

RICHARD A. WAHLE
CURRICULUM VITAE

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PERSONAL: Address: University of Maine
Darling Marine Center
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Citizenship: United States

EDUCATION: Ph.D., Zoology, University of Maine, 1990
M.S., Biology, San Francisco State University, 1982
B.A., Zoology, University of New Hampshire, 1977

PROFESSIONAL EXPERIENCE:

Research Associate Professor, Univ. Maine, School of Marine Sciences, 2010 - present
Senior Research Scientist, Bigelow Laboratory for Ocean Sciences, 1997 - 2009
Research Scientist, Bigelow Laboratory for Ocean Sciences, 1995 - 1997
Postdoctoral Research Associate/Lecturer, University of Rhode Island, 1992 - 1994
Postdoctoral Research Associate, Brown University, 1990 - 1992

HONORS:

American Society of Zoologists, Best Paper in Ecology Awards, 1988
National Sea Grant Student Research Award, 1989

PROFESSIONAL SOCIETIES:

American Association for the Advancement of Science, Ecological Society of America,
American Society of Limnology & Oceanography, The Crustacean Society, Sigma Xi

SYNERGISTIC ACTIVITIES (last 5 years)

Co-director, Bigelow Laboratory's NSF-REU Program (2008-2010)

University of Maine, Visiting Faculty, Semester-by-the-Sea: Fisheries Ecology F'06,
Marine Ecology F'07

Shoals Marine Lab, Faculty: Biology of the Lobster - Summer '08, '09

Adjunct Graduate Faculty: University of Maine, 2001 – 2009
Université Laval, 2002 – present
UMass, Dartmouth, 2007 – present
Memorial University 2008 -present

Editor, *The Lobster Newsletter* (since 2008).

Deep Sea Red Crab Plan Development Team –New England Fishery Mgt Cncil, (since 2004)

Chair, Red Crab Stock Assessment Report Committee (2006)

Manuscript Reviewer for *Ecology*, *Biol. Bull.*, *Mar. Ecol. Prog. Ser.*, *Mar. Freshw. Research*,
J. Crust. Biol., *J. Exp. Mar. Biol. Ecol.*, *Fish. Bull.*, *Bull. Mar. Sci.*, *Fish.Oceano.*

Proposal Reviewer for NSF, NOAA, Sea Grant, NFWF

COLLABORATORS OTHER THAN CO-AUTHORS (last 5 years)

Dr. Kevin Hovel, San Diego State University
Dr. Andrew Thomas, University of Maine
Dr. Andrew Pershing, University of Maine
Dr. Peter Lawton, DFO Canada
Dr. Huijie Xue, University of Maine
Dr. David Towle, Mt. Desert Island Biological Lab
Dr. Gabriel Gerlach, Univ. Oldenburg, Germany
Dr. Michael Sieracki, Bigelow Laboratory
Dr. John Tremblay, DFO Canada
Dr. Jonathan Grabowski, Gulf of Maine Research Institute
Dr. David Fields, Bigelow Laboratory
Dr. Kevin Stokesbury, University of Massachusetts, Dartmouth
Dr. Remy Rochette, University of New Brunswick, St. John, NB

GRADUATE & POST-GRADUATE ADVISORS

Dr. Robert Steneck, School of Marine Science, University of Maine (Ph.D. Advisor)
Dr. Mark Bertness, Dept. Ecology and Evolutionary Biology, Brown Univ. (Postdoc mentor)
Dr. Steve Gaines, Life Sciences Dept., University of California Santa Barbara (Postdoc mentor)

