

S3 CCCC/FIS Topic Session **Towards ecosystem-based management: Recent developments and successes in multi-species modeling**

Co-sponsored by GLOBEC

Co-Convenors: Vera Agostini (U.S.A.), Shin-ichi Ito (Japan), Jae-Bong Lee (Korea) and Jake Schweigert (Canada)

Ecosystem-based management is becoming a focus for many fisheries and their management agencies worldwide. Much of the success of this initiative will require improvements in understanding the interactions and linkages among species at both the lower trophic level (LTL) and higher trophic level (HTL) within regional ecosystems. The recent success of modeling tools such as NEMURO.FISH in linking LTL forcing to the forecasting of fish growth for a number of pelagic forage species is encouraging. Ecosystem-based management will require the extension of this and/or similar approaches to multi-species systems. A variety of modeling tools is already in wide use to address this issue, including Ecopath/Ecosim, NEMURO, various IBM models, and others. This session will focus on contrasting different approaches to multi-species modeling and evaluating their performance as a vehicle for assessing and forecasting the effects of climate change on ecosystem function. We encourage presentations that will highlight critical ecosystem interactions relevant for fishery management, and discuss how knowledge of these interactions will move us closer to ecosystem-based fishery management.

Tuesday, October 30, 2007 09:00 – 18:00

- 09:00 *Introduction by convenors*
- 09:10 **Yunne Shin and Morgane Travers (Invited)**
Coupling ROMS-NPZD and OSMOSE models for an end-to-end modelling of the Benguela upwelling ecosystem (S3-4283)
- 09:40 **Villy Christensen, Joe Buszowski, Robyn Forrest, Fang Gao, Carie Hoover, Joe Hui, Sherman Lai, Jeroen Steenbeek, William Walters and Carl Walters (Invited)**
Ecopath with Ecosim 6: New generation ecosystem modeling package (S3-4136)
- 10:10 **Maki Suda (Invited)**
Two-species population dynamics model for Japanese sardine and chub mackerel using object oriented modelling (S3-4081)
- 10:40 *Coffee / tea break*
- 11:00 **Michio J. Kishi, Kenneth A. Rose, Shin-ichi Ito, Bernard A. Megrey, Francisco E. Werner, Maki Noguchi-Aita, Taketo Hashioka, Yasuhiro Yamanaka, Yasuko Kamezawa, Kazuto Nakajima and Daiki Mukai**
Overview of application of the NEMURO-bioenergetic coupled model on north-western Pacific fishes (S3-4182)
- 11:20 **Jason S. Link, Laurel Col, William Overholtz, John O'Reilly, Vincent Guida, Jack Green, David Dow, Debra Palka, Chris Legault, Joseph Vitaliano, Carolyn Griswold, Michael Fogarty and Kevin Friedland**
Evaluating the role of small pelagics in the Gulf of Maine: EMAX scenarios of energy flow (S3-4382)
- 11:40 **Jake Rice**
"Charmingly simple models" – Adding climate to size-based fish community models (S3-4294)

- 12:00 **Kray Van Kirk, Terrance J. Quinn II and Jeremy Collie**
Estimating predation mortality with a three-species model in the Gulf of Alaska (S3-4145)
- 12:20 **Zach A. Ferdaña and Michael W. Beck**
Ecosystem-based management for the seas: A planning application using spatial information on marine biodiversity and fishery production (S3-4244)
- 12:40 **Lunch**
- 14:00 **Sarah Gaichas, Garrett Odell, Robert Francis and Kerim Aydin**
Fishing the Gulf of Alaska marine food web: Do predator prey interactions imply ecosystem thresholds? (S3-4246)
- 14:20 **Ivonne Ortiz, Robert Francis and Kerim Aydin**
Effects of space and scale in the marine food-web structure of the Aleutian Archipelago (S3-4131)
- 14:40 **Jeremy S. Collie, Kiersten L. Curti and John H. Steele**
End-to-end models of the Georges Bank ecosystem: Implications for ecosystem-based fisheries management (S3-4123)
- 15:00 **N. Taylor, D. Preikshot, N. Mantua, R. Peterman, B. Dorner, G. Ruggerone, C. Walters, K. Myers, T. Walker and R. Hilborn**
The effects of ocean carrying capacity, density-dependent growth and mortality on Pacific salmon (S3-4418)
- 15:20 **Coffee / tea break**
- 16:00 **Motomitsu Takahashi, Hiroshi Nishida, Akihiko Yatsu and Yoshiro Watanabe**
Contrasting growth responses to climate-ocean regimes develop alternative population dynamics between anchovy and sardine in the western North Pacific (S3-4371)
- 16:20 **Takeshi Okunishi, Yasuhiro Yamanaka and Shin-ichi Ito**
A migration model of Japanese sardine using artificial neural network (S3-4269)
- 16:40 **Young Il Seo, Joo Il Kim, Taek Yun Oh, Sun Kil Lee, Chang Ik Zhang, Jae Bong Lee and Jung Hwa Choi**
Stock assessment of small yellow croaker considering the impact of yellow goosfish predation in the East China Sea of Korea (S3-4456)
- 17:00 **Shin-ichi Ito, Taizo Morioka, Yasuhiro Ueno, Satoshi Suyama and Masayasu Nakagami**
Experimental approaches to improve the accuracy of NEMURO.FISH saury growth model (S3-4197)
- 17:20 **Summary and wrap up**

S3 Posters

- S3-4191 **Fumitake Shido, Yasuhiro Yamanaka, Shin-ichi Ito, Taketo Hashioka, Daiki Mukai and Michio J. Kishi**
A two-dimensional fish model simulating biomass and population of Pacific saury
- S3-4503 **Fatos Hoxhaj**
Ecosystem modeling on the coastal area of Albania