TRACY ELSEY-QUIRK

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EDUCATION

Ph.D.	Marine Biosciences, University of Delaware	2009
M.S.	Ecology and Environmental Science, University of Louisiana Lafayette	2005
B.S.	Wildlife and Fisheries Biology, University of Vermont	1998

RESEARCH EXPERIENCE

Postdoctoral Research: Academy of Natural Sciences Philadelphia, Patrick Center for Environmental Research, 2010-present (research advisor: Dr. David Velinsky).

Doctoral Research: College of Earth, Ocean and Environment, University of Delaware, 2005-2009 (research advisor: Dr. John L. Gallagher).

- Field study of seasonal carbon and nitrogen cycling and allocation in four salt marsh plant species, *Baccharis halimifolia*, *Juncus roemerianus*, *Spartina patens*, and *Spartina alterniflora* in a fringing marsh documents the importance of understanding interspecific variation in pool sizes and loss rates to evaluate future changes to the plant community structure and function.
- Influence of different plant species on carbon sequestration, organic and mineral matter accumulation, and vertical accretion rates.
- *In-situ* field study of intraspecific variation in morphology and carbon and nutrient composition and allocation within four salt marsh species and the influence of spatial heterogeneity.
- Development of a STELLA model to illustrate the flow of carbon through *Juncus roemerianus*, *Spartina patens*, and *Spartina alterniflora* to predict the long-term accumulation rate of carbon in marsh soils.

Masters Research: Department of Biology, University of Louisiana at Lafayette and the National Wetlands Research Center, United States Geological Survey, 2003-2005 (research advisor: Dr. Beth Middleton).

- Comparison of early regeneration dynamics of salt marsh species in low and high elevations of a created dredge sediment marsh and a natural marsh in southwest Louisiana illustrates the relationship between hydrology, plant community structure, and natural colonization.
- Complimentary greenhouse and lab studies investigating the effects of wet and dry stratification, salinity, and water level fluctuation on seed hydrochory and germination success in dredge sediment for a suite of salt marsh species.

RESEARCH INTERESTS

Wetland plant community dynamics, wetland restoration, nutrient, metal, and carbon cycling and storage in coastal systems, and the effects of climate change on coastal ecosystems

TEACHING EXPERIENCE

Guest Lecturer: Marine Environmental Studies, MAST 492, University of Delaware, 2/2010 – 3/2010

- Developed and presented a series of four lectures on coastal ecosystems to upper-level undergraduates

RELEVANT EXPERIENCE

Wetland Restoration Technician, Wai-ora Trust Forest Landscapes Inc., Christchurch, New Zealand, 2001-2002

- Planned and implemented streambank and wetland plant restoration projects.
- Propagated native plant species in a greenhouse.

Fisheries Technician, Chugach National Forest, United States Forest Service, Cordova, Alaska 2000-2001

- Implemented cutthroat trout habitat restoration.
- Documented effects of beaver activity in the Copper River Delta using GIS and Arcview.
- Monitored juvenile fish migration in tributaries of the Copper River.
- Performed salmonid escapement surveys.

Natural Resource Education Intern, Golden Gate National Recreation Area, National Park Service, San Francisco, California, 1999-2000

- Developed and conducted high school education and field programs in wetland ecology and restoration.
- Site manager of a serpentine grassland.
- Led volunteer programs to restore coastal dune, grassland, and riparian habitats.
- Worked in a native plant nursery.

Wildlife Intern, Golden Gate National Recreation Area, National Park Service, San Francisco, California, 1998-1999

- Studied the breeding behavior of black-crowned night herons, snowy egrets, and western gulls on Alcatraz Island.
- Evaluated reproductive effort of breeding bird populations.

THESIS

Early regeneration dynamics of species in a created salt marsh on the Gulf coast, USA. 60 pp. 2005.

PUBLICATIONS

1. Elsey-Quirk, T., Seliskar, D. M., and J. L. Gallagher. *In review*. Ecotypic variation in morphology and carbon and nutrient accumulation of three macrophyte species in a heterogeneous salt marsh environment.

