The Science Behind Marine PES

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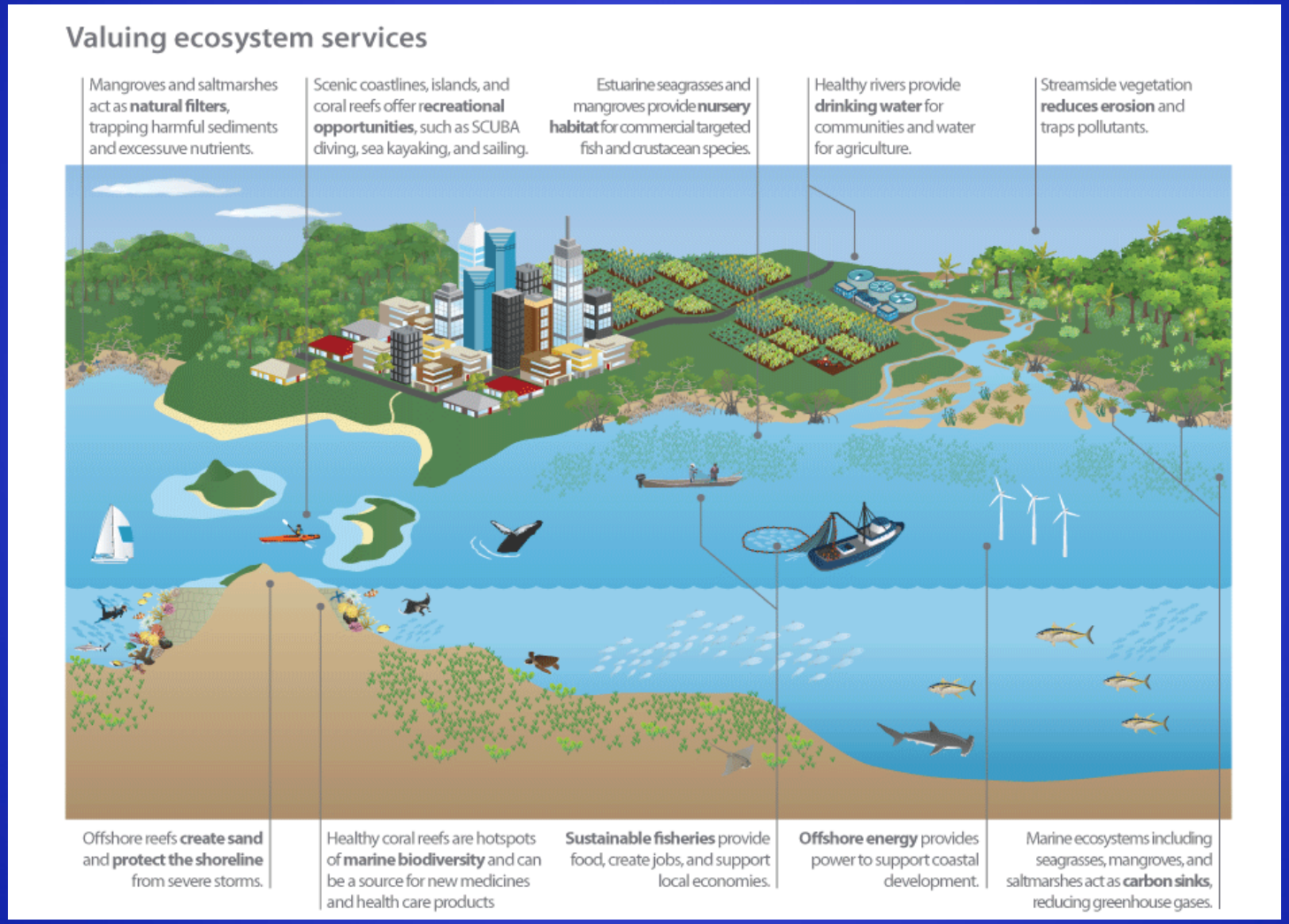
Marine and coastal ecosystems are most valued for the living marine resources they supply

