

Putting "System" Back into Ecosystem Services and Connecting the Resilience of Both

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Motivation for this talk

- It began with talk of the restoration work related to Deepwater Horizon.
- Are we going to avoid “Death by a thousand..” unconnected restoration/protection projects?
- If we are concerned about the potential supply of ecosystem services we should capture, in a more complete manner, where they come from.



Motivation for this talk

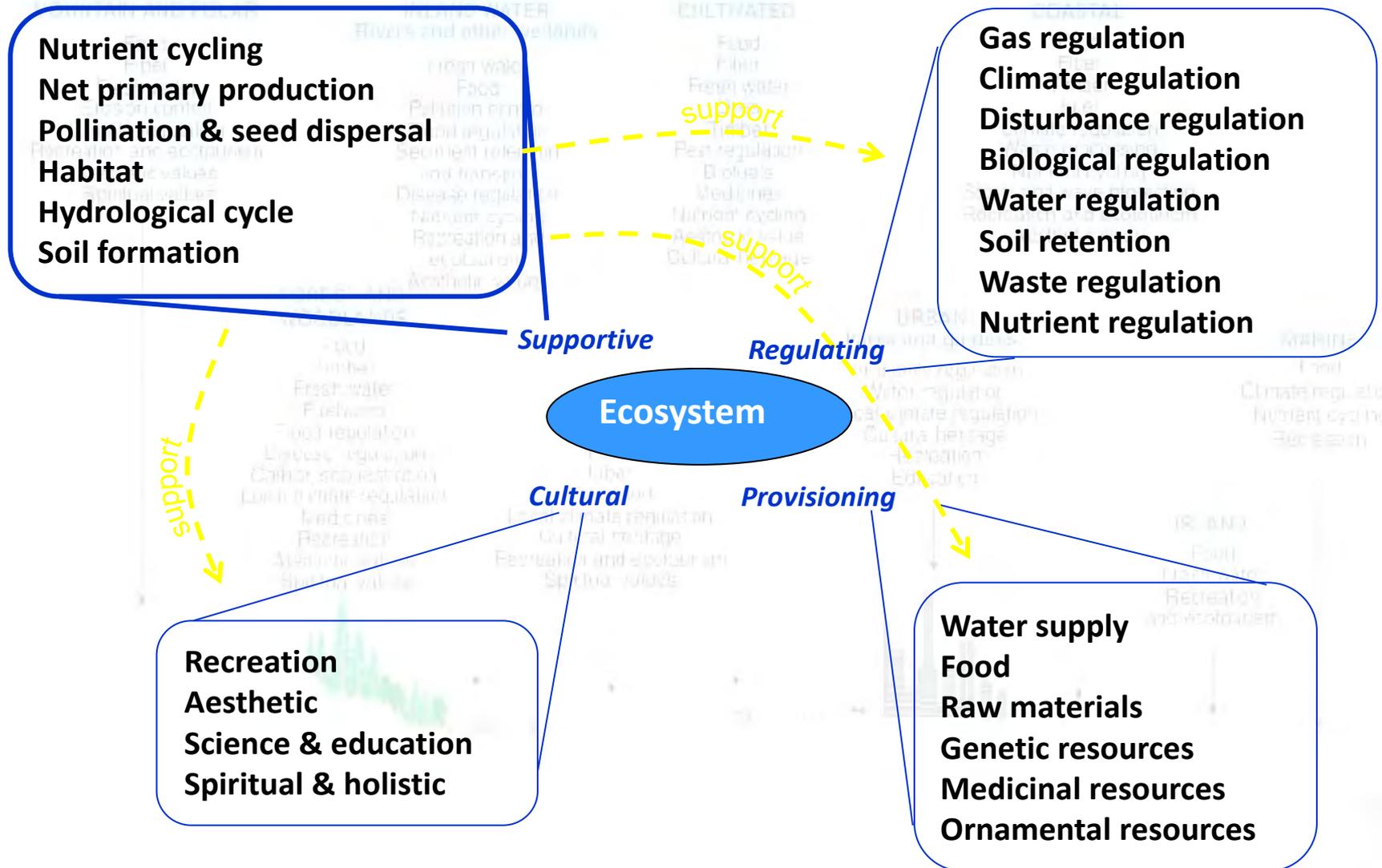
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Ecosystem Services - MEA (2005)



Ecosystem Services - Today

Movement away from the four traditional categories and the ~24 ecosystem services.

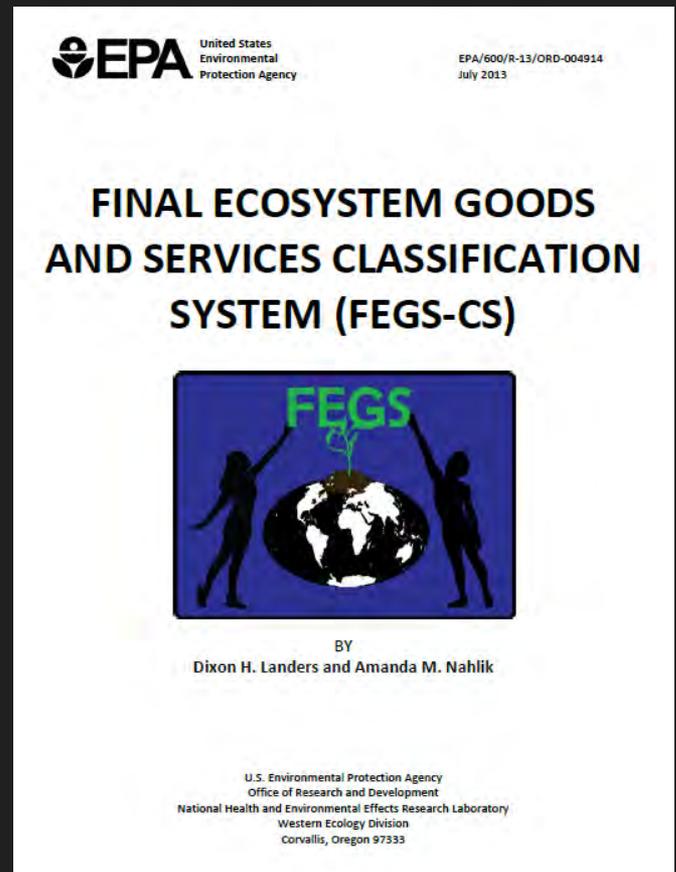
We need to be measuring final or direct services (Boyd and Banzhaf, 2007)

