

## Summary Vitae

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**POSITION:** Professor  
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### EDUCATION:

<u>University</u>	<u>Major</u>	<u>Dates</u>	<u>Degree</u>
University of Miami, RSMAS	Marine Biology	1977-81	PhD
University of Miami, RSMAS	Biological Oceanogr.	1972-76	MS
University of California, SD	Biology	1968-72	BA

### PROFESSIONAL EXPERIENCE

#### (A) Positions:

<u>Dates</u>	<u>Organization</u>	<u>Position</u>
2004-current	University of Florida	Professor
2001-04	University of Florida	Professor & Graduate Coordinator
1994-00	University of Florida	Associate Professor & Graduate Coordinator
1988-93	University of Florida	Assistant Professor
1983-87	University of Florida	Assistant Research Scientist
1981-83	University of Miami (R.S.M.A.S.)	Post-doc

**TEACHING:** Current graduate level class on Applied Phycology (FAS 6176) and graduate/undergraduate class on Algae Biology and Ecology (FAS4932/6176). Served on 117 graduate student committees, including 38 as Chair (23 MS and 15 PhD).

### CURRENT PROFESSIONAL ACTIVITIES:

Invited member of the National Harmful Algal Bloom Committee: 2009-present.

Invited member of the Florida Department of Agriculture and Consumer Services Transgenic Aquatic Species Task Force: 2009-present.

Member American Society of Limnology and Oceanography: 1981-present.

Technical Advisory Committee Member, Marine Numeric Nutrient Criteria (MTAC). Florida Department of Environmental Protection and U.S.E.P.A.

Science Expert. Task force on the affects of water withdrawal from St. Johns River. St. Johns River Water Management District and National Research Council.

## PHLIPS PUBLICATIONS

1. Phlips, E. J. 1976. Esterase and lactate dehydrogenase isozymes of the deep sea shrimp genus *Glyphocrangon*. Masters Thesis, University of Miami, 248pp.
2. Messing, C. and E. J. Phlips. 1976. Tongue-of-the-Ocean:one mile deep. *Bahamas Naturalist* 1(2):1-8.
3. Mitsui, A., E. Duerr, S. Kumazawa, E. J. Phlips and H. Skjoldal. 1979. Biological solar energy conversion: Hydrogen production and nitrogen fixation by marine blue-green algae. In *Sun II*. Pergamon Press, New York, 1979, pp. 31-35.
4. Phlips, E. J. 1981. The environmental regulation of hydrogen production in the marine cyanobacteria Miami BG7 *Oscillatoria* sp. Doctoral dissertation, University of Miami, Florida, 113 pp.
5. Phlips, E. J. 1982. Biological sources of energy from the sea. *Sea Frontiers* 28(1):36-46.
6. Phlips, E. J. and A. Mitsui. 1982. Temperature preference and tolerance of aquatic photosynthetic microorganisms. In C.C. Black and A. Mitsui (Eds.), *Handbook of Biosolar Resources*. CRC Press, Boca Raton, Florida, p. 335-362.
7. Phlips, E. J. and A. Mitsui. 1982. Light intensity preference and tolerance of aquatic photosynthetic microorganisms. In C.C. Black and A. Mitsui (Eds.), *Handbook of Biosolar Resources*. CRC Press, Boca Raton, Florida, p. 257-308.
8. Phlips, E. J. and A. Mitsui. 1982. Light intensity preference and tolerance of aquatic photosynthetic macroalgae. In C.C. Black and A. Mitsui (Eds.), *Handbook of Biosolar Resources*. CRC Press, Boca Raton, Florida, p. 309-334.
9. Phlips, E. J. and A. Mitsui. 1982. Temperature preference and tolerance of aquatic photosynthetic macroalgae. In C.C. Black and A. Mitsui (Eds.), *Handbook of Biosolar Resources*. CRC Press, Palm Beach, Florida, p. 363-378.
10. Phlips, E. J. and A. Mitsui. 1983. Role of light intensity and temperature in the regulation of hydrogen production by the marine cyanobacteria *Oscillatoria* sp. Miami BG7. *Applied and Environmental Microbiology* 45:1212-1220.
11. Mitsui, A., E. J. Phlips, S. Kumazawa, K. J. Reddy, S. Ramachandran, T. Matsunaga, L. Haynes and H. Ikemoto. 1983. Progress in research toward outdoor biological hydrogen production using solar energy, seawater and marine photosynthetic microorganisms. *Annals New York Academy of Sciences* 413:515-30.
12. Phlips, E. J. and A. Mitsui. 1984. Development of Hydrogen production activity in the marine blue-green alga *Oscillatoria* sp. Miami BG7 under natural sunlight conditions. In

