

Marine Fisheries Review

Vol. 40, No. 3
March 1978

CONTENTS

Articles

1 Preface

Immunology and Preventative Medicine

2 Immunity and Practical Vaccine Development

Albert L. Brown

6 Cellular Immunity in Fish as Measured by Lymphocyte Stimulation

M. Michael Sigel, John C. Lee, E. Churchill McKinney, and Diana M. Lopez

12 Immunization of Fish With Bacterins of *Aeromonas salmonicida*

L. R. Udey and J. L. Fryer

18 Immunization of Channel Catfish, *Ictalurus punctatus*, Against Two Bacterial Diseases

John H. Schachte, Jr.

20 Immunization of Salmonids for Control of Vibriosis

J. L. Fryer, J. S. Rohovec, and R. L. Garrison

24 Vibriosis and Current Salmon Vaccination Procedures in Puget Sound, Washington

Lee W. Harrell

Diseases and Their General Control

26 Epizootiology of Channel Catfish Virus Disease

John A. Plumb

30 Serological Screening of Channel Catfish Virus

Stewart McConnell and Jack D. Austen

33 A Herpesvirus Disease of Green Sea Turtles in Aquaculture

Harold Haines

38 Incidence of Disease in Warmwater Fish Farms in the South-Central United States

F. P. Meyer

42 Enteric Red Mouth Disease (Hagerman Strain)

R. A. Busch

52 Vibriosis and Furunculosis in Marine Cultured Salmon in Puget Sound, Washington

Anthony J. Novotny

56 Parasitic Diseases of Freshwater Fishes

W. A. Rogers

58 Ornamental Fish: Diseases and Problems

John B. Gratzek, Emmett B. Shotts, and Jack L. Blue

61 Shellfish Diseases

Louis Leibovitz

65 Control of Fish Diseases

S. F. Snieszko

69 Fish Disease Inspection and Certification

Diane Elliott

Departments

72 NOAA/NMFS Developments

75 Foreign Fishery Developments

Cover: Yearling coho salmon, *Oncorhynchus kisutch*, are vaccinated against vibriosis using some of the first production techniques developed by NMFS biologists for the commercial salmon farming industry.

U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary

NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
National Marine Fisheries Service



Marine Fisheries Review is published monthly by NMFS Scientific Publications Staff, Room 450, 1107 N.E. 45th St., Seattle, WA 98105.

Publication of material from sources outside the Service is not an endorsement. The Service is not responsible for the accuracy of facts, views, or opinions of these sources.

Although the contents have not been copyrighted and may be reprinted freely, reference to source is appreciated.

The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director, Office of Management and Budget, through May 31, 1978.

Managing Editor: W. Hobart

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Price \$1.10 (single copy). Subscription price: \$12.75 a year, \$15.95 a year for foreign mailing. Controlled circulation postage paid at Tacoma, Wash.