers averaged 14.9 in TL. No yellow perch were observed in the reservoir gill nets.

A total of 86 smallmouth and 84 largemouth bass were electroshocked during one reservoir population survey and one spillway salvage, with good representation of older age classes present for both species. The average size of smallmouth bass was 8.2 in TL and largemouth bass was 9.3 in TL.

A total of five black bass (three largemouth and two smallmouth bass) and five rainbow trout were collected in fall 2017 for mercury concentration analysis. The black bass ranged in size from 6.4 – 14.9 in TL, while the rainbow trout ranged in size from 11.6 – 19.7 in TL. Total mercury concentration per species was 0.21 ppm for smallmouth bass, 0.38 ppm for largemouth bass, and 0.19 ppm for rainbow trout.

A digital recording thermograph was installed in South Fork Reservoir in late April to monitor water temperature for forecasting black bass spawning behavior during 2017; however, the loss of the buoy and attached thermograph in the main boat ramp cove resulted in no data collected in 2017. GPS mapping of visible black bass spawning nests occurred from early May through early June, with most active nesting recorded during the May 11 - 22 period.

A total of four days were spent making vertical plankton tows to survey for quagga mussel presence on June 20, July 10, July 30, and October 9, 2017. Fifteen individual samples were evaluated for the presence of quagga mussel veligers. Visual surveys of exposed shoreline and the removed boat docks resulted in no adult quagga mussels being observed.

## **BACKGROUND**

Unusual in concept for Nevada, the South Fork Dam was constructed in 1988 exclusively to create a recreationally based reservoir. The 40,000 acre-ft impoundment inundates approximately 1,650 acres and is a year-around multi-recreational attraction. The reservoir filled for the first time in 1995 and angler visits alone exceeded 25,000 days. A multi-storied fishery of stocked trout, black bass, catfish, and wipers has been established since water was first stored. Currently managed under a Coldwater, Quality Fishery Management Concept, and, despite heavy angling pressure, the fishery continues to produce quality and an occasional trophy-sized game fish on a constant basis. Careful attention is required in administration of management initiatives and monitoring of angler harvest and fish body condition as both recreational sport fish interest and the regional angler population increase.

## **OBJECTIVES and APPROACHES**

Objective: General Sport Fisheries Management

Approaches:

- Conduct a general fisheries assessment through scheduled surveys to monitor for marked fish returns and body condition of game fish during drought conditions.
- Utilize gill nets for eight net-nights and electroshocking to determine absence/presence of yellow perch.
- Salvage fish below South Fork Reservoir spillway after spring runoff as needed.
- Purchase and stock 10,000 channel catfish.
- Delineate black bass preferred nesting areas (GPS location, depth, distance from shore, substrate type) during four days in spring.
- Collect five rainbow trout and five largemouth/smallmouth bass for mercury concentration analysis.
- Sample for occurrence of quagga mussel veligers through plankton net tows conducted two to four times between June and September at up to three

sites. Conduct visual and tactile surveys of artificial and natural solid substrates in conjunction with veliger sampling.

## PROCEDURES

General fisheries assessments consisted of a minimum of one day of creel surveys scheduled per month that documented and analyzed trends exhibited within the primary trout fishery. Data collected included number of anglers, location, target species, and harvest. Harvest data included species, size measured to total length, and representative weights, as well as fin clips, marks, and an assessment of body condition. Data was compiled and analyzed.

Three gill nets were set overnight in three separate areas of the reservoir on April 4, soaked overnight, and retrieved on April 5, 2017. All game fish caught were weighed, measured, and returned back into the water if alive. All non-game fish were separated by species, measured (TL), and then removed from the food chain. An additional two gill nets were set on May 23 to identify any potential yellow perch presence within the reservoir. Yellow perch were documented below South Fork Dam in 2016.

The black bass population inventory and spillway salvage occurred on August 24 and September 6, with good results collected utilizing the Smith-Root/Clark electroshocking barge. The two fixed probe anodes were utilized with the barge serving as the cathode. Electroshocker efficiency was fair to good in drawing and holding fish despite the cloudy water conditions in the reservoir. All fish were netted and held in the live well until completion of the transect. Selected fish were measured, weighed, and then released. The outlet tube channel and upper spillway channel were electroshocked and game fish were captured and returned to the reservoir. Smith-Root VVP-15B Electrofisher settings and other information during this inventory are listed below:

### South Fork Reservoir Electrofishing Survey – (September 6, 2017)

Pulse - DC	Pulse Width (millisec) – CPS - 6	Time – 1930 -- 2200
Volts – 500-600	Pulse Freq. (per sec) – 90	Water Condition – cloudy, weeds moderate
Output (amps) – 8-10	Shocking Time – 2,318 secs (39 minutes = 0.64 Hr.)	Water Temp (°F) – 71°

A HOBO Water Temp Pro data logger, recording thermograph was installed near the perimeter of the reservoir by the main boat landing from April through October to examine timing and possible success of bass spawning. Preferred smallmouth bass nesting areas were delineated through visual surveys from a boat during May through June when conditions were favorable (i.e., no wind, good lighting, etc.).

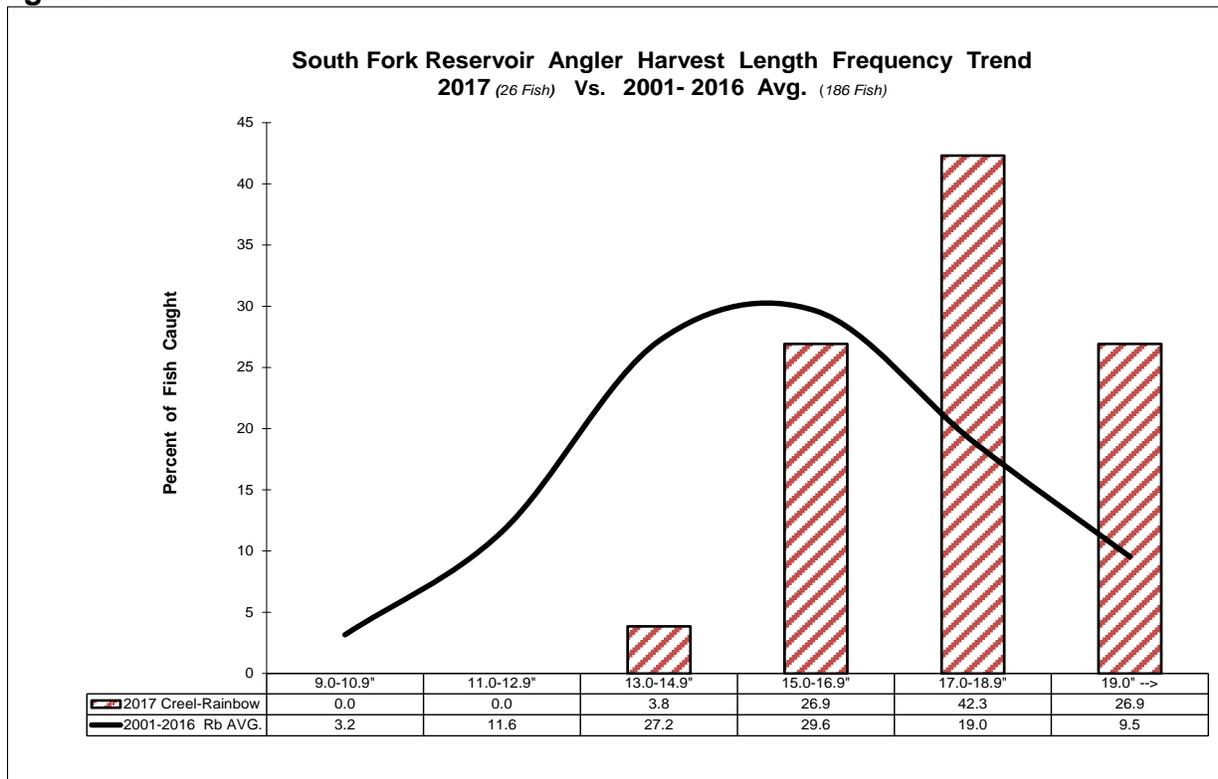
Two different survey techniques were utilized in the monitoring of quagga mussels that included plankton tows and visual/tactile surveys of visible/exposed substrate. Plankton net tows were conducted June through October at all sample locations. A 63- $\mu$ m mesh plankton net was used to take vertical samples at various depths.

