

# Robert W. Thacker

## *Curriculum Vitae*

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### EDUCATION

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- 1995 Ph.D., Biology, University of Michigan, Ann Arbor.  
1992 M.S., Biology, University of Michigan, Ann Arbor.  
1990 B.S., Zoology, Duke University, Durham, North Carolina.

### PROFESSIONAL EXPERIENCE

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- 2012-present Professor, Department of Biology, University of Alabama at Birmingham.  
2012-2013 Interim Chair, Department of Biology, University of Alabama at Birmingham.  
2006-present Scientist, UAB Center for AIDS Research.  
2006-2012 Associate Professor, Department of Biology, University of Alabama at Birmingham.  
2000-2006 Assistant Professor, Department of Biology, University of Alabama at Birmingham.  
1998-2000 Postdoctoral Research Associate, University of Guam Marine Laboratory.  
Advisor: Dr. Valerie J. Paul.  
1996-1998 Postdoctoral Research Associate, Pacific Biomedical Research Center,  
University of Hawaii. Advisor: Dr. Michael G. Hadfield.  
1995-1996 Postdoctoral Research Associate, University of Guam Marine Laboratory.  
Advisor: Dr. Valerie J. Paul.  
1990-1995 Doctoral Research, Department of Biology, University of Michigan at Ann Arbor.  
Advisor: Dr. Brian A. Hazlett (Retired).

### AWARDS

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- 2008 Inaugural Dean's Award for Excellence in Mentorship, UAB Graduate School.

## GRANTS AND FELLOWSHIPS RECEIVED

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- 2012-2015 *Collaborative Research: arbor: Comparative Analysis Workflows for the Tree of Life. Assembling, Visualizing, and Analyzing the Tree of Life, Division of Environmental Biology, National Science Foundation, \$4,000,000 total (\$499,999 to RWT).*
- 2012-2015 *Collaborative Research: Next Generation Phenomics for the Tree of Life. Assembling, Visualizing, and Analyzing the Tree of Life, Division of Environmental Biology, National Science Foundation, \$3,216,421 total (\$79,110 to RWT).*
- 2008-2014 *Collaborative Research: ATOL: PorToL – The Porifera Tree of Life Project. Assembling the Tree of Life Program, Division of Environmental Biology, National Science Foundation, \$2,940,000 (\$1,076,938 to RWT).*
- 2007-2011 *Collaborative Research: Aplysina Red Band Syndrome: Investigating the etiology, pathogenesis, and ecology of an emerging marine disease. Biological Oceanography Program, Division of Ocean Sciences, National Science Foundation, \$689,512 (\$236,005 to RWT).*
- 2011 *Assessing the impact of oil/dispersant on marine sponges and their symbiotic communities. BP Gulf Research Institute, \$12,000.*
- 2010 *Research Experiences for Undergraduates Supplement, National Science Foundation, \$15,000.*
- 2008-2010 *GAC Biofilters in Retrofit Applications. American Water Works Research Foundation, Subcontract to RWT from Birmingham Water Works Board, \$9,928.*
- 2004-2007 *Collaborative Research: Molecular and Chemical Ecology of Freshwater Sponges: Impacts of Sponge Hosts on Symbiotic Microbial Communities. Molecular and Cellular Biosciences Program, Microbial Observatories, National Science Foundation, \$99,090 (\$38,821 to RWT).*
- 2004-2007 *Assessing the Diversity of Sponge-Microbial Associations: Developing Bioinformatic Tools for Ocean Biotechnology Research. National Institute for Undersea Science and Technology, NOAA, \$126,990.*
- 2005-2006 *Research Experience for Teachers Supplement. Molecular and Cellular Biosciences Program, National Science Foundation, \$9,750.*
- 2004-2005 *Research Experience for Teachers Supplement. Systematic Biology Program, National Science Foundation, \$8,500.*
- 2002-2005 *Coevolution of Marine Sponges and Symbiotic Cyanobacteria and Eubacteria. Systematic Biology Program, National Science Foundation, \$179,066.*
- 2002-2003 *Marine Sponges from the Alabama Coast: Anti-fouling Activity and Symbiotic Bacterial Communities. Mississippi-Alabama Sea Grant Consortium, \$10,000.*
- 2002 *Grant-in-Aid: Coevolution of Marine Sponges (Order Dendroceratida) and their Microbial Symbionts. Bermuda Biological Station for Research, Inc., \$2,919.*
- 2002 *Evolution of Antibiotic Resistance by Bacterial Symbionts of Keratose Sponges: Preliminary Collections, DNA Sequencing, and Field Manipulations. Faculty Development Program, University of Alabama at Birmingham, \$10,000.*

- 2001 *Biology of Sponges, Cyanobacteria, and Freshwater Communities*. **Faculty Grant for Collection Development**, Mervyn H. Sterne Library, University of Alabama at Birmingham, \$1,983.
- 2001 *Ecology and Diversity of Microbial Communities in Marine Sponges*. **Faculty Research Grant**, Graduate School, University of Alabama at Birmingham, \$3,420.
- 1994-1995 Rackham Predoctoral Fellowship, University of Michigan, \$8,000.
- 1994 Rackham Block Grant, University of Michigan, \$2,900.
- 1994 Lerner-Gray Fund for Marine Research, American Museum of Natural History, \$900.
- 1993 Short-Term Fellowship, Smithsonian Tropical Research Institute, \$1,400.
- 1990-1993 Regents Fellowship, University of Michigan, \$36,000.

## PEER-REVIEWED PUBLICATIONS

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\* = UAB Undergraduate Student Co-Author

+ = UAB Graduate Student Co-Author

Thacker RW, Diaz MC, Kerner A, Vignes-Lebbe R, Segerdell E, Haendel MA, Mungall CJ. *In review*. The Porifera ontology (PORO): enhancing sponge systematics with an anatomy ontology. **Journal of Biomedical Semantics**.

Olson JB, Thacker RW, Gochfeld DJ. 2014. Molecular community profiling reveals impacts of time, space, and disease status on the bacterial community associated with the Caribbean sponge *Aplysina cauliformis*. **FEMS Microbiology Ecology** 87(1):268-279. doi: 10.1111/1574-6941.12222.

GIGA Community Scientists. 2014. The Global Invertebrate Genomics Alliance (GIGA): Developing community resources to study diverse invertebrate genomes. **Journal of Heredity** 105(1):1-18. doi: 10.1093/jhered/est084.

Easson CG, Slattery M, Momm HG, Olson JB, Thacker RW, Gochfeld DJ. 2013. Exploring individual- to population-level impacts of disease on coral reef sponges: using spatial analysis to assess the fate, dynamics, and transmission of *Aplysina* red band syndrome (ARBS). **PLoS ONE** 8(11): e79976. doi: 10.1371/journal.pone.0079976.

Camacho FA<sup>+</sup>, Thacker RW. 2013. Predator cues alter habitat use by the amphipod *Hyalella azteca* (Saussure). **Freshwater Science** 32(4):1148-1154. doi: 10.1899/12-176.1.

Burleigh G, Alphonse K, Alverson AJ, Bik HM, Blank C, Cirranello AL, Cui H, Daly M, Dietterich TG, Gasparich G, Irvine J, Julius M, Kaufman S, Law E, Liu J, Moore L, O'Leary MA, Passarotti M, Ranade S, Simmons NB, Stevenson DW, Thacker RW, Theriot EC, Todorovic S, Velazco PM, Walls RL, Wolfe JM, Yu M. 2013. Next-generation phenomics for the tree of life. **PLOS Currents Tree of Life**. doi: 10.1371/currents.tol.085c713acafc8711b2ff7010a4b03733.

Harmon LJ, Baumes J, Hughes C, Soberon J, Specht CD, Turner W, Lisle C, Thacker RW. 2013. Arbor: Comparative analysis workflows for the tree of life. **PLOS Currents Tree of Life**. doi: 10.1371/currents.tol.099161de5eabdee073fd3d21a44518dc.

