

DIANE K. STOECKER

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### Education

B.S., Botany, University of New Hampshire, 1969  
M.S., Microbiology, University of Hawaii, 1970  
Ph.D., in Ecology & Evolution, State University of New York at Stony Brook, 1979

Dissertation: The ecological roles of acid and vanadium in ascidians

### Professional Experience

Professor Emeritus, University of Maryland Center for Environmental Science, Horn Point Laboratory, 2017  
Professor, University of Maryland Center for Environmental Science, Horn Point Laboratory, 1995-2016  
Associate Professor, CEES, Univ. of Maryland System, 1991-1995  
Associate Scientist, W.H.O.I., Woods Hole, MA, 1984-1991  
Assistant Scientist, W.H.O.I., Woods Hole, MA, 1980-1984  
Postdoctoral Scholar W.H.O.I., Woods Hole, MA, 1979-1980  
Consultant, Ecological Analysts, Inc., Melville, N.Y., 1977-1978  
Teaching Assistant, SUNY at Stony Brook, 1975-1977  
Assistant Director of Terrestrial Ecology, Environmental Analysts, Inc., Woodbury, N.Y., 1974-1975  
Biologist, Environmental Analysts, Inc., Garden City, N.Y., 1973-1974  
Consultant, Westinghouse Environmental Systems Dept., 1972  
Instructor in Natural Sciences, Maunaolu College, Maui, Hawaii, 1971-1972  
Ranger-Naturalist, United States National Park Service, summers 1971 & 1972

### Awards and Special Recognition

Fellow, American Association for the Advancement of Science, 1996-present  
University of Maryland, Regents Award for Scholarship, 2005

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The Luigi Provasoli Award, Journal of Phycology, 2006

Research Interests

Ecology and physiology of polar, estuarine and oceanic dinoflagellates, ciliates and other protists; Use of alternate modes of nutrition (mixotrophy) among the plankton; Sequestration of foreign organelles and the evolution of protists; Trophic interactions between the microbial and metazoan food webs; Regulation of protistan population dynamics; Harmful algal blooms; Alleochemical modulation of plankton food web structure.

Publications

- 1978 Stoecker, D. Resistance of a tunicate to fouling. Biol. Bull. 155: 615-626.
- 1980 Stoecker, D. Relationships between chemical defenses and ecology in benthic ascidians. Marine Ecology-Progress Series 3: 257-265.
- 1980 Stoecker, D. Chemical defenses of ascidians against predators. Ecology, 61: 1327-1334.
- 1980 Stoecker, D. Distribution of acid and vanadium in *Rhopalaea birkelandi* Tokioka. J. Exp. Mar. Biol. & Ecol. 48: 277-281.
- 1981 Stoecker, D., R. R. L. Guillard and R. M. Kavee. Selective predation by *Favella ehrenbergii* (Tintinnia) on and among dinoflagellates. Biol. Bull. 160: 136-145.
- 1982 Stoecker, D. and R. R. L. Guillard. Effects of temperature and light on the feeding rate of *Favella* sp. (ciliated protozoa, suborder Tintinnina). Les Annales de l'Institut Oceanographique, Paris. 58(S): 309-318.
- 1982 Verity, P. J. and D. Stoecker. Effects of *Olisthodiscus luteus* on the growth and abundance of tintinnids. Mar. Biol. 72: 79-87.
- 1983 Stoecker, D., L. H. Davis, and A. Provan. Growth of *Favella* sp. (Ciliata, Suborder Tintinnina) and other microzooplankters in cages incubated *In situ* and comparison to growth *In vitro*. Mar. Biol. 75: 293- 302.
- 1984 Stoecker D., L. H. Davis and D. M. Anderson. Fine scale spatial correlations between planktonic ciliates and dinoflagellates. J. Plank. Res. 6: 829-842.
- 1984 Stoecker, D. and J. J. Govoni. Food selection by young larval gulf menhaden (*Brevoortia patronus*) in the field and laboratory. Mar. Biol. 80: 299-306.
- 1984 Stoecker, D. Particle production by planktonic ciliates. Limnol. Oceanogr. 29: 930-940.

