

*InVEST:
A Tool to Map,
Measure and
Value Nature's
Benefits*

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September 11, 2012



Nature's Benefits



HEALTHY SEAFOOD

**ABUNDANT
WILDLIFE**



**VIBRANT
COASTAL
COMMUNITIES**



**PROTECTION
FROM
STORMS**



CLEAN BEACHES



**RENEWABLE
ENERGY**

GOOD JOBS



**STABLE
FISHERIES**



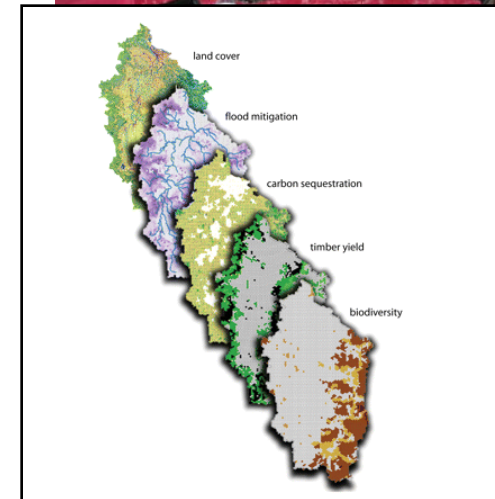
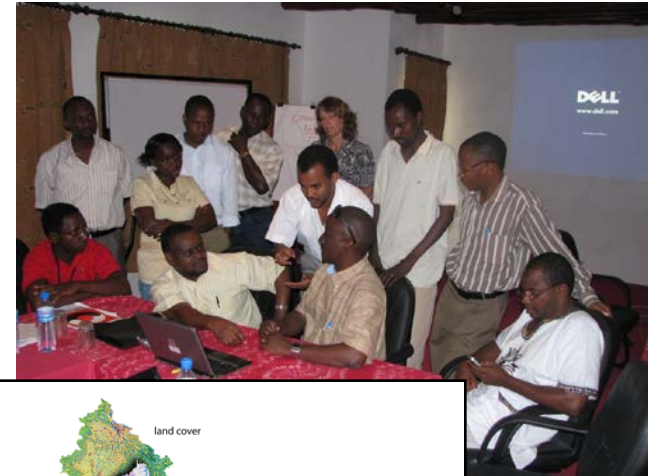


- Help people understand benefits from nature
- Use that understanding to inform decisions



Our Mission

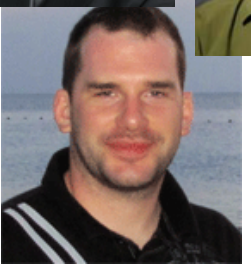
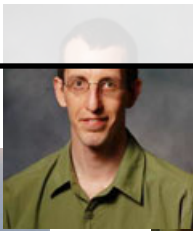
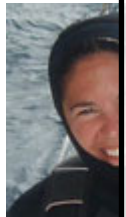
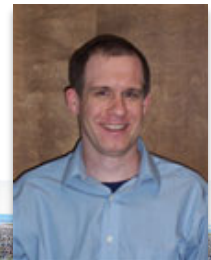
- 1. Science:** Develop new ES research and tools
- 2. Evidence:** Demonstrate viability of ecosystem service approaches globally
- 3. Influence:** Engage with leaders to advance policy change



Diverse Team

- ecologists
- oceanographer
- fisheries scientist
- coastal engineers
- hydrologists

- geographers
- computer scientists
- policy & communication specialists
- economists



It's free & open source!

<http://naturalcapitalproject.org>

InVEST

- Multiple services and biodiversity
- Scenario-based analysis
- Biophysical and economic currencies
- Applicable globally with minimal data



