FORT COBB RESERVOIR

5-YEAR FISHERIES MANAGEMENT PLAN

SOUTHWEST REGION
OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION

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Background

Fort Cobb Reservoir, a U.S. Bureau of Reclamation project, was impounded in 1959 for flood control, water supply, fish and wildlife propagation and recreation. The dam is located at river mile 7.4 on Cobb Creek, a tributary of the Washita River, in Caddo County, Oklahoma (Lat 35E 09' 45", Long 98E 27' 00"). Cobb Creek and two other principal tributaries (Lake Creek and Willow Creek) drain approximately 314 square miles into the reservoir (Figure 1). Outflows from the reservoir include municipal and industrial pipelines to Chickasha and Anadarko, and an outlet for Cobb Creek.

The water in Fort Cobb Reservoir is managed by the Fort Cobb Master Conservancy District, with offices in Anadarko, Oklahoma. Land use within the Fort Cobb watershed is primarily agricultural, with 52% cropland and 42% range and pasture land. The remaining land surface can be broken down into various other rural categories, with less than 0.5% considered urban.[1]

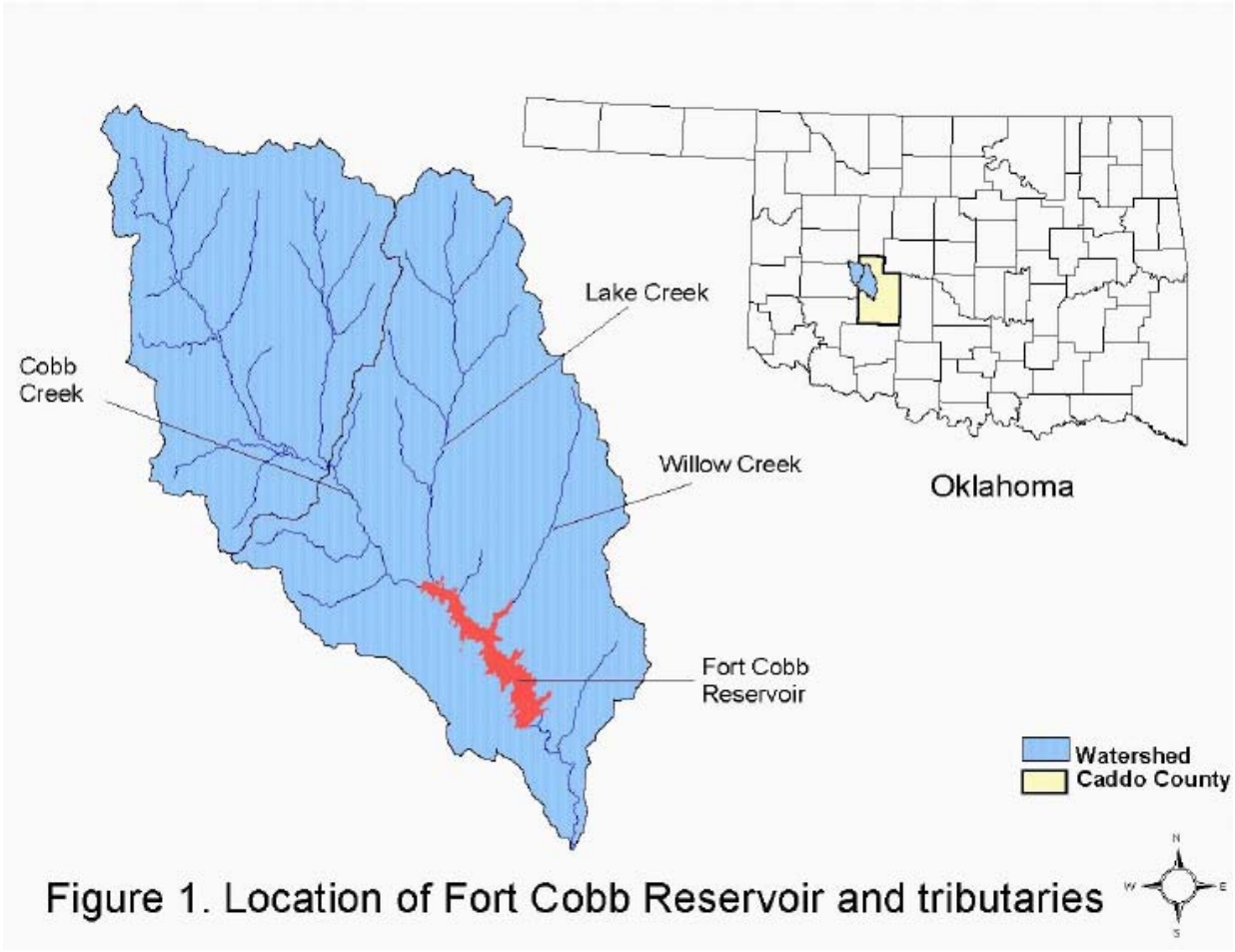


Figure 1. Location of Fort Cobb Reservoir and tributaries

Through long-term agreement, the U.S. Bureau of Reclamation leases its lands around Fort Cobb Reservoir to the Oklahoma Department of Tourism and Recreation (State Park -south half) and the Oklahoma Department of Wildlife Conservation (north half; Fig. 2). Fort Cobb State Park provides camping, swimming, boating and other recreational activities. The Oklahoma Department of Wildlife Conservation (ODWC) provides hunting, fishing and boating facilities and camping in the Fort Cobb Wildlife Management Area. Boating is regulated by the Lake Patrol Division of the Oklahoma Highway Patrol.

