

HISTORY OF  
**Fisheries**  
and Fishing  
IN SOUTH DAKOTA



# **History of Fisheries and Fishing in South Dakota**

**Compiled and Edited  
by**

Charles R. Berry, Jr.

Kenneth F. Higgins

David W. Willis

Steven R. Chipps

2007

# History of Fisheries and Fishing in South Dakota

Copyright © 2007 by South Dakota Department of Game, Fish and Parks

All rights reserved including the right to reproduce this book or portions thereof in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the permission in writing from the South Dakota Department of Game, Fish and Parks. All inquiries should be addressed to Information Officer, South Dakota Department of Game, Fish and Parks, 523 E. Capitol Avenue, Pierre, South Dakota, 57501.

Published by South Dakota Department of Game, Fish and Parks  
523 E. Capitol Avenue  
Pierre, SD 57501-3182

## Suggested citation formats:

### *Entire book*

Berry, Charles R., K. F. Higgins, D. W. Willis, and S. R. Chipps, editors.  
2007. History of fisheries and fishing in South Dakota. South Dakota  
Department of Game, Fish and Parks, Pierre.

### *Chapter within the book*

Berry, C. 2007. Introduction: Fish, habitat, and anglers. Pages 1–18 *in* C. Berry,  
K. Higgins, D. Willis, and S. Chipps, editors. History of fisheries and fishing  
in South Dakota. South Dakota Department of Game, Fish and Parks, Pierre.

## Cover photos:

Front — Courtesy of Dr. L. Flake (fly fishing), Charles Schmulz family  
(historical anglers), Tom Holmlund (ice fishing) and  
C. Berry (boat on Lake Oahe).

Back — Fish pictures courtesy of U.S. Fish and Wildlife Service; walleye  
pictures courtesy of South Dakota Office of Tourism.

**Book Designer:** Tom Holmlund

## Printer:

South Dakota State University  
Printing Laboratory  
Printed on acid-free paper

Library of Congress Control Number 2007935248

ISBN 978-0-9712463-4-8



*South Dakota*

Department of Game, Fish & Parks  
523 East Capitol Avenue, Pierre, SD 57501-3182

# Table of Contents

Preface.....	v
Acknowledgements .....	vii
Contributing Authors .....	viii
<hr/>	
Chapter 1—Introduction: Fish, Habitat, and Anglers .....	1
Chapter 2—Prehistoric Fishes and Fishing in South Dakota .....	19
Chapter 3—Recent Zoogeography of South Dakota Fishes.....	37
Chapter 4—Missouri River Fisheries - Past, Present, and Future .....	91
Chapter 5—Small Impoundments .....	113
Chapter 6—Eastern Natural Lakes.....	123
Chapter 7—Past and Present Black Hills Water Resources .....	135
Chapter 8—Warm-Water Rivers and River Fishes in South Dakota .....	151
Chapter 9—Water Quantity and Quality: Rich History and Current Issues.....	175
Chapter 10—Cold-Water Fish Species .....	201
Chapter 11—Warm-Water Fish Species .....	213
Chapter 12—Threatened and Endangered Species .....	239
Chapter 13—Exotic Species.....	253
Chapter 14—Fish Hatcheries and Stocking Practices: Past and Present .....	267
Chapter 15—Commercial Fisheries and Baitfish Industry .....	295
Chapter 16—Evolution of Modern Sport Fishing in South Dakota .....	319
Chapter 17—Fishing with Artificial Flies in South Dakota .....	329
Chapter 18—Law Enforcement for Protection of Fisheries Resources .....	349
Chapter 19—Fisheries Management Practices: Past and Present.....	363
Chapter 20—Fishing in South Dakota: Reservations and Tribal Lands .....	383
Chapter 21—Fisheries Research and Monitoring .....	397
Chapter 22—Education and Outreach .....	415
Chapter 23—South Dakota Fisheries: Predictions for the Next 20 Years .....	429
<hr/>	
References .....	441
Index.....	457

“Enjoy thy stream, O harmless fish;  
And when an angler for his dish,  
Through gluttony’s vile sin,  
Attempts, the wretch, to pull thee out,  
God give thee strength, O gentle trout,  
To pull the rascal in!”

— John Wolcott

## Preface

People have harvested fish in what is now South Dakota for several thousand years. Archaeological evidence at campsite digs confirms that Native American Indians living along the Missouri River and its major tributaries were gathering fish to eat and for other uses such as ornamentation and tools. The over-exploitation of fishery resources began with the arrival of the market hunter, the soldier, and the settler. Game fish were taken out by the wagonload until the lakes and streams were depleted. With statehood, South Dakota had the legislative machinery to begin controlling fishing and later, to apply scientific management to fish harvest.

Today, citizens and nonresidents have wonderful opportunities to harvest fish for personal use, recreation, and for sale. The fisheries that developed in the reservoirs on the Missouri River have been one of the great tourist attractions in the state. The sport fishery in South Dakota, however, did not happen on its own—it is the product of research and management efforts primarily directed or funded by the South Dakota Department of Game, Fish and Parks with help from other state, federal and private entities, and from several institutions of higher learning. Our aim was to bring together for the first time the history of each group's conservation efforts.

