

CURRICULUM VITAE

Anna R. Armitage, Ph.D. • Assistant Professor
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Research interests: Trophic organization in benthic coastal habitats; trophic and community-level effects of coastal eutrophication; population and community structure of restored and disturbed habitats; physical and ecological effects of bioturbation; ecology of coastal wetlands, salt marshes, seagrass beds, invertebrates, and shorebirds

Education

2003 Ph.D., Biology
 University of California, Los Angeles

1995 B.S., Marine Biology
 University of California, Los Angeles

Professional Appointments

2006-Present Assistant Professor
 Department of Marine Biology
 Texas A&M University at Galveston

2007-Present Assistant Professor, Graduate Faculty
 Dept. of Marine Sciences, Marine Resources Management Program
 Texas A&M University at Galveston

2007-Present Assistant Professor, Graduate Faculty
 Department of Ecosystem Science & Management
 Texas A&M University

2007-Present Adjunct Assistant Professor
 Department of Biology and Biochemistry, University of Houston

2003-2006 Postdoctoral Research Associate
 Southeast Environmental Research Center and Department of Biological
 Sciences, Florida International University, Miami

1998-2001 Research Assistant
 UCLA Department of Organismic Biology, Ecology and Evolution

1997-2001 Teaching Assistant
 UCLA Department of Organismic Biology, Ecology and Evolution

1995-1997 Marine Instructor, Research Assistant
 Vantuna Research Vessel, Occidental College, Los Angeles

Publications

- Armitage, A.R.**, V. Gonzalez, and P. Fong. 2009. Decoupling of nutrient and grazer impacts on a benthic estuarine diatom assemblage. *Estuarine, Coastal and Shelf Science*: in press.
- Frankovich, T.A., **A.R. Armitage**, A.H. Wachincka, E.E. Gaiser, and J.W. Fourqurean. 2009. Nutrient effects on seagrass epiphyte community structure in Florida Bay. *Journal of Phycology* 45: in press.
- Armitage, A.R.**, S.M. Jensen, J.E. Yoon, and R.F. Ambrose. 2007. Wintering shorebird assemblages and behavior in restored tidal wetlands in southern California. *Restoration Ecology* 15: 139-148.
- Armitage, A.R.**, K.E. Boyer, R.R. Vance, and R.F. Ambrose. 2006. Restoring assemblages of salt marsh halophytes in the presence of a rapidly colonizing dominant species. *Wetlands* 26: 667-676.
- Armitage, A.R.** and P. Fong. 2006. Predation and physical disturbance by crabs reduce the relative impacts of nutrients in a tidal mudflat. *Marine Ecology Progress Series* 313: 205-213.
- Armitage, A.R.** and J.W. Fourqurean. 2006. The short-term influence of herbivory near patch reefs varies between seagrass species. *Journal of Experimental Marine Biology and Ecology* 339: 65-74.
- Armitage, A.R.**, T.A. Frankovich, and J.W. Fourqurean. 2006. Variable responses within epiphytic and benthic microalgal communities to nutrient enrichment. *Hydrobiologia* 569: 423-435.
- Gil, M., **A.R. Armitage**, and J.W. Fourqurean. 2006. Nutrients increase epifaunal abundance and shift species composition in subtropical seagrass beds. *Hydrobiologia* 569: 437-447.
- Armitage, A.R.**, T.A. Frankovich, K.L. Heck, Jr., and J.W. Fourqurean. 2005. Experimental nutrient enrichment causes complex changes in seagrass, microalgae, and macroalgae community structure in Florida Bay. *Estuaries* 28: 422-434.
- Armitage, A.R.** and P. Fong. 2004. Gastropod colonization of a created coastal wetland: potential influences of habitat suitability and dispersal ability. *Restoration Ecology* 12: 391-400.
- Armitage, A.R.** and P. Fong. 2004. Upward cascading effects of nutrients: shifts in a benthic microalgal community and a negative herbivore response. *Oecologia* 139: 560-567.
- Boyer, K.E., P. Fong, **A.R. Armitage**, and R.A. Cohen. 2004. Elevated nutrient content of tropical macroalgae increases rates of herbivory in coral, seagrass, and mangrove habitats. *Coral Reefs* 23:530-538.

