

CURRICULUM VITAE

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EDUCATION:

M.S., Marine Environmental Sciences, State University of New York at Stony Brook, May 1985
Specialized in Marine Biogeochemistry
Thesis Title: Hydrogen Cycling Within the Anoxic Sediments of an Estuary.

B.S. Zoology, University of Rhode Island, 1982.
Areas of Interest: Chemistry and German

EXPERIENCE:

June 1989-Present. IRMS Laboratory Manager, Boston University Stable Isotope Laboratory, Boston University Department of Biology. Responsible for full operation of the lab and maintaining a Finnigan Delta-S and two GV Instruments IsoPrime isotope ratio mass spectrometers with associated peripherals, including 3 elemental analyzers and MultiFlow device. Also responsible for generation of funds to maintain lab, collaborative research with other investigators (both within Boston University and with outside institutions), and methods development. In collaboration with VA Hospital doctors, developed medical procedure to detect ulcer-causing bacterium, *Helicobacter pylori*, resulting in patent.

June 1996. Instructor for S.I.R.F.E.R. Isotope Course, University of Utah, Salt Lake City. Laboratory instructor for short course in stable isotope methodology for environmental applications. Instructed graduate and post-graduate students in laboratory techniques, isotope ratio mass spectrometer operation and field techniques, as well as helping with theory and applications.

January 1988-June 1989. Laboratory Manager, Analytical Laboratory, The Ecosystems Center, Marine Biological Laboratory. Responsible for maintaining general use instrumentation, instructing other research assistants on use of equipment, and ensuring the safety and organization of the lab. Instrumentation includes 2 gas chromatographs, Waters HPLC System, Dionex LC, Barnstead Nanopure System, Alpkem RFA-300 autoanalyzer, Leco sulfur determinator, Shimadzu UV-vis spectrophotometer, Jasco N-15 Analyzer. Supervised one laboratory assistant.

January 1986-June 1989. Laboratory Manager, Stable Isotope Laboratory, The Ecosystems Center, Marine Biological Laboratory. Responsible for continued operation of lab, and maintaining Finnigan MAT 251 mass spectrometer, as well as sample prep vacuum lines. Various duties include sample prep, ordering supplies, data work-up, contacting clients, teaching other technicians stable isotope techniques. As of May 1989 was responsible for Finnigan Delta-S and CHN Analyzer with trapping box. Was supervisor for two technicians. During Stable Isotope Workshop held here (May 1987) was responsible for running laboratory portion of Course.

January 1987-June 1989. MBL Diver, Marine Biological Laboratory. Certified NAUI Open Water Class I diver. Assisted various projects as needed for field work. Primarily involved collection of sediment cores.

August-September 1985. Quality Control Technician, Normandeau Associates Inc. Calibrated and maintained several models dissolved oxygen meters for field crews during project. Performed Winkler Titrations on stable water for calibrations. Assisted field crews as necessary.

March 1983-February 1985. Research Assistant under Dr. M.I. Scranton, Marine Sciences Research Center. Designed and implemented series of experiments looking at the role of hydrogen as a regulator of metabolic activities of anoxic bacteria within the environment of estuarine sediments. Was instrumental in eliminating problems associated with a new procedure. Collated data relevant to thesis topic.

July-August 1984. Summer Student Guest Investigator, Woods Hole Oceanographic Institution. Participated in field sampling program in Woods Hole for Dr. Scranton in connection with water column gas analysis. Worked both in lab and field collecting and analyzing samples. Work culminated in abstract presented at national meeting.

ORGANIZATIONS: American Society of Limnology and Oceanography
American Geophysical Union
Coastal & Estuarine Research Federation
New England Estuarine Research Society

PUBLICATIONS:

Rex, K., R. Michener, T.H. Kunz and C.C. Voigt. 2011. Vertical stratification of Neotropical leaf-nosed bats (Chiroptera Phyllostomidae) revealed by stable carbon isotopes. Journal of Tropical Ecology **27**: 211-222.

Rex, K., B.I. Czaczkas, R. Michener, T. Kunz and C.C. Voigt. 2010. Specialization and omnivory in diverse mammalian assemblages. Ecoscience **17(1)**: 37-46.

Evers, D. C., R. T. Graham, C.R. Perkins, R. Michener and T. Divoll. 2009. Mercury concentrations in the goliath grouper of Belize: an anthropogenic stressor of concern. Endangered Species Research **7(3)**: 249-256.