## FINDINGS

### Opportunistic Angler Contacts and Surveys

During 2017, 166 anglers were contacted at South Fork Reservoir during 19 days of roving angler surveys (Table 1). A total of 462 hrs of fishing effort was expended to catch 150 fish, of which 108 were released (71% of total catch). Overall angler success was 0.32 fish per hour and 0.9 fish per angler, trending downward from past years. The average harvest size for 26 rainbow trout measured was 17.8 in TL. Figure 1 illustrates angler harvest and rainbow trout length frequency and compares it with the 16-year average. Approximately 69% of the rainbow trout sampled in 2017 were greater than 17.0 in FL. This is significantly higher compared to the long-term average of 29% during the period of 2001- 2016; however, overall sample size should be taken into consideration when making long-term trend comparisons.

**Figure 1.**



Of the 26 rainbow trout measured, 21 of the fish sampled were also weighed for body condition analysis, resulting in 9.5% in poor condition, 28.6% in fair condition, 47.6% in good condition, and 14.3% in excellent condition. The weighed fish averaged

17.9 in TL and 2.32 lbs and had an overall body condition rating of good.

Only two bowcutt and/or cuttbow trout were checked in angler surveys during 2017, and they averaged 17.8 in TL. Approximately 10,000 catchable size cuttbow trout were stocked in October 2017 to replenish the depleted stock of bowcutt trout within the reservoir. This hybrid trout species continues to assist in biological control of non-desirable fish species and increases recreational angling opportunities for larger trout.

Three wipers with an average size of 22.7 in TL and one channel catfish with an average size of 24.0 in TL were caught and measured during the June 2017 angler survey. An additional two anglers reported harvest of tagged wipers that were included into the regional database

A total of 73,732 catchable trout (>8.0 in TL) and 36,229 sub-catchable trout were stocked into South Fork Reservoir during 2017 (Table 2). This allocation of stocked trout represents above average allocations for South Fork Reservoir due to excess trout available within the region and optimum habitat conditions exhibited in 2017.

On June 8, approximately 10,000 six-inch channel catfish were stocked into South Fork Reservoir to augment existing catfish populations. Trophy size catfish were reported being caught, with one entry submitted for the NDOW Trophy fish program. This specimen measured 30 inches TL and weighed 11 pounds.

South Fork Reservoir rose approximately seven feet in elevation and sits near capacity as of December 31, 2017. Water discharge through the dam outlet tubes and spillway channel was monitored by State of Nevada, Division of Water Resources. The reservoir is managed as a flow in – flow out regime, with the only loss of water occurring primarily through seasonal evaporation. Scheduled maintenance on the dam in fall 2017 included:

- Bulkheads were placed on the intake towers and towers were dewatered (first time ever)
  - Inspected both towers
  - Inspected, repaired, adjusted, coated both sluice gates
  - Replaced hydraulic fittings
  - Finished sand blasting and coating both conduits
- Sand blasted and coated Howell-Bunger valves and the exposed conduits in the conduit gallery

### Spillway Channel Fish Salvage

The August 24 spillway salvage produced 34 largemouth bass at an average size of 13.6 in TL and 29 smallmouth bass at an average size of 12.9 in TL, with all bass being transplanted back to the reservoir. The spillway salvage captured and transplanted 45 channel catfish (Photograph 2) that were stranded below the dam outlet

tubes, of which 10 were measured that had an average size of 23.6 in TL. The largest channel catfish was 34.6 in TL and weighing approximately 25 pounds.

The spillway salvage also contacted 25 yellow perch below the dam, of which 10 were measured that had an average size of 8.1 in TL, with the largest being 9.4 in TL. This detection documents the second consecutive year that yellow perch have been encountered during surveys below South Fork Reservoir, with three distinct age classes present for this species.

Three Wipers (average TL of 23.6 inches), one bluegill, and one Lahontan tui chub were contacted during the electroshocking survey and salvage. All three of the wipers were tagged wipers from previous surveys and were recorded into the regional database.

Wiper tag #313 was captured during the August 24 outlet tube salvage and, coincidentally, was originally tagged on January 4, 2012 during the outlet tube salvage. In 2012, this fish measured 21.4 inches and weighed 5.2 pounds. After 5.64 years of residency in the reservoir and/or spillway, the recaptured wiper measured 24.9 inches and weighed 7.4 pounds, an increase of 3.5 inches in length and 2.2 pounds of mass.

Wiper tag #314 was captured during another outlet tube survey on October 25, 2017 and, coincidentally, was tagged on the January 4, 2012 outlet tube salvage. In 2012, this fish measured 22.1 inches and weighed 6.7 pounds. After 5.29 years of residency in the reservoir and/or river, the recaptured wiper measured 25.4 inches and weighed 12.2 pounds, an increase of 3.3 inches in length and 5.6 pounds of mass (Photograph 3).

Wiper tag #482 was captured in the reservoir during the September 6 electroshocking survey, and was originally tagged on July 12, 2012 (outlet tube salvage) and measured 20.3 inches and weighed 3.8 pounds. After 5.16 years of residency in the reservoir, the recaptured wiper measured 23.3 inches and weighed 6.2 pounds, an increase of 3.0 inches in length and 2.4 pounds in mass.

The collection of three tagged wipers that were originally tagged during previous outlet salvages indicates a high potential of fish loss during spring runoff and discharge through the spillway. The capture of game fish below South Fork Dam is an effective way of recovering quality size fish and collecting valuable marked fish data. These salvages have been occurring for more than 20 years and should continue as needed when conditions allow.