But these ecosystems also provide other services



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Collectively, these ES can provide the basis for innovative financing and new funds flows to conservation

This is important because coastal ES support over half the world population, with the highest density and doubling rates

This thin strip of land,
accounting for only 5% of the world's land mass,
provides a disproportionate amount of the
ecosystem services important to all humankind

These Marine & Coastal Regulating Services are Particularly Important:

Climate Regulation

- Carbon, heat, hydrological cycles

Natural Hazard Regulation:

- Storm & tsunami buffers
- Flood control

Water Purification & Waste Treatment:

- Coastal wetlands and shellfish remove excess nutrients and waste

Erosion Regulation:

- Shoreline and beach maintenance

Disease Regulation

Cultural Services Also Important, for Economic Growth and for Human Health

Aesthetic:

Scenery and natural beauty

Educational:

Understanding biodiversity, ecology, and how oceans support humanity

Recreational:

Tourism, fishing, diving & snorkeling

Spiritual:

Sacred places and species

Inspiration

Rejuvenation

Marine PES schemes are rare...

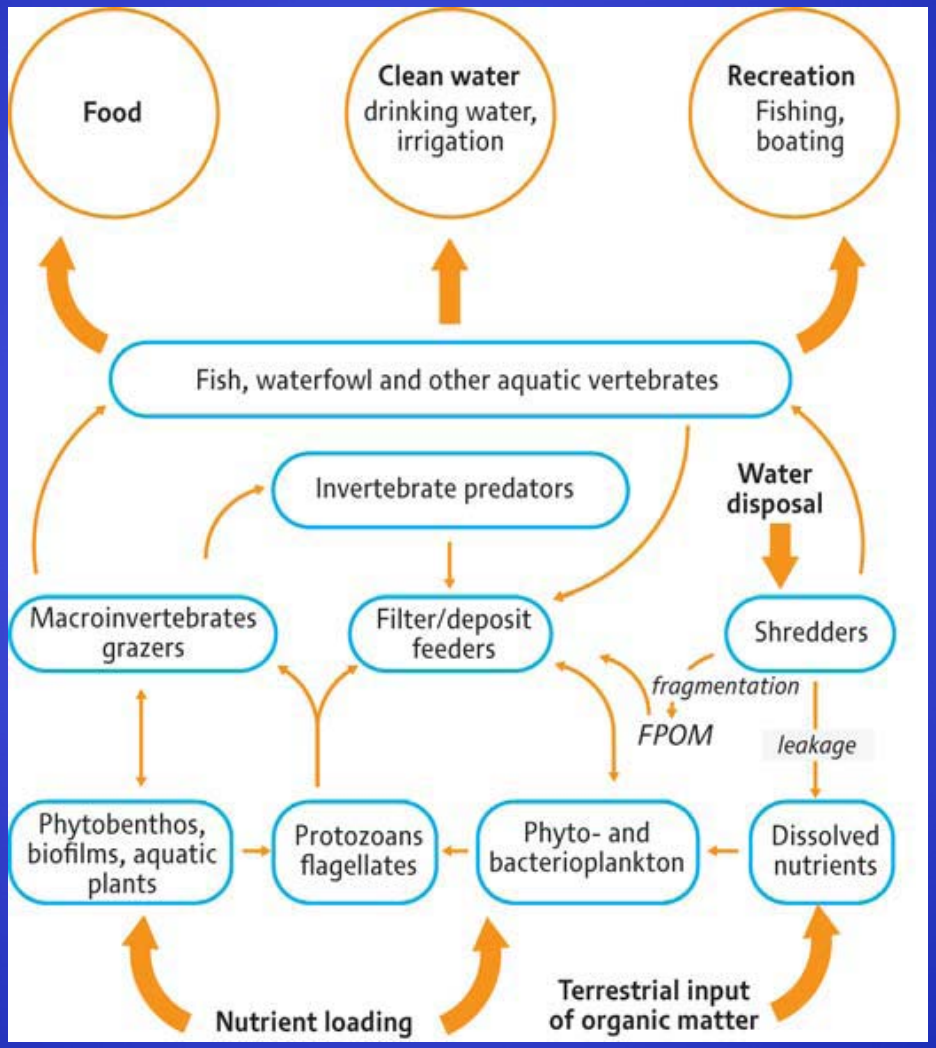
- Scientific understanding of marine & coastal systems lags behind terrestrial
- Marine systems (and ES delivery) may be more dynamic and unpredictable
- Unclear jurisdictions and property rights exist
- Investors may have discomfort with lack of ownership
- How people perceive values is not well understood
- Fear of leakage
- Project developers are searching for perfect enabling conditions