Carmichael, R.H., T. Hattenrath, I. Valiela, and R.H. Michener. 2008. Nitrogen stable isotopes in the shell of *Mercenaria mercenaria* trace wastewater inputs from watersheds to estuarine systems. Aquatic Biology **4**: 99-111.

Mateo, M. A., O. Serrano, et al. 2008. Effects of sample preparation on stable isotope ratios of carbon and nitrogen in marine invertebrates: implications for food web studies using stable isotopes. Oecologia **157**: 105-115.

Voigt, C. C., K. Rex, et al. 2008. Nutrient routing in omnivorous animals tracked by stable carbon isotopes in tissue and exhaled breath. Oecologia **157**: 31-40.

Michener, R. and K. Lajtha (eds.). 2007. Stable Isotopes in Ecology and Environmental Science, Second Edition. Blackwell Scientific Publications, Ltd. Oxford, England.

Nelson, D. M., F. S. Hu, et al. (2006). Stable-carbon isotope composition of *Poaceae* pollen: an assessment for reconstructing C₃ and C₄ grass abundance. The Holocene **16(6)**: 819-825.

Schwartz, J. D. M., M. J. Pallin, R.H. Michener, D. Mbabazi and L.Kaufman (2006). Effects of Nile perch, *Lates niloticus*, on functional and specific fish diversity in Uganda's Lake Kyoga system. African Journal of Ecology **44**: 145-156.

Sullivan, J. C., K. J. Buscetta, R. H. Michener, J. O. Whitaker, Jr., J. R. Finnerty & T. H. Kunz. 2006. Models developed from $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ of skin tissue indicate non-specific habitat use by the big brown bat (*Eptesicus fuscus*). Ecoscience **13(1)**:11-22.

Voigt, C.C., Michener, R., Wibbelt, G., Kunz, T.H., Helversen, O. von. 2005. Blood-sucking bugs as a gentle method for blood-collection in water budget studies using doubly labelled water. Comparative Biochemistry and Physiology A **142**:318-324

Levin, L.A., W. Ziebis, R. Michener, R. Lee and D. Harris. 2005. Macrofauna-microbe-environment interactions: new questions and answers from animal isotopic signatures. Presented at Winter 2005 American Society of Limnology Aquatic Sciences meeting, Salt Lake City, Utah.

Voigt, C.C., Kunz, T.H., Michener, R. 2005. The energetics of trading nuptial gifts with copulations in katydids. Physiological Biochemistry and Zoology. **78**: 417-423

Orrell, K.S., J.D. Congdon, T.A. Jenssen, R.H. Michener and T.H. Kunz. 2004. Intersexual differences in energy expenditure of *Anolis carolinensis* lizards during breeding and postbreeding seasons. Physiological Biochemistry and Zoology. **77(1)**: 50-64.

Montoya, J.P., K.M. Rathbun, N. Sheats, R. Michener, and C. Mayo. Isotopic tracking of sewage nitrogen in Massachusetts Bay. 2004. Presented at summer 2004 American Society of Limnology meeting.

Sullivan, J.C., K. Buscetta, R. Michener, J.O. Whittaker, and T.H. Kunz. 2004. Geographic variation in C and N stable isotope signatures in the big brown bat *Eptesicus fuscus*. Presented at 84th annual meeting of American Society of Mammology, Humbolt State University, Arcata, California.

Voigt, C.C., Matt, F., Michener, R., Kunz T.H. 2003. Low rates of carbon isotope turnover in tissues of two nectar-feeding bat species (Glossophaginae, Phyllostomidae). Journal of Experimental Biology. **206**: 1419-1427.

Voigt, C.C., von Helversen O., Michener, R. and T.H. Kunz. 2003. Validation of a non-invasive blood-sampling technique for doubly-labelled water experiments. Journal of Experimental Zoology, 296 A: 87-97

Levin, L.A. and R. H. Michener. 2002. Isotopic evidence for chemosynthesis-based nutrition of macrobenthos: The lightness of being at Pacific methane seeps. Limnology and Oceanography. **47(5)**: 1336-1345.

Vizzini, S., G. Sara, et al. 2002. "Trophic role of the macrophyte *Cymodocea Nodosa* (Ucria) Asch. in a Mediterranean saltworks: evidence from carbon and nitrogen stable isotope ratios." Bulletin of Marine Science **71(3)**: 1369-1378.

Vizzini S., G. Sarà, R. H. Michener, and A. Mazzola. 2002. The role and contribution of *Posidonia oceanica* (L.) Delile organic matter for secondary consumers as revealed by carbon and nitrogen stable isotope analysis. Acta Oecologia. **23**: 277-285.

