

SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-45

Name: Buffalo Gap National Grasslands (Kadoka, Church, County Line, Fiddle Creek and Whitewater)

County: Pennington, Fall River, Jackson

Dates of present survey: May 16, 17, 21, 22, 23 and June 22, 2012

During the summer of 2012 fish populations were surveyed in five ponds on the Buffalo Gap National Grasslands of southwestern South Dakota. The Buffalo Gap National Grasslands are owned and managed by the United States Forest Service (USFS). Most of these ponds have variable water levels and can entirely (or at least partially) dry up during extended drought periods, such as during 2002-2007. The ponds all refilled and most were stocked in 2008 and/or 2009. The purpose of the 2012 survey of these ponds was to determine condition, growth and survival of stocked fish, and to determine if any other species are now present within the ponds.

Kadoka Lake

Legal description: S36, T2S, R21E

Location from nearest town: 2 miles west and 1 mile south of Kadoka, South Dakota

Surface Area (when full): 180 acres

Lake elevation (from full at time of survey): Three feet below full-pool

Maximum depth (at time of survey): 8 feet

Fish Species:

1. Largemouth Bass
2. Channel Catfish
3. Bluegill
4. Fathead Minnow

Fishing Access

There are some areas where shore fishing is possible, however, during the summer months, there is abundant submergent vegetation around the shoreline. There is also an area (not a concrete ramp) where a small boat can be launched. Kadoka Lake is very shallow throughout most of the lake. A short drive on gravel/low maintenance roads is necessary to reach the pond by vehicle.

Observations of Water Quality and Aquatic Vegetation

No apparent water pollution problems were observed at the time of the survey. There is abundant submergent and some emergent vegetation throughout most of the lake.

Observations on condition of structures (i.e. spillway, outlet structures, etc)

There were no apparent problems with the dam observed by staff during the survey.

Fish survey information

Kadoka Lake was surveyed on May 22, 2012. Historically, the lake had a maximum depth of 13 feet with an average depth of 6 feet. Much of the lake was too shallow to set nets in with a maximum depth of 8 feet in 2012, and thus nets were set only in the area near the dam (Figure 1). The fishery was surveyed using two modified fyke (trap) nets consisting of a 1.3 X 1.5 m frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead, three quarter arc seine hauls, and three angler hours (Figure 1). Four fish species were found in Kadoka Lake including Largemouth Bass, Bluegill, Fathead Minnow and Channel Catfish.