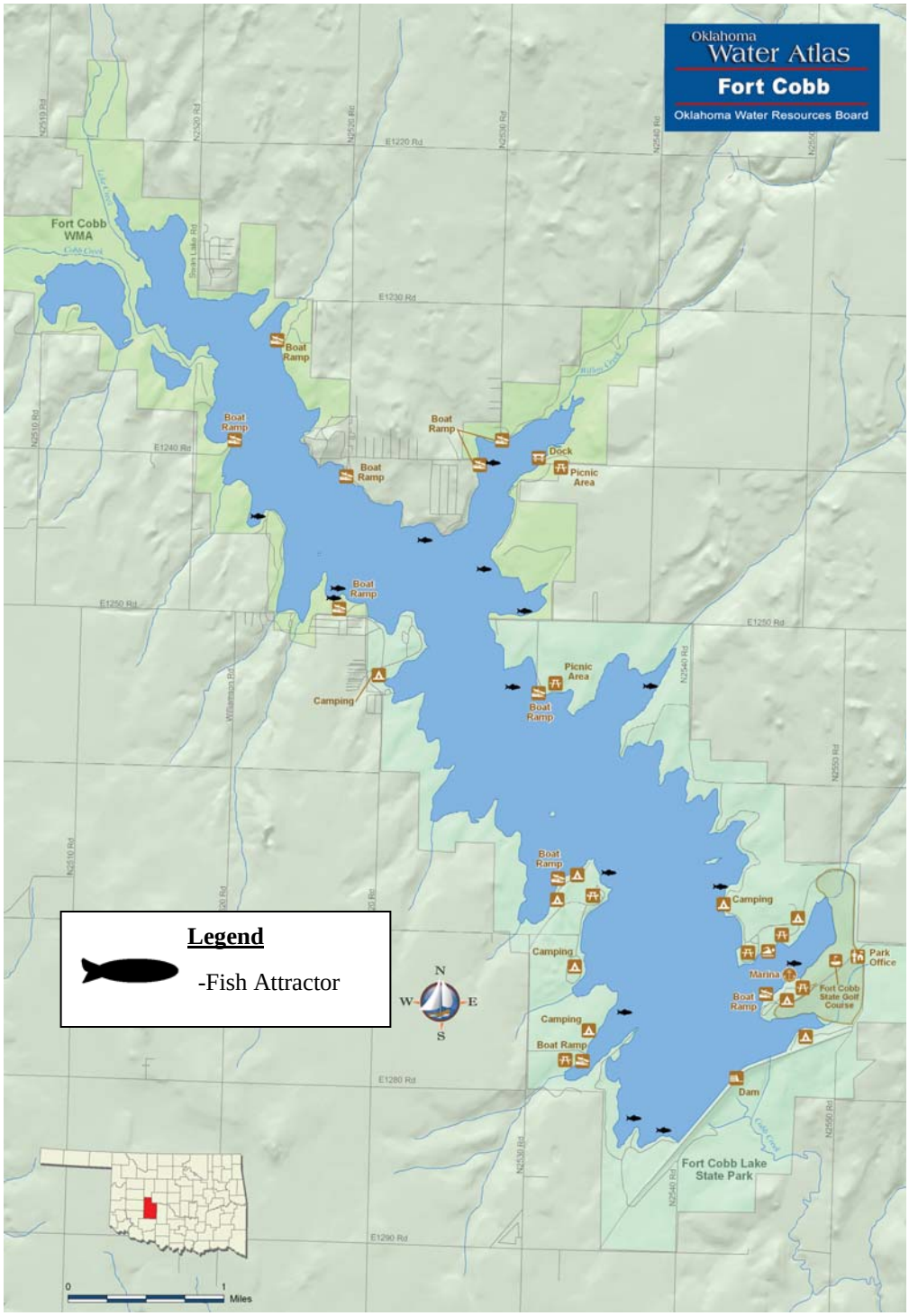


Figure 2. Map of Fort Cobb Reservoir and lands managed by State Parks and ODWC.

Habitat

At normal pool elevation (1342.0' NGVD), Fort Cobb reservoir is about 7 miles long, has a current storage capacity of 73,800 acre-feet, a surface area of 4,300 acres (6 square miles), a mean depth of 19 ft, a maximum depth of around 60 ft., and a shoreline length of about 45 miles.[2] Fort Cobb's Shoreline Development Index (shoreline length / surface area) is 7.0, indicating a reservoir with a moderate number of coves, points and arms.

Outflows through the dam commonly occur in the spring rainy season, but are infrequent afterward, and the average water exchange rate (average annual outflow / lake storage volume) is 0.6, indicating a relatively long water storage period.

The Fort Cobb MCD maintains the lake level at 1342 ft. The level is reduced by just two feet, on average, in summers due to water use and evaporation. The lowest elevation on record is 1335 from October, 1972. Lowest elevation in the last 15 years was 3 ft. below normal pool Fort Cobb, and the lake remained nearly full through the mini-drought of 2001 – 2006. A record high of 1352, or 10 ft. above normal, was recorded in June, 1995. In August, 2007, Fort Cobb rose to 1350 – 8 ft. above normal- after Tropical Storm Erin dropped over 12 inches of rain in the watershed in a 48-hour period. The lake remained in flood stage for one month after the event.

Fort Cobb has no standing timber remaining in the basin, and many of the sandy banks are eroded. Shoreline willows and cottonwoods are flooded occasionally, providing temporary shallow cover for fish. Fort Cobb supports little aquatic vegetation since 1982, when high water and a Eurasian milfoil control project combined to eliminate its extensive cattails and milfoil beds. Recently, transplantings of native water willow and bulrush by the ODWC have taken root in a handful of coves in the upper end. Extensive natural beds of sago pondweed were noted in the shallows at Fort Cobb in summer, 2009.

Sand and sandstone are the primary substrates in most of the lake. The dam and some shorelines in the State Park are lined with rock rip-rap, and sandstone points and drop-offs provide some fishing habitat. Siltation is common from erosion in the watershed, and deltas formed in upper coves are quickly populated by willow trees.

A sedimentation study conducted at Fort Cobb in 1993 determined that siltation had resulted in a 7% loss of water volume (at elev. 1342) since construction in 1959, or an average loss rate of 165 acre-feet per year.[3] Assuming that trend has been consistent, about 10% of volume has been lost to date, due to erosion of sandy topsoil from farms in the watershed. That equates to a loss of over 480 water surface acres for recreation.

Water Chemistry

Water quality in Fort Cobb Reservoir has been thoroughly studied due to impacts from farming activity in the watershed and resulting degradation of water supply and recreational values. From sampling in 2006, Fort Cobb's Trophic State Index (TSI) value was 65, indicating a hypereutrophic reservoir.[1] Another study in 2000-2002 found a TSI value of 67.[5] The lake ranks as "not supporting" for potential beneficial uses of fish and wildlife propagation (due to turbidity), or for aesthetics (due to trophic status).

Secchi disk visibilities in 2002 averaged 19.5 inches in the upper end, 35.5 inches in the lower end, and 28 inches overall. In 2006, secchi visibility averaged 24 inches. The NTU value was 13 and the true color was 20 units. Fort Cobb's turbidity is primarily from phytoplankton in the lower end, dominated by blue-green algae. Turbidity in the upper end is primarily from suspended clay stirred up by wind and wave action across shallow sediments.

Sources of nutrient loading and erosion into Fort Cobb Reservoir have been studied, and most are non-point contributors from farming.[5] A 319 Demonstration Project has been implemented in the Lake Creek watershed to educate farmers and implement best-use practices. Results from that 10-year program will be available in 2010.

Specific conductance at Fort Cobb ranged from 450 to 1100 umhos, with an average of 572. Salinity is 0.23 to 0.58ppt. Total alkalinity ranges from 113 to 129, with a lakewide average of 118 mg/l as $CaCo_3$. Hardness averaged 189 mg/l.

Dissolved oxygen values range from 8.8 to 12.0, with an average of 10.3. Fort Cobb is only occasionally stratified in summer at a depth of 30 to 42 ft near the dam. Frequent high winds generally keep the lake mixed. Reservoir pH values ranged from 7.3 to 10.7, with an average of 8.4. Average annual water temperature is 64 degrees.

A fish kill in April, 2001 resulted in the loss of nearly all adult white bass in Fort Cobb Reservoir. An unidentified virus was suspected as the cause since species-specific white bass kills were reported from several other reservoirs in the Oklahoma and around the Midwest near the same period. Poor water quality was not the suspected primary cause, but may have contributed to the severity of the kill.

Habitat Implications on Fishery and Management Objectives

Excessive nutrients result in dense algal blooms at Fort Cobb Reservoir, and gizzard shad are prolific. The loss of white bass in the fish kill of 2001 further contributes to the high number of shad in the lake. Bank erosion and sedimentation of soils from the watershed have resulted in reduced bank contour and increased shallow water, but aquatic vegetation has not rebounded in this favorable environment. The lack of shallow cover is a negative for species like bass and sunfish, and instead favors open-water species like saugeye, catfish and hybrid striped bass.