Thacker RW, Hill AL, Hill MS, Redmond NE, Collins AG, Morrow CC, Spicer L, Carmack CA\*, Zappe ME\*, Pohlmann D, Hall C, Diaz MC, Bangalore PV. 2013. Nearly complete 28S rRNA gene

- sequences confirm new hypotheses of sponge evolution. *Integrative and Comparative Biology* 53(3): 373-387. doi: 10.1093/icb/ict071.
- Morrow CC, Redmond NE, Picton BE, Thacker RW, Collins AG, Maggs CA, Sigwart JD, Allcock AL. 2013. Molecular phylogenies support homoplasy of multiple morphological characters used in the taxonomy of Heteroscleromorpha (Porifera: Demospongiae). *Integrative and Comparative Biology* 53(3): 428-446. doi: 10.1093/icb/ict065.
- Redmond NE, Morrow CC, Thacker RW, Diaz MC, Boury-Esnault N, Cardenas P, Hajdu E, Lobo-Hajdu G, Picton BE, Pomponi SA, Kayal E, Collins AG. 2013. Phylogeny and systematics of Demospongiae in light of new small-subunit ribosomal DNA (18S) Sequences. *Integrative and Comparative Biology* 53(3): 388-415. doi: 10.1093/icb/ict078.
- Diaz MC, Thacker RW, Redmond NE, Matterson KO<sup>+</sup>, Collins AG. 2013. Phylogenetic novelties and geographic anomalies among tropical Verongida. *Integrative and Comparative Biology* 53(3): 482-494. doi:10.1093/icb/ict033.
- Alvizo A, Diaz MC, Bastidas C, Rützler K, Thacker RW, Marquez LM. 2013. A skeleton-less sponge of Caribbean mangroves: invasive or undescribed? *Invertebrate Biology* 132(2): 81-94. doi:10.1111/ivb.12015.
- Huang JP<sup>+</sup>, Swain AK, Thacker RW, Ravindra R, Andersen DT, Bej AK. 2013. Bacterial diversity of the rock-water interface in an East Antarctic freshwater ecosystem, Lake Tawani. *Aquatic Biosystems* 9:4 doi:10.1186/2046-9063-9-4.
- Freeman CJ<sup>+</sup>, Thacker RW, Baker DM, Fogel ML. 2013. Quality or quantity: is nutrient transfer driven more by symbiont identity and productivity than by symbiont abundance? *The International Society for Microbial Ecology Journal* 7(6): 1116-1125. doi: 10.1038/ismej.2013.7.
- Hill MS, Hill AL, Lopez J, Peterson KJ, Pomponi S, Diaz MC, Thacker RW, Adamska M, Boury-Esnault N, Cárdenas P, Chaves-Fonnegra A, Danka E, De Laine B, Formica D, Hajdu E, Lobo-Hajdu G, Klontz S, Morrow CC, Patel J, Picton B, Pisani D, Pohlmann D, Redmond NE, Reed J, Richey S, Riesgo A, Rubin E, Russell Z, Rützler K, Sperling EA, di Stefano M, Tarver JE, Collins AG. 2013. Reconstruction of family-level phylogenetic relationships within Demospongiae (Porifera) using nuclear encoded housekeeping genes. *PLoS ONE* 8(1):e50437. doi:10.1371/journal.pone.0050437.
- Shirey TB, Thacker RW, Olson JB. 2012. Composition and stability of bacterial communities associated with granular activated carbon and anthracite filters in a pilot scale municipal drinking water treatment facility. *Journal of Water and Health* 10(2): 244-255. doi:10.2166/wh.2012.092.
- Thacker RW, Freeman CJ<sup>+</sup>. 2012. Sponge-microbe symbioses: Recent advances and new directions. *Advances in Marine Biology* 62: 57-111.
- Gochfeld DJ, Easson CG, Freeman CJ<sup>+</sup>, Thacker RW, Olson JB. 2012. Disease and nutrient enrichment as potential stressors on the Caribbean sponge *Aplysina cauliformis* and its bacterial symbionts. *Marine Ecology Progress Series* 456: 101-111.
- Gochfeld DJ, Kamel HN, Olson JB, Thacker RW. 2012. Trade-offs in defensive metabolite production but not ecological function in healthy and diseased sponges. *Journal of Chemical Ecology* 38: 451-462.
- Erwin PM<sup>+</sup>, Olson JB, Thacker RW. 2011. Phylogenetic diversity, host-specificity, and community profiling of sponge-associated bacteria in the northern Gulf of Mexico. *PLoS ONE* 6(11): e26806. doi:10.1371/journal.pone.0026806.
- Freeman CJ<sup>+</sup>, Thacker RW. 2011. Complex interactions between marine sponges and their symbiotic microbial communities. *Limnology and Oceanography* 56(5): 1577-1586. doi:10.4319/lo.2011.56.5.1577

- Thacker RW, Diaz MC, de Voogd NJ, van Soest RWM, Freeman CJ<sup>+</sup>, Mobley AS<sup>+</sup>, LaPietra J\*, Cope K\*, McKenna S. 2010. Assessment of sponge biodiversity on Saba Bank, Netherlands Antilles. **PLoS ONE** 5(5): e9622. doi:10.1371/journal.pone.0009622.
- Collin R, Mobley AS<sup>+</sup>, Lopez LB, Leys SP, Diaz MC, Thacker RW. 2010. Phototactic responses of larvae from the marine sponges *Neopetrosia proxima* and *Xestospongia bocatorensis* (Haplosclerida: Petrosiidae). **Invertebrate Biology** 129(2): 121-128.
- Sharp K, Arthur KE, Gu L, Ross C, Harrison G, Gunasekera SP, Meickle T, Matthew S, Luesch H, Thacker RW, Sherman DH, Paul VJ. 2009. Phylogenetic and chemical diversity of three chemotypes of bloom-forming *Lyngbya* species (Cyanobacteria: Oscillatoriales) from reefs of Southeastern Florida. **Applied and Environmental Microbiology** 75(9): 2879-2888.
- Slattery M, Kamel HN, Ankisetty S, Gochfeld DJ, Hoover CA, Thacker RW. 2008. Hybrid vigor in a tropical Pacific soft coral community. **Ecological Monographs** 78(3): 423-443.
- Erwin PM<sup>+</sup>, Thacker RW. 2008. Cryptic diversity of the symbiotic cyanobacterium *Synechococcus spongiarum* among sponge hosts. **Molecular Ecology** 17: 2937-2947.
- Erwin PM<sup>+</sup>, Thacker RW. 2008. Phototrophic nutrition and symbiont diversity of two Caribbean sponge-cyanobacteria symbioses. **Marine Ecology Progress Series** 362: 139-147.
- Taylor MW, Thacker RW, Hentschel U. 2007. Evolutionary insights from sponges. **Science** 316: 1854-1855.
- Erwin PM<sup>+</sup>, Thacker RW. 2007. Incidence and identity of photosynthetic symbionts in Caribbean coral reef sponge communities. **Journal of the Marine Biological Association of the United Kingdom** 87: 1683-1692.
- Thacker RW, Diaz MC, Rützler K, Erwin PM<sup>+</sup>, Kimble SJA\*, Pierce MJ\*, Dillard SL\*. 2007. Phylogenetic relationships among the filamentous cyanobacterial symbionts of Caribbean sponges and a comparison of photosynthetic production between sponges hosting filamentous and unicellular cyanobacteria. In: Custódio MR, Lôbo-Hajdu G, Hajdu E, Muricy G (eds.). **Porifera Research: Biodiversity, Innovation, and Sustainability**, Série Livros 28. Museu Nacional, Rio de Janeiro. pp. 621-626.
- Diaz MC, Thacker RW, Rützler K, Piantoni C. 2007. *Haliclona* (*Soestella*) *walentinae* (Chalinidae, Haplosclerida) and *Xestospongia bocatorensis* (Petrosiidae, Haplosclerida), two new sponge species from Caribbean Panamá with filamentous cyanobacterial symbionts. In: Custódio MR, Lôbo-Hajdu G, Hajdu E, Muricy G (eds.). **Porifera Research: Biodiversity, Innovation, and Sustainability**, Série Livros 28. Museu Nacional, Rio de Janeiro. pp. 31-39.
- Gochfeld DJ, Schlöder C<sup>+</sup>, Thacker RW. 2007. Sponge community structure and disease prevalence on coral reefs in Bocas del Toro, Panamá. In: Custódio MR, Lôbo-Hajdu G, Hajdu E, Muricy G (eds.). **Porifera Research: Biodiversity, Innovation, and Sustainability**, Série Livros 28. Museu Nacional, Rio de Janeiro. pp. 335-343.
- Erwin PM<sup>+</sup>, Thacker RW. 2007. Phylogenetic analyses of marine sponges within the order Verongida: a comparison of morphological and molecular data. **Invertebrate Biology** 126(3): 220-234.
- Taylor MW, Hill RT, Piel J, Thacker RW, Hentschel U. 2007. Soaking it up: the complex lives of marine sponges and their microbial associates. **The International Society for Microbial Ecology Journal** 1(3): 187-190.
- Thacker RW, Camacho FA<sup>+</sup>. 2007. Invertebrate herbivores induce saxitoxin production in *Lyngbya wollei*. In: Hudnell HK (ed.) **Cyanobacterial Harmful Algal Blooms: State of the Science and Research Needs**, Advances in Experimental Medicine & Biology 619: 312-313.