STANFORD
UNIVERSITY

UNIVERSITY
OF MINNESOTA



The Nature
Conservancy 

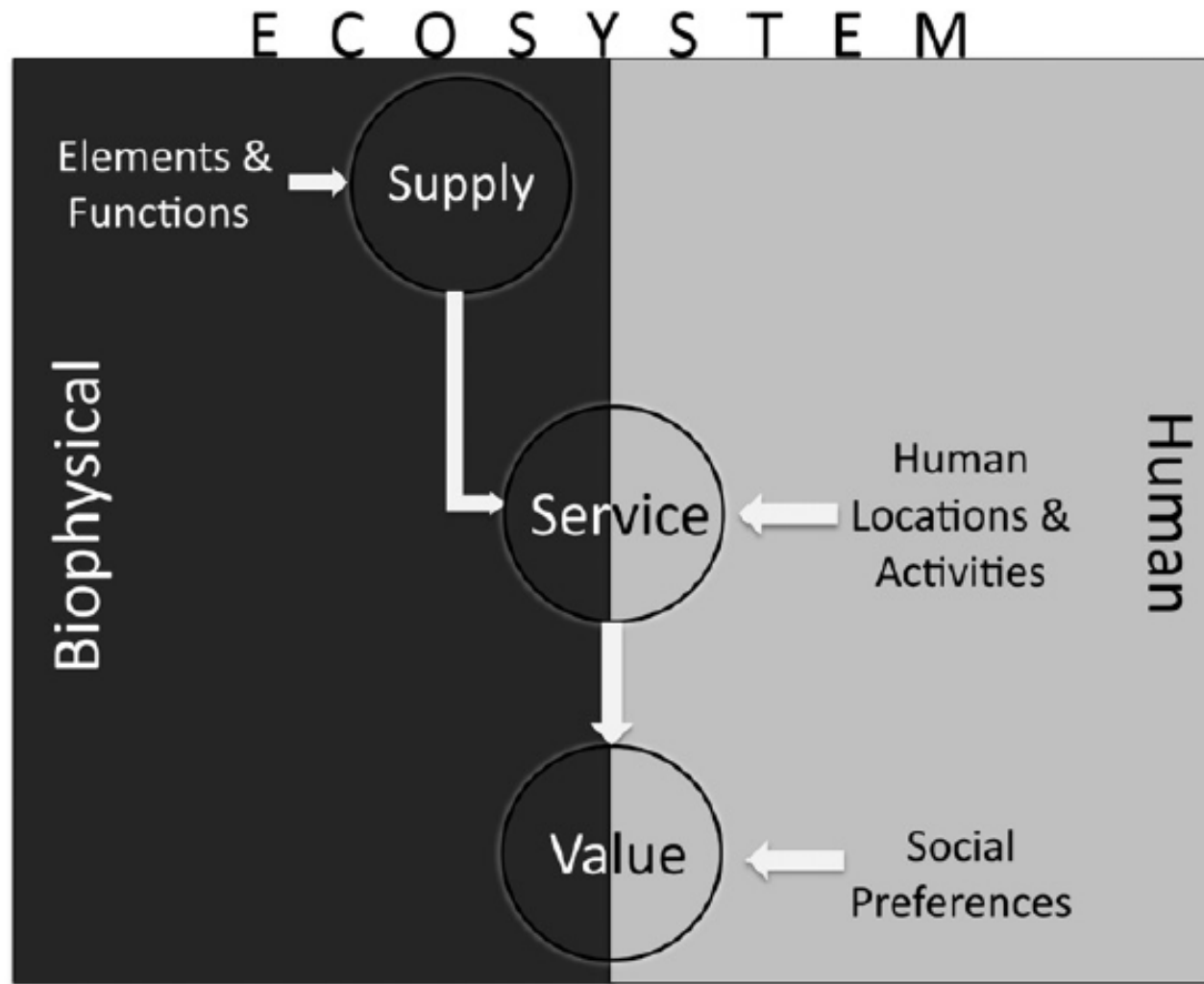
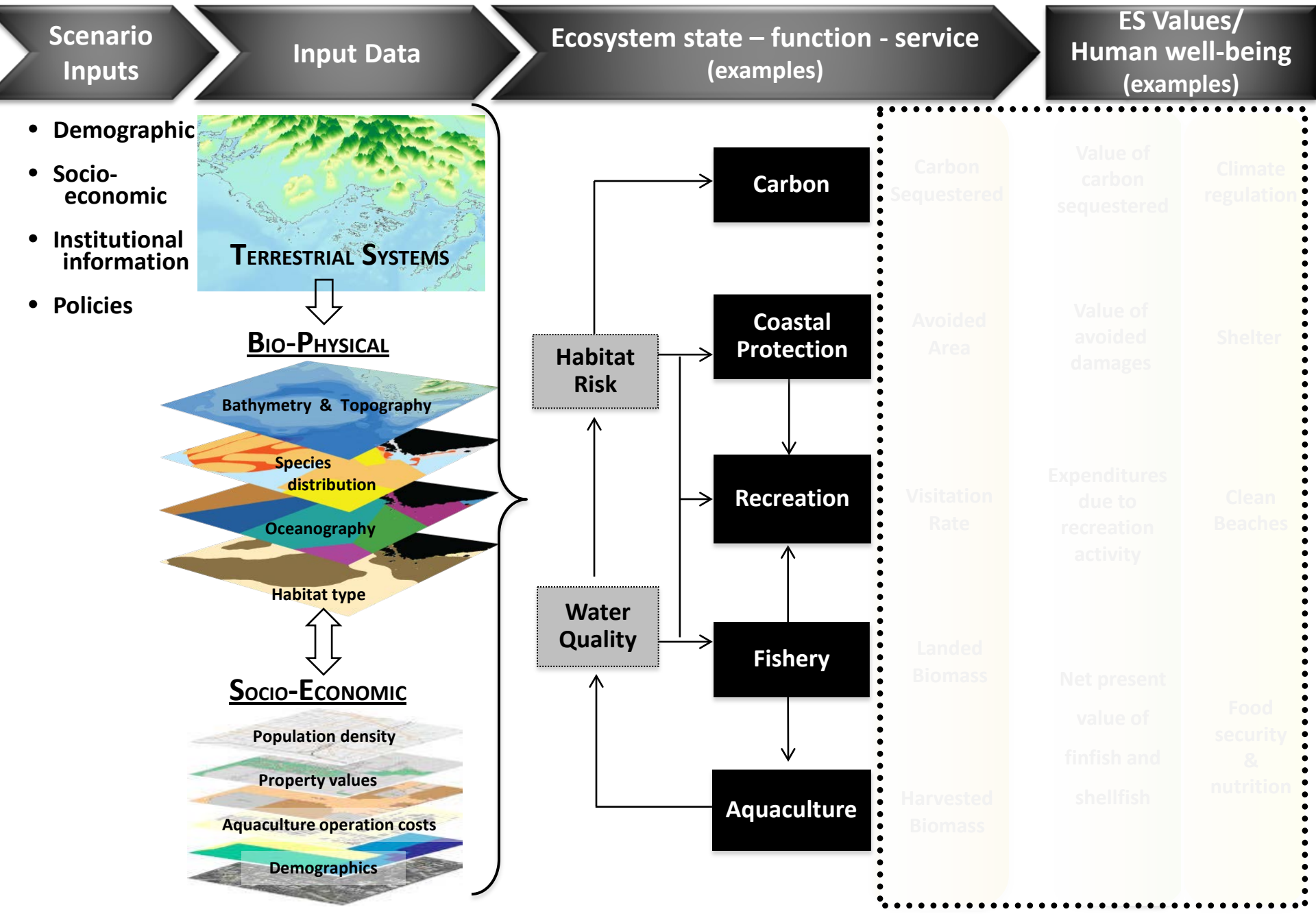