Water level fluctuations below normal pool are relatively minor at Fort Cobb. Even in the mini-drought of 2001-2006, the water level was stable. Occasional flooding contributes to better conditions for fish spawning and growth. High water in the summer of 2007 contributed to a strong year-class of bass and crappie.

Primary winds and wave action in summer are from the south, and strong north winds are common after winter cold fronts. Anglers and boaters are able to find calm waters or fish windy points on most days at Fort Cobb. Some anglers have learned to use the wind to improve their success by fishing along windy banks for channel catfish, hybrid stripers and saugeye. Fort Cobb's fertility makes fishing better-than-average, compared to other waters in western Oklahoma, but the ODWC is concerned about the potential of further fish kills and disease due to poor water quality.

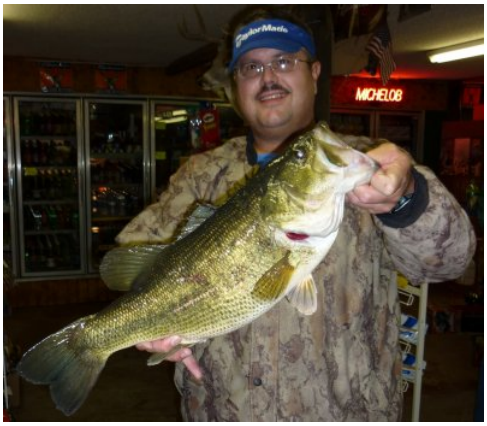
History of Fishery

Fishing at Fort Cobb Reservoir has been managed by the ODWC's Southwest Fisheries Region to optimize its potential since 1959. Predictably, fishing was excellent in the first 20 years (the "new lake effect"), but that was followed by moderation in fishing success in the last 30 years. Notably, the loss of vegetation after 1982 resulted in reduced fishing quality for largemouth bass, sunfish and crappie. Poor habitat for bass has also led to a proliferation of rough fish like common carp, river carpsucker and gar.

Fish were stocked heavily from Oklahoma State Fish Hatcheries, particularly fingerling channel catfish and Florida-strain largemouth bass (Table 1). Standardized surveys showed no improvement in those populations from stockings. Hybrid striped bass fry and fingerlings showed promise after they were first stocked in 1980. Walleye were introduced in the 1970s and a minor fishery developed. As walleye fishing success declined, the ODWC began stocking saugeye in 1998 and the fishing improved significantly. [6]

Inland silversides were introduced as a new forage species to many Oklahoma reservoirs, including Fort Cobb in the 1970s, but studies later determined that native predators seldom took advantage of the small minnows. Saugeye were stocked beginning in 1998 to take advantage of abundant silversides and shad, and a state record saugeye (10 lbs) was caught in 2006.

Florida largemouth bass were stocked from 1973 to 1988, but no bass over 10 pounds were verified from anglers or sampled by the ODWC. Bass management efforts relied on a 14-inch length limit since the 1980s, but bass fishing did not improve and poor spawning and recruitment were found to be the limiting factors.



In recent years, bass tournaments have reported occasional success, and an electrofishing sample in 2009 confirmed that the bass population had rebounded from historic lows. Reservoir- (or Tennessee-) strain smallmouth bass were transferred from Lake Lawtonka in 2003, and a few are still present but not adding significantly to fishery.

Brush piles have been constructed in key fishing spots for many years to improve fishing for crappie and bass (Fig. 2). Crappie fishing is fair, but the average size is exceptional compared to other Oklahoma lakes.

Blue catfish were stocked in Fort Cobb by the ODWC in 1967, and an above-average fishery exists for jug-liners and surf-rod anglers. High shad production in most years favors blue catfish. Flathead catfish are low in abundance at Fort Cobb, but trotline anglers occasionally catch large flatheads. The lake record caught in 2009 weighed 66 pounds.

Anglers once counted on white bass as a fishery staple, but sand bass have not recovered from the lake-wide kill in April, 2001. A few sand bass were captured in the most recent gillnet sample. A similar low period was noted in samples from 1987 and 1988, and sand bass recovered.

Hybrid striped bass were first stocked in 1980 and Fort Cobb is one of the best lakes in Oklahoma for hybrid fishing. Hybrids have been stocked frequently since the 2001 white bass kill, in part to fill the void. The lake record hybrid was established in 2009 at 18.2 pounds, and anglers regularly catch hybrids over 10 pounds.

The primary forage fish species in Fort Cobb are gizzard shad, sunfish, inland silversides and minnows. Shad catch rates have been high in recent samples, presumably due to the low number of white bass since 2001.

Fort Cobb Reservoir was 50 years old in 2009. After years of standardized sampling efforts, habitat improvements and regulation changes by the ODWC, largemouth bass abundance has improved and anglers currently enjoy excellent fishing for saugeye, hybrid striped bass, and catfish, and fair fishing for crappie. Boating access facilities are also excellent at Fort Cobb.

Current Status of the Major Fish Species

Bass

Electrofishing catch rates for largemouth bass were chronically below the state average (< 40 per hour) since standardized sampling began at Fort Cobb in 1978. When bass habitat was essentially eradicated with milfoil control in 1982 and high water in 1983, bass catch rates remained poor for two decades. SSP sampling for bass was suspended after 1993 because catch rates were low and bass habitat remained poor. Bass tournament results were modest over the next decade, but average winning weights have improved since 2007 (Fig. 3).

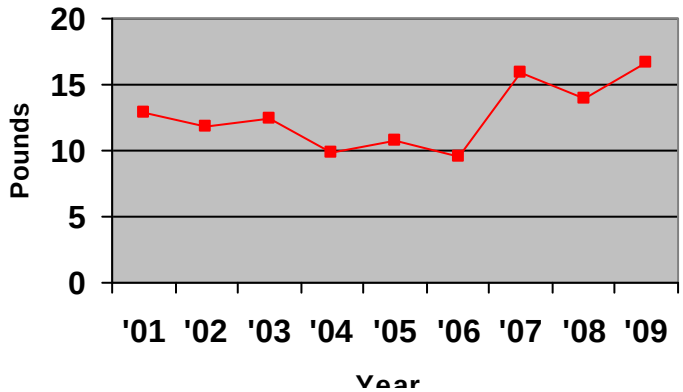


Figure 3. Bass tournament success at Fort Cobb Reservoir, 2001 - 2009 (average winning weight).

High water in 2007 was expected to produce a strong year class of bass, and the ODWC sunk about 60 cedar trees in shallow water zones in two "no-wake" coves in the winter of 2008-'09, to improve bass fishing. In 2009, high water provided improved sampling conditions by flooding shoreline willows, and an electrofishing sample was taken for the first time in 15 years.

The abundance of largemouth bass in 2009 (45.8/ hr) exceeded the state average (40/ hour) for the first time ever at Fort Cobb (Table 2). The catch rate of bass over 14 inches was 26.8, or 2.5 times the state average of 10 (Fig. 4). Those high catch rates now rank Fort Cobb as one of Oklahoma's "Quality Bass Lakes." Shallow brush piles (cedar trees) produced an average of 1 bass per 2 trees during electrofishing, and flooded willow trees produced many spawning pairs.

