

# NORTHWEST ATLANTIC FISHERIES ORGANIZATION



## Scientific Council Studies Number 9

Special Session on Squids  
September 1984

Dartmouth, Canada  
1985



# NORTHWEST ATLANTIC FISHERIES ORGANIZATION



## Scientific Council Studies Number 9

Special Session on Squids  
September 1984

Dartmouth, Canada  
November, 1985



## Foreword

In accordance with its mandate to disseminate information on fisheries research to the scientific community, the Scientific Council of NAFO publishes the *Journal of Northwest Atlantic Fishery Science*, which contains peer-reviewed primary papers and notes on original research, and *NAFO Scientific Council Studies*, which contains review papers of topical interest and importance and selected contributions to special meetings and symposia. Each year since 1981, the Scientific Council has organized special sessions on topics of particular interest, and many of the documented contributions to these sessions have been published in NAFO publications or in other fishery-oriented periodicals.

During 5-7 September 1984, the special session on "Biology and Ecology of Squids in the Northwest Atlantic" was held at the Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada, with T. W. Rowell (Canada) and Ch. M. Nigmatullin (USSR) as conveners. Keen interest in the contributions and associated discussion prompted the participants to propose that the Scientific Council consider publishing all suitable papers in a single volume. Of the 27 documented contributions, 15 papers and a bibliography were accepted for publication in this issue of *Studies* after critical review by one or both conveners and the editor, with the occasional assistance of other fishery scientists. The titles and available abstracts of the remaining 11 contributions, which were either not submitted or not suitable for inclusion in this volume, are listed on pages 171-175.

The eight previous issues of *NAFO Scientific Council Studies* are noted on the inside back cover of this volume.

28 November 1985

V. M. Hodder, Editor  
NAFO Scientific Council Studies  
Bedford Institute of Oceanography  
P. O. Box 638  
Dartmouth, Nova Scotia  
Canada B2Y 3Y9



# Contents

ROWELL, T. W. Synopsis of the Special Session on Squids, September 1984 .....	7
ROWELL, T. W., J. H. YOUNG, J. C. POULARD, and J. P. ROBIN. Changes in Distribution and Biological Characteristics of <i>Illex illecebrosus</i> on the Scotian Shelf, 1980-83 .....	11
VOSS, G. L., and T. F. BRAKONIECKI. Squid Resources of the Gulf of Mexico and Southeast Atlantic Coasts of the United States .....	27
MATTLIN, R. H., R. E. SCHEIBLING, and E. C. FÖRCH. Distribution, Abundance and Size Structure of Arrow Squid ( <i>Nototodarus</i> sp.) off New Zealand .....	39
COELHO, M. L. Review of the Influence of Oceanographic Factors on Cephalopod Distribution and Life Cycles .....	47
HATANAKA, H., S. KAWAHARA, Y. UOZUMI, and S. KASAHARA. Comparison of Life Cycles of Five Ommastrephid Squids Fished by Japan: <i>Todarodes pacificus</i> , <i>Illex illecebrosus</i> , <i>Illex argentinus</i> , <i>Nototodarus sloani sloani</i> and <i>Nototodarus sloani gouldi</i> .....	59
O'DOR, R. K., and N. BALCH. Properties of <i>Illex illecebrosus</i> Egg Masses Potentially Influencing Larval Oceanographic Distribution .....	69
ROWELL, T. W., R. W. TRITES, and E. G. DAWE. Distribution of Short-finned Squid ( <i>Illex illecebrosus</i> ) Larvae and Juveniles in Relation to the Gulf Stream Frontal Zone Between Florida and Cape Hatteras .....	77
HATANAKA, H., A. M. T. LANGE, and T. AMARATUNGA. Geographical and Vertical Distribution of Short-finned Squid ( <i>Illex illecebrosus</i> ) Larvae in the Northwest Atlantic .....	93
MORRIS, C. C., and F. A. ALDRICH. Statolith Length and Increment Number for Age Determination of <i>Illex illecebrosus</i> (Lesueur, 1821) (Cephalopoda, Ommastrephidae) .....	101
COELHO, M. L., M. D. MALLET, and R. K. O'DOR. Evaluation of Male Reproductive Features as Maturity Indices for Short-finned Squid ( <i>Illex illecebrosus</i> ) .....	107
MAURER, R. O., and R. E. BOWMAN. Food consumption of squids ( <i>Illex illecebrosus</i> and <i>Loligo pealei</i> ) off the Northeastern United States .....	117
BREIBY, A., and M. JOBLING. Predatory Role of the Flying Squid ( <i>Todarodes sagittatus</i> ) in North Norwegian Waters .....	125
WEBBER, D. M., and R. K. O'DOR. Respiration and Swimming Performance of Short-finned Squid ( <i>Illex illecebrosus</i> ) .....	133
SUMMERS, W. C. Comparative Life History Adaptations of Some Myopsid and Sepiolid Squids .....	139
PAULY, D. Population Dynamics of Short-lived Species, with Emphasis on Squids .....	143
BALCH, N. Bibliography of the Ommastrephid Squid Genus <i>Illex</i> .....	155
Titles and Abstracts of Other Contributions to the Special Session on Squids .....	171
Notices .....	177

MAP ILLUSTRATING NAFO'S CONVENTION AREA AND 200-MILE FISHING ZONE BOUNDARIES