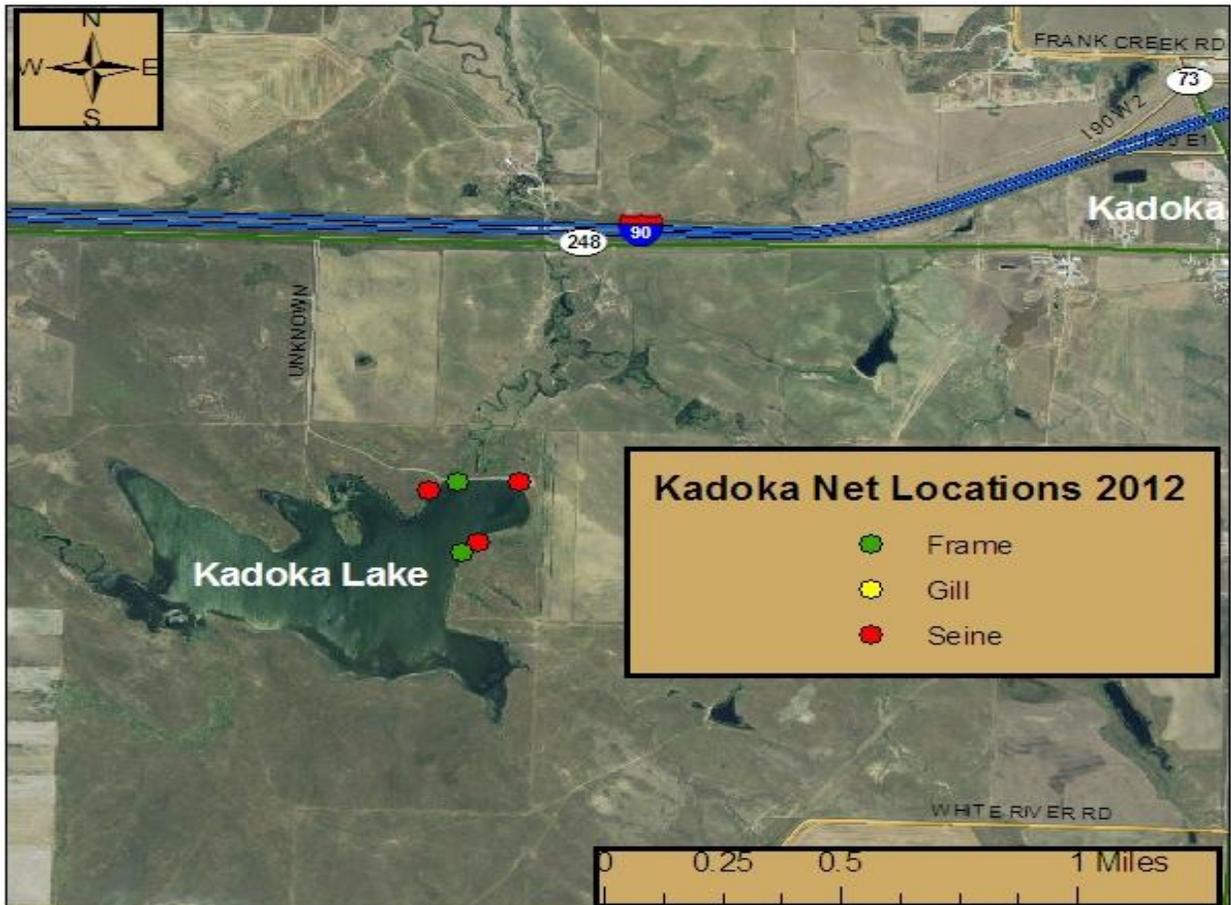


Figure1. Locations of modified fyke (frame) nets and quarter arc seine hauls used during the fisheries survey of Kadoka Lake, Pennington County, South Dakota, 2012.

Kadoka Lake was stocked with bluegill in 2008. Bluegill was the most abundant species collected during the fisheries survey of Kadoka Lake. Mean catch per unit effort (CPUE) for bluegill was 137.5. The majority of the Bluegill surveyed was in the stock to quality length class with a portion of fish in the quality to preferred length classes (Figure 2). There appears to be a couple year classes present (Figure 2). The proportional stock density (PSD) for Bluegill was 25 and the proportional stock density of preferred-length fish (PSD-P) was 1. Bluegill were in good condition with a weighted mean relative weight of for fish greater than or equal to stock length

($Wr > S$) of 123.6. During three quarter arc seine hauls 54 age-0 and or age-1 Bluegill were collected, indicating natural reproduction.

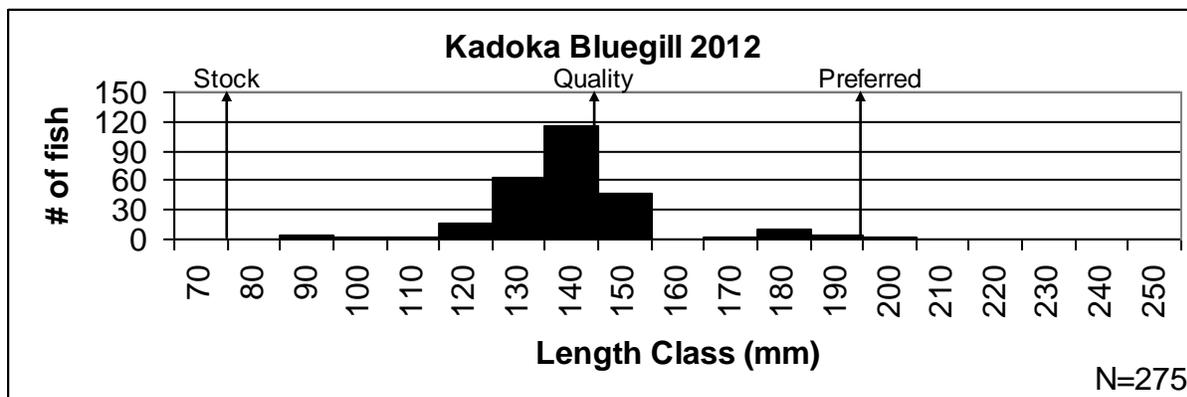


Figure 2. Length frequency histogram of Bluegill surveyed from modified fyke nets in Kadoka Lake, Pennington County, South Dakota, 2012.

During three angler hours, four largemouth bass were collected (1.3 LMB/angler hour). The Largemouth Bass collected, were ages 3 (n=2) and 4 (n=2) which may be representative of the 2008 and 2009 fingerling stockings. Total length of age-3 fish collected by angling was 264 and 265 mm (10.4 in), respectively. Total length of age-4 fish was 285 and 310 mm (11.2 and 12.2 in), respectively. Relative weight (Wr) for Largemouth Bass collected ranged from 105.7 to 114.6. A total of five Largemouth Bass were collected from the trap nets as well. The largemouth bass collected from the trap nets were age-3 and age-4 and were 247-290 mm (9.7-11.4 in). During three quarter arc seine hauls, seven age-0 and or age-1 Largemouth Bass were collected, indicating natural reproduction.

