

CLAYTON B. COOK
CURRICULUM VITAE

Affiliate Scientist, Harbor Branch Oceanographic Institute
At Florida Atlantic University
5600 US 1 North
Ft. Pierce, FL 34946

Phone: (772) 242-2301
Fax: (772) 468-0757
Email: ccook30@fau.edu

PERSONAL DATA: Born June 28, 1943, New Brunswick, NJ (U. S. Citizen)
Married, no children

EDUCATION: B.A., Rutgers University, 1965 (Biology/Chemistry)
Ph.D., Duke University, 1970 (Zoology/Botany)

POSITIONS:

Research Associate, Smithsonian Marine Station 2009-2012
Program Director, NSF (BIO/IOS) 2008-2010
Affiliate Scientist, Harbor Branch Oceanographic Institute, 2006-
Affiliate Professor of Biological Sciences, Florida Atlantic University, 1995 -
Affiliate Professor of Biological Sciences, Florida Institute of Technology, 1994 -
Senior Scientist, Harbor Branch Oceanographic Institution, 1993-2006
Senior Research Scientist, Bermuda Biological Station for Research (BBSR), 1989-1993
Research Scientist, BBSR, 1983-1989
Research Associate, Northeastern University Marine Science Center, 1981-82
Assistant Professor, Ohio State University, 1974-1981
NIH Postdoctoral Trainee, Department of Biology, UCLA, 1972-74
Visiting Assistant Professor, University of Western Ontario 1971-72
Temporary Assistant Professor, University of Georgia (Zoology), 1970-71

COURSES TAUGHT:

Marine Biodiversity; Functional Biology of Invertebrates; Tropical Marine Ecology;
Marine Invertebrate Zoology, Tropical Marine Biology, Tropical Marine Ecology,
Invertebrate Zoology, Ecological Physiology, Evolution

RESEARCH INTERESTS:

Marine biology. Biology of animal-algal symbiosis. Biology and physiology of corals and other cnidarians. Impacts of climate change on marine systems. Coral bleaching, Nutrient limitation in coral reef systems. Effects of oil and dispersants on marine organisms. Invertebrate biology.

POST-DOCTORAL ASSOCIATES:

Dr. Simon K. Davy (Head of Marine Science. Victoria University of Wellington, NZ)
Dr. Tamar Goulet (Assoc. Prof., U. of Mississippi)
Dr. Misaki Takabayashi (Assoc. Prof., U. of Hawaii, Hilo)

GRADUATE STUDENTS SUPERVISED:

Marcia Kelty (Ohio St. Univ., MS '78)
Randall Ruch (Ohio St. Univ., MS '79)
Karin Lerch (Ohio St. Univ., MS '80)
Gustav Verderber (Ohio St. Univ., MS '80)
Penelope Barnes (Plymouth Polytechnic Univ., UK, Ph. D. '94 -- co-advised)
Mandi Gillespie (Florida Institute of Technology, MS '97)
Randa Flinn (Florida Atlantic Univ., MS '97)
Eric Annis (Florida Institute of Technology, MS '98)
Santiago Perez (Florida Atlantic Univ., MS '99)
Lori Hrdlicka (Florida Institute of Technology, MS '00)
Dustin Kemp (Florida Atlantic Univ., MS '03)

PROFESSIONAL SOCIETIES:

American Association for the Advancement of Science
American Society of Limnology and Oceanography
American Microscopical Society
 President, 2001-2002
 Acting President, 2004-5
International Society for Reef Studies
Society for Integrative and Comparative Biology (American Society of Zoologists)
 Secretary, Division of Invertebrate Zoology, 1990-1993
Western Society of Naturalists

SERVICE:

Topics Editor (Biology), *Coral Reefs*, 2008 -2010
FAU/HBOI Coordinating Board, 2003 –2006
Board of Directors, Key Largo Marine Research Laboratory, 1996-
 (Univ. of Georgia, W. K. Fitt, Director)
Corporation Member, Bermuda Biological Station (BIOS/BBSR), 1984-
Co-Editor, *Invertebrate Biology* (June 2001 – Dec 2002)
NSF Review Panels: BIO, OCE, REU
Chair, Molecular Biology Search Committee, BBSR, 1992
Radiation Safety Officer, Bermuda Biological Station, 1984-92

