

## CURRICULUM VITAE

NAME: Susan H. Brawley

BIRTH DATE: October 6, 1951

BIRTH PLACE: Charlotte, North Carolina

EDUCATION: 1978 Ph.D. in Botany, University of California, Berkeley, CA.  
1974 O.T.S. Coral reef ecosystem course, Discovery Bay, Jamaica.  
1973 Marine botany course, Marine Biological Laboratory, Woods Hole, MA.  
1973 B.A. (Honors) in Biological Sciences, Wellesley College, Wellesley, MA.

### POSITIONS:

1998 Honorary Senior Research Fellow, University of Birmingham (England)

1994- Professor (tenured), University of Maine

1991-94 Associate Professor, University of Maine

1990-91 Associate Professor (tenured), Vanderbilt University

1983-90 Assistant Professor, Dept. of Biology, Vanderbilt University. (Member, Center for Reproductive Biology Research 1986-91).

1981-83 Research Associate, Physiology Department, University of Connecticut Health Center, Farmington, CT.

1978-81 Fellow (1978) and Research Associate (1980), Smithsonian Institution.

1978 Teaching Assistant for Phycology, University of California.

1975-76 Research Assistant for ecological/taxonomic study of the Florida Middlegrounds (S.U.S.I.O.-B.L.M.).

### SELECTED HONORS, FELLOWSHIPS AND PROFESSIONAL ACTIVITIES:

2005-06 National Geographic Society Research Grant for "Interactions of the exotic fucoid alga *Fucus serratus* with native low-zone fucoids in the Canadian Maritimes" (\$26,802)

2005 Geddes Simpson Memorial Lectureship (University of Maine)

2005 New England Board of Higher Education 2005 Award for Excellence in Project Achievement

2005-07 Dept. of Interior (USA) grant, "Characterize rocky intertidal shorelines at newly acquired Navy base lands, Acadia National Park" (\$104, 857)

2004 Supplement to NSF GK-12 Award (\$93,817).

2003-06 N.S.F. Graduate Teaching Fellows in K-12: Renewal (\$1,600,000).

2003-05 Sea Grant (\$158,519), “Enhanced spore production for net-seeding of native New England *Porphyra* in integrated aquaculture”.

finfish/seaweed

2002 Award of Merit, Phycological Society of America

2002-2007 Steering Committee, CORONA (The North Atlantic Project, NSF)

2001 Career Panel, NSF, Biological Oceanography

2001-2005 N.S.F. Grant (\$390,000) AHydrodynamic regulation of reproduction in fucoid algae: A regional model and consequences for population structure.@

1999-2002 N.S.F. Graduate Teaching Fellows Award (\$1,337,000)

1999 N.S.F. Instrumentation Grant, Co-P.I. (\$435,000)  
AAcquisition of a confocal microscope@

1998 N.C.B.I. (GenBank) Visitors= Program

1998 Invited symposium speaker, A.A.A.S. annual meeting

1998 Invited symposium speaker, S.I.C.B. annual meeting

1997 George F. Papenfuss Prize. Best poster paper in Ecology, Int. Phycol. Congress, Leiden, The Netherlands

1997-2001 N.S.F. grant (\$363,950), AMechanisms by which marine algae respond to environmental variables affecting reproductive success”

1996-2001 Editor, *Journal of Phycology*

1996, >97, >99 Biology Panel, N.S.F. Graduate Research Fellowships.

1996 Supplement to 1993-96 N.S.F. award (\$12,006).

1995 National Geographic Society grant (\$9,209), for continued studies in Baltic.

1995 Co-P.I., N.S.F. Instrumentation Grant (\$24,080). "Acquisition of HPLC system."

1994-96 N.S.F. grant (\$37,500), “The reproductive ecology of Baltic Fucus vesiculosus”.

1994-95 Member, National Research Council Committee on Biological Diversity in Marine Systems (1994-95).

1994 National Geographic Society grant (\$20,391) for continued studies in Baltic.

1993-96 N.S.F. grant (\$320,000) for AThe reproductive ecology of fucoid algae”.

1993 National Geographic Society grant (\$10,400) for “The reproductive ecology of seaweeds: Solution to a Baltic enigma?”