- C. Sybesma (ed.), Adv. Photosynthetic Research. M. Nijhoff/Dr. W. Junk Publ., Amsterdam, p. 801-804.
13. Mitsui, A., S. Kumazawa, E. J. Phlips, K. J. Reddy, K. Gill, T. Matsunaga, B.R. Renuka, T. Kuzumi, G. Reyes-Vasquez, K. Miyazawa, L. Haynes, H. Ikemoto, E. Duerr, C. B. Leon, D. Rosner, R. SESCO and E. Moffat. 1984. Mass cultivation of algae and photosynthetic bacteria: concepts and application. Proceedings of the International Biotechnology Symposium 7:138-167.
  14. Mitsui, A., D. Rosner, S. Kumazawa, S. Barciela, E. J. Phlips, K. Reddy, S. Ramachandran, A. Takahashi. 1984. Blue-green algae and solar radiation. Proceedings of the 22nd Space Congress of NASA 22:267-288.
  15. Phlips, E. J. and A. Mitsui. 1986. Characterization and optimization of hydrogen production by a saltwater blue-green alga *Oscillatoria* sp. Miami, BG7. II. Use of immobilization for enhancement of hydrogen production. International Journal of Hydrogen Energy 11:83-89.
  16. Phlips, E. J., M. Willis and A. Verchick. 1986. Aspects of nitrogen fixation in *Sargassum* communities off the coast of Florida. Journal of Experimental Marine Biology and Ecology 102:99-119.
  17. Phlips, E. J. 1987. Nitrogen fixation in marine communities and its potential role in seaweed cultivation. In K. Bird and C. Benson (Eds.). Seaweed Cultivation for Renewable Resources. Elsevier Press, Amsterdam, 1987, p. 241-284.
  18. Shanmugan, K. T., E. J. Phlips and H. Spiller. 1988. Nitrogen fixation in Sargassum Biomass Production Systems. In W. Smith and J. Frank (Eds.), Methane from Biomass. Elsevier. Amsterdam, p. 197-210.
  19. Phlips, E. J., C. Zeman and P. Hansen. 1989. Growth, photosynthesis, nitrogen fixation and carbohydrate production by a unicellular cyanobacterium, *Synechococcus* sp. (Cyanophyta). Journal of Applied Phycology 1:137-145.
  20. Canfield, D. E., E. J. Phlips and C. Duarte. 1989. Factors influencing the abundance of blue-green algae in Florida lakes. Canadian Journal of Fisheries Aquatic Science 46:1232-1237.
  21. Phlips, E. J., R. L. Monegue and F. J. Aldridge. 1990. Cyanophages which impact bloom-forming cyanobacteria. Journal of Aquatic Plant Management 28:92-97.
  22. Phlips, E. J. and C. Zeman. 1990. Photosynthesis, growth and nitrogen fixation by epiphytic forms of filamentous cyanobacteria from pelagic *Sargassum*. Bulletin Marine Science 47:613-621.