Yet we know enough!

What science do we need to assess benefits and implement mechanisms to safeguard them?

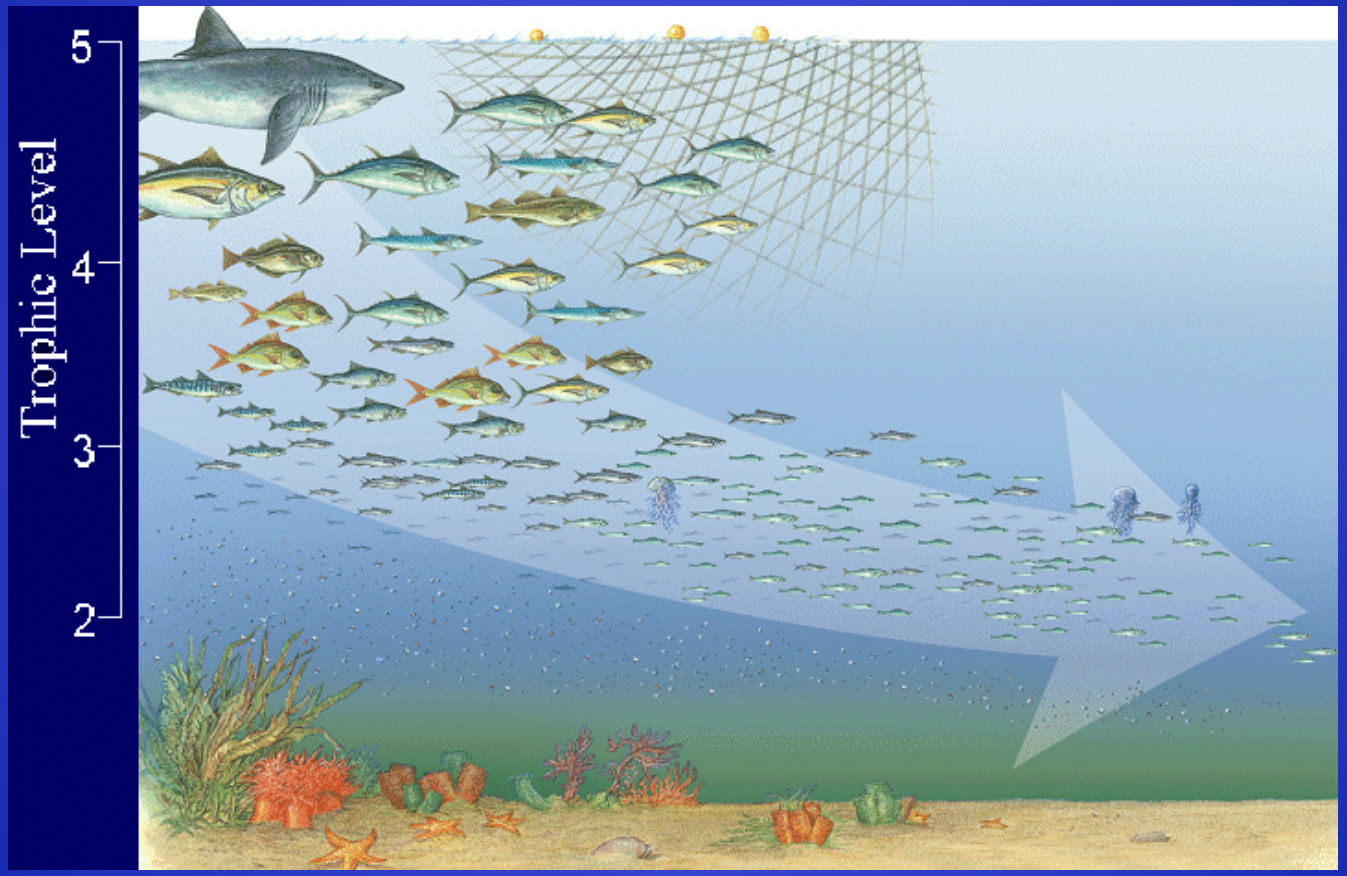
- **Ecology:** understanding functioning, productivity, balances, thresholds, connectivity
- **Stressors:** identifying how ES is affected
- **Resilience:** predicting how systems will fare in the future
- **Values:** economic and non-monetary
- **Situational analysis:** enabling conditions, policy, existence of potential buyers/ sellers