Fig. 1. *Three measurement points for ecosystem services.* Supply metrics deal only with the biophysical system underpinning the service of interest. Service metrics include critical information linking supply to beneficiaries. Value metrics weight the level of service based on people’s preferences or social policy goals.

Conceptual Approach



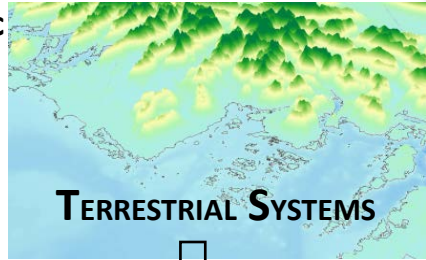
Scenario Inputs

Input Data

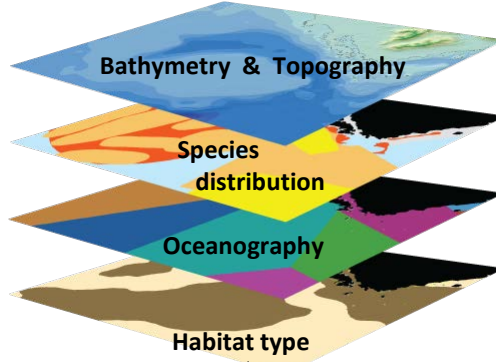
Ecosystem state – function - service (examples)

ES Values/
Human well-being (examples)