Florida largemouth bass were stocked into Fort Cobb by the ODWC from 1973 to 1988, but genetic influence could not be determined because few young bass could be collected for testing. No bass over 10 pounds have been reported by anglers, and none have been sampled by electrofishing. No bass over 8 pounds have been weighed-in during bass tournaments at Cobb in the last decade. The ODWC collected two bass over 9 pounds in the 2009 survey, the largest weighing 9.5 pounds. The lake record largemouth bass, caught in 2009, weighed 7.6 pounds.

Two-hundred smallmouth bass (average length = 10 inches) were transferred from Lake Lawtonka to Fort Cobb in 2003. In 2009, two smallmouth bass were sampled by electrofishing (10 inches and 14 inches long), and both were from subsequent spawning by the original stocked fish. Anglers report occasional catches, but a fishery has not developed to date for smallmouth bass.

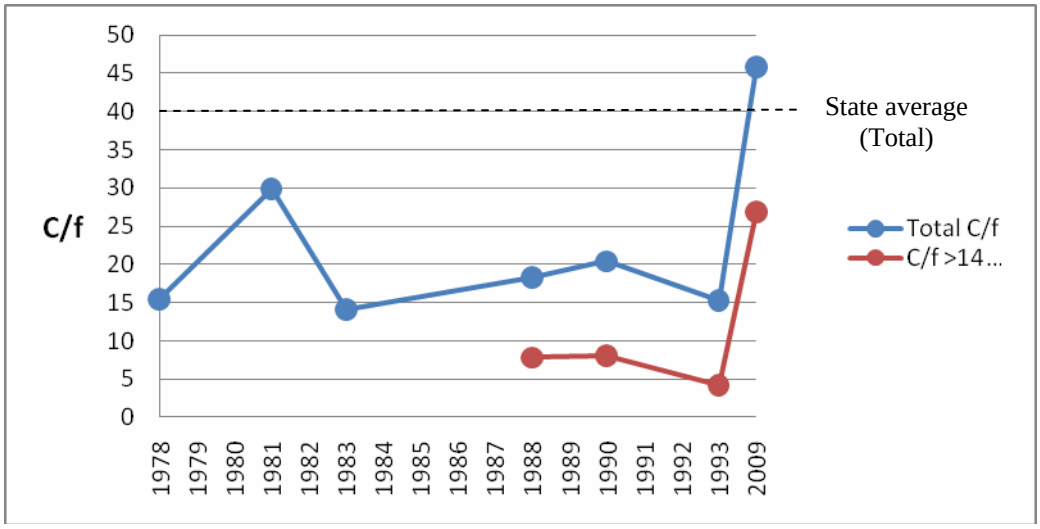


Figure 4. Electrofishing catch rates for largemouth bass at Fort Cobb Reservoir, 1978-2009.

Crappie

Crappie abundance was historically low in gill net samples at Fort Cobb, and remained below the state average through 1999 (Table 3). The ODWC constructed and maintained several brush piles to attract crappie, but fishing was spotty. Anglers occasionally reported good catches, particularly in the spawning season, but the lake has not been known as a destination lake for crappie anglers until recently.

Beginning with the 2001 sample, gill nets began to show a marked improvement in crappie numbers. High water in 2007 was expected to produce a strong year class of crappie, and the latest sample (2008) found the highest abundance ever for crappie at Fort Cobb.

Gillnet samples in 2001, ’03 and ’08 found numbers of crappie over 10 inches to be 4-times the state average. Relative weights for large crappie were exceptional.

Trap nets set in November, 2009, captured 105 crappie for length-at-age analysis. Equal numbers of black and white crappie were sampled, and growth was good. At age 1.5, crappie were about 8 inches long, at age 2.5 they averaged 10.5 inches, and at 3.5 years, they grew to 12 inches (Table 4).

Angling for crappie at Fort Cobb appears to be improving. High water levels will improve spawning, and natural vegetation along with artificial cover will help sustain that population trend.

Walleye and Saugeye

Walleye were a popular addition at Fort Cobb in the 1970s, but their numbers were marginal in fall gillnet samples from 1978 to 1999. Walleye reproduced, but year classes were generally small compared to other western Oklahoma lakes. Stockings of fry and fingerlings failed to supplement spawning (Fig. 5).

Saugeye stockings began in 1998 at Fort Cobb, with sampling catch rates and angler success rising quickly over the following decade (Table 5). The sampling catch rate in 2006 was the highest ever recorded in Fort Cobb for either walleye or saugeye (Fig. 5). High water and losses through the outlet gates in 2007 probably caused the sharp decline in saugeye in the 2008 sample, but the population should rebound with continued stockings.

Saugeye fishing was restricted by the statewide 18-inch walleye/saugeye limit until 2002, then replaced by a 14-inch limit at Fort Cobb to prevent slow growth found at some other lakes. Growth rates for saugeye were excellent in the '06 sample, with stocked fish growing to an average of 12 inches by fall, and 18 inches in 2.5 years. In the '08 sample, saugeye grew to 11 inches their first season, and to 17 inches in just 1.5 years.

A state record saugeye of 10 pounds, 10 ounces was caught in March, 2006 by fishing guide, Curt Wilkerson. Anglers regularly catch saugeye over 5 pounds at Fort Cobb.

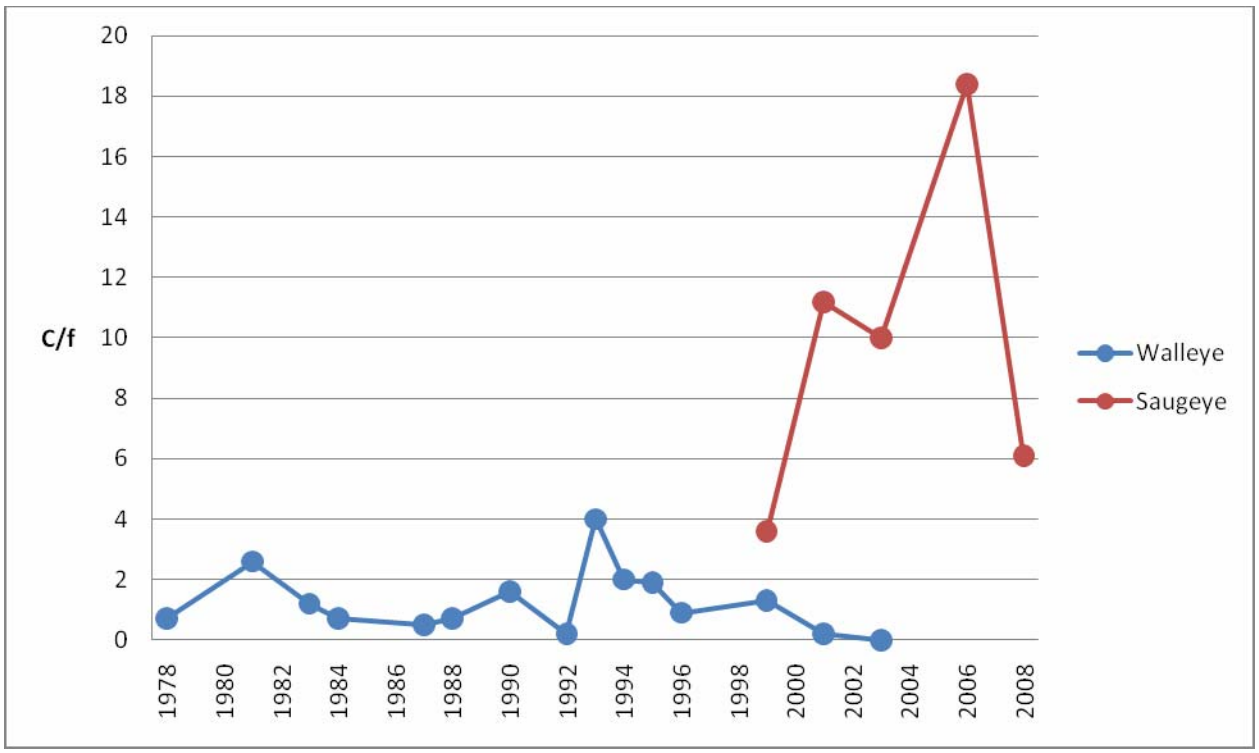


Figure. 5. Historic gillnet catch rates for walleye and saugeye from sampling by the ODWC at Fort Cobb Reservoir.