Delivery of services depends on intact systems



Science must thus support not only understanding of how ecosystems function, but also how human activity impacts them...

Overfishing and destructive fishing

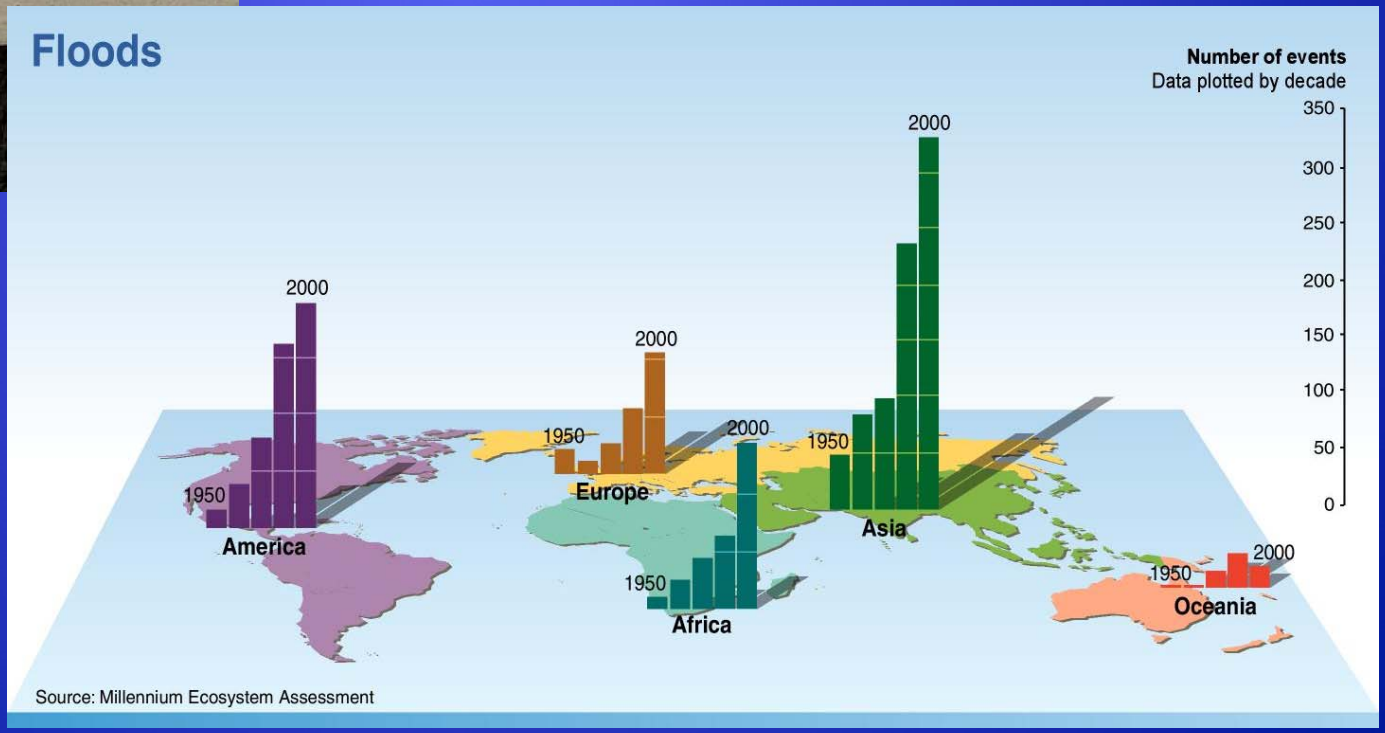


Overharvest of wood for fuel or other materials

Unsustainable coastal development/ habitat conversion

