

NC NERR & RB NERR Outreach Material Guide

User information for outreach and education materials. Provides brief description of all ecosystem services products for NERRS use.

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Middle School Education Material

ES PowerPoint Lesson

- This presentation offers an introductory lesson on Ecosystem Services that can be shown in a classroom or auditorium, though AV equipment required. It begins to define ES as a whole then delves into habitat (oyster or mangrove) specific information such as their ecological, economic, and social benefits. The presentation will answer questions like what are ecosystem services? why are they important? and how they are at risk? The final slide lists instructions for the following PowerPoint game (below).

ES PowerPoint Game

- The Mangrove Mania/Oyster Reef Rally games consist of five rounds. Questions have anywhere from 3-8 answers and the entire game is estimated to take 30-40 minutes. Each question focuses on different outcomes that are based on the respective reserves ecosystem service conceptual model (ESCM). These outcomes fall into ecological, human activity, and socioeconomic categories. An example question might be “What are six recreation activities that take place around mangrove habitats?” which refers to one of the model’s human activity outcomes. Potential answers are kayaking, fishing, etc. Educators are able to edit the PowerPoint if desired. This is a team activity that serves to get students collaborating and thinking about the complex range of ecosystem services provided by each NERRS habitat. Detailed instructions for the game are located in the student ES PowerPoint Lesson.

Printable Activities

- Each reserve receives printable worksheet activities (with keys included) specific to their habitats that can be completed? (I don’t love the word done) in the classroom or on an outdoor

excursion. Rookery Bay has one extra worksheet as much of their curriculum takes place outdoors and will potentially not be able to use the PowerPoint game frequently. The activities range from a traditional bingo style exercise to a categorical ES sorting activity. Bingo asks students to find and write down things that, for example, might have economic value, help reduce erosion, or provide habitat for a certain species within a given habitat. The extra worksheet for Rookery's mangroves (which could be adapted to oysters) involves a wheel with ecologic, social/cultural, and economic sections. A word bank with the outcomes associated with the habitat is at the bottom and students may fill in the diagram using those words. Some terms are not strictly ecological, social, cultural, or economic and can fall into more than one section.

General Public Material

Stakeholder ES PowerPoint

- The presentation for each site offers a brief overview of ecosystem services, assessments, monitoring, and mapping. Site specific ecosystems are reviewed and different variations of the ESCM are included so managers are able to include or exclude dimensions of the model based on the audience for a given presentation. Target audiences might include ecosystem stakeholders such as the general public, developers, engineers, or researchers. Any potential users of the ESCMs may find this useful.

Simplified ESCMs

- These models display a simplified ESCM. Outcomes are condensed relevant categories resulting in a more abbreviated and comprehensible chain of events. An example of reductions might be

changing multiple nodes with human activity outcomes kayaking wildlife viewing, and nature walks, into one node labeled recreation. Ultimately, nodes and links between the general and simplified model have been reduced by half for clarity

Fact Sheet

- This document provides a two-page summary of the entire ESCM project. The sections include a description of ESCMs and why they are useful, an example of a simplified model, a list of linked products, and a description of the metrics used. This abbreviation of the project will be published online. The NERRs and others will be able to print copies at their leisure and distribute to partners, stakeholders, and visitors to the reserve, keeping them up to date on current management activities and opportunities.

Twitter Infographics

- Social media is a growing way to share with the public how their ecosystems are being managed. Colorful infographics convey outcomes that may be relevant to a wide audience from the ESCMs into thought-provoking bites of information that are easy to digest. The target audience are any followers of the NC NERR and RB NERR twitter pages, be it locals or someone across the country.

NC NERR

- Shield- Outlines a restoration statistic and relates to specific natural benefits oyster reefs provide with both text and small graphics. At the center is a shield with oysters on it representing the many ways oyster reefs benefit our coast.
- Wheel- Depicts an array of ecosystem services on one brief graphic. This is accomplished by a wheel that splits into three segments; ecological, economic, and social. Oyster reef ecosystem services fill the sections based on which category they fit most.

- Restoration- A more minimalist approach to conveying the importance of oysters and oyster reefs. A statistic overlays a bright image of people working on a restoration project, laying down shell bags to create an oyster reef.
- Tourist- Bright, fun, more cartoonish style graphic that delivers the benefits oyster reefs provide to tourism specifically. A caricature couple are shown brainstorming about a few coastal opportunities and a statistic is present to make the connection.

RB NERR

- Stats- Offers vibrant facts and matching photographs that convey which services are contingent on the success Florida's mangroves. Some of the benefits represented include wildlife habitat, economic support, flood reduction, water quality betterment, and coastline stabilization.
- Wheel- Depicts an array of ecosystem services on one brief graphic. This is accomplished by a wheel that splits into three segments; ecological, economic, and social. Mangrove ecosystem services fill the sections based on which category they fit most.