

CURRICULUM VITAE

Judith Marie O'Neil

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I. Education

- 1983 B.S., Boston College, Chestnut Hill, MA. Biology.
1987 M.S., State University of New York at Stony Brook, NY. Marine Environmental Science.
1995 Ph.D., University of Maryland, College Park, MD. Marine Environmental and Estuarine Studies (Biological Oceanography).

II. Professional Background

- 1995-1999 Research Officer, School of Marine Science/Zoology Department University of Queensland, Brisbane, Australia.
1999-2001 Australian Research Council Fellow (APDI), Botany Department and Lecturer, Centre for Marine Studies, University of Queensland, Brisbane, Australia
2002-2004 Lecturer (Assistant Professor), Centre for Marine Studies, University of Queensland, Brisbane, Australia (50%)
2002- Assistant Research Professor, Horn Point Laboratory, University of Maryland Center for Environmental Science, Cambridge, MD (49%)

Awards and Special Recognition

1999-2002 Australian Post-Doctoral Industry (APDI) Fellowship, Australian Research Council, Canberra.

III. Research

A. Areas of professional expertise

Biological oceanography, cyanobacterial ecophysiology, plankton trophodynamics, harmful algal bloom ecology, nutrient dynamics, marine botany, (sub) tropical coastal marine ecology, coral reef biology.

B. Peer Reviewed Publications (last 5 years)

In Press

O'Neil, J. M. & Capone, D.G. (in press) Nitrogen Cycling on Coral Reefs. Chapter X, In: Capone, D.G., Carpenter, E.J., Bronk, D.A. & Mulholland, M.R. (Eds.) Nitrogen in the Marine Environment. Academic Press.

Arthur, K.E., Capper, A., **O'Neil, J.M.** and Shaw, G.R. (accepted) A Survey of dominant toxins (lyngbyatoxin A and debromoaplysiatoxin) produced by the cyanobacterium *Lyngbya majuscula* in Australia and Pacific regions (*Marine and Freshwater Research*)

Wicks, E.C., Koch, E.W., **O'Neil, J.M.** and Elliston, K. (accepted) Old marsh peat as seagrass habitat substrate: Does sediment organic content have an effect on seagrass growth? (*Marine Ecol. Prog. Series*).

2007

Benson, E., **O'Neil, J.M.** and Dennison, W.C. (2008) Del-15 Nitrogen signal in the macrophyte *Valsineria americana* from Upper Saranac Lake, NY. *Hydrobiologia* 596: 187-196 Accepted and appeared online July 2007 DOI 10.1007/s10750-007-9095-0

Arthur, K.E., **O'Neil, J.M.**, Limpus, C.J., Abernathy, K. and Marshall, G.J. (2007). Using the Crittercam to assess green turtle (*Chelonia mydas*) foraging ecology in Moreton Bay, Australia. *Marine Technology Society Journal* 41: 5-9.

2006

Ahern, K.S. **O'Neil, J.M.**, Udy, J.W., and Albert, S., (2006) Effects of iron on filament growth and productivity of the cyanobacterium *Lyngbya majuscula* using. *Marine and Freshwater Biology* 57:167-176.

Capper, A, Tibbetts, IR, **O'Neil, J.M.** & Shaw, GR (2006) Feeding preference and deterrence in rabbitfish *Siganus fuscescens* for the cyanobacterium *Lyngbya majuscula* in Moreton Bay, South East Queensland, Australia, *Journal of Fish Biology* 68 (5):1589-1609.

Capper, A, Tibbetts, IR, **O'Neil, J.M.** & Shaw, GR (2006) Dietary selectivity for the toxic cyanobacterium *Lyngbya majuscula* and resultant growth rates in two species of opisthobranch mollusc. *Journal of Experimental Marine Biology and Ecology* 331:133-144.

Glibert, P.M., Heil, C.A., **O'Neil, J.M.**, Dennison, W.C. and O'Donohue, M.J. (2006) Inputs, Composition, and Rates of Uptake of Nitrogen, Phosphorus, Silica and Carbon in Moreton Bay, Queensland, Australia: Evidence for Differential Limitation of Plankton Biomass and Production *Estuaries* 29:107-119.

Mulholland, M.R., Bernhardt, P.W., Heil, C.A., Bronk, D.A. and **O'Neil, J.M.** (2006) Nitrogen fixation and release of fixed nitrogen in the Gulf of Mexico. *Limnology and Oceanography* 51:1762-1776.

2005

O'Neil, J.M. & Dennison, W.C. (2005) *Lyngbya majuscula* in Southeast Queensland waterways. Chapter In: Abal, E.G., Bunn, S.E. and Dennison, W.C. (eds). Healthy Catchment, Health Waterways. South East Queensland Regional Water Quality Strategy, Brisbane City Council. pp 119-148.

