

Ecosystem Services & Community Health



epa.gov/research



Innovative Science for a Sustainable Future

THE BENEFITS OF FINAL ECOSYSTEM GOODS AND SERVICES FOR COMMUNITY DECISION MAKING

Introduction

Benefits that people derive from nature that are essential to their well-being, such as clean air, clean water, and food, as well as flood control, erosion control, recreation, and spiritual renewal are generally referred to as Ecosystem Goods and Services (EGS). Community EGS are the specific natural attributes of a community that directly benefit the residents and businesses of that community. Some EGS that are readily identifiable as natural commodities are timber, fish and shellfish, and agricultural products. Others may be less evident because they are free to everyone, such as clean air and clean water, grassy or forested parks to explore, mountains to climb, or freshwater aquifers for drinking and crops. Those EGS that directly benefit communities can be distinguished from intermediate or indirect EGS. Final Ecosystem Goods and Services (FEGS) are those “components of nature, directly enjoyed, consumed, or used to yield human well-being” (EPA 2017a). FEGS are most relevant to community decision making because they are always linked to a beneficiary and directly impact the well-being of a community.

Types of EGS:

There are four categories of ecosystem services: economic, social, environmental, and supporting.

- **Economic or Provisioning Services.** Economic EGS, or provisioning services, are the raw materials, goods, or services people derive from nature (Island Press 2007). They are the materials that we use to make products, sell, or otherwise directly benefit human life, such as fuel (e.g., oil, natural gas) or seeds.
- **Social or Cultural Services.** Quality of life is about more than just having access to food, water, and shelter. People crave connection to nature in recreational opportunities, and many communities form their identity around natural features and services. These social and cultural benefits are

components of EGS, especially when communities benefit from tourism or community cohesion because of unique natural attractions.

- **Environmental or Regulating Services.** Environmental or regulating EGS are the natural ecosystem processes that provide indirect benefits to human well-being, such as marshlands that filter freshwater, mangroves that protect shorelines, plants that provide flood control, and grasslands and tundra that capture carbon emissions. These services help keep ecosystems in balance.
- **Supporting Services.** Supporting services are the natural ocean, air, and climate currents that fuel and energize our planet. The movement of ocean and air currents regulates our weather patterns and climate. Genetic diversity also builds resiliency in our ecosystem and supports public health.

Our Communities

Communities that understand the specific benefits they receive from EGS have a strong foundation for planning and decision making. Local decisions impact the well-being of citizens in that location. Different communities respond differently, based on their values, to decision making about how best to protect, change, or benefit from their community FEGS.

In **San Juan, Puerto Rico**, the FEGS of the San Juan Bay Estuary such as natural habitats, water quality, and flood protection are connected to human health impacts of water-borne gastrointestinal (GI) disease and vector-borne illnesses (EPA 2017b). A team of researchers compared weather and flood data with cases of disease in communities and linked estuary management tools (such as sediment dredging, mangrove restoration, and waste management) to the reduction of dengue, zika, or other GI diseases. By protecting or improving EGS, the community members have a direct benefit in protecting their health.

Connect with us Online



In 2014, residents and leaders in **Pensacola, Florida**, met to define ways that shared community values influence decisions about community sustainability (EPA 2014). Through the discussion, participants linked several strong community values, including social bonds, interconnectedness, and education to FEES. These community values and EGS links are key components for decision making. In Pensacola, connections between land use, FEES, and the community's own priorities and values are helping to form a better understanding of how EGS can help communities prioritize resilience actions and sustainable practices in their decision making.



Community meetings in Ouachita Parish, Louisiana, focused on community values and their links to FEES.



The San Juan Bay Estuary in San Juan, Puerto Rico.

In **Ouachita Parish, Louisiana**, community leaders and residents met to discuss how the Ouachita River supported community well-being (EPA 2020). The study participants ranked the ways that the river FEES benefited community members. Services the river provides, like water supply, receiving stormwater discharge, navigation, recreation, and education opportunities, formed a foundation for considering flood control interventions, like dredging, levee maintenance, and greenspace projects. The community decision making process tied their planning for future projects directly to the FEES provided by the river.

For Additional Information

U.S. EPA. 2014. *Pensacola Community Workshop: Strengthening Existing Neighborhoods for a More Vibrant Pensacola*.

U.S. EPA. 2016. *Sustainability at the Community Level: Searching for Common Ground as a Part of a National Strategy for Decision Support*. Office of Research and Development. Sept 2016.

U.S. EPA. 2017a. *Practical Strategies for Integrating Final Ecosystem Goods and Services into Community Decision-Making*. EPA/600/R-17/266. August 2017.

U.S. EPA. 2017b. *Land and Sea: Linking Ecosystem Services with Local Concerns in Guánica Bay Watershed, Puerto Rico*.

Fulford, R., W. Michaud, J. Stubblefield, J. Harvey, and L. Sharpe. *Deeper Look at the Ouachita River: How investment in Ouachita River infrastructure sustains human well-being in Ouachita Parish, Louisiana*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-20/146, 2020.

Island Press. 2007. *Millennium Ecosystem Assessment Toolkit*. www.truevaluemetrics.org/DBpdfs/EcoSystem/MEA/MEA-Millennium-Ecosystem-Assessment-Toolkit.pdf

To Learn More

Enhancing Flood Resilience along the Ouachita River
www.epa.gov/healthresearch/enhancing-flood-resilience-along-ouachita-river