



North Sterling Reservoir

FISH SURVEY AND MANAGEMENT DATA

Mandi Brandt - Aquatic Biologist (Brush)

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General Information: North Sterling Reservoir is a 2,880 acre water (at full capacity). The reservoir provides quality fishing for wiper. Anglers can also expect to catch walleye, saugeye, channel catfish, and black crappie. Please visit the state park website at: <http://parks.state.co.us/Parks/NorthSterling/> for updated water and fishing conditions.

Location: Logan County. From I-76 take Exit 125 and head 12 miles north on CR 39 to CR 46. Take CR 46 2 miles west to the reservoir.

Recreational Management: Colorado Parks and Wildlife

Fishery Management: Warmwater angling

Purchase a Fishing License: <http://wildlife.state.co.us/ShopDOW/AppsAndLicenses/>

Amenities

- Informational kiosks
- Boat ramps
- Picnic areas
- Modern restrooms
- RV hook-ups
- Tent camping
- Hiking trails

Regulations

- Min. size for walleye and saugeye is 15" (only 1 can exceed 21").
- Min. size for wiper is 15" (only 1 can exceed 25").
- Min. size for largemouth bass is 15".
- Min. size for smallmouth bass is 12".
- Statewide bag and possession limits also apply.
- Entry requires a Colorado State Parks Pass, which is available on site.
- Clean, drain, and dry all watercraft before launching on and after leaving the reservoir to avoid the spread of aquatic nuisance species.

Previous Stocking

2011

Walleye
White bass
Largemouth bass
Channel catfish
Black crappie
Bluegill
Rainbow trout and Cuttbow

2010

Walleye and Saugeye
Wiper
Channel catfish
Black crappie
Bluegill
Rainbow trout and Cuttbow

2009

Walleye and Saugeye
Channel catfish
Black crappie
Rainbow trout

2008

Saugeye
Wiper
White bass
Channel catfish
Black crappie
Rainbow trout and Cuttbow

Sportfishing Notes

Walleye and Saugeye

- Fish the dam during early spring when the water temperature is 40-50°F.
- Boat anglers do well trolling shad raps and wally divers during late spring and early summer.
- Jigging live bait during late summer works well.
- Fish drop-offs or flats in each arm of the reservoir at other times.

Wiper

- Fish the inlet when the reservoir is filling and fish open water at other times.
- Fish are often found chasing shad, so use shad imitations and follow the seagulls.
- Green mussels as bait work well.

Channel catfish

- Fish deep coves or reservoir arms, especially during August and September.
- Cut shad or shrimp as bait work well.



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About the Reservoir...

North Sterling Reservoir, once known as Point of Rocks Reservoir, was built by the Empire Construction Company between 1909 and 1911, making the reservoir approximately 101 years old. Water used to fill North Sterling Reservoir is taken from the South Platte River near the town of Snyder, and flows down a 62-mile long earthen canal before reaching the reservoir. Due to water breaching the inlet canal in several places, the reservoir was not filled until 1912. The reservoir was stocked with black bass and yellow perch before it officially opened in 1913. In 1915, black crappie were also stocked.

Since the primary function of North Sterling Reservoir is to store irrigation water, water levels routinely drop during the irrigation season. During a typical year, water levels can fluctuate by approximately 40 ft, reducing the reservoir's volume to about one-seventh of its capacity (Figures 1-5). Unfortunately, the reservoir is drawn down while panfish are spawning, limiting recruitment of critical prey species such as bluegill and gizzard shad. These young fish seek refuge in littoral habitat, but this habitat is lost as the water level begins to drop, increasing their vulnerability to predation. The risk of being consumed is heightened as the water level continues to drop and fish are concentrated into a successively smaller pool. Young fish of other species such as walleye, saugeye, and wiper are also negatively impacted by reservoir draw down.