1988-91 N.S.F. grant (\$52,443) for “The fast block to polyspermy.”

1988-89 Career Advancement Award, N.S.F. (\$59,126). “The fast block to polyspermy in fucoid algae”.

1985-86 Grantee of the National Geographic Society (continued studies in Qingdao, China).

1984-88 N.S.F. award (\$250,000) for ACell polarization in fucoid zygotes: Interactions of endogenous electrical current and the cytoskeleton”.

1983-84 National Program Grantee, Committee on Scholarly

- Communication with the People=s Republic of China (National Academy of Sciences): 5 months at the Institute of Oceanology (Academia Sinica), Qingdao.
- 1981-83 Science Scholar of the Bunting Institute, Radcliffe College.
- 1978-79 Smithsonian Fellow (Postdoctoral), Washington, D.C.
- 1976-77 Luce Scholar (Henry Luce Foundation, Inc., New York). Visiting Investigator at the Institute of Medical Sciences, University of Tokyo.
- 1974-75 University of California Regents= Fellowship.
- 1974 Sigma Xi Grant-in-Aid-of-research for work on Fucus.
- 1973-74 NSF Graduate Traineeship, University of California.
- 1973 Sigma Xi (Associate Member, Wellesley College).
- 1972 Wellesley Washington Intern, summer 1972, at the Council on Environmental Quality, Executive Office of the President, Washington, D.C.

Member of the American Society for Cell Biology, American Society of Plant Physiologists, British Phycological Society, Ecological Society of America, International Phycological Society, Northeast Algal Society (Executive Committee, 1983-85; Co-convenor of 1985 annual meeting; Session Chair, 1988; President, 1994-96), Phycological Society of America (Education Committee, 1986-88, Chair, 1987-88; Bold Award Selection Committee, 1987; Treasurer, 1989-91; Publication Committee, 1993-95; External Liaisons= Committee, 1995-96).

Editorial Board, Journal of Phycology (1987-89), Associate Editor (1988-92); Editor (1996-2001).

Member, National Research Council Committee on Biological Diversity in Marine Systems (1994-95).

#### INVITED REVIEWS OF BOOKS AND SCIENTIFIC MEETINGS:

- 1980 Phycologia 20, 96-99.
- 1982 American Scientist 70, 319
- 1983 Quarterly Reviews of Biology 58, 439-40.
- 1985 American Scientist 73, 484.
- 1989 Cell 59, 955-56

#### INVITED SPEAKER:

##### Seminars:

- University of Massachusetts (Amherst), 1981
- Harvard University, 1983
- University of Rhode Island, 1983
- Institute of Oceanology, Academia Sinica, 1984
- Purdue University, 1985
- Wake Forest University, 1985, 1998
- University of Washington, 1988

University of Rhode Island, 1988  
Northeastern University, 1988  
Stanford University, 1989  
University of Liverpool, 1989  
Colorado State University, 1990  
University of New Hampshire, 1990  
Virginia Polytechnic University, 1993  
University of Maine (Chemical Engineering Dept. 1993, 1999; PB&P,  
1995; School of Marine Sciences, 1999)  
The Jackson Laboratory, 1995  
Long Island University, 1995  
The New England Aquarium, 1996  
Mount Allison University, 1997  
California State University (Northridge), 1999. MARC Endowment  
Lectureship  
Laval University (Canada), 2003.

Symposia:

Amer. Soc. Cell Biol. annual meeting (1985), AProspectus of Three  
Women Cell Biologists (M.G. Farquhar, J. B. Olmsted, S. H. Brawley),@  
sponsored by Women in Cell Biology.

Botanical Society of America, AExperimental Embryogenesis@, 1988  
A.I.B.S. meeting. My topic: cell polarity.

XIII International Seaweed Symposium, ARecent advances in the cell  
biology of seaweeds@, 1989, Vancouver. My topic: Polyspermy blocks.

NATO Advanced Research Workshop, AMechanism of Fertilization:  
Plants to Humans@, Sorrento, Italy, 1989. My topic: Polyspermy blocks.