In revision

- Armitage, A.R.** and J.W. Fourqurean. In revision. Stable isotopes reveal complex changes in trophic relationships following nutrient addition in a coastal marine ecosystem. *Estuaries and Coasts*.

Submitted

- Baggett, L.P., K.L. Heck, Jr., T.A. Frankovich, **A.R. Armitage**, and J.W. Fourqurean. In review. Nutrient enrichment, grazer identity and their effects on epiphytic algal assemblages: field experiments in sub-tropical turtlegrass (*Thalassia testudinum*) meadows. *Marine Ecology Progress Series*.

Research grants

- 2009 “The evolving coastline of the Gulf of Mexico: how does the salinity tolerance of mangroves impact coastal community structure?” Texas A&M University and El Consejo Nacional de Ciencia y Tecnologia (CONACYT): Co-PI with Eric N. Madrid and Jorge A. López-Portillo; 8/6/2009-8/31/2010; \$24,000
- 2008 “Assessing the ecological efficacy of select wetland restoration approaches in the Northwestern Gulf of Mexico;” Texas General Land Office, Oil Spill Prevention and Response Division; PI (Armitage) with A.S. Quigg; 9/1/08-8/31/11; \$711,000
- 2008 “A comparative study of money- and energy-based valuations of ecosystem services for improving water quality in Armand Bayou, Galveston Bay”; Texas Sea Grant; Co-PI with J.-Y. Ko; 3/1/08-1/31/10; \$59,983
- 2008 “Influences of sea level rise on the nutrient assimilation capacity of tidal brackish wetlands”; Univ. of Houston: Environmental Institute of Houston; Co-PI with S.C. Pennings; 1/1/08-8/31/08; \$10,000
- 2007 “Impacts of increased freshwater flow and nutrient input on benthic community structure and trophic interactions”; National Park Service and Department of the Interior Critical Ecosystem Studies Initiative; Co-PI with J.W. Fourqurean; 8/23/07-8/22/09; \$320,000
- 2005 “Benthic community monitoring for the Little Venice sewage collection and treatment project in Marathon, Florida, Phase II”; Florida Department of Environmental Protection; Co-PI with J.W. Fourqurean; \$70,000 for 1.5 years
- 2001 UC Marine Council Coastal Quality Initiative Fellowship for dissertation research, \$50,000
- 2000 UCLA Department of Organismic Biology, Ecology and Evolution Fellowship for dissertation research, \$7500

Abstracts (in reverse chronological order)

- Ho, C.-K., M. Bell, A. Thronson, E. Madrid, A.S. Quigg, and **A.R. Armitage**. August 2009. Are restored marshes as good as natural marshes? 94th Ecological Society of America Annual Meeting.
- Parnell, A., **A.R. Armitage**, and J.-Y. Ko. April 2009. Restored and exotic vegetation react differently to nutrient input in an urbanized watershed (Armand Bayou, Texas). Armand Bayou Nature Center Earth Day Festival.
- Herbert, D.A., **A.R. Armitage**, and J.W. Fourqurean. March 2009. Benthic metabolism in Florida Bay is controlled by phosphorus availability. Florida Coastal Everglades LTER All Scientists Meeting.
- Weaver, C.A., **A.R. Armitage**, and J.W. Fourqurean. March 2009. Nutrient addition reduces the influence of habitat complexity on seagrass epifaunal abundance. 38th Annual Benthic Ecology Meeting.
- Quigg, A.S. and **A.R. Armitage**. January 2009. Assessing the ecological efficacy of select wetland restoration approaches in the Northwestern Gulf of Mexico. Ninth Biennial State of the Bay Symposium.
- Armitage, A.R.**, T.A. Frankovich, and J.W. Fourqurean. December 2008. Long-term shifts in seagrass community structure follow experimental nutrient enrichment in Florida Bay. 2008 Florida Bay and Adjacent Marine Systems Science Conference.