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- 1984 Stoecker, D. K. and N. K. Sanders. Differential grazing by *Acartia tonsa* on a dinoflagellate and a tintinnid. *J. Plank. Res.* 7: 85-100.
- 1985 Stoecker, D. and G. T. Evans. Effects of protozoan herbivory and carnivory in a microplankton food web. *Mar. Ecol. Prog. Ser.* 25: 159- 167.
- 1986 Stoecker, D., T. Cucci, C. M. Yentsch and E. M. Hulburt. Selective feeding by *Balanion* sp. (Ciliata, Balanionidae) on phytoplankton that best support its growth. *J. Exp. Mar. Biol. Ecol.* 95: 113-130.
- 1986 Stoecker, D., W. G. Sunda, and L. H. Davis. Effects on copper and zinc on two planktonic ciliates. *Mar. Biol.* 92: 21-29.
- 1987 Stoecker, D., A. E. Michaels, and L. H. Davis. Large proportion of marine planktonic ciliates found to contain functional chloroplasts. *Nature.* 326: 791-792.
- 1987 Stoecker, D. K. and M. W. Silver. Chloroplast retention by marine planktonic ciliates. (extended abstract) *Endocytobiology III, Annals of the New York Academy of Sciences* 503: 562-565.
- 1987 Stoecker, D. K., P. G. Verity, A. E. Michaels, and L. H. Davis. Feeding by larval and post-larval ctenophores on microzooplankton. *J. Plank. Res.* 9: 667-683.
- 1987 Stoecker, D. K. and D. A. Egloff. Predation by *Acartia tonsa* Dana on planktonic ciliates and rotifers. *J. Exp. Mar. Biol. Ecol.* 110: 53-68.
- 1987 Stoecker, D., A. Michaels, and L. H. Davis. Grazing by the jellyfish, *Aurelia aurita* on microzooplankton. *J. Plank. Res.* 9: 901-915.
- 1988 Stoecker, D. K. Are marine planktonic ciliates suspension feeders? *J. Protozool* 36: 252-255.
- 1988 Montagnes, D.J.S., D.H. Lynn, D.K. Stoecker and E.B. Small. Planktonic ciliates with chloroplasts: Taxonomic descriptions of one new species and redescriptions of four species in the family Strombidiidae (Ciliophora, Oligotrichida). *J. Protozool* 35: 189-197.
- 1988 Stoecker, D.K., M.W. Silver, A.E. Michaels and L.H. Davis. Obligate mixotrophy in *Laboea strobila*, a ciliate which retains chloroplasts. *Mar. Biol.* 99: 415-423.
- 1988 Buskey, E.J. and D.K. Stoecker. Locomotory patterns of planktonic ciliates; adaptations for locating food patches and food particles. *Bull. Mar. Sci.* 43: 783-7196.

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- 1988/89 Stoecker, D. K., M. W. Silver, A. E. Michaels and L. H. Davis. Enslavement of algal chloroplasts by four *Strombidium* spp. (Ciliophora, Oligotrichida) Mar. Microbial Food Webs 3: 79-100.
- 1989 Stoecker, D.K., A. Taniguchi and A.E. Michaels. Abundance of autotrophic, mixotrophic and heterotrophic planktonic ciliates in shelf and slope waters. Mar. Ecol. Prog. Ser. 50: 241-254.
- 1989 Choi, J.W. and D.K. Stoecker. Effects of fixation on cell volume of marine planktonic protozoa. Applied and Environmental Microbiology 55: 1761-1765.
- 1989 Gallager, S. M., V. M. Bricelj and D. K. Stoecker. Effects of the brown tide alga on growth, feeding physiology and locomotory behavior of scallop larvae (*Argopecten irradians*), pp. 511-541. In: E. M. Coper, V. M. Bricelj and E. J. Carpenter (Eds.) Novel Phytoplankton Blooms. Springer-Verlag, Berlin.
- 1989 Buskey, E.J. and D.K. Stoecker. Behavioral responses of the marine tintinnid *Favella* sp. to phytoplankton: influence of chemical, mechanical and photic stimuli. J. Exp. Mar. Biol. Ecol. 132: 1-16.
- 1989 Putt, M. and D.K. Stoecker. An experimentally determined carbon: volume ratio for marine "oligotrichous" ciliates from estuarine and coastal waters. Limnol. Oceanogr. 34: 1097-1103.
- 1989 Stoecker, D. K., N. Swanberg and S. Tyler. Oceanic mixotrophic flatworms. Mar. Ecol. Prog. Ser. 58: 41-51.
- 1990 Stoecker, D. K. and J. McDowell-Capuzzo. Predation on protozoa; its importance to zooplankton. J. Plankton Res. 12: 891-908.
- 1990 Stoecker, D. K. and M. W. Silver. Replacement and aging of chloroplasts in *Strombidium capitatum* (Ciliata, Oligotrichida). Mar. Biol. 107: 491-502.
- 1991 Stoecker, D.K. "Mixotrophy in marine planktonic ciliates: Physiological & ecological aspects of plastid-retention by oligotrichs". pp. 161-179 In: D.C. Reid, C.M. Turley, and P.H. Burkill (eds.) Protozoa and their role in Marine Processes. NATO ASI Ecological Series. Springer-Verlag, NY.
- 1991 Stoecker, D. K. and A. E. Michaels. Respiration, photosynthesis and carbon metabolism in planktonic ciliates. Mar. Biol. 108: 441-447.
- 1991 Stoecker, D. K., M. Putt, L. H. Davis and A. E. Michaels. Photosynthesis in *Mesodinium rubrum*: Per cell measurements and comparison to community rates. Mar. Ecol. Prog. Ser. 73: 245-252.

