

Fisheries and Aquatic Resources Adaptive Management System

2014-2018

Missouri River Fisheries Management Area

**South Dakota Game, Fish and Parks
Wildlife Division**



**Chris Longhenry, Co-Chair
Mark Fincel, Co-Chair
Brian Beel
Dan Jost
Mike Smith
Jason Kral
Jason Jungwirth
Robert Hanten**

**Darla Kusser
Hilary Meyer
Kyle Potter
Jason Sorensen
Gary Knecht
Nathan Loecker
Sam Stukel**

Formally adopted by GFP Commission: April 4, 2014

DIVISION OF WILDLIFE



Agency Mission

The purpose of the Department of Game, Fish and Parks is to perpetuate, conserve, manage, protect, and enhance South Dakota's wildlife resources, parks, and outdoor recreational opportunities for the use, benefit, and enjoyment of the people of this state and its visitors, and to give the highest priority to the welfare of this state's wildlife and parks, and their environment, in planning and decisions.

Division of Wildlife Mission

The Division of Wildlife will manage South Dakota's wildlife and fisheries resources and their associated habitats for their sustained and equitable use, and for the benefit, welfare and enjoyment of the citizens of this state and its visitors.

Our Motto:

"Serving People, Managing Wildlife"

I. Introduction

The Missouri River Fisheries Management Area consists of the four mainstem Missouri River reservoirs in South Dakota (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark Lake) and the two sections of un-impounded river below Ft. Randall and Gavins Point Dams. This management area contains over 475,420 surface acres of reservoirs and 129 miles of river, and sustains approximately 350,000 angler days each year. The annual direct economic impact of these fisheries is variable, but can exceed 50 million dollars.

The foundation for this current plan is an informal plan developed in 2006. Prior planning efforts include plans for both individual reservoirs and individual fish species that have been developed intermittently since 1988. A formal Missouri River Management Plan was created in 1994 and last updated in 1997.

This plan is a dynamic tool addressing new issues, challenges, and opportunities in managing the Missouri River fisheries resource. It broadly covers all reservoir and river reaches along the Missouri River. The components of this plan include an **Inventory** Section, which reviews the history and current status of management activities. Following the Inventory Section is the **Issues** Section, listing the current issues involving Missouri River fisheries. Lastly, measurable and time-bound **Objectives**, along with specific **Strategies**, are listed.

While this plan will guide staff working on fisheries and aquatic resource issues in the Missouri River Fisheries Management Area, it is also intended to provide the public with information on current fisheries management directions and activities. Members of the public are encouraged to comment on the plan both during development and during implementation.