### Quagga Mussel Surveys

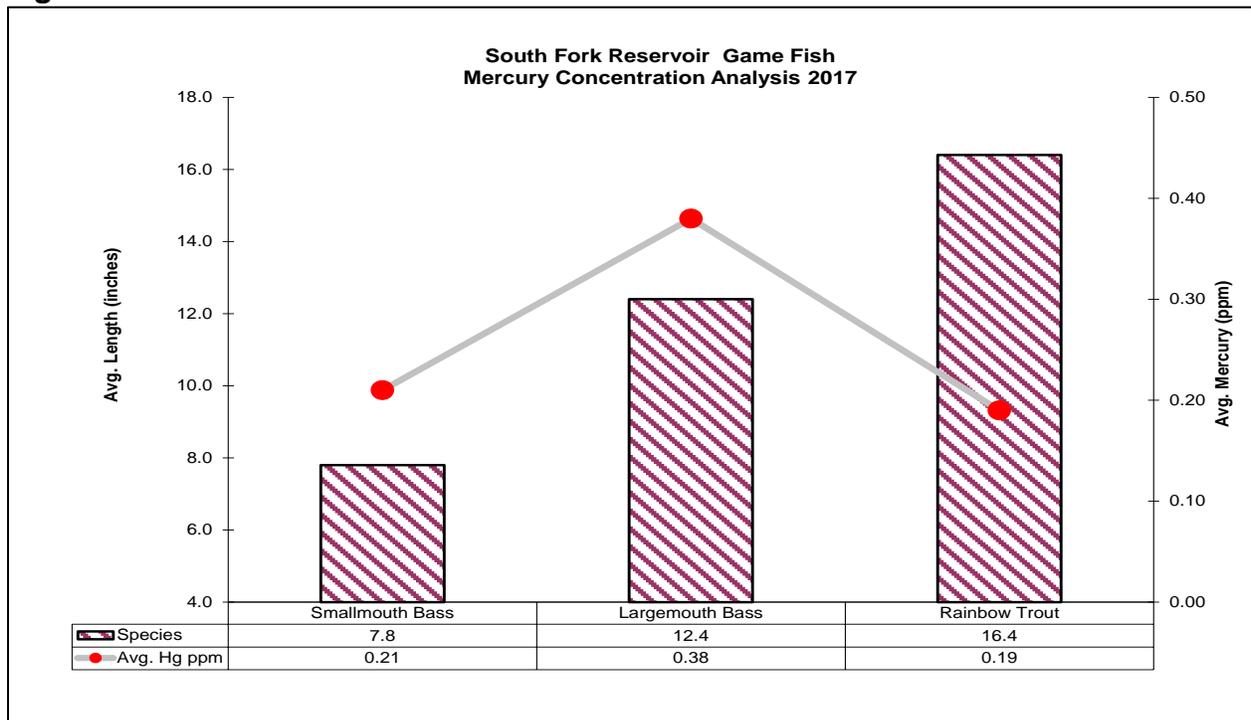
Surveys were conducted on June 20, July 10, July 30, and October 9, with four sites being sampled each day. Two samples were taken at each of the sample sites for the June and October samples that allowed for PCR and microscopy sampling, with one sample per site occurring in July for microscopy analysis. A total of 15 individual

samples were sent to two separate labs for analysis, which resulted in all negative findings. Visual surveys of the exposed shoreline and the removed boat ramps resulted in no quagga mussels being observed. South Fork Reservoir should be treated as a Watch List Water and should be monitored at an elevated level due to the reservoirs recreational popularity and to positive zebra mussel qPCR results that were observed in the past.

Collection of Sport Fish for Mercury Concentration Analysis

In conjunction with the summer electroshocking survey, five rainbow trout, three largemouth bass, and two smallmouth bass were collected for mercury concentration analysis. Figure 2 illustrates the five rainbow trout that averaged 16.4 inch TL (range 11.6 – 19.7 inches TL) and had an average mercury concentration of 0.19 ppm (range 0.13 - 0.30 ppm). The three largemouth bass averaged 12.4 inches TL (range 7.6 – 14.9 inches TL) and had an average mercury concentration of 0.38 ppm (range 0.24 - 0.57 ppm). The two smallmouth bass averaged 7.8 inches TL (range 6.4 – 9.1 inches TL) and had an average mercury concentration of 0.21 ppm (range 0.13 – 0.28 ppm) (Table 6). Periodic sampling of game fish for mercury should continue every five years to document changes and variations in concentrations and environmental conditions.

**Figure 2.**



Water Temperature Monitoring

A digital recording thermograph was installed in South Fork Reservoir to monitor daily water temperature and predict black bass spawning behavior and spawning success during the spring and early summer. The thermograph was placed

approximately 36 in below the surface off an anchored buoy chain/rope near the main boat landing. Unfortunately, due to a boat propeller or deterioration of the buoy rope, the buoy and attached thermograph was lost and not recovered. No reservoir thermograph data or profile was collected in 2017.

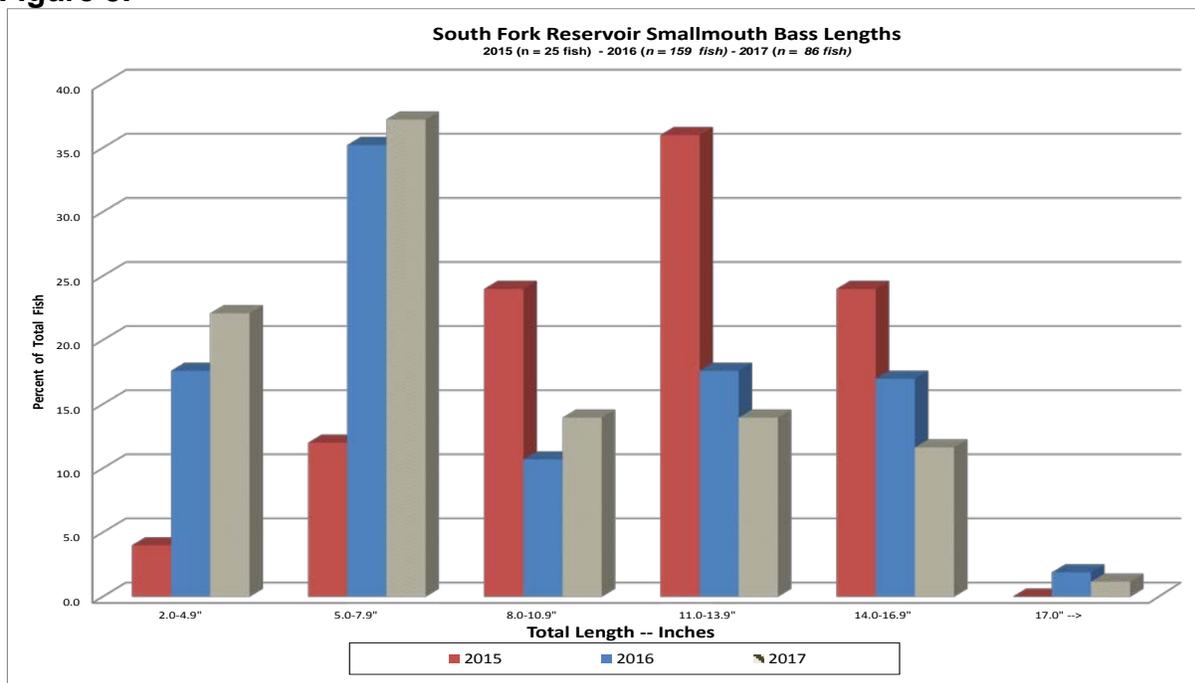
### Sport Fish Population Surveys

The black bass evaluation and electroshocking surveys occurred on August 24 (spillway salvage) and September 6, 2017 (reservoir survey) at Coyote Cove Boat Ramp South, Jet Ski Beach and Mote, Fisherman’s Point, and spillway inlet/dam face.

A total of 58 smallmouth and 50 largemouth bass were sampled during the September 6 reservoir electroshocking survey, with good representation of the younger age classes present for both species. The August 24 spillway salvage produced 34 largemouth bass at an average size of 13.6 in TL and 29 smallmouth bass at an average size of 12.9 in TL, with all bass being transferred to the reservoir.