- Camacho FA<sup>+</sup>, Thacker RW. 2006. Amphipod herbivory on the freshwater cyanobacterium *Lyngbya wollei*: chemical stimulants and morphological defenses. ***Limnology and Oceanography*** 51: 1870-1875.
- Thacker RW, McLeod AM\*, McLeod SW\*. 2005. Herbivore-induced saxitoxin production in the freshwater cyanobacterium *Lyngbya wollei*. ***Algological Studies*** 117: 415-425.
- Paul VJ, Thacker RW, Banks K, Golubic S. 2005. Benthic cyanobacterial bloom impacts the reefs of South Florida (Broward County, USA). ***Coral Reefs*** 24: 693-697.
- Flatt PM, Gautschi JT, Thacker RW, Musafija-Girt M, Crews P, Gerwick WH. 2005. Identification of the cellular site of polychlorinated peptide biosynthesis in the sponge *Dysidea (Lamellodysidea) herbacea* and symbiotic cyanobacterium *Oscillatoria spongelliae* by CARD-FISH analysis. ***Marine Biology*** 147: 761-774.
- Thacker RW. 2005. Impacts of shading on sponge-cyanobacteria symbioses: a comparison between host-specific and generalist associations. ***Integrative and Comparative Biology*** 45: 369-376.
- Sotka EE, Thacker RW. 2005. Do some corals like it hot? ***Trends in Ecology and Evolution*** 20(2): 59-62.
- Thacker RW. 2004. Biodiversity. ***Journal of Natural Products*** 67(9): 1636.
- Thacker RW, Paul VJ. 2004. Morphological, chemical, and genetic diversity of tropical marine cyanobacteria, *Lyngbya* spp. and *Symploca* spp. (Oscillatoriales). ***Applied and Environmental Microbiology*** 70(6): 3305-3312.
- Thacker RW, Starnes S\*. 2003. Host specificity of symbiotic cyanobacteria, *Oscillatoria spongelliae*, in marine sponges, *Dysidea* spp. ***Marine Biology*** 142: 643-648.
- Becerro MA, Thacker RW, Turon X, Uriz MJ, Paul VJ. 2003. Biogeography of sponge chemical ecology: comparisons of tropical and temperate defenses. ***Oecologia*** 135: 91-101.
- Thacker RW, Paul VJ. 2001. Are benthic cyanobacteria indicators of nutrient enrichment? Relationships between cyanobacterial abundance and environmental factors on the reef flats of Guam. ***Bulletin of Marine Science*** 69: 497-508.
- Thacker RW, Ginsburg DW, Paul VJ. 2001. Effects of herbivore exclusion and nutrient enrichment on coral reef macroalgae and cyanobacteria. ***Coral Reefs*** 19: 318-329.
- Paul VJ, Cruz-Rivera E, Thacker RW. 2001. Chemical mediation of seaweed-herbivore interactions: ecological and evolutionary perspectives. Pages 227-265 in: J. McClintock and B. Baker (editors). ***Marine Chemical Ecology***. CRC Press, Boca Raton, Florida.
- Hazlett BA, Bach CE, McLay C, Thacker RW. 2000. A comparative study of the defense syndromes of New Zealand marine crustacea. ***Crustaceana*** 73 (8): 899-912.
- Thacker RW, Hadfield MG. 2000. A mitochondrial phylogeny of extant Hawaiian tree snails. ***Molecular Phylogenetics and Evolution*** 16: 263-270.
- Giménez-Casaldueiro F, Thacker RW, Paul VJ. 1999. Association of color and feeding deterrence by tropical reef fishes. ***Chemoecology*** 9: 33-39.
- Thacker RW, Becerro MA, Lumbang WA, Paul VJ. 1998. Allelopathic interactions between sponges on a tropical reef. ***Ecology*** 79(5): 1740-1750.

- Thacker RW. 1998. Avoidance of recently eaten foods by land hermit crabs, *Coenobita compressus*. ***Animal Behavior*** 55: 485-496.
- Thacker RW, Nagle DG, Paul VJ. 1997. Effects of repeated exposures to marine cyanobacterial secondary metabolites on feeding by juvenile rabbitfish and parrotfish. ***Marine Ecology Progress Series*** 147: 21-29.
- Thacker RW. 1996. Food choices of land hermit crabs (*Coenobita compressus* H. Milne Edwards) depend on past experience. ***Journal of Experimental Marine Biology and Ecology*** 199: 179-191.
- Thacker RW. 1994. Volatile shell-investigation cues of land hermit crabs: effect of shell fit, detection of cues from other hermit crab species, and cue isolation. ***Journal of Chemical Ecology*** 20 (7): 1457-1482.
- Small MP, Thacker RW. 1994. Land hermit crabs use odors of dead conspecifics to locate shell sources. ***Journal of Experimental Marine Biology and Ecology*** 182: 169-182.
- Thacker RW, Hazlett BA, Esman LA, Stafford CP, Keller T. 1993. Color morphs of the crayfish *Orconectes virilis*. ***American Midland Naturalist*** 129 (1): 182-199.

## PUBLISHED ABSTRACTS

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- Thacker RW. 2013. Assembling the Poriferan Tree of Life: Integrative taxonomy and systematics reveal new patterns of sponge evolution. ***Integrative and Comparative Biology*** 53(S1): E213.
- Redmond NE, Morrow CC, Thacker RW, Diaz MC, Boury-Esnault N, Cardenas P, Hajdu E, Lobo-Hajdu G, Picton BE, Collins AG. 2013. New 18S rDNA sequence data suggest exciting new hypotheses for internal relationships of Demospongiae (Phylum Porifera). ***Integrative and Comparative Biology*** 53(S1): E176.
- Hajdu E, Lobo-Hajdu G, Cosme B, De Paula T, Redmond NE, Collins AG, Thacker RW. 2013. Towards an evolutionary classification of Mycalina and Latrunculina (Poecilosclerida). ***Integrative and Comparative Biology*** 53(S1): E84.
- Blair PB, Freeman CJ, Thacker RW. 2013. Distinguishing clades of the sponge-specific cyanobacterial symbiont *Synechococcus spongiarum* through high-resolution melting analysis and denaturing/temperature gradient gel electrophoresis. ***Integrative and Comparative Biology*** 53(S1): E249.
- Zappe ME, Thacker RW. 2013. Symbiotic microbial communities associated with haplosclerid sponges: stability across space and time. ***Integrative and Comparative Biology*** 53(S1): E398.
- Diaz MC, Thacker RW, Redmond NE, Collins AG. 2013. Don't judge a book by its cover: discovering two new verongid genera (Class Demospongiae, Porifera). ***Integrative and Comparative Biology*** 53(S1): E52.
- Easson CG, Thacker RW, Olson JB, Slattery M, Willett KW, Gochfeld DJ. 2012. Effects of nutrient enrichment on competition between the alga *Microdictyon marinum* and the sponge *Aplysina cauliformis*. ***Integrative and Comparative Biology*** 52(S1): E239.
- Carmack CA, Redmond NE, Thacker RW, Colin L, Colin P, Hill M, Hill A, Lopez JV, Diaz MC, Pomponi S, Bangalore P. 2012. Nuclear 28S ribosomal subunit gene sequences support new relationships among families and orders of Porifera. ***Integrative and Comparative Biology*** 52(S1): E221.

- Freeman CJ, Thacker RW, Baker DM, Fogel M. 2012. Determining the benefits of symbiosis: tracing the products of symbiont nitrogen and carbon metabolism to host sponges using incubations with enriched stable isotopes. *Integrative and Comparative Biology* 52(S1): E61.
- Salazar J, Carmack CA, Thacker RW. 2012. Evaluating the phylogenetic utility of *alg11*, a potential marker for sponge systematics. *Integrative and Comparative Biology* 52(S1): E322.
- Thacker RW, Bangalore P, Diaz MC, Hill A, Hill M, Lavrov D, Lopez JV, Peterson K, Pomponi S, Redmond N, Collins AG. 2010. Integrative approaches for reconstructing the Porifera Tree of Life (PorToL). *Integrative and Comparative Biology* 50(S1): E303.
- Redmond NE, Collins AG, Diaz MC, Thacker RW. 2010. Resolving species identities in the Porifera Tree of Life: a comparison of mitochondrial and nuclear barcodes. *Integrative and Comparative Biology* 50(S1): E144.
- Thacker RW, Gochfeld DJ, Olson JB. 2009. *Aplysina* Red Band Syndrome: an emerging infectious disease of coral reef sponges. *Integrative and Comparative Biology* 49(S1): E170.
- Thacker RW. 2007. Evolutionary specialization of sponge-cyanobacteria symbioses: co-speciation vs. colonization *Integrative and Comparative Biology* 46(S1): E140.
- Collin R, Weigt L, Driskell A, Rocha R, Miglietta MP, Thacker RW. 2007. All Bocas Barcoding Alliance, Part 1: DNA barcoding of the marine organisms of Bocas del Toro, Panama. *Integrative and Comparative Biology* 46(S1): E181.
- Thacker RW, Collin R, Diaz MC, Lambert G, Rocha R, Lambert C. 2007. Training in Tropical Taxonomy: Training for new investigators in the field and laboratory. *Integrative and Comparative Biology* 46(S1): E256.
- Erwin PM, Thacker RW. 2007. Host-specificity of sponge-associated unicellular cyanobacteria, Candidatus *Synechococcus spongiarum*. *Integrative and Comparative Biology* 46(S1): E40.
- Kimble SJA, Thacker RW, Diaz MC. 2007. Sponge diversity on mangrove roots: Does size matter? *Integrative and Comparative Biology* 46(S1): E216.
- Diaz MC, Thacker RW, Collin R. 2005. Taxonomy and ecology of Caribbean sponges: effective training for new investigators. *Integrative and Comparative Biology* 45(6): 1124.
- Erwin PM<sup>+</sup>, Thacker RW. 2005. Incidence and importance of photosynthetic symbionts in shallow-water sponge communities. *Integrative and Comparative Biology* 45(6): 992.
- Thacker RW, Erwin PM<sup>+</sup>. 2004. Molecular systematics of keratose sponges (Orders Dendroceratida, Dictyoceratida, and Verongida): Analyses of 18S rDNA sequences. *Integrative and Comparative Biology* 44(6): 753.
- Erwin PM<sup>+</sup>, Thacker RW. 2004. Characterization and structure of sponge-associated microbial communities. *Integrative and Comparative Biology* 44(6): 550.
- Thacker RW. 2003. Field manipulations of sponge symbioses: Differences between generalist and host-specific cyanobacteria. *Integrative and Comparative Biology* 43(6): 1069.
- Erwin PM<sup>+</sup>, Thacker RW. 2003. Cyanobacteria and green non-sulfur bacteria described from verongid sponges: Patterns of host-specificity. *Integrative and Comparative Biology* 43(6): 816.
- Thacker RW. 2002. Coevolution of microbial symbionts and *Dysidea* (order Dendroceratida, family Dysideidae). *Boll. Mus. Ist. Biol. Univ. Genova* 66-67: 195.