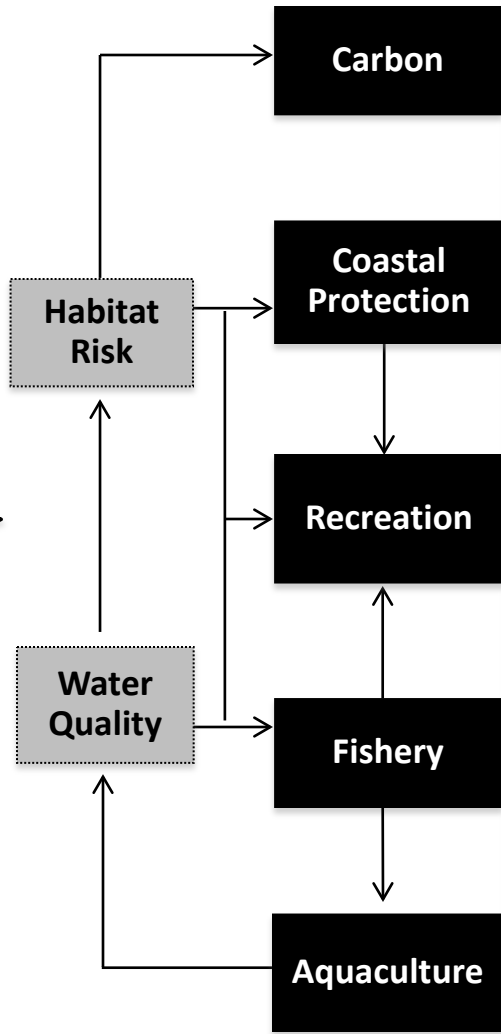
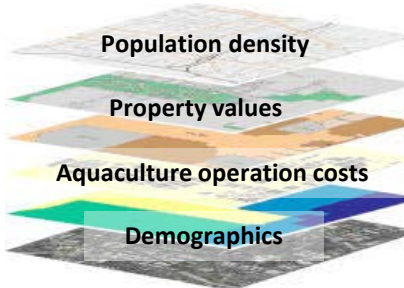
- Demographic
- Socio-economic
- Institutional information
- Policies



BIO-PHYSICAL



SOCIO-ECONOMIC



Carbon Sequestered	Value of carbon sequestered	Climate regulation
Avoided Area	Value of avoided damages	Shelter
Visitation Rate	Expenditures due to recreation activity	Clean Beaches
Landed Biomass	Net present value of finfish and shellfish	Food security & nutrition
Harvested Biomass		

What Exactly Are We Visualizing?