Additional species found during the 2012 survey of Kadoka Lake included Fathead Minnow and Channel Catfish. A total 134 fathead minnows were collected during the three seine hauls. Although Channel catfish were stocked into Kadoka Lake in 2009, only one was collected during the survey; which was 602 mm (24in) and 2,623 g (6 lb) and had a Wr of 115.6.

Church Dam

Legal description: S28, T2S, R17E

Location from nearest town: 11 miles east of Wall, South Dakota on Interstate 90, 4 miles south on Bigfoot Road, then 1 ½ miles west, and 0.5 miles south

Surface Area (when full): 15 acres

Lake elevation (from full at time of survey): Two feet below full-pool

Maximum depth (at time of survey): 10 feet

Fish Species:

1. Largemouth Bass

Fishing Access

Much of the pond can be fished from shore. A small/boat or canoe could be launched in the pond. Some areas can be difficult to fish do to submergent vegetation. Anglers must travel a two miles on a low maintenance two-track path to reach the pond.

Observations of Water Quality and Aquatic Vegetation

There were no observed pollution problems other than some shore line erosion and manure from cattle. There was emergent and submergent vegetation along the shoreline in much of Church Dam.

Observations on condition of structures (i.e. spillway, outlet structures, etc)

There were no apparent problems with the dam observed during the survey.

Fish Survey Information

Church Dam was surveyed on May 21, 2012. The fisheries survey was completed using three angler hours and three quarter-arc seine hauls (Figure 3). Only Largemouth Bass were collected during the survey. Largemouth Bass were stocked into Church Dam in 2008 and 2009 in an effort to re-establish the population following low-water conditions.

A total of 20 Largemouth Bass were collected during three angler hours (6.7 LMB/angler hour). All Largemouth Bass collected during angling were age-3 which may be representative of the stocking of fingerlings in 2009. Largemouth Bass ranged from 216-327 mm (8.5-12.9 in) in length. The mean length of Largemouth Bass collected by angling was 258.2 mm (10 in). Condition was good with a mean *Wr* of 106.7. A total of 10 age-0 and or age-1 Largemouth Bass were collected during three quarter-arc seine hauls as well.