- Gochfeld DJ, Hamann MT, Avery BA, Marsh KE, Thacker RW, Slattery M. 2002. Chemical variability and ecological activity of compounds from the Caribbean sponge *Plakortis* sp. **Boll. Mus. Ist. Biol. Univ. Genova** 66-67: 81.
- Thacker RW, Erwin PM<sup>+</sup>, Bevis KP<sup>+</sup>, Paul VJ. 2002. Effects of reduced light availability on a sponge-cyanobacterial symbiosis. **Integrative and Comparative Biology** 42(6): 1323.
- Thacker RW, Starnes S\*. 2001. Host specificity of symbiotic cyanobacteria in marine sponges. **American Zoologist** 41 (6): 1605.
- Thacker RW, Nagle DG, Paul VJ. 1995. Learned responses of rabbitfish to marine algal secondary metabolites. **American Zoologist** 35(5): 20A.
- Thacker RW. 1994. Learned aversions to food odors in land hermit crabs, *Coenobita compressus*. **American Zoologist** 34(5): 76A.
- Hazlett BA, Thacker RW. 1992. Color variation in the crayfish *Orconectes virilis*. **Supplement to the Bulletin of the Ecological Society of America** 73(2): 204.
- Thacker RW. 1992. Induced feeding preferences of land hermit crabs. **American Zoologist** 32(5): 12A.

## TECHNICAL REPORTS

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- Thacker RW, Hadfield MG. 1998. The status of Newcomb's tree snail, *Newcombia cumingi*, on West Maui. **U. S. Fish and Wildlife Service Report**.
- Pegram RA, Humpage AR, Neilan BA, Runnegar MT, Nichols T, Thacker RW, Pflugmacher S, Etheridge SM, Love AH. 2007. Chapter 15: Cyanotoxins Workgroup Report. In: Hudnell HK (ed.) **Cyanobacterial Harmful Algal Blooms: State of the Science and Research Needs**, Advances in Experimental Medicine & Biology 619: 317-382.

## PUBLISHED GENETIC SEQUENCES

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- Thacker RW, Hill AL, Hill MS, Redmond NE, Collins AG, Morrow CC, Spicer L, Carmack CA, Zappe ME, Pohlmann D, Hall C, Diaz MC, Bangalore PV. 28S ribosomal gene sequences from Porifera. 205 sequences. GenBank Accession Numbers **KC869447-KC869561**.
- Redmond NE, Morrow CC, Thacker RW, Diaz MC, Boury-Esnault N, Cardenas P, Hajdu E, Lobo-Hajdu G, Picton BE, Pomponi SA, Kayal E, Collins AG. 18S ribosomal gene sequences from Porifera. 538 sequences. GenBank Accession Numbers **KC901874-KC902411**.
- Shirey TB, Thacker RW, Olson JB. 2012. 16S ribosomal RNA gene sequences recovered from water filtration systems. 67 sequences. GenBank Accession Numbers **HQ642779-HQ642845**.
- Sharp K, Arthur KE, Gu L, Ross C, Harrison G, Gunasekera SP, Meickle T, Matthew S, Luesch H, Thacker RW, Sherman DH, Paul VJ. 2008. 16S ribosomal RNA gene sequences for marine cyanobacteria, *Lyngbya* spp. 9 sequences. GenBank Accession Numbers **FJ602745-FJ602753**.
- Erwin PM, Thacker RW. 2007. 16S ribosomal RNA gene sequences from two sponge-associated bacterial communities from the Gulf of Mexico. 360 sequences. GenBank Accession Numbers **EU315321-EU315680**.

- Erwin PM, Thacker RW. 2007. Ribosomal RNA gene sequences (partial 16S subunit, 16S-23S intergenic spacer, tRNA-Ile, tRNA-Ala, and partial 23S subunit) for the symbiotic cyanobacterium *Synechococcus spongiarum* associated with coral reef sponges. 70 sequences. GenBank Accession Numbers **EU307440-EU307509**.
- Erwin PM, Thacker RW. 2007. 16S ribosomal RNA gene sequences for the symbiotic cyanobacterium *Synechococcus spongiarum* associated with marine sponges. 14 sequences. GenBank Accession Numbers **EF656438-EF656451**.
- Thacker RW, Diaz MC, Rützler K, Erwin PM, Kimble SJA, Pierce MJ, Dillard SL. 2007. 16S ribosomal RNA gene sequences for the symbiotic cyanobacterium *Oscillatoria spongeliae* associated with Caribbean coral reef sponges. 9 sequences. GenBank Accession Numbers **EF537054-EF537062**.
- Erwin PM, Thacker RW. 2006. Ribosomal RNA gene sequences (partial 16S subunit, 16S-23S intergenic spacer, tRNA-Ile, tRNA-Ala, and partial 23S subunit) for the symbiotic cyanobacterium *Synechococcus spongiarum* associated with Caribbean coral reef sponges. 38 sequences. GenBank Accession Numbers **EF121775-EF121812**.
- Erwin PM, Thacker RW. 2006. Ribosomal RNA gene sequences (partial 5.8S subunit, internal transcribed spacer 2, and partial 28S subunit) of marine sponges within the order Verongida. 44 sequences. GenBank Accession Numbers **DQ411420-DQ411463**.
- Thacker RW. 2004. 16S ribosomal RNA gene sequences for the symbiotic cyanobacterium *Synechococcus spongiarum* associated with the marine sponge *Xestospongia exigua*. 3 sequences. GenBank Accession Numbers **AY692243-AY692245**.
- Flatt PM, Gautschi JT, Thacker RW, Musafija-Girt M, Crews P, Gerwick WH. 2004. Putative 2-oxoglutarate iron-dependent halogenase genes from *Oscillatoria spongeliae* and *Lyngbya majuscula*. 2 sequences. GenBank Accession Numbers **AY648943-AY648944**.
- Paul VJ, Thacker RW, Banks K, Golubic S. 2004. 16S ribosomal RNA gene sequence for the Florida bloom-forming cyanobacterium *Lyngbya* cf. *confervoides* VP0401. 1 sequence. GenBank Accession Number **AY599507**.
- Flatt PM, Gautschi JT, Thacker RW, Musafija-Girt M, Crews P, Gerwick WH. 2004. 16S ribosomal RNA gene sequences for symbiotic *Oscillatoria spongeliae* and free-living *Lyngbya* spp. 6 sequences. GenBank Accession Numbers **AY599501-AY599506**.
- Thacker RW, Paul VJ. 2002. 16S ribosomal RNA gene sequences for tropical marine cyanobacteria, *Lyngbya* spp. and *Symploca* spp. 21 sequences. GenBank Accession Numbers **AF510963-AF510983**.
- Thacker RW, Starnes S. 2001. 16S ribosomal RNA gene sequences for the symbiotic cyanobacterium *Oscillatoria spongeliae* associated with marine sponges, *Dysidea* spp. 12 sequences. GenBank Accession Numbers **AF420444-AF420446** and **AF534685-AF534693**.
- Thacker RW, Starnes S. 2001. Nuclear ribosomal RNA gene sequences (partial 5.8S subunit, internal transcribed spacer 2, and partial 28S subunit) for marine sponges, *Dysidea* spp. 12 sequences. GenBank Accession Numbers **AF420441-AF420443** and **AF534694-AF534702**.
- Thacker RW, Hadfield MG. 2000. Mitochondrial 16S ribosomal RNA gene sequences for Hawaiian tree snails. 33 sequences. GenBank Accession Numbers **AF159464-AF159496**.

## **CURATED WEB SITES**

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Porifera Tree of Life: [www.portol.org](http://www.portol.org)

Curated content includes project policies, experimental protocols, sample submission procedures and course materials. UAB Computer Science undergraduates developed a digital version of the [Thesaurus of Sponge Morphology](#). Current development includes databases containing information on over 1000 individual specimens and over 2000 DNA sequences.