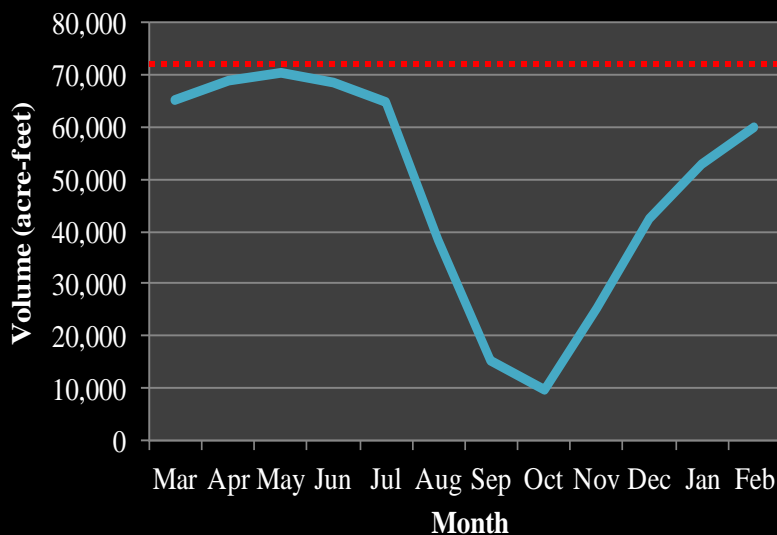


Figure 1. Water level fluctuation at North Reservoir during a typical year. Prior to the irrigation season, which usually starts in May, the reservoir is usually at full capacity (red dotted line). During the irrigation season (May-October) the reservoir is routinely drawn down, often to approximately one-seventh of its capacity. Refilling usually begins near the end of October and continues through the winter months (December-February) when possible. The reservoir is then topped off in the spring (March-April).



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Figure 2. Water level in North Sterling Reservoir's Inlet Bay before the reservoir is drawn down (near full capacity; A) and after being drawn down (B) during the irrigation season.



Figure 3. Water level in North Sterling Reservoir's Darby Arm before the reservoir is drawn down (near full capacity; A) and after being drawn down (B) during the irrigation season.



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About the Reservoir...



Figure 4. Water level in the upper end of North Sterling Reservoir's Cunningham Arm before the reservoir is drawn down (near full capacity; A) and after being drawn down (B) during the irrigation season.



Figure 5. Water level in the middle of North Sterling Reservoir's Cunningham Arm before the reservoir is drawn down (near full capacity; A) and after being drawn down (B) during the irrigation season.



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About the Grass Seeding Project...



As in many of Colorado's reservoirs, gizzard shad are relied upon as the primary prey species for sportfish in North Sterling Reservoir because the species is a broadcast spawner and is highly prolific (250,000 eggs per female). Unfortunately, there was extremely poor gizzard shad recruitment in the reservoir in 2006, 2007, and 2008 (Figure 6), leaving sportfish in poor condition.

Reservoir draw down, winterkill, and nutrient inadequacies are responsible for the lack of recruitment. Large drawn downs occurred in 2005 and 2006. In 2006, the reservoir was substantially drawn down during the irrigation

season due to severe drought, resulting in a very low pool level during the winter. Gizzard shad could not withstand the poor water quality in the pool and succumbed to winterkill, leaving extremely low numbers of adults in 2007 and 2008 to produce young fish. Even if young gizzard shad were produced, the zooplankton prey base would not have been large enough at the time to support the gizzard shad. Relatively small numbers of zooplankton were available to eat, likely due to low levels of nutrients that would normally support phytoplankton, which would in turn support zooplankton.

In an effort to re-establish the reservoir's gizzard shad population, crews from the former Division of Wildlife initiated a shoreline grass seeding project and an adult gizzard shad stocking program. In 2009 and 2010 crews seeded shorelines with Japanese millet and annual rye to return nutrients that were locked up in the reservoir's soil to the water column.



The idea behind shoreline seeding is that as the grass grows, it takes up nutrients from the soil. Then, when the grass is inundated by water it is killed and these nutrients are released into the water column where they are available to phytoplankton. This creates a positive bottom-up effect in the food-web in which more nutrients are available to support more phytoplankton, which in turn can support more zooplankton, which in turn can support more gizzard shad, which in turn can support more sportfish.



Gizzard shad

In addition to seeding shorelines, crews began an adult gizzard shad stocking program. Approximately 700 adult gizzard shad have been stocked into the reservoir since the spring of 2009. As hoped, the gizzard shad spawned and substantial recruitment returned in 2009 through 2011 (Figure 6), supplying sportfish with a much needed prey base. Due to positive results, shoreline seeding and adult gizzard shad stocking will be used at North Sterling Reservoir in the future as needed.



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About the Fish...