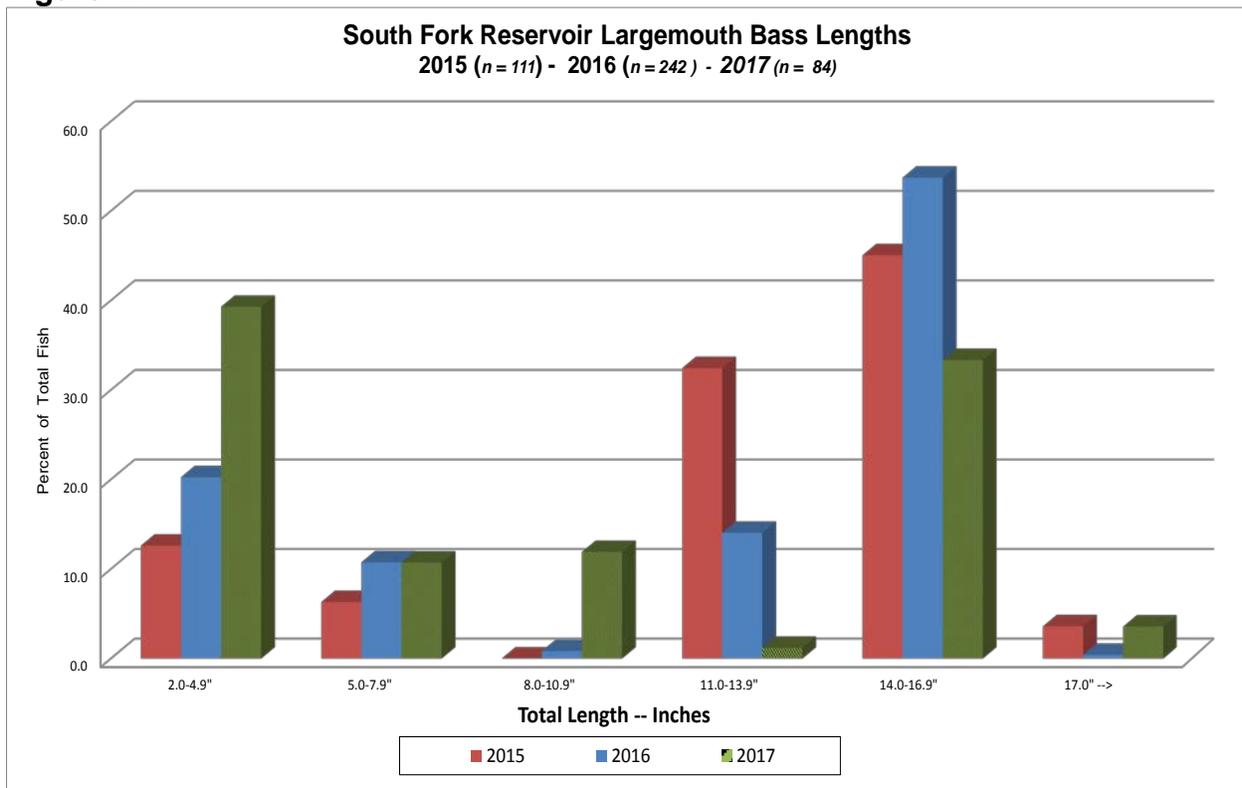
Combining both surveys produced a total of 86 smallmouth bass with an average size of 8.2 in TL (size range 2.9 - 17.6 in TL) and 84 largemouth bass with an average size of 9.3 in TL (size range 3.1 - 18.5 in TL). The Relative Stocking Density 10 (RSD-10) factor for smallmouth bass sampled equated to 69, indicating a population sampled that was dominated by younger age class fish (59% <8.0 inches TL) in comparison to the last two years (Table 3, Figure 3). Two consecutive wet winters within the basin have improved and increased available habitat for all fish species, with the smallmouth bass population illustrating good reproductive success and increases in the carryover of younger ones.

**Figure 3.**



The largemouth bass sampled in 2017 were in great condition, with the largest measuring in at 18.5 inches and weighing four pounds. A total of 84 largemouth bass were measured during both surveys and averaged 9.3 inches TL. A total of 41 were weighed for body condition analysis, with the 41 measured largemouth bass averaging 14.1 in TL, an average sample weight of 2.04 pounds, an average body condition value of 6.27, and a rating of Excellent. Approximately 37% of all largemouth bass surveyed were 14.0 in TL or greater for 2017. The largemouth bass population continues to expand every year, with the dominant cohort of largemouth bass (Class VII+; 2006-year class) leading the way and carrying forward in annual population surveys (Table 4, Figure 4).