Albert, S., **O'Neil, J.M.**, Udy, J.W., Ahern, K.S., O'Sullivan, C.M. and Dennison W.C. (2005) Blooms of the cyanobacterium *Lyngbya majuscula* in coastal Queensland, Australia: disparate sites, common factors. *Marine Pollution Bulletin* 51: 428-437.

Watkinson, A.J., **O'Neil, J.M.**, and Dennison, W.C. (2005) Ecophysiology of the bloom forming cyanobacterium *Lyngbya majuscula* in Moreton Bay, Australia. *Journal of Harmful Algae* 4: 697-715.

Capper, A, Tibbetts, IR, **O'Neil, J.M.** & Shaw, GR (2005) The fate of *Lyngbya majuscula* toxins in three potential consumers. *Journal of Chemical Ecology*. 31 (7): 1595-1606.

2004

- Bronk, D.A., Sanderson, M.P., Mulholland, M.R., Heil, C.A. and **O'Neil, J.M.** (2004) Organic and inorganic nitrogen uptake kinetics in field populations dominated by *Karenia brevis*. In: Steidinger, K.A., Landesberg, J.H., Tomas, C.R., and Vargo, G.A. (Eds.) *Harmful Algae 2002*. Florida Fish and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg FL, USA p. 80-83.
- Capper, A. Tibbetts, I.R., **O'Neil, J.M.** and Shaw, G.R. (2004). A review of feeding preferences and deterrence in three faunal species associated with cyanobacterial blooms of *Lyngbya majuscula* in southeast Queensland, Australia In: Steidinger, K.A., Landesberg, J.H., Tomas, C.R., and Vargo, G.A. (Eds.) *Harmful Algae 2002*. Florida Fish and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg FL, USA p. 461-465.
- Heil, C.A., Mulholland, M.R., Bronk, D.A., Berhardt, P. and **O'Neil, J.M.** (2004) Bacterial and size fractionated primary production within the 2001 *Karenia brevis* bloom on the West Florida shelf. In: Steidinger, K.A., Landesberg, J.H., Tomas, C.R., and Vargo, G.A. (Eds.) *Harmful Algae 2002*. Florida Fish and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg FL, USA p. 38-41.
- Mulholland, M.R., Heil, C.A., Bronk, D.A., **O'Neil, J.M.** and Bernhardt, P. (2004) Does nitrogen regeneration from the Nitrogen fixing cyanobacteria *Trichodesmium spp.* fuel *Karenia brevis* blooms in the Gulf of Mexico? In: Steidinger, K.A., Landesberg, J.H., Tomas, C.R., and Vargo, G.A. (Eds.) *Harmful Algae 2002*. Florida Fish and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO, St. Petersburg FL, USA p. 47-50.

Submitted

- Paerl, H.W., Joyner, J.J., Joyner, A., Arthur, K.E., Paul, V.J., **O'Neil, J.M.** and Heil, C.A. (submitted). Co-occurrence of dinoflagellate and cyanobacterial harmful algal blooms in Florida coastal waters: A case for dual nutrient (N and P) input controls. (*Marine Ecology Progress Series*)
- O'Neil, J.M.**, Heil, C.A., Mulholland, M.R. and Bronk, D.A. (submitted) Regulation of alkalinephosphatase and peptide hydrolysis activity in the cyanobacterium *Trichodesmium spp.* by copepod grazers. (*Marine Ecology Progress Series*).
- Lawn, T.E. S., **O'Neil, J.M.**, Preker, M. (submitted) Macrofauna associated with blooms of the cyanobacterium *Lyngbya majuscula* in Moreton Bay. (*Marine and Freshwater*).

In revision/or submitted backlog

- O'Neil, J.M.**, Duffy, E.J., Lawn, T., Albert, S. and Ahern, K. (in revision) Factors affecting N₂ fixation rates of the marine cyanobacterium, *Lyngbya majuscula* (*Marine Ecology Progress Series*).
- O'Neil, J.M.**, Heil, C.A., Glibert, P.M., Greenwood, J., Miller, C.A. and Greenwood, J.G. (in revision) Plankton Community Changes and Nutrient Dynamics Associated with a Bloom of the Pelagic Cyanobacterium *Trichodesmium*: A Eulerian Study. *Journal of Plankton Research*.

Capper, A, Tibbetts, IR, **O'Neil, J.M.** & Shaw, GR (in revision) Uptake of ¹⁴C-labelled *Lyngbya majuscula* as a measure of assimilation in three herbivorous species from Moreton Bay, South East Queensland, Australia, *Marine Biology*.