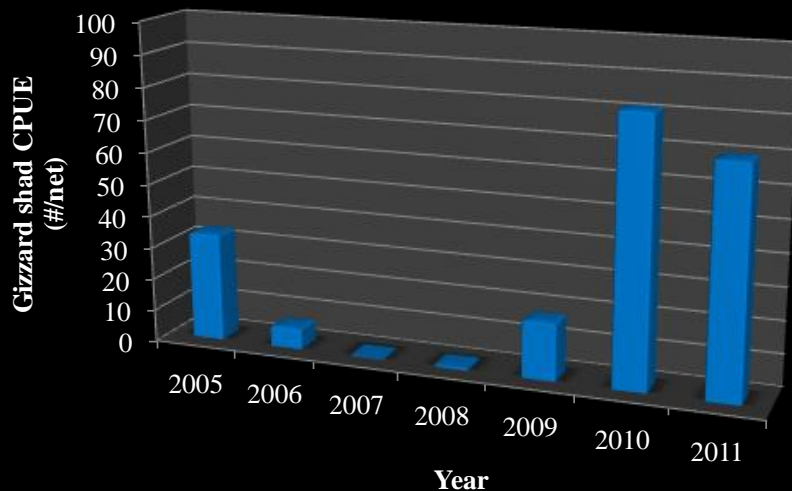


Figure 6. Gizzard shad catch-per-unit-effort (CPUE) during the 2005 to 2011 annual surveys at North Sterling Reservoir. For comparative purposes, the number of fish collected was standardized per gillnet. Severe draw downs in 2005 and 2006 during the irrigation season, followed by a gizzard shad winterkill in the winter of 2006, led to poor recruitment in 2007 and 2008. Recruitment rebounded in 2009 through 2011 as a result of shoreline grass seeding and adult gizzard shad stocking.

Table 1. Summary data for fish caught during the 2011 annual survey at North Sterling Reservoir. Data are based on 64 hours of gillnetting and 54 hours of trap netting.

Species	Number caught	Relative abundance (%)	Average length (in)	Length range (in)	Average weight (lbs)	Weight range (lbs)
Walleye	33	6.64	15.7	7.3 - 29.1	1.56	0.1 - 4.2
Wiper	23	4.63	21.0	16.3 - 27.8	4.97	2.5 - 11.3
Largemouth bass	4	0.81	5.7	5.3 - 6.5	0.10	0.1 - 0.1
Northern pike	1	0.20	17.9	17.9 - 17.9	1.34	1.3 - 1.3
Channel catfish	13	2.62	20.4	15.0 - 28.6	3.82	1.0 - 9.2
White crappie	28	5.63	8.2	2.9 - 12.2	0.44	0.0 - 1.2
Black crappie	16	3.22	5.1	3.0 - 12.6	0.20	0.0 - 1.6
Yellow perch	4	0.81	5.7	3.4 - 8.1	0.12	0.0 - 0.2
Bluegill	7	1.41	5.5	3.8 - 6.0	0.12	0.0 - 0.2
Freshwater drum	4	0.81	10.4	8.0 - 14.2	0.52	0.2 - 1.2
Common carp	16	3.22	19.2	11.6 - 27.2	3.57	0.7 - 8.8
River carpsucker	68	13.68	12.3	4.7 - 22.5	1.28	0.0 - 6.1
Gizzard shad	280	56.34	6.4	4.7 - 15.8	0.21	0.0 - 1.4



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About the Fish...

Walleye and saugeye

Walleye were first stocked in 1949, and were one of the species that made North Sterling Reservoir one of Colorado's premier warmwater fisheries during the 1970s. During the early 1980s rough fish (common carp and river carpsucker) all but overtook the reservoir. To improve the fishery, the reservoir was chemically reclaimed by the former Colorado Division of Wildlife in 1985. Many efforts were made during the late 1980s and 1990s to rebuild the walleye fishery; however, it never bounced back to its former self, partly due to the introduction of wiper. In 2004, crews tried once again to build a premier walleye and saugeye fishery by drastically increasing fry and fingerling stocking rates. Since that time, nearly 25.5 million walleye and saugeye have been stocked into North Sterling Reservoir. Though annual surveys from 2005 to 2009 yielded extremely low numbers of walleye and saugeye, the 2010 and 2011 surveys show walleye and saugeye may be on their way to making a comeback (Figure 7). Walleye caught during the 2011 annual survey were 15.7" and 1.6 lbs on average, with the largest walleye measuring 29.1" and weighing 4.2 lbs (Table 1). Though no saugeye were caught in gillnets, 2011 creel survey results show several saugeye were caught by anglers. Anglers should expect fair fishing for walleye and saugeye while these populations make their comebacks.