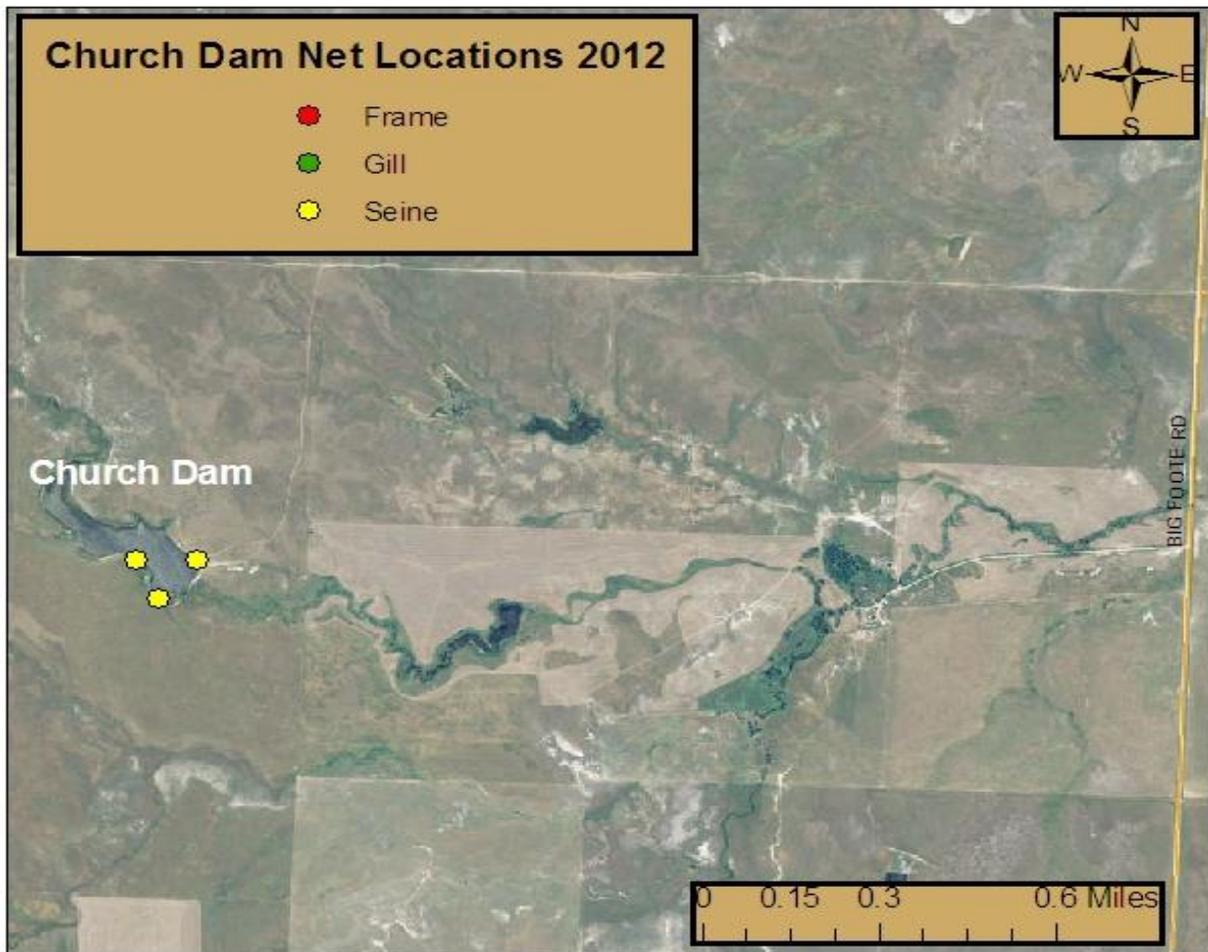


Figure 3. Locations of quarter-arc seine hauls during the fisheries survey of Church Dam, Pennington County, South Dakota, 2012.

County Line Dam

Legal description: S18, T1S, R17E

Location from nearest town: 11 miles east of Wall, South Dakota on Interstate 90, , 2 miles south on Bigfoot Road, then 2 ¼ miles east

Surface Area (when full): 5 acres

Lake elevation (from full at time of survey):-5 feet

Maximum depth (at time of survey): Unknown

Fish Species:

1. Largemouth Bass
2. Bluegill
3. Yellow Perch

Fishing Access

The shorefishing access was good during the time of the survey. The water level was very low and there was not a lot of emergent vegetation. Anglers must travel several miles on a low maintenance two-track road to reach the pond.

Observations of Water Quality and Aquatic Vegetation

There appears to be some use of the pond by cattle during part of the year. There were no other water quality issues observed during the survey.

Observations on condition of structures (i.e. spillway, outlet structures, etc)

There is currently a problem with the dam structure on County Line Dam. Erosion by the outlet structure is causing the dam to begin breaching.

Fish Survey Information

County Line Dam was surveyed on June 22, 2012. The water level was very low during the time of the survey. This could pose issues for fish survival through the winter of 2012/2013. The fisheries survey was conducted with three quarter arc seine hauls and three angler hours (Figure 4). Three fish species were found in County Line Dam: Largemouth Bass, Bluegill, and Yellow Perch.

During the three angler hours a total of 20 Largemouth Bass were collected (6.7 LMB/angler hour). Additionally, Bluegill (n=2) and Yellow Perch (n=2) were sampled during angling. Yellow Perch total lengths were 224 and 265 mm (8.8 and 10.4 in), respectively. Bluegill total lengths were 160 and 179 mm (6.3 and 7 in), respectively.

Ages of Largemouth Bass collected by angling ranged from age-2 through age-5. One individual was too old to proficiently age using scales (500 mm, 2,245 g; 19.7 in, 4.9 lb). The mean total length of Largemouth Bass collected by angling was 247.4 mm (9.7 in) and the mean *Wr* of largemouth bass greater than or equal to stock length was 97.4. During the three seine hauls, 10 age-0 and/or age-1 Bluegill were collected. Age-0 Largemouth Bass were not found during the seine hauls. County Line Dam has not been stocked since 2005.