23. Polak, J. T., M. Balabon, A. Peplow and E. J. Phlips. 1990. Supercritical carbon dioxide extraction of lipids from algae. In K. P. Johnston and J. M. Penninger, *Supercritical Fluid Science and Technology*. ACS Symposium Series 406:449-467.
24. Polak, J. T., M. Balabon, A. Peplow and E. J. Phlips. 1990. Extraction of lipids from algae. In *Engineering and Food, Advanced Processes*. Elsevier Applied Sci., New York, 1990, p.166-182.
25. Monegue, R. L. and E. J. Phlips. 1991. The effect of cyanophages on the growth and survival of *Lyngbya birgei*, *Anabaena flos-aquae*, and *Anabaena circinalis*. *Journal of Aquatic Plant Management* 29:88-93.
26. Phlips, E. J., J. Innat and M. Conroy. 1992. Nitrogen fixation by the benthic freshwater cyanobacterium *Lyngbya birgei*. *Hydrobiologia* 234:59-64.
27. Agusti, S. and E. J. Phlips. 1992. Light absorption by cyanobacteria: Implications of the colonial growth form. *Limnology and Oceanography* 37:434-441.
28. Phlips, E. J., P. Hansen and T. Velardi. 1992. Effects of the herbicide Diquat on the growth of phytoplankton. *Bulletin of Environmental Contamination and Toxicology* 49:750-756.
29. Phlips, E. J., P. V. Zimba, M. S. Hopson and T. L. Crisman. 1993. Dynamics of the plankton community in submerged plant dominated regions of L. Okeechobee, Florida, USA. *Verh. Internat. Verein. Limnol.* 25:423-426.
30. Phlips, E. J., P. Hansen and T. Velardi. 1993. Enhancement of biomass crop production with nitrogen-fixing cyanobacteria. *Tropical Agriculture* 70:271-274.
31. Phlips, E. J., F. J. Aldridge, P. Hansen, P. V. Zimba, J. Innat, M. Conroy and P. Ritter. 1993. Spatial and temporal variability of trophic state parameters in a shallow subtropical lake (Lake Okeechobee, Florida, USA). *Archiv für Hydrobiologie* 128:437-458.
32. Newman, S., F. J. Aldridge, E. J. Phlips and K. R. Reddy. 1994. Assessment of phosphorus availability for plankton populations from a hypereutrophic lake. *Archiv Hydrobiologia* 130:409-427.
33. Phlips, E.J., Cichra, M., Badylak, S., Hopson, M., Lynch, T. 1994. Phytoplankton dynamics in a shallow subtropical lake during major changes in lake stage. *Lake and Reservoir Management* 9:103-104.
34. Phlips, E. J., F. J. Aldridge and C. Hanlon. 1994. Review of a 17-year chlorophyll a record as it pertains to the trophic status of Lake Okeechobee. *Water Resources Bulletin*. 30:229-238.

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36. Cichra, M., S. Badylak, N. Henderson, B. H. Rueter and E. J. Phlips. 1995. Phytoplankton community structure in the open water zone of a shallow sub-tropical lake (Lake Okeechobee, Florida). *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:157-175.
37. Crisman, T. L., E. J. Phlips and J. R. Beaver. 1995. Bacterioplankton seasonality and environmental relationships in Lake Okeechobee, Florida. *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:203-211.
38. Crisman, T. L., E. J. Phlips and J. R. Beaver. 1995. Zooplankton seasonality and trophic state relationships in Lake Okeechobee, Florida. *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:213-232.
39. Mason, W. T., R. W. Brody and E. J. Phlips. 1995. Abundant benthic macroinvertebrates in the lower St. Johns River, Florida, pose nuisances and wildlife benefits. *National Biol. Survey Information Bulletin*. No. 26. U.S. Department of Interior, Washington, D.C. 3 pp.
40. Phlips, E. J., F. J. Aldridge and C. Hanlon. 1995. Potential limiting factors for phytoplankton standing crop in a shallow sub-tropical lake (Lake Okeechobee, Florida). *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:137-155.
41. Phlips, E. J., F. J. Aldridge and P. Hansen. 1995. Patterns of water chemistry, physical and biological parameters in a shallow subtropical lake (Lake Okeechobee, Florida). *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:117-135.
42. Phlips, E. J. and J. Ihnat. 1995. Nitrogen fixation in a shallow sub-tropical lake (Lake Okeechobee, Florida). *Arch. Hydrobiol. Special Issues, Advances in Limnology* 45:191-201.
43. Phlips, E. J., F. J. Aldridge, C. L. Schelske and T. L. Crisman. 1995. Relationship between light availability, chlorophyll *a* and tripton in a large shallow sub-tropical lake. *Limnology and Oceanography* 40:416-421.
44. Phlips, E. J., T. C. Lynch and S. Badylak. 1995. Chlorophyll *a*, tripton, color and light availability in a shallow tropical inner shelf lagoon, Florida Bay. *Marine Ecology Progress Series*. 127:223-234.
45. Phlips, E. J. and S. Badylak. 1996. Spatial distribution and composition of algal blooms in Florida Bay. *Bulletin of Marine Science*. 58(1):203-216.