Eutrophication and other effects of pollution

Compounding effects of climate change



Using PES to generate funds flows also requires knowledge about perceptions –
social science is as important as natural science

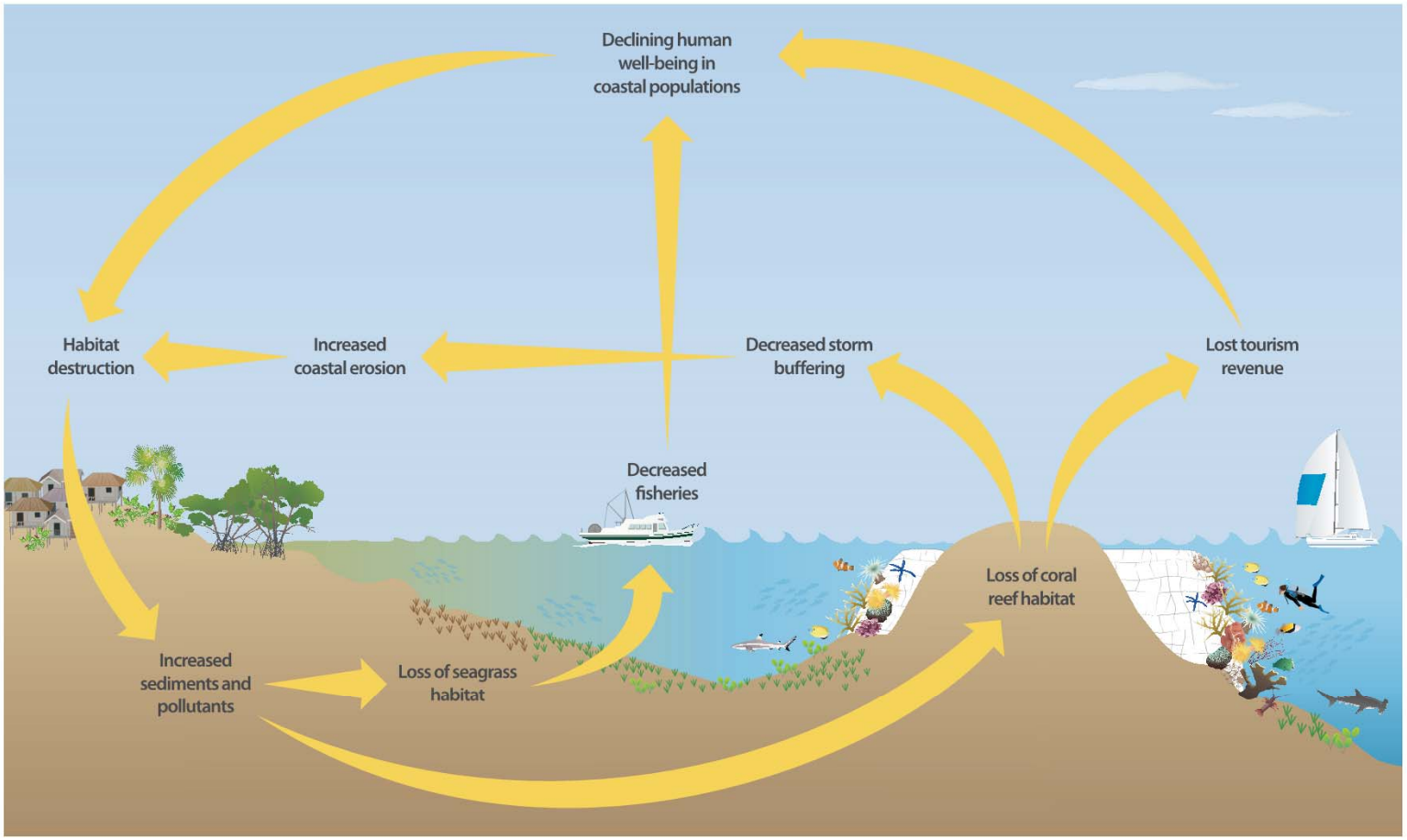
Single ES PES schemes like Blue Carbon get the science right