GRADUATE ADVISEES & COMMITTEE ASSIGNMENTS

Noah Oppenheim, MS Dual Degree, in progress, UMaine (co-chair)
Skylar Bayer, PhD, in progress. UMaine (chair)
Stephanie Boudreau, PhD, 2012, Dalhousie University (external examiner)
Jon Carey, MS, 2011, UMass Dartmouth (committee member)
Mahima Jaini, MS, 2011, University of Maine (chair)
Darren Scopel, PhD, in progress, University of New Hampshire (committee member)
Charlene Bergeron, MS, 2011, University of Maine (chair)
Victoria Burdett-Coutts, MS, 2011, Memorial University (co-supervisor)
Peter Milligan, MS, 2009, University of Massachusetts, Dartmouth (committee member)
Curtis Brown, MS, 2007, University of Maine (chair)
Julien Gaudette, MS, 2004, Université Laval, Quebec (chair)
Nate Gerald, Fellowship advisor 2001, 2002, Island Institute, Maine
Carin Poeschel, MS, 2001, University of Maine (committee member)
Carl Wilson, MS, 1999, University of Maine (committee member)
Steven Jury, PhD, 1999, University of New Hampshire (committee member)
Alvaro Palma, PhD, 1998, University of Maine (committee member)

CURRENT RESEARCH SUPPORT (most recent first)

Atlantic Lobster Sustainability Foundation

Title: Evaluating the American Lobster Settlement Index in Fishery Forecasting (2013-2014; yr-1: \$12,000; yr2 \$12,270 contingent on yr-1 success)

NOAA/ Sea Grant

Title: A Maximizing the utility and impact of the American Lobster Settlement Index (2012-2014; \$126,416)

Commercial Fisheries Research Foundation

Title: A Fisherman-Scientist Collaboration to Re-Assess Narragansett Bay Lobster Nurseries after two decades of environmental change. (2011-2013; \$152, 838)

National Science Foundation

Title: Assessing Tsunami Impacts on the Benthic Community of Robinson Crusoe Island (2010-2012; \$126,138)

Maine Department of Marine Resources

Title: Maine Lobster Settlement Surveys (\$7000 renewed annually)

NOAA Scallop Research Set-aside Program

Title: Developing tools to evaluate spawning and fertilization dynamic of the ocean scallop. Phase II. (2011-2013; science: \$192,455; harvester: \$520,000 with P. Jumars)

PREVIOUS EXTERNAL SUPPORT (Funding amounts shown for projects started after 1999)**NOAA/Sea Grant**

Title: Developing genetic fingerprinting methods for lobster enhancement trials (2008-2010; \$167,907 with G. Gerlach, Univ. Oldenburg, Germany; D. Towle, MDIBL; T. Ames, PERC)

NOAA/Scallop Research Set-aside

Title: Developing tools evaluate spawning and fertilization dynamics of the giant sea scallop, *Placopecten magellanicus*. (2008-2010; science: \$183,270; harvester: \$494,448 with M. Sieracki, J. Gaudette, Bigelow; K. Stokesbury, SMAST)

NASA/ROSES

Title: Lobster settlement forecasting in the Gulf of Maine (2008-2010; Bigelow share \$66,535 with A. Thomas (lead), H. Xue, Y. Chen, A. Pershing, all UMaine).

NSF/Research Experience for Undergraduates (REU) Site

Title: The Gulf of Maine to the World Ocean: An NSF/ REU site at Bigelow Laboratory (2009-2012; \$258,685 with D. Fields, BLOS).

NOAA/Northeast Consortium

Title: Deep water settlement of the American lobster (2007-2010; \$264,735 with C. Wilson, DMR; M. Parkhurst, J. O'Leary, N. Lemieux, harvesters).

Maine Department of Marine Resources

Title: Development of Growth Models for the American lobster (2007-2009; \$70,000 with Y. Chen, UMaine; P. Lawton, DFO)

Southern New England Cooperative Research Foundation

Title: Maine Lobster Settlement Surveys (2009-2010; BLOS share: \$7807 with R. Glenn, MADMF; J. Manning, NMFS-NEFSC)

Maine Department of Marine Resources & Penobscot East Resource Center

Title: Efficacy of Lobster Hatcheries (2006-2008; approx. \$126,000 with R. Alden, T. Ames, Penobscot Bay Resource Center)

NSF (Biological Oceanography)

Title: Collaborative Research: Cobble Landscape Structure, Spatial Gradients in Predation, and Variable Demographic Bottlenecks in the American lobster. (2003-2007; (\$397,400 with K. Hovel, SDSU & A. deCharon, BLOS).

