Overview: Tracing Carbon Flow in Apalachicola Bay, Florida

Carbon plays a fundamental role in regulating Earth’s climate and it is generally accepted that accelerated human-induced CO2 emissions over the last century have significantly contributed to recent documented warming trends. Our predictive understanding of the extent to which the resultant increased atmospheric CO2 concentrations will impact climate change is dependent on the accuracy of global carbon flux models. However, to date there remains a paucity of information with respect to how carbon cycles in the environment—particularly in coastal subtropical systems. Studies are therefore needed to understand basic biogeochemical cycling as applicable to these and all coastal ecosystems. The overall goal of this research is to evaluate carbon cycling in Apalachicola Bay, a shallow bar-built sub-tropical estuary located in the northeastern Gulf of Mexico. This work is a collaborative effort being carried out by an interdisciplinary team of biogeochemists, ecologists, molecular biologists, and modelers. This team will integrate their skills and areas of expertise to characterize the sources, transformations and fate of carbon within the Apalachicola Bay estuary. Another important emphasis of this proposal is the training of graduate students and postdoctoral associates in multidisciplinary research on carbon cycling, and in communicating the knowledge gained from this and other research to students in the classroom making them better teachers and mentors.