**Figure 4.**

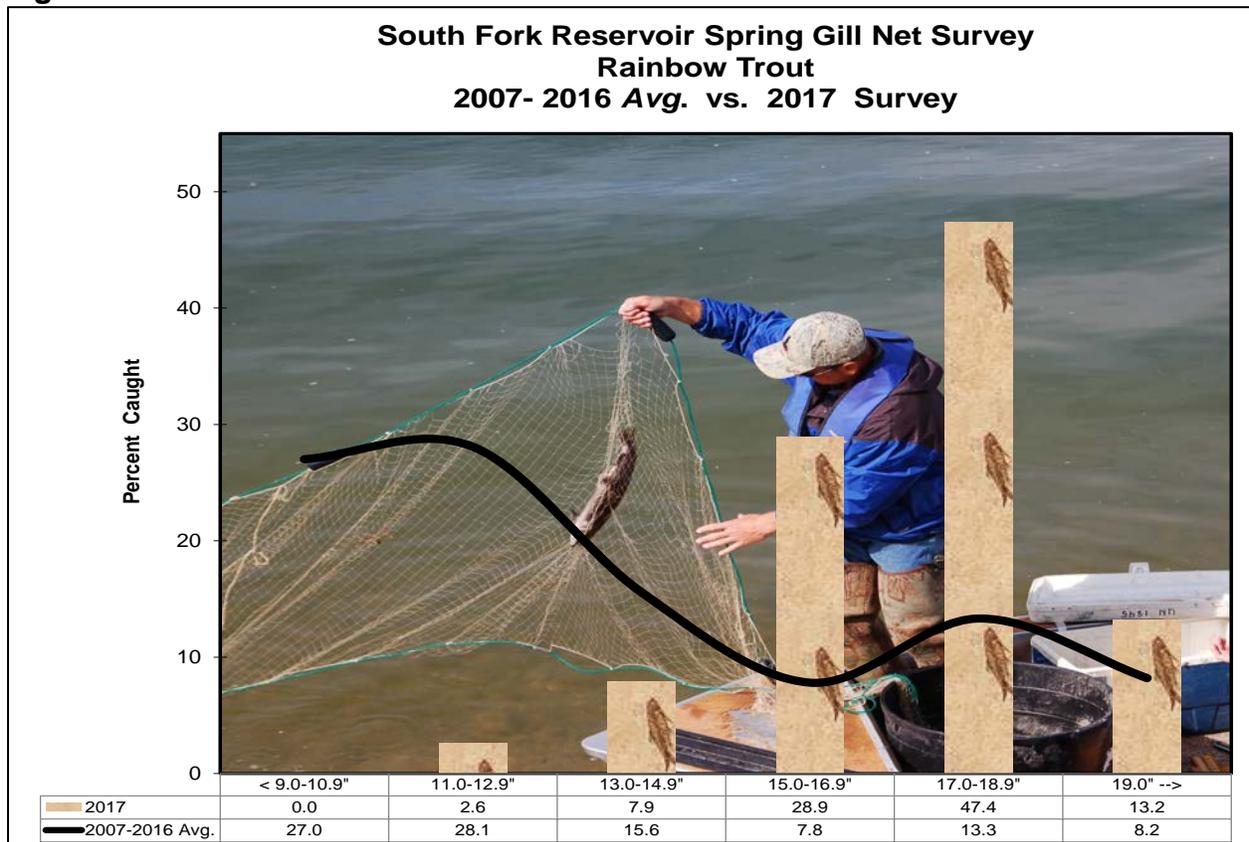


The five spring gill nets caught a total of 38 rainbow trout, 18 bowcutt trout, 28 wipers, 10 Tahoe sucker and 10 Lahontan tui chub, for a survey total of 104 fish (Table 5). The rainbow trout ranged from 11.4 inches to 20.6 inches and averaged 17.1 inches TL, bowcutt trout averaged 16.4 in TL, and the 28 wipers averaged 22.1 inches TL and 5.32 pounds. The Lahontan tui chub averaged 13.9 inches TL and the Tahoe suckers averaged 14.9 inches TL.

K-factor analysis and body condition rating was performed on 37 of the 38 captured rainbow trout. All rainbow trout measured and weighed had an average total length of 17.1 inches, an average weight of 33.6 ounces, and a K-factor value of 4.17 for a rating of good. Two fish had a rating of poor, 24% fair (nine fish), 54% good (20 fish), and 16% received a rating of excellent (six fish).

Figure 5 illustrates the length frequency of the rainbow trout captured in the gill net population survey for 2017 and compares it with the average from 2007 - 2016 gill net surveys. There was very good size class representation of larger rainbow trout (15 - 18.9 inches) caught in 2017 compared to the cumulative ten-year average. The 2017 monthly angler survey had similar length frequencies. The higher percentage of the medium age classes is symbolic of the excess rainbow trout stocked during 2015 - 2016 to accommodate regional drought conditions at other fisheries.

**Figure 5.**

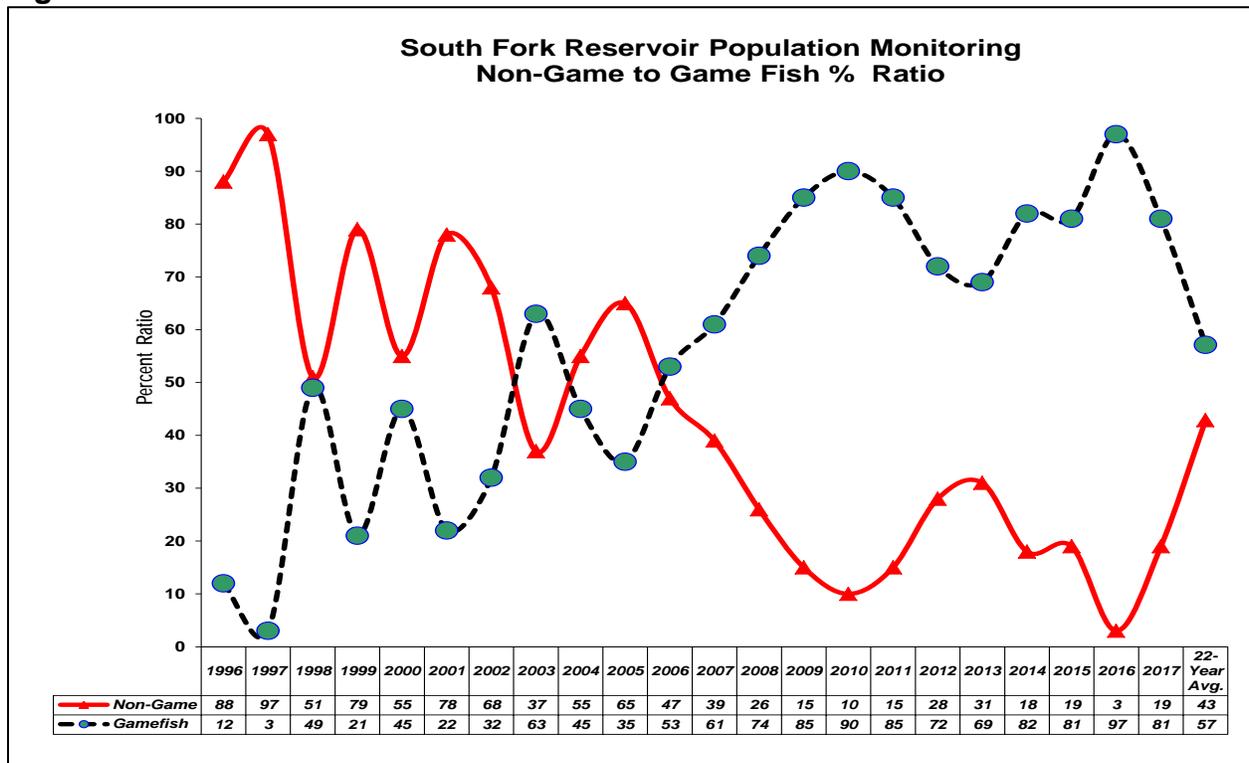


The overall fish composition of the five gill nets combined was rainbow trout 37%, wiper 27%, bowcutt trout 17%, Tahoe sucker 10%, and Lahontan tui chub 10% (Table 5). The non-game fish to game fish ratio was 0.2:1.0, or a percent ratio of 19% to 81% (Figure 6). This trend is well below the 22-year average of 1.1:1.0 non-game to game fish ratio observed within the reservoir (1996 - 2017).

The success of the wiper in South Fork Reservoir has been documented and an evaluation of this species has been ongoing. Evaluation will continue over the next several years of wiper presence within the fishery. Twenty-eight wipers were caught in the 2017-gill net survey, with the specimens measuring an average of 22.1 inches TL (size range of 19.9 – 25.2 inches TL). Trophy-sized wipers are still available to anglers, as documented by a 25.2 inch, about 10 pound tagged wiper caught in the southeast net set (Photograph 1). The tagged wiper was originally tagged in July 2012, and had

grown to approximately 4.8 inches in length and added six pounds of mass in 4.74 years of residency within the reservoir since initial tagging.

**Figure 6.**



The capture of the tui chub and Tahoe sucker is common in the springtime at South Fork Reservoir. The size of the adult non-game fish (>10 inches TL) and the diminishing survey results of smaller and younger age classes of tui chub and Tahoe sucker illustrates that the use of biological control agents (wiper, black bass, channel catfish, piscivorous species of trout) are having positive effects in controlling those populations within the reservoir. Only ten adult tui chub and ten adult Tahoe sucker were captured in 2017.

### Mapping of Spawning Bass

Ocular surveys of spawning black bass species occurred via boat during late spring. Reservoir temperature patterns occurred during May and June 2017, with fair success of observing active black bass nests. Early morning surveys on May 11 and May 22, 2017 produced good numbers of active nest.