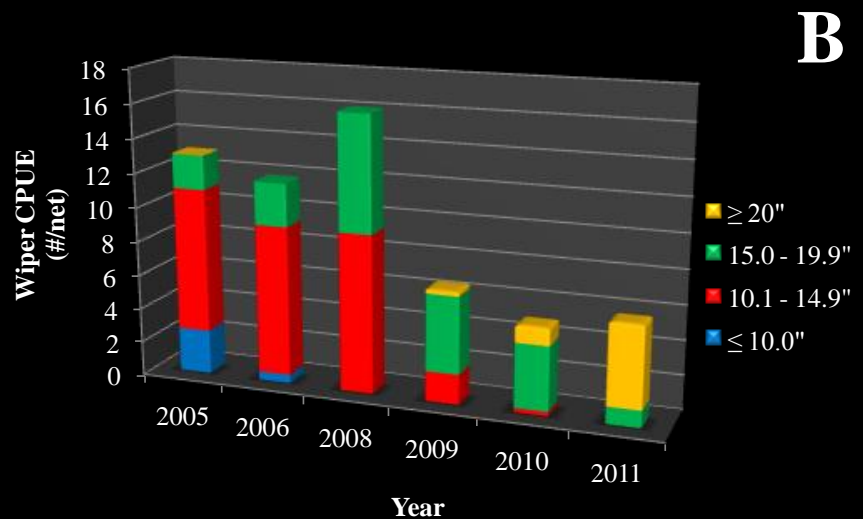
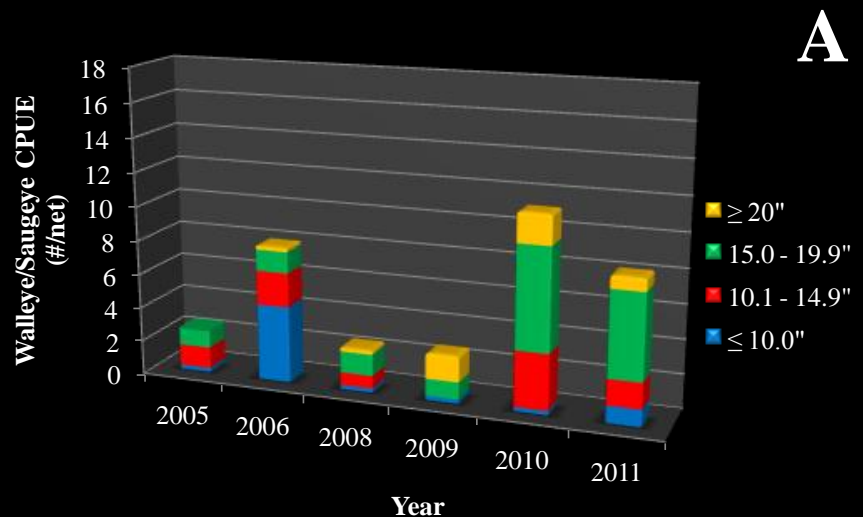


Figure 7. Walleye and saugeye (A) and wiper (B) catch-per-unit-effort (CPUE) during the 2005 to 2006 and 2008 to 2011 annual surveys at North Sterling Reservoir. For comparative purposes, the number of fish collected was standardized per gillnet.



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About the Fish...



Wiper: 27.8" (11.3 lbs)

Wiper

Though catch rates of wiper were generally higher than those of walleye and saugeye during the 2005 to 2009 annual surveys, wiper abundance was relatively low through these years (Figure 7). Abundance really dropped in 2009 through 2011 because fewer wiper were stocked to decrease predatory pressure while efforts were made to re-establish the gizzard shad prey base. Now that an adequate prey base exists, more wiper can be stocked in the future. Since wiper are the primary species targeted by anglers (Figure 8), and have produced higher catch rates than walleye and saugeye, future management will focus on wiper. In the meantime, anglers can still expect quality fishing for large wiper at North Sterling Reservoir.

Channel catfish

Approximately 371,000 channel catfish have been stocked since 2004. Regardless of stocking rates, few channel catfish are sampled in nets during annual surveys. It is likely that these low numbers do not accurately reflect the fish population, but the sedentary nature of channel catfish instead. This species tends to lay low as water temperatures decline in the fall, which is when the annual surveys are conducted. Hook-and-line usually produces more fish than gillnets, so anglers should not be discouraged to fish for this species. The 13 channel catfish sampled in 2011 were 20.4" on average and weighed 3.8 lbs, with the largest fish measuring 28.6" and weighing 9.2 lbs (Table 1). Results from the 2011 creel survey showed anglers caught several large catfish, so anglers are encouraged to fish for this species at North Sterling Reservoir.