The Systematics Association & The Marine Biological Association

(U.K.),

APlant-Animal Interactions in The Marine Benthos@, Liverpool (U.K.),  
1990. My topic: Mesoherbivores.

International Phycological Congress, AAlgal Propagules and  
Recruitment@, Durham, N.C., 1991. My topic: The biology and ecology  
of algal gametes and zygotes. (Presented by L.E. Johnson).

Society for Developmental Biology APatterns of Organelle Inheritance@,  
Seattle, WA., 1992. My topic: Inheritance in algae.

N.S.F. and JNICT, AOceanographic processes at the land-sea interface@,  
Faro, Portugal, May, 1993. My topic: Fertilization success in estuarine  
algae.

Society for Integrative and Comparative Biology, AAquatic organisms,  
Terrestrial eggs", Boston, January, 1998. My topic: Gamete release in

marine algae at low tide.

A.A.A.S., "Development in a Volatile Environment" February, 1998, Philadelphia, PA. My topic: Environmental effects on reproductive success in fucoid algae.

Marine & Terrestrial Molecular Bioscience: New Frontiers (Univ. of Delaware), "Environmental Controls of Reproduction in Fucoid Algae", June 2005.

#### PUBLICATIONS:

- Brawley, S. H., R. Wetherbee, and R. S. Quatrano. 1976a. Fine-structural studies of the gametes and the embryo of Fucus vesiculosus L. (Phaeophyta). I. Fertilization and pronuclear fusion. J. Cell Sci. 20, 233-254.
- \_\_\_\_\_. 1976b. Fine-structural studies of the gametes and embryo of Fucus vesiculosus L. (Phaeophyta). II. The cytoplasm of the egg and young zygote. J. Cell Sci. 20, 255-271.
- Brawley, S. H., R. S. Quatrano, and R. Wetherbee. 1977. Fine-structural studies of the gametes and embryo of Fucus vesiculosus L. (Phaeophyta). III. Cytokinesis and the multicellular embryo. J. Cell Sci. 244, 275-294.
- Brawley, S. H. and W.H. Adey. 1977. Territorial behavior of three-spot damselfish (Eupomacentrus planifrons) increases reef algal biomass and productivity. Env. Biol. Fish 2, 45-51
- Quatrano, R. S., S. H. Brawley, and W. E. Hogsett. 1979. The control of the polar deposition of a sulfated polysaccharide in Fucus zygotes. In: Determinants of Spatial Organization (S. Subtelny and I. R. Konigsberg, eds.). New York: Academic Press, pgs. 77-96.
- Brawley, S. H. and R. S. Quatrano. 1979a. Effects of microtubule inhibitors on pronuclear migration and embryogenesis in Fucus distichus (Phaeophyta). J. Phycol. 15, 266-272.
- \_\_\_\_\_. 1979b. Sulfation of fucoidin in Fucus embryos. IV. Autoradiographic investigations of fucoidin sulfation and secretion during differentiation and the effect of cytochalasin treatment. Develop. Biol. 73, 193-205.
- Brawley, S. H. and W. H. Adey. 1981. The effect of micrograzers on algal community structure in a coral reef microcosm. Marine Biology 61, 167-177.
- \_\_\_\_\_. 1981. Micrograzers may affect macroalgal density. Nature 292, 177.
- Brawley, S. H. and R. Wetherbee. 1981. Algal cytology and ultrastructure. In: Biology of the Seaweeds (Botanical Monograph series) (C. Lobban and M. Wynne, eds.). Oxford: Blackwell Scientific Pub. Ltd., pgs. 248-299.
- Brawley, S. H. and J. R. Sears. 1982. Septal plugs in a green alga. Amer. J. Bot. 69, 455-463.
- Brawley, S. H. and W. H. Adey. 1982. Coralliophila abbreviata: a significant corallivore! Bull. Mar. Sci. 32, 595-599.