NOAA/National Undersea Research Program

Title: Cobble Nursery Landscapes and the Regional Abundance of the American lobster (2003-2005; \$50,000 with K. Hovel, SDSU; D. Belknap, UMaine).

Rhode Island Division Environmental Management

Title: Rhode Island Lobster Settlement Surveys (\$3000 renewed annually through 2006)

NOAA/ Northeast Consortium (Project Development support)

Title: Developing a method to evaluate deep water settlement of the American lobster (2005-2006; \$25,000 with C. Wilson, DMR; M. Parkhurst, Harvester).

NOAA/ Northeast Consortium

Title: Developing Stock Assessment Methods for the New England Deep Sea Red Crab Fishery (2002-2005; \$274,783 with J. Williams, Harvester; Y. Chen, UMaine).

NOAA/ Saltonstall-Kennedy Program

Title: Developing Stock Assessment Methods for the New England Deep Sea Red Crab Fishery (Part 2- 2002-2004; \$114,494 with J. Williams, Harvester, & Y. Chen, UMaine).

US Army Corps of Engineers

Title: Impact of Dredge Disposal on Movements of Lobsters in Penobscot Bay, Maine (2002-2003; (2002-2003; \$94,337)

Boston Harbor LNG Pipeline Contract

Title: Suction sampling (2003; approx. \$40,000)

NOAA/ Sea Grant

Title: Developing Predictive Tools for the American Lobster Fishery: Validating Trap-Based Mark-Recapture Methods to Estimate Abundance, Survival and Movements in Open Populations (2001-2003; \$142,500 with D. Belknap, UMaine)

Maine Department of Marine Resources

Title: Recovery of Sea Urchin Conservation Areas in Maine (1999 – 2003; with R. Steneck, UMaine)

MARPAT Foundation

Title: Educational Grants for Lobster Population Dynamics (1999-2001 with A. deCharon and L. Incze, BLOS)

NASA Seed Grant – Maine Space Consortium

Title: Shallow Water Environmental Assessment I: A Case Study in Habitat Complexity and Diversity (1999 with C. Roesler and A. deCharon, BLOS)

NOAA/ NESDIS

Title: Application of Satellite Sea Surface Temperature Data to the New England Lobster Fishery (1997-2000 with A. Thomas, UM; L. Incze, BLOS; and R. Steneck, UM)

NOAA/Sea Grant

Title: Developing predictive tools for the American lobster: Distinguishing mortality and emigration in open populations (1999 – 2001)

NOAA/NMFS Habitat Restoration Program

Title: Artificial Reef Mitigation for *World Prodigy* Oil Spill in Narragansett Bay (1997 - 1999 with S. Cobb, URI & J. Catena, NMFS)

NOAA/National Undersea Research Program

Title: Coarse gravel in the Gulf of Maine: an under-explored essential fish habitat (1998 - 1999 with D. Belknap, UM)

European Community-Specific Programme: Research in Agriculture & Fisheries

Title: The influence of competitive interactions on juvenile European lobsters (1997 – 1999 with C. Bannister, MAFF; J. Mercer, UC Galway)

NOAA/Sea Grant Enhancement Funds

Title: Developing indices necessary for predicting commercial catches of the American lobster (1995-1998 with Cobb, URI; Fogarty, NMFS; Steneck, UMaine; Howell, Watson, UNH)

Maine Department of Marine Resources

Title: Environmental effects on age-pigment accumulation in lobsters (1997 - 1998)

NOAA/National Undersea Research Program

Title: Developing a submersible-based suction sampler for coarse gravel habitats (1997-1998 with R. Tusting, HBOI)

Maine Department of Marine Resources

Title: Impact of sea urchin dragging on the benthos (1998)

European Community Specific Programme: Research in Agriculture & Fisheries

Title: Application and validation of the lipofuscin method in the assessment of crustacean age (1996 - 1997 with O. Tully, Tinity College, Ire.)