Channel catfish: 28.6" (9.2 lbs)



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About the Anglers...

2011 North Sterling Reservoir creel survey

According to the 2011 creel survey, almost 6,200 anglers fished North Sterling Reservoir for nearly 21,000 hours between May and September of 2011 (Table 2). Ninety-eight percent of anglers were Colorado residents, of which 42% were from nearby towns in the six surrounding counties (Logan, Sedgwick, Phillips, Yuma, Washington, and Morgan). Non-resident anglers were from Nebraska, Wyoming, Utah, California, Minnesota, and Michigan. The majority of anglers fished with bait (75%), followed by lures (14%), or a combination of the two (10%). The remainder of anglers fished with flies. Over one-half of anglers targeted wiper (Figure 8). Walleye and saugeye were also highly sought after (Figure 8). Nearly 17,500 fish (all species included) were caught, of which approximately 43% were kept and 57% were released. In general, most anglers enjoyed their fishing trips at North Sterling Reservoir, ranking their trip quality as either excellent (11%), good (40%), or average (31%). Likewise, most anglers approved of the fish they caught, ranking fish quality as either excellent (22%), good (56%), or average (21%).

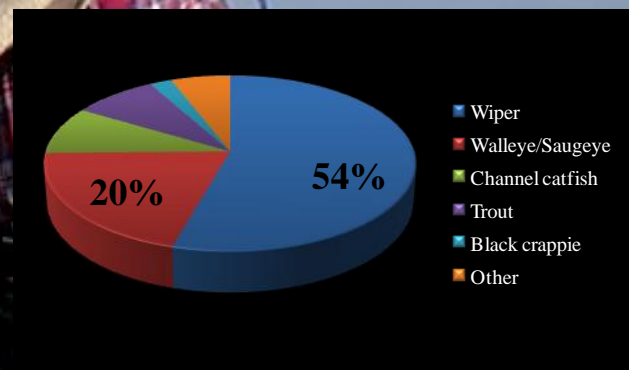
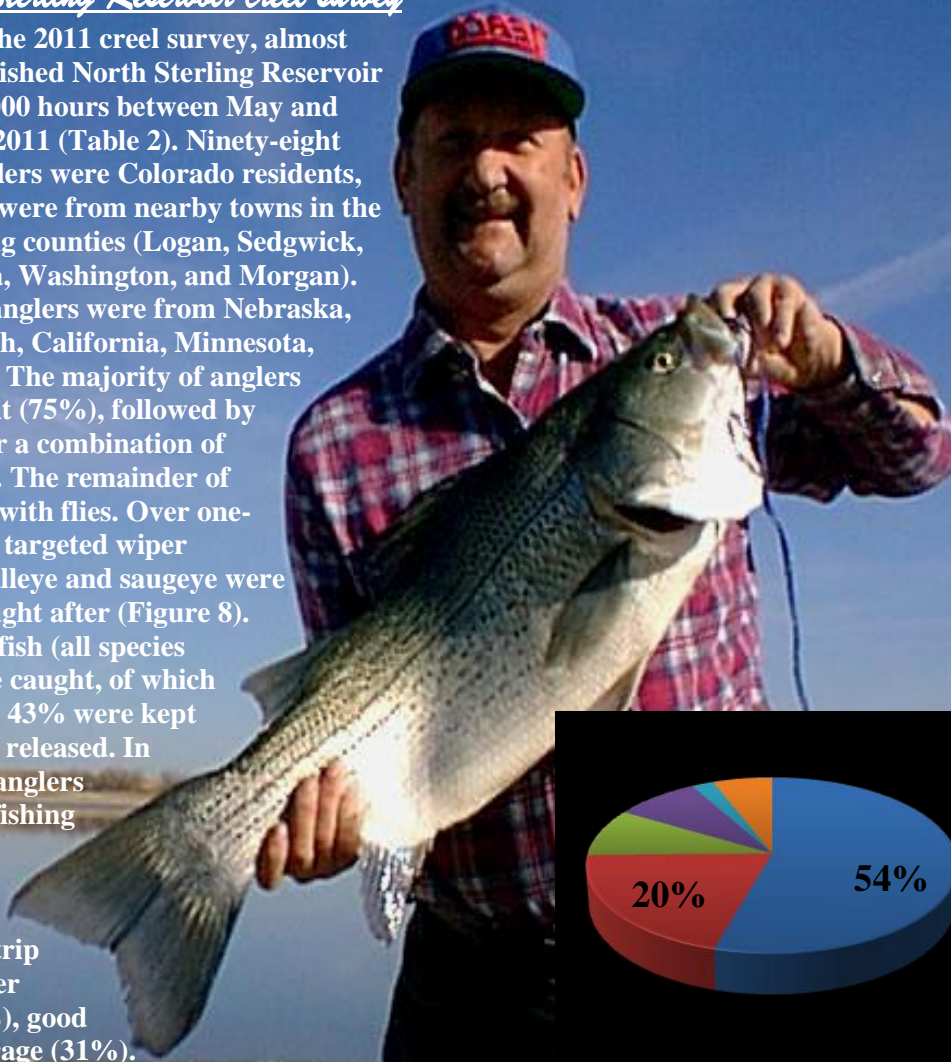