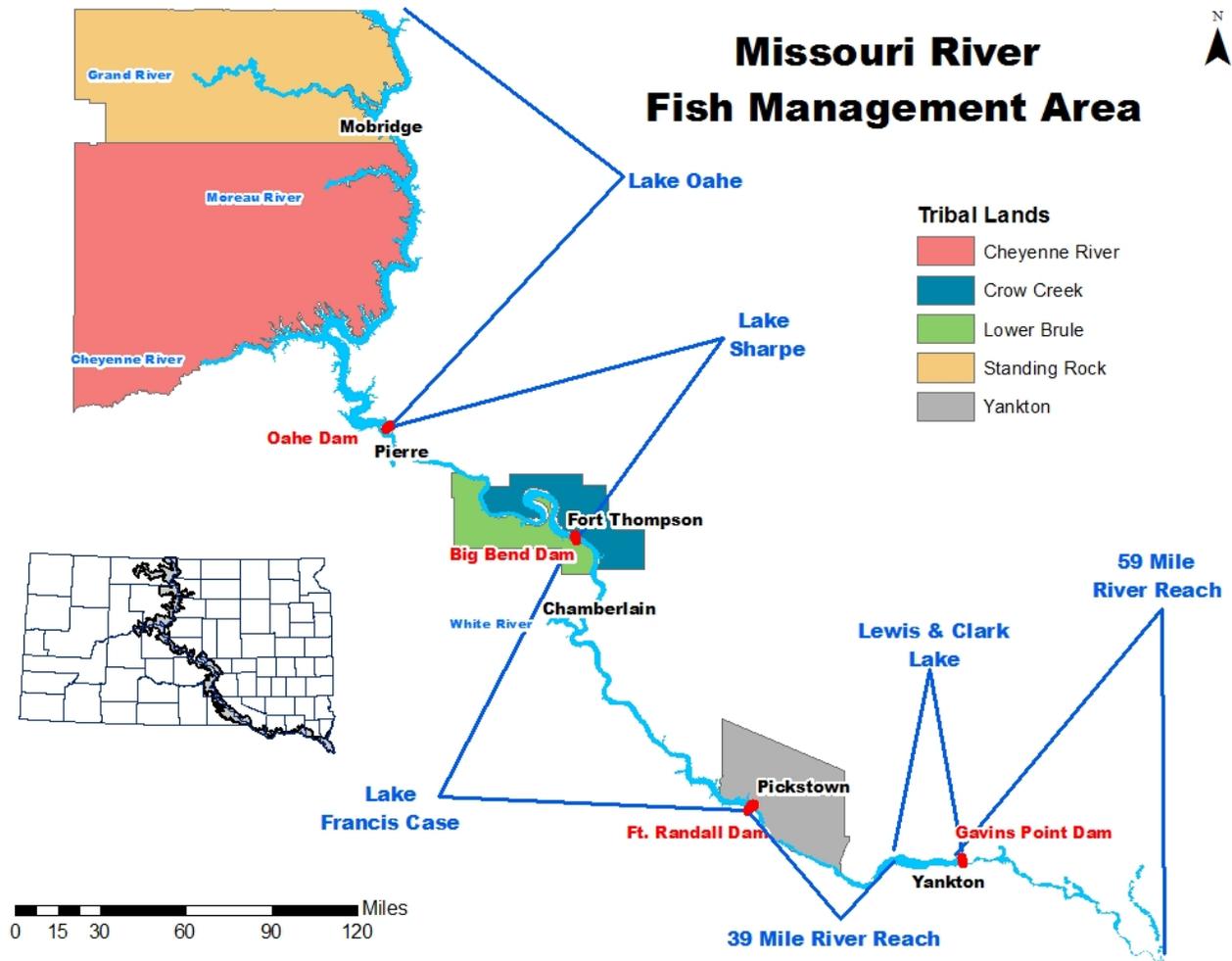


Figure 1. Missouri River Fish Management Area, including reservoirs, selected cities, and Tribal lands.

II. Inventory

Prior to dam construction, the Missouri River was a naturally-flowing river system with multiple habitats, varying flows, a large, well-connected flood plain, and many native large-river fish species. After dam closures, the resulting dramatic alterations to habitat, flow, and flood plain connectivity led to dramatic changes in the fishery. This large change makes the Missouri River Fisheries Management Area the most altered in South Dakota.

Moving upstream from the unimpounded Missouri River below Gavins Point Dam, the four mainstem reservoirs in South Dakota are Lewis and Clark Lake, Lake Francis Case, Lake Sharpe, and Lake Oahe. A stretch of unimpounded river is also found below Ft. Randall Dam at the upper end of Lewis and Clark Lake. The reservoirs range in size from the Lake Oahe at 312,000 surface acres to Lewis and Clark Lake at 23,000 (Table 1). South Dakota's portion of the Missouri River receives inflows from the mainstem and local runoff that enters the system primarily through six western (Grand, Moreau, Cheyenne, Bad, White, and Niobrara Rivers) and three eastern (James, Vermillion, and Big Sioux Rivers) tributaries. The Missouri River and its reservoirs offer a variety of aquatic habitats including over 475,420 acres of reservoir surface area and a total of 129 miles of river. The variety of aquatic habitats allows for a wide range of fisheries management activities. Permanent coldwater habitat only exists in Lake Oahe and in the Oahe tailwater section of Lake Sharpe.

Table 1. Management classification and characteristics of the four reservoirs and two flowing river sections in the Missouri River Fisheries Management Area.

	Reservoir				River Reach	
	Oahe	Sharpe	Francis Case	Lewis and Clark	Below Ft. Randall	Below Gavins Point
Management Classification	Cold Cool	Cold Cool Warm	Cool Warm	Cool Warm	Cool Warm	Cool Warm
Surface acres	312,000	57,080	77,000	23,000		
Length (miles)	160	85	107	25	44	77
Watershed (acres)	39,737,758	3,737,716	9,056,165	10,240,047		

Standardized gill net surveys to monitor fish populations have been conducted on all four reservoirs since the early 1980s. Other fisheries sampling frequently conducted include gill netting, trammel netting, larval trawling, electrofishing, hydroacoustics, shoreline seining, and frame netting. More than 26 fish species are routinely collected from the Missouri River system during these fish population sampling efforts (Table 2). Of these, 13 are classified as game species, with the remainder classified as non-game, prey, threatened, endangered, or protected. As indicated in Tables 2 and 3, fish species presence and abundance varies by location and from year to year.

In 2005, Game, Fish and Parks (GFP) began to closely monitor the fish community in the un-impounded reach of the Missouri below Gavins Point Dam. South Dakota is represented by a crew of three biologists on the United States Army Corp of Engineers (USACE) led Pallid Sturgeon Population Assessment Team. Extensive field sampling in this river area provides baseline data useful for monitoring endangered pallid sturgeon, several sport fishes, and a host of non-game species. A United States Fish and Wildlife Service (FWS) sturgeon crew monitors the fish community in the un-impounded reach below Fort Randall Dam.

In addition to surveys, other management activities in the Missouri River Fisheries Management Area include the spawning and stocking of numerous fish species. Species routinely spawned include Walleye, Chinook Salmon and Paddlefish. Lake Oahe Walleye stocks have historically provided over 100 million eggs annually to both State and Federal hatcheries. Paddlefish from Lake Francis Case and Lewis and Clark Lake are spawned and the resulting fish used to maintain and enhance the Lake Francis Case Paddlefish population. Coldwater sport fisheries for Chinook Salmon, Rainbow Trout, and Brown Trout in Lake Oahe and the tailwaters below Oahe and Fort Randall dams are maintained entirely by stocking. Introductions, via stocking, of Smallmouth Bass, Lake Herring, and Spottail Shiners have also occurred. Pallid Sturgeon spawning and stocking efforts have also been attempted in the flowing reaches below Ft. Randall and Gavins Point Dams.

Fourteen aquatic species in the Missouri River Fisheries Management Area (MRFMA) are listed and tracked by the South Dakota Natural Heritage Program as threatened, endangered, or Species of Greatest Conservation Need (SGCN) within South Dakota's State Wildlife Action Plan (WAP) (Table 4). Many of the 14 species listed as SGCN are found solely within the MRFMA. Declines in native large-river species is largely attributed to habitat alterations (e.g. construction of dams, impoundments, and channelization) which have blocked upstream migrations, modified the hydrograph, altered sediment transports and reduced floodplain connectivity.

