**A focused, quantitative food web model of Louisiana salt marshes**

**Background:**

The McCann *et al.* (2017)publication, a product of CWC I workshop funding, developed a food web model of Louisiana salt marshes that began to determine which marsh species are critical components of the food web by enumerating (but not quantifying) the trophic interactions each species has with other marsh species. The work highlighted several potential keystone species that have predator-prey interactions with many other salt marsh-associated species. For example, blue crab (Callinectes sapidus) is by far the most connected trophic group in the marsh; virtually every other trophic group is either a predator or prey of blue crabs at some life stage. However, in order for blue crab to actually be a true keystone species, it must be *strongly* connected to many other marsh groups. CWC II has now generated an abundance of biomarker data that can be used to quantify strength of interactions, rather than mere presence-absence, as the initial model does. We propose to expand on the McCann et al. (2017) network model to quantify interaction strengths of potential keystone species such as blue crab, and other important taxa.

We are requesting funding to conduct a three-day workshop at Rutgers University Marine Field Station (Tuckerton, NJ) with the participants listed below to: (1) better quantify the centrality of key species such as blue crabs in salt marsh ecosystems, (2) begin development of a predator-prey model or limited food web model comprising 3-5 functional groups to answer ecological questions about salt marsh ecosystems, (3) synthesize insights gained on marsh food webs during and as a result of CWC II (i.e., since last workshop) into manuscript draft, and (4) discuss future directions for food web work that should occur if CWC III is funded.

**Objective:** To develop a taxonomically constrained food web model that incorporates CWC II biomarker data

**List of CWC participants:**

Olaf Jensen, Paola Lopez-Duarte, Kiva Oken, Jill Olin, Craig Osenberg, Mike Polito, etc.

**List of possible outside participants and their expertise:**

Kim de Mutsert (Gulf of Mexico ecosystem, estuaries), Sarah Gaichas (ecosystem modeling), Alida Bundy (ecosystem modeling), Jameal Samhouri (community ecology, ecosystem stressors), Marc Mangel (theoretical ecology)

**Date and Location:** Three days in Winter 2017-2018 (2018 pending no-cost extension) at the Rutgers University Marine Field Station (Tuckerton, NJ) with two additional days for travel

**Budget:** $8000 (travel and accommodations for ~12 participants during the workshop)

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| **Item** | **Rate** | **Cost** |
| Travel | Approx. | 4000 |
| Accomodations at JCNERR dorm | $25/person for 4 nights | 1200 |
| Breakfast & Lunch | $15/person for 7 meals | 1260 |
| Dinner | $30/person for 4 nights | 1440 |
|  | **Total** | **7900** |

**Products:**

* Preliminary food web model that accounts for interaction strengths
* Manuscript draft
* Short article for the GoMRI newsletter