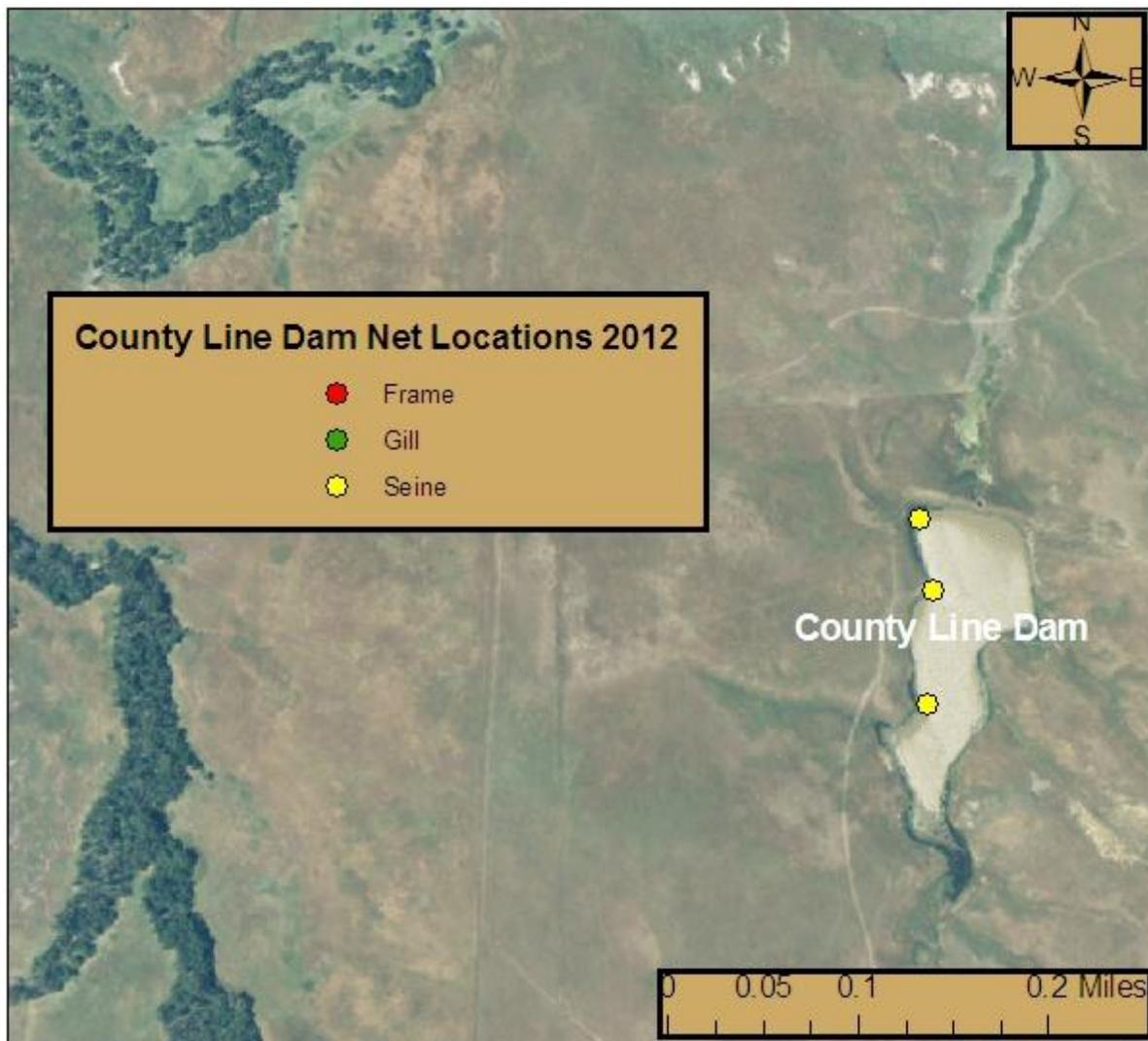


Figure 4. Locations of quarter-arc seine hauls used during the fisheries survey of County Line Dam, Jackson County, South Dakota, 2012.

Whitewater Dam

Legal description: S14, T1N, R16E

Location from nearest town: 3 miles southeast of Wall (immediately off I90)

Surface Area (when full): 20 acres

Lake elevation (from full at time of survey): Two feet below full-pool

Maximum depth (at time of survey): Unknown

Fish Species:

1. Channel Catfish
2. Yellow Perch
3. Golden Shiners

Fishing Access

There is emergent vegetation around much of the pond. However, there are some areas throughout the pond that were open enough to fish from shore. While the pond is directly adjacent to the interstate, reaching the pond requires 3 miles of backtracking through low maintenance roads in USFS pastures.

Observations of Water Quality and Aquatic Vegetation

Most of the shoreline contains emergent vegetation. There appeared to be low amounts of submergent vegetation in this pond. There were no obvious pollution problems noticed during the survey.

Observations on condition of structures (i.e. spillway, outlet structures, etc)

There were no problems with the dam observed by GF&P personnel during the survey.