- Sears, J. R. and S. H. Brawley. 1982. Smithsoniella gen.nov., a possible evolutionary link between the multicellular and siphonous habits in the Ulvophyceae, Chlorophyta. Amer. J. Bot. 69, 1450-1461.
- Allen, N. S. and S. H. Brawley. 1984. Observations of exocytosis in Fucus vesiculosus gametes using video-enhanced light microscopy: a video report. Cell Motility 4, 25-27.
- Brawley, S. H., D. F. Wetherell, and K. R. Robinson. 1984. Electrical polarity in embryos of wild carrot precedes cotyledon development. Proc. Natl. Acad. Sci. U.S.A. 81, 6064-6067.
- Brawley, S. H., and K. R. Robinson. 1985. Cytochalasin treatment disrupts the endogenous currents associated with cell polarization in embryogenesis: studies of the role of f-actin in embryogenesis. J. Cell Biol. 100, 1173-84.
- Brawley, S. H. and E. Bell. 1987. Partial activation of Fucus eggs with calcium ionophores and low-sodium seawater. Develop. Biol. 122, 217-226.
- Brawley, S. H. and X. G. Fei. 1987. Studies of mesoherbivory in aquaria and in an unbarricaded mariculture farm on the Chinese coast. J. Phycol. 23, 614-623.
- Brawley, S. H. 1987. A sodium-dependent, fast block to polyspermy occurs in eggs of fucoid algae. Develop. Biol. 124, 390-397. (Featured on journal cover.)
- Brawley, S. H. and X. G. Fei. 1988. Ecological studies of G. asiatica and G. lemaneiformis in China. Chinese J. Oceanol. Limnol. 6, 22-34.
- Brawley, S. H. and D. M. Roberts. 1989. Calmodulin-binding proteins are developmentally regulated in gametes and embryos of fucoid algae. Develop. Biol. 131, 313-320.
- Brawley, S. H. 1990. The polyspermy block in fucoid algae. In: Cell Walls and Surfaces, Reproduction, Photosynthesis, Experimental Phycology I (W. Wiessner, D.G. Robinson, R.C. Starr, Eds.). Berlin: Springer-Verlag, pp. 134-144.
- Brawley, S. H. 1990. Polyspermy blocks in fucoid algae and the occurrence of polyspermy in nature. In: Mechanism of Fertilization: Plants to Humans (B. Dale, Ed.). Berlin: Springer-Verlag, pp. 419-431.
- Brawley, S. H. 1991. The fast block against polyspermy in fucoid algae is an electrical block. Develop. Biol. 144, 94-106.
- Brawley, S. H. and L. E. Johnson. 1991. Survival of fucoid embryos in the intertidal zone depends upon developmental stage and microhabitat. J. Phycol. 27, 179-186.
- Brawley, S. H. 1992. Mesoherbivores. In: Plant-Animal Interactions in the Marine Benthos (D. John, S. Hawkins & J. Price, Ed.), Oxford University Press, Oxford, pp 235-263.
- Brawley, S. H. 1992. Fertilization in natural populations of the dioecious brown alga Fucus ceranoides L. and the importance of the polyspermy block. Marine Biology. 113, 145-157

