

## Abstract: **Ecosystem Science to Enhance Coastal Resilience**

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Coastal ecosystems are some of the most beloved landscapes. People choose to both live and/or vacation in these ecosystems. For example, in the U.S. in 2010, 39% of the population lived in coastal counties that represent just 10% of the total land area. And by 2020 there is expected to be ~4x as much growth in population in coastal counties as in other parts of the U.S. As a result, coastal ecosystems are some of the ecosystems under the most pressure from human use and development. At the same time, coasts are dealing with increasing sea levels and increases in the intensity and/or frequency of coastal storms and nuisance flooding. As coastal managers and policy and decision makers attempt to sustainably manage coastal ecosystems for multiple uses, it is important to consider ecosystem services, such as storm risk reduction and carbon sequestration, and who the beneficiaries are of different services. It can also be important to consider the full array of interactions within an ecosystem, including multiple desired human uses, when examining options for management and considering trade-offs of different options which are enabled when using ecosystem-based management (EBM). Ecosystem services are often one of the factors considered as part of the EBM process to ensure that desired services are incorporated into the decision context and options. For example, if carbon sequestration is an important goal while doing no ecological harm, then restoring degraded coastal wetlands or protecting existing wetlands are both good practices. In some cases where there are multiple conflicting uses, however, it may take an EBM approach with stakeholder engagement to determine where and how to complete wetland restoration to achieve the goal of carbon sequestration while balancing other coastal human uses. This presentation will present some examples of how using both the ecosystem services approach and/or an ecosystem based management approach can help achieve policy and management goals for sustainable coastal ecosystems and communities.