White bass

Sand bass have been moderately abundant at Fort Cobb since standardized sampling began in 1978. The population abundance fell in 1988, and then rebounded to more than double the state average from 1993 to 1999. Catches of sand bass over 12 inches in gill nets peaked in the '96 and '99 samples (Table 6).

Anglers reported a fish kill to the ODWC in April, 2001. An investigation found many dead white bass (and no other species) in coves and arms on the lake's east side following a strong southwest wind. Similar kills limited to white bass were reported in lakes across the Midwest and in Oklahoma in previous years, indicating a viral source of mortality.

White bass catches by anglers and the ODWC have been limited since 2001. Gill nets sampled none in '06, and just 10 in'08. Since adults are still present to spawn, white bass are likely to make a comeback as they did after the low point in 1988.

Hybrid Striped Bass

The first hybrid stripers were stocked in Fort Cobb in 1981, and gillnet sampling documented survival and modest catch rates through the 1990s. Following the white bass kill in 2001, the ODWC stocked hybrid stripers in 8 out of 9 years to help fill the void.

The highest catch rate was then recorded in 2008, at 19 per net (Fig. 6). The sample in 2006 found the highest catch rate for hybrids over 20 inches (2.6/net; Table 7)

With high shad abundance, hybrid growth rates and relative weights are good. Fish from the '08 sample reached 17 inches in 2.5 years, and grew to 22 inches in 3.5 years. In 2009, the lake record of 18.2 pounds was caught by 14-year-old Brooke King.

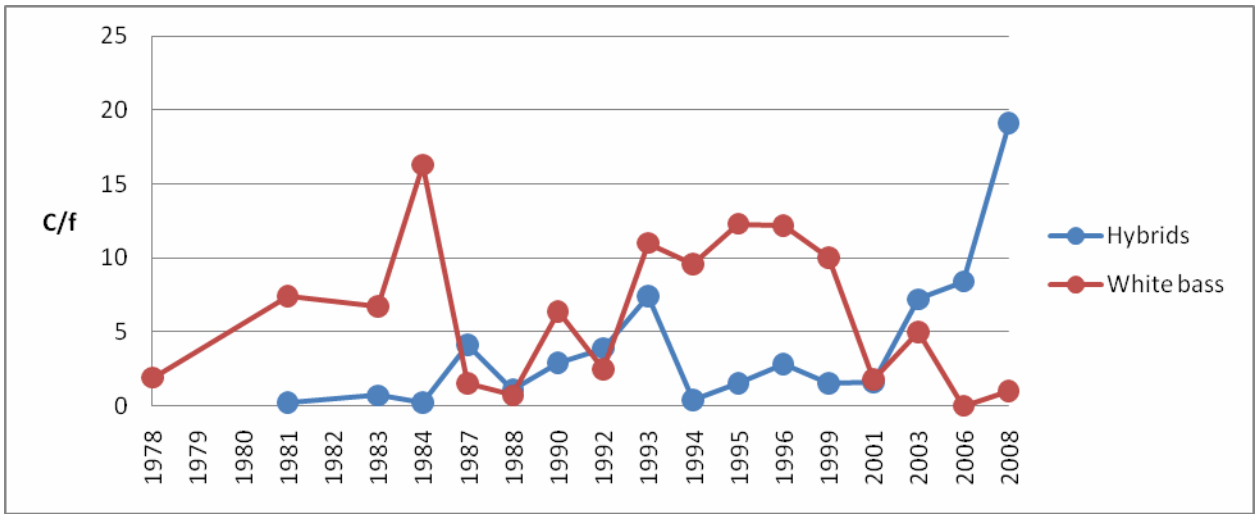


Figure. 6. Gillnet catch rates for white bass and hybrid stripers from sampling by the ODWC at Fort Cobb Reservoir.

Catfish

Fort Cobb has long been known as a catfish destination for Oklahoma anglers. Channel catfish were average in abundance in the first sample in 1978 and in the 1988 sample, but below the state average in the six other samples taken before 1993 (Fig. 7). The 1988 sample was probably exceptional due to the rare stocking of 3,400 catfish averaging 9 inches in that year.

Prior to 1993, channel catfish were stocked frequently at 3 to 5 inches in length, with no significant improvement in the population at Fort Cobb. After 1993, the stocking size was raised to > 7 inches, and the channel catfish abundance doubled in the 1994 sample. Adjustments were made to stocking rates over the next decade, and samples since 2003 have found sustained catch rates approximately 1.5-times the state average, due to the 7-inch stocking strategy.

Catches of channel catfish over 12 inches have been high in gill nets as well and channel catfish over 16 inches are 3-times more common than they were prior to the stocking change in 1993 (Table 8). An experiment using baited hoop nets in 1999 captured 806 channel catfish, with a mean length of 10.5 inches and a length range of 3 to 25 inches.[7]