Adult largemouth and smallmouth bass were observed on both survey dates in 2.0 - 8.0 feet of water on bedrock, cobble, gravel, and mud substrates, with recorded water temperatures ranging from 59.7 - 64°F. The May 11 survey observed mostly largemouth bass nests (65%), varying in water depth from 2.5 - 6.2 feet, with an average water temperature of 63°F. The majority of the nests were observed on

cobble, gravel, and sand substrates on the west side of the reservoir, with aquatic weeds or woody habitat nearby. The May 22 survey observed 38 active nests, mostly smallmouth bass (63%), varying in water depth from 2.7 - 7.5 feet, with an average water temperature of 61.3°F.

All active black bass nests were mapped with GPS coordinates and stored in regional files (Figure 7). In 2017, 72 black bass nest were counted, with equal quantities (36 smallmouth bass, 36 largemouth bass) detected. Both species were within close proximity to each other at some locations on similar, preferred substrate. The largemouth bass nests were located at an average depth of 3.51 feet below the surface, while the smallmouth bass nests were found at an average depth of 4.99 feet below surface.

### **MANAGEMENT REVIEW**

- Angler surveys were conducted throughout most of the 2017 fishing season with fair fishing and angler satisfaction reported.
- The spillway fish salvage was completed and allowed for the capture and transport of black bass and channel catfish back into the reservoir.
- The objective to install, retrieve, and analyze data from the thermograph was initiated. Loss of the navigational aid buoy and thermograph prevented data from being recovered in 2017.
- The black bass electroshocking surveys were completed in the summer and fall.
- The approaches for quagga mussel monitoring were completed.
- Population surveys revealed continued success in preserving nongame fish to game fish ratios and showing good carryover of planted trout.
- Channel catfish were stocked in June 2017.
- Delineation of black bass nesting areas occurred in the spring of 2017.

### **RECOMMENDATIONS**

- Continue angler surveys to develop an accurate assessment of angler use and harvest of all fish species.
- Conduct an electroshocking survey to examine age class distribution, body condition, and Relative Stock Density of black bass and to examine the expansion of their populations.
- Continue to monitor reservoir water levels and temperatures in spring to evaluate and predict black bass spawning timing and possible success.
- Continue population sampling to monitor game fish to nongame fish ratios.
- Continue channel catfish augmentation, monitoring, and evaluation to provide added control of nongame fish and provide diversified angling opportunities with trophy fish potential.

Prepared by: Chris Drake  
Fisheries Biologist  
Eastern Region

Date: February 2018

Table 1

**SOUTH FORK RESERVOIR**  
**2017 Creel Census Angler Use and Harvest Summary**

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Totals
No. Days Checked	1	2	2	1	3	5	1	0	1	1	1	1	19
Avg. Water Temp.	Ice=12"		46	53	65	68	71		61	50	48	Ice=4"	57.8
No. Anglers Checked	4	0	10	9	36	77	13		12	5	0	0	166
No. of Hours Fished	12.5		19.0	22.5	117.0	213	15		47	16			462.0
Total Fish Caught	5		16	4	38	62	4		16	5			150
Total Fish Harvested:	5		3	2	9	16	0		2	5			42
<i>Rainbow Trout</i>	5	0	3	2	9	12	0		2	3			36
<i>Brown Trout</i>	0	0	0	0	0	0	0		0	0	0	0	0
<i>Bow-cutt Trout</i>	0	0	0	0	0	0	0		0	2	0	0	2
<i>Black Bass</i>	0	0	0	0	0	0	0		0	0	0	0	0
<i>Wiper</i>	0	0	0	0	0	3	0		0	0	0	0	3
<i>Channel Catfish</i>	0	0	0	0	0	1	0		0	0	0	0	1

**Average Measured Fish Harvest Size**

<i>Rainbow Trout No.</i>	5		3	2	1	10	0		2	3	0	0	26
<i>Avg. Size (FL-in.)</i>	16.9		17.9	17.2	17.7	17.4			19.5	19.8			17.8
<i>Brown Trout No.</i>	0	0	0	0	0	0	0		0	0	0	0	0
<i>Avg. Size (FL-in.)</i>													
<i>Bow-cutt Trout No.</i>	0	0	0	0	0	0	0		0	2	0	0	2
<i>Avg. Size (FL-in.)</i>										17.8			17.8
<i>Black Bass No.</i>	0	0	0	0	0	0	0		0	0	0	0	0
<i>Avg. Size (TL-in.)</i>													
<i>Wiper Bass No.</i>	0	0	0	0	0	3	0		0	0	0	0	3
<i>Avg. Size (TL-in.)</i>						22.7							22.7
<i>Channel Catfish No.</i>	0	0	0	0	0	1	0		0	0	0	0	1
<i>Avg. Size (TL-in.)</i>						24							24.0

**Angler Catch Rate**

Fish / Hour	0.40		0.84	0.18	0.32	0.29	0.27		0.34	0.31			0.32
Fish / Angler	1.25		1.60	0.44	1.06	0.81	0.31		1.33	1.00			0.90

Table 2

South Fork Reservoir Fish Stocking

2017

Date	# of Fish Stocked	Pounds	Avg. Size (in.)	Species	# / Pound	Strain	Stocking Location	Water Temp.	Tank Temp.	
April 12, 2017	8,380	2,000	8.4	Rainbow Trout	4.2	Eagle Lake	Main Boat Ramp	50	51	
April 14, 2017	750	200	8.7	Rainbow Trout	3.8	Eagle Lake	Main Boat Ramp	51	51	
April 14, 2017	6,714	1,800	8.8	Rainbow Trout	3.7	Eagle Lake	Main Boat Ramp	51	51	
April 19, 2017	8,000	2,000	8.5	Rainbow Trout	4.0	Eagle Lake	Main Boat Ramp	50	51	
May 22, 2017	8,120	2,000	8.5	Rainbow Trout	4.1	Eagle Lake	Main Boat Ramp	65	51	
May 23, 2017	3,045	750	8.5	Rainbow Trout	4.1	Eagle Lake	Main Boat Ramp	63	53	
June 8, 2017	10,000	750	6.0	Ch. Catfish	13.3	Arkansas/CO	Main Boat Ramp		61	
July 6, 2017	11,620	700	5.3	Brown Trout	16.6	Sheep Creek	Main Boat Ramp	74	54	
October 18, 2017	10,000	2,000	8.0	Cutt-bow	5.0	Marlette	Main Boat Ramp	55	53	
October 20, 2017	9,860	2,000	8.0	Rainbow Trout	4.9	Tahoe	Main Boat Ramp	49	51	
October 20, 2017	9,425	2,000	8.1	Rainbow Trout	4.7	Tahoe	Main Boat Ramp	49	53	
October 24, 2017	2,896	625	8.1	Rainbow Trout	4.6	Tahoe	Main Boat Ramp	53	53	
October 24, 2017	5,542	1,200	8.1	Rainbow Trout	4.6	Kamloop	Main Boat Ramp	53	53	
October 26, 2017	15,046	525	4.4	Rainbow Trout	28.7	Eagle Lake	Main Boat Ramp	49	52	
October 26, 2017	9,563	875	6.1	Rainbow Trout	10.9	Eagle Lake	Main Boat Ramp	49	52	
Total Catchable Trout (>8.0 inches):	<b>72,732</b>	<b>16,575</b>	<i>(x = 4.4 fish/pound)</i>					Avg. Water Temp. =	54.4	52.7
Total Sub-catchables Trout (4.0-7.9 inches):	<b>36,229</b>	<b>2,100</b>	<i>(x= 17.3 fish/pound)</i>							
Total Fingerling Trout (< 4.0 inches):	<b>0</b>	<b>0</b>								
Total Warm Water Fish:	<b>10,000</b>	<b>750</b>								
<b>TOTALS</b>	<b>118,961</b>	<b>19,425</b>								