Maine Department of Marine Resources

Title: Field experiments on fertilization success of the green sea urchin: managing densities to maximize gamete and larval production (1996 - 1997)

Maine Department of Marine Resources

Title: Community and inter-cohort effects on lobster post-settlement survivorship (1996 - 1997)

NASA/Maine Space Grant Consortium

Title: Remote sensing and lobster larval dispersal in the Gulf of Maine (1996 with Erickson, Incze, BLOS; Zeeman, UNE)

Maine Department of Marine Resources

Title: Regional differences in lobster recruitment in Maine (1995)

NOAA/Sea Grant (jointly supported by Maine and Rhode Island programs)

Title: Time series of larval supply & benthic recruitment of American lobster (1993 - 1995)

NOAA/Sea Grant (Maine)

Title: Technical Liaison for the Gulf of Maine Fishing Effort Management Team (1995)

NOAA/Sea Grant Irish-American Program

Title: Age determination in crustaceans (1994-1995)

Maine Department of Marine Resources

Title: Assessing post-release losses of hatchery-reared lobsters (1993 - 1994)

Maine Department of Marine Resources

Title: Assessing micro-wire tagging of lobster post-larvae (1994)

National Science Foundation

Title: Pelagic to benthic coupling in the recruitment of the American lobster (1992-1994, with L.S. Incze)

National Park Service

Title: A plan for inventory and monitoring of submerged aquatic resources at Cape Cod National Seashore (1992-1993, with Beatty, Nowicki, Keller, Labash, August)

NOAA/Sea Grant (Maine and Rhode Island) and The Lobster Institute

Title: Preliminary studies on pelagic to benthic coupling in American lobster (1990-1992)

Narragansett Bay Project

Title: Lobster recruitment along an estuarine gradient (Narragansett Bay) (1990)

NOAA/Sea Grant (Maine)

Title: *In situ* studies of the American lobster: ecology & the impact of dragging (1989-1991, with R.S. Steneck, UMaine)

NOAA/National Undersea Research Program

Title: Predation and kelp bed community structure (1989 - 1991, with R.S. Steneck, R. Vadas, I. Davison, UMaine; I. Babb, UConn)

PEER REVIEWED PUBLICATIONS (most recent first)

* Student authors

† Selected as Editors' Choice in *Science* 323:1406b (3/13/09)