But most effective use of PES is across all ES, taking into account connectivity

MARES
Marine Ecosystem Services Program

Conserving Ocean Ecosystems and Safeguarding Coastal Communities

Recognizing connections



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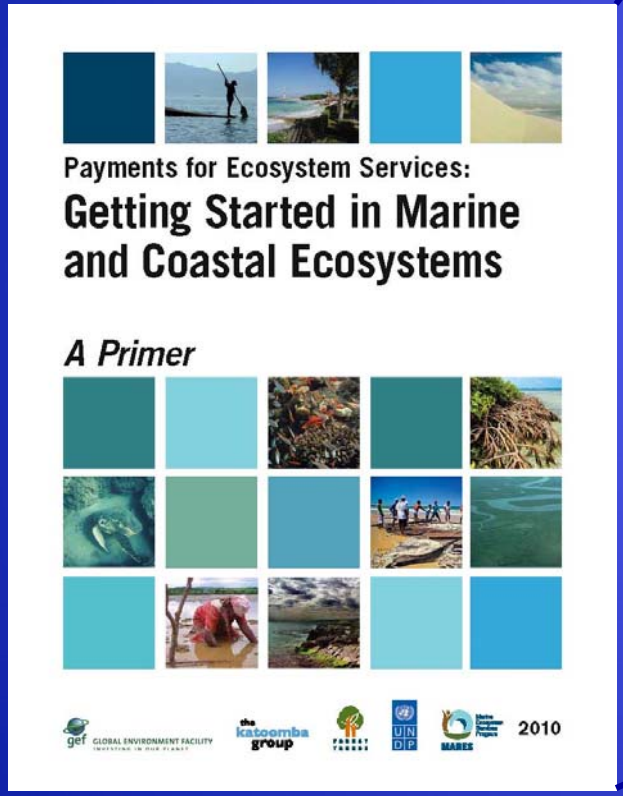
Note:

Science needed for planning
and for implementation

Marine PES Primer



Section 2: A Step-by-Step Approach to Developing Marine Payment for Ecosystem Service Deals

Step 1: Identifying Ecosystem Service Prospects & Potential Buyers

- ✓ Defining, measuring, and assessing the ecosystem services in a particular area
- ✓ Identifying potential buyers who benefit from the service
- ✓ Assessing marketable payment value
- ✓ Considering whether to sell as individuals or as a group

Step 2: Assessing Institutional & Technical Capacity

- ✓ Assessing legal, policy, land ownership, and marine used rights and management responsibility context
- ✓ Examining existing rules and regulations for PES markets and deals
- ✓ Surveying available PES support services and organizations
- ✓ Site selection criteria