M.A. Mateo, P. Renom, R. Julià, J. Romero, R. Michener. 2001. An unexplored sedimentary record for the study of environmental change in Mediterranean coastal environments: *Posidonia oceanica* (L.) Delile peats. IAEA C&S Paper Series , 13P: 163-173

Mitchell, M.J., C.T. Driscoll, J.S. Owen, D. Schaefer, R. Michener and D.J. Raynal. 2001. Nitrogen biogeochemistry of three hardwood ecosystems in the Adirondack Mountains of New York. Biogeochemistry. **56**: 93-133.

Voigt, C., O. v. Helversen, R. Michener and T. H. Kunz. 2001. The economics of harem maintenance in the sac-winged bat, *Saccopteryx bilineata* (Emballonuridae). Behav. Ecol. Sociobiol. **50**: 31-36.

Levin, L. A., D. W. James, C. M. Martin, A. E. Rathburn, L. H. Harris and R. H. Michener 2000. Do methane seeps support distinct macrofaunal assemblages? Observations on community structure and nutrition from the northern California slope and shelf. Marine Ecology Progress Series. **208**: 21-39.

Michener, R.H., C.C. Voigt, O. von Helversen and T.H. Kunz. 2000. Which equation is superior for the calculation of daily energy expenditure in doubly-labelled water studies? A validation study with nectar-feeding bats. Presented at 2000 Applications Of Stable Isotope Techniques To Ecological Studies meeting, Braunschweig, Germany (abstract).

Owen, J.S., M.J. Mitchell and R.H. Michener. 1999. Stable carbon and nitrogen isotopic composition of seston and sediment in two Adirondack lakes. Canadian Journal of Fisheries and Aquatic Science. **56**: 2186-2192.

Downs, M.R., R.H. Michener, B. Fry and K.J. Knadelhoffer. 1999. Routine measurement of dissolved inorganic ¹⁵N in streamwater. Environmental Monitoring and Assessment. **55**: 211-220.

Jacoby, M.E., G.V. Hilderbrand, C. Servheen, S.C. Schwartz, S.M. Arthur, T.A. Hanley, C.T. Robbins, and R. Michener. 1999. Resource partitioning in North American Grizzly, Brown and Black bears. Journal of Wildlife Management. **69(3)**: 921-929.

Levin, L.A., A.E. Rathburn, D. James, J. Gieskes, C. Mahn, C. Martin, Z. Held, J. Sheldon, L. Harris, and R. Michener. 1998. Do Methane Seeps Support Distinct Infaunal Assemblages on the Eel River Margin, Northern California. Presented at Benthic Ecology Meeting. (abstract).

Curran, C.A., L.A. Levin, R.H. Michener D.M. Talley and T.S. Talley. 1997. Comparison of trophic pathways in a 1-year old created and adjacent natural *Spartina foliosa* marsh. Presented at 1997 Estuarine Research Federation meeting, Providence, RI (abstract).

Kim, M.J., R.H. Michener and G. Triadafilopoulos. 1997. Serum ^{13}C -bicarbonate assay for the diagnosis of gastric *Helicobacter pylori* infection and response to treatment. Gastroenterology. **113**: 31-37.

McClelland, J.W., I. Valiela and R.H. Michener. 1997. Nitrogen stable isotope signatures in estuarine food webs: a record of increasing urbanization in coastal watersheds. Limnol. Ocean. **42**(5): 930-937.

Sigman, D.M., M.A. Altabet, R. Michener, D.C. McCorkle, B. Fry and R.M. Holmes. 1997. Natural abundance-level measurement of the nitrogen isotopic composition of oceanic nitrate: an adaptation of the ammonia diffusion method. Marine Chemistry. **57**: 227-242.

Mitchell, M.J., E.L. Mills, N. Idrisi and R.H. Michener. 1996. Stable isotopes of nitrogen and carbon in an aquatic food web recently invaded by *Dreissena polymorpha* (Pallas). Canadian Journal of Fisheries and Aquatic Science. **53**(6): 1445-1450.

Dudley, J.L., B. Michener and K. Lajtha. 1996. The Contributions of Nitrogen-fixing Symbioses to Coastal Heathland Succession. American Midland Naturalist. **135**(2): 334-342.

Fry, B., R. Garritt, K. Tholke, C. Neill, R.H. Michener. 1996. Cryoflow: cryofocusing nanomole amounts of CO_2 , N_2 and SO_2 from an elemental analyzer for stable isotopic analysis. Rapid Communications in Mass Spectrometry. **10**: 953-958.

