Ecosystem Services as a key to habitat conservation
Steve Schill, Caribbean Program
- Leveraging geospatial technology to understand patterns in ecosystem value across the Caribbean

Judy Haner, AL Coastal Program
- Living shorelines – evaluating the triple bottom line

Jen Molnar, Central Science
- Ecosystem, services and profits – engaging Dow Chemicals

Boze Hancock, Global Marine Team
- Oyster goals project – quantifying benefits to target new investments

Mark Spalding, Global Marine Team
- Mapping Ocean Wealth – making ecosystem services count

Pawan Patil
- How to leverage billions!
Mapping Ocean Wealth
making ecosystem services count

Mark D Spalding
• The challenge

• Building solutions, early success!

• Mapping Ocean Wealth
Why aren’t the messages getting through?

1. Lack of data
2. Incomplete data
3. Challenging enabling environment
The problem of averages

e.g. coastal wetlands (saltmarsh and mangrove)

- Costanza, 1997 - $9990 ha\(^{-1}\) yr\(^{-1}\)
- De Groot et al, 2012 - $193,845 ha\(^{-1}\) yr\(^{-1}\)
Incomplete data

Mangroves in Thailand - convert or conserve?

Decision: CONVERT

Scenario 1: accounting only for marketed products

- Value of mangrove: $955
- Value of converted mangrove: $10,649

Wood and non-wood products
Shrimp farming

Ecosystem service assessment
4 elements

1. Review
   – understand the full body of science available describing any ecosystem service

2. Modelling
   – develop best possible models to describe ES delivery

3. Mapping
   – utilise models to deliver detailed maps, tools and other resources

4. Integration
   – combine multiple ecosystem services and support trade-off analyses.
Review: coastal protection by mangrove forests
Modelling: filtration and coastal protection by oyster reefs
Mapping: biomass, filtration, wave attenuation

Example Outputs: Oyster Reefs

- Bathymetry Cross-Section
- Fetch Distances
Integration: service bundles, trade-off analyses

Massachusetts Bay and spatial distributions of resources and sector values.

White C et al. PNAS 2012;109:4696-4701
Planning tools and decision support
Mangrove island in front of Dhamra Port, Orissa, India:
• increases the return period of a 2.5m wave reaching the port from 20 years to 60 years.
• An extension of the island to the north would further decrease wave height at the port.
(Narayan et al., 2010)
Mangrove Capital partnership

Practical solutions

Scientific Evidence

Enabling policies
National Mangrove Strategy influenced
Invited for feedback to Greenbelt Law
Invited to help draft National Technical guidelines on
  – Hybrid engineering
  – Mangrove restoration in aquaculture
Invited to provide design for 2 demo sites (each 1000 ha) of aquaculture rehabilitation program
Building with nature experiment embedded in Resilient Villages program by MMAF
Facilitated 2 District Management plans (Mangrove & Aquaculture area)
Best Management Practice by Aquaculture smallholders influenced
Mangrove deforestation moratorium in NTT
Provided feedback to ASC restoration appendix and invited to help roadtesting it
Input to Indonesian Aquaculture Standard (CBIB) => MMAF is now chair of ASEAN so potentially big influence
We are already hard at work

• Wave attenuation science:
  – Mangroves
  – Saltmarshes
  – Coral reefs
  – Oyster reefs
• Oyster reefs
  – Filtration
  – Fish stock enhancement
• Seagrass
  – Fish stock enhancement
• Mangroves:
  – Storm surge attenuation
  – Elevation
  – Carbon
  – Fisheries

• Tools
  – Coastal resilience
  – NatCap Marine InVEST
• Practical interventions
  – Oyster restoration, Atlantic and Gulf
  – Mangrove restoration, Greneda
  – Post Sandy response
  – Reef resilience
  – Economic valuations
Mapping Ocean Wealth

Science, maps and tools to change the way the world sees nature

Aiming to influence policy and action in multiple sectors – government, development, conservation, business...

- Creating detailed information targeted for decision-makers
- Building partnerships, sharing information
- Strengthening and nurturing scientists and innovative science
- Working across scales
- Focus and improve investment decisions, for people and for nature
Research agenda:
ecosystem and service review and modelling

Science

Policy

Manage ment

Research outputs:
Maps, models and tools

Global applications: international policy, financing, MDGs

Regional applications: policy, planning bi-lateral/regional agreements

Local applications: marine spatial planning, sectoral interests, local govts
Mapping Ocean Wealth

TNC Team
• Project co-ordinators
• Policy lead
• Decision support tools
• Communications and outreach
• Regional representatives
• Project manager - tbd

Core Advisory Group
• Linwood Pendleton, ESP/ Duke
• Les Kaufman, Boston
• Marea Hatziolos, Consultant
• Rashid Sumaila, UBC
• Lauretta Burke, WRI
• Pawan Patil, World Bank
• Anne Guerry, NatCap/InVEST
• Carter Ingram, WCS
• FAO
• WWF
• Other industry/users?
Breakout discussions
1. Who are the critical NEW audiences for ES valuation?
   - not just who needs to know, but why?
   - ... of these who is ready to listen?

2. How do we make a compelling case to these audiences?
   - Global versus local
   - Tools versus stories
   - Maps versus numbers
   - Dollar values versus other measures (jobs, tons of fish)

3. How do we use ES values to influence policy and management?
   - Mapping tools
   - Technical products
   - Communications
     - Provide examples!

4. What work do you know of across TNC which might feed into ES valuation and Mapping Ocean Wealth?