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- 1992 Stoecker, D.K., K.R. Buck, and M. Putt. Changes in the sea-ice brine community during the spring-summer transition, McMurdo Sound, Antarctica I. Photosynthetic protists. *Mar. Ecol. Prog. Ser.* 84: 265-278.
- 1993 Sieracki, M.E., P.G. Verity and D.K. Stoecker. Plankton community response to silicate and nitrate depletion at 47° N during the 1989 North Atlantic spring bloom. *Deep-Sea Res.* 40: 213-225.
- 1993 Verity, P.G., D.K. Stoecker, M.E. Sieracki, P.H. Burkill, E.S. Edwards, and C.R. Tronzo. The abundance, biomass, and distribution of heterotrophic dinoflagellates during the North Atlantic spring bloom. *Deep-Sea Res.* 40: 227-244.
- 1993 Stoecker, D.K. Chloroplast-retention in ciliated Protozoa. pp.9-26 in R. A. Lewin (ed) *Origins of Plastids*. Chapman and Hall, NY.
- 1993 Stoecker, D.K., K.R. Buck, and M. Putt. Changes in the sea-ice brine community during the spring-summer transition, McMurdo Sound, Antarctica II. Phagotrophic protists. *Mar. Ecol. Prog. Ser.* 95: 103-113.
- 1993 Verity, P.G., D.K. Stoecker, M.E. Sieracki, and J.R. Nelson. Grazing, growth and mortality of microzooplankton during the 1989 North Atlantic spring bloom at 47°N, 18°W. *Deep Sea Res.* 40: 1793-1814.
- 1994 Putt, M., G. Miceli and D.K. Stoecker. Association of bacteria with *Phaeocystis* sp. in McMurdo Sound, Antarctica. *Mar. Ecol. Prog. Ser.* 105: 179-189.
- 1994 Stoecker, D.K., M.E. Sieracki, P.G. Verity, A.E. Michaels, P.H. Burkill, E. Haugen and E.S. Edwards. Nanoplankton and protozoan microzooplankton during the JGOFS North Atlantic Bloom Experiment: 1989 and 1990. *J. Mar. Biol. Ass. U.K.* 74: 427-443.
- 1994 Stoecker, D.K., D.J. Gifford and M. Putt. Preservation of marine planktonic ciliates: Losses and cell shrinkage during fixation. *Mar. Ecol. Prog. Ser.* 110: 293-299.
- 1994 Gallager, S.M., J.B. Waterbury, and D.K. Stoecker. Efficient grazing and utilization of the marine cyanobacterium *Synechococcus* sp. by larvae of the bivalve *Mercenaria mercenaria*. *Mar. Biol.* 119: 251-259.