Wainright, S.C., C.M. Fuller, R.H. Michener, and R.A. Richards. 1996. Spatial variation of growth rate and trophic position of juvenile striped bass (*Morone saxatilis*) in the Delaware River. Can. J. Fish. Aquat. Sci. **53**(4): 685-692.

Michener, R.H., M. Downs, and K. Nadelhoffer. 1995. A simplified technique for measuring dissolved inorganic ^{15}N in freshwater systems. Presented at ASLO 1995 Annual Meeting. Reno, Nevada (abstract).

Michener, R.H. and D.M. Schell. 1994. Chapter 7: Stable isotope ratios as tracers in marine aquatic food webs. In: Stable Isotopes in Ecology. Lajtha, K. and R.H. Michener (eds.). Blackwell Scientific Publications, Ltd. pp. 138-157.

Lajtha, K. and R.H. Michener (eds.). 1994. Stable Isotopes in Ecology. Blackwell Scientific Publications, Ltd. Oxford, England.

Molton-Barrett, R., G. Triadafilopoulos, R. Michener, and D. Gologorsky. 1993. Serum ^{13}C -Bicarbonate in the assessment of Gastric *Helicobacter pylori* Urease Activity. Am. J. Gastro. **88**: 369-374.

Owen, J.S., M.J. Mitchell and R.H. Michener. 1993. ^{15}N measurements of seston in two Adirondack lakes. Presented at ASLO & SWS 1993 Annual Meeting. Edmonton, Alberta, Canada (abstract).

Molton-Barrett, R., R. Michener, D. Gologorsky, and G. Triadafilopoulos. 1991. Serum ^{13}C -bicarbonate in the assessment of gastric *Helicobacter pylori* urease activity. American College of Gastroenterology. Boston, MA. (abstract).

Michener, R.H., M.I. Scranton and P. Novelli. 1988. Hydrogen distributions in the Carmans River Estuary. Estuarine and Coastal Shelf Science. **27**:223-235.

Michener, R.H., M.I. Scranton, and P.C. Novelli. 1988. Hydrogen variations within the anoxic sediments of an estuary. Presented at Spring NEERS Meeting, Woods Hole, Massachusetts. (abstract).

Novelli, P.C., M.I. Scranton, and R.H. Michener. 1987. Hydrogen distributions in marine sediments. Limnology and Oceanography. **32**:565-576.

Michener, R.H. 1985. Hydrogen cycling within the anoxic sediments of an estuary. Masters Thesis, Marine Sciences Research Center, State University of New York at Stony Brook. Stony Brook, New York.

M.A. Mateo, P. Renom, R. Julià, J. Romero, R. Michener (in press). An unexplored sedimentary record for the study of environmental change in Mediterranean environments: Posidonia oceanica (L.) Delile peats. Environmental Change Using Isotopic Techniques, Tecdoc, International Atomic Energy Agency, Vienna, Austria.

Michener, R.H., T.H. Kunz and K.A. Nagy (in preparation). Assessing the accuracy and precision of the guanidine hydrochloride method for small sample oxygen-18 analysis. Will be submitted to Isotopes in Environmental and Health Studies.

Currin, C.A., J. Cambalik, and R. Michener (submitted). Multiple stable isotope analysis of the food web supporting 3 species of juvenile fish utilizing tidal flats in the Newport River Estuary, NC. Submitted to Estuaries.

Mazzola, A., G. Sara and R.H. Michener. (submitted). The use of carbon stable isotopes to investigate the origin and distribution of suspended and sedimentary organic matter in a semi-enclosed Mediterranean marine system. Submitted to Springer Verlag for special publication resulting from National Symposium "Diversità e Cambiamento" held in Ischia (NA, Italy), 11-14 November 1998.

Currin, C., L.A. Levin, T. Talley, R. Michener and D. Talley (submitted). Cyanobacteria in salt marsh trophic pathways: the influence of marsh age, season and climate change in southern California. Submitted to Limnology and Oceanography.

Conferences:

Guest lecturer for short course in Marine Ecology at Erice 2000 Symposium, Erice, Italy November 2000. Gave lectures entitled "Introduction to stable isotopes and their use in marine and estuarine systems" and "The use of stable isotopes in aquaculture systems and in assessing the impact of anthropogenic inputs to marine systems".

PATENTS:

Moulton-Barrett, R. And R.H. Michener. A noninvasive method to detect gastric *Helicobacter Pylori*. Serial #08/202,969. Submitted 2/28/94, patent accepted 5/17/96.