- Brawley, S. H. and L. E. Johnson. 1992. Gametogenesis, gametes and zygotes: an ecological perspective on sexual reproduction in the algae. British Phycological Journal 27, 233-252.
- Brawley, S. H. and L. E. Johnson. 1993. Predicting desiccation stress in microscopic organisms: the use of agarose beads to determine evaporation rates within and between intertidal microhabitats. J. Phycol. 29, 528-535.
- Davison, I. R., L. E. Johnson, and S. H. Brawley. 1993. Sublethal stress in the intertidal zone: tidal emersion inhibits photosynthesis and retards development in embryos of the brown alga Pelvetia fastigiata. Oecologia 96, 483-492.
- Committee on Biodiversity in Marine Systems. 1995. Understanding Marine Biodiversity. National Academy Press, Washington, 128 pp.
- Rosemond, A. D. and S. H. Brawley. 1996. Species-specific characteristics explain the persistence of Stigeoclonium tenue (Chlorophyta) in a woodland stream. J. Phycol. 32, 54-63.
- Serrão, E. A., L. Kautsky and S. H. Brawley. 1996. Distributional success of the marine seaweed Fucus vesiculosus L. in the brackish Baltic Sea correlates with the osmotic capabilities of Baltic gametes. Oecologia 107, 1-12.
- Serrão, E. A., G. Pearson, L. Kautsky and S. H. Brawley. 1996. Successful external fertilization in turbulent environments. Proc. Natl. Acad. Sci. U.S.A. 93, 5286-90.
- Pearson, G. and S. H. Brawley. 1996. Reproductive ecology of Fucus distichus (Phaeophyceae): An intertidal alga with successful external fertilization. Mar. Ecol. Prog. Ser. 143, 211-23.
- Pearson, G. A., E. Serrão, and S. H. Brawley. 1998. Control of gamete release in fucoid algae: sensing hydrodynamic conditions via carbon acquisition. Ecology 79, 1725-1739.
- Li, R., S. H. Brawley and T. Close. 1998. Proteins immunologically related to dehydrins in fucoid algae. J. Phycol. 34, 642-50.
- Pearson, G. A. and S. H. Brawley. 1998. A model for signal transduction during gamete release in the fucoid alga Pelvetia compressa. Plant Physiol. 118, 305-13.
- Johnson, L. E. and S. H. Brawley. 1999. Dispersal and recruitment of a canopy-forming intertidal alga: The relative roles of propagule availability and post-settlement processes. Oecologia 117, 517-26.
- Serrão, E., S. H. Brawley, J. Hedman, L. Kautsky and G. Samuelsson. 1999. Reproductive success in Fucus vesiculosus (Phaeophyceae) in the Baltic Sea. J. Phycol. 35, 254-269.
- Brawley, S. H., L. E. Johnson, G. A. Pearson, V. Speransky, R. L. and E. Serrão 1999. Gamete release at low tide in fucoid algae: Maladaptive or advantageous? Amer. Zool. 39, 218-29.
- Serrão, E., L. Alice and S. Brawley. 1999. Evolution of the Fucaceae (Phaeophyceae) inferred from nrDNA-ITS. J. Phycol. 35, 382-394.

- Brawley, S.H. 1999. Submission and retrieval of an aligned set of nucleic acid sequences. J. Phycol. 35, 433-37.
- Speransky, V. S. Speransky, and S. H. Brawley. 1999. Cryoanalytical studies of freezing damage and recovery in Fucus vesiculosus (Phaeophyceae). J. Phycol. 35, 1264-1275.
- Rosemond, A. D., P. J. Mulholland, and S. H. Brawley. 2000. Seasonally shifting limitation of stream periphyton: Response of algal populations and assemblage biomass and productivity to variation in light, nutrients, and herbivores. Can. J. Fish. Aquat. Sci. 57, 66-75.
- Speransky, S. and S. H. Brawley. 2000. Gamete release is increased by calm conditions in the coenocytic green alga Bryopsis (Chlorophyta). J. Phycol. 36, 730-739.
- Speransky, V., S. H. Brawley, and M. E. McCully. 2001. Ion fluxes and modification of the extracellular matrix during gamete release in fucoid algae. J. Phycol. 37, 555-573.
- Berndt, M. L., J. A. Callow, and S. H. Brawley. 2002. Gamete concentrations and timing and success of fertilization in a rocky shore seaweed. Mar. Ecol. Prog. Ser. 226, 273-285.
- Engel, C., S. H. Brawley, K. J. Edwards and E. Serrão. 2003. Isolation and cross-species amplification of microsatellite loci from the fucoid seaweeds Fucus vesiculosus, F. serratus and Ascophyllum nodosum (Heterokontophyta, Fucaceae). Molecular Ecology Notes 3,180-182.
- Li, R. and S. H. Brawley. 2004. Improved survival to heat stress in intertidal embryos simultaneously exposed to hypersalinity and the effect of parental thermal history. Mar. Biol. 144, 205-213.
- Calder, E., M. Bagley, and S. H. Brawley. 2004. National Science Foundation Graduate Teaching Fellows promote food science education in K-12 schools in Maine. J. Food Sci. Ed. 2, 58-60.
- Gordon, R. and S. H. Brawley. 2004. Effects of water motion on propagule release from algae with complex life histories. Mar. Biol. 145, 21-29.
- Coleman, M. A. and S. H. Brawley. 2005. Are life history characteristics good predictors of genetic diversity and structure? A case study of the intertidal alga *Fucus spiralis* (Heterokontophyta: Phaeophyceae). J. Phycol. 41, 753-762.
- In press:  
Coleman, M. A. & S. H. Brawley. Spatial and temporal variability in dispersal and population genetic structure in a marine metapopulation. (*Marine Ecology Progress Series*)
- Coleman, M. A. & S. H. Brawley. Herbaria and phenology: Reaction of marine algae to climate change. (*J. Phycol.*)