Reviewer for NSF, NOAA, *Marine Biology*, *J. Exp. Mar. Biol. Ecol*, *Coral Reefs*, *Marine Ecology Progress Series*, *Science*, *Nature*, *J. Mar. Biol. Assn. U.K*, *Limnology & Oceanography*, *Biological Bulletin*, *Hydrobiologia*, other journals

RESEARCH GRANTS AND CONTRACTS: (As Principal Investigator):

Savannah State University / Harbor Branch Oceanographic Institution Bridge to Research in Marine Sciences. NSF, 1999-2002, \$139,040 (with S. B. Cook)

ReefWatch Biodiversity at Risk? NSF, 1999-2002, \$47,000 (with S. B. Cook)

Genetic Regulation in the *Aiptasia pallida* Symbiosis US Office of Naval Research, 1996-99. \$160,000 (cofunded with The Institute for Genomic Research, total award = \$380,000)

Reef Corals and Their Symbiotic Algae as Indicators of Nutrient Exposure With Reference to Florida Bay. USEPA, 1995-7, \$60,000

Relationship between productivity, symbiont density and host factor activity in the reef-building coral *Montastrea annularis*. NOAA / CMRC, 1994-95, \$12,000.

Development of regulatory processes in the symbiosis between the sea anemone *Aiptasia pallida* and its dinoflagellate symbionts. US Office of Naval Research, 1991-94. \$375,000.

Impact of a proposed incinerator on the Bermuda marine environment. \$300,000 (Bermuda government, 1989-90; co-PI with A. H. Knap and others)

Nutrient sources and sufficiency for symbiotic zooxanthellae. NSF Biological Oceanography, 1988-92. \$267,000.

Regulation of growth of endosymbiotic algae by nitrogen. NSF Biological Oceanography, 1986-8. \$182,000 (With C. F. D'Elia)

PI on five other facilities grants funded by NSF for the Bermuda Biological Station for Research, approx. \$500,000 total

PUBLICATIONS: Books

Thomas, M. T., Logan, A., Cook S. B. and Cook, C. B. 1992. *A Guide to the Shoreline and Shallow-water Marine Communities of Bermuda*. W. B. Brown: BBSR Spec. Publ. #30

Cavaliere, A. R., Barnes, R. D., and Cook, C. B. 1992. *A Guide to the Conspicuous Flora and Fauna of Bermuda*. BBS Spec. Publ. # 29.

Cook, C. B., P. W. Pappas and E. D. Rudolph, eds., 1980. *Cellular Interactions in Symbiosis and Parasitism*. The Ohio State University Press, Columbus.

PUBLICATIONS: Reports

Knap, A. H., C. B. Cook, S. B. Cook, J. A. K. Simmons, R. J. Jones, and A. E. Murray, 1991. Marine Environmental Studies to Determine the Impact of the Mass Burn Incinerator Proposed for Tynes Bay, Bermuda. Report to the Ministry of Works and Engineering, Bermuda Government. 256 pp.

PUBLICATIONS: Papers

Cook, C. B., Mueller, E. M., Ferrier, M. D. and Annis, E. R. 2012. Discharges from Florida Bay influence growth of corals. Pp 199-200 in: *Tropical Connections: Facts about south Florida's marine environment*. William L. Kruczynski and Pamela J. Fletcher, Editors. IAN Press, University of Maryland.

