

# PES and Market Mechanisms for Conserving Coastal Ecosystem Services

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# The Value of Coastal Services



World's coastal land mass: 5%  
Global population supported: 38%

→ Marine and coastal ecosystems provide a *disproportionately* large amount of services to world's populations.

# Coastal Ecosystem Services

- **Provisioning services**

- fish and other seafood
- materials
- fuel



- **Regulating services**

- preventing erosion
- providing fish nursery areas
- nutrient cycling and waste processing
- maintaining hydrological balances & flood control
- providing grow out areas for aquacultured /farmed species



- **Cultural, recreational and spiritual services**



# Coastal Systems at Risk

- Coastal populations are growing rapidly...
- Exploitation of resources is increasing...
- Habitat alteration and loss are continuing...
- Degradation from activities in the coastal zone and outside it are making some systems approach or cross thresholds...
- Conventional management is failing...



# The Consequences

- Reduction in ecosystem services
- Corollary reduction in human well-being
- Increased conflict over resource use



# Marine PES

- As on land, the key is to develop synergies between communities and government, where mutual goals can be met.
- Even more than on land, this requires institution-building in coastal communities.
  - Cooperatives
  - Community groups
  - Professional associations



# Analogies to Standard PES

- Avoided deforestation
  - avoided deforestation of mangroves
- Avoided deforestation
  - avoided decarbonization of reefs!
- Reduced erosion in river and streambeds
  - avoided erosion of beaches & coasts
- Water quality markets
  - seawater quality markets
- Bundling is possible and desirable



# Contrast to Terrestrial PES

Since marine and coastal areas present special challenges as the downstream recipients of much degradation from afar...



...protecting those services will require working in harmony with land managers, land and water regulatory authorities, rural community organizations, etc.

# The Challenges

- Overcoming open access obstacles
- Harnessing the available tools to develop markets
- Using valuation to determine pricing
- Coalescing actors
- Bundling services
- Getting regulators to accept the role of private sector
- Reducing opportunities for free-riding
- Guiding market development at the appropriate scale

# Private Sector Investments

## Incentive Mechanisms – Investor Driven:

- **Reducing risks** (e.g. storm buffers and for erosion control)
- **Enhancing product value** (e.g. protecting fish nursery)
- **Increasing tourism** (e.g. protecting coral reefs, beaches)
- **Increasing product value** (e.g. value-added sustainability certification)
- **Reducing costs** (e.g. tax breaks, efficiencies of scale for meeting regulatory obligations)

+

## Disincentive Mechanisms – Regulator Driven:

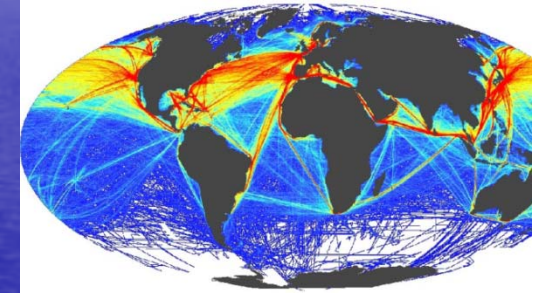
- **Biodiversity offsets**
- **Restoration banking**
- **Species banking**
- **Trade**
- **Water quality, by-catch**

**= Greatest potential of success**

→ *Requires strong regulatory frameworks & enforcement capability*

# Potential Tools

- Public/ Private partnerships and voluntary PES
- Water quality markets, wetlands banking, offsets
- Land / Sea ownership, easements, leases
- Ocean zoning & Marine Spatial Planning
- ITQs / Tradable permits or development rights
- Certification
- Revenue generating schemes (e.g. hunting & fishing licenses, bio-prospecting fees, land trusts / endowments)
- Privately administered watchdogs and enforcers



# Potential Actors

## Buyers:

- Fishing industry conglomerates
- Tourism operators
- Re-insurers
- Government agencies
- Municipalities

## Sellers:

- Coastal wetlands landowners
- Transferable quota holders
- Fishing cooperative members
- Municipalities
- Government agencies

## Market shapers:

- Regulators
- Advocates
- Philanthropic investors
- Trade associations
- Policy-makers
- Critics
- Development agencies
- Brokerages

# Immediate Possibilities

- Fisheries industry PES for nursery services
- Municipal, county, state, and insurance industry PES for storm buffer services
- Coastal development / tourism sector PES for beach generation and maintenance
- Coastal development PES to support expansion of water quality, wetlands mitigation, species banking markets and biodiversity offsets



# Forest Trends' Role

## Catalyzing & facilitating community of practice

- Focusing attention on coastal PES potential
- Providing analytical underpinnings to develop or expand markets (robust, up-to-date baselines)
- Working with partners to determine how to create, scale up, and expand PES markets in the future



- Helping launch pilot projects & demonstration markets
- Developing verification to satisfy investors

# Thank You



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# EXTRA SLIDES

# Shoreline Protection



# Shoreline Protection

- Wetlands mitigation
- Direct protection by coastal development interests in habitats that protect their investments : e.g. mangroves, coral reefs, habitats and species that contribute to beach formation
- Minimization of risk for insurers and re-insurers through subsidization of protection of barrier beach, wetland, reef, and other habitats

# Benefits

- Reduced risks to coastal communities, developments, and infrastructure



- Corollary protection of other services such as biodiversity, fisheries production, waste management, hydrological regulation, carbon sequestration



- Possibility of streamlined permitting and improved marketing for sustainable tourism and other development projects