Several Aquatic Invasive Species have been detected in the Missouri River Fisheries Management Area, particularly in the river reach below Gavins Point Dam (Table 5). Various Asian carp species are of particular concern.

Table 2. Five-year (2006-2010) average nightly standard gill net catch for selected fish species.

Species	Reservoir				Below Gavins Point
	Oahe	Sharpe	Francis Case	Lewis and Clark	
<u>Game Species</u>					
Black Crappie	0.1	0.1	0.0	0.1	< 0.05
Channel Catfish	18.9	5.7	5.5	4.9	0.2
Chinook Salmon	0.0	0.0	0.0	0.0	0.0
Largemouth Bass	0.0	0.0	0.0	0.0	< 0.05
Northern Pike	0.5	< 0.05	< 0.05	< 0.05	< 0.05
Paddlefish	0.0	0.0	0.0	0.1	< 0.05
Rainbow Trout	0.0	< 0.05	0.0	0.0	0.0
Sauger	0.9	2.2	2.8	7.4	< 0.05
Smallmouth Bass	2.1	0.9	0.6	0.0	< 0.05
Walleye	15.1	19.5	13.2	9.1	< 0.05
White Bass	1.0	1.4	1.0	0.6	< 0.05
White Crappie	0.8	0.1	0.5	0.3	< 0.05
Yellow Perch	9.7	2.5	0.7	< 0.05	0.0
<u>Non-Game Species</u>					
Bigmouth Buffalo	0.2	< 0.05	0.0	0.1	< 0.05
Common Carp	2.2	2.3	1.6	0.5	< 0.05
Freshwater Drum	2.1	0.7	1.0	4.5	< 0.05
Goldeye	1.4	0.1	1.9	0.0	0.7
River Carpsucker	0.9	0.4	0.3	1.3	0.2
Smallmouth Buffalo	0.2	< 0.05	0.1	0.1	< 0.05
Shorthead	0.3	0.1	0.1	1.4	0.1
Shortnose Gar	0.1	0.1	0.4	0.1	< 0.05
White Sucker	0.3	< 0.05	0.0	0.0	0.0
<u>Protected, Threatened, or Endangered Species</u>					
Blue Sucker	0.0	0.0	0.0	0.0	0.9
Pallid Sturgeon	0.0	0.0	0.0	0.0	< 0.05
Shovelnose	0.0	0.8	0.0	< 0.05	2.3

Table 3. The number of years over the five year period from 2006 to 2010 that fish species were sampled using seining in the reservoirs or mini-fyke nets in the river reach below Gavins Point Dam.

Species	Reservoir				Below Gavins Point
	Oahe	Sharpe	Francis Case	Lewis and Clark	
Bigmouth Buffalo	2	0	4	2	5
Bigmouth Shiner	0	0	0	0	5
Black Bullhead	2	0	1	0	4
Black Crappie	3	1	1	2	5
Bluegill	4	0	1	5	5
Bluntnose Minnow	0	5	0	1	0
Brassy Minnow	5	2	0	0	4
Central Stoneroller	0	0	0	1	0
Common Carp	5	4	4	3	5
Common Shiner	1	0	1	1	0
Creek Chub	0	0	0	1	2
Emerald Shiner	5	5	5	5	5
Fathead Minnow	2	2	4	1	5
Flathead Chub	1	0	1	0	0
Freshwater Drum	4	5	5	5	5
Ghost Shiner	0	0	0	0	1
Gizzard Shad	4	5	5	5	5
Golden Shiner	0	0	1	0	0
Goldeye	2	2	3	0	0
Grass Pickerel	0	0	0	1	0
Grass Carp	0	0	0	0	1
Green Sunfish	0	0	0	1	5
Highfin Carpsucker	0	0	0	0	2
Iowa Darter	1	0	0	0	0
Johnny Darter	5	5	3	5	5
Largemouth Bass	2	4	0	4	5
Longnose Dace	0	0	0	0	1
Longnose Gar	0	0	0	0	5
Mimic Shiner	0	0	0	0	2

Table 3 continued.

Northern Redbelly Dace	0	0	0	1	0
Orangespotted Sunfish	0	0	1	1	5
Red Shiner	0	1	4	4	5
River Carpsucker	5	1	4	5	3
River Shiner	0	0	0	0	1
Rock Bass	0	0	0	0	2
Sand Shiner	0	0	0	0	5
Shorthead Redhorse	0	0	1	4	5
Shortnose Gar	0	0	1	3	5
Silver Chub	0	0	0	0	1
Silvery Minnow	1	0	0	0	0
Smallmouth Buffalo	2	0	4	1	2
Spotfin Shiner	0	0	0	4	5
Spottail Shiner	5	5	5	4	5
Stonecat	0	0	0	0	3
Tadpole Madtom	0	0	0	0	1
White Crappie	5	5	2	1	5
White Sucker	5	4	0	0	0
Yellow Perch	5	5	5	1	1

Table 4. South Dakota Natural Heritage Program and Federally listed species in the Missouri River Fisheries Management Area. Status abbreviations: LE= federally endangered; LT=federally threatened; SE = state endangered; ST = state threatened; SGCN = Species of Greatest Conservation Need.

Common Name	Scientific Name	Federal Status	State Status
<i>Fish</i>			
Blue Sucker	<i>Cycleptus elongates</i>		SGCN
Northern Redbelly Dace	<i>Chrosomus eos</i>		ST, SGCN
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	LE	SE, SGCN
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>	LT	SGCN
Sicklefin Chub	<i>Macrhybopsis meeki</i>		SE, SGCN
Sturgeon Chub	<i>Macrhybopsis gelida</i>		ST, SGCN
Trout-perch	<i>Percopsis omiscomaycus</i>		SGCN

Table 4 continued.

