

US EPA ARCHIVE DOCUMENT



Problem Summary & Decision Context

EPA and other agencies need knowledge and tools to assess how environmental change affect the supply and benefits of nature’s goods and services that people depend on (i.e., final ecosystem goods & services [FEGS]). They also need to know how to incorporate that knowledge and those tools into decision-making so that agencies and communities can plan for a future that sustains the supply and benefits of FEGS.

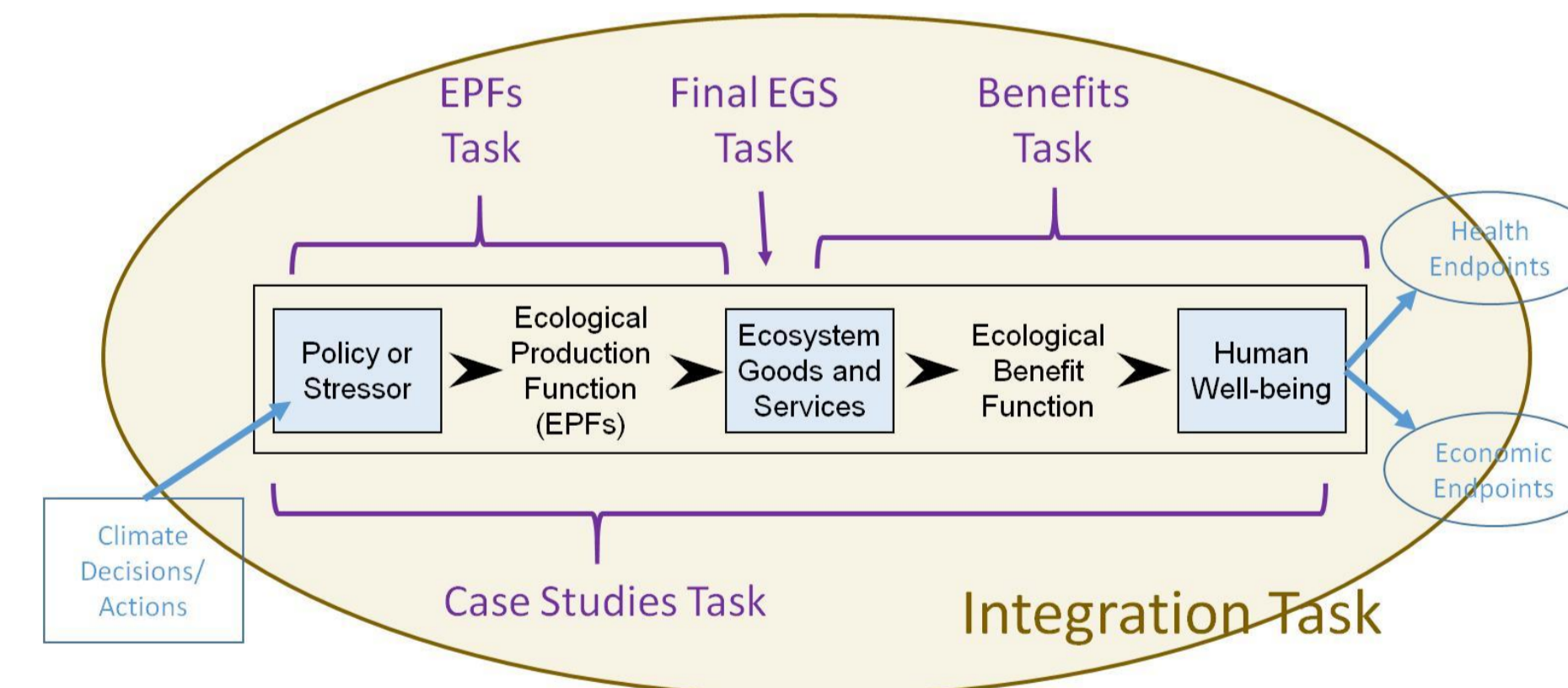
Utility to Agency?

Assist EPA and its partners in making decisions about environmental policy, education, and monitoring by addressing:

1. How do drivers impact the supply, delivery and benefits of FEGS as they relate to community sustainability?
2. How do changes in FEGS availability affect how a community approaches decisions about sustainability?
3. What metrics and tools are available to assist in quantifying how FEGS supplies and benefits respond to environmental change, and are those metrics and tools transferable among communities or to national scales?

Accomplishments

- Searchable database of ecological production functions for multiple scales and multiple geographies. *See poster*
- Advancing FEGS-CS and NESCS classification systems. *See poster*
- Development of methods and tools (e.g., EPAH2O) used to measure, model, and value ecosystem goods and services
- Lessons learned respect to measuring ecosystem production functions (EPFs) and benefit functions
- Approaches to incorporate ecosystem services into community-scale decision making including Structured Decision Making and Bayesian Belief Networks
- Reports, models, and journal articles on ecosystem services research (decision frameworks, community engagement, models to predict provisioning of ecosystem services) across a number of communities, including:
 - Pacific Northwest
 - Tampa, Florida and other Gulf Coast communities
 - Guánica Bay, Puerto Rico
 - Great Lakes
- Watershed-based cumulative impact assessment of mixed-land uses
 - Kanawha Coal Field, West Virginia. *See poster*



Partner Engagement Opportunities

- Participate in research planning to ensure relevance
- Assisting with translation of results
- Identifying information gaps
- Peer reviews of products
- Partnering on RESES/RARE proposals
- Participating in communication of results to communities; across EPA
- Assessing usefulness of tools & information resulting from the research

Future Directions

- *Quantify linkages between stressors (including climate change) and changes in the production of FEGS*
 - FEGS stressor-response relationships at case study sites
 - Update FEGS-CS & EcoServices Model Library (ESML) websites
 - A methodology to assess the transferability of ecosystem service models & estimates
- *Quantify linkages between ecosystem service stocks or production with indicators of human benefit. Focus on human health endpoints and the equitable delivery of FEGS.*
 - Integration of FEGS-CS into the NESCS
 - Linkages between FEGS and human health
 - Value of benefits of FEGS in case study communities
- *Comparison and transferability of approaches and tools to incorporate FEGS into community-scale decision making via a suite of coordinated case studies across the US.*
 - Synthesis of results from previous SHC case studies
 - Assess transferability of existing methods, data, tools, and models
 - Develop transferable frameworks & tools to inform community level decision-making
 - Incorporate the production and benefits of FEGS into decision support tools

Coordinated Case Studies