Biophysical Units

Carbon Sequestered

Avoided Area

Visitation Rate

Landed Biomass

Harvested Biomass

Monetary Units

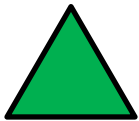
Value of carbon sequestered

Value of avoided damages

Expenditures due to recreation activity

Net present value of finfish and shellfish

Well-being metrics



*SERVICESHED



MONEY



HEALTH



HAPPINESS



SECURITY

*changes in flow and distribution of well-being

Marine & Terrestrial Ecosystem Services

Recreation

Aquaculture

Fisheries

Coastal Protection

Wave Energy

Aesthetic Quality

Water Quality

Habitat Quality

Carbon Sequestration



Sediment retention

Water purification

Crop pollination

Hydropower

Agricultural prod'n

Irrigation water

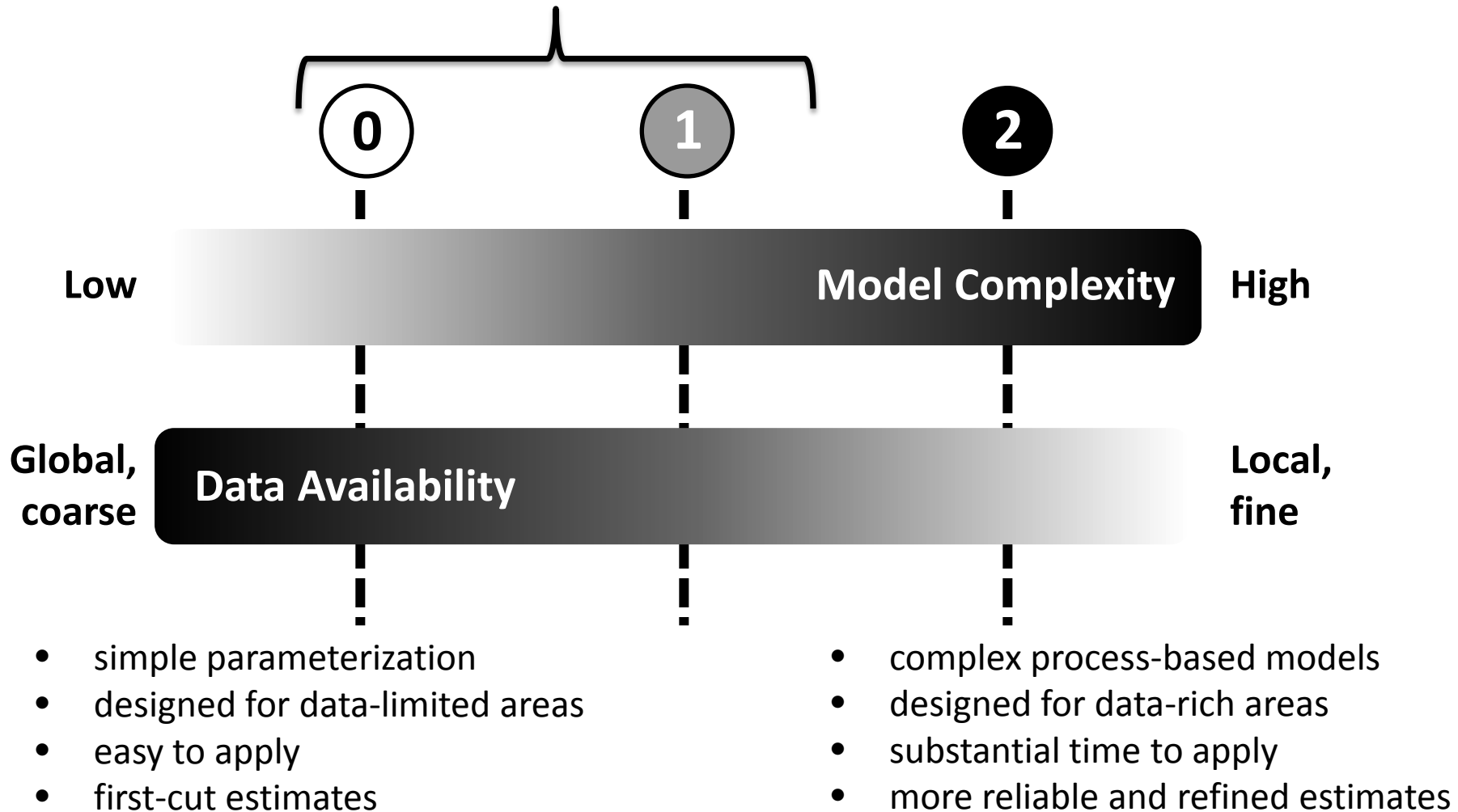
NTFPs

Flood control

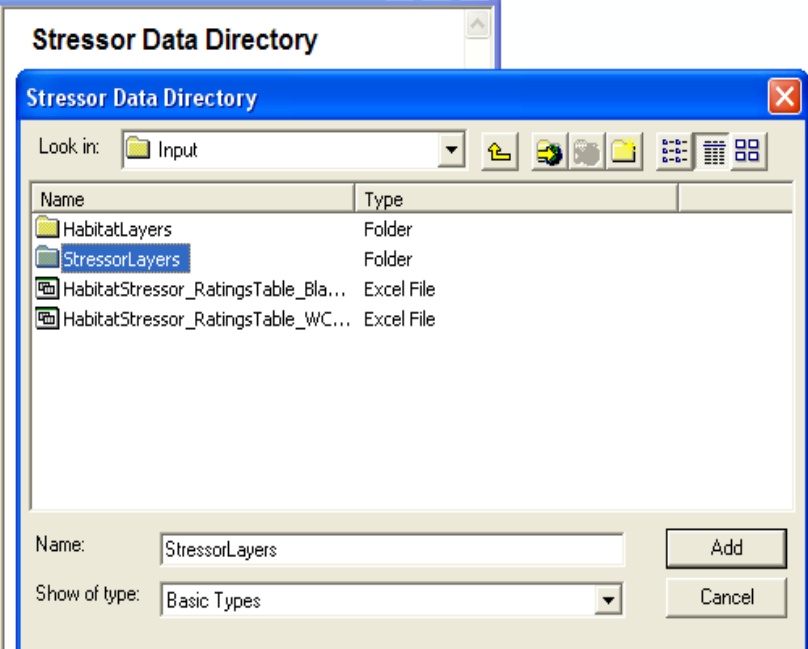
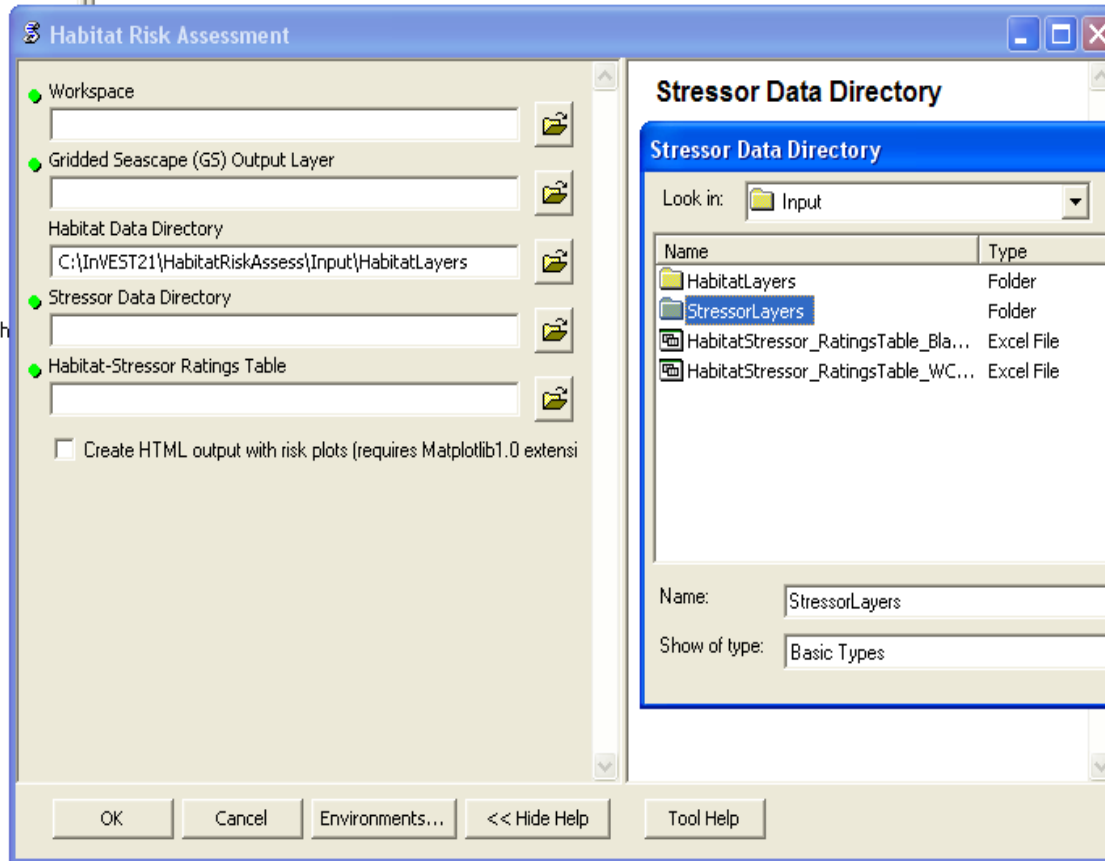
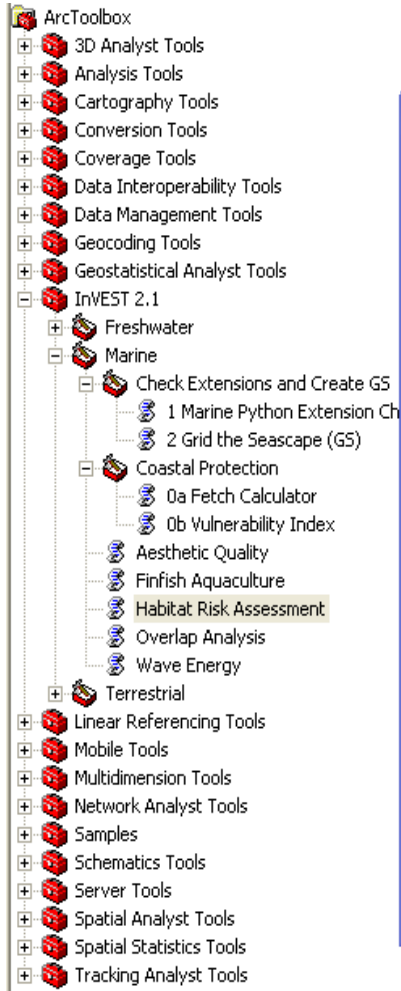
Commercial timber