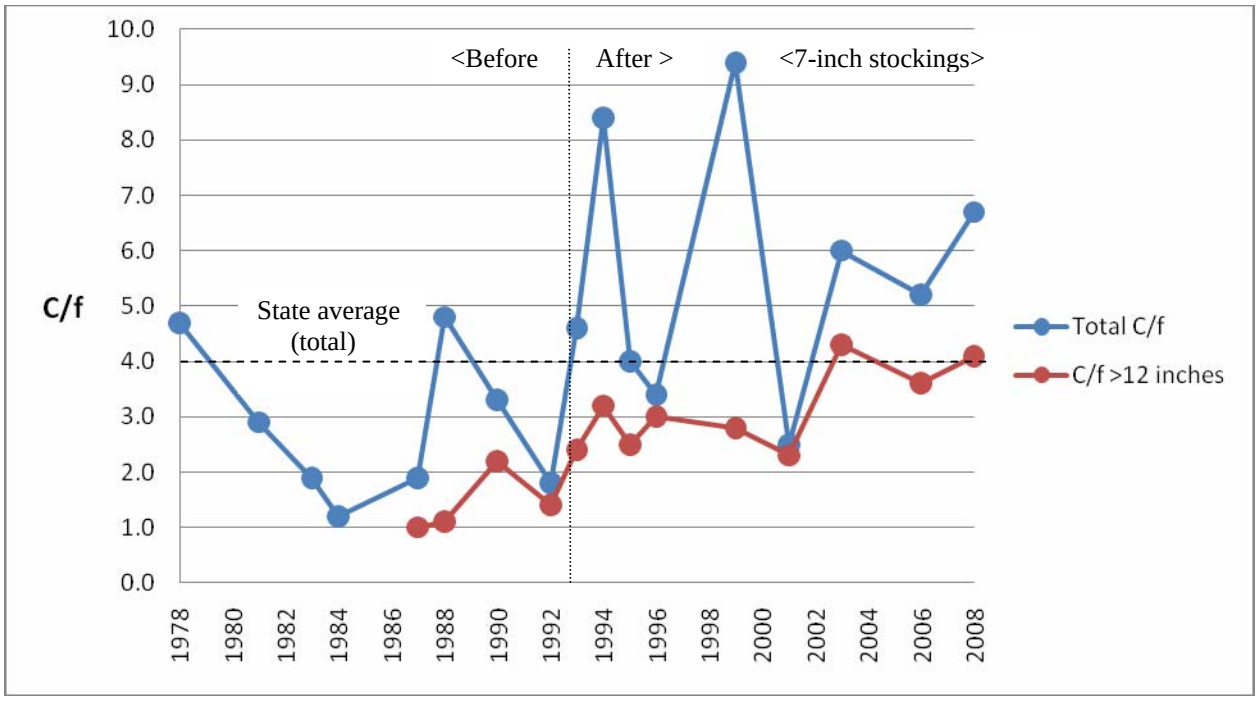


Figure. 7. Historic gillnet catch rates for channel catfish from sampling by the ODWC at Fort Cobb Reservoir.

Blue catfish were introduced to Fort Cobb in 1967, and one fish was collected in the 1978 gillnet sample. The population has since grown, reaching a record high in 1999 of more than 5 times the state average (Table 9).

A summer electrofishing sample was taken in 2005, and 228 blue catfish were captured in two hours of sampling time. The largest weighed 27 pounds. Fish below 26 inches had fair body condition factors, but those over 26 inches had high relative weights (Wrs). Less than one percent (6 of 228) of the sampled blue cats were over 30 inches in the 2005 sample.

Anglers fish for blue cats primarily with jug lines and surf rods at Fort Cobb with good success. Abundant gizzard shad provide plenty of forage for blues. Blue catfish over 10 pounds are common, and the lake record of 52 pounds was caught in 2009.

Flathead catfish have been collected in most samples from Fort Cobb, but numbers have been low. Jugline and trotline anglers catch large flatheads frequently, and the lake record was established at 66 pounds in 2009.

Gizzard Shad

Sampling for gizzard shad was conducted by spring electrofishing and fall gill netting since 1978, and large shad were usually abundant at Fort Cobb. Recent sampling with small meshes in gill nets provided more accurate data on small shad that are important for the growth of most sport fish. Catch rates for shad under 6 inches were high from 1999 through 2008 (Table 10).

The catch rate of shad less than 6 inches did not increase significantly after the white bass kill in 2001, according to gillnet sampling. However, angler reports and first-hand observations agreed that schools of small shad were more prolific in following summers. The increased numbers of hybrid striped bass and saugeye should take advantage of these small shad, and eventually reduce their numbers.

Threadfin shad are not present at Fort Cobb and are not expected to survive winter temperatures in the relatively shallow lake. Transfers of threadfin shad at nearby lakes Lawtonka and Thunderbird did not result in sustained populations due to winterkills.

Other Fish Species

"Rough fish" like common carp, longnose gar, river carpsucker, drum, and black bullheads are common in Fort Cobb. A summary in the 2000 SSP report found that numbers of those species had not changed significantly since 1978.[6] Smallmouth buffalo are also present in low numbers. Sunfish are common and provide forage for predators, and the "minnow" population includes golden shiners, abundant inland silversides, and some robust logperch.

Threats to the Fishery

Poor water quality is the biggest threat to fishing in the future at Fort Cobb. Nutrients can increase fish production, but beyond tolerable limits those nutrients can cause fish kills and increase the chances and severity of fish disease. Agency efforts to reduce nutrient loading in the Fort Cobb watershed should be supported. Best-use farming practices that minimize fertilizer application and soil erosion should be encouraged in the watershed.

In the long term, siltation threatens the lifespan of Fort Cobb Reservoir and its value to anglers and other water users. In its first 50 years, the lake has lost 10 percent of its original volume due to siltation from unstable soils and poor conservation practices in the watershed. Shallow mud flats in the upper one-quarter of the lake make those waters unproductive for sport fish and anglers.

Fort Cobb Reservoir is probably not threatened by fish kills from golden algae blooms due to its low salt content, but it is vulnerable to zebra mussels that are moving westward from northeastern Oklahoma. Zebra mussel DNA has been detected in water samples from Fort Cobb, but no veligers or adults have been found so far. To slow the spread of these and other aquatic nuisance species, anglers should wash their boats and fishing equipment when moving between lakes to fish. No lake-specific fish consumption advisories have been posted for Fort Cobb Reservoir.

While water levels have been stable in recent years, limited alternative supplies and population growth could increase water use in the district and beyond. Stable to higher-than-average water levels are positive for sport fish spawning and growth. Potential for increased water use and water level reductions should be viewed with their negative impacts to fishing considered.

Access Facilities

Boaters enjoy excellent access to Fort Cobb Reservoir. Seven boat ramps are available, each with a good dock adjacent to it. Four of the boat ramps in the south half of the lake have docks that were installed cooperatively by the State Park and the ODWC in the 1990s. Those docks remain in relatively good shape, and maintenance should continue by State Park staff. Three docks and parking lots in the north half of the lake are maintained by the ODWC.

A full-service marina is located in the State Park, in the southeast arm. A new fishing dock is due to be installed next to the marina in the state park soon. The park provides new restroom facilities, RV hookups, and plenty of boat trailer parking near each of its boat ramp areas. Access for bank anglers is available in parts of the State Park and the Wildlife Management Area. However, access has been restricted to several key fishing points by the agencies in efforts

to control vandalism and crime. Older anglers or those with restricted mobility have few choices due to vehicular access restrictions along the lake shore.

If access to these areas was limited to users with fishing and hunting licenses in the WMA, or other fee-based permit in the State Park, litter and crime would likely be reduced. It might then be possible to open up additional areas for anglers. Some key vehicular access areas could be opened only to anglers with disabilities.

Recommendations

Fish Habitat

- Aquatic vegetation has increased at Fort Cobb in recent years, and high water levels will help maintain this important habitat for bass and sunfish. The Fort Cobb Master Conservancy District should continue to encourage water conservation by users to minimize water level reductions in the critical summer period.

- The District should also consider that additional water sales and usage may have negative impacts on fishing and overall recreational quality Fort Cobb Reservoir.

- The ODWC should consider restricting two coves in the ODWC-managed portion to "no wake" speed, to reduce conflict from other boaters, and to install shallow-water brush piles to enhance bass and crappie angling.

Boating and Fishing Access

- Boat docks and ramps are generally in good shape, and maintenance should continue to keep them safe and convenient for the public.

- A rule should be considered by the ODWC to only allow access in the Fort Cobb WMA to licensed anglers and hunters, to reduce non-related uses, crime and trash.

- Shoreline access should be opened in key areas strictly for vehicles of physically-impaired users.

- New boat ramp, parking and dock facilities could be built on the north side of "Marina Cove," to provide closer boating access for campers on that side of the cove.