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- 1995 Stoecker, D.K., Gallager, S.M., Langdon, C.J. and L.H. Davis. Particle capture by *Favella* sp. (Ciliata, Tintinnina) J. Plankton Res. 17: 1105-1124.
- 1995 Stoecker, D.K., Putt, M. and Moisan, T. Nano- and Microplankton Dynamics during the spring *Phaeocystis* sp. bloom in McMurdo Sound, Antarctica. J. mar. biol. Ass. U.K. 75: 815-832.
- 1996 Li, A., Stoecker, D.K., Coats, D.W. and Adam, J.E. Ingestion of fluorescently-labeled and phycoerythrin-containing prey by mixotrophic dinoflagellates. Aquat. Microb. Ecol. 10: 39-147.
- 1996 Stoecker, D.K., Gustafson, D.E., and P.G. Verity. Micro- and Mesoprotozooplankton at 140°W in the Equatorial Pacific: Heterotrophs and Mixotrophs. Aquat. Microb. Ecol. 10 273-282.
- 1996 Olesen, N.J., Purcell, J.E., and Stoecker, D.K. Feeding and growth of ephyrae scyphomedusae *Chrysaora quinquecirrha*. Mar. Biol. Prog. Ser. 137: 149-159.
- 1996 Verity, P.G., Stoecker, D.K., Sieracki, M.E. and Nelson, J.R. Microzooplankton grazing of primary production at 140° W in the Equatorial Pacific. Deep Sea Res. II. 43: 1227-1255.
- 1996 Crawford, D.W. and D.K. Stoecker. Carbon content, dark respiration and mortality of the mixotrophic planktonic ciliate *Strombidium capitatum*. Mar. Biol. 126:415-422.
- 1997 Stoecker, D.K., D.E. Gustafson, J.R. Merrell, M.M.D. Black and C.T. Baier. Excystment and growth of Chrysophytes and Dinoflagellates at low temperatures and high salinities in Antarctic sea-ice. J. Phycol. 33: 585-595.
- 1997 Stoecker, D.K., Al. Li, D.W. Coats, D.A. Gustafson and M. Nannen. Mixotrophy in the dinoflagellate, *Prorocentrum minimum*. Mar. Ecol. Prog. Ser. 152: 1-12.
- 1997 Landry, M.R., R.T. Barber, R.R. Bidigare, F. Chai, K.H. Coale, H.G. Dam, M.R. Lewis, S.T. Lindley, J.J. McCarthy, M.R. Roman, D.K. Stoecker, P.G. Verity and J.R. White. Iron and grazing constraints on primary production in the central equatorial Pacific: An EqPac synthesis. Limnol. Oceanogr. 42: 405-418.
- 1998 Merrell, J.R. and D.K. Stoecker. Differential grazing on protozoan microplankton by developmental stages of the calanoid copepod *Eurytemora affinis* Poppe. J. Plankton Res. 20: 289-304.

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- 1998 Stoecker, D.K., D.E. Gustafson, M.M.D. Black and C.T. Baier. Population dynamics of microalgae in the upper land-fast sea ice at a snow-free location. *J. Phycol.* 34: 60-69.
- 1998 Stoecker, D.K. Conceptual models of mixotrophy in planktonic protists and some ecological and evolutionary implications. *European J. Protistol.* 34:281-290.
- 1999 Montresor, M., G. Procaccini and D.K. Stoecker. *Polarella glacialis* gen nov., sp. nov. (Dinophyceae): Suessiaceae are still alive! *J. Phycol.* 35: 186-197.
- 1999 Stoecker, D.K. Mixotrophy among dinoflagellates. *J. Eukary. Microbiol.* 46: 397-401.
- 1999 Li, A., D.K. Stoecker and J.E. Adolf. Feeding, pigmentation, photosynthesis and growth of the mixotrophic dinoflagellate *Gyrodinium galatheanum*. *Aquat. Micro. Ecol.* 19: 163-176.
- 2000 Stickney, H.L., Hood, R.R. and D.K. Stoecker. The impact of mixotrophy on planktonic trophic dynamics in marine ecosystems. *Ecol. Model.* 125: 203-230.
- 2000 Li, A., D.K. Stoecker and D.W. Coats. Mixotrophy in *Gyrodinium galatheanum* (Dinophyceae): Grazing responses to light intensity and inorganic nutrients. *J. Phycol.* 36: 33-45.
- 2000 Stoecker, DK, Gustafson, DE, Baier, CT and MMD Black. Primary production in the upper sea ice. *Aquat. Microb. Ecol.* 21: 275-287.
- 2000 Gustafson, DE, Stoecker, DK, Johnson, MD, Van Heukelem, WF and K Sneider. Cryptophyte algae are robbed of their organelles by the marine ciliate *Mesodinium rubrum*. *Nature* 405: 1049-1052.
- 2000 Skovgaard A, Hansen, PJ and DK Stoecker. Physiology of the mixotrophic dinoflagellate *Fragilidium subglobosum*. I. Effects of phagotrophy and irradiance on photosynthesis and carbon content. *Mar. Ecol. Prog. Ser.* 201: 137-146.
- 2000 Hansen, PJ, Skovgaard A, Glud RN, and DK Stoecker. Physiology of the mixotrophic dinoflagellate *Fragilidium subglobosum*. II. Effects of time scale and prey concentration on photosynthetic performance. *Mar. Ecol. Prog. Ser.* 201: 137-146.
- 2000 Li, A, Stoecker, DK, Coats, DW. 2000. Spatial and temporal aspects of *Gyrodinium galatheanum* in Chesapeake Bay: distribution and mixotrophy. *J. Plankton Res.* 22: 2105-2124.