- Weaver, C.A., **A.R. Armitage**, and J.W. Fourqurean. December 2008. Effects of habitat complexity and nutrient enrichment on epifauna abundance and diversity in a Florida Bay seagrass system. 2008 Florida Bay and Adjacent Marine Systems Science Conference.
- Dobberstine, J., **A.R. Armitage**, C. Howard. October 2008. Comparing salt marsh ecosystem responses to different restoration techniques. Restoring America's Estuaries 4th National Conference.
- Armitage, A.R.**, A. Parnell, and J.-Y. Ko. September 2008. Preliminary assessment of nutrient impacts on restored freshwater wetlands: A first step for valuation of ecosystem services in Armand Bayou, Galveston Bay. Sea Grant Texas 7th Annual Researcher Conference.
- Armitage, A.R.**, T.A. Frankovich, and J.W. Fourqurean. July 2008. Long-term shifts in seagrass community structure follow experimental nutrient enrichment in Florida Bay. GEER 2008: Greater Everglades Ecosystem Restoration Conference.
- Armitage, A.R.**, T.A. Frankovich, and J.W. Fourqurean. June 2008. Long-term shifts in seagrass community structure follow experimental nutrient enrichment in Florida Bay. Cooperative Ecosystem Studies Units Network 5th National Meeting.
- Armitage, A.R.** March 2008. Exploring connectivity between salt marshes and subtidal habitats. Texas Academy of Sciences 111th Annual Meeting.
- Baggett, L.P., K.L. Heck, Jr., T.A. Frankovich, **A.R. Armitage**, J.W. Fourqurean. April 2008. Stoichiometric, growth, and fecundity responses to nutrient enrichment by invertebrate grazers in sub-tropical turtlegrass *Thalassia testudinum* meadows. 37th Annual Benthic Ecology Meeting.
- Dobberstine, J., **A.R. Armitage**, C. Howard. October 2008. Comparing salt marsh ecosystem responses to different restoration techniques. Restore America's Estuaries 4th National Conference.
- Armitage, A.R.**, T.A. Frankovich, J.W. Fourqurean. November 2007. Long-term shifts in seagrass community structure follow experimental nutrient enrichment in Florida Bay. Estuarine Research Federation 19th Biennial Conference.
- Fong, P., K.E. Boyer, **A.R. Armitage**. November 2007. Macroalgae identify the relative importance of upwelling vs. terrestrial supplies of nutrients to coastal estuaries. Estuarine Research Federation 19th Biennial Conference.
- Frankovich, T.A., **A.R. Armitage**, J.W. Fourqurean, A. Wachnicka, E.E. Gaiser. November 2007. P enrichment of seagrass meadows causes changes in epiphyte community structure at different taxonomic levels. Estuarine Research Federation 19th Biennial Conference.
- Armitage, A.R.** and J.W. Fourqurean. August 2007. Trophic implications of nutrient enrichment in seagrass beds. Ecological Society of America/Society for Ecological Restoration Joint Meeting.
- Armitage, A.R.**, S.M. Jensen, J.E. Yoon, R.F. Ambrose. January 2007. Restoration of tidal wetlands in southern California for shorebirds: lessons for Galveston Bay. Galveston Bay Estuary Program Eighth Biennial State of the Bay Symposium.
- Armitage, A.R.**, M. Gil, J.W. Fourqurean. November 2006. Trophic implications of nutrient enrichment in seagrass beds: epiphytic grazer densities increase and benthic consumer diets shift. Western Society of Naturalists 87th Annual Meeting.
- Armitage, A.R.**, M. Gil, J.W. Fourqurean. March 2006. Nutrient impacts on epifaunal density, species composition, and food web complexity in a subtropical seagrass bed. Florida Coastal Everglades LTER All Scientists Meeting.

ARMITAGE, Anna R.