**Porifera LifeDesk:** [porifera.lifedesks.org](http://porifera.lifedesks.org)

Developed in partnership with the Encyclopedia of Life (EOL; [www.eol.org](http://www.eol.org)). Curated LifeDesk web pages form the basis of new entries for EOL. The PorToL team and I have added over 175 pages of content, one page per species.

## INVITED PRESENTATIONS AT SCIENTIFIC MEETINGS

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- Thacker RW. 2012. Sponge Working Group: Moving from analog to digital species descriptions using ontologies. **Phenotype Research Coordination Network**. Asilomar, California.
- Thacker RW. 2011. Challenges for large-scale phylogenetics in the Porifera Tree of Life. **NESCent Workshop: Challenges for large-scale phylogeny and alignment estimation**. Durham, North Carolina.
- Thacker RW. 2010. Sponge-microbe symbioses: recent advances and new directions. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Thacker RW, Olson JB. 2007. Molecular and chemical ecology of freshwater sponges: Microbial communities associated with the freshwater sponges *Radiospongilla crateriformis* and *Eunapius fragilis*. **4th NSF Microbial Observatories Workshop**. Washington, D.C.
- Thacker RW, Camacho FC. 2005. Invertebrate herbivores induce saxitoxin production in *Lyngbya wollei*. **Interagency International Symposium on Cyanobacterial Harmful Algal Blooms**. Research Triangle Park, North Carolina.
- Thacker RW. 2005. Sponge-microbe symbioses: model systems for integrating molecular and chemical ecology. **21st Annual Meeting of the International Society of Chemical Ecology**. Washington, D.C.
- Olson JB, Thacker RW. 2004. Molecular and chemical ecology of freshwater sponges. **3rd NSF Microbial Observatories Workshop**. Big Sky, Montana.
- Thacker RW. 2004. Cyanobacteria in sponges: host specificity and ecological manipulations. **Gordon Research Conference on Marine Natural Products**. Ventura, California.
- Thacker RW. 2004. Field manipulations of sponge symbioses: differences between generalist and host-specific cyanobacteria. **Annual Meeting of the Society for Integrative and Comparative Biology**. Symposium: *Sponges: New Views of Old Animals*. New Orleans, Louisiana.

## CONTRIBUTED PRESENTATIONS AT SCIENTIFIC MEETINGS (past 5 years)

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- Easson CG, Thacker RW. 2014. Complex structuring of sponge microbial communities. **43<sup>rd</sup> Benthic Ecology Meeting**. Jacksonville, Florida.
- Matterson KO, Thacker RW. 2014. Variability in host-symbiont associations among genetically distinct cyanobacteria and tropical sponges. **43<sup>rd</sup> Benthic Ecology Meeting**. Jacksonville, Florida.
- Olson JB, Gochfeld DJ, Thacker RW. 2014. Methodological challenges associated with studies of marine diseases. **43<sup>rd</sup> Benthic Ecology Meeting**. Jacksonville, Florida.
- Nolen Z, Thacker RW. 2014. Comparing sponge and microbial symbiont speciation patterns across ocean basins. **43<sup>rd</sup> Benthic Ecology Meeting**. Jacksonville, Florida.
- Matterson KO, Thacker RW. 2013. Reduced irradiance alters cyanobacterial abundance in three tropical sponges. **42<sup>nd</sup> Marine Benthic Ecology Meeting**. Savannah, Georgia.
- Thacker RW. 2013. Assembling the Poriferan Tree of Life: Integrative taxonomy and systematics reveal new patterns of sponge evolution. **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.

- Redmond NE, Morrow CC, Thacker RW, Diaz MC, Boury-Esnault N, Cardenas P, Hajdu E, Lobo-Hajdu G, Picton BE, Collins AG. 2013. New 18S rDNA sequence data suggest exciting new hypotheses for internal relationships of Demospongiae (Phylum Porifera). **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Hajdu E, Lobo-Hajdu G, Cosme B, De Paula T, Redmond NE, Collins AG, Thacker RW. 2013. Towards an evolutionary classification of Mycalina and Latrunculina (Poecilosclerida). **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Matterson KO, Thacker RW, Freeman CJ. 2013. Does genetic diversity of the sponge-associated cyanobacterium *Synechococcus spongiarum* affect host benefit under reduced irradiance? **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Blair PB, Freeman CJ, Thacker RW. 2013. Distinguishing clades of the sponge-specific cyanobacterial symbiont *Synechococcus spongiarum* through high-resolution melting analysis and denaturing/temperature gradient gel electrophoresis. **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Zappe ME, Thacker RW. 2013. Symbiotic microbial communities associated with haplosclerid sponges: stability across space and time. **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Diaz MC, Thacker RW, Redmond NE, Collins AG. 2013. Don't judge a book by its cover: discovering two new verongid genera (Class Demospongiae, Porifera). **Annual Meeting of the Society for Integrative and Comparative Biology**. San Francisco, California.
- Blair PB, Freeman CJ, Thacker RW. 2012. Genotyping symbionts through high-resolution melting analysis: Distinguishing clades of the sponge-specific cyanobacterial symbiont *Synechococcus spongiarum*. **Annual Meeting of the Society for Integrative and Comparative Biology**. Charleston, South Carolina.
- Salazar J, Carmack CA, Thacker RW. 2012. Evaluating the phylogenetic utility of *alg11*, a potential marker for sponge systematics. **Annual Meeting of the Society for Integrative and Comparative Biology**. Charleston, South Carolina.
- Carmack CA, Redmond N, Thacker RW, Colin L, Colin P, Hill M, Hill A, Lopez J, Diaz MC, Pomponi S, Bangalore P. 2012. Nuclear 28S ribosomal subunit gene sequences support new relationships among families and orders of Porifera. **Annual Meeting of the Society for Integrative and Comparative Biology**. Charleston, South Carolina.
- Freeman CJ, Thacker RW, Baker DM, Fogel M. 2012. Determining the benefits of symbiosis: tracing the products of symbiont nitrogen and carbon metabolism to host sponges using incubations with enriched stable isotopes. **Annual Meeting of the Society for Integrative and Comparative Biology**. Charleston, South Carolina.
- Easson CG, Thacker RW, Olson JB, Slattery M, Willett KW, Gochfeld DJ. 2012. Effects of nutrient enrichment on competition between the algae *Microdictyon marinum* and the sponge *Aplysina cauliformis*. **Annual Meeting of the Society for Integrative and Comparative Biology**. Charleston, South Carolina.
- Thacker RW, Bangalore P, Diaz MC, Hill A, Hill M, Lavrov D, Lopez JV, Peterson K, Pomponi S, Redmond N, Collins AG. 2011. Integrative approaches for reconstructing the Porifera Tree of Life (PorToL). **Evolution 2011 / Informatics for Phylogenetics, Evolution, and Biodiversity Meeting**. Norman, Oklahoma.
- Freeman CJ, Thacker RW. 2011. Hot or not? Tracing nutrient transfer from microbial symbionts to host sponges using enriched stable isotopes. **40<sup>th</sup> Benthic Ecology Meeting**, Mobile, Alabama.

- Helling RD, Cope K, Sharp K, Thacker RW. 2010. Stability of symbiotic microbial community structure during development and metamorphosis of the Caribbean fire sponge, *Tedania ignis*. **40<sup>th</sup> Benthic Ecology Meeting**, Mobile, Alabama.
- Freeman CJ, Thacker RW. 2010. Inputs of symbiont-derived nutrition differ across sponge species: not all sponge-microbe interactions are equal. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Gochfeld DJ, Kamel H, Olson JB, Thacker RW. 2010. Altered secondary metabolite production in *Aplysina cauliformis* in response to infection by *Aplysina* Red Band Syndrome. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Redmond N, Thacker RW, Hill A, Hill M, Lavrov D, Lopez JV, Diaz MC, Bangalore P, Collins AG. 2010. New ribosomal gene sequence data to assess relationships among families and orders of sponges. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Bangalore P, Bhusari AI, Frees J, Thacker RW, Pomponi S, Diaz MC, Hill M, Lopez JV, Redmond N, Collins AG. 2010. Information flow through the Porifera Tree of Life project. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Diaz MC, Thacker RW. 2010. Bocas del Toro, Panama: a Caribbean hotspot for poriferan fauna. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Easson C, Gochfeld D, Momm H, Slattery M, Olson JB, Thacker RW. 2010. Mapping impacts of disease on sponge communities using Geographic Information Systems (GIS). **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Gochfeld D, Easson C, Freeman CJ, Thacker RW, Olson JB. 2010. Impacts of nutrient enrichment and disease on the Caribbean rope sponge *Aplysina cauliformis* and its cyanobacterial symbionts. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Helling RD, Cope K, Sharp K, Thacker RW. 2010. Stability of symbiotic microbial community structure during development and metamorphosis of the Caribbean fire sponge, *Tedania ignis*. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Hill A, Hill M, Thacker RW, Pomponi S, Reed J, Redmond N, Sperling EA, Peterson KJ, Diaz MC, Lopez JV. 2010. Phylogenetic analyses of poriferan families using highly conserved housekeeping gene sequences: a status report. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Olson JB, Gao X, Gochfeld D, Thacker RW. 2010. Infection by *Aplysina* Red Band Syndrome alters sponge-associated bacterial communities. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Thacker RW, Bangalore P, Diaz MC, Cope K, Freeman CJ, Hooper J, Collins AG. 2010. Porifera LifeDesk: an internet-based tool for collaborative systematic documentation of species. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Villamizar E, Diaz MC, Rützler K, Thacker RW, Gochfeld D, Olson JB. 2010. Evaluation and monitoring of sponge community health conditions in Carrie Bow Reef, Belize. **8<sup>th</sup> World Sponge Conference**. Girona, Spain.
- Thacker RW, Gochfeld DJ, Olson JB. 2010. Facultative mutualists and opportunistic colonists: symbiotic cyanobacteria associated with the marine sponge *Aplysina cauliformis*. **13<sup>th</sup> International Symposium on Microbial Ecology**. Seattle, Washington.
- Olson JB, Gao X, Gochfeld DJ, Thacker RW. 2010. Impact of disease on sponge-associated bacterial communities. **13<sup>th</sup> International Symposium on Microbial Ecology**. Seattle, Washington.