Heil, C.A., **O'Neil, J.M.**, Glibert, P.M. and O'Donohue, M.J. (submitted) Temporal and Spatial Gradients in Phytoplankton Community Composition and Abundance in Moreton, Bay, Australia. (*J. Plank. Res*).

In Preparation

O'Neil, J.M., Osborne, NJT, Albert, S. and Shaw, G.R. Tissue C, N and P content of the cyanobacterium *Lyngbya majuscula* correlates with toxin content and bloom stage. *Toxicon*.

Lawn, T.E. S., **O'Neil, J.M.** (in prep) Effects of associated organisms on the physiology of the bloom forming cyanobacterium *Lyngbya majuscula* in Moreton Bay, Australia. (*Marine Ecology Progress Series*).

Thomas, J. and **O'Neil, J.M.** (in prep) Nitrogen fixation in the rhizosphere of the chlorophyte *Caulerpa taxifolia* in Moreton Bay Australia. (*Journal of Phycology*).

Borgatti, R., **O'Neil, J.M.**, Dennison, W.C. and Feller, I.C. (In Prep) Nutrient enrichment effects on mangrove sediments in differing tree height zones in Bocas del Toro, Panama. *Journal of Caribbean Science*.

C. Contracts and Grants 2006

1. New Awards:

a) NOAA ECOHAB Regional *Karenia* Nutrient Dynamics in the Eastern Gulf of Mexico: 2007-2012. 5 year, multidisciplinary study on nutrient and grazer interactions involved in bloom formations of the harmful dinoflagellate *Karenia*. \$500K (O'Neil). CoPIs: C. Heil (FFWC); D. Bronk (VIMS); K. Dixon (Mote); G. Hitchcock (U Miami); G. Kirkpatrick (Mote); M. Mulolland (ODU)

b) National Geographic pilot project: Assessing the Use of the Critter-Cam on the green sea turtle *Chelonia mydas* foraging behaviour during *Lyngbya majuscula* blooms in Moreton Bay, Australia (in-kind; travel and research supplies)w/ Greg Marshall (National Geographic); Karen Arthur (Smithsonian Marine Lab); Col Limpus (EPA Queensland).

c) Maryland Coastal Bays: Nutrient dynamics in Maryland Coastal Bays: 25K (Feb-Sep 2007); with T. Carruthers; T. Fisher. Investigating land source effects on nutrient and plankton dynamics in Maryland Coastal Bays.

2. Continuing Awards

a) LyngbyaHAB: Ecology of the toxic cyanobacterium *Lyngbya spp.* in Florida estuarine and coastal waters. National Oceanographic and Atmospheric Administration: ECOHAB. 2005-2008 \$152K. (Co-Principal Investigator, 17% time with H. Paerl UNC; V. Paul Smithsonian Marine Station, FL).

3. Submitted Proposals 2007

National Geographic Expedition Council Pre-proposal; "The Rise of Slime": Using the Critter-Cam to assess foraging behaviour of sea turtle and dugong foraging behaviour during *Lyngbya majuscula* blooms in Moreton Bay, Australia. \$30K w/ Greg Marshall (National Geographic);

Karen Arthur (Smithsonian Marine Lab); Col Limpus (EPA Queensland). Moved on to full proposal request for April 2008 submission.

D. Conferences, Seminars and Presentations 2007

O'Neil, J.M., and Marshall, G. (2007) Using the Crittercam to assess turtle grazing behaviour on the cyanobacterium *Lyngbya majuscula* the "wild-view". February 12, 2007; University of Queensland, Stradbroke Island Research Station Seminar.

Arthur, K.E. and **O'Neil, J.M.**, (2007) Using the Crittercam to assess green turtle (*Chelonia mydas*) foraging ecology in Moreton Bay. 1st International Animal Borne Imaging Symposium, National Geographic, Washington, DC. Invited co-presenters:
<http://www.nationalgeographic.com/abis/speakers.html>

E. Active Memberships in Professional Societies

American Society for Limnology and Oceanography
Australian Coral Reef Society
International Society for Study of Harmful Algae

IV. Teaching and Training

2007	Designed MEES 608A: MEES seminar with input from HPL graduate students, for Spring Semester. "Current topics in Aquatic Science".
2002-1999-2004	Assistant Research Professor, Member Graduate Faculty, MEES Program. Lecturer (Assistant Professor), Biological and Chemical Sciences Faculty, Centre for Marine Studies, University of Queensland, Brisbane, Australia
1995-1999	Lecturer, School of Marine Science/ Zoology Department, University of Queensland Brisbane, Australia.