- Wahle, R.A., C. Bergeron, J. Tremblay, C. Wilson, V. Burdett- Coutts, M. Comeau, R. Rochette, P. Lawton, R. Glenn, M. Gibson. 2012. The geography and bathymetry of American lobster benthic recruitment as measured by diver-based suction sampling and passive collectors. *Marine Biology Research*. In press.
- Wahle, R.A., C. Brown, K. Hovel. 2012. The geography and body size dependence of top-down forcing in New England's lobster-groundfish interaction. *Bulletin of Marine Science*. In press.
- Pershing, A.J., R.A. Wahle, P.C. Meyers, P. Lawton. 2012. Large-scale coherence in New England lobster settlement associated with regional weather. *Fisheries Oceanography*. In press.
- Wahle, R., D. Tshudy, J.S. Cobb, J. Factor, M. Jaini. 2012. Astacidea (Marine Lobsters). In, F. R. Schram & J. C. von Vaupel Klein (eds.), *Treatise on Zoology: Crustacea Decapoda*, Vol. 9B (66) pp 3-108. Brill, Leiden
- Wahle, R. A., J. S. Cobb, L. S. Incze, P. Lawton, M. Gibson, R. Glenn, C. Wilson, J. Tremblay. 2011. The American lobster settlement index at 20 years: Looking back – looking ahead. *J. Mar. Biol. Assn. India*. 52:180-188.
- Hovel, K. and R.A. Wahle. 2010. Consistent effects of habitat fragmentation on American lobster movement across a gradient of predation risk and shelter competition. *Ecology* 91:1993–2002.
- Pardo, L. M., C. S. Cardyn, P. Mora, R. A. Wahle. 2010. A new passive collector to assess settlement rates, substrate selection and predation pressure in decapod crustacean larvae. *J. Expt. Mar. Biol. Ecol.* 393: 100–105
- Incze, L., H. Xue, N. Wolff, D. Xu, C. Wilson, R. Steneck, R. Wahle, P. Lawton, N. Pettigrew, and Y. Chen. 2010. Connectivity of lobster (*Homarus americanus*) populations in the coastal Gulf of Maine: part II. Coupled biophysical dynamics. *Fisheries Oceanogr.* 19: 1-20
- Geraldi, N.R.*, Wahle, R.A. Dunnington, M.J. 2009. Habitat effects on American lobster catch and movement: Insights from geo-referenced trap arrays, seabed mapping, and tagging. *Can. J. Fish. Aquat. Sci.* 66: 460-470.
- † Wahle, R.A., M. Gibson, M.J. Fogarty. 2009. Distinguishing disease impacts from larval supply effects in a lobster fishery collapse. *Mar. Ecol. Prog. Ser.* 376: 185–192. doi: 10.3354/meps07803
- Wahle, R.A., C. Bergeron*, C. Wilson, M. Parkhurst. 2009. A vessel-deployed passive post-larval collector for the American lobster. *New Zealand J. Mar. Freshw. Res.* 43: 465 -474.
- Wahle, R.A., C.E. Bergeron*, A. Chute, Y. Chen, L. Jacobson. 2008. Northwest Atlantic deep-sea red crab before and after the onset of harvesting. *ICES J. Mar. Sci.* 65: doi:10.1093/icesjms/fsn058
- Frumhoff, P.C., J.J. McCarthy, J.M. Melillo, S.C. Moser, and D.J. Wuebbles. 2007. *Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions*. Synthesis report of the Northeast Climate Impacts Assessment (NECIA). Cambridge, MA: Union of Concerned Scientists (UCS). (Member of contributing team of white paper authors)
- Selgrath, J., K*. Hovel, R. Wahle. 2007. Effects of habitat edges on American lobster abundance & survival. *J. Exp. Mar. Biol. Ecol.* 353: 253–264