Turtles			
False Map Turtle	<i>Graptemys pseudogeographica</i>		ST, SGCN
Smooth Softshell	<i>Apalone mutica</i>		SGCN
Mussels			
Hickorynut	<i>Obovaria olivaria</i>		SGCN
Higgins Eye	<i>Lampsilis higginsii</i>	LE	SGCN
Mapleleaf	<i>Quadrula quadrula</i>		SGCN
Scaleshell	<i>Leptodea leptodon</i>	LE	SGCN
Yellow Sandshell	<i>Lampsilis teres</i>		SGCN

Table 5. Aquatic invasive species detected in the Missouri River Fisheries Management Area (X denotes presence).

Species	Reservoir				Below Gavins Point
	Oahe	Sharpe	Francis Case	Lewis and Clark	
Bighead Carp					X
Common Carp	X	X	X	X	X
Grass Carp					X
Silver Carp					X
European Rudd	X	X	X		X
Asian Clam				X	X
Curlyleaf Pondweed	X	X		X	X
Eurasian Water-milfoil		X		X	

Research on Missouri River fisheries has focused on fish movement, harvest rates, fish passage through dams, habitat preferences, management and stocking evaluations, predator-prey relationships, and food habits. Past research has provided the basis for many current management strategies.

Over 350,000 angler days are typically spent each year fishing the Missouri River Fisheries Management Area. Angler use and harvest surveys are used to monitor catch and harvest, as well as angler attitudes and preferences. Anglers have been surveyed annually on Lakes Oahe, Sharpe, and Francis Case since 1991, with anglers on Lewis and Clark and the river below Ft. Randall dam surveyed in 1984, 1994, 1995, 2000, 2001, 2005, and 2009. An angler use and harvest survey was conducted on the Lower Missouri River below Gavins Point Dam in 2009. The most commonly caught fish species in the reservoirs were Walleye, White Bass, Channel Catfish, and Smallmouth Bass. In recent years, over 800,000 Walleyes have been annually harvested from the Missouri River system. In the 2009 surveys, 74% of anglers interviewed after fishing Lakes Oahe, Sharpe, or Francis Case expressed some level of satisfaction with their trip, while 18% expressed some level of dissatisfaction, and 8% expressed a neutral rating. Table 6 summarizes recent angler use and harvest survey statistics.

Fishing regulations, including daily creel limits, possession limits, and length limits, are in existence for all game fish species in the Missouri River Fisheries Management Area. Fishing regulations and management of boundary waters are a cooperative effort with the Nebraska Game and Parks Commission and the North Dakota Game and Fish Department.

Boat ramps in South Dakota provide access at 107 sites in the Fisheries Management Area. Many are located in state recreation areas, with some having fish cleaning and comfort stations. The GFP Parks Division manages all state operated parks, boat ramps, and shoreline access along the Missouri River.

Other government agencies involved in research or management efforts on the Missouri River system in South Dakota include the U.S. Army Corps of Engineers, South Dakota Department of Environment and Natural Resources, U.S. Fish and Wildlife Service, U.S. Geological Service, several state universities, and several Native American Tribes. Water level management of the Missouri River system is controlled solely by the U.S. Army Corps of Engineers. However, GFP participates in the Missouri River Natural Resources Committee and the Missouri River Association of States and Tribes to develop recommendations for the Corps. GFP also participates in Missouri River Restoration Implementation Committee.

Table 6. Average angler use and harvest survey statistics. Lewis and Clark data includes the river reach below Fort Randall dam. Estimates of economic impact are derived by a \$79 per trip multiplier (U.S. Dept. of Interior, Fish and Wildlife Service, and U.S. Dept. of Commerce, Bureau of the Census 2007).

	Reservoir				Below Gavins Dam
	Oahe	Sharpe	Francis Case	Lewis and Clark	
Years surveyed	2006 through 2012	2006 through 2010 2012	2006 through 2012	2000 2001 2005 2009	2000 2009
Fishing pressure (angler days/year)	200,812	103,803	134,141	45,968	51,223
Economic impact (millions of \$)	15.9	8.2	10.6	3.6	4.1
<u>Walleyes per hour fished</u>					
Caught	0.83	1.02	0.99	0.27	0.12
Released	0.47	0.47	0.68	0.16	0.09
Harvested	0.36	0.55	0.32	0.10	0.03
<u>Number harvested</u>					
Walleye	361,915	131,581	155,040	21,874	6,760
Smallmouth Bass	18,158	10,638	9,162	1,635	5,325
Sauger	1,264	3,787	7,983	1,956	2,555
Freshwater Drum	532	197	778	2,729	17,085
Northern Pike	8,065	160	466	1,185	115
Chinook Salmon	5,316	54	84	0	0
White Bass	7,602	11,510	19,131	4,588	8,889
Channel Catfish	16,194	6,678	9,869	14,101	12,096
Total	426,013	171,911	203,669	58,960	72,320

III. Issues

1. The dynamic nature of recruitment, growth, competition, and mortality among fish populations complicates management.
2. Information obtained from current fish population surveys may be inadequate to document population status for some species, affecting the ability to effectively manage those species and the system as a whole.
3. Productivity changes, sedimentation, stream bed aggregation, habitat degradation, and the presence of Aquatic Invasive Species can impact fish populations.
4. Factors influencing angler satisfaction are not well understood.
5. Balancing biological and social needs during regulation development is challenging.
6. The Missouri River is highly susceptible to Aquatic Invasive Species infestation.
7. Collaboration with other governmental (federal, state, and tribal) entities on management issues is challenging and communication channels are not always adequate.
8. Many large river species native to the Missouri River are declining in abundance.
9. The current process of public involvement needs improvement.
10. Fisheries are impacted by the inter-reservoir transfer of organic (including fish, plankton, and plant matter) and inorganic (including phosphorus and nitrogen) material.
11. Ice fishing and shore fishing is limited due to travel restrictions on state and U.S. Army Corps of Engineer managed lands.
12. Sedimentation in reservoirs causes issues with boat ramps and delta areas.
13. Extreme water conditions limit access.
14. Bank stabilization limits shore access for shore angling.
15. Boat ramps and shore access are lacking in remote locations.