- Gilligan, M. R., Verity, P. G., Cook, C. B., Cook, S. B., Booth, M. G., Frischer, M. E. 2007. Building a diverse and innovative ocean workforce through collaboration and partnerships that integrate research and education: HBCUs and marine laboratories. *J. Geosci. Ed.* 55:531-540
- Hoegh-Guldberg, O., Muller-Parker, G., Cook, C. B., Gates, R. D., Gladfelter, E., Trench, R. K. and Weis, V. 2007. Len Muscatine (1932-2007) and his contributions to the understanding of algal-invertebrate endosymbiosis. *Coral Reefs* 26:731-739
- Kemp, D. W., C. B. Cook, T. C. LaJeunesse and W. R. Brooks 2006. A comparison of the thermal bleaching responses of the zoanthid *Palythoa caribaeorum* from three geographically different regions in south Florida. *J. Exp. Mar. Biol. Ecol.* 335:266-276
- Goulet, T. L., C. B. Cook and D. Goulet 2005. The effect of elevated temperature and light levels on the photosynthesis of different host-symbiont combinations in the *Aiptasia pallida* / *Symbiodinium* symbiosis. *Limnol. Oceanogr.* 50: 1490-1498.
- Takabayashi, M., Santos, S. R. and C. B. Cook. 2004. Mitochondrial phylogeny of symbiotic dinoflagellates (*Symbiodinium*, Dinophyta). *J. Phycol.* 40:160-164.
- Annis, E. R., and C. B. Cook. 2002. Alkaline phosphatase activity in symbiotic dinoflagellates (zooxanthellae) as a biological indicator of environmental phosphate exposure. *Mar. Ecol. Progr. Ser.* 245:11-20
- Lipschultz, F., and C. B. Cook 2002. Uptake and assimilation of ¹⁵N-ammonium by the symbiotic sea anemones, *Aiptasia pallida* and *Bartholomea annulata*: conservation versus recycling of nitrogen. *Mar. Biol.* 140:489-502
- Cook, C. B., Mueller, E. M., Ferrier, M. D. and Annis, E. R. 2001 The influence of nearshore waters on corals of the Florida reef tract. Pp. 771-788 In Porter, J. W., and Porter, K. J. (eds.), *The South Florida Hydroscape* (CRC Press, Boca Raton).
- Cook, C. B. and S. K. Davy 2001. Are free amino acids responsible for the 'host factor' effects on symbiotic zooxanthellae in extracts of host tissue? *Hydrobiologia* 461: 71-78.
- Fitt, W. K., and C. B. Cook 2001. The effect of feeding and addition of dissolved inorganic nutrients in maintaining the symbiosis between dinoflagellates and a tropical cnidarian. *Marine Biology* 139: 507-517
- Davy, S. K. and C. B. Cook 2001. The relationship between nitrogen status and carbon flux in the zooxanthellate sea anemone *Aiptasia pallida* (Verrill). *Mar. Biol.* 139: 999-1005
- Perez, S., C. B. Cook and W. R. Brooks 2001. The role of symbiotic dinoflagellates in the temperature-induced bleaching response of *Aiptasia pallida*. *J. Exp. Mar. Biol. Ecol.* 256:1-14
- Fitt, W. K., and C. B. Cook 2001. Photoacclimation and the effect of the symbiotic environment on the photosynthetic response of zooxanthellae in the tropical marine hydroid *Myrionema amoebense*. *J. Exp. Mar. Biol. Ecol.* 256:15-31
- Davy, S. K. and C. B. Cook 2001 The influence of "host release factor" on carbon release by zooxanthellae isolated from fed and starved *Aiptasia pallida* (Verrill). *Comp. Biochem. Physiol. A* 129 (2-3): 487-494.
- Cook, C. B., G. Muller-Parker and M. D. Ferrier 1997. An assessment of indices of nutrient sufficiency in symbiotic dinoflagellates. *Proc. 8th Int. Coral Reef Symp.* 2:903-908.