## **COURSES TAUGHT:**

Introduction to Cell Biology (with laboratory)-1983,1984,1985,1986,1987,1989,1999.

Developmental Physiology-1985-1986.  
 Developmental Biology-1987,1988,1990,1991.  
 Laboratory in Developmental Physiology-1987,1988,1990.  
 The Greenhouse Effect (Undergraduate Seminar)-1990.  
 Guest instructor, Developmental Biology, Stanford University (Hopkins Marine Station),  
 1990.  
 Basic Biology (with laboratory)- 1992 (Spring & Fall), 1993 (Spring & Fall), 1994 (Fall).  
 The Ecology of Rocky Shores-1993,1994.  
 Introductory Marine Biology -1994,1996,1997.  
 Signal Transduction Mechanisms, 1996.  
 Reader (1997), M. Schoenwaelder=s Ph.D., Monash University (Australia).  
 Advanced Phycology, 1999, 2001, 2003.  
 The Biology of Algae (with lab), 2002, 2004.  
 School of Marine Sciences' Capstone course, 2003, 2004, 2005.  
 Director of undergraduate (10 students during 1986-2002), M.S. (D. Market, 1989;  
 Lynn Berndt, 2000; Richard Gordon, 2002; Julie Koester, 2005; Nicolas Blouin,  
 degree expected 2006), and Ph.D. (A. Rosemond, 1993; Ester Serrão, 1996; Rui Li,  
 1997; Jessica Muhlin, degree expected 2006) research. Postdoctoral  
 advisees: Dr. Gareth Pearson (1993-96), Dr. Vladislav Speransky (1997-99), Dr.  
 Melinda Coleman (2002-05).

## **UNIVERSITY SERVICE:**

### **Vanderbilt University**

Department: Seminar Committee (1984-86, 1990)  
 Darkroom Committee (1986-88)

University: Committee on Women=s Studies (1986-87)  
Ad hoc Committee on Nursing Program (1987)  
Ad hoc Committee on Faculty Manual (1987)  
 Board, Women=s Center (1987-88)  
 Luce Scholars Nomination Committee (1986, 1988, 1989, 1990).  
 University Travelling Fellowship Selection Committee (1988, 1990).  
 Advisory Board, Center Reproductive Biology Research (1989-91)  
 Committee on Natural Science (1990)

### **University of Maine**

Department: Seminar Committee (1992-93)

University: Committee for Oceanography Chair (1992)  
 Search Committee, Director of Regional Maine Research Program  
 for the Gulf of Maine (1992-93)  
 Search Committee, Director of Regional Maine Research Program  
 For the Gulf of Maine (1992-93)  
 Search Committee for Director, Quaternary Studies Institute (1993)  
 Distinguished Maine Professor Award Nominating Committee,  
 College of Science (1993, 1994)  
 Instructional Advisory Committee (1993-1995)

Darling Center Visiting Professorship Search Committee (1993)  
Bird and Bird Fund Selection Committee (1995, 1996, 1997)  
Member Marine Sciences Task Force (1995)  
Center for Marine Studies Fellowship Committee (1995)  
Advisory committee: Office of International Programs (1996, 1999)  
Search Committee, Biochemist (BMMB)(1997)  
Hitchner Building Addition Committee (1999)  
Ad Hoc *Campus Map* Committee (2000-2003)  
Library Committee (2001-02)  
Arboretum Committee (2002-2005)

State:

Member, Dept. of Conservation Ad-hoc eelgrass, kelp and rockweed committee (1996)

Region:

Science Advisor, New England Aquarium (1996-98).