Fish Survey Information

Whitewater Dam was surveyed on May 23, 2012. The pond was surveyed using three angler hours and three quarter arc seine hauls (Figure 5). Whitewater has not been stocked by SDGF&P personnel since 1993. Three fish species were found in Whitewater: channel catfish, yellow perch, and golden shiners.

During the three angler hours no Largemouth Bass were collected. Additionally, there were no signs of Largemouth Bass (e.g. fish surfacing). However, two Channel Catfish and one Yellow Perch were caught during the angling sample. Channel Catfish total lengths were 232 and 263 mm (9.1 and 10.4 in), respectively and the Yellow Perch total length was 148 mm (5.8 in). During 3 quarter arc seine hauls, a total of 50 Golden Shiners and 67 Yellow Perch were collected.

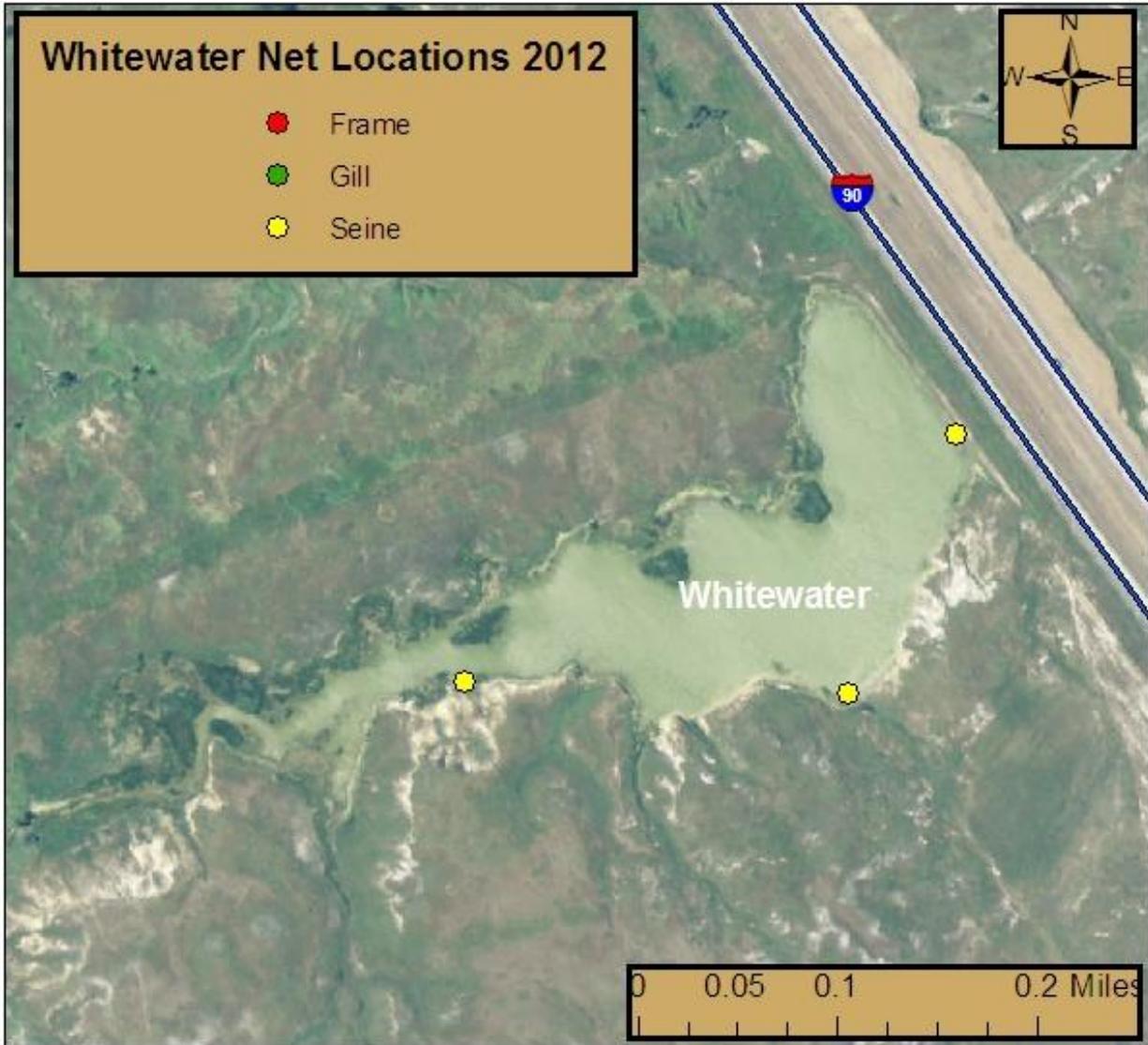


Figure 5. Locations of quarter-arc seine hauls used during the fisheries survey of Whitewater Dam, Jackson County, South Dakota, 2012.