Many final or direct ES emanate from a "system":

- Water quality
- Recreational fishing
- Storm protection
- Etc...

There are many services that you can attach to a particular biophysical feature:

- Carbon sequestration
- Nutrient regulation
- Etc...

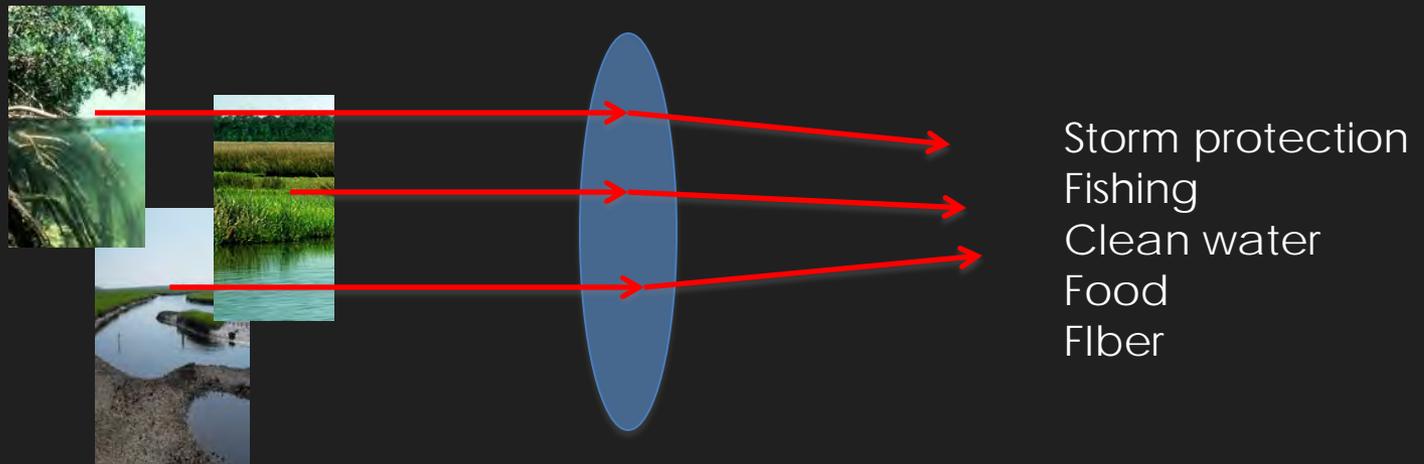


Resilient Ecosystem Services

Resilient **ecosystems** can lead to the resilience of specific ecosystem services. However, **ecosystems** typically generate multiple ecosystem services.

If the **system** is viewed through the lens of ecosystem services, then there is a need to identify the most relevant services and how these may be affected by potential alternate states of the **system**.

Problem: We look at ES coming from a bio-physical feature that is not homogenous



Heterogeneity

The quality and resilience of these services is directly linked to the structural condition of the marsh.



Fragmented marsh

Recreational fishing – High
Storm Protection - Low

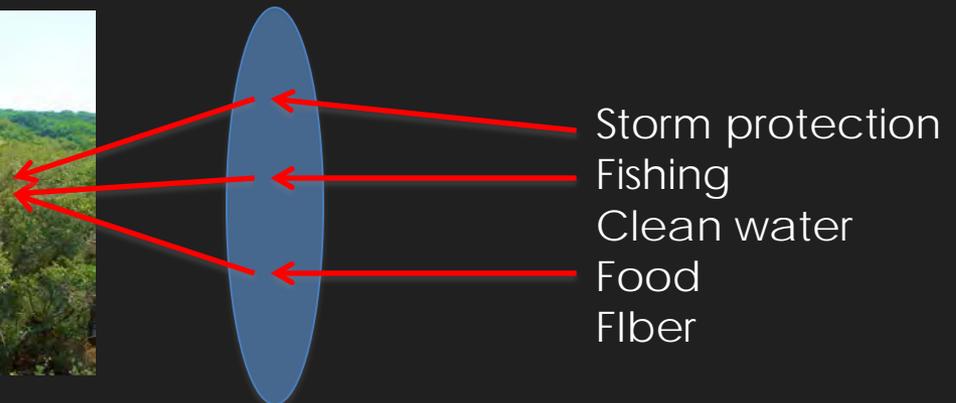


Continuous marsh

Recreational fishing – Low
Storm Protection - High

Focusing on the resilience of a particular state of a habitat (fragmented versus continuous marsh) can also lead to resilient ecosystem services that are connected to a specific state of the habitat. **But there will be tradeoffs between services.**

Reversing the 'optics' will allow us to look at services that emanate from a system rather than from a particular bio-physical feature.



Can we put “system” back in ecosystem services?

Yes, of course. But, it takes:

- Commitment from the bio-physical and social, behavioral and economic sciences to work together.
- Commitment from funders.
- Link to policy and management issues that consider the system.

Is it being done?

Yes:

- But on a limited basis. Not nearly as much as work focused on a single habitat. Why?