- Armitage, A.R.** and J.W. Fourqurean. October 2005. Short-term herbivore impacts and long-term implications of nutrient enrichment on seagrass species distribution. Estuarine Research Federation 18th Biennial Conference.
- Frankovich, T. A. E.E. Gaiser, **A.R. Armitage**, and J.W. Fourqurean. October 2005. Effects of nitrogen and phosphorus fertilization on epiphytic diatom communities. Estuarine Research Federation 18th Biennial Conference.
- Armitage, A.R.** and J.W. Fourqurean. April 2005. Acute influence of herbivory on seagrass distribution and the long-term implications of nutrient enrichment. 34th Annual Benthic Ecology Meeting.
- Baggett, L.P., K.L. Heck Jr., **A.R. Armitage**, T.A. Frankovich, and J.W. Fourqurean. April 2005. The effects of nutrient enrichment on the seagrass *Thalassia testudinum* and its associated epiphyte grazers in Florida Bay, USA. 34th Annual Benthic Ecology Meeting.
- Armitage, A.R.**, T.A. Frankovich, K.L. Heck, Jr, and J.W. Fourqurean. March 2005. Experimental long-term nutrient enrichment causes complex changes in seagrass and epiphyte community structure in Florida Bay. Florida Coastal Everglades LTER All Scientists Meeting.
- Armitage, A.R.**, T.A. Frankovich, J.W. Fourqurean, and K.L. Heck, Jr. August 2004. Community response to N and P enrichment along a gradient of nutrient limitation in Florida Bay seagrass beds. Ecological Society of America 89th Annual Meeting.
- Armitage, A.R.**, T.A. Frankovich, J.W. Fourqurean, and K.L. Heck, Jr. March 2004. Seagrass community structure response to phosphorus enrichment varies along a gradient of nutrient limitation in Florida Bay. 33rd Annual Benthic Ecology Meeting.
- Armitage, A.R.** and P. Fong. September 2003. Effects of habitat-modifying crabs on community structure in muddy and sandy tidal flats. Estuarine Research Federation 17th Biennial Conference.
- Armitage, A. R.**, T.A. Frankovich, and J.W. Fourqurean. September 2003. N vs. P limitation of benthic primary production in Florida Bay. LTER All Scientists Meeting.
- Fong, P., K.E. Boyer, and **A.R. Armitage**. September 2003. The North versus the South: Are nutrient dynamics fundamentally different in California estuaries? Estuarine Research Federation 17th Biennial Conference.
- Armitage, A.R.** and P. Fong. August 2003. Trophic-level effects of habitat-modifying crabs in muddy and sandy tidal flats. Ecological Society of America 88th Annual Meeting.
- Armitage, A.R.** and P. Fong. April 2003. Successes and shortcomings in habitat restoration: a case study of *Cerithidea californica* (Gastropoda) colonization and fitness in a created tidal mudflat. California Estuarine Research Society Inaugural Meeting.
- Fong, P., K.E. Boyer, and **A.R. Armitage**. April 2003. The North versus the South: Are nutrient dynamics fundamentally different? California Estuarine Research Society Inaugural Meeting.
- Armitage, A.R.** and P. Fong. November 2002. Interactive effects of nutrient enrichment and predation on the gastropod *Cerithidea californica* differ in natural and restored coastal wetlands in southern California. Western Society of Naturalists 83rd Annual Meeting.
- Armitage, A.R.** and J.E. Yoon. November 2002. Spatial scale variability in wintering shorebird use of coastal wetland restoration sites. Western Society of Naturalists 83rd Annual Meeting.
- Boyer, K.E., P. Fong, **A.R. Armitage**, and R.A. Cohen. November 2002. Elevated nutrient content of tropical macroalgae increases rates of herbivory in coral, seagrass, and mangrove habitats. Western Society of Naturalists 83rd Annual Meeting.

ARMITAGE, Anna R.

- Armitage, A.R.** and J.E. Yoon. September 2002. Spatial scale variability in wintering shorebird use of coastal wetland restoration sites. Third North American Ornithological Conference.
- Armitage, A.R.**, P. Fong, and R.R. Vance. November 2001. Top-down and bottom-up forces in restored and natural mudflats in a southern California estuary. Estuarine Research Federation 16th Biennial Conference.
- Armitage, A. R.**, P. Fong, and R. R. Vance. November 2001. Top-down and bottom-up forces in restored and natural mudflats in a southern California estuary. Western Society of Naturalists 82nd Annual Meeting.
- Fong, P., K.E. Boyer, and **A.R. Armitage**. May 2001. Determining the relative importance of terrestrial and oceanic sources of nutrients to estuaries along the west coast of the US. Southern California Academy of Sciences.
- Fong, P., K.E. Boyer, and **A.R. Armitage**. June 2000. Macroalgal N and P content reflects latitudinal gradients and water residence times in estuaries, bays, and rocky shores along the west coast of the US. American Society of Limnology and Oceanography Summer Meeting.