- Muller-Parker, G., K. Lee and C. B. Cook 1996. Changes in the ultrastructure of symbiotic zooxanthellae (*Symbiodinium* sp., Pyrrophyta) in fed and starved sea anemones (*Aiptasia pallida*) maintained under high and low light. *J. Phycol.* **32**:987-994
- Cook, C. B., G. Muller-Parker and C. D. Orlandini 1994. Ammonium enhancement of dark carbon fixation and nitrogen limitation in zooxanthellae symbiotic with the reef corals *Montastrea annularis* and *Madracis mirabilis*. *Marine Biology* **118**:157-165
- Muller-Parker, G., C. B. Cook and C. F. D'Elia 1994. Elemental composition of the coral *Pocillopora damicornis* exposed to elevated seawater ammonium. *Pacific Science* **48**: 234-246
- McAuley, P. J., and C. B. Cook 1994. Effects of host feeding and dissolved ammonium on cell division and nitrogen status of zooxanthellae in the hydroid *Myrionema amboinense*. *Marine Biology* **121**:343-348.
- Cook, C. B., R. E. Dodge and S. R. Smith 1993. Fifty years of impacts on Bermuda's reefs. Pp. 160-166 in R. Ginsburg et al. (eds.), *Global Aspects of Coral Reefs*. U. of Miami Press)
- Muller-Parker, G., C. B. Cook, and C. F. D'Elia 1990. Feeding affects phosphate fluxes in the sea anemone *Aiptasia pallida*. *Marine Ecology Progress Series* **60**:283-290
- Cook, C. B., G. Muller-Parker and C. F. D'Elia 1992. Ammonium enhancement of dark carbon fixation and nitrogen limitation in symbiotic zooxanthellae: Effects of feeding and starvation of the sea anemone *Aiptasia pallida*. *Limnology and Oceanography* **37**:131-139
- Cook, C. B., A. Logan, J. Ward, B. Luckhurst and C. J. Berg Jr. 1990. Elevated temperatures and bleaching on a high latitude coral reef: the 1988 Bermuda event. *Coral Reefs* **9**:45-49
- Fitt, W. K., and C. B. Cook. 1990. The effect of host feeding on growth of zooxanthellae from the marine hydroid *Myrionema amboinense* in the laboratory and in nature. Pp. 281-284 in P. Nardon (Ed.), *Endocytobiology IV*. INRA, Paris.
- Cook, C. B. and W. K. Fitt 1990. Some effects of dissolved inorganic nutrients on growth of zooxanthellae in the marine hydroid *Myrionema amboinense*. Pp. 285-288 in P. Nardon (Ed.), *Endocytobiology IV*. INRA, Paris.
- Elliott, J. and Cook, C. B. 1989. Diel variation in prey capture behavior by the corallimorpharian *Discosoma sanctithomae*: mechanical and chemical activation of feeding. *Biological Bulletin* **176**:218-228
- Cook, C. B., C. F. D'Elia and G. Muller-Parker, 1988. Host feeding and nutrient sufficiency for zooxanthellae in the sea anemone *Aiptasia pallida*. *Marine Biology* **98**:253-262.
- Cook, C. B. 1988. Review of *The Biology of Symbiosis*, by D. C. Smith and A. E. Douglas. *Quart. Rev. Biol.* **63**: 222-223.
- D'Elia, C. F., and Cook, C. B. 1988. Methylamine uptake by zooxanthellae / invertebrate symbioses: insights into host ammonium environment and nutrition. *Limnology and Oceanography* **33**:1153-1165
- Muller-Parker, G., C. F. D'Elia and C. B. Cook 1988. Nutrient limitation of zooxanthellae: effects of host feeding history on nutrient uptake by isolated algae. *Proc. 6th Int. Coral Reef Symp.* **3**:15-19.
- Cook, C. B. and C. F. D'Elia 1987. Are natural populations of zooxanthellae ever nutrient-limited? *Symbiosis* **4**:199-212