- Gochfeld DJ, Easson C, Krentz L, Pappas K, Freeman CJ, Thacker RW, Olson JB. 2010. Effects of nutrient enrichment and disease on the Caribbean sponge *Aplysina cauliformis*. **2010 Ocean Sciences Meeting**, Portland, Oregon.
- McKenna SA, Etnoyer PJ, Thacker RW. 2010. Maritime threats to Saba Bank, a large submerged Caribbean platform. **2010 Ocean Sciences Meeting**, Portland, Oregon.
- Thacker RW, Bangalore P, Diaz MC, Hill A, Hill M, Lavrov D, Lopez JV, Peterson K, Pomponi S, Redmond N, Collins AG. 2010. Integrative approaches for reconstructing the Porifera Tree of Life (PorToL). **39th Annual Benthic Ecology Meeting**. Wilmington, North Carolina.
- Freeman CJ, Thacker RW. 2010. Inputs of symbiont-derived nutrition to host sponges revealed by combining field manipulations with stable isotope analyses. **39th Annual Benthic Ecology Meeting**. Wilmington, North Carolina.
- Olson JB, Gao X, Gochfeld DJ, Thacker RW. 2010. *Aplysina* Red Band Syndrome: Characterization of the associated bacterial communities. **39th Annual Benthic Ecology Meeting**. Wilmington, North Carolina.
- Thacker RW, Bangalore P, Diaz MC, Hill A, Hill M, Lavrov D, Lopez JV, Peterson K, Pomponi S, Redmond N, Collins AG. 2010. Integrative approaches for reconstructing the Porifera Tree of Life (PorToL). **Annual Meeting of the Society for Integrative and Comparative Biology**. Seattle, Washington.

## **INVITED SEMINAR PRESENTATIONS**

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- Thacker RW. 2013. Evolutionary Ecology of Sponge Microbiomes. College of Marine Science, **University of South Florida**, St. Petersburg, Florida.
- Thacker RW. 2013. Photosynthetic Sponges: Model Systems to Investigate Coral Reef Symbioses. Department of Biology, **Georgia State University**, Atlanta, Georgia.
- Thacker RW. 2012. Ecology and Evolution of Sponge-Microbe Symbioses. Department of Biology, **University of Hawaii at Manoa**, Honolulu, Hawaii.
- Thacker RW. 2012. Hosting helpers and cheaters: complex relationships in sponge-microbe symbioses. Department of Biology, **University of West Georgia**, Carrollton, Georgia.
- Thacker RW. 2010. Marine and Freshwater Cyanobacteria: Integrating microbial physiology, phylogenetics, and community ecology. Department of Biology, **Willamette University**, Salem, Oregon.
- Thacker RW. 2010. Does Mutualism Evolve from Parasitism? Insights from Sponge-Cyanobacteria Symbioses. Division of Natural Sciences and Mathematics, **Western Oregon University**, Monmouth, Oregon.
- Thacker RW. 2007. Evolutionary ecology of sponge-cyanobacteria symbioses: colonization and cospeciation. OGI School of Science and Engineering, **Oregon Health and Science University**, Portland, Oregon.
- Thacker RW. 2006. Evolutionary ecology of sponge-cyanobacteria symbioses: colonization and cospeciation. Department of Biological Sciences, **Auburn University**, Auburn, Alabama.
- Thacker RW. 2006. Sponge-Microbe Symbioses: Model systems for molecular, chemical, and community ecology. Center for Biodiversity and Ecology, **University of Göttingen**, Göttingen, Germany.

- Thacker RW. 2006. Marine and Freshwater Cyanobacteria: Model systems for integrating molecular biology, chemical ecology, and community structure. Science Programs, **Washington State University**, Vancouver, Washington.
- Thacker RW. 2005. Sponge-Microbe Symbioses: Integrating molecular, chemical, and community ecology. Department of Biology, **Portland State University**, Portland, Oregon.
- Thacker RW. 2005. Sponge-Microbe Symbioses: Integrating molecular, chemical, and community ecology. **Smithsonian Tropical Research Institute**, Panama City, Panama.
- Thacker RW. 2005. Sponge-Microbe Symbioses: Integrating molecular and chemical ecology. Department of Biology, **University of South Alabama**, Mobile, Alabama.
- Thacker RW. 2004. Ecology and Evolution of Sponge-Microbe Symbioses. Department of Biology, **University of Alabama at Birmingham**.
- Thacker RW. 2004. Searching for therapeutic drugs in Alabama's waters. **New Horizons Seminar Series**, University of Alabama at Birmingham.
- Thacker RW. 2003. Photosynthetic symbionts of marine sponges: are specialists more beneficial than generalists? Department of Biological Sciences, **University of South Carolina**. Columbia, South Carolina.
- Thacker RW. 2003. Manipulations of marine sponge-cyanobacteria symbioses. **Palau International Coral Reef Center**, Koror, Republic of Palau.
- Thacker RW. 2003. Photosynthetic symbionts of marine sponges: evolutionary specialization and ecological manipulations. Department of Biology, **Birmingham-Southern College**, Birmingham, Alabama.
- Thacker RW. 2002. Photosynthetic symbioses in marine sponges: ecology and evolution. Department of Pharmacognosy, **University of Mississippi**, Oxford, Mississippi.
- Thacker RW. 2002. Photosynthetic symbioses in marine sponges: diversity and evolution. Center for Applied Biodiversity Science, **Conservation International**, Washington, DC.
- Thacker RW. 2002. Coevolution of marine sponges and their microbial symbionts. **Bermuda Biological Station for Research, Inc.**, Ferry Reach, Bermuda.
- Thacker RW. 2002. Contribution of cyanobacterial symbionts to sponge growth and secondary metabolite production. Department of Pharmaceutical Sciences, **Oregon State University**, Corvallis, Oregon.
- Thacker RW. 2002. Ecology and evolution of cyanobacteria on coral reefs. Department of Biology, **University of Alabama at Tuscaloosa**.
- Thacker RW. 2002. Ecology of cyanobacteria on coral reefs. Sigma Xi Scientific Research Society, **University of Alabama at Birmingham**.
- Thacker RW. 2001. Biogeography of sponge chemical defenses. **Caribbean Marine Research Center**, Lee Stocking Island, Bahamas.
- Thacker RW. 2000. Chemical ecology of harmful algal blooms. Department of Pharmacognosy, **University of Mississippi**, Oxford, Mississippi.
- Thacker RW. 2000. Effects of nutrient enrichment and herbivore exclusion on coral reef macroalgae and cyanobacteria. Department of Biology, **University of Alabama at Birmingham**.



- Thacker RW. 1999. Sponge chemical ecology: competition for space and geographic variation in defense. Department of Marine Sciences, **University of Hawaii at Hilo**.
- Thacker RW. 1998. Effects of herbivorous fishes on the formation of cyanobacterial blooms. **Center for Advanced Studies**, Blanes, Spain.
- Thacker RW. 1998. Molecular systematics of Hawaiian tree snails. **University of Guam Marine Laboratory**, Mangilao, Guam.
- Thacker RW. 1997. Chemical mediation of competition between sponges. **Palau Community College** and **Coral Reef Research Foundation**, Koror, Republic of Palau.
- Thacker RW. 1995. Land hermit crab behavior: learning about foods and shells. **University of Guam Marine Laboratory**, Mangilao, Guam.

