

Contents

Executive Summary

R.L. Smith 1

Keynote Address: Flatfish Management in the Eastern Pacific Ocean with Special Reference to Pacific Halibut

Donald A. McCaughran 3

Reproduction

Reproduction of Some Flounder Species from the West Kamchatkan Shelf

Yu.P. Dyakov 17

Spawning and Maturation of Female Yellowfin Sole in the Eastern Bering Sea

Daniel G. Nichol 35

Latitudinal Patterns in Reproductive Life History Traits of Northeast Pacific Flatfish

Gonzalo C. Castillo 51

Reproduction, Muscle Hydration, and Condition Cycle Variation in Northern Pleuronectids

M.P.M. Burton and D.M. Maddock 73

Early Life History

Distribution of Alaska Plaice, Flathead Sole, and Bering Flounder Eggs in the Eastern Bering Sea During April-July, 1988-1990

S.S. Grigorev and N.S. Fadeev 89

Characteristics of Flatfish Eggs and Larva Samples near Eastern Kamchatka and in the Western Bering Sea During June-July 1991

Sergey S. Grigorev 101

Mesoscale Variation in Spring Abundance of Copepod Nauplii Prey of Larval Flatfish in a Southeastern Alaskan Bay

A.J. Paul, K.O. Coyle, and Lewis Haldorson 117

The Significance of Morphological Variation in Adults and Larvae of the Rock Sole, <i>Pleuronectes bilineatus</i>, from the Bering Sea and Northeastern Pacific Ocean	
<i>Helen L. Mulligan, Arthur W. Kendall Jr., and Ann C. Matarese</i>	133
Habitat Models for Juvenile Pleuronectids Around Kodiak Island, Alaska, USA	
<i>Brenda L. Norcross, Franz-Josef Müter, and Brenda A. Holladay</i>	151
Diet Diversity as a Mechanism for Partitioning Nursery Grounds of Pleuronectids	
<i>Brenda A. Holladay and Brenda L. Norcross</i>	177
 <i>Feeding and Growth</i>	
Food Habits and Diet Overlap of Arrowtooth Flounder (<i>Atheresthes stomias</i>) and Pacific Halibut (<i>Hippoglossus stenolepis</i>) in the Gulf of Alaska	
<i>Mei-Sun Yang</i>	205
Food Habits of Three Congeneric Flatfishes: Yellowfin Sole (<i>Pleuronectes asper</i>), Rock Sole (<i>P. bilineatus</i>), and Alaska Plaice (<i>P. quadrituberculatus</i>) in the Eastern Bering Sea	
<i>Geoffrey M. Lang, Patricia A. Livingston, and Bruce S. Miller</i>	225
Feeding Habits of Red Flounder <i>Hippoglossoides dubius</i> in Funka Bay and Its Offshore Waters, Hokkaido, Japan	
<i>Shin-ichi Yokoyama</i>	247
Seasonal Change in Daily Ration of Brown Sole <i>Pleuronectes herzensteini</i> in the Coastal Waters of Northern Niigata Prefecture, Japan	
<i>Osamu Tominaga, Kazuya Nashida, Tatsuaki Maeda and Toyomi Takahashi</i>	261
Minimal Food Requirements for Yellowfin Sole in Alaska: Estimates from Laboratory Bioenergetics	
<i>R.L. Smith, A.J. Paul, and J.M. Paul</i>	285
Energy Requirements of Fasting Flathead Sole (<i>Hippoglossoides elassodon</i> Jordan and Gilbert 1880) Calculated from Respiratory Energy Needs	
<i>A.J. Paul, J.M. Paul, and R.L. Smith</i>	297
Evaluating a Crystal Pattern in the Microstructures of Juvenile Pacific Halibut Otoliths as a Means for Identifying Nursery Area Location	
<i>Peter Hagen</i>	305

Abundance, Biomass, and Distribution

Variations in Relative Abundance and Year-Class Strength of Petrale Sole off Oregon and Washington <i>Gonzalo C. Castillo, James T. Golden, and Hiram W. Li</i>	321
Population Dynamics of 0+ English Sole, <i>Pleuronectes vetulus</i>, in Estuaries and Nearshore Areas off Washington <i>Yunbing Shi, Donald R. Gunderson, and David A. Armstrong</i>	343
Spatial Patterns Associated with an Increase in the Abundance of English Sole (<i>Parophrys vetulus</i>) off Oregon and Washington <i>David B. Sampson</i>	367
Changes in Geographic Dispersion of Eastern Bering Sea Flatfish Associated with Changes in Population Size <i>Robert A. McConnaughey</i>	385
Greenland Turbot (<i>Reinhardtius hippoglossoides</i>) Stock Assessment and Management in the Eastern Bering Sea <i>James N. Ianelli and Thomas K. Wilderbuer</i>	407
Dynamics of the Flounder Populations in the Northwest Japan Sea <i>Z.G. Ivankova</i>	443
Stock Condition of Greenland Turbot (<i>Reinhardtius hippoglossoides matsuurae</i> Jordan et Snyder) in the Northwestern Bering Sea <i>L.S. Kodolov and S.P. Matveychuk</i>	451
Dynamics of Abundance and Biomass of Greenland Turbot (<i>Reinhardtius hippoglossoides</i>) in Western Kamchatka in 1976-1993 <i>L.P. Nikolenko</i>	467
Stock Condition of Pacific Halibut (<i>Hippoglossus stenolepis</i>) in the Northwestern Bering Sea <i>L.S. Kodolov</i>	481
Abundance and Composition of Flatfish in Kachemak Bay, Alaska <i>William R. Bechtol and Henry Yuen</i>	497
Characteristics and Trends in the Recreational Halibut Fishery of Southcentral Alaska, 1991-1993 <i>Scott C. Meyer</i>	523

Pollution, Parasites, and Disease

Contaminant Effects on Reproductive Output in North Pacific Flatfish

Sean Y. Sol, Lyndal L. Johnson, Tracy K. Collier, Margaret M. Krahn, and Usha Varanasi 547

Tumors, Lesions, and an Eye Parasite in Flatfish from Resurrection Bay, Alaska

R.L. Smith, R.A. Khan, and A.J. Paul 561

Management and Economics

Management of Flatfish Fisheries in the North Pacific

David B. Witherell 573

Methods to Improve Survival of Pacific Halibut Bycatch Discarded from a Factory Trawler

Robert J. Trumble, Gregg H. Williams, and Steven E. Hughes 591

Discard Mortality Rates of Pacific Halibut Bycatch: Fishery Differences and Trends During 1990-1993

Gregg H. Williams and Thomas K. Wilderbuer 611

Commercialization of Arrowtooth Flounder: The Next Step

Paula Cullenberg 623

Workshop

Future Research Needs

R.L. Smith, Moderator 631

Participants 639