

# Contents

Symposium Dedication to Albert V. Tyler .....vi

About the Proceedings Book and the Symposium.....vii

## **New Understandings of Gadid Biology and Life History**

Classification of Ovarian Stages of Walleye Pollock  
(*Theragra chalcogramma*)

*Jennifer P. Stahl and Gordon H. Kruse* ..... 1

## **Mechanisms of Fishery Collapse or Resiliency**

Fluctuations of Northeast Arctic Cod Catches: A Review of  
Possible Sources

*Odd Nakken* ..... 25

Decline and Recovery of Atlantic Cod (*Gadus morhua*)  
Stocks throughout the North Atlantic

*George R. Lilly et al.* ..... 39

The Decline, Recovery, and Collapse of Atlantic Cod  
(*Gadus morhua*) off Labrador and Eastern Newfoundland

*George R. Lilly* ..... 67

Fishery and Environmental Aspects Relevant for the  
Emergence and Decline of Atlantic Cod (*Gadus morhua*) in  
West Greenland Waters

*Holger Hovgård and Kai Wieland* ..... 89

Size-at-Age in Haddock (*Melanogrammus aeglefinus*):  
Application of the Growing Degree-Day (GDD) Metric

*Anna B. Neuheimer, Christopher T. Taggart, and Kenneth T. Frank* .....111

## **Effects of Fishing on Biological and Ecological Attributes**

Using Acoustics to Evaluate the Effect of Fishing on School  
Characteristics of Walleye Pollock

*Haixue Shen, Terrance J. Quinn II, Vidar Westpestad,  
Martin W. Dorn, and Matthew Kookesh* ..... 125

The Incredible Shrinking Georges Bank Haddock ( <i>Melanogrammus aeglefinus</i> ) <i>Jon K.T. Brodziak and Jason S. Link</i> .....	141
--	-----

## Population Dynamics of Gadids

Estimation of Age-Specific Migration in an Age-Structured Model <i>Sara E. Miller, Terrance J. Quinn II, and James N. Ianelli</i> .....	161
---	-----

Changes in Fecundity in a Stressed Population: Northern Cod ( <i>Gadus morhua</i> ) off Newfoundland <i>Susan B. Fudge and George A. Rose</i> .....	179
---	-----

Rebuilding Atlantic Cod: Lessons from a Spawning Ground in Coastal Newfoundland <i>G.A. Rose, I.R. Bradbury, B. deYoung, S.B. Fudge, G.L. Lawson, L.G.S. Mello, D. Robichaud, G. Sherwood, P.V.R. Snelgrove, and M.J.S. Windle</i> .....	197
--	-----

## Biophysical Mechanisms of Recruitment Variability

Disentangling the Effect of Adult Biomass and Temperature on the Recruitment Dynamics of Fishes <i>Massimiliano Cardinale, Joakim Hjelm, and Michele Casini</i> .....	221
---	-----

## Effects of Climate and Oceanography on Gadids, Their Predators, and Prey

Temperature Effects on Recovery of Pacific Cod Following Exhaustive Exercise <i>S.K. Hanna, A.H. Haukenes, R.J. Foy, and C.L. Buck</i> .....	239
--	-----

## Role of Gadids in Ecosystem Structure and Dynamics

Ontogenetic, Temporal, and Spatial Variation of Feeding Niche in an Unexploited Population of Walleye Pollock ( <i>Theragra chalcogramma</i> ) <i>Thomas C. Kline Jr.</i> .....	251
--	-----

Juvenile Walleye Pollock Aggregation Structure in the Gulf of Alaska <i>Sarah C. Stienessen and Christopher D. Wilson</i> .....	271
---	-----

Contents

Walleye Pollock as Predator and Prey in the Prince  
William Sound Ecosystem  
*Richard E. Thorne*..... 289

Variation in the Trophic Level of Pacific Cod with  
Changes in Size and Season  
*Dan Urban and Ivan Vining*..... 305

**Fishery Management and Rebuilding Strategies**

The Management Strategy Evaluation Approach and the  
Fishery for Walleye Pollock in the Gulf of Alaska  
*Z. Teresa A'mar, André E. Punt, and Martin W. Dorn* .....317

Participants ..... 347

Index ..... 351