- 16.** There are perceived crowding issues at access sites.
- 17.** Different entities manage access locations leading to confusion among users.
- 18.** Locations with handicapped and limited-mobility access are lacking.
- 19.** Regulation compliance and effectiveness is difficult to estimate.
- 20.** Border water regulations are inconsistent.
- 21.** Anglers are challenged by fish species identification.
- 22.** Regulation process timeframes can hinder regulation changes and limit opportunities for public input.
- 23.** Current support of past and current regulations makes implementation of new regulations difficult to accept by some anglers.
- 24.** Competing uses of aquatic resources causes conflicts.
- 25.** Contaminant levels in fish flesh (primarily mercury) will continue to be a concern in large reservoirs that go through large annual elevation changes.
- 26.** The biological needs of fish populations may conflict with economic development.
- 27.** The Missouri River can serve as a source for dispersal of Aquatic Invasive Species.
- 28.** Industrial development within the Missouri River Basin may impact aquatic resources.

IV. Goal, Objectives and Strategies

Goal: Manage fisheries and aquatic resources of the Missouri River system in South Dakota for long-term sustainable use and enjoyment.

Objective 1: Annually identify factors limiting game fish populations and angler satisfaction.

Strategy 1.1 Investigate factors influencing game fish recruitment, growth, and mortality.

Strategy 1.2 Assess impacts of Aquatic Invasive Species in areas of high infestation on game fish populations.

Strategy 1.3 Investigate factors influencing angler satisfaction.

Objective 2: Assess current fish population survey methodologies to determine efficiency and effectiveness at indexing population characteristics by December 2018.

Strategy 2.1 Investigate fish sampling gear efficiency and methods to improve fish sampling protocols.

Strategy 2.2 Evaluate the potential use of American Fisheries Society standard fish sampling methods.

Strategy 2.3 Determine if the current sampling gear and analyses allow for the identification of limiting factors which may be influencing game fish populations.

Strategy 2.4 Implement appropriate sampling methods based on strategies 2.1-2.3.

Objective 3: Improve public involvement in fisheries management by December 2018.

Strategy 3.1 Identify and remove communication barriers.

Strategy 3.2 Identify target audiences for specific communication efforts.

Strategy 3.3 Determine the effectiveness of communication efforts.

Strategy 3.4 Expand the use of new marketing strategies.

Strategy 3.5 Increase information dissemination by using town hall meetings, GFP website, sports-shows, commission meeting presentations, angler group updates, etc.

Objective 4: Annually pursue opportunities to cooperate with other organizations on fisheries and aquatic resource management within the Missouri River system.

Strategy 4.1 Communicate and coordinate with the U.S. Army Corps of Engineers on water management and angler access.

Strategy 4.2 Communicate and coordinate with private entities, government agencies, and non-governmental organizations on fisheries and aquatic resource management.

Strategy 4.3 Increase opportunities for information exchange between agencies.

Strategy 4.4 Use private anglers and angling groups to acquire data and disseminate information.

Objective 5: Incorporate aquatic non-game species information into survey and management strategies by December 2015.

Strategy 5.1 Create a list of non-game species on which to focus monitoring efforts.

Strategy 5.2 Incorporate previously-collected data into state-wide non-game species database.

Strategy 5.2 Examine population status and trends of selected non-game species in state-wide non-game species database.

Strategy 5.3 Include pallid sturgeon population assessment program information gathered by GFP and the US Fish and Wildlife Service into species status evaluations.

Objective 6: Assist with developing the section of the overall State Angler Access Plan which focuses on the Missouri River Fisheries Management Area by December 2015.

Strategy 6.1 Incorporate fishing access information from the State-wide Assessment into the access development and improvement plan for the Missouri River Fisheries Management Area.

Strategy 6.2 Work closely with the Parks Division and the U.S. Army Corps of Engineers to compile an inventory of angler access issues and opportunities.

Strategy 6.3 Prioritize angler-access projects.

Strategy 6.4 Work with the Parks Division and the Wildlife Division Administration Section to keep access information current.

Objective 7: Complete specific sub-plans for each reservoir and river reach in the Missouri River Fisheries Management Area by April 2014.

Strategy 7.1 Identify issues pertaining to each reservoir and river reach.

Strategy 7.2 Develop objectives and strategies to address the identified issues.

Strategy 7.3 Write and publish specific sub-plans.

APPENDIX

Appendix 1. Fish stocking from 2004 to 2012 for the Missouri River Reservoirs and lower Missouri River reaches.