## TEACHING EXPERIENCE

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- 2005-present Bocas del Toro Research Station, Smithsonian Tropical Research Institute  
**Taxonomy and Ecology of Caribbean Sponges**
- 2000-present Department of Biology, University of Alabama at Birmingham
- Molecular Ecology and Phylogenetics** (BY 469 / 669 / 769)  
Fall 2010, Fall 2012
- Ecology** (BY 470 / 570)  
Spring 2001, Summer 2001, Fall 2001, Spring 2002, Spring 2003, Fall 2003,  
Spring 2004, Spring 2005, Fall 2005, Spring 2006, Spring 2007, Summer 2007,  
Spring 2008, Spring 2009, Fall 2009, Spring 2010, Spring 2011, Spring 2012
- Limnology** (BY 465 / 565 / 665)  
Fall 2000, Fall 2002, Fall 2004, Fall 2006, Fall 2008, Fall 2011
- Techniques in Biological Research** (BY 646)  
Spring 2001, Fall 2001
- Seminar in Ecology: Molecular Ecology** (BY 692/792)  
Summer 2002, Spring 2006
- Undergraduate Research** (BY 498)  
Winter 2001 (3 students), Summer 2001 (4 students),  
Fall 2001 (1 student), Spring 2002 (1 student), Fall 2002 (1 student),  
Spring 2003 (3 students), Summer 2004 (1 student), Fall 2004 (2 students),  
Fall 2005 (1 student), Spring 2006 (1 student), Spring 2007 (3 students),  
Spring 2008 (1 student), Fall 2008 (1 student), Spring 2009 (1 student),  
Summer 2009 (2 students), Fall 2009 (3 students), Spring 2010 (3 students),  
Summer 2010 (4 students), Fall 2010 (3 students), Spring 2011 (6 students),  
Summer 2011 (2 students), Fall 2011 (8 students), Spring 2012 (8 students),  
Summer 2012 (4 students), Spring 2013 (1 student), Summer 2013 (1 students),  
Fall 2013 (2 students)
- Undergraduate Honors Research** (BY 499)  
Winter 2001 (1 student), Spring 2001 (1 student), Fall 2001 (1 student),  
Spring 2002 (1 student), Fall 2002 (2 students), Spring 2003 (1 student),  
Fall 2003 (2 students), Spring 2004 (2 students), Spring 2005 (1 student),  
Fall 2005 (1 student), Fall 2007 (1 student), Spring 2008 (1 student),

Fall 2011(1 Student), Spring 2012 (1 student), Fall 2012 (1 student),  
Spring 2013 (1 student), Fall 2013 (1 student)

**McNair Summer Research Internship Program for Minority Students**  
Summer 2001

- 1999-2000 Marine Laboratory, University of Guam (Guest Lecturer)
- Advances in Ecology
  - Biometry
  - Chemical Ecology
  - Assessment and Management of Coral Reefs
- 1997 Department of Zoology, University of Hawaii (Guest Lecturer)
- Chemical Ecology
- 1995-1996 Marine Laboratory, University of Guam (Guest Lecturer)
- Ichthyology
  - Behavioral Ecology
- 1991-1994 Department of Biology, University of Michigan (Graduate Teaching Assistant)
- Animal Physiology
  - General Ecology
  - Introductory Biology for Nonscientists
- 1990 Department of Zoology, Duke University (Undergraduate Teaching Assistant)
- Animal Diversity

## PROFESSIONAL SERVICE ACTIVITIES

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- 2008-present Editor, *Invertebrate Biology*.
- 2013-present Editorial Board, *Frontiers in Microbiology*.
- 2012-present Program Officer, American Microscopical Society.
- 2010-present Editorial Board, *Integrative and Comparative Biology*.
- 2012-present Research Capacity Building Committee, University of Alabama at Birmingham.
- 2010-present Graduate Affairs Committee, Department of Biology, University of Alabama at Birmingham.
- 2013-present Chair, Facilities Committee, Department of Biology, University of Alabama at Birmingham.
- 2012-2013 Interim Chair, Department of Biology, University of Alabama at Birmingham.
- 2010-2012 Chair, Seminar Committee, Department of Biology, University of Alabama at Birmingham.
- 2009-2012 Faculty Handbook Committee, Department of Biology, University of Alabama at Birmingham
- 2006-2012 Faculty Affairs Committee, Department of Biology, University of Alabama at Birmingham.
- 2011-2012 Chair, Ecologist Search Committee, University of Alabama at Birmingham.
- 2011 NSF Review Panel, Integrative Organismal Systems, October 2011.
- 2011 Session Chair: *Phylogenetic Methods*, Evolution 2011, Norman, Oklahoma.
- 2010 Organizer and Moderator: *Roundtable on Integrating Morphological and Molecular Systematics*, 8<sup>th</sup> World Sponge Conference, Girona, Spain.
- 2010 Session Chair: *Sponge Microbiology*, 8<sup>th</sup> World Sponge Conference, Girona, Spain.
- 2010 Session Chair: *Bacterial Symbioses*, 13<sup>th</sup> International Symposium on Microbial Ecology, Seattle, Washington.
- 2010 NSF Review Panel, Integrative Organismal Systems, March 2010.
- 2001-2010 Seminar Committee, Department of Biology, University of Alabama at Birmingham.
- 2006-2009 Faculty Affairs Committee, School of Natural Sciences and Mathematics, University of Alabama at Birmingham.
- 2009 NSF Review Panel, Integrative Organismal Systems, October 2009.
- 2009 NASA Review Panel, Exobiology, January 2009.
- 2006 NSF Review Panel, Environmental Biology, October 2006.
- 2006 Session Chair: *Sponge Microbiology*, 7th International Sponge Symposium. Búzios, Brazil.

- 2005-2007 Student Support Committee, Society for Integrative and Comparative Biology.
- 2005 Contributed Session Chair, *Symbioses and Behavior*, Annual Meeting of the Society for Integrative and Comparative Biology.
- 2004 Co-sponsor, Organized Oral Session, *Genetic Explorations of the Seascapes*, Annual Meeting of the Ecology Society of America, Portland, Oregon.
- 2004-2007 Secretary, Division of Invertebrate Zoology, Society for Integrative and Comparative Biology.
- 2002-2004 Judge, Best Student Presentation Competition, Division of Ecology and Evolution, Society for Integrative and Comparative Biology Annual Meetings.
- 2001-2007 Primary Member, Institutional Animal Care and Use Committee, University of Alabama at Birmingham.
- 2001-2006 Treasurer, University of Alabama at Birmingham Chapter of Sigma Xi.
- 2001 Symposium Convener, *Environmental Microbial Genomics*, Southeastern Branch of the American Society for Microbiology Annual Meeting, Birmingham, Alabama.
- 2001 Mentor, McNair Summer Research Internship Program for Minority Students.
- 2001 Judge, Graduate Student Research Day, University of Alabama at Birmingham.
- 1999 Co-chair of Oral Presentations, Ecology and Environment, Second Asian Pacific Phycological Forum, Sha Tin, Hong Kong.
- 1998-1999 Field Coordinator, International Reef Check, University of Guam Marine Laboratory.

## **GRANT PROPOSALS REVIEWED**

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NASA Exobiology Program  
National Fish and Wildlife Foundation  
NOAA National Undersea Research Program  
NOAA Ocean Exploration Program  
NSF Assembling the Tree of Life Program  
NSF Biocomplexity in the Environment Program  
NSF Biodiversity Surveys and Inventories Program  
NSF Ecological and Evolutionary Physiology Program  
NSF Ecological Biology Cluster  
NSF Eukaryotic Genetics Program  
NSF Evolutionary and Population Ecology  
NSF Improvements in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories  
NSF Integrative Organismal Biology Program  
NSF Metabolic Biochemistry Program  
NSF Microbial Observatories Program  
NSF Microbial Interactions and Processes Program  
NSF Molecular and Cellular Biosciences Program  
NSF Organism – Environment Interactions Program  
NSF Systematic Biology Program  
NSF / USDA Microbial Genome Sequencing Program

Washington Sea Grant Program

## MANUSCRIPTS REVIEWED

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*Acta Oecologica*  
*Acta Zoologica Sinica*  
*Advances in Allelochemical Research*  
*Applied and Environmental Microbiology*  
*Aquatic Biology*  
*Aquatic Toxicology*  
*Australian Journal of Chemistry*  
*Biofouling*  
*Biological Bulletin*  
*Biology Letters*  
*Caribbean Journal of Science*  
*Coral Reefs*  
*Ecology*  
*Electronic Journal of Biotechnology*  
*European Journal of Soil Biology*  
*Evolution*  
*FEMS Microbiology Ecology*  
*Hydrobiologia*  
*Invertebrate Biology*  
*ISME Journal*  
*Journal of Biogeography*  
*Journal of Chemical Ecology*  
*Journal of Experimental Marine Biology and Ecology*  
*Journal of Fish Biology*  
*Journal of the Marine Biological Association of the United Kingdom*  
*Journal of Natural Products*  
*Life and Environment*  
*Limnology and Oceanography*  
*Marine Biology*  
*Marine Ecology*  
*Marine Ecology Progress Series*  
*Marine and Freshwater Research*  
*Microbial Ecology*  
*Molecular Ecology*  
*Oecologia*  
*Proceedings of the 6th International Sponge Conference*  
*Restoration Ecology*  
*Science*  
*Vie et Milieu*

## PROFESSIONAL AFFILIATIONS

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American Microscopical Society  
American Society of Microbiologists  
Ecological Society of America  
International Society for Reef Studies  
International Symbiosis Society  
Sigma Xi Scientific Research Society  
Society for Integrative and Comparative Biology  
Society of Systematic Biologists