- O'Donnell, K.P.*, Wahle, R.A., Dunnington, M.J., M. Bell. 2007. Spatially referenced trap arrays detect sediment disposal impacts in a New England estuary. *Mar. Ecol. Prog. Ser.* 348: 249–260.
- Wahle, R.A. (Guest Editor) 2006. Proceedings of Sea Grant Science Symposium 2005: Lobsters as model organisms at the interface of ecology, behavior and fisheries. *Journal of Crustacean Biology* 26 (4).
- Incze, L. S, R. A. Wahle, N. Wolff, C. Wilson, R. Steneck, E. Annis*, P. Lawton, H. Xue, and Y. Chen. 2006. Early life history and a modeling framework for lobster (*Homarus americanus*) populations in the Gulf of Maine. *Journal of Crustacean Biology*: 26: 555-564.
- Wahle, R.A. and Fogarty, M.J. 2006. Chapter 1 - Growth. In: B. Phillips (ed.), Lobsters: Biology, management, aquaculture and fisheries. Sinauer & Assoc. Pp. 1-44.
- Gaudette, J.* , R. A. Wahle, R.A., and J. Himmelman. 2006. Spawning events in small and large populations of the sea urchin, *Strongylocentrotus droebachiensis*. as recorded using fertilization assays. *Limnol. & Oceanogr.* 51:1485-1496.
- Gibson, M. & Wahle, R.A. 2005. Disease impacts on recruitment to coastal Rhode Island lobster populations. *Proceedings of Workshop on Shell Disease*, March 2005. New England Aquarium Publication .
- Dunnington, M.J., R.A. Wahle, M.C. Bell, N.R. Geraldi*. 2005. Evaluating local population dynamics of the American lobster, *Homarus americanus*, with trap-based mark-recapture methods and seabed mapping. *N. Z. J. Mar. Freshw. Res.* 39: 1253-1276.
- Wahle, R.A., L.S.Incze, M. Fogarty. 2004. First projections of American lobster *Homarus americanus* recruitment from a settlement index. *Bull. Mar. Sci.* 74: 101-114.
- Incze, L.S., Wolff, N., Wahle, R.A. 2003. Can scientific observations of early life stages be scaled up to the level of a fished population? A case study using *Homarus americanus*. *Fish. Res.* 65: 33-46.
- Wahle, R.A. 2003. Revealing the stock-recruitment relationship in lobsters and crabs: Is experimental ecology the key? *Fish. Res.* 65: 3-32.
- Wahle, R.A. and A. Gilbert* 2002. Detecting spawning by the green sea urchin (*Strongylocentrotus droebachiensis*) with time-integrated fertilization assays. *Mar. Biol.* 140: 375-382.
- Wahle, R.A., O. Tully, and V. O'Donovan*. 2001. Environmentally mediated crowding effects on growth, survival and metabolic rate of juvenile American lobster (*Homarus americanus*). *Mar. Freshw. Res.* 52: 1157-1166.
- Castro, K., Cobb, J.S., Wahle, R.A., Catena, J. 2001. Habitat addition and stock enhancement for American lobsters, *Homarus americanus*. *Mar. Freshw. Res.* 52: 1253-1261.
- Wahle, R.A. 2000. Fisheries in a sea of change: Ecology and oceanography of New England's fishing grounds. Proceeding of the Sea Grant symposium on the history and future of New England's offshore fishing grounds. Connecticut College, April, 1999. *Northeast Naturalist.* 7: 317-328.
- Incze, L.S., R.A. Wahle, A. Palma*. 2000. Advection and settlement rates in a benthic invertebrate: recruitment to first benthic stage in *Homarus americanus*. *ICES J. Mar. Sci.* 57: 430-437.
- Cobb, J.S., M. Clancy*, R.A. Wahle. 1999. In: L.R. Benaka (ed.) Fish habitat: Essential Fish habitat and rehabilitation. Habitat-based assessment of lobster abundance: a case study of an oil spill. Proceedings of the Sea Grant symposium on fish habitat, Hartford, CT 26-27 Aug. 1998. *Am. Fish. Soc. Symp.* 22: 285-298.
- Wahle, R.A. and H. Peckham. 1999. Density-related reproductive trade-offs in the green sea urchin, *Strongylocentrotus droebachiensis*. *Mar. Biol.* 134:127-137.