46. Hallingse, M. and E. J. Phlips. 1996. Effects of the herbicide Cutrine and the surfactant Cide-Kick on the growth of algae and cyanobacteria. *Journal of Aquatic Plant Management*. 34:39-40.
47. Havens, K., L. A. Bull, G. L. Warren, T. L. Crisman, E. J. Phlips and J. P. Smith. 1996. Food web structure in a subtropical lake ecosystem. *Oikos* 75:20-32.
48. Phlips, E. J. and E. L. Bledsoe. 1997. Plankton community structure and dynamics in the Suwannee River Estuary. In Lindberg, W. J. (Ed.), *Proceedings of the Florida Big Bend Coastal Research Workshop, May 7-8, 1997*. Florida Sea Grant Technical Paper 88:47-49.
49. Phlips, E. J., M. Cichra, K. Havens, C. Hanlon, S. Badylak, B. Rueter, M. Randall and P. Hansen. 1997. The control of phytoplankton abundance and structure by nutrient and light availability in a shallow subtropical lake. *Journal of Plankton Research* 19:319-342.
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51. Hansen, P., E. J. Phlips and F. J. Aldridge. 1997. Algal growth response to sediment resuspension in a shallow subtropical lake, Lake Okeechobee: A laboratory simulation. *North American Lake Reservoir Management* 13: 154-159.
52. Hopson, M. S., P. V. Zimba, E. J. Phlips, C. A. Fernandes, and J. S. Davis. 1998. Temporal variations in biomass of the algal epiphytes associated with the dominant submersed macrophytes in Lake Okeechobee, Florida (USA). *Verh. Internat. Verein. Limnol.* 26: 1716-1720.
53. Havens, K.E., E. J. Phlips, M. F. Cichra and B. L. Li. 1998. Light availability as a possible regulator of cyanobacteria species composition in a shallow subtropical lake. *Freshwater Biology* 39:547-556.
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55. Bledsoe, E. and E. J. Phlips. 2000. Nutrient versus light limitation of phytoplankton in the Suwannee River and Estuary. *Estuaries* 23:458-473.
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57. Phlips, E. J., M. Cichra, F. J. Aldridge, J. Hendrickson, J. Jembeck<sup>1</sup> and R. Brody. 2000. Light availability and variations in phytoplankton standing crops in a nutrient-rich blackwater river. *Limnology and Oceanography* 45:916-929.
58. Miles, C. J., H. A. Moye, E. J. Phlips and B. Sargent. 2001. Partitioning of monomethylmercury between freshwater algae and water. *Environmental Science and Technology* 35:4277-4282.
59. Phlips, E. J. 2001. The toxic algae threat in Florida: A tempered view. *Waterworks* 5:1-5.
60. Phlips, E. J. 2001. The toxic algae threat in Florida. *Florida Lakewatch* 20: 1-3.
61. Baker, S. M., D. Heuberger, E. J. Phlips and L. N. Sturmer. 2002. Water quality and its role in hard clam production. Cooperative Extension Service Technical Bulletin 4-02. Institute of Flood and Agricultural Sciences, University of Florida, Gainesville, Florida. 6pp.
62. Moye, H. A., C. J. Miles, E. J. Phlips, B. Sargent and K. K. Merritt. 2002. Kinetics and uptake for monomethylmercury between freshwater algae and water. *Environmental Science and Technology* 36:3550-3555.
63. Phlips, E. J. 2002. Eutrophication and algae. In G. Bitton (Ed.), *Encyclopedia of Environmental Microbiology*. John Wiley and Sons.
64. Phlips, E. J. 2002. The state of toxic freshwater algae in Florida. *Aquatics* 24:8-19.
65. Phlips, E. J., S. Badylak and T. Grosskopf. 2002. Factors affecting the abundance of phytoplankton in a restricted subtropical lagoon, the Indian River Lagoon, Florida, USA. *Estuarine, Coastal and Shelf Science* 55:385-402.
- 65.1. Schueller, J., S. Baker, W. Lee, C. Montague, E. Phlips, T. Burks, J. Jordan, J. Mishoe, M. Salyani, A. Schumann. 2003. Development of precision agriculture sensing technology for clam and citrus production. Proc. 4<sup>th</sup> Annual European Conference on Precision Agriculture, pp. 565-566.
66. Phlips, E. J., E. Bledsoe, M. Cichra and S. Badylak. 2003. The distribution of potentially toxic cyanobacteria in Florida. In Johnson, D. and Harbison, R. D. (Eds.), *Proceedings of Health Effects of Exposure to Cyanobacterial Toxins: State of the Science*. Florida Department of Health and the Center for Disease Control. St. Peterburg, Florida.
67. Phlips, E. J., G. Hitchcock, L. Brand and D. Morrison. 2003. Plankton blooms. In Nuttle, W. *A Synthesis of Research on Florida Bay*. U.S. Geological Survey, Florida Caribbean Science Center, Gainesville, Florida.