Fiddle Creek Dam

Legal description: S14, T9S, R1E

Location from nearest town: 7 ½ miles west of Edgemont, 2 ½ miles south, and a 1 mile northeast

Surface Area (when full): 17 acres

Lake elevation (from full at time of survey): Two feet

Maximum depth (at time of survey): 8 feet

Fish Species:

1. Largemouth Bass
2. Black Crappie

Fishing Access

Most of the shoreline on Fiddle Creek Dam is open enough for shore fishing, and a small boat/canoe could be launched into the pond. There is dense submergent vegetation in some areas that may make shore fishing difficult at times. Anglers must travel 2 ½ miles along a gravel road then 1 mile along a low maintenance two-track road to reach the pond.

Observations of Water Quality and Aquatic Vegetation

It appears that the pond gets some use by cattle at times, and there was shoreline erosion in some places. There are some areas with abundant submergent vegetation.

Observations on condition of structures (i.e. spillway, outlet structures, etc)

A two track roads crosses the dam structure and it is beginning to erode in some areas.

Fish Survey Information

Fiddle Creek Dam was surveyed on May 16, 2012. The fishery was surveyed using two trap net nights, three quarter seine hauls, and four angler hours (Figure 6). Two fish species were collected during the fisheries survey: Black Crappie and Largemouth Bass.

In 2012, Black Crappie was the most abundant fish species collected in the trap nets during the survey with a mean CPUE of 145. Black Crappie mean *Wr* was good 110.6. Most of the Black Crappie were approaching quality length with some fish over quality length (Figure 7). The PSD and PSD-P was 22 and 1, respectively. There is a large year class of fish that are 170-210 mm (6.7 to 8.3 in) in length (Figure 7). During the three seine hauls three age-0 and/or age-1 Black Crappie were collected, indicating natural reproduction.

During four angler hours, a total of 13 Largemouth Bass were collected (3.3 LMB/angler hour). Largemouth Bass mean total length 348 mm, and mean *Wr* was 90.5. One Largemouth Bass was collected during three seine hauls and it measured 143 mm (5.6 in) in total length. Three ages classes were present in the angling sample: age-3, age-4 and age-5. Age-3 fish were likely from the fingerling stocking in 2009. The age-4 and 5 fish found during the survey are either the result of largemouth bass survival through the drought, or through unauthorized introductions. The latter may be more likely as Black Crappie were not stocked by SDGF&P as well.