2. Elsey-Quirk, T., Seliskar, D. M., Sommerfield, C. K., and J. L. Gallagher. *In revision.* Carbon pool distribution in a salt marsh fringing a coastal lagoon in the mid-Atlantic USA: implications for sea level rise. Wetlands
4. Elsey-Quirk, T., Seliskar, D. M., and J. L. Gallagher. *In revision.* Nitrogen pools of macrophyte species in a coastal lagoon salt marsh: implications for seasonal storage and dispersal. Estuaries and Coasts
5. Elsey-Quirk, T., Middleton, B. A., and C. E. Proffitt. 2009. Seed flotation and germination of salt marsh plants: the effects of stratification, salinity, and/or inundation regime. Aquatic Botany 91: 40-46.
6. Elsey-Quirk, T., Middleton, B. A., and C. E. Proffitt. 2009. Seed dispersal and seedling emergence in a created and natural salt marsh on the Gulf of Mexico coast in southwest Louisiana, USA. Restoration Ecology 17: 422-432.

PRESENTATIONS

1. Elsey-Quirk, T., D. M. Seliskar, and J. L. Gallagher. "Ecotypic variation in morphology and carbon, nutrient, and mineral allocation of three salt marsh macrophytes: Implications for restoration." Oral presentation, Coastal and Estuarine Research Federation, November 1-5, 2009.
2. Elsey-Quirk, T., D. M. Seliskar, and J. L. Gallagher. "Ecotypic variation in *Spartina alterniflora*: growth, nutrient and carbon dynamics." Poster presentation, Coastal and Estuarine Research Federation, November 1-5, 2009.
3. Elsey-Quirk, T., D. M. Seliskar, and J. L. Gallagher. "Consequences of interspecific variation in nitrogen and carbon pools of salt marsh plants." Oral presentation Delaware Estuary Conference, January 12-14, 2009.
4. Elsey, T., D. M. Seliskar, and J. L. Gallagher. "Carbon sequestration by salt marsh plants in the face of sea level rise." Oral presentation, Dorchester Town Meeting. Spring 2007.
5. Elsey, T., D. M. Seliskar, and J. L. Gallagher. "Nutrient and carbon sequestration by salt marsh plants when eutrophication and sea level rise affect our estuaries." Oral presentation, Estuarine Research Federation Conference, November 4-8, 2007.
6. Elsey, T. J. L. Gallagher, and D. M. Seliskar. "Nutrient and carbon sequestration by salt marsh plants in the face of eutrophication and sea level rise." Oral presentation, Delaware Estuary Conference, January 22-24, 2007.
7. Elsey, T., Middleton, B. A. and C. E. Proffitt. "Seed dispersal and germination in created salt marshes." Oral presentation, Graduate Student Symposium, University of Louisiana Lafayette, October 2004.
8. Elsey, T., Middleton, B. A., and C. E. Proffitt. "Seed dispersal in a created salt marsh in Louisiana." Poster presentation, Coastal Restoration and Enhancement through Science and Technology, April 12-13, 2005.
9. Elsey, T., Middleton, B. A., and C. E. Proffitt. "Patterns of plant community development in a created salt marsh on the Gulf Coast of Louisiana." Oral presentation, Louisiana Association of Professional Biologists, August 2004.

SCHOLARLY SERVICE

2007- present *Reviewer* Estuaries and Coasts
2010 - present *Reviewer* Plant Biology

AWARDS AND HONORS

Professional Development Award for Graduate Students 2009, Graduate and Professional Education, University of Delaware. $500.00.

Professional Development Award for Graduate Students 2007, Graduate and Professional Education, University of Delaware. $300.00.

Phi Beta Kappa Honor Society 2005 Award for Graduate Student, University of Louisiana Lafayette.

Coastal Wetland Studies Award 2004, Garden Club of America and the Virginia Institute of Marine Science.