

ENDANGERED AND THREATENED FISHES IN THE KLAMATH RIVER BASIN

CAUSES OF DECLINE AND STRATEGIES FOR RECOVERY

Committee on Endangered and Threatened Fishes
in the Klamath River Basin

Board on Environmental Studies and Toxicology

Division on Earth and Life Studies

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

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Washington, DC
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NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This project was supported by Grant 98210-1-G092 between the National Academy of Sciences and the U.S. Department of the Interior and the U.S. Department of Commerce. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the organizations or agencies that provided support for this project.

Library of Congress Cataloging-in-Publication Data

Endangered and threatened fishes in the Klamath River Basin : causes of decline and strategies for recovery.

p. cm.

Includes bibliographical references (p.).

ISBN 0-309-09097-0 (hardcover) — ISBN 0-309-52808-9 (pdf)

1. Rare fishes—Klamath River Watershed (Or. and Calif.) 2. Fishes—Conservation—Klamath River Watershed (Or. and Calif.) I. National Academies Press (U.S.).
QL617.73.U6E53 2004
333.95'68'09795—dc22

2004001241

Cover illustration by Janice C. Fong, University of California, Davis; copyright 2004.

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Tracking number: 1102531922

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¹This study was planned, overseen, and supported by the Board on Environmental Studies and Toxicology.

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Acknowledgments

This project was supported by the U.S. Bureau of Reclamation (USBR), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS).

Many people assisted the committee and National Research Council staff in creating this report. We are grateful for the support provided by the following:

Pablo Arroyave, U.S. Bureau of Reclamation
Edward Bartell, Water for Life Foundation
John Bartholow, U.S. Geological Survey
Michael Belchik, Yurok Tribe
Antonio Bentivoglio, U.S. Fish and Wildlife Service
Gary Black, Siskiyou Resource Conservation District
Randy Brown, U.S. Fish and Wildlife Service
Mark Buettner, U.S. Fish and Wildlife Service
Donald Buth, University of California, Los Angeles
James Carpenter, Carpenter Design Inc.
William Chesney, California Department of Fish and Game
Paul Cleary, Oregon Department of Water Resources
David Cottingham, Marine Mammal Commission
John Crawford, Tule Lake Irrigation District
Earl Danosky, Tule Lake Irrigation District
Michael Deas, Watercourse Engineering Inc.
Thomas Dowling, Arizona State University
Larry Dunsmoor, Klamath Tribes Natural Resources

John Fay, U.S. Fish and Wildlife Service
Mary Freeman, U.S. Geological Survey
Thomas Hardy, Utah Water Research Laboratory
William Hogarth, National Marine Fisheries Service
Becky Hyde, Yainex Ranch Owner
Cecil Jennings, U.S. Geological Survey
Marshall Jones, U.S. Fish and Wildlife Service
John Keys, III, U.S. Bureau of Reclamation
Jacob Kann, Aquatic Ecosystem Sciences LLC
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Don Knowles, National Marine Fisheries Service
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Frank McCormick, U.S. Forest Service
Chris Mobley, National Marine Fisheries Service
Curt Mullis, U.S. Fish and Wildlife Service
Joseph Nelson, University of Alberta
Roger Nicholson, Fort Klamath Rancher
Todd Olson, PacifiCorp
Felice Pace, Klamath Forest Alliance
Ronnie Pierce, Karuk Tribe
Richard Raymond, E&S Environmental Chemistry Inc.
Donald Reck, National Marine Fisheries Service
Michael Rode, California Department of Fish and Game
Kimball Rushton, Iron Gate Hatchery
Michael Ryan, U.S. Bureau of Reclamation
Ken Rykbost, Oregon State University Klamath Experiment Station
David Sabo, U.S. Bureau of Reclamation
Gary Scoppettone, U.S. Geological Survey
Tom Shaw, U.S. Fish and Wildlife Service
Rip Shively, U.S. Geological Survey
Daniel Snyder, U.S. Geological Survey
David Solem, Klamath Irrigation District
Sari Sommarstrom, Consultant and President, California Watershed
Management Council

ACKNOWLEDGMENTS

xi

Glen Spain, Pacific Coast Federation of Fisherman's Associations, Institute
for Fisheries Resources
Marshall Staunton, Upper Klamath Basin Working Group
Mark Stern, The Nature Conservancy
Ronald Sutton, U.S. Bureau of Reclamation
Doug Tedrick, U.S. Bureau of Indian Affairs
Larry Todd, U.S. Bureau of Reclamation
Greg Tranah, Harvard School of Public Health
Manuel Ulibarri, Dexter National Fish Hatchery and Technology Center
Carl Ullman, Klamath Tribes
David Vogel, Natural Resource Scientists, Inc.
Nancy Vucinich, Pyramid Lake Fisheries
David Walters, U.S. Environmental Protection Agency
Wedge Watkins, U.S. Bureau of Land Management
David Webb, Shasta Coordinated Resources Management and Planning
Faye Weekley, U.S. Fish and Wildlife Service
Thomas Weimer, U.S. Department of the Interior
Sam Williamson, U.S. Geological Survey
Sue Ellen Wooldridge, U.S. Department of the Interior

The committee's work also benefited from written and oral testimony submitted by the public, whose participation is much appreciated.