Year	Location	Species	Number stocked	Length (inches)
2004	Lake Oahe	Fall Chinook Salmon	159,551	4
2005	Lake Oahe	Fall Chinook Salmon	110,997	4
2005	Lake Oahe	Fall Chinook Salmon	8,366	7
2006	Lake Oahe	Fall Chinook Salmon	165,777	4
2006	Lake Oahe	Fall Chinook Salmon	9,417	7
2007	Lake Oahe	Fall Chinook Salmon	155,100	4
2007	Lake Oahe	Fall Chinook Salmon	11,885	7
2008	Lake Oahe	Fall Chinook Salmon	153,983	4
2008	Lake Oahe	Fall Chinook Salmon	10,072	7
2008	Lake Oahe	Burbot	18,073	<1
2009	Lake Oahe	Fall Chinook Salmon	168,043	4
2009	Lake Oahe	Fall Chinook Salmon	21,152	7
2010	Lake Oahe	Fall Chinook Salmon	174,186	4
2010	Lake Oahe	Fall Chinook Salmon	29,486	7
2011	Lake Oahe	Fall Chinook Salmon	186,704	4
2011	Lake Oahe	Fall Chinook Salmon	42,187	7
2012	Lake Oahe	Fall Chinook Salmon	181,314	4
2012	Lake Oahe	Fall Chinook Salmon	27,670	7
2012	Lake Oahe	Fall Chinook Salmon	12,851	7
2012	Lake Oahe	Rainbow Trout	12,246	7
2004	Lake Sharpe	Rainbow Trout	35,000	9
2005	Lake Sharpe	Rainbow Trout	22,989	9
2005	Lake Sharpe	Rainbow Trout	23,652	7
2006	Lake Sharpe	Rainbow Trout	22,631	9
2007	Lake Sharpe	Rainbow Trout	12,400	9
2008	Lake Sharpe	Rainbow Trout	14,400	9
2009	Lake Sharpe	Rainbow Trout	20,000	9
2010	Lake Sharpe	Rainbow Trout	20,000	9
2010	Lake Sharpe	Rainbow Trout	20	9
2010	Lake Sharpe	Rainbow Trout	300	9
2011	Lake Sharpe	Rainbow Trout	16,250	9
2011	Lake Sharpe	Rainbow Trout	3,750	9
2012	Lake Sharpe	Rainbow Trout	10,000	9
2012	Lake Sharpe	Rainbow Trout	10,000	9
2004	Lake Francis Case	Paddlefish	2,077	14
2005	Lake Francis Case	Paddlefish	20,965	14
2006	Lake Francis Case	Paddlefish	15,567	15
2007	Lake Francis Case	Paddlefish	27,462	12
2008	Lake Francis Case	Paddlefish	7,140	11
2011	Lake Francis Case	Paddlefish	27,896	10
2012	Lake Francis Case	Paddlefish	1,896	14

Appendix 1 continued.

2004	Below Ft. Randall	Brown Trout	13,000	9
2005	Below Ft. Randall	Brown Trout	10,000	9
2006	Below Ft. Randall	Brown Trout	11,095	9
2007	Below Ft. Randall	Brown Trout	8,000	9
2008	Below Ft. Randall	Brown Trout	7,193	9
2009	Below Ft. Randall	Brown Trout	8,000	9
2010	Below Ft. Randall	Brown Trout	4,194	9
2010	Below Ft. Randall	Rainbow Trout	5,000	9
2011	Below Ft. Randall	Brown Trout	4,660	9
2011	Below Ft. Randall	Rainbow Trout	9,312	9
2012	Below Ft. Randall	Brown Trout	5,000	9
2012	Below Ft. Randall	Rainbow Trout	10,000	9
2009	Below Gavins Dam	Paddlefish	5,132	10

Average length and weight for Catchable 9 inch (3 fish/lb); Large Catchable 11 inch (2 fish/lb); Fingerling 4.5 inch (30 fish/lb); Large Fingerling 7 inch (8 fish/lb); Fry <1 inch (3,000 fish/lb).

Appendix 2. Public access sites and locations on the Missouri River in South Dakota.

<u>Lake</u>	<u>Missouri River Recreation Areas</u>	<u>Location</u>	<u>River Mile</u>	<u>Managed by</u>	<u>Camping Allowed</u>	<u># of Campsites</u>	<u>Fishing dock</u>	<u>Fish Cleaning Station</u>	<u>Boat Ramp</u>	<u>Entrance Fee</u>
Oahe	West Pollock Recreation Area	2 miles W of Pollock off Hwy 1804	1224	SD GFP	X	29		X	X	X
Oahe	Point of View	7 miles S of Pollock off Hwy 1804	1221	Private	Adjacent private				X	
Oahe	Shaw Creek	7 miles S of Pollock off Hwy 1804	1218.5	SD GFP	X				X	
Oahe	Indian Memorial	3 miles NW of Mobridge off Hwy 1806	1198.5	SRST				X	X	
Oahe	The Bay Landing	3 miles NW of Mobridge off Hwy 1806	1198.5	SRST	X	70			X	Private Fee
Oahe	Grand River	18 miles NW of Mobridge off Hwy 12	1198.5	SRST						
Oahe	The Bay Landing (river channel)	3 miles NW of Mobridge off Hwy 12	1197.5	SRST					X	Private Fee
Oahe	Revheim Bay Recreation Area	2 miles SE of Mobridge off Hwy 12	1192	SD GFP						X
Oahe	Indian Creek Recreation Area	2 miles SE of Mobridge off Hwy 12	1190.5	SD GFP	X	124		X	X	X
Oahe	Blue Blanket	10 miles SE of Mobridge off Hwy 1804	1190	SD GFP						
Oahe	Thomas Bay	12 miles SW of Selby off Hwy 1804	1186	SD GFP					X	
Oahe	Walth Bay	15 miles SW of Selby off Hwy 1804	1182.5	SD GFP	X			X	X	X
Oahe	Bowdle Beach	10 Northwest of Akaska	1180	SD GFP						
Oahe	Swan Creek Recreation Area	9 miles W of Akaska off Hwy 83	1174	SD GFP	X	23		X	X	X
Oahe	Le Beau	11 miles SW of Akaska	1171.5	SD GFP						
Oahe	Dodge Draw	27 miles NW of Gettysburg off Hwy 83	1164.5	SD GFP					X	
Oahe	West Whitlock Recreation Area	18 miles NW of Gettysburg off Hwy 1804	1153	SD GFP	X	100	X	X	X	X
Oahe	East Whitlock	15 miles NW of Gettysburg of Hwy 1804	1153	SD GFP	X				X	X
Oahe	South Whitlock	14 miles west of Gettysburg off highway 212	1152.5	Private GFP Lease	Adjacent private				X	
Oahe	Bob's Landing	16 miles W of Gettysburg off Hwy 212	1151.5	SD GFP	Adjacent private			X	X	X

