

## Michael H. Prager, Ph.D.

**Address** NMFS Southeast Fisheries Science Center  
NOAA Center for Coastal Fisheries and Habitat Research  
101 Pivers Island Road  
Beaufort, North Carolina 28516  
252-728-8760  
mike.prager@noaa.gov

### Employment

- 2003-04 Acting Fisheries Director at Beaufort. Supervise scientific staff of 40+, manage budget and personnel, coordinate with National Ocean Service management at Beaufort.
- 1999- Research Fishery Biologist and Leader of Population Dynamics Team, NOAA, Beaufort, NC. Conduct research on assessment methods for exploited fish populations, contribute to stock assessments and related studies, offer scientific guidance to Team members. Key architect of SEDAR (Southeast Data, Assessment, and Review) process for collaborative stock assessment and peer review.
- 1998 Acting Laboratory Director, Southwest Fisheries Science Center (SWFSC), NMFS, Tiburon (CA). Coordinate research; develop funding sources; manage facility and staff; develop research relationships with other scientific organizations. Represented the SWFSC in NMFS funding negotiations that nearly doubled the Tiburon Laboratory's annual budget.
- 1995-1999 Research Fishery Biologist; Chief and founder, Salmon Analysis Branch (SWFSC, Tiburon Laboratory). The Branch included ten scientists (most hired by me) working on quantitative biology and economics of California salmonids. Main responsibilities included recruitment of scientific personnel, research guidance, and budgeting. Researched population ecology of salmonid populations, emphasizing chinook in Klamath River Basin. Coordinated NRC Postdoctoral Research Associateship program at Lab.
- 1990-1995 Research Fishery Biologist, NMFS Southeast Fisheries Science Center, Miami. Researched fish population dynamics and assessment, emphasizing large pelagic species. Participant in assessment groups of International Commission for the Conservation of Atlantic Tunas (ICCAT). Lead U.S. scientist for tropical tuna assessment at ICCAT; participant in assessment groups of bluefin tuna, swordfish, and billfishes.
- 1985-1987 Visiting Scientist, Southwest Fisheries Center, La Jolla, while on leave of absence from Old Dominion University. Principal investigator of a bio-statistical study to examine the effects of contaminants on marine fish population dynamics.
- 1984-1990 Assistant Professor, Dept. of Oceanography, Old Dominion University. Conducted quantitative research on fish and shellfish population dynamics; taught graduate courses in fish population biology; served on academic and government committees.

## Education

- 1984                    Ph.D. in Oceanography, University of Rhode, Island Graduate School of Oceanography
- 1971                    S.B. in Humanities and Science, Massachusetts Institute of Technology

## University Teaching

### Graduate Courses Taught

- OCEN 495              Special Topics in Oceanography
- OCEN 547              Fishery Science
- OCEN 691              Seminar in Oceanography
- OCEN 841              Fish Population Dynamics
- OCEN 743              Seminar in Population Dynamics  
Topic: cohort-based assessment models

### Students supervised

- As advisor*            Steven Bieber, M.S. 1988, Old Dominion University  
Christopher Jones, M.S. 1990, Old Dominion University
- On committee*        Leslie Dorworth, M.S. 1989, Old Dominion University  
Ruxin Guo, M.S. 1992, Old Dominion University  
Patrick Geer, M.S. 1994, Old Dominion University  
Josué Martínez-Garmendia, M.S. 1996, University of Miami  
Michael Frisk, Ph.D. 2004, University of Maryland  
Thomas Ihde, Ph.D. student, College of William and Mary (VIMS)  
Eliza Heery, M.S. student, Virginia Tech

## Publications—Refereed Journal Articles

- Prager, M. H., and R. D. Goos. 1984. A case of mushroom poisoning from *Suillus luteus*. *Mycopathologia* 85: 175-176.
- Prager, M. H., J. F. O'Brien, and S. B. Saila. 1987. Using lifetime fecundity to compare management strategies: a case history for striped bass. *N. Am. J. Fish. Manage.* 7: 403-409.
- Prager, M. H., and A. D. MacCall. 1988. Sensitivities and variances of virtual population analysis as applied to the mackerel, *Scomber japonicus*. *Can. J. Fish. Aquat. Sci.* 45: 539-547.
- Prager, M. H., and A. D. MacCall. 1988. Revised estimates of historical spawning biomass of the Pacific mackerel, *Scomber japonicus*. *Calif. Coop. Fish. Invest. Rep.* 29: 81-90.
- MacCall, A. D., and M. H. Prager. 1988. Historical changes in abundance of six fish species off southern California, based on CalCOFI egg and larva samples. *Calif. Coop. Fish. Invest. Rep.* 29: 91-101.
- Prager, M. H. 1988. The group method of data handling: a new method for stock identification. *Trans. Am. Fish. Soc.* 117: 290-296.

- Prager, M. H., and J. M. Hoenig. 1989. Superposed epoch analysis, a randomization test of environmental events on recruitment, with application to chub mackerel. *Trans. Am. Fish. Soc.* 118: 608-618.
- Prager, M. H., J. R. McConaugha, and C. M. Jones. 1990. Fecundity of blue crab, *Callinectes sapidus*, in Chesapeake Bay. *Bull. Mar. Sci.* 46: 170-179.
- Jones, C. M., J. R. McConaugha, P. Geer, and M. H. Prager. 1990. Population density estimates for spawning stock of *Callinectes sapidus* in Chesapeake Bay, 1986-1987. *Bull. Mar. Sci.* 46: 159-169.
- Prager, M. H., and M. C. Fabrizio. 1990. Comparison of logistic regression and discriminant analyses for stock identification of anadromous fish, with application to striped bass and American shad. *Can. J. Fish. Aquat. Sci.* 47: 1570-1577.
- Prager, M. H., and J. M. Hoenig. 1992. Can we determine the significance of key events on a recruitment time series?—A power study of superposed epoch analysis. *Trans. Am. Fish. Soc.* 121: 123-131.
- Prager, M. H., and A. D. MacCall. 1993. Detection of contaminant and climate effects on spawning success of three pelagic fish stocks off southern California: Northern anchovy *Engraulis mordax*, Pacific sardine *Sardinops sagax*, and chub mackerel *Scomber japonicus*. *Fish. Bull.* 91: 310-327.
- Prager, M. H. 1994. A suite of extensions to a nonequilibrium surplus-production model. *Fish. Bull.* 92: 374-389.
- Prager, M. H., E. D. Prince, and D. W. Lee. 1995. Empirical length and weight conversion equations for blue marlin, white marlin, and sailfish from the North Atlantic Ocean. *Bull. Mar. Sci.* 56: 201-210.
- Prager, M. H. 1996. A simple model of blue crab, *Callinectes sapidus*, spawning migration in Chesapeake Bay. *Bull. Mar. Sci.* 56: 421-428.
- Prager, M. H., C. P. Goodyear, and G. P. Scott. 1996. Application of a surplus production model to a swordfish-like simulated stock with time-changing gear selectivity. *Trans. Am. Fish. Soc.* 125: 729-740.
- Lindley, S. T., M. S. Mohr, and M. H. Prager. 2000. Monitoring protocol for Sacramento River winter chinook salmon: application of statistical power analysis to recovery of an endangered species. *Fish. Bull.* 98: 759-766.
- Vaughan, D. S., J. W. Smith, and M. H. Prager. 2000. Population characteristics of Gulf menhaden, *Brevoortia patronus*. NOAA Technical Report NMFS-149, 19p.
- Prager, M. H., and M. S. Mohr. 2001. The harvest rate model for Klamath River fall chinook salmon, with management applications and comments on model development and documentation. *N. Amer. J. Fish. Manage.* 21: 533-547.
- Prager, M. H., and C. P. Goodyear. 2001. Effects of mixed-metric data on production model estimation: simulation study of a blue-marlin-like stock. *Trans. Am. Fish. Soc.* 130: 927-939.
- DeVries, D. A., C. B. Grimes, and M. H. Prager. 2002. Using otolith shape analysis to distinguish eastern Gulf of Mexico and Atlantic Ocean stocks of king mackerel. *Fish. Res.* 57: 51-62.
- Prager, M. H. 2002. Comparison of logistic and generalized surplus-production models applied to swordfish, *Xiphias gladius*, in the north Atlantic Ocean. *Fish. Res.* 58: 41-57.

- Vaughan, D. S., and M. H. Prager. 2002. Severe decline in abundance of the red porgy, *Pagrus pagrus*, population of the Atlantic Ocean off the southeastern United States. *Fish. Bull.* 100: 351-375.
- Vaughan, D. S., M. H. Prager, and J. W. Smith. 2002. Consideration of uncertainty in stock assessment of Atlantic menhaden. *Am. Fish. Soc. Symp.* 27: 83-112.
- Shertzer, K. W., and M. H. Prager. 2002. Least median of squares: A suitable objective function for stock assessment models? *Can. J. Fish. Aquat. Sci.* 59: 1474-1481.
- Williams, E. H., and M. H. Prager. 2002. Comparison of equilibrium and nonequilibrium estimators for the generalized production model. *Can. J. Fish. Aquat. Sci.* 59: 1533-1552.
- Prager, M. H. 2003. Reply to the letter to the editor by Maunder. *Fish. Res.* 61: 151-154.
- Prager, M. H., C. E. Porch, K. W. Shertzer, and J. F. Caddy. 2003. Targets and limits for management of fisheries: a simple probability-based approach. *N. Am. J. Fish. Manage.* 23: 349-361.
- Prager, M. H., and E. H. Williams. 2003. From the golden age to the new industrial age: fishery modeling in the early 21st Century. *Nat. Res. Model.* 16: 477-489.

### **Publications—Books and Chapters**

- Prager, M. H. 1984. A SAS program for simplified GMDH. Chapter 16 (pp. 291-317) in S. J. Farlow, ed. *Self-organizing methods in modeling*. Marcel Dekker, New York. 350 pp.
- Prager, M. H., and S. B. Saila. 1984. Predictive GMDH models of shrimp catches: some practical considerations. Chapter 9 (pp. 179-198) in S. J. Farlow, ed., op. cit.
- Saila, S. B., C. W. Recksiek, and M. H. Prager. 1988. *BASIC fishery biology programs: a compendium of microcomputer programs, and manual of operation*. Elsevier Science Publishers, Amsterdam. 230 pp.
- Prager, M. H., and K. W. Shertzer. 2005. An introduction to statistical algorithms useful in stock composition analysis. Chapter 24 in S. X. Cadrin, K. D. Friedland, and J. R. Waldman, eds. *Stock identification methods: applications in fishery science*. Elsevier, Amsterdam. 719 pp.

### **Representative Technical Reports**

- 1982                      Saila, S. B., H. A. Walker, E. Lorda, J. Kelly, and M. H. Prager. Analysis of data on shrimping success, shrimp recruitment, and associated environmental variables. Vol. I in W. B. Jackson, editor. *Shrimp population studies: West Hackberry and Big Hill brine disposal sites off southwest Louisiana and upper Texas coasts, 1980-1982*. NOAA report to DOE. 238 pp.
- 1985                      Prager, M. H., and J. R. McConaugha. Spatial and temporal distributions of the annual striped bass harvest in Maryland and Virginia. Report to Virginia Council on the Environment. Old Dominion Univ. Dept. of Oceanography Tech. Rep. 85-3. 152 pp.
- 1987                      Prager, M. H., and A. D. MacCall. A computer program for virtual population analysis with variance estimates. Old Dominion Univ. Dept. of Oceanography Tech. Rep. 87-8. 15 pp.

- MacCall, A. D., T. L. Dickerson, J. R. Hunter, B. J. Macewicz, and M. H. Prager. Review of the spawning biology of *Scomber japonicus* in southern California. ICES Workshop Document. 8 pp.
- 1988 Austin, H., E. Barth, C. Bonzek, J. Boreman, R. Hennemuth, E. Houde, M. Nammack, M. Prager, L. Rugolo, and C. Stagg. Draft Chesapeake Bay Stock Assessment Plan. Report of Chesapeake Bay Stock Assessment Committee to Chesapeake Bay Program Living Resources Subcommittee. 59 pp.
- 1989 Hoenig, J. M., M. H. Prager, and N. Payton. Computer programs useful for testing hypotheses about recruitment time series. Can. Tech. Rep. Fish. Aquat. Sci. 1713.
- 1993 Prager, M. H. An implementation of Fox's production model with mixing: initial results. ICCAT SCRS/93/107.
- Prager, M. H. User's manual for ASPIC: a stock-production model incorporating covariates. Miami Laboratory Document MIA-92/93-55.
- 1999 McAllister, M. K., E. A. Babcock, E. K. Pikitch, and M. H. Prager. Application of a non-equilibrium generalized production model to South and North Atlantic swordfish: combining Bayesian and demographic methods for parameter estimation. ICCAT SCRS/99/85.

### **Representative Grants Awarded**

- 1985-86 Prager, M. H., J. R. McConaugha, and M. Doviak. NOAA Estuarine Programs Office. A characterization of the blue crab spawning stock in Chesapeake Bay. \$106,000 for two years.
- 1985 Prager, M. H. and A. D. MacCall. 1985. Contaminant effects on the fish stocks of southern California. NOAA Ocean Assessments Division. \$40,500 for one year.
- 1988 Prager, M. H., and J. G. Loesch. 1988. Virginia Sea Grant Program. Statistical algorithms for stock identification of marine resource organisms. \$177,518.00 for three years.
- 1990 McConaugha, J. R., and M. H. Prager. 1990. Blue crab aging by the lipofuscin method. Virginia Sea Grant Program. \$8,500 for six months.
- 1998 While acting director of the Tiburon Laboratory, I obtained over \$2.5 million of NMFS competitive funding for research on endangered salmonids.

### **Honors, Awards, and Appointments**

- 1980-83 National Science Foundation Graduate Fellow
- 1990 Visiting Fellow, Cooperative Institute for Marine and Atmospheric Studies, University of Miami
- 1993 Honorable mention, Outstanding Publication in Fishery Bulletin, for Prager and MacCall (1993)
- 1994 Outstanding Publication in Fishery Bulletin, for Prager (1994)
- 1994- Adjunct Associate Professor, Rosenstiel School of Marine and Atmospheric Science, University of Miami
- 2003- Adjunct Professor, Department of Oceanography, Old Dominion University

2003 NOAA Administrator's Award

### **Professional Societies**

Member American Fisheries Society

Fellow American Institute of Fishery Research Biologists

### **Representative Professional Service**

1992-94 Associate editor of North American Journal of Fishery Management

continuing Papers reviewed for American Fisheries Society Symposium Series, Bulletin of Marine Science, Canadian Journal of Fisheries and Aquatic Sciences, Canadian Special Publications in Fisheries and Aquatic Sciences, CalCOFI Reports, Fishery Bulletin (US), Food and Agriculture Organization (FAO) of the United Nations (Rome), ICES Journal of Marine Science, Marine and Freshwater Research, NAFO, Journal of Fish Biology, NOAA Technical Report NMFS Series, North American Journal of Fisheries Management, Transactions of the American Fisheries Society

continuing Proposals reviewed for National Sea Grant College Program, Florida Sea Grant Program, Hudson River Foundation, NOAA MARFIN program, NOAA and Dept. of Agriculture Small Business Innovation Research Programs, Rhode Island Sea Grant Program, University of Hawaii Pelagic Fisheries Research Program, NOAA Saltonstall-Kennedy Program

Promotion and tenure reviews for University of Miami and University of Delaware

1993-95 Member, Factor IV (scientific promotion review) Committee, NMFS Southeast Fisheries Center

1994- Author and maintainer of ASPIC, a production-modeling computer program widely used in regional, national, and international (ICES, ICCAT, NAFO) assessment work

1984-90 Member of Federal-State Chesapeake Bay Stock Assessment Committee

1988- Co-convenor (with Drs. J. Hoenig, P. Sullivan, D. Vaughan, and others) of symposia on Mathematical and Statistical Advances in Population Dynamics and Stock Assessment at many annual meeting of the American Fisheries Society

1990 Invited participant in Fisheries Oceanography Coordinated Investigations Workshop on Recruitment Modeling; NOAA Northwest Fisheries Center, Seattle

1989-92 Member, EPA EMAP-NC Review Panel

1991-94 Member, U.S. Scientific Delegation to ICCAT; participant in tropical tunas, swordfish, billfish, and western Atlantic bluefin assessment groups

1992 Member, ICES Assessment Methods Working Group, St. Johns, Nfld.

1994 Member, ICES Working Group on Long-Term Management Measures, Miami

1995-97 Member, Klamath River Technical Advisory Team

1996 Participating analyst, National Academy of Sciences/National Research Council Study Group on Fish Stock Assessment Methods

- 1996 Member, NMFS/NOAA Large Marine Ecosystems Review Panel
- 1997 Invited participant, Second International Swordfish Symposium, Oahu, Hawaii
- 2000-02 Steering Committee Member and Instructor, Atlantic States Marine Fisheries Commission Stock Assessment Workshop series
- 2001 Member, 33rd Stock Assessment Review Committee (SARC), NMFS Northeast Fisheries Science Center, Woods Hole, MA
- 2001-2003 Member, Scientific and Statistical Committee, Mid-Atlantic Fishery Management Council
- 2002-04 Member, EEO Committee, NOAA Beaufort Lab
- 2001- Mentor in NMFS/Sea Grant Joint Graduate Fellowship Program in Population Dynamics and Marine Resource Economics. Students: Thomas Ihde (VIMS) and Michael Frisk (University of Maryland)
- 2004 Invited Participant, NAFO Study Group on Fisheries Reference Points. Lorient, France
- 2005 Member, SEDAR Review Panel, Gulf of Mexico red snapper stock assessment, New Orleans
- 2005- Member, Personnel Management Advisory Committee (PMAC), NMFS Southeast Fisheries Science Center

Beaufort, April 2005