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Acknowledgment of Review Participants

This report has been reviewed in draft form by persons chosen for their diverse perspectives and technical expertise in accordance with procedures approved by the National Research Council Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards of objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. The committee and the NRC thank the following for their review of this report:

Don Chapman, consultant, McCall, Idaho
Jeff Curtis, Trout Unlimited
Kurt Fausch, Colorado State University
Wilford Gardner, University of California, Berkeley
Stanley Gregory, Oregon State University
Roger Kasperson, Stockholm Environment Institute
James Kitchell, University of Wisconsin
Mark Stern, The Nature Conservancy
David Vogel, Natural Resource Scientists, Inc.
Robert Wetzel, University of North Carolina, Chapel Hill
M. Gordon Wolman, Johns Hopkins University

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions

or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by Paul Risser, Oregon State University, and Stephen Berry, University of Chicago. Appointed by the National Research Council, they were responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the committee and the National Research Council.

Preface

The federal Endangered Species Act (ESA) of the United States has the admirable goal of minimizing extinction rates through regulations and actions that are intended to produce recovery of species that are in critical decline. For any given species listed under the act, agencies implementing the ESA must choose from an immense array of possibilities the ones most likely to lead to recovery, and in doing so they must forego the luxury of an extended interval of monitoring or experimentation.

Remedies for the recovery of species often have harmful or at least frustrating effects on people and institutions. In such instances, the affected parties often are especially dissatisfied with the implementation of remedies that are not absolutely secure scientifically. But the ESA does not allow delay, which would defeat its purpose. Thus, some of the remedies prescribed by agencies ultimately will prove ineffective and may cause economic or social disruption without any tangible benefit to listed species.

The National Research Council's Committee on Endangered and Threatened Fishes in the Klamath River Basin deals in its final report with three Klamath basin fish species listed under the federal ESA. The committee's work is broad in that it encompasses the entire actual or potential range of those species in the Klamath basin, regardless of the boundaries set by ownership or management, and with all the potential environmental changes that could suppress or promote the welfare of the species. The committee, in response to its charge, has given particular attention to evaluation of the certainty underlying specific kinds of remedies that might lead to the recovery of species. The issues that the committee has dealt with are specific

to the basin, but the Klamath basin presents in microcosm most of the problems that are generally identified with implementation of the ESA. Especially prominent in the Klamath basin is controversy over the extent to which remedies that have uncertain outcomes should be pursued even though they are economically or socially painful.

One issue especially well highlighted by the Klamath basin is the relative weight that should be given to professional judgment as opposed to direct empirical evidence that appears to be contradictory to that judgment. Whereas professional judgment is essential for successful ESA implementations where site-specific information is absent, its use is more problematic when initial judgments fail empirical tests. Reversal of an initial judgment may seem to be an abandonment of duty or principle, but it is unrealistic to expect that all initial judgments will be proved scientifically sound. By raising this issue in specific terms in its interim report, the committee has generated considerable controversy in the Klamath basin. The committee believes, however, that a rational and consistent resolution of the issue works toward the long-term stability and effectiveness of the ESA. The committee's final report gives a more detailed view of the committee's approach.

The committee owes a great debt of gratitude to the National Research Council staff members who have guided it through the production of the final report. Suzanne van Drunick, project director, has been especially critical to the success of the committee; David Policansky, James Reisa, and Bryan Shipley also helped the committee in numerous ways; Norman Grossblatt, Mirsada Karalic-Loncarevic, and Kelly Clark helped with the many details that made the report ready for publication. The committee is also appreciative of James MacMahon and other board members for their oversight of this study. The committee is grateful to Leslie Northcott of the University of Colorado for helping to produce the manuscript of the report and to Marylee Murphy and Rebecca Anthony of the University of Colorado for their work on figures and tables.

The committee benefited immensely from the help and advice of scientists and administrators who have dealt with environmental issues in the Klamath basin and to contributions from the citizens, organizations, and tribes working and living in the basin. The committee's highest hope is that its work will be a contribution to the long-term general welfare of everyone who resides in, visits, or cares about the Klamath basin.

The National Research Council process for producing the report involves extensive reliance on external reviewers. The committee thanks the reviewers of its final report for their thoughtful contributions.

William M. Lewis, Jr., *Chair*
Committee on Endangered and Threatened
Fishes in the Klamath River Basin

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Tracking number: 1102531922