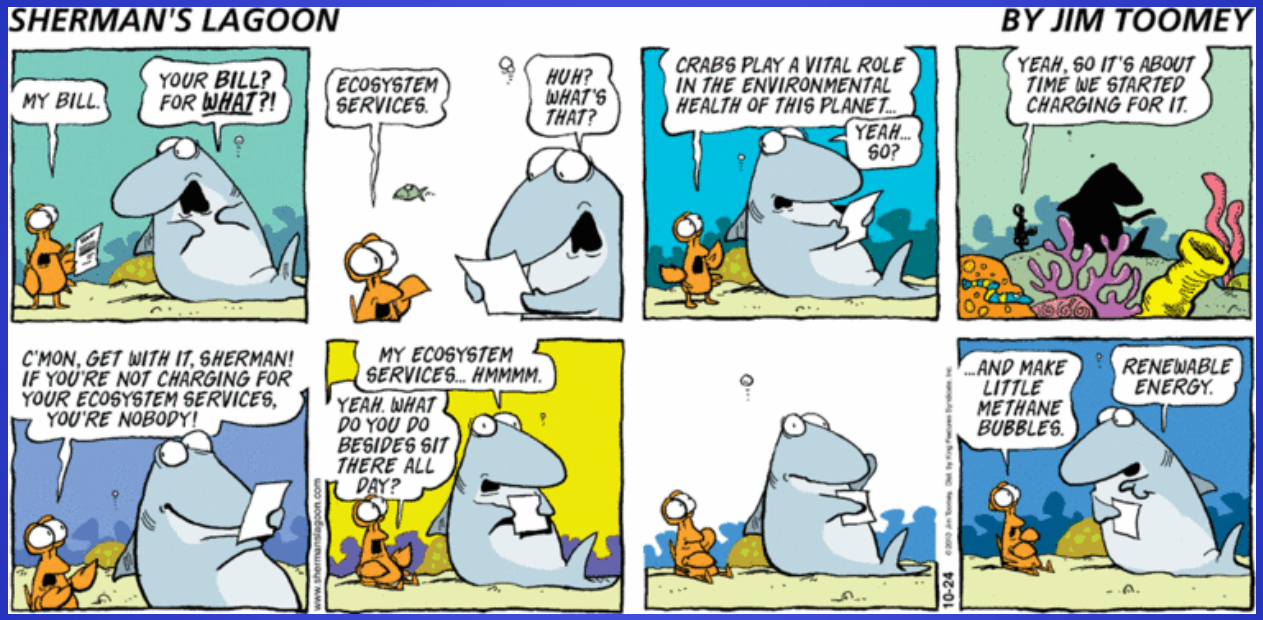
Step 3: Structuring Agreements

- ✓ Designing management and business plans to provide the ecosystem service that is the focus of the PES deal
- ✓ Reducing transaction costs
- ✓ Reviewing options for payment types
- ✓ Establishing the equity and fairness criteria for evaluating payment options
- ✓ Selecting contract type

Step 4: Implementing PES Agreements

- ✓ Finalizing the PES management plan
- ✓ Implementing activities
- ✓ Verifying PES service delivery and benefits
- ✓ Monitoring and evaluating the deal, and the status of ecosystem services

Thank you!


SHERMAN'S LAGOON
BY JIM TOOMEY
MY BILL.
YOUR BILL? FOR WHAT?!
ECOSYSTEM SERVICES.
HUH? WHAT'S THAT?
CRABS PLAY A VITAL ROLE IN THE ENVIRONMENTAL HEALTH OF THIS PLANET...
YEAH... SO?
YEAH, SO IT'S ABOUT TIME WE STARTED CHARGING FOR IT.
C'MON, GET WITH IT, SHERMAN! IF YOU'RE NOT CHARGING FOR YOUR ECOSYSTEM SERVICES, YOU'RE NOBODY!
MY ECOSYSTEM SERVICES... HMMMM.
YEAH. WHAT DO YOU DO BESIDES SIT THERE ALL DAY?
...AND MAKE LITTLE METHANE BUBBLES.
RENEWABLE ENERGY.
10-24