The value of nature: Practical applications for managers

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The Nature Conservancy

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Natural Floodplain Functions Alliance Webinar

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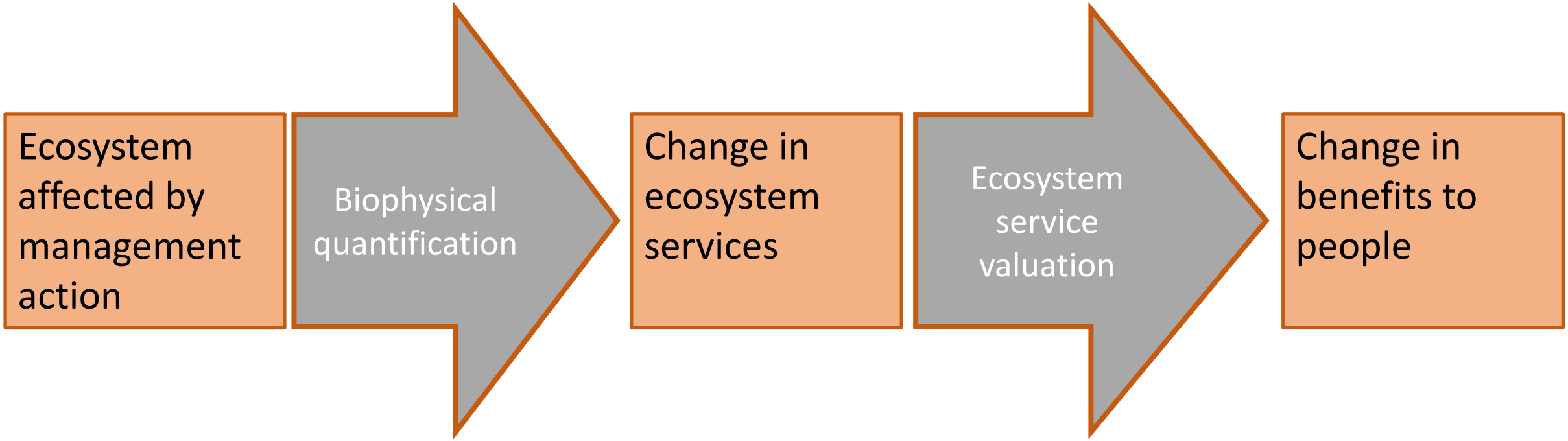
Ecosystem service valuation



Ventnor, NJ

Photo credit: Jim Wright/TNC/LightHawk

Tuckerton, NJ

Photo credit: Jim Wright/TNC/LightHawk

Loss of ecosystem service benefits

Photo: Moses Katkowski, Seabreeze, The Nature Conservancy

Loss of ecosystem service benefits

Photos: Moses Katkowski, Seabreeze, The Nature Conservancy

Integrate Nature-Based Solutions

Photo: Matt's Landing, Partnership for the Delaware Estuary

Photo: Matt's Landing, Partnership for the Delaware Estuary

Photo: Matt's Landing, Partnership for the Delaware Estuary

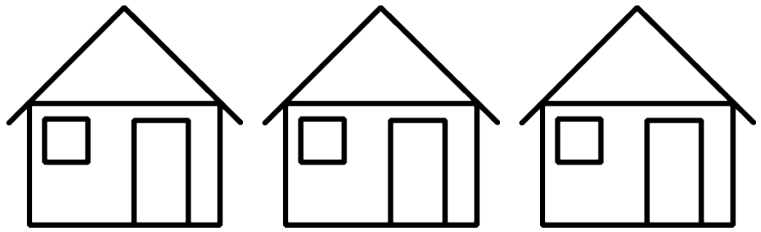
Healthy, Resilient Habitats = Healthy, Resilient Communities

Photo: Linwood, Lighthawk/Jim Wright/The Nature Conservancy

Gaps

Monetary values

Benefit indicators