A. Graduate Students Supervised as Major Advisor or Co-Advisor at University of Queensland (UQ).

1. Degrees Completed

Webb, Graham; Honours, Environmental Science 1998; UQ. "Assessing zooplankton grazing in Moreton Bay by measuring short-term changes in chlorophyll *a* concentrations."

Hewson, Ian; Honours, Botany 2000; UQ. "Dynamics of marine viruses along eutrophication gradients in Australian subtropical estuaries.

Watkinson, Andrew; Honours; Botany 2000; UQ "Ecophysiology of the bloom forming cyanobacteria *Lyngbya majuscula* in Moreton Bay.

Albert, Simon; Honours; Environmental Science 2001;UQ. "The effect of soil extracts on the physiology of *Lyngbya majuscula* (Cyanophyta)."

Lawn, Tanya; Honours; Botany 2002;UQ. "Dynamics and Effects of Macrofauna Associated with *Lyngbya majuscula* in Moreton Bay."

Ahern, Kathleen; Honours; Environmental Science 2003; UQ. Effect of nutrients on the cyanobacterium *Lyngbya majuscula*: A bioassay technique."

O'Sullivan, Cherie; Honours; Environmental Science 2004; UQ. "Organic characterization and impact on *Lyngbya majuscula* blooms in Deception Bay, South East Queensland.

Capper, Angela; PhD Zoology/Centre for Marine Studies 2004; UQ. "Ecotoxicology of the Cyanobacterium *Lyngbya majuscula* and Four Herbivores in Moreton Bay, South East Queensland, Australia.

B. Graduate Students Supervised as Major Advisor at University of Maryland MEES program:

2007 Graduate Students Current MEES student principle Advisor

Amy Rachel Borgatti M.S. Student (Smithsonian Fellowship-SERC)
Kristen Beckert M.S. Student (Horn Point Fellowship)

2007 Graduate Student Committee Membership

Yonghui	PhD	MEES	HPL University of Maryland
Ji Li	MS	MEES	HPL University of Maryland

Committee Membership: Degrees Completed

Eric Nagel	MS	2004	MEES	HPL University of Maryland
Monica Salerno	MS	2005	MEES	HPL University of Maryland
Anne Thessen	PhD	2007	MEES	HPL University of Maryland
Tim Salmon	PhD	2007	Env. Engineering	UNSW, Sydney

Research Experience for Undergraduates (REU) Program Mentor- Maryland Seagrant

Kahla Elliston	University of Texas A & M, Corpus Christie	2005
Jeanette Davis	Hampton University, Hampton, Virginia	2006
David Needham	Huntington College, Birmingham, AL	2007

V. **Outreach and Service**

A. International

Queensland Environmental Protection Agency, Brisbane, Australia; *Lyngbya* Steering Committee. Science Advisor. External Reviewer-Scientific Expert Panel.

Southeast Queensland Healthywaterways Campaign, Brisbane City Council and Shires, *Lyngbya* Scientific Expert Panel: Science Advisor on cyanobacterial ecophysiology.

B. National

Collaborated with *Los Angeles Times Science* Editor Ken Weiss on 5 piece article "Altered Oceans"; published in LA Times July 30-Aug 3 2006

(<http://www.latimes.com/news/local/oceans/la-oceans-series.0.7842752.special>)

Lyngbya green sea turtle research with Crittercam featured in National Geographic Society, *Wild Chronicles* (episode 237) Airing on PBS. Fall 2007/Winter 2008

C. State

Member Board of Directors Chesapeake Girl Scout Council, Dover DE. Covers Eastern Shore (DE, MD, VA). Environmental representative.

D. UMCES and Laboratory

Horn Point Laboratory Recycling Committee (2002-2005; Chair 2006-2007)

Horn Point Laboratory Environmental Education Committee (2006)
Horn Point Environmental Sustainability Committee (2007)
Horn Point Laboratory Education Committee Member (2002-2006)
Horn Point Laboratory Diving Safety Committee (2002-2006)
Student Seminar Coordinator (June 2002-2004).

MEES Ecology AOS Admissions committee (2007)

Chair MEES Graduate Student Colloquium Committee: Head of organizing committee for MEES Colloquium held at Horn Point September 17-18, 2004

MEES Colloquium participant 2004-2007

Horn Point Open House participant 2002-2007

- E. Editorial Board, Journal of Harmful Algae (2005- present)
- F. Proposal reviewer for: NSF, NY Seagrant, NOAA ECOHAB;
- G. Manuscript reviewer for: Limnology and Oceanography; FEMS Microbiology, Hydrobiologia; Journal of Harmful Algae