BC/CB Trout = 10,000 catchable in 2017

**Table 3**

**SOUTH FORK RESERVOIR**

**Smallmouth Bass Population Status-Electrofishing Survey Trends**

Year	Number of Bass Sampled	Number of Bass Measured	Avg. Size TL - Inch	Number of Bass / Hour	RSD-10 Factor	K-Factor	Rating
1989	84		< 2.0 inches	227	N/A - First year of survey - YOY survey		
1990	136	60	7.9	227	88	5.20	Good
1991	72	41	6.5	419	0	5.08	Good
1992	59	47	8.9	113	54	5.47	Good
1993	23	14	13.5	43	93	5.85	Excellent
1994	16	14	6.8	31	50	5.48	Good
1995	38	14	8.0	61	100	5.95	Excellent
1996	73	29	7.4	130	17	5.62	Good
1997	No Data						
1998	184	82	10.2	263	44	6.03	Excellent
1999	114	48	9.5	185	43	5.85	Excellent
2000	71	71	12.0	186	87	6.22	Excellent
2001	62	39	12.8	214	85	5.86	Excellent
2002	26	13	13.7	37	92	6.06	Excellent
2003	31	20	13.9	55	90	6.19	Excellent
2004	81	44	14.4	104	100	5.87	Excellent
2005	49	17	12.4	49	71	6.11	Excellent
2006	38	20	11.5	49	75	5.40	Good
2007	47	47	6.5	28	56	5.29	Good
2008	76	76	6.6	138	75	5.53	Good
2009	147	57	10.6	403	73	5.57	Good
2010	68	55	7.7	93	67	5.36	Good
2011	60	60	8.3	67	69	5.68	Good
2012	23	23	13.2	43	86	5.48	Good
2013	27	27	13.2	40	76	5.52	Good
2014	104	104	10.2		84		
2015	25	25	11.5	16	91	5.54	Good
2016	183	159	8.9	126	83	5.22	Fair
2017	86	86	8.2	91	69	5.73	Good
<b>1998-2017 Avg.=</b>	<b>75</b>	<b>54</b>	<b>10.8</b>	<b>115</b>	<b>76</b>	<b>5.71</b>	<b>Good</b>

**RSD 10** = # of fish > 254mm (*relative* quality catch length) / **Total** # of fish > 203 mm (= minimal stock length 8.0 inches)

**RSD 10** between 40 and 60 is desired, indicating a balanced population.

Special regulation in effect at South Fork Reservoir (15 inch minimum size, legal harvest from 7/1-2/29).

2017 Included 1 electrofishing survey for smallmouth bass conducted during late summer & 1 spillway salvage in August

**Table 4**

**SOUTH FORK RESERVOIR**

**Largemouth Bass Population Status-Electrofishing Survey Trends**

Year	Number of Bass Sampled	Number of Bass Measured	Avg. Size TL - Inch	RSD-10 Factor	K-Factor	Rating
1989						
1990						
1991			Size Range 7 - 13.0 inches			
1992	377		11.20			
1993	14	7	14.20	86	6.27	Excellent
1994	2	1	15.90			
1995	8		~3.2			
1996						
1997	No Data					
1998	3					
1999	1		~2.0			
2000	0					
2001	11					
2002	11					
2003	16					
2004	75	37	5.38			
2005	36					
2006	0					
2007	8	8	14.7			
2008	35	35	10.7	80	6.54	Excellent
2009	67	39	10.7	69	6.60	Excellent
2010	89	85	7.6	46	6.23	Excellent
2011	68	68	10.4	64	6.41	Excellent
2012	56	56	11.8	69	5.57	Good
2013	89	89	10.6	69	5.49	Good
2014	190	190	11.7	92	5.43	Good
2015	111	111	12.5	100	5.41	Good
2016	257	242	11.4	99	5.64	Excellent
2017	84	84	9.3	76	6.27	Excellent
<b>2007-2017 Avg.=</b>	<b>96</b>	<b>92</b>	<b>11.0</b>	<b>76</b>	<b>5.96</b>	<b>Excellent</b>

RSD 10 = Relative Stock Density w 10 inch pref. catch length; = # of fish > 254mm (relative quality catch length) / Total # of fish > 203 mm (= minimal stock length 8.0 inches)

RSD 10 between 40 and 60 is desired, indicating a balanced population.

Special regulation in effect at South Fork Reservoir (15 inch minimum size, legal harvest from 7/1-2/29).

2017 1 reservoir electrofishing survey & 1 spillway salvage/capture for largemouth bass, survey bias towards fish > 8 inches.

Table 5

**SOUTH FORK RESERVOIR  
Population Sampling Catch Record  
2017**

Gill Net / Sample #		#1-3	#4-5	Electrofish-Spillway	Electrofish		
Date:		04/4/2017	5/23/2017	8/24/2017	9/6/2017		
SPECIES						TOTALS	% of Species Composition
<i>Rainbow Trout</i>	Number	35	3	0	0	<b>38</b>	10.9
	Avg. Size (Inches-FL)	17.1	16.4			<b>17.0</b>	
<i>Bow-Cutt Trout</i>	Number	18	0	0	0	<b>18</b>	5.2
	Avg. Size (Inches-FL)	16.4				<b>16.4</b>	
<i>Smallmouth Bass</i>	Number	0	0	28	58	<b>86</b>	24.7
	Avg. Size (Inches-FL)			12.9	5.9	<b>8.2</b>	
<i>Largemouth Bass</i>	Number	0	0	34	50	<b>84</b>	24.1
	Avg. Size (Inches-TL)			13.6	6.3	<b>9.3</b>	
<i>Wiper</i>	Number	18	10	1	2	<b>31</b>	8.9
	Avg. Size (Inches-TL)	22.3	21.8	24.9	23.0	<b>22.3</b>	
<i>Channel Catfish</i>	Number	0	0	45	0	<b>45</b>	12.9
	Avg. Size (Inches-TL)			23.6		<b>23.6</b>	
<i>Yellow Perch</i>	Number		0	25	0	<b>25</b>	7.2
	Avg. Size (Inches-TL)			8.1		<b>8.1</b>	
<i>Lahontan tui chub</i>	Number	5	5	1	0	<b>11</b>	3.2
	Avg. Size (Inches-TL)	13.9	13.8	14.0		<b>13.9</b>	
<i>Tahoe Sucker</i>	Number	10	0	0	0	<b>10</b>	2.9
	Avg. Size (Inches-TL)	14.9				<b>14.9</b>	
TOTAL FISH		86	18	134	110	<b>348</b>	
HOURS		44.0	30.00		0.64	<b>74.6</b>	
% Non-desirable Fish		17.4	27.8	0.7	0.0	<b>6.0</b>	
Fish / Net-Shocking Hour		2.0	0.6		171.9	<b>4.7</b>	
Avg. Res. Water Temp. (F°)		50.1	64.3		71.0	<b>61.8</b>	
Approx. Reservoir Capacity		80%	90%		97%		

