

Stephan B. Munch

Fisheries Ecologist
Southwest Fisheries Science Center
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Education

- 2002 Ph.D. Coastal Oceanography, State University of New York at Stony Brook
Dissertation: Evolution of growth rate in *Menidia menidia*: bioenergetics, life history theory, and implications for management.
- 1997 M.S. Marine Sciences, State University of New York at Stony Brook
Thesis: Recruitment dynamics of bluefish, *Pomatomus saltatrix* on the continental shelf from Cape Hatteras to Cape Cod, 1973-1995.
- 1993 B.S. Biology and B.A. Art Studio, *magna cum laude*, State University of New York at Binghamton

Employment

- 2010-present Fisheries Ecologist, Fisheries Ecology Division, Southwest Fisheries Science Center, National Marine Fisheries Service, NOAA, Santa Cruz, CA
- 2005-2010 Assistant/Associate Professor, School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
- 2002-2005 Post-doctoral research fellow, Center for Stock Assessment Research, UC Santa Cruz, Santa Cruz, CA
- 1999-2001 Consultant in ecological risk assessment.
Applied Biomathematics, Setauket, NY
- 1993-1994 Field and laboratory technician, California Department of Fish and Game, Stockton, Ca.

Extracurricular Service

- 2006-2008 Multi-species Technical Committee , ASMFC
- 2005-2007 Marine Protected Areas Science Integration Panel, NOAA
- 2007-2009 Advisory Board, Consortium for Interdisciplinary Environmental Research, SBU

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Awards and Grants

- 2007 Collaborative research on Bayesian semiparametric population dynamics modeling. NSF DEB \$168,572
- 2007 Restoration strategies for Great South Bay. New York Dept. of State. \$325,000 (w/ R. Cerrato, D. Lonsdale, G. Lopez, M. Frisk, C. Gobler, R. Wilson, C. Flagg, J. Collier, B. Peterson)
- 2007 An ecosystem model of Long Island Sound. New York Dept. of Env. Cons. \$190,000 (w/ M. Frisk)
- 2007 Multi-species survey of Great South Bay. New York Dept. of Env. Cons. \$75,000 (w/ M. Frisk)
- 2007 Effects of powerplant entrainment on fish populations. Tamarind Foundation \$450,000 (w/ C. Gobler)
- 2007 Quantitative evaluation of marsh restoration activities. The Nature Conservancy \$30,000.
- 2006 The balance of selection on growth trajectories in marine fishes. NSF Biological Oceanography \$449,343
- 2006 Synoptic assessment of bluefish recruitment from Florida to Massachusetts. NOAA Bluefish along the Atlantic coast \$90,000 (w/ D. Conover)

Invited Lectures

- 2009 Latitudinal clines in growth and lifespan. Scripps Institute for Oceanography, UC San Diego.
- 2008 Latitudinal clines in growth and lifespan. Department of Ecology & Evolutionary Biology. Yale University.
- 2008 Selection on and evolution of growth trajectories in a marine fish. School of Fisheries and Wildlife. University of Massachusetts, Amherst.
- 2007 Semi-parametric Bayesian Approaches to Population Dynamics. School of Aquatic and Fisheries Sciences. University of Washington.
- 2007 Selection on and evolution of growth trajectories in a marine fish. School of Aquatic and Fisheries Sciences. University of Washington.
- 2006 Evolution of latitudinal clines in somatic growth in a marine fish: Theory and data. Department of Evolution, Ecology & Organismal Biology, Ohio State University.
- 2006 Latitude and longevity: a review across taxa. Evolutionary demography workshop, Max Planck Institute for Aging Research, Rostock, Germany.

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2006 Dealing with uncertainty in fisheries management. California and the World's Ocean, Long Beach, Ca.

2005 Evolutionary demography of compensatory growth. UVA symposium on evolutionary demography. Charlottesville, Va.

2004 Nonparametric Bayesian analysis of stock-recruit data. Hatfield Marine Science Center, Newport, OR

2003 Darwinian fishery science: evolution of decreased yield and other unintended effects in an experimental fishery. Environmental Studies Seminar Series, UC Santa Cruz

Publications

Clarke, LM, Munch, SB, Thorrold, SR and Conover, DO 2010. High connectivity among locally adapted populations of a marine fish (*Menidia menidia*). **Ecology** 91: 3526-3537

Perez, K.O. and Munch, S.B. 2010. Extreme selection in the early lives of fishes. **Evolution**. 64:2450-2457

Marshall, D.J., Heppell, S.S., Munch, S.B., and Warner, R.R. 2010. The relationship between maternal phenotype and offspring quality: Do older mothers really produce the best offspring? **Ecology** 91: 2862-2873.