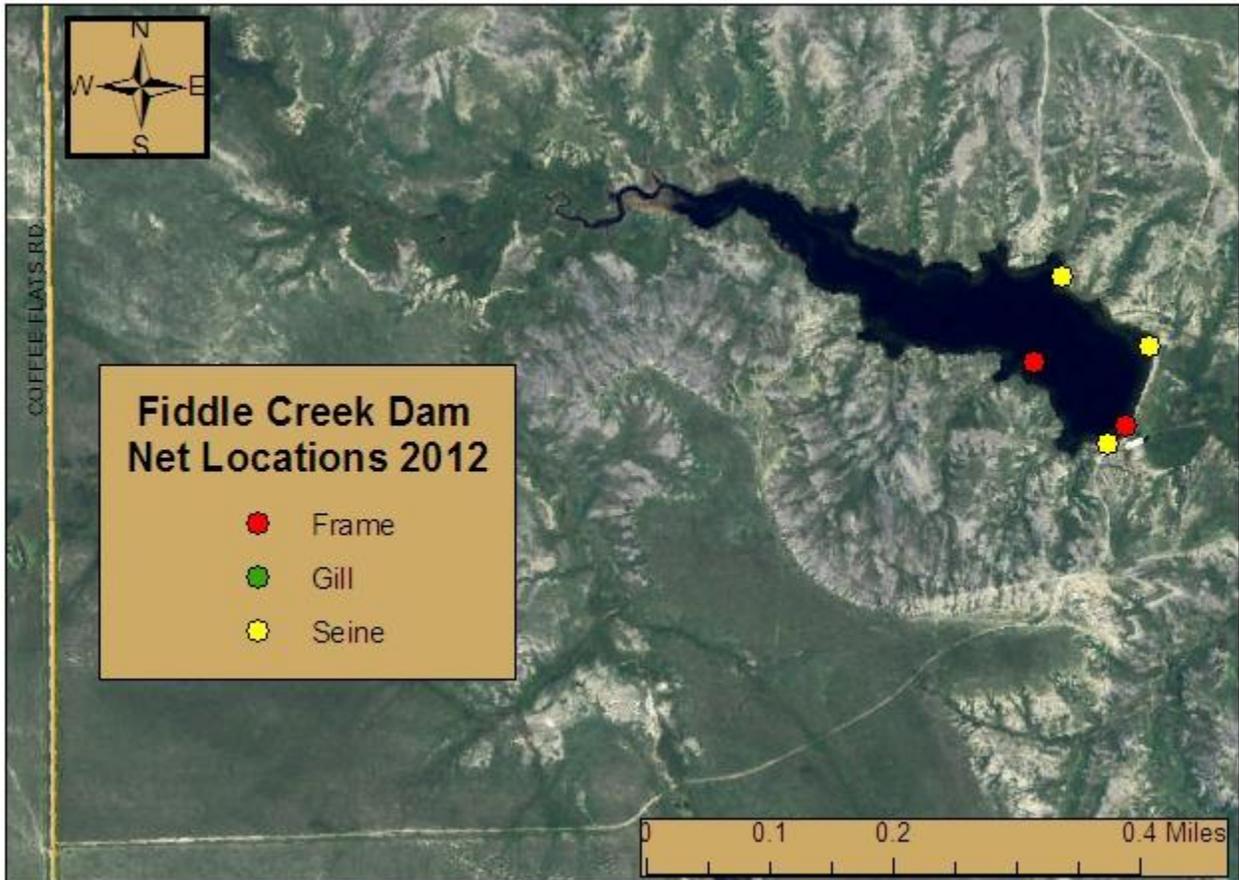


Figure 6. Locations modified fyke (frame) nets and quarter-arc seine hauls used during the fisheries survey of Fiddle Creek Dam, Fall River County, South Dakota, 2012.

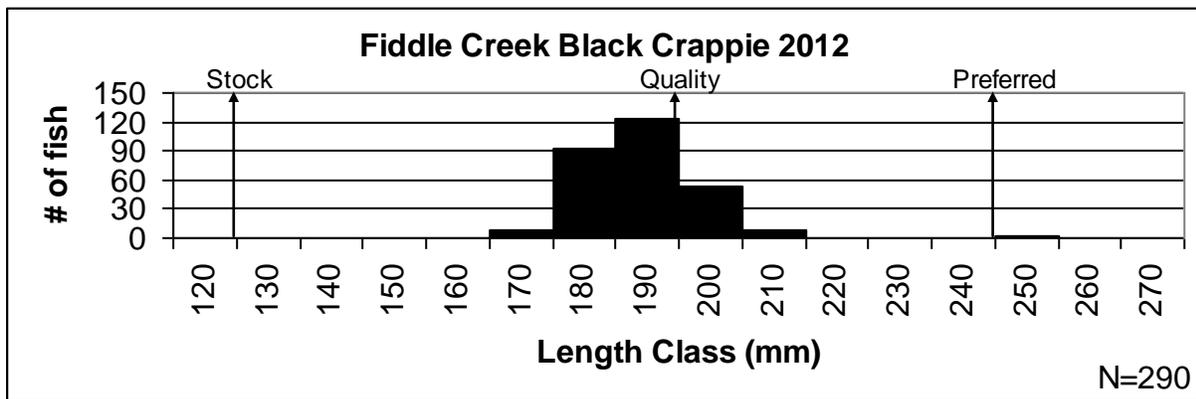


Figure 7. Length frequency histogram of Black Crappie surveyed in modified fyke nets in Fiddle Creek Dam, Fall River County, South Dakota, 2012.

RECOMMENDATIONS

1. Survey largemouth bass population as needed to evaluate success of stockings and fish condition and growth.
2. Survey the panfish population every five years or as needed to evaluate the fishery.

APPENDIX

Appendix A. Stocking history, including pond, year, species, size and number stocked for Buffalo Gap National Grassland Ponds.

Pond	Year	Species	Size	Number Stocked
County Line	2005	Largemouth bass	fingerling	1,200
Kadoka	2008	Fathead minnow	large	2,400
Kadoka	2008	Bluegill	fingerling	13,000
Kadoka	2008	Largemouth bass	fingerling	2,000
Kadoka	2009	Channel catfish	adult	400
Kadoka	2009	Largemouth bass	fingerling	5,000
Fiddle Creek	2009	Largemouth bass	fingerling	3,000
Church	2001	Largemouth bass	fingerling	400
Church	2008	Largemouth bass	fingerling	375
Church	2009	Largemouth bass	fingerling	2,000