

Ecosystem Restoration and Net-Positive Impact: A Framework for Implementing Net-Positive Biodiversity Outcomes for Renewable Energy Projects - Anthony Dvarskas

Net-positive impact (NPI) on biodiversity as a component of renewable energy projects has been the subject of academic, corporate, and policy discussions in recent years. For example, multiple renewable energy companies have indicated their goals of achieving NPI for biodiversity, and the United Kingdom recently enacted a biodiversity net gain (BNG) requirement for terrestrial areas and completed a consultation on Marine Net Gain in 2023. Ecosystem restoration in coastal and marine areas will likely play a critical role in achievement of NPI and BNG requirements, and a framework is needed to ensure that biodiversity gains from restoration are tracked alongside anticipated biodiversity impacts from renewable energy projects. This presentation will provide a proposed framework for assessing impacts and gains related to biodiversity at renewable energy project locations, focusing on the coastal and marine environment, and potential metrics for tracking ecosystem change at impact and gain locations. The presentation will review the monitoring data that are currently collected for offshore renewable energy locations and how these data may be paired with biodiversity gains data at proposed restoration locations. Challenging issues in net-positive impact implementation will also be discussed, including the identification of priority biodiversity features, the matching of restored habitats and species to impacted habitats and species, and strategies for allocating funding to priority restoration areas.

Communication, Facilitation, Translation: Transferring Knowledge from Science to Management, and Beyond in Comprehensive Everglades Restoration Plan Projects – Amanda Kahn

The Comprehensive Everglades Restoration Plan (CERP) is the largest ecosystem restoration program in the world, planned to improve 2.4 million acres of Florida ecosystems, designed to restore, preserve, and protect water resources in central and southern Florida. It is a 50/50 cost share effort between Federal (USACE) and Florida State (SFWMD) partners. Effective communication to the broader community by restoration and resource managers is key to recognizing shared goals, conveying ecological response trends, and maintain open dialogue throughout ecosystem restoration, particularly at a large landscape scale. To facilitate this process, information from technical teams to managers should be clearly summarized and translated to a format readily conveyed and understood. In these large complex projects, communication can also benefit from ‘translation’ during information exchange across technical expertise (e.g., wildlife biologists, biogeochemists, engineers, hydrologists, modelers) and project managers. A team at the South Florida Water Management District works to facilitate the transfer of knowledge among principal investigators and the project management team, assist in interpreting the relevant information of ecological responses to decision makers, and seeks to continue to develop the most effective mechanism for communicating project restoration outcomes to the broader community. This presentation includes an overview of the CERP footprint, examples of these processes of facilitation and translation in ongoing projects at various staged, and initial lessons learned.

Designing and Regulating for Resiliency – Heather McElroy

As a region, Cape Cod is vulnerable to the effects of climate change, particularly sea level rise. The Cape Cod Commission has developed a series of tools to increase local and regional resilience to climate change through the identification of vulnerable areas and infrastructure, appropriate design solutions that complement the local context, and regulations that promote protection of the natural and built environments.

The Low-lying Roads project is an example of a regionally-significant project that provides local strategies for addressing existing and anticipated climate-induced vulnerabilities in the Cape's roadway network. In collaboration with all 15 Cape Cod towns, the Commission conducted a vulnerability assessment of roadway segments, bridges, and culverts due to flooding from the combined effects of sea level rise and storm surge to identify and prioritize impacted roads. Potential adaptation solutions, including nature-based solutions, conceptual designs, and estimated costs were identified for the most critical road segments in each town.

Coupled with flood area design guidelines that provide adaptation solutions appropriate for a range of neighborhood characteristics and character-defining building features, and model resiliency and zoning bylaws that promote natural resource migration and reduce risk to the built environment, the Commission is working to equip communities with the tools to advance efforts to address vulnerabilities experienced today and increase local and regional resilience in the future.

Lessons Learned from Community Use of NOAA's National Water Model in Resilience-Related Planning - Daniela Rincon Reyes

As flooding and water-related hazards become increasingly prevalent, communities rely on water data and information to improve decision making to increase their resilience. Climate services, especially those that are provided for free by reputable sources, such as NOAA's National Water Model (NWM) can provide invaluable information about where water has been in the past, where it is presently, and where it is predicted to be in the future. However, a recent study revealed that 65% of the stakeholders who are involved in resilience-related planning had never previously heard of the NWM and while these stakeholders were frequent users of water science data and information, very few of them were trained hydrologists. While the NWM's use in emergency management and by forecasters has been traditionally explored, there was a gap between the NWM and its potential use in resilience planning. This presentation will share the lessons learned from the co-development of use cases with community stakeholders that leverage the NWM in their resilience related planning work. These use cases range from using the NWM as an education/outreach tool to combat flood amnesia amongst municipal leaders to using the NWM's retrospective data to create maps of previous flood events, which will inform planning in data-limited areas. This study also articulates the NWM's nuance and value as compared to other common information sources

and provides lessons learned to help coastal managers, emergency managers, and others involved in forward looking decision making as it relates to water leverage the NWM in resilience-related planning.