Recommendations (cont'd)

Fishing Regulations

- The 14-inch limits on black bass and saugeye should be retained indefinitely.

Fish Stockings

- Channel catfish should be stocked with a minimum size of 7 inches at 2.5 per acre annually (10,800).

- Saugeye should be stocked every year at 10/acre (43,000).

- Hybrid striped bass should be stocked annually at 10/acre (43,000) until white bass numbers return to average. Thereafter, hybrids should be stocked every-other-year.

Fish Sampling

- Black bass should be sampled every 2 years (2011, 2013) by spring electrofishing to monitor the recent improvement in habitat and any associated increase in bass abundance. Electrofishing should be conducted only when water levels are above-normal in spring.

- Fort Cobb should be gill-netted every 3 years (2011, 2014) to assess changes in shad, saugeye, hybrid striper, white bass and channel catfish abundance and growth rates, and to fine-tune stocking strategies.

- Crappie should be trap-netted again in 5 years (2014) to follow trends in their abundance and growth.

- Blue catfish should be sampled again by summer electrofishing in 5 years (2014) to determine whether the statewide harvest restriction, enacted in 2010, was effective.

Citations

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Note- A draft of this report was sent to Fort Cobb Reservoir agency officials and then presented to anglers at a public hearing in January, 2010. Comments from that meeting were considered in the final plan.

Note of Thanks

We would like to express our gratitude for the many years of effort in sampling and managing the fishery at Fort Cobb Reservoir by Eugene Wheeler (retired), and the late Paul Watkins, who spent many days on the lake to improve fishing. Their work provided the foundation for this report.

"There's a blue cat on the bottom,
And a bullfrog on the bank.
I just pitched a pretty pebble
And watched the ripples while it sank.
The crickets in the willow
Singin' songs they've always sung.
I've got nothin' to do,
And I'm not leavin' 'til I'm done."

Walt Wilkins

Table 1. Species, number and size of fish stocked at Fort Cobb Reservoir, 1959 – 2009.

Date	Species	Number	Size (in)
1959	Largemouth Bass	50,000	
	Channel Catfish	50,000	
	Crappie	15,000	
	Redear	15,000	
1967	Blue catfish	27	2-7 lbs. each
1968	Walleye	200,000	Fry
1969	Walleye	310,000	Fry
1970	Walleye	548,004	Fry
1972	Walleye	150,000	Fry
1973	Walleye	552,977	Fry
	Florida Largemouth Bass	775	Fingerling
1974	Walleye	946,727	Fry
	Florida Largemouth Bass	750	Fingerling
1975	Hybrid Largemouth Bass	20,000	Fry
1976	Florida Largemouth Bass	25,000	Fingerling
1978	Channel Catfish	272,000	3.5 – 4.0
1979	Channel Catfish	41,920	3.75
1980	Florida Largemouth Bass	70,870	1.00
	Hybrid Striped Bass	423,000	Fry
1981	Florida Largemouth Bass	48,240	2.00
	Channel Catfish	90,000	5 -6
1982	Hybrid Striped Bass	390,536	Fry
	Florida Largemouth Bass	83,000	2.50
	Channel Catfish	84,000	4 -5
1983	Hybrid Striped Bass	300,000	Fry
	Florida Largemouth Bass	5,060	2.00
1984	Walleye	407,000	Fry
	Hybrid Striped Bass	198,000	Fry
	Channel Catfish	28,115	3.00
1985	Redear	300,000	1.00
1986	Florida Largemouth Bass	41,000	2.00
	Hybrid Striped Bass	43,600	1.50
	Channel Catfish	82,000	3.00
1987	Largemouth Bass	41,000	1.5 -2
	Hybrid Striped Bass	62,500	1.25
	Channel Catfish	30,550	4.00
1988	Walleye	328,000	Fry
	Hybrid Striped Bass	41,260	1.5 -2
	Intergrade Florida LMB	23,550	3.00
	Channel Catfish	3,400	9.00
	Channel Catfish	36,250	4 - 5
1989	Walleye	41,000	1.25
	Channel Catfish	20,016	5.00

1990	Channel Catfish	52,650	5 -6
	Walleye	212,800	1 - 1.25
1991	Hybrid Striped Bass	56,000	1.25 1.50
	Channel Catfish	76,380	4 - 4.5
1992	Channel Catfish	81,000	4 - 4.5
1993	Hybrid Striped Bass	41,000	1.25
	Channel Catfish	82,000	7 - 8
1994	Channel Catfish	44,000	7.00
1995	Walleye	42,600	1.50
	Hybrid Striped Bass	66,300	1.25
1996	Channel Catfish	19,554	6.00
1997	Channel Catfish	4,675	9.00
1998	Saugeye	750,000	Fry
	Hybrid Striped Bass	41,200	1.25
	Channel Catfish	24,000	7.00
1999	Channel Catfish	20,760	7.00
	Saugeye	85,000	1.25
2000	Saugeye	82,000	1.00
	Hybrid Striped Bass	41,400	1.35
2001	Saugeye	45,000	1.50
	Channel Catfish	20,500	4.50
2002	Saugeye	34,500	1.25
	Hybrid Striped Bass	41,000	1.25
2003	Smallmouth Bass	190	5 - 12
	Channel Catfish	20,500	7.00
	Hybrid Striped Bass	43,000	1.25
2004	Channel Catfish	12,635	7.0 -7.6
	Saugeye	40,670	1.50
	Hybrid Striped Bass	41,250	1.5 -2.0
2005	Channel Catfish	10,348	7.0 – 9.0
	Saugeye	43,500	1.5
	Hybrid Striped Bass	41,800	1.30
2006	Channel Catfish	10,250	7.00
	Saugeye	73,550	1.7 – 1.9
2007	Saugeye	81,734	1.25-1.70
	Hybrid Striped Bass	41,000	7.00
	Channel Catfish	12,023	7.00
2008	Channel Catfish	9,230	9.6-10.6
	Hybrid Striped Bass	43,736	1.35
	Saugeye	42,000	1.80
2009	Saugeye	42,390	1.80-2.00
	Hybrid Striped Bass	44,604	1.40
	Channel Catfish	9,642	10.9-11.00

Standardized Survey Data Tables

Table 2. Total number (No.), catch rates (C/f- number per hour), and relative weights (W_r) by size groups of **largemouth bass** collected by spring electrofishing from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥40)		<8 inch (15-45)		8-14 inch (15-30)		≥ 14inch (≥10)	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1978	50	15.4						
1981	262	29.9	4.9					
1983	197	14.1	4.2					
1988	119	18.3	3.7	92	6.8		7.8	108
1990	97	20.4	5.5	87	7.0		8.0	99
1993	69	15.3	4.0	109	7.1		4.2	105
2009	149	45.8	2.8	93	8.6	103	26.8	113

Table 3. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **crappie** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥4.8)		<8 inch (1.2 - 7.2)		≥ 8 inch (≥ 1.9)		≥ 10 (≥.96)	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1978	8	1.5						
1981	3	0.7						
1983	8	1.4						
1984	18	1.7						
1987	33	3.4	2.9	92	0.5	91	trace	109
1988	43	4.4	3.7	111	0.7	103	0.4	97
1990	7	0.7	0.4	109.8	0.4	109	0.2	112
1992	49	4.8	4.4	105	0.5	91	trace	91
1993	105	3.4	2.0	99	1.4	100	0.8	102
1994	29	3.0	1.8	101	1.2	93	0.6	93
1995	57	4.2	2.7	102	1.3	91	0.6	89
1996	48	3.4	2.6	107	0.9	97	0.6	102
1999	52	5.2	1.9	92	3.3	89	1.3	95
2001	163	16.3	10.8	99	5.5	109	5.1	108
2003	59	11.8	3.6	98	8.2	103	4.1	107
2006	28	5.6	3.2		2.4	106	2.2	107
2008	217	21.7	15.1	147	6.6	101	4.3	103

Table 4. Mean length at age of **crappie** collected by fall trap netting from Fort Cobb Reservoir. Numbers in parentheses represent values for acceptable growth rates.