This book is for the layperson and angler who is interested in South Dakota history and fishing. Most (90%) South Dakota residents believe that healthy fish populations are important to the economy and well being of South Dakota residents (Gigliotti 1999). Professional biologists and students will also find this book useful because fishing activities and fishery management are placed in a historical context, which makes this book unique for the states in the Northern Great Plains. The information is backed up by many years of experience for the 27 authors who were invited to participate—they all volunteered. The information is also backed up by a literature review of some 1,400 articles on South Dakota fishes (Bouchard et al. 2006).

The time was right for this book because of recent surveys that have updated the status of fishes in South Dakota (Chapters 3, 10, 11, 12, and

13), and because some of the authors are nearing the end of their careers. The authors are a mix of university professors, graduate students, and state and federal fisheries biologists, and one Tony Dean—who better to write about modern fishing methods?

We asked each author to include information about three subjects—history, current events, and predictions for the future, but otherwise the chapters are not standardized. We retained the individual writing styles of the authors for variety. Some authors included references in the text whereas others provided a list of readings that were used as references. All references and readings are included at the end of the book. The common names of fishes are used throughout, but a list of common and scientific names can be found in Chapter 3, Table 3.1.

The book addresses three broad themes—the fishes, the aquatic habitats, and the human dimensions of fishing in South Dakota. Chapters 1 through 3 provide basic information on fish and how they populated South Dakota's waters after the glaciers melted. Chapters 4 through 9 cover the types of aquatic habitats found in South Dakota. Chapters 10 through 13 review the kinds of fishes found in these habitats. Chapters 14 through 20 cover fisheries management and the types of anglers that fish South Dakota's waters. Chapters 21 and 22 cover fisheries research and education. Finally, Chapter 23 summarizes the authors' predictions about the future of fishing in South Dakota.

The reader will find quotations at the beginning of each chapter and scattered liberally through the text. We like quotes because they are thought provoking, memorable, and sometimes funny. The sport of fishing has been the subject of many philosophical quotations—some not so complimentary to anglers! For example, the comic asks, "If fish is brain food, why doesn't it show in fishermen?"

*Editors: Charles R. Berry, Jr.  
Kenneth F. Higgins  
David W. Willis  
Steven R. Chipps*

## Acknowledgements

We express sincere thanks to Terri Symens, Secretary, Department of Wildlife and Fisheries Sciences at South Dakota State University (SDSU), for word processing and administrative assistance. Several people volunteered to review and edit parts of the entire book, especially Dr. Charles G. Scalet, Professor and Head of the Department of Wildlife and Fisheries Sciences at SDSU. His comprehensive review, editing, and suggestions were appreciated. Mary Lou Berry, Jessie Y. Sundstrom, Michelle Bouchard, and Dawn M. Gardner helped locate photographs and reference materials. Diane Drake helped with contracting details and Carol Jacobson assisted with many clerical needs during the several years this book was being written, printed, and distributed. Mary Brashier and Eileen Dowd Stukel provided guidance on production, graphic design and printing. The graphic designer was Tom Holmlund. Most fish pictures were from Duane Raver art provided by the U.S. Fish and Wildlife Service.

Robert L. Hanten and Robert P. Hanten were the joint authors of Chapter 15 titled *Commercial Fisheries and Baitfish Industry*. Robert L. Hanten served the people and fisheries resources of South Dakota for more than 35 years, retiring as Chief of Fisheries in 1997. He guided the growth of the fisheries program and mentored most of the current fisheries employees, including his son Robert P. Hanten, and many other authors that contributed to this book. Bob the elder is a member of the Fisheries Management Hall of Excellence of the American Fisheries Society, located at the Ak-Sar-Ben Aquarium, Gretna, Nebraska.

Funding for this project was provided by the South Dakota Department of Game, Fish and Parks and the South Dakota Cooperative Fish and Wildlife Research Unit (U. S. Geological Survey). Doug Hansen and Dennis Unkenholz helped with funding. The Cooperative Fish and Wildlife Research Unit is jointly sponsored by the U. S. Geological Survey, the Wildlife Management Institute, the U. S. Fish and Wildlife Service, South Dakota State University, and the South Dakota Department of Game, Fish and Parks.

## Contributing Authors

### **Douglas C. Backlund**

S.D. Game, Fish and Parks  
523 E. Capitol, Foss Building  
Pierre, SD 57501-3182  
605-773-3381  
*Doug.Backlund@state.sd.us*

### **Michael E. Barnes**

S.D. Game, Fish and Parks  
McNenny Hatchery  
19619 Trout Loop  
Spearfish, SD 57783-8905  
605-642-6920  
*Mike.Barnes@state.sd.us*

### **Charles R. Berry, Jr., Ph.D.**

U.S.G.S. — S.D. Coop Unit  
Box 2140B, SDSU  
Brookings, SD 57707-1696  
605-688-6121  
*Charles.Berry@sdsstate.edu*