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- Cook, C. B. 1985. Equilibrium populations and long-term stability of mutualistic algae and invertebrate hosts. In *The Biology of Mutualism: Ecology and Evolution*, P. Boucher, Ed. Pp. 171-191. Croon-Helm, London.
- Knap, A. H., S. C. Wyers, R. E. Dodge, T. D. Sleeter, H. R. Frith, S. R. Smith and C. B. Cook. 1985. The effects of chemically dispersed oil on the brain coral, *Diploria strigosa* (Dana). In *Proc. 1985 Oil Spill Conference* (American Petroleum Institute). Pp. 547-551.
- Lerch, K. A., and C. B. Cook. 1984. Effects of photoperiod on the motility rhythm of zooxanthellae in culture. Bull. Mar. Sci. **34**: 477-483.
- Dodge, R. E., S. C. Wyers, H. R. Frith, A. H. Knap, C. B. Cook, S. R. Smith, and T. D. Sleeter. 1984. Coral calcification rates by the buoyant weight technique: effects of alizarin staining. J. Exp. Mar. Biol. Ecol. **75**:217-232
- Ruch, R. J., and C. B. Cook. 1984. Nematocyst inactivation during feeding in *Hydra littoralis*. J. Exp. Biol. **111**:31-42.
- Cook, C. B. 1983. Metabolic interchange in algae-invertebrate symbiosis. Int. Rev. Cytol. Suppl. **14**: 177-210.
- Cook, C. B. and A. H. Knap, 1983. The effects of crude oil and chemical dispersant on photosynthesis in the brain coral, *Diploria strigosa*. Mar. Biol. **78**: 21-27.
- Verderber, G. C. W., S. B. Cook and C. B. Cook. 1983. Desiccation avoidance and the role of the home scar in the pulmonate limpet *Siphonaria alternata*. The Veliger **25**:235-243.
- Cook, C. B., and M. O. Kelty. 1982. Glycogen, protein and lipid levels in starving *Hydra viridis* and *H. littoralis*. J. Exp. Zool. **222**:1-9.
- Greenwald, L., C. B. Cook and P. Ward. 1982. Functional morphology of the siphuncle of *Nautilus*. The siphuncular epithelium. J. Morph. **172**:5-22.
- Cook, C. B. 1981. Adaptations to endosymbiosis in green hydra. Annals N. Y. Acad. Sci. **361**:273-283.
- Cook, S. B., and C. B. Cook. 1981. Activity patterns in *Siphonaria* populations: heading choice and the effects of size and grazing interval. J. Exp. Mar. Biol. Ecol. **49**:69-79.
- Cook, C. B. 1980a. Infection of invertebrates with algae. Pp. 46-73 in C. B. Cook et al., eds., *Cellular Interactions in Symbiosis and Parasitism*. Ohio State University Press, Columbus.
- Cook, C. B. 1980b. Sulfur metabolism in green hydra. The incorporation of sulfate-sulfur by *Hydra viridis*. Pp. 249-257 in W. Schwemmler and H. E. A. Schenk, eds., *Endocytobiology. Endosymbiosis and Cell Biology*. Walter de Gruyter, Berlin.
- Cook, C. B., C. F. D'Elia and L. Muscatine. 1978. Endocytic mechanisms of the digestive cells of *Hydra viridis*. I. Morphological aspects. Cytobios **23**:17-31.
- Cook, S. B., and C. B. Cook. 1978. Tidal amplitude and activity patterns of pulmonate limpets in the genus *Siphonaria*. J. Exp. Mar. Biol. Ecol. **35**:119-136.
- Cook, C. B. 1976. Sulfate utilization by green hydra. Pp. 415-422 in G. O. Mackie, ed., *Coelenterate Ecology and Behavior*. Plenum, New York.
- Kelty, M. O., and C. B. Cook 1976. Survival during starvation of symbiotic, aposymbiotic and nonsymbiotic hydra. Pp. 409-414 in Mackie, *op. cit.*

- Muscatine, L., C. B. Cook, R. L. Pardy and R. R. Pool. 1975. Uptake, recognition and retention of symbiotic *Chlorella* by *Hydra viridis*. Symp. Soc. Exp. Biol. **29**:175-203.
- Cook, S. B. and C. B. Cook. 1975. Directionality in the trail-following response of the pulmonate limpet *Siphonaria alternata*. Mar. Behav. Physiol. **3**:147-155.
- Cook, C. B. 1972. Benefit to symbiotic zoochlorellae from feeding by green hydra. Biol. Bull. **142**:236-242.
- Cook, C. B. 1971. Transfer of ³⁵S labeled material from food ingested by *Aiptasia* to its endosymbiotic zooxanthellae. Pp. 218-224 in H. M. Lenhoff et al., eds., *Experimental Coelenterate Biology*. U. of Hawaii Press.