Year	Age 1 (≥ 6 in)	Age 2 (≥ 8 in)	Age 3 (≥ 9 in)
2009	8 in	10.5	12

Table 5. Total number (No.), catch rates (C/f) of **walleye** collected by gill netting from Fort Cobb Reservoir.

	Total	
Year	**No.**	**C/f**
1978	4	0.7
1981	13	2.6
1983	6	1.2
1984	7	0.7
1987	4	0.5
1988	6	0.7
1990	16	1.6
1992	2	0.2
1993	125	4.0
1994	20	2.0
1995	26	1.9
1996	14	0.9
1999	13	1.3
2001	2	0.2
2003	0	0.0
2006	0	0.0
2008	0	0.0

Table 6. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **saugeye** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total		< 14 inch	14-18 inch	≥18 inch	
Year	**No**	**C/f**	**C/f**	**C/f**	**C/f**	**Wr**
1999	38	3.6	3.1		0.0	
2001	112	11.2	1.8	6.7	2.7	
2003	50	10.0	0.2	4.0	5.8	92
2006	92	18.4	6.1	5.7	6.8	100
2008	62	6.1	3.2	2.6	0.2	95

Table 7. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **white bass** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are $\geq$90.

	Total (>4.8)		<8 inch (>1.2)		8-12 inch (1.2-7.2)		> 12 (>2.4)	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1978	54	10.9						
1981	37	7.4						
1983	34	6.7						
1984	162	16.3						
1987	14	1.5	0.5	89	0.7	78	0.2	86
1988	8	0.7	trace	97	0.4	72	0.4	87
1990	64	6.4	3.8	88	1.1	94	1.6	91
1992	26	2.5	trace		0.7	84	1.8	76
1993	337	11	6.8	85	1	83	3	90
1994	95	9.6	2.8	93	5.8	86	1.2	86
1995	174	12.3	1.9	85	9.4	82	1	78
1996	169	12.2	4.5	90	3.6	90	4.1	88
1999	99	10	3.7	91	3	91	3.3	86
2001	19	1.8	trace	102	1.6	107	trace	93
2003	25	5	1.7	97	1.9	95	1.4	100
2006	0	0	0		0		0	
2008	10	1	0		0.8		0.2	

Table 8. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **hybrid striped bass** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total		<12 inch ≥.03		12-20 inch ≥.05		≥ 20 inch ≥.02	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1981	1	0.2						
1983	4	0.7						
1984	2	0.2						
1987	40	4.1	2.7	77	1.5	82	0.0	
1988	11	1.1	trace	81	1.1	79	0.0	
1990	28	2.9	0.0		1.8	90	1.1	95
1992	40	3.9	3.9	84	0.0		trace	92
1993	231	7.4	2.6	80	4.0	84	1.0	84
1994	4	0.4	0.0		0.4	82	0.0	
1995	20	1.5	1.0	78	0.2	77	trace	82
1996	40	2.8	trace	85	2.4	84	0.2	
1999	15	1.5	trace	75	0.9	81	0.6	85
2001	17	1.6	0.0		1.4	95	0.2	88
2003	36	7.2	0.7	88	6.5	91	0.2	90
2006	42	8.4	0.0		5.8	91	2.6	93
2008	191	19.1	12.6	88	4.7	88	1.8	87

Table 9. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **channel catfish** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥.20)		<12 inch (≥.10)		≥ 12 inch (≥ 1.0)		≥ 16 inch (≥.05)	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1978	24	4.7						
1981	14	2.9						
1983	9	1.9						
1984	12	1.2						
1987	20	1.9	1.2	100	1.0	105	0.7	107
1988	46	4.8	3.7	97	1.1	104	0.7	107
1990	33	3.3	1.1	95	2.2	96	1.1	99
1992	19	1.8	0.5	134	1.4	83	0.9	85
1993	144	4.6	2.2	92	2.4	89	1.4	92
1994	84	8.4	5.2	83	3.2	89	2.0	91
1995	56	4.0	1.7	93	2.5	88	1.5	93
1996	46	3.4	0.4	79	3.0	80	0.9	78
1999	95	9.4	6.7	82	2.8	83	1.5	85
2001	26	2.5	0.2	98	2.3	89	1.8	91
2003	30	6.0	1.9	86	4.3	81	3.1	81
2006	26	5.2	1.6		3.6		3.4	
2008	67	6.7	2.6		4.1		2.0	

Table 10. Total number (No.), catch rates (C/f), and relative weights (W_r) by size groups of **blue catfish** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values for a quality fishery. Acceptable W_r values are ≥90.

	Total (≥.10)		<12 inch (≥.05)		≥ 12 inch (≥ .05)		≥ 16 inch (≥.03)	
Year	**No.**	**C/f**	**C/f**	**Wr**	**C/f**	**Wr**	**C/f**	**Wr**
1978	1	0.2						
1981	2	0.5						
1983	0	0.0						
1984	8	0.7						
1987	9	0.9	0.7	93	trace	91		
1988	11	1.1	0.7	93	0.4	91		
1990	9	0.9	0.9	98	0.0			
1992	4	0.5	0.5	116	0.0			
1993	48	1.4	1.4	106	trace	99	trace	106
1994	35	3.6	2.2	93	1.4	94	0.6	103
1995	18	1.3	0.6	87	0.6	85	trace	90
1996	11	0.7	0.2	107	0.6	90	trace	90
1999	125	12.6	7.8	92	4.8	83	2.8	84
2001	19	1.8	trace		1.8	86	1.2	87
2003	6	1.2	0.2	86	1.0	89	1.0	89
2006	9	1.8	0		0.4	84	1.4	92
2008	25	2.5	2.3	92	0.2	85	0.2	85

Table 11. Total number (No.), catch rates (C/f) by size groups of **gizzard shad** collected by fall gill netting from Fort Cobb Reservoir. Numbers in parentheses represent acceptable C/f values.

		Total (≥.40)	< 8 inches (≥.20)
Year	**No.**	**C/f**	**C/f**
1978	104	20.8	
1981	77	15.4	
1983	65	13	
1984	148	14.9	
1987	72	7.3	0.2
1988	154	16.2	2.6
1990	215	21.5	5.4
1992	134	13.3	2.3
1993	512	16.5	1.6
1994	203	20.4	1.2
1995	333	23.8	5.4
1996	318	22.6	0.6
1999	796	79.6	55.3
2001	413	41.4	7.8
2003	419	83.8	43
2006	495	99	81.4
2008	584	58.4	44.6