Figure 8. Fish species targeted by anglers during the 2011 North Sterling Reservoir creel survey.



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About the Anglers...

2011 North Sterling Reservoir creel survey continued...

Table 2. North Sterling Reservoir creel survey summary (May through September of 2011).

Statistic	Estimates		
	Shore anglers	Boat anglers	Total (all anglers)
FISHERMAN-HOURS (# of HRS FISHED)	9124	11687	20808
FISHERMAN (# OF ANGLERS)	2356	3831	6187
TOTAL CATCH (# OF FISH)	8801	8648	17449
KEPT CATCH (# OF FISH)	4741	2738	7479
RETURNED CATCH (# OF FISH)	4060	5911	9970
TOTAL CATCH/HR (# FISH/HR)	0.96	0.74	0.84
KEPT CATCH/HR (# FISH/HR)	0.52	0.23	0.36
RETURN CATCH/HR (# FISH/HR)	0.45	0.51	0.48
AVERAGE COMPLETED TRIP LENGTH (HRS)	3.87	3.05	3.36





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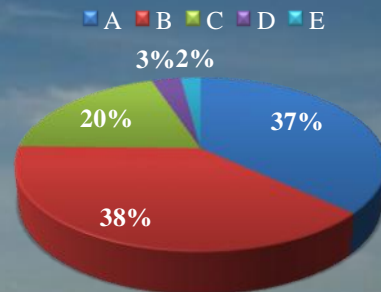
About the Anglers...

2011 North Sterling Reservoir creel survey continued...

Anglers were asked the following three questions and had the following responses:

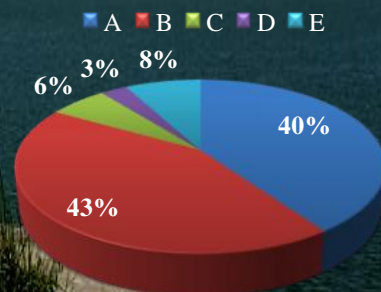
1) Using the following scale, please rank your support (or not) for the future stocking of white bass in North Sterling Reservoir? 1)

- A) Strongly support stocking
- B) Support stocking
- C) It does not matter one way or the other
- D) Do not support stocking
- E) Strongly against stocking



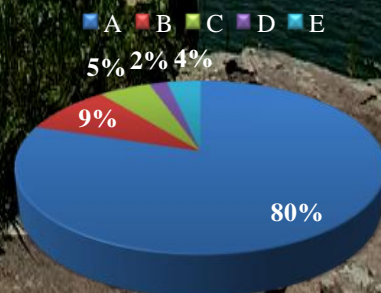
2) Of the following warmwater fish species, which would you most like to catch at North Sterling Reservoir? 2)

- A) Walleye/Saugeye
- B) Wiper
- C) White bass
- D) Yellow perch
- E) Crappie (black and/or white)



3) What percentage of your angling time today did you spend actively targetting trout? 3)

- A) 0%
- B) 1-32%
- C) 33-65%
- D) 66-99%
- E) 100%



Thank you to all of the anglers who were willing to participate in the creel survey!



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Master Angler Awards

<u><i>Year</i></u>	<u><i>Species</i></u>	<u><i>Length</i></u>	<u><i>Angler name</i></u>
2011	Channel catfish	31"	Sarah Vogel
2011	Channel catfish	30"	Charlie Vogel
2011	Blue catfish	30 1/2"	Charlie Vogel
2010	Channel catfish	33"	Tim Ludgate
2010	Channel catfish	30 1/2"	Hunter Ludgate
2009	Largemouth bass	20"	Brian McLain
2008	Channel catfish	32"	Drake Ludgate
2008	Channel catfish	30 3/4"	Will Wilcox

