

The Coastal Waters Consortium Presents:

# Scientist Spotlight



## Dr. Sabrina Taylor

### What is your role as a scientist for CWC?

I lead a project with Drs. Phil Stouffer and Stef Woltmann examining the effects of the oil spill on the two most numerous terrestrial marsh vertebrates: Seaside Sparrows and marsh rice rats. We are looking at differences between oiled and unoiled areas in terms of nesting success (birds), abundance (birds and rats), expression of a gene involved in metabolizing polycyclic aromatic hydrocarbons (PAHs, a toxic component of oil; birds and rats), diet (birds), and the association between contamination, genetic variation and disease (rats).

### Can you summarize your oil spill research and describe any surprising findings you have come across?

The oil spill appears to have affected abundance and nesting success in sparrows, and in 2011, sparrow gene expression. There is higher gene expression in 2011 on oiled vs unoiled sites, showing that birds were exposed to PAHs on oiled sites in that year. There is no difference between sites during 2012-2014. Interestingly, our research is shedding light on vertebrate response to large storms. Hurricane Isaac occurred in fall 2012 and appears to have affected gene expression, which is elevated on all sites in the summer of 2013, perhaps via the re-distribution of buried oil. Sparrows also changed their diet in the summer of 2013 from a terrestrially based food web to a benthically based food web (this work was done by Jill Olin). Storm surge from Isaac, which inundated the marsh for 2-3 days, may have killed many terrestrial insects, causing birds to focus on benthic prey the following summer. We are still working up results for many other questions—stay tuned!

The Coastal Waters Consortium's mission is to assess the chemical evolution, biological degradation, and environmental stresses of petroleum and dispersant within Gulf of Mexico coastal and shelf ecosystems.

### What is your educational background?

B.Sc. University of Victoria, Victoria, British Columbia, Canada, 1995  
M. Sc. Dalhousie University, Halifax, Nova Scotia, Canada, 2000  
Ph. D. University of Otago, Dunedin, New Zealand, 2006

### What inspired you to become a scientist?

I have always had a deep sense of connection to the natural world, and ever since I saw (in the pages of National Geographic) that people had jobs exploring and understanding natural systems, I wanted to be biologist. I took every opportunity I could to become involved in biological research starting with a summer junior conservationists' program when I was 16. Ever since then, I worked in the natural sciences; as an undergraduate in a Biology co-op program (which alternated school terms with work terms and gave me the opportunity to gain experience on a variety of research projects), as a field technician, as an M.Sc student on Humboldt penguin foraging behavior (a research project that came about as a result of volunteer work at a field station in Peru), as a PhD student in New Zealand examining genetic variation in saddlebacks and robins, as a postdoc at the University of British Columbia examining historic genetic variation in Peary caribou, and now as a professor. I have been involved in biological research most of my life—I still find it absolutely fascinating, and I love the people I get to work with: they are routinely helpful, engaged, interested, and enthusiastic.

### Can you describe what you enjoy the most about conducting scientific research?

Without question, my favorite thing about being a scientist is trying/learning new things and seeing my students engaged in trying/learning new things.