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- 2000 Stoecker, DK, Stevens, K, and DE Gustafson. Predation on *Pfiesteria piscicida* (Dinamoebiales, Pyrrhophyta) by Microzooplankton. *Aquat. Microb. Ecol.* 22: 261-270.
- 2001 Li, A, Stoecker, DK, Coats, DW. Use of the “food vacuole content” method to estimate grazing by the mixotrophic dinoflagellate *Gyrodinium galatheanum* on cryptophytes. *J Plankton Res.* 23: 303-318.
- 2001 Tengs, T, Bowers, HA, Ziman, AP, Stoecker, DK, Oldach DW. Genetic polymorphism in *Gymnodinium galatheanum* chloroplast DNA sequences and development of a molecular detection assay. *Molecular Ecology.* 10: 515-523.
- 2002 Stoecker, DK, Parrow, MW, Burkholder JM, Glasgow Jr. HB. Grazing by microzooplankton on *Pfiesteria piscicida* cultures with different histories of toxicity. *Aquat Microbial Ecol* 28: 79-85.
- 2002 Stoecker, DK, Gustafson Jr, DE. Predicting grazing mortality of an estuarine dinoflagellate, *Pfiesteria piscicida*. *Mar Ecol Prog Ser* 233: 31-38.
- 2002 Deeds, JR, Terlizzi DE, Adolf, JE, Stoecker DK, Place AR. Toxic activity from cultures of *Karlodinium micrum* (= *Karlodinium micrum*) (Dinophyceae)---a dinoflagellate associated with fish mortalities in an estuarine aquaculture facility. *Harmful Algae* 1: 169-189.
- 2003 Anderson, JT, Stoecker, DK, Hood RR. Formation of two types of cysts by a mixotrophic dinoflagellate, *Pfiesteria piscicida*. *Mar. Ecol. Prog. Ser.* 246: 105-113.
- 2003 Stoecker, DK, Gustafson Jr., DE. Cell-surface proteolytic activity of photosynthetic dinoflagellates. *Aquat Microb Ecol* 30: 175-183.
- 2003 Johnson, MD, Rome, M, Stoecker, DK. Microzooplankton grazing on *Prorocentrum minimum* and *Karlodinium micrum* in Chesapeake Bay. *Limnol. Oceanogr.* 48: 238-248.
- 2003 Adolf, JE, Stoecker, DK, Harding Jr., LW. Autotrophic growth and photoacclimation in *Karlodinium micrum* (Dinophyceae) and *Storeatula major* (Cryptophyceae). *J Phycol.* 39: 1101-1108.
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- 2005 Johnson MD, Stoecker DK. Role of feeding in growth and photophysiology of *Myrionecta rubra*. *Aquatic Microbial Ecology* 39: 303-312
- 2005 Stoecker DK, Autio R, Rintala J-M, Kuosa H. Ecto-cellular enzyme activity associated with filamentous cyanobacteria. *Aquatic Microbial Ecology* 40: 151-161
- 2006 Stoecker DK, Long A, Suttles SE, Sanford LP. Effect of small-scale shear on grazing and growth of the dinoflagellate *Pfiesteria piscicida*. *Harmful Algae* 5: 407-418
- 2006 Stoecker DK, Tillman U, Granéli E. Chapter 18. Phagotrophic Harmful Algae. Pp. 177-187 in Granéli E and Turner J (eds) *Ecology of Harmful Algae*, Springer-Verlag, Berlin.
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- 2006 Hood, RR, Zhang X, Glibert PM, Roman MR, Stoecker, DK. Modeling the influence of nutrients, turbulence and grazing on *Pfiesteria* population dynamics. *Harmful Algae* 5: 459-479
- 2006 Johnson MD, Tengs T, Oldach D, Stoecker DK. Sequestration, performance and functional control of cryptophyte plastids in the ciliate *Myrionecta rubra* (Ciliophora). *J Phycol* 42: 1235-1246
- 2007 Johnson MD, Oldach D, Delwiche CF, Stoecker DK. Retention of transcriptionally active cryptophyte nuclei by the ciliate *Myrionecta rubra*. *Nature*. 445: 426-428