Invited lectures

- March 2007 Applying studies of consumer and nutrient interactions to habitat restoration and management. University of Houston Dept. of Biology and Biochemistry, Houston, TX
- May 2008 Applying studies of consumer and nutrient interactions to habitat restoration and management. Texas Parks and Wildlife Dept. Water Quality Team Meeting, Austin, TX
- November 2008 Applying studies of consumer and nutrient interactions to habitat restoration and management. Dauphin Island Sea Lab, Dauphin Island, Alabama

Awards and honors

- 2009 Outstanding Reviewer Citation, *Estuaries and Coasts*
- 2003 Scherbaum Award for Outstanding Research
UCLA Department of Organismic Biology, Ecology and Evolution
- 1999 Association for Women in Science Education Foundation
Predoctoral Citation of Merit
- 1998 UCLA Institute of the Environment
Award for continuing work in environmental research

Teaching and supervisory experience

Courses

- Coastal Plant Ecology (MARB 430)
- Seminar in Marine Biology (MARB 482)
- Coastal Wetland Management (MARS 425)
- Special Topics Course: Southeastern Wetland Ecosystems Field Trip (MARB/RLEM 689)
- Directed Independent Study (MARB 491/691)

Graduate students

Masters:

Michael Bell (In progress)
Allison Parnell (In progress)
Lindsey Staszak (In progress)

Doctoral:

Carolyn Weaver (In progress)

Postdoctoral fellows

Chuan-Kai Ho (2008 – present)

Eric Madrid (2009 – present)

Collaborators and Co-Editors (last 48 months)

Dauphin Island Sea Lab: Lesley P. Baggett, Kenneth L. Heck, Jr.

Florida International University: Ligia Collado-Vides, Thomas A. Frankovich, Evelyn E. Gaiser,
Melissa Gil, Darrell Hebert, Michael Heithaus, Ania Wachnicka

Instituto de Ecologia, A.C.: Jorge A. López-Portillo

Lee College: Jim Dobberstine

San Francisco State University: Katharyn E. Boyer

Southern Georgia University: Risa A. Cohen

Texas A&M University at Galveston: Thomas Iliffe, Jae-Young Ko, Antonietta Quigg

University of California Los Angeles: Richard F. Ambrose, Peggy Fong, Stacey M. Jensen,
Richard R. Vance, Joy Yoon

University of Houston: Stephen Pennings

University of Houston Clear Lake: Cindy Howard

Graduate and Postdoctoral Advisors

Peggy Fong (University of California Los Angeles)

Richard R. Vance (University of California Los Angeles)

James W. Fourqurean (Florida International University)

Service

Executive board:

Galveston Bay Foundation: Executive Committee member

Professional advisement for:

Harris-Galveston Area Council, Eco-Logical Initiative

Applied Ecological Services, Inc., Galveston East End Master Plan

Friends of Galveston Island State Park: Adviser to Executive Board

Review panel:

Maryland Sea Grant Omnibus 2009-2011

Journal reviews (last 48 months):

Aquatic Ecology; Ecosystems; Environmental Monitoring and Assessment, Estuaries and
Coasts; Estuarine, Coastal and Shelf Science; Gulf of Mexico Science; Journal of Applied

ARMITAGE, Anna R.

Ecology; Journal of Field Ornithology; Journal of Phycology; Marine and Freshwater Research; Marine Biology; Marine Ecology; Marine Ecology Progress Series; Oecologia; Plant Ecology; Wetland Ecology and Management; Wetlands

Proposal reviews (last 48 months):

Galveston Graduate Student Association; National Institute for Climatic Change Research; National Science Foundation – Biological Oceanography Program; University of Houston Research Council Grant to Enhance and Advance Research; South Carolina Sea Grant; National Fish and Wildlife Foundation

Professional society memberships:

Ecological Society of America
Estuarine Research Federation
Gulf Estuarine Research Society
Texas Academy of Sciences
Western Society of Naturalists

Other professional organizations

- Member of the Ecology and Evolutionary Biology faculty group at TAMU-College Station
- Collaborator in the Florida Coastal Everglades Long Term Ecological Research Program

Synergistic activities

- Design and maintain lab website (www.tamug.edu/marb/armitage/) and research blog (<http://marshdispatch.blogspot.com/>) to recruit students and facilitate dissemination of recent research activities to prospective students and stakeholders
- Develop and direct salt marsh restoration activities for grade school groups and local residents on TAMUG wetland property
- Organized and hosted the inaugural State of Coastal Ecosystem Research in Texas meeting (www.tamug.edu/scert). Participants introduced their latest research directions and proposal ideas with the intent to enhance future collaborations among coastal researchers in Texas across multiple scientific disciplines.