Appendix 2 continued.

Oahe	Forest City	18 miles W of Gettysburg off Hwy 212	1150.5	CRST					X	
Oahe	Sutton Bay	50 miles NW of Pierre off Hwy 1804	1136	SD GFP					X	
Oahe	Bush's Landing	32 miles NW of Pierre off Hwy 1804	1125	SD GFP	Adjacent private			X	X	X
Oahe	Foster Bay	27 miles NE of Hwy 63 & 34 intersection	1110	SD GFP	X			X	X	
Oahe	Minneconjou	45 miles NW of Pierre off Hwy 1806	1110	SD GFP	X			X	X	
Oahe	Rousseau Creek	33 miles SE of Eagle Butte	1110	CRST	X				X	
Oahe	Little Bend	41 NW of Pierre off Hwy 1804	1107.5	SD GFP	X			X	X	X
Oahe	Pike Haven	25 miles W of Onida, off Hwy 1804	1104	Private GFP Lease					X	
Oahe	Okobojo Point Recreation Area	17 miles NW of Pierre off Hwy 1804	1090	SD GFP	X	17			X	X
Oahe	Garrigan's Landing	30 miles NW of Pierre off Hwy 1804	1090	Private GFP Lease					X	
Oahe	Cow Creek Recreation Area	15 miles NW of Pierre off Hwy 1804	1089.5	SD GFP	X	40		X	X	X
Oahe	Spring Creek Recreation Area	15 miles NW of Pierre off Hwy 1804	1088	SD GFP	Adjacent private			X	X	X
Oahe	Lighthouse Point	15 miles NW of Pierre off Hwy 1804	1088	SD GFP	Adjacent private			X	X	X
Oahe	Chantier Creek	15 miles NW of Oahe Dam on SD 1806	1082	SD GFP	Adjacent private			X	X	
Oahe	Peoria Flats	14 miles NW of Pierre off Hwy 1804	1078.5	SD GFP					X	
Oahe	East Shore	7 miles N of Pierre off Hwy 1804	1075.5	SD GFP					X	X
Oahe	West Shore	9 miles NW of Pierre off Hwy 1806	1072.5	SD GFP					X	X

Appendix 2 continued.

Sharpe	East Tailrace	5 miles N of Pierre off Hwy 1804	1071.5	COE						
Sharpe	West Tailrace	5 miles N of Fort Pierre off Hwy 1806	1071.5	COE			X		X	
Sharpe	Stilling Basin	5 miles N of Fort Pierre off Hwy 1806	1071.5	COE						
Sharpe	Oahe Downstream Recreation Area	5 miles N of Fort Pierre off Hwy 1806	1071	SD GFP	X	205	X	X	X	X
Sharpe	Echo Point	3 miles N of Fort Pierre off Hwy 1806	1068.5	COE						
Sharpe	Fort Pierre Waterfront	E side of city of Fort Pierre	1066	CITY OF FORT PIERRE	X	12	X	X	X	
Sharpe	LaFramboise Island Nature Area	SW side of city of Pierre	1065	SD GFP			X			
Sharpe	Pierre Waterfront	SW side of city of Pierre	1065	CITY OF PIERRE	X	16	X	X	X	
Sharpe	Farm Island Recreation Area	4 miles E of Pierre off Hwy 34	1060	SD GFP	X	90	X	X	X	X
Sharpe	Antelope Creek	12 SE of Fort Pierre of Hwy 1806	1055	SD GFP					X	
Sharpe	Fort George	15 E of Pierre off Hwy 34	1048	SD GFP					X	
Sharpe	DeGrey	20 miles SE of Pierre off Hwy 34	1042	SD GFP	X				X	
Sharpe	Cedar Creek	18 miles NW of Kennebec off Hwy 1806	1032.5	LBST					X	
Sharpe	Joe Creek	34 SE of Pierre off Hwy 34	1025.5	SD GFP	X				X	
Sharpe	North Iron Nations	21 miles NE of Kennebec off Hwy 1806	1021.5	LBST	X					Private
Sharpe	South Iron Nations	22 miles NE of Kennebec off Hwy 1806	1021	LBST	X				X	Private
Sharpe	West Bend Recreation Area	35 miles SE of Pierre off Hwy 34	1009	SD GFP	X	124		X	X	X
Sharpe	North Bend	34 miles SE of Harrold off Hwy 34	1007	SD GFP	X				X	
Sharpe	Lower Brule	2 miles N of Lower Brule	1000	LBST					X	Private
Sharpe	North Shore	3 miles W of Fort Thompson	990.5	COE	X			X	X	
Sharpe	Good Soldier	2 miles S of Fort Thompson off Hwy 47	987.5	COE					X	

Appendix 2 continued.

