

# Fisheries and Aquatic Resources Adaptive Management System



**2019-2023**

**Southeast Fisheries Management Area**

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



**Formally adopted by GFP Commission: March 1, 2019**



### **Department Mission**

We provide sustainable outdoor recreational opportunities through responsible management of our state's parks, fisheries, and wildlife by fostering partnerships, cultivating stewardship and safely connecting people with the outdoors

### **Department Vision**

We will conserve our state's outdoor heritage to enhance the quality of life for current and future generations

### **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"*



## Introduction

This strategic plan, based on the missions of the South Dakota Department of Game, Fish and Parks (GFP) and the Division of Wildlife, will address the issues, challenges, and opportunities facing fisheries management in the Southeast Fisheries Management Area. This plan includes an **Inventory** Section describing the available aquatic resources, an **Issues** Section where current fisheries issues are listed and a **Goals, Objectives and Strategies** Section where measurable and time-bound objectives and strategies are used to show how area issues and goals will be addressed over the next five years. Progress in meeting these objectives will be evaluated prior to developing subsequent plans.

The work required for accomplishing the objectives in this plan will not replace routine fisheries management tasks such as stocking, research, lake surveys and creel surveys. It will be a focused effort to improve fisheries in the future and many of these routine tasks support and evaluate the effects of plan implementation.