68. Phlips, E. J., S. Badylak, S. Youn and K. Kelley. 2004. The occurrence of potentially toxic dinoflagellates and diatoms in a subtropical lagoon, the Indian River Lagoon, Florida, USA. *Harmful Algae* 3:39-49.
69. Bledsoe, E., E. J. Phlips, C. E. Jett and K. A. Donnelly. 2004. The relationships among phytoplankton biomass, nutrient loading and hydrodynamics in an inner-shelf estuary, the Suwannee River estuary, Florida, USA. *Ophelia* 58:29-47.
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71. Badylak, S., K. Kelly and E. J. Phlips. 2004. A description of *Pyrodinium bahamense* from the Indian River Lagoon, Florida, USA. *Phycologia* 43:653-657.
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74. Havens, K. and E. Phlips. 2005. Toxic blue-green algae blooms in Florida waters. *Water Works* 9 (4):1-4.
75. Phlips, E.J. J. Frost, M. Yilmaz, N. Steigerwalt and M. Cichra. 2005. Factors controlling the abundance and composition of blue-green algae in Lake Griffin. St. Johns River Water Management District. Special Publication SJ2005-SP4. Palatka, Florida.
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79. Munch, D. A., D. J. Toth, C. Haung, D. M. Fortich, W. L. Osburn, E. J. Phlips, E. L. Quinlan, M. S. Allen, M. J. Woods, P. Cooney, R. L. Knight, R. A. Clarke and S. L. Knight. 2007. Fifty-year retrospective study of the ecology of Silver Springs, Florida.



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81. Badylak, S., E. J. Phlips, P. Baker and J. Fajans and R. Boler. 2007. Distributions of phytoplankton in Tampa Bay, USA. *Bulletin of Marine Science* 80:295-317.
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86. Yang, Y., Z. He, Y. Lin, C. A. Powell, E. J. Phlips, J. Yang, G. Chen and P. J. Stofella. 2008. Temporal and spatial variations of nutrients in Ten Mile Creek of South Florida, USA and effects on phytoplankton biomass. *Journal of Environmental Monitoring* 10:508-516.
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in two Amazon flood plain lakes of varying hydrologic connectivity to the main river channel. *Fundamental and Applied Limnology* 172:99-109.

91. Phlips, E. J., S. M. Baker, K. Knickerbocker, K. Black and N. Dix. 2008. Effects of hard clam (*Mercenaria mercenaria*) high density culture on water quality in a shallow semi-restricted bay. *Florida Scientist* 71:330-340.
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94. Yilmaz, M. and E. J. Phlips. 2008. Investigation of microcystin concentrations and possible microcystin producing organisms in some Florida lakes and fish ponds. *Advances in Experimental Medicine and Biology* 619:170-172.
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104. Riley, L., N. Dix and E. J. Phlips. 2010. A new attachment device for deployment of monitoring equipment in estuaries and other high energy environments. *Environmental Monitoring and Assessment* 65:502-522.
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**CURRENT CONTRACTS AND GRANTS – (Total - \$10,046,895 as PI since 1983).**

<u>PROJECT – ROLE</u>	<u>FUNDING AGENCY</u>	<u>FUNDING</u>	<u>DURATION</u>
Harmful algal blooms in the Indian River Lagoon - PI	National Estuary Program US Environmental Protection Agency/IRL NEP	\$151,101	2018-2019
Phytoplankton community Composition and biovolume In Manatee Bay, Barnes Sound and NE Florida Bay – PI	South Florida Water Management District	\$40,000	2018-2020
Plankton collection, identification and enumeration for Indian River Lagoon and the St. Johns River – PI	St. Johns River Water Management District	\$38,000	2017-2018
Indian River Lagoon plankton Investigations - algal nutrient uptake dynamics, nitrogen fixation, bacteria and microzooplankton – PI	St. Johns River Water Management District	\$378,000	2013-2018
Ecological function and recovery of biological communities within dredged ridge-swale habitats in the South-Atlantic Bight – co-PI - algae, zooplankton and water chemistry sections	Bureau of Ocean Energy Management – U.S. Department of Interior	\$551,000 (Phlips total of 5.1M for overall project)	2013-2019