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- 2007 Reaugh, ML, Roman M.R., Stoecker D.K. Changes in plankton community structure and function in response to variable freshwater flow in two tributaries of the Chesapeake Bay, USA. *Estuaries and Coasts*. 30(3): 403-417.
- 2007 Fehling J, Stoecker D, Baldauf S.L. Photosynthesis and the Eukaryote Tree of Life. Pp 76-107 in Falkowski P.G. & Knoll A.H. (eds) *The Evolution of Primary Producers in the Sea*. Elsevier, Academic Press. NY.
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- 2008 Stoecker DK, Adolf JE, Place AR, Glibert PM, Meritt D. Effects of the dinoflagellates *Karlodinium veneficum* and *Prorocentrum minimum* on early life history stages of the Eastern Oyster, *Crassostrea virginica*. *Marine Biology*. 154: 81-90.
- 2008 Thessen AE, Stoecker DK. 2008. Distribution, abundance and domoic acid analysis of the toxic diatom genus *Pseudo-nitzschia* from the Chesapeake Bay. *Estuaries and Coasts*. 31: 664-672.
- 2008 Alexander JA, Stoecker DK, Meritt DW, Alexander ST, Padeletti A, Johns D, Van Heukelem L, Glibert PM. Differential feces and pseudofeces production by the oyster *Crassostrea ariakensis* when exposed to diets containing harmful dinoflagellate and raphidophyte species. *J Shellfish Res* 27: 567-579.
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- 2009 Stoecker, DK, Johnson MD, de Vargas C, Not, F. Acquired phototropy in aquatic protists. *Aquat Microb Ecol* 57: 279-310.
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- 2013 Johnson, MD, Stoecker, DK, Marshall HG.) Seasonal dynamics of *Mesodinium rubrum* in Chesapeake Bay. *J Plankton Res.* 35: 877-893.
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MEES Graduate Students

Jeffrey R Merrell; M.S., MEES, 1996, UMCP: Effects of spatial scaling and predation by copepods on microzooplankton population dynamics.

Aishao Li; Ph.D, MEES, 1998, UMCP: The feeding physiology and ecology of the mixotrophic dinoflagellate *Gyrodinium galatheanum*.

Gabriela W. Smalley; Ph.D., MEES, 2002. UMCP: Mixotrophy in the red-tide dinoflagellate *Ceratium furca*, with emphasis on feeding biology and ecology.

Matthew D. Johnson; Ph.D., MEES 2005, UMCP: Ecological, physiological and molecular aspects of plastid retention in the ciliate *Mesodinium rubrum*

Monica Salerno: MS, MEES 2005, UMCP: Ectocellular enzyme activities in the mixotrophic dinoflagellate *Prorocentrum minimum*

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Anne E. Thessen; Ph.D., MEES 2007, UMCP: The toxic diatom *Pseudo-Nitzschia* and Domoic Acid in Chesapeake Bay

Sean Cooney, MS 2008, MEES, UMCP (co-advisor with Wayne Coats): Mixotrophy in dinoflagellate parasites of fish

Desmond Johns, MS 2009, MEES, UMCP: Effect of pH on phytoplankton and bacteria production.

Yonghui Gao, Ph.D., 2011. MEES, UMCP (co-advisor with Jeff Cornwell): Regulation of estuarine biogeochemical processes by cyanobacterial blooms.

Current Projects:

Collaborative Research: The effects of diatom-produced polyunsaturated aldehydes on the microbial food web in temperate and polar waters. (PI: PJ Lavrentyev, CoPIs: Pierson and Stoecker). \$697,972 (4/1/14-3/31/17)

Collaborator, Acquired Phototrophy among Marine Protists (PI: P J Hansen, The Danish Council for Independent Research, 2015-2019)