A Tiered Approach

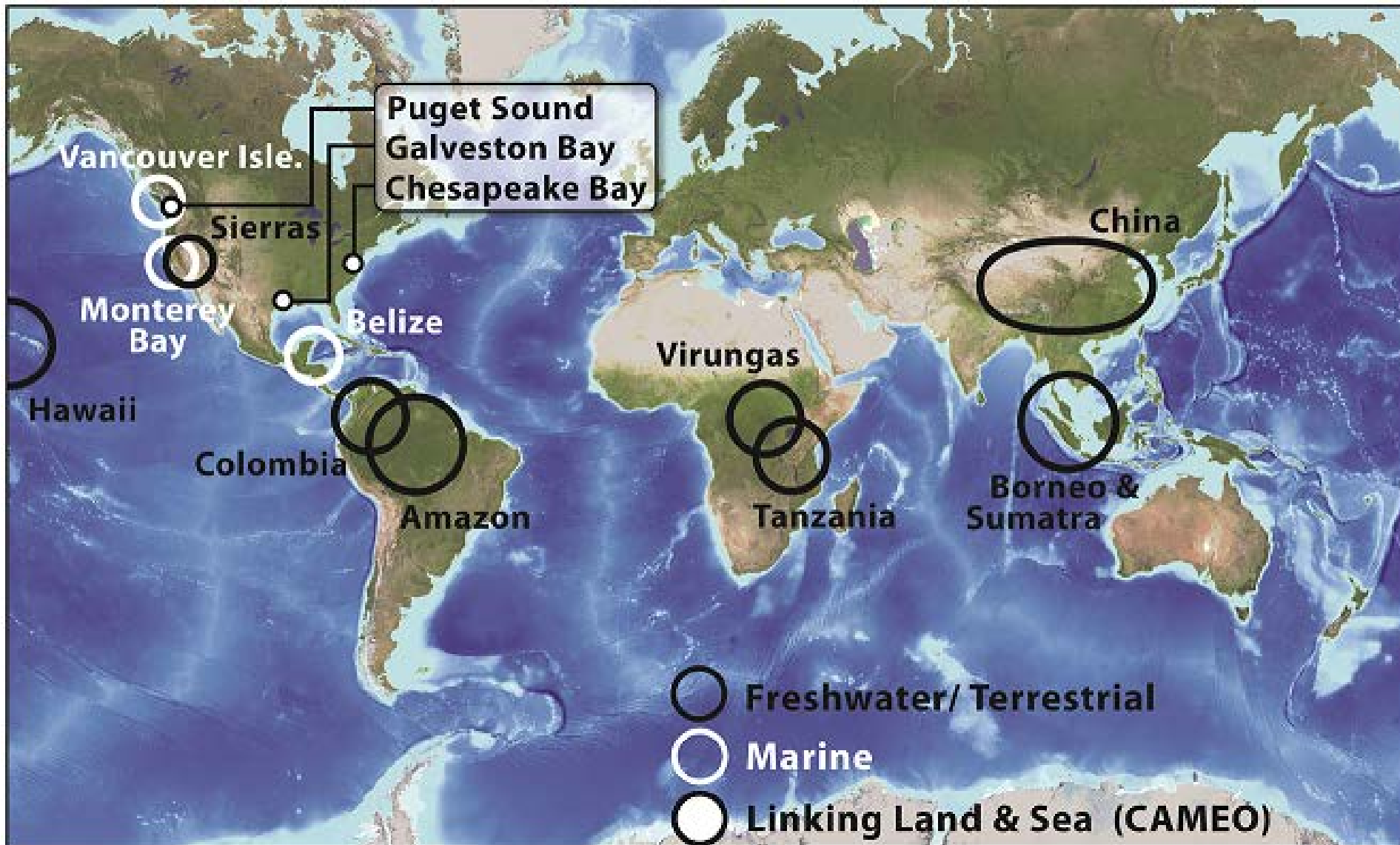
InVEST



InVEST within ArcGIS



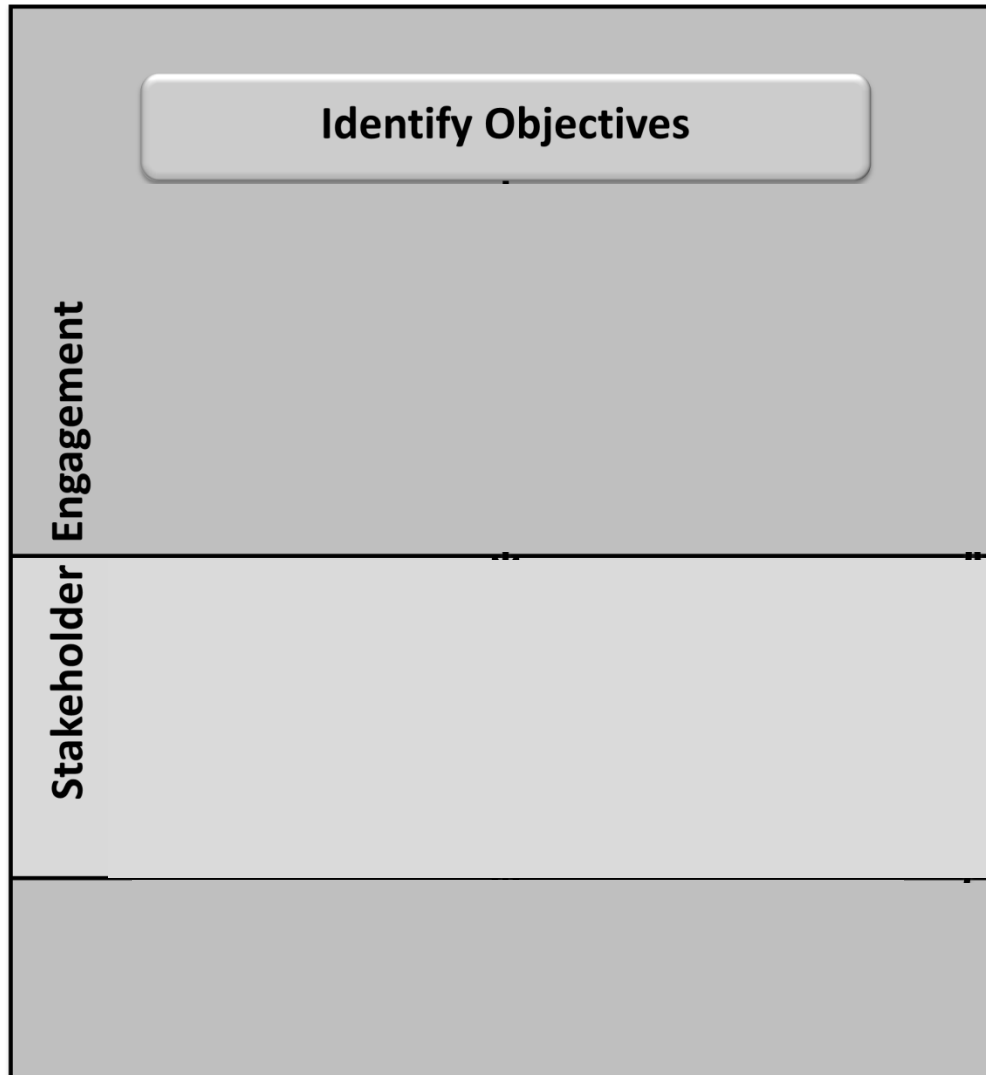
Where We Work



Different Decision-Contexts

Decision Context	Geography
Spatial Planning	Tanzania, Indonesia, British Columbia, Hawaii, China, Belize
Ecosystem-based management (terrestrial-marine links)	USA (Puget Sound, Galveston & Chesapeake Bays)
Climate adaptation	USA (Galveston & Monterey Bays)
Payments for ecosystem services	Colombia (water funds), Indonesia (REDD), Borneo, Tanzania
Impact assessment, permitting, licensing	Colombia (mining)
Multilateral development bank investments	World Bank in Malawi
Corporate strategy	Lafarge in Michigan, USA

Stakeholder Engagement Process



Take Home Message

1. Nature Provides Benefits to People
2. Many tools available
 - e.g. InVEST
3. NatCap's ecosystem framework can help various stakeholders through access to useful tools