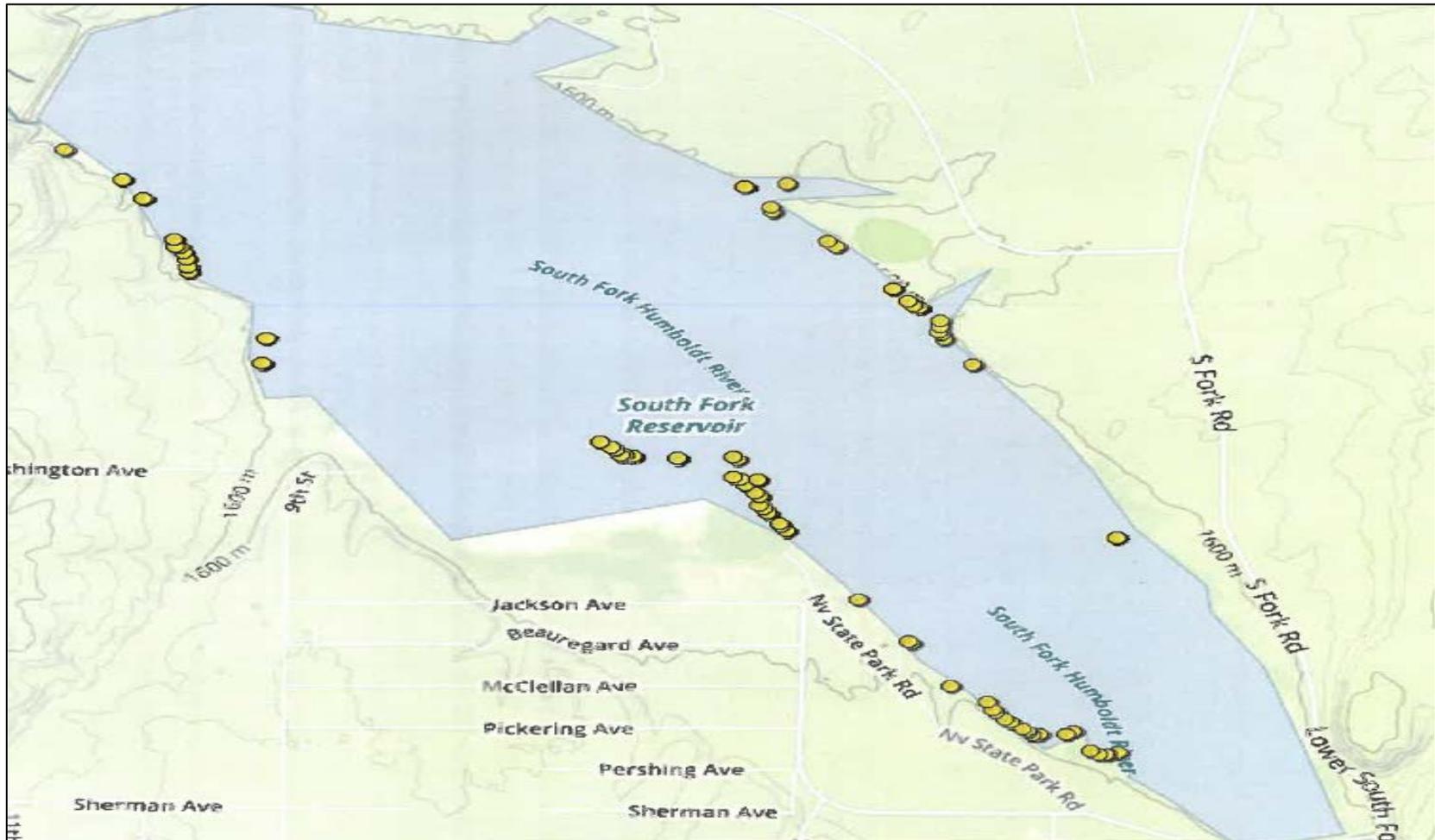
**Net/Sample Locations:**

1. North Camp ground point. Experimental Mesh gill net, 150 feet long.
2. South end of the reservoir, East side in 10 feet water, buoy set. Experimental Mesh gill net, 150 feet long.
3. Northwest Side near Fisherman's Pt. Experimental Mesh gill net, 150 feet long.
4. Northwest Side near Spillway mouth. Experimental Mesh gill net, 150 feet long.
5. Southwest Side near No wake buoy line. Experimental Mesh gill net, 150 feet long.
6. One Electrofish survey (September 6) included South End, Coyote Cove, Jet Ski Beach, and Spillway/Dam face. 1 Spillway & Tube Electrofish salvage Aug. 24.

Table 6

Water	Species	Length cm	Length mm	TL Length Inches	Weight grams	Weight ounces	Mercury_ Wet (mg/kg)	Date Sampled
South Fork Reservoir	SMB	16.2	162.0	6.4	62.0	2.2	0.28	9/6/2017
South Fork Reservoir	SMB	23.2	232.0	9.1	212.0	7.5	0.13	9/6/2017
	<b>Average</b>	<b>19.7</b>	<b>197.0</b>	<b>7.8</b>	<b>137.0</b>	<b>4.8</b>	<b>0.21</b>	
South Fork Reservoir	LMB	19.2	192.0	7.6	95.0	3.3	0.24	9/6/2017
South Fork Reservoir	LMB	37.7	377.0	14.8	795.0	28.0	0.32	9/6/2017
South Fork Reservoir	LMB	37.8	378.0	14.9	865.0	30.5	0.57	9/6/2017
	<b>Average</b>	<b>31.6</b>	<b>315.7</b>	<b>12.4</b>	<b>585.0</b>	<b>20.6</b>	<b>0.38</b>	
South Fork Reservoir	RB	29.5	295.0	11.6	1045.0	36.8	0.13	10/17/2017
South Fork Reservoir	RB	35.9	359.0	14.1	475.0	16.7	0.18	10/17/2017
South Fork Reservoir	RB	44.5	445.0	17.5	1295.0	45.6	0.15	10/25/2017
South Fork Reservoir	RB	48.5	485.0	19.1	820.0	28.9	0.30	10/25/2017
South Fork Reservoir	RB	50.0	500.0	19.7	305.0	10.7	0.21	10/25/2017
	<b>Average</b>	<b>41.7</b>	<b>416.8</b>	<b>16.4</b>	<b>788.0</b>	<b>27.8</b>	<b>0.19</b>	

Figure 7.



**South Fork Reservoir 2017 Black Bass spawning locations (May 11 & May 22, 2017). A total of 36 largemouth and 36 smallmouth bass nests identified in 2017.**

**Photograph 1**



***The 25.2 inch tagged wiper, tag #462. This specimen was originally tagged on July 12, 2012 at 20.4 inches Total Length and weighed 3.5 pounds. After 4.74 years of residency within the reservoir, the fish had grown approximately 4.8 inches in length and increased in mass by approximately 6 pounds!***

Photograph 2



*Approximately 45 channel catfish trapped below the outlet tubes of South Fork Dam. All catfish were captured and returned to the reservoir on August 24, 2017.*

Photograph



*NDOW Fisheries biologist Mike Starr with tagged wiper #314, caught 0.5 miles downstream of South Fork Reservoir dam on October 25, 2017. This wiper was also originally tagged during the January 4, 2012 South Fork Reservoir outlet tube salvage. Weighing in at 12.2 pounds and 25.4 inches long, this wiper had grown approximately 3.3 inches in length and amassed 5.6 pounds of weight in 5.3 years of residency. Entrainment of reservoir fish during spillway openings and high flows results in loss of reservoir fish, sometimes in large quantity*