LFC	East (Left) Tailrace	2 miles SW of Fort Thompson off Hwy 47	987	COE	X	81		X	X	
LFC	East Randall (Old Ft Thompson)	1.5 miles SW of Fort Thompson off Hwy 48	987	COE					X	
LFC	West Randall (Spillway Dike)	2 of SW Fort Thompson off Hwy 47	987	COE				X	X	
LFC	West Tailrace (Right Tailrace)	2 miles SW of Fort Thompson off Hwy 47	987	COE	X		X	X	X	
LFC	Cedar Shore	1/2W, 1N of Chamberlain off Hwy 16	968	SD GFP	Adjacent private			X	X	
LFC	American Creek Campground	In Chamberlain off N Main St	968	Private	Adjacent private		X		X	
LFC	American Creek	In Chamberlain off N Main St	968	City of Chamberlain			X	X	X	
LFC	Interstate Access Area	S end of Chamberlain off Main St	966	SD GFP						
LFC	Dude Ranch	4 west of Oacoma off I-90	962	SD GFP	X			X	X	
LFC	Boyer	8S, 2W, 2S of Chamberlain	947	SD GFP						
LFC	Elm Creek	11S, 3E, 3S, 3W of Chamberlain	940	SD GFP	X			X	X	
LFC	Turgeon Wells	2N, 6W, 3S of Academy	927	SD GFP						
LFC	Buryanek Recreation Area	15W, 3N of Platte off Hwy 44	923	SD GFP	X	44		X	X	X
LFC	Snake Creek Recreation Area	13W of Platte off Hwy 44	921	SD GFP	X	115		X	X	X
LFC	West Bridge	16E of Dixon off Hwy 44	921	SD GFP					X	X
LFC	Platte Creek Recreation Area	8W, 6S of Platte off Hwy 44	913	SD GFP	X	54		X	X	X
LFC	Whetstone Bay	2N, 1E, 5N of Bonesteel	900	SD GFP	X					X
LFC	North Wheeler Recreation Area	16 miles S of Platte off Hwy 1804	896	SD GFP	X	22		X	X	X
LFC	South Wheeler	9 NE of Bonesteel off Hwy 18	895	SD GFP	X				X	X
LFC	Pease Creek Recreation Area	9 miles S of Geddes off Hwy 1804	892	SD GFP	X	23		X	X	X
LFC	South Scalp Creek	4E, 5NE of Fairfax	890	SD GFP	X			X	X	
LFC	Joe Day Bay	7 W and 2 N of Pickstown	887	SD GFP	X			X	X	X

Appendix 2 continued.

LFC	White Swan	5W, 2S, 1W, 4S, Lake Andes	886	SD GFP	X				X	X
LFC	North Point Recreation Area	1 mile NW of Pickstown off Hwy 281	880	SD GFP	X	111		X	X	X
LFC	South Shore	S end of Ft Randall Dam off Hwy 281	880	SD GFP	X			X		X
L&C	Randall Creek Recreation Area	3SW, 1SE of Pickstown	881.7	SD GFP	X	136	X	X	X	X
L&C	Fort Randall tailrace	2 SW, 1/2 mile SE of Pickstown	881.5	COE						
L&C	Spillway Recreation Area	1/2SW of Pickstown off Hwy 281	881.1	COE				X	X	
L&C	Running Water	1/2E of Running Water off Hwy 37	841	SD GFP					X	X
L&C	Emanuel Creek	3 miles SW of Springfield	834	COE						
L&C	Springfield Recreation Area	1 mile E of Springfield off Hwy 37	831	SD GFP	X	21	X	X	X	X
L&C	Sand Creek	1 1/4N, 3 1/2E of Springfield	829	SD GFP	X			X	X	X
L&C	Twin Bridges	1.25 N, 4.5 miles E of Springfield	828	COE						
L&C	Charley Creek	1 1/4N, 7E, 1S, 1/2E of Springfield	826.5	SD GFP						
L&C	Navratil Cove	1.25 N, 6.5 E, 1 mile S of Springfield	826	COE					X	
L&C	Tabor	6 S of Tabor off Hwy 52	820	SD GFP	X				X	X
L&C	Lewis and Clark Recreation Area	6 miles W of Yankton off Hwy 52	813	SD GFP	X	375	X	X	X	X
LMR	Tailrace	5 miles W of Yankton off Hwy 52	810	SD GFP				X		
LMR	Chief White Crane Recreation Area	5 miles W of Yankton off Hwy 52	810	SD GFP	X	146	X	X	X	X
LMR	Pierson Ranch Recreation Area	5 miles W of Yankton off Hwy 52	810	SD GFP	X	67				X
LMR	Cottonwood	5 miles W of Yankton off Hwy 52	810	COE	X	77			X	X
LMR	Training Dike	4 W of Yankton	810	COE				X	X	
LMR	Riverside Park	In Yankton	805.5	CITY OF YANKTON			X	X	X	

Appendix 2 continued.

LMR	Myron Grove	20 miles E of Yankton on Hwy 50	787	SD GFP					X	
LMR	Clay County	4 miles SW of Vermillion off of Hwy 50	781	SD GFP	X	32		X	X	X
LMR	Bulton GPA	13 miles SE of Vermillion off Cty Rd 10	763.5	SD GFP						
LMR	Frost	2 W, 1.5 S of Elk Point	758.5	?						
LMR	Bolton	4 W, 2 S of Elk Point	756.7	?					X	
LMR	Rosenbaum	4 W, 3 S of Jefferson	749	?						