- Wahle, R.A. 1998. A cradle-to-grave approach to lobster stock assessment and enhancement. In : Gendron, L. (ed) Proceedings of a workshop on lobster stock enhancement, Magdalen Islands, Quebec. Oct. 29-31, 1997. *Can. Industry Rept Fish. Aquat. Sci.* 244: 85-92.
- James-Pirri, M.J.*, J.S. Cobb, and R.A. Wahle. 1998. Influence of settlement time and size on post-settlement growth in the American lobster (*Homarus americanus*). *Can. J. Fish. Aquat. Sci.* 55: 2436-2446
- Palma, A. T.*, R. A. Wahle, and R. S. Steneck. 1998 . Different early post-settlement strategies between American lobsters (*Homarus americanus*) and rock crabs (*Cancer irroratus*) in the Gulf of Maine. *Mar. Ecol. Prog. Ser.* 162: 215-225.
- Wahle, R.A. 1997. Consequences of fishing, with regard to lobster fisheries: report from a workshop. *Mar & Freshw. Res.* 48: 1115-1120.
- Incze, L.S., R.A. Wahle, J.S. Cobb. 1997. Quantitative relationships between postlarval supply and benthic recruitment in the American lobster. *Mar & Freshw. Res.* 48: 729-743.
- Wahle, R.A. and L.S. Incze. 1997. Pre- and post-settlement processes in recruitment of the American lobster. *J. Exp. Mar. Biol. Ecol.* 217: 179-207.
- Bertness, M., S. Gaines and R.A. Wahle. 1996. Wind-driven settlement patterns in the acorn barnacle, *Semibalanus balanoides* *Mar. Ecol. Prog. Ser.* 137: 103-110.
- Wahle, R.A., O.Tully, and V. O'Donovan*. 1996. Lipofuscin as an indicator of age in crustaceans: analysis of the pigment in the lobster, *H. americanus*. *Mar. Ecol. Prog. Ser.* 138: 117-123.
- Wahle, R.A. 1995. A trans-Atlantic perspective on lobster recruitment and enhancement. Proceedings Workshop on Lobster Enhancement. Norwegian Inst. Marine Research. June 1995.
- Wahle, R.A., L.S. Incze, and J.S. Cobb. 1994. Targeting lobster enhancement: understanding the interaction of habitat and larval supply. Proceedings Workshop on Fisheries Enhancement. University College Galway, Ireland. April, 1994.
- Cobb, J.S., & R.A. Wahle. 1994. Early life history and recruitment processes of clawed lobsters: a review. *Crustaceana* 67: 1-25.
- Wahle, R.A. 1993. Gimme shelter. *Natural History* 102: 42-49.
- Wahle, R.A. 1993. Recruitment to American lobster populations along an estuarine gradient. *Estuaries* 16: 731-738.
- Wahle, R.A. 1992. Body-size-dependent anti-predator mechanisms of the American lobster and a model of their trade-offs. *Oikos* 65:52-60
- Wahle, R. A. & R.S. Steneck. 1992. Habitat restrictions in early benthic life: experiments on substratum selection and *in situ* predation with the American lobster. *J. Exp. Mar. Biol. Ecol.* 157: 91-114.
- Wahle, R.A. 1992. Substratum constraints on body size and the behavioral scope of shelter use in the American lobster. *J. Exp. Mar. Biol. Ecol.* 159: 59-75.
- Williams, A.B., & R.A. Wahle. 1992. How to distinguish juvenile stages of Jonah and Atlantic rock crabs, *Cancer borealis* & *C. irroratus*. *J. Crust. Biol.* 12: 464-466.
- Wahle, R. A. & R.S. Steneck. 1991. Recruitment habitats and nursery grounds of the American lobster (*Homarus americanus*): a demographic bottleneck? *Mar. Ecol. Prog. Ser.* 69: 231-243
- Incze, L. and R.A. Wahle. 1991. Recruitment from pelagic to early benthic phase in lobsters *Homarus americanus*. *Mar. Ecol. Prog. Ser.* 79: 77-87.
- Wahle, R. A. 1990. Recruitment, habitat selection, and the impact of predators on the early benthic phase of the American lobster (*Homarus americanus* Milne Edwards). PhD dissertation. University of Maine. 137 pp.

Wahle, R. A. 1985. Feeding ecology of *Crangon franciscorum* and *Crangon nigricauda* in San Francisco Bay, California. *J. Crustacean Biol.* 52: 311-326.

MANUSCRIPTS IN REVIEW & IN PREPARATION

- Wahle, R.A., K. Castro, O. Tully, S. Cobb. Submitted. Chapter 4: Homarus. B. Phillips (ed.) Lobsters: Biology, Management, Fisheries and Aquaculture, 2nd edition. Wiley-Blackwell, Oxford, UK.
- Caputi, N., S. Frusher, R. Wahle. Submitted. Chapter 9: Impacts of climate change. B. Phillips (ed.) Lobsters: Biology, Management, Fisheries and Aquaculture, 2nd edition. Wiley-Blackwell, Oxford, UK.
- Phillips, B., R. Wahle, R. Ward. In prep. Chapter 1: Lobsters as part of marine ecosystems. B. Phillips (ed.) Lobsters: Biology, Management, Fisheries and Aquaculture, 2nd edition. Wiley-Blackwell, Oxford, UK.