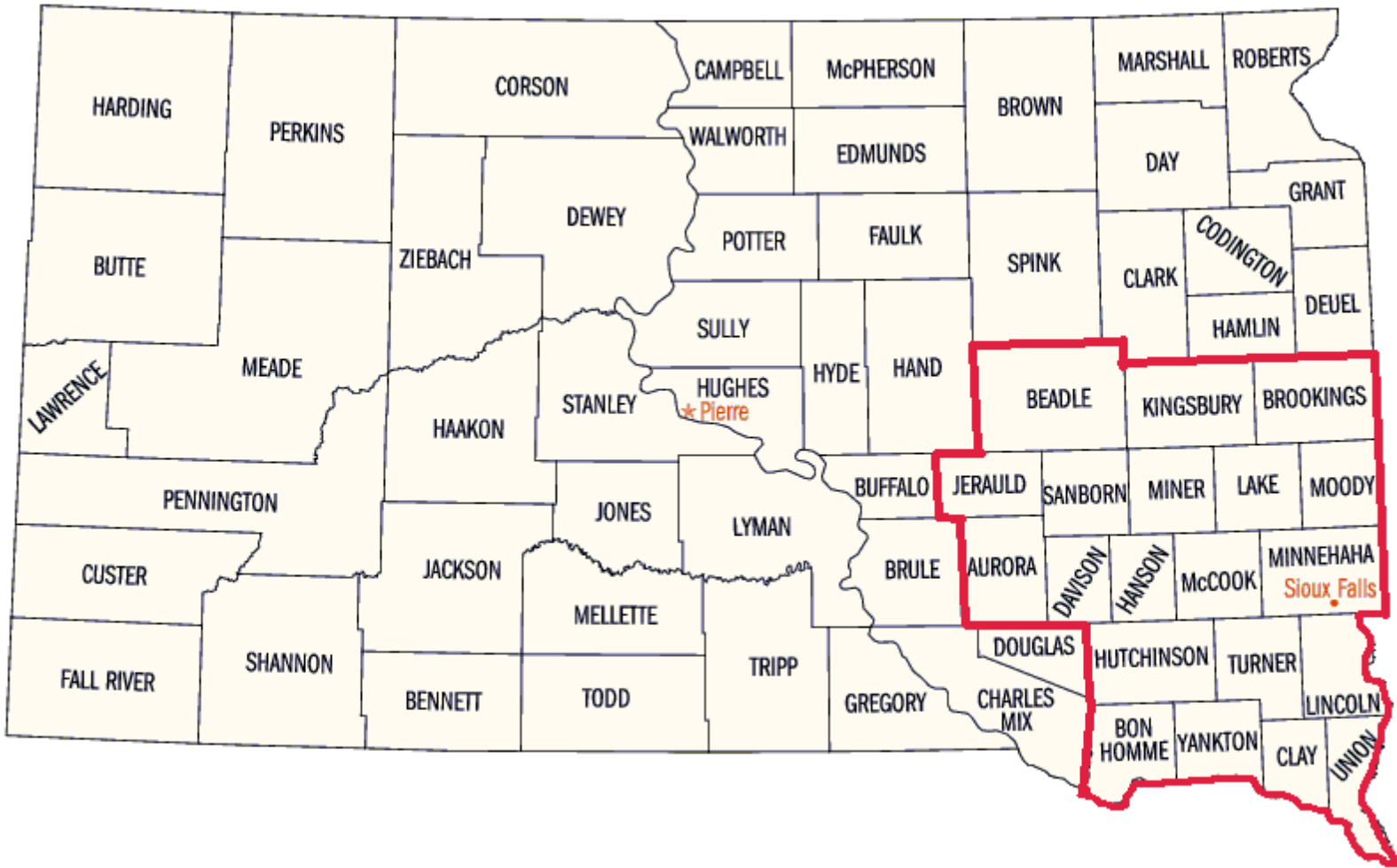


Figure 1. Southeast Fisheries Work Area.



## Inventory

Most of the Southeast Fisheries Management Area (SEFMA) lies within the Southeast Fisheries Work Area, which is comprised of 20 counties located in the southeastern corner of South Dakota (Figure 1). As of July 1, 2018, 87 lakes and ponds totaling 53,474 surface acres were actively managed by area staff stationed in Sioux Falls. The number of actively-managed waters and their surface acres varies depending on annual precipitation. Although fish stocking is the most common active management strategy, aquatic habitat and access improvements, manipulation of existing fish populations and regulations are also used.

Lakes and ponds in the SEFMA are categorized into seven main classifications defined by several subjective criteria. Class I waters include those with the greatest water depths, best overall water quality, and best aquatic habitat. They rarely experience summer or winter fish kills, and typically have high and consistent angler use. Class II waters are not as deep as Class I waters but still have generally good water quality and aquatic habitat. However, they do experience occasional summer and winter fish kills, and high angler use only occurs when game fish populations are also high. Class III waters are shallow, sometimes unable to support fisheries during periods of drought, usually turbid, prone to severe algae blooms, and experience frequent fish kills. However, they are very productive and can provide excellent short-term fisheries if stocked fish have at least three years to grow before another fish kill occurs. Community Fishing Ponds (CFP) are generally small, man-made waters located in small towns and managed as put-and-take fisheries. Urban Fishing Ponds (UFP) are similar but located in larger cities. Fisheries Management Agreement (FMA) waters are located on private land and under public access contract with the landowners. Natural Rearing Ponds (NRP) are managed for the sole purpose of rearing fish for restocking into other waters and are not open to public fishing.

Class I, II, and III waters comprise 44%, 43% and 12%, respectively, of the total surface acres in the area, with the remaining 1% divided among the remaining four classifications. Management actions to improve Class II and III waters have the best potential to significantly increase the quantity and quality of fishing opportunity in the SEFMA, so these are the focus of several objectives and strategies in this plan.

The SEFMA also includes the Missouri, Big Sioux, James and East Vermillion River systems. These major rivers provide significant fisheries and are self-sustained by fish movement and natural reproduction. To date, no management objectives and strategies for these rivers have been developed. However, due to public interest in trophy catfish, basic research on catfish populations on the lower James River was started in 2018.



## Management Issues

1. Human activity in the watersheds and on the shorelines has expedited the degradation of aquatic habitat in area waters. This has contributed to poor and/or inconsistent natural recruitment of desired fish species, increased abundance of undesired fish species, and increased frequency of winter and/or summer fish kills. These combined effects of poor aquatic habitat limit our ability to produce and maintain consistent, high-quality fisheries.
2. Degraded aquatic habitat in many of the areas aging small impoundments severely limits the ability to provide good fisheries.
3. Several area waters have old and/or deteriorated water-control structures in need of repair or replacement so maximum legal water levels can be maintained.
4. Some low-head dams on area rivers need modification to eliminate significant safety hazards while maintaining fishing opportunity.
5. Current funding levels are inadequate for the substantial aquatic habitat and access improvements needed to maintain and improve fishing opportunities.
6. Inconsistent natural reproduction creates long periods of poor yellow perch fishing on many area waters. High density fall stocking of adult yellow perch can successfully create consistent fishing opportunity. However, more evaluation is needed to determine if the stocking of hatchery-produced small fingerling and overwintered juvenile yellow perch can provide similar results.
7. State fish hatcheries, natural rearing ponds, and trap and transfer operations are not always able to supply the quantity and quality of fish requested for stocking area waters.
8. Current information on game fish populations in the Big Sioux, James and East Vermillion rivers is inadequate for the development of management objectives and strategies.
9. Increasing cultural diversity of area fisheries users is creating legal and social challenges.
10. Aquatics, Terrestrial and Parks staff need clearly defined roles for aquatic access tasks and projects.



## Goals, Objectives, Strategies

### **Goal:**

Manage all waters in the Southeast Fisheries Management Area of South Dakota to provide the best possible fishing opportunity.

### **Objectives and Strategies**

Not all objectives will be met due to unforeseen issues, obstacles, and changes in needs or priorities, as a part of the adaptive management process.

#### **1. Objective:**

To achieve and maintain yellow perch gill-net CPUE objectives for 3 out of 5 years on at least 10 waters by 2023.

#### **Strategies:**

- a) Establish gill-net CPUE objectives on all SEFMA waters stocked with yellow perch.
- b) Implement various yellow perch stocking strategies whenever gill-net CPUE is below the established objective and evaluate their effects.
- c) Identify and utilize natural and artificial aquatic habitat features with the potential to improve yellow perch reproduction and recruitment and evaluate their effects.



## **2. Objective:**

To increase angler use on at least five small impoundments by 2023.

### **Strategies:**

- a) Evaluate the stocking of walleye and yellow perch into small impoundments where bass-panfish management has been unsuccessful.
- b) Conduct research designed to quantify the loss of stocked and naturally-produced game fish through outlet structures.
- c) Determine if gizzard shad introductions at Lakes Alvin and Marindahl have affected game fish growth, population size structure and abundance.
- d) Decrease panfish abundance on small impoundments where growth is consistently below average for South Dakota and evaluate the effects.
- e) Conduct chemical control of aquatic vegetation on small impoundments where angling is inhibited.
- f) Chemically renovate small impoundment fish communities dominated by undesirable species, particularly black bullhead and common carp.
- g) When possible, drain or drawdown small impoundments to improve aquatic habitat and fish populations.
- h) Participate in watershed improvement projects designed to improve water quality in small impoundments.





- i) Place artificial habitat structures near fishing piers or shore fishing areas to attract fish and increase angler success.
- j) Measure angler use on small impoundments following the implementation of special management strategies.

### **3. Objective:**

To improve water quality and aquatic habitat in at least 10 SEFMA waters by 2023.

#### **Strategies:**

- a) Use intensive trap netting, electrofishing and predator management to reduce black bullhead and/or common carp abundance and evaluate the effects.
- b) Replace or repair deteriorating outlet structures to maintain legal lake elevations.
- c) Seek opportunities to participate in watershed protection and restoration projects initiated by other entities.
- d) Conduct projects to improve aquatic habitat on suitable Department-owned shorelines.
- e) Use Department of Environment and Natural Resources expertise and water quality data to help evaluate the effects of aquatic habitat improvement projects.



#### **4. Objective:**

To improve angler access on at least 15 SEFMA waters by 2023.

##### **Strategies:**

- a) Define the roles and responsibilities that Aquatics, Terrestrial and Parks staffs play in aquatic access projects.
- b) Purchase or lease land for access from willing landowners.
- c) Create or improve primitive boating access by using rock boat ramps, roll-in boat docks, and mowed parking areas.
- d) Replace aging, damaged, or inadequate concrete boat ramps.
- e) Control aquatic and terrestrial vegetation when it interferes with boat and shore fishing access.
- f) Install handicapped-accessible floating fishing piers on waters with suitable department-owned property and where high angler use is expected.
- g) Construct fishing hard points on suitable department-owned property.
- h) Construct or improve vehicle and pedestrian trails across department-owned property for shore fishing access.
- i) Acquire, create, or improve angler access in urban areas.
- j) Stabilize shorelines on department-owned property where erosion is compromising angler access.



## **5. Objective:**

To conduct a major aquatic habitat improvement project at one underutilized fishery by 2023.

### **Strategies:**

- a) Identify a fishery near a major urban area that is underutilized due to poor aquatic habitat.
- b) Design an aquatic habitat improvement project for the selected fishery.
- c) Solicit potential partners from the project area to assist with funding and labor.
- d) Evaluate project effects on water quality, aquatic habitat, fish populations and angler use.

## **6. Objective:**

To collect information about fish populations on the lower James River

### **Strategies:**

- a) Assess population dynamics and angler use of Flathead and Channel catfish populations.
- b) Evaluate the need for special regulations to protect or increase the abundance of trophy catfish
- c) Determine movement and reproductive potential of invasive bigheaded carps.



## ***2019 to 2023 Work Priorities***

At the beginning of the 2019-2023 plan period, the highest priorities for completion of objectives or strategies include:

- Collect information about fish populations on the lower James River
- Yellow perch stocking evaluations
- Chemical renovation of at least one area water
- Walleye and yellow perch small impoundment stocking strategy evaluation
- Research on fish loss over small impoundment spillways
- Completion of one major aquatic habitat improvement project



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## Literature Cited

None cited



## Appendices

### **Appendix 1. Management issues included in the 2014-2018 East River Fisheries Management Area Plan**

1. Loss of shoreline habitat
2. Watershed degradation
3. Deteriorating quality of impoundments
4. Introduction of exotic plants and animals
5. Problems with accurately assessing the benefits of management actions
6. Standardization of data collections methods and storage
7. Balancing the need for monitoring with taking beneficial action
8. Poor panfish size structure in small impoundments and lakes
9. High natural mortality of yellow perch and crappie in natural lakes
10. Lack of stream inventories and monitoring, especially for Natural Heritage listed and federally threatened or endangered species
11. The lack of current and historical information on river and stream populations and sport fisheries.
12. Cultural changes causing a decline in the use of fisheries resources.
13. Access issues where waters on private property adjoin public property under high water conditions.



## Appendix 1. Objectives and completion status for the 2014-2018 East River Fisheries Management Area Plan.

### 1. **Objective:**

Identify and participate in watershed maintenance and restoration efforts by 2018.

#### **Status:**

We attended several lake association meetings.

### 2. **Objective:**

Develop and standardize surveys to inventory and monitor stream and riverine fishes by 2018.

#### **Status:**

- Assisted non-game staff with Topeka Shiner sampling in streams in the area.
- Designed and implemented a study on catfish populations in the lower James River.

### 3. **Objective:**

Utilize fish community and angler survey information to direct watershed and aquatic habitat work by 2018.

#### **Status:**

- No work accomplished on this objective.

### 4. **Objective:**

Conduct projects to assess the condition of stream and riverine communities by 2018.

#### **Status:**

- No work accomplished on this objective.

### 5. **Objective:**

Identify critical shoreline habitat around heavily developed lakes to direct shoreline enhancement and protection efforts by 2018.

#### **Status:**

- No work accomplished on this objective.



## **6. Objective:**

Increase angler use on small impoundments by 2018.

### **Status:**

- Implemented a walleye and yellow perch stocking strategy on impoundments with poor aquatic habitat.
- Participated in study to determine the effects of stocking gizzard shad as supplemental forage.
- Monitored oxygen and temperature levels in Lake Alvin.
- Conducted vegetation control projects on several waters.

## **7. Objective:**

Investigate the cause of high mortality in panfish populations and identify potential mediation methods by 2018.

### **Status:**

- Not relevant to the Southeast Area.

## **8. Objective:**

Evaluate the effectiveness of stocking adult fish into existing fish populations by 2018.

### **Status:**

- Evaluated the contribution and cost benefits of stocking adult yellow perch into Scott Lake.

## **9. Objective:**

Evaluate the effectiveness of hatchery produced yellow perch stocking by 2018.

### **Status:**

- Progress was made but the evaluation will be ongoing in the next strategic plan.

## **10. Objective:**

Evaluate the feasibility and cost benefit of improving game fish populations in one to three small lakes dominated by nuisance fish species by 2018.





**Status:**

No work was accomplished on this objective.

**11. Objective:**

Improve game fish populations and fishing opportunity on one to three marginal waters by 2018.

**Status:**

- Aggressive stocking strategies were implemented on several marginal waters and evaluations are ongoing.

**12. Objective:**

Improve angler access on natural lakes.

**Status:**

- Several new access leases were obtained for the Big Sioux and James Rivers.
- Several primitive boat launches were constructed on area lakes and rivers.
- Several aquatic vegetation control projects were conducted to improve shore fishing access and boating navigation.

**13. Objective:**

Improve information transfer about urban and community fisheries to fishery users by 2018.

**Status:**

No work was accomplished on this objective.

**14. Objective:**

Create five additional urban and community fishing opportunities by 2018.

**Status:**

- Two new community fisheries were developed.

**15. Objective:**

Improve angler access to four existing urban and community fisheries by 2018.



**Status:**

- Excessive aquatic vegetation along the shorelines of several ponds was cleared to allow fishing access.

**16. Objective:**

Determine the most effective fish stocking strategies for urban and community fisheries by 2018.

**Status:**

It was determined that stocking strategies are driven by hatchery production and trap and transfer availability. A creel survey determined that largemouth bass were the most preferred species by young anglers.