## STUDENT ADVISING

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2000-Present Graduate Research Students  
University of Alabama at Birmingham

### Primary Ph.D. Advisor

Frank Camacho	Graduated August 2005
Patrick Erwin	Graduated August 2007
Chris Freeman	Graduated December 2012
Kenan Matterson	Enrolled August 2011

### Primary M.S. Advisor

Kevin Bevis	Graduated August 2003
Kelly Breland	Graduated August 2013
Patrick Erwin	Graduated May 2003
Steve Kimble	Graduated December 2009
Tessa Magnuson	Graduated August 2006
Andrew Mobley	Graduated May 2010
Aida Moran	Graduated August 2013
Zach Nolen	Enrolled August 2012

### M.S./Ph.D. Committee Member

Lisa Blankinship (Biology)	Graduated August 2005
Philip Bucolo (Biology)	Graduated December 2011
Andrew Coleman (Biology)	Graduated May 2011
Tom Diggs (Biology)	Graduated August 2013
Jenny Estes (Biology)	Graduated May 2011
Alyssa Geiss (Biology)	Graduated August 2004
Yu-Sheng Huang (Biology)	Graduated August 2006
Gil Koplovitz (Biology)	Graduated August 2011
Anne Marie LeBlanc (Biology)	Graduated May 2009
Ruth McDowell (Biology)	
Kevin Morse (Biology)	Graduated December 2005
Janna Owens (Biology)	Graduated August 2007
Kevin Peters (Biology)	Graduated May 2009
Ricardo Tapilatu (Biology)	
Xin Chen (Computer Science)	Graduated August 2008
Ying Liu (Computer Science)	Graduated August 2007

2000-Present Undergraduate Research Students  
University of Alabama at Birmingham

Adrienne Anderson-Odom	Lane McCaig
Meghan Ange	Joshua McClanahan
Melissa Bechtel	Angela McLeod (Honors)
Peter Blair (Honors)	Shawn McLeod (Honors)
Patrick Brady	Akshay Mentreddy
Tonyetta Bryant	Xolti Morgan (Honors)
Erin Cagle	Sarah Morse (Honors)
Cheryl Carmack	Afnan Nadeem
Wade Carter	Ngqabutho Ncube
Kevin Cope	Dimeji Ogunsola
Danita Crear	Jon Pham
Mike Dewar	Melissa Pierce
Sandra Leann Dillard	Keri Pope (Honors)
William Fagan	Ross Roegner
Krystal Flantroy	Jorge Salazar
Tanya Guthrie	Beth Sheets
Hayden Hamidi (Honors)	Ginger Smith
Kathryn Haynes	Jamie Sosa
Amber Hill	Sara Starnes (Honors)
Caleb Hilyer	Monte Starkey
Shedred Jackson	Amanda Strickland
Simbajike Johnson	Jeff Swinney
Christine Jones (Honors)	Laura Tomita (Honors)
Steve Kimble (Honors)	Shalini Vaid
Meghana Kukkamalla	Marie Vowels (Honors)
Jessica Lapietra	Leslie Wesley
Dustin Lewis	Nicole Whitehead
Robert Mann	Jack Wimbish
Mark Mazenko	Megan Zappe (Honors)

## AWARDS TO STUDENTS

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- 2014 Kenan Matterson, Lerner-Gray Fund for Marine Research, American Museum of Natural History, \$2,015. *Effects of reduced irradiance on sponge cyanobacteria symbiosis.*
- 2014 Kenan Matterson, Grant-in-Aid of Research, Sigma Xi, \$940. *Assessing the stability of sponge-cyanobacterial associations using next-generation amplicon sequencing.*
- 2014 Kenan Matterson, Alabama Academy of Science Research Award, \$200. *Variability in host-symbiont associations across tropical sponges and cyanobacterial symbionts.*
- 2013 Kenan Matterson, Runner-Up, Best Poster Presentation, Division of Invertebrate Zoology, Society for Integrative and Comparative Biology.
- 2013 Kenan Matterson, Grant-in-Aid of Research, Sigma Xi, \$1,000. *Effects of reduced irradiance on sponge cyanobacteria symbiosis.*
- 2013 Kenan Matterson, Grant-in-Aid of Research, Society for Integrative and Comparative Biology, \$1,000. *Does genetic diversity influence nutrient transfer in sponge-cyanobacteria symbioses?*

- 2013 Kenan Matterson, PADI Foundation, \$5,015. *Understanding patterns of growth of an aggressive tunicate species.*
- 2013 Kenan Matterson, UAB Caroline Ireland Research Scholarship, \$1,000. *Effects of reduced irradiance on sponge cyanobacteria symbiosis.*
- 2012 Chris Freeman, Outstanding Graduate Student Award, College of Arts and Sciences, University of Alabama at Birmingham.
- 2012 Chris Freeman, Best Oral Presentation, Division of Invertebrate Zoology, Society for Integrative and Comparative Biology.
- 2012 Chris Freeman, Adrian M. Wenner Strong Inference Award, Division of Invertebrate Zoology, Society for Integrative and Comparative Biology.
- 2011 Chris Freeman, Outstanding Graduate Student Award, Department of Biology, University of Alabama at Birmingham.
- 2010 Chris Freeman, Best Poster Award, 8<sup>th</sup> World Sponge Conference.
- 2010 Chris Freeman, Short-Term Fellowship, Smithsonian Tropical Research Institute, \$2,400.
- 2010 Chris Freeman, Lerner-Gray Fund for Marine Research, American Museum of Natural History, \$1,600.
- 2010 Chris Freeman, Grant-in-Aid of Research, Sigma Xi, \$1,000.
- 2009 Chris Freeman, Lerner-Gray Fund for Marine Research, American Museum of Natural History, *Experimental manipulation of nutrient exchange from cyanobacterial symbionts to marine sponges*, \$1,500.
- 2009 Chris Freeman, Grant-in-Aid of Research, Sigma Xi, \$800.
- 2009 Andrew Mobley, Walter F. Coxe Research Fund, Birmingham Audubon Society, *Molecular systematics and life history of the dwarf crayfish Cambarellus diminutus*, \$1,500.
- 2008 Steve Kimble, Outstanding Graduate Student Award, Department of Biology, University of Alabama at Birmingham.
- 2008 Andrew Mobley, Best Student Presentation, Alabama Academy of Science.
- 2008 Steve Kimble, UAB Ireland Research Travel Scholarship, \$1,000.
- 2007 Patrick Erwin, 1st Place, UAB Graduate Student Research Day Competition.
- 2007 Steve Kimble, Best Student Presentation, Alabama Academy of Science.
- 2007 Andrew Mobley, UAB Ireland Scholarship Award for Master's Research (1 year's tuition).
- 2006 Tessa Magnuson, Outstanding Teacher Award, UAB Central Alabama Regional Science and Engineering Fair, Birmingham, Alabama.
- 2006 Patrick Erwin, 2nd Place, Best Oral Presentation, Southeastern Ecology and Evolution Conference, Tuscaloosa, Alabama.
- 2005 Frank Camacho, Outstanding Graduate Student Award, Department of Biology, University of Alabama at Birmingham.



- 2005 Patrick Erwin, Grant-in-Aid of Research, Sigma Xi, \$550.
- 2005 Patrick Erwin, Honorable Mention for Best Student Presentation, Benthic Ecology Meeting 2005, Williamsburg, Virginia.
- 2005 Patrick Erwin, Short-Term Fellowship, Smithsonian Tropical Research Institute, \$3,685.
- 2005 Patrick Erwin, Best Student Presentation, Alabama Academy of Science.
- 2005 Patrick Erwin, Grant-in-Aid of Research, Society for Integrative and Comparative Biology, *Incidence, identity, and importance of photosynthetic symbionts in shallow water sponge communities*, \$748.
- 2004 Frank Camacho, Walter F. Coxe Research Fund, Birmingham Audubon Society, *Saxitoxin production and mediation of trophic interactions among fish and amphipods by a toxic cyanobacterium*, \$2,000.
- 2004 Frank Camacho, 1st Place, UAB Graduate Student Research Day Competition.
- 2004 Patrick Erwin, 3rd Place, UAB Graduate Student Research Day Competition.
- 2002-2003 Patrick Erwin, Mississippi-Alabama Sea Grant College Program Award, *Marine Sponges from the Alabama Coast: Anti-fouling Activity and Symbiotic Bacterial Communities*, \$10,000.
- 2002 Kevin Bevis, Grant-in-Aid of Research in Phycology, Phycological Society of America, \$1,000.
- 2002 Keri Pope, 3rd Place, First Annual University of Alabama System Honors Research Day.

## **PROFESSIONAL TRAINING & CERTIFICATIONS**

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American Council on Education, Leadership Academy for Department Chairs  
IACUC 101, American Association for Laboratory Animal Science  
University of Alabama / AAUS Scientific Diver  
PADI Rescue SCUBA Diver  
IANTD Nitrox Diver  
Diver Alert Network Oxygen Provider  
American Red Cross First Aid and CPR