TECHNICAL REPORTS (most recent first)

- Glenn, R + 8 coauthors including R.Wahle. 2011. Examining settlement dynamics of postlarval American lobster (*Homarus americanus*), in Lobster Management Area 2. Final Report. Southern New England Collaborative Research Initiative. NOAA Grant Number NA08NMF4720595
- Bergeron, C., R.A. Wahle, Y. Chen, P. Lawton. 2011. Research on lobster age-size relationships: Developing regionally specified growth models from meta-analysis of existing data. Final Project Report. Maine Department of Marine Resources Lobster Research Education and Marketing Board.
- Wahle, R.A. 2006. Implications of climate change for American lobster distributions in the northeast United States over the next century. White paper submitted to Union of Concerned Scientists, Northeast Climate Impacts Assessment Team.
- Northeast Fisheries Science Center. 2006. Section D. Assessment of deep-sea red crab. In: 43rd Northeast Regional Stock Assessment Workshop (43rd SAW): 43rd SAW assessment report. US Dep. Commer, Northeast Fish. Sci. Cent. Ref. Doc. 06-25. 400 pp. (R. Wahle led Stock Assessment Report Committee)
- Wahle, R.A. and Gaudette, J. 2004. Sea urchin conservation areas in Maine: winter survey results 2000-2003. Final Project Report submitted to Maine Department of Marine Resources
- Wahle, R.A., O'Donnell, K.P., Dunnington, M.J., Bell, M. 2003. Impact of dredged sediment disposal on lobster and crab abundance and movements at the Rockland disposal site. US Army Corps of Engineers, New England District. Disposal Monitoring System. DACW33-03-D-007 TO5 / 09000-351-260
- Wahle, R.A. 2002, -03, -04. Update 2001, -02, -03: New England lobster settlement index. Reports to Maine Department of Marine Resources, Rhode Is. Dept. Environmental Management, and Maine Lobstermen's Association.
- Wahle, R.A. 2000. A larval settlement index for forecasting trends in the American lobster fishery. Final Report to Maine Department of Marine Resources, Lobster Advisory Council.
- Wahle, R.A. & R. Langton. 1999. Acoustic tagging of reared Atlantic cod. Final Project Report to the Island Institute.
- Wahle, R.A. 1999. Impact of sea urchin dragging on the sea bed. Final Project Report to Maine Department of Marine Resources Sea Urchin Advisory Committee.

- Wahle, R.A. 1998. Density-related reproductive trade-offs in the Green Sea Urchin, *Strongylocentrotus droebachiensis* and implications to the Gulf of Maine fishery. Final Project Report to Maine Department of Marine Resources Sea Urchin Advisory Committee.
- Beatty, L., B. Nowicki, A. Keller, R. Wahle, C. Labash, & P. August. 1993. A plan for inventory and monitoring of submerged aquatic resources at Cape Cod National Seashore. Final Report to the National Park Service
- Wahle, R.A. 1991. The American lobster in Narragansett Bay: patterns of benthic recruitment, adult populations, and fishing effort. Final Report submitted to the Narragansett Bay Project.
- Steneck, R.S., R.L. Vadas, I.R. Davison, I. Babb, R.A. Wahle, 1990. Changes in coastal food webs and benthic community structure in the Gulf of Maine due to fisheries induced declines in large predatory fishes. NURC, Annual Report.

PRESENTATIONS FOR PROFESSIONAL MEETINGS & INVITED TALKS:

(most recent first)

* Student authors

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REFERENCES

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