### **Gale A. Bishop, Ph.D. (Retired)**

S.D. School of Mines and Technology  
501 E. St. Joseph Street  
Rapid City, SD 57701-3995  
605-394-2467  
*Gale.Bishop@sdsmt.edu*

### **Brian G. Blackwell, Ph.D.**

S.D. Game, Fish and Parks  
603 E. 8th Ave.  
Webster, SD 57274-1630  
605-345-3381  
*Brian.Blackwell@state.sd.us*

### **Michelle A. Bouchard**

Wildlife and Fisheries Sciences  
South Dakota State University  
Box 2140B  
Brookings, SD 57707-1696  
605-688-6121  
*Michelle.Bouchard@sdsstate.edu*

### **Michael L. Brown, Ph.D.**

Wildlife and Fisheries Sciences  
South Dakota State University  
Box 2140B  
Brookings, SD 57707  
605-688-6121  
*Michael.Brown@sdsstate.edu*

### **Robert L. Brown**

S.D. Game, Fish and Parks  
523 E. Capitol, Foss Building  
Pierre, SD 57501-3182  
605-773-3381  
*Bob.Brown@state.sd.us*

### **Steven R. Chipps, Ph.D.**

U.S.G.S. — S.D. Coop Unit  
Box 2140B, SDSU  
Brookings, SD 57707-1696  
605-688-6121  
*Steven.Chipps@sdsstate.edu*

### **Rick J. Cordes**

S.D. Game, Fish and Parks  
McNenny Hatchery  
19619 Trout Loop  
Spearfish, SD 57783-8905  
605-642-6920  
*Rick.Cordes@state.sd.us*

### **Alan Davis, Ph.D.**

Education and Counseling  
South Dakota State University  
Box 507  
Brookings, SD 57707

### **Tony Dean**

Tony Dean Outdoors  
Pierre, SD 57501  
*tony@tonydean.com*

### **Robert P. Hanten**

S.D. Game, Fish and Parks  
Missouri River Fisheries Center  
20641 SD Hwy. 1806  
Ft. Pierre, SD 57532-6100  
605-223-7700  
*Robert.Hanten@state.sd.us*

**Robert L. Hanten (Retired)**

S.D. Game, Fish and Parks  
29532 SD Hwy. 34  
Pierre, SD 57501  
605-224-7136

**Kenneth F. Higgins, Ph.D. (Retired)**

U.S.G.S. — S.D. Coop Unit  
Box 2140B, SDSU  
Brookings, SD 57007-1696  
605-688-6121  
*Terri.Symens@sdstate.edu*

**Christopher W. Hoagstrom, Ph.D.**

Department of Zoology  
Weber State University  
2505 University Circle  
Ogden, Utah 84408-2505  
*ChristopherHoagstrom@weber.edu*

**Kent C. Jensen, Ph.D.**

Wildlife and Fisheries Sciences  
South Dakota State University  
Box 2140B  
Brookings, SD 57007-1696  
605-688-6121  
*Kent.Jensen@sdstate.edu*

**David O. Lucchesi**

S.D. Game, Fish and Parks  
4500 S. Oxbow Ave.  
Sioux Falls, SD 57106-4114  
605-362-2700  
*Dave.Lucchesi@state.sd.us*

**Kent Keenlyne, Ph.D. (Retired)**

U.S. Fish and Wildlife Service  
9625 Tyler Ct.  
Mobile, AL 36695-7408  
251-623-4558  
*sturgeondoctor@yahoo.com*

**Ronald M. Koth**

S.D. Game, Fish and Parks  
3305 W. South St.  
Rapid City, SD 57702-8160  
605-394-2391  
*Ron.Koth@state.sd.us*

**David C. Parris, Ph.D.**

New Jersey State Museum  
P.O. Box 530  
Trenton, NJ 08625  
609-292-6330  
*David.Parris@sos.state.nj.us*

**Charles G. Scalet, Ph.D.**

Wildlife and Fisheries Sciences  
South Dakota State University  
Box 2140B  
Brookings, SD 57007-1696  
605-688-6121  
*Charles.Scalet@sdstate.edu*

**Jeffrey S. Shearer**

S.D. Game, Fish and Parks  
523 E. Capitol, Foss Building  
Pierre, SD 57501-3182  
605-773-3381  
*Jeff.Shearer@state.sd.us*

**Sampson M. Stukel**

S.D. Game, Fish and Parks  
31247 436th Ave.  
Yankton, SD 57078  
605-668-5464  
*Sam.Stukel@state.sd.us*

**Dennis G. Unkenholz**

S.D. Game, Fish and Parks  
523 E. Capitol, Foss Building  
Pierre, SD 57501-3182  
605-773-3381  
*Dennis.Unkenholz@state.sd.us*

**David W. Willis, Ph.D.**

South Dakota State University  
Wildlife and Fisheries Sciences  
Box 2140B  
Brookings, SD 57007-1696  
605-688-6121  
*David.Willis@sdstate.edu*

**Stephen K. Wilson**

National Park Service  
Missouri National Recreational River  
P.O. Box 666  
Yankton, SD 57078  
402-667-5524  
*Stephen\_K\_Wilson@nps.gov*