Munch, S.B. and S. Salinas 2009. Latitudinal variation in lifespan within species is explained by the metabolic theory of ecology. **PNAS** 106: 13860-13864.

Conover, D.O., S.A. Arnott, and S.B. Munch. 2009. Reversal of evolutionary downsizing caused by selective harvest of large fish. **Proc. Roy. Soc. B**. 276:2015-202

Munch, S.B. and A. Kottas 2009. A Bayesian modeling approach for determining productivity regimes and their characteristics. **Ecol. Appl.** 19:527-537

Clarke, L.M., Walther, B.D., Munch, S.B., Thorrold, S.R., and Conover, D.O. 2009. Chemical signatures in the otoliths of a coastal marine fish, *Menidia menidia*, from the northeastern United States: spatial and temporal differences. **Mar. Ecol. Prog. Ser.** 384:261-271.

Munch, S.B. and L. Clarke 2008. A Bayesian approach to identifying mixtures from otolith chemistry data. **Can. J. Fish. Aquat. Sci.** 65: 2742-2751.

Vogel, E. R. , S. B. Munch, and C. H. Janson. 2007. Understanding escalated aggression over food resources in white-faced capuchin monkeys. **Anim. Beh.** 74:71-80.

Conover, D.O. and S.B. Munch. 2007 Faith, evolution, and the burden of proof. **Fisheries** 32: 90-91.

Munch, S.B. and M. Mangel 2006. Evaluation of mortality trajectories in evolutionary demography. **PNAS** 103: 16604-16607.

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D.O. Conover, L.M. Clarke, S.B. Munch, and G.N. Wagner 2006. Spatial and temporal scales of adaptive divergence in marine fishes and the implications for conservation. **J. Fish. Biol.** 69 (suppl. C): 21-47.

Walsh, M.R., S.B. Munch, S. Chiba, and D.O. Conover. 2006. Maladaptive changes in multiple traits caused by fishing: impediments to population recovery. **Ecol. Lett.** 9:142-148

Munch, S.B., T. Kottas and M. Mangel. 2005. Bayesian non-parametric analysis of stock-recruitment relationships. **Can. J. Fish. Aquat. Sci.**, 62:1808-1821

Mangel, M. and S.B. Munch 2005. A life-history perspective on short- and long-term consequences of growth compensation. **Am. Nat.** 166 (6): E155-E176.

Munch, S.B., M.L. Snover, G. Watters, M. Mangel. 2005. A unified treatment of top-down and bottom-up control of reproduction in populations. **Ecol. Lett.** 8: 691-695

Munch, S.B., M. Walsh, and D.O. Conover. 2005. Harvest selection, genetic correlations, and recruitment: one less thing to worry about? **Can. J. Fish. Aquat. Sci.** 62:802-810.

Conover, D.O., S.A. Arnott, M.R. Walsh, and S. B. Munch. 2005. Darwinian Fishery Science: lessons from the Atlantic silverside. **Can. J. Fish. Aquat. Sci.**, 62:730-737.

Munch, S.B. and D.O. Conover. 2004. Non-linear growth cost in *Menidia menidia*: theory and empirical evidence. **Evolution** 58:661-664.

Munch, S.B. and D.O. Conover. 2003. Rapid growth results in increased susceptibility to predation in *Menidia menidia*. **Evolution.** 57: 2119-2127.

Munch, S.B., Mangel, M., Conover, D.O. 2003. Quantifying natural selection on body size from field data with an application to winter mortality in *Menidia menidia*. **Ecology** 84: 2168-2177.

Conover, D.O., T. Gilmore, S.B. Munch 2003. Estimating the relative contribution of spring and summer-spawned cohorts to the Atlantic coast bluefish stock. **Trans. Am. Fish. Soc.** 132: 1117-1124.

Conover, D.O. and S.B. Munch 2002. Sustaining fisheries yields over evolutionary time scales. **Science.** 297:94-96.

Munch, S.B. and D.O. Conover 2002. Accounting for local physiological adaptation in bioenergetic models: testing hypotheses for growth rate evolution by virtual transplant experiments. **Can. J. Fish. Aquat. Sci.** 59:393-403.

Dunning, D., Q. Ross, S.B. Munch, and L.R. Ginzburg 2002. Measurement error affects risk estimates for recruitment to the Hudson River stock of striped bass. **The Scientific World.** 2(S1):238-253.

Munch, S.B. and D.O. Conover 2001. Recruitment dynamics of bluefish, *Pomatomus saltatrix* from Cape Hatteras to Cape Cod, 1973-1995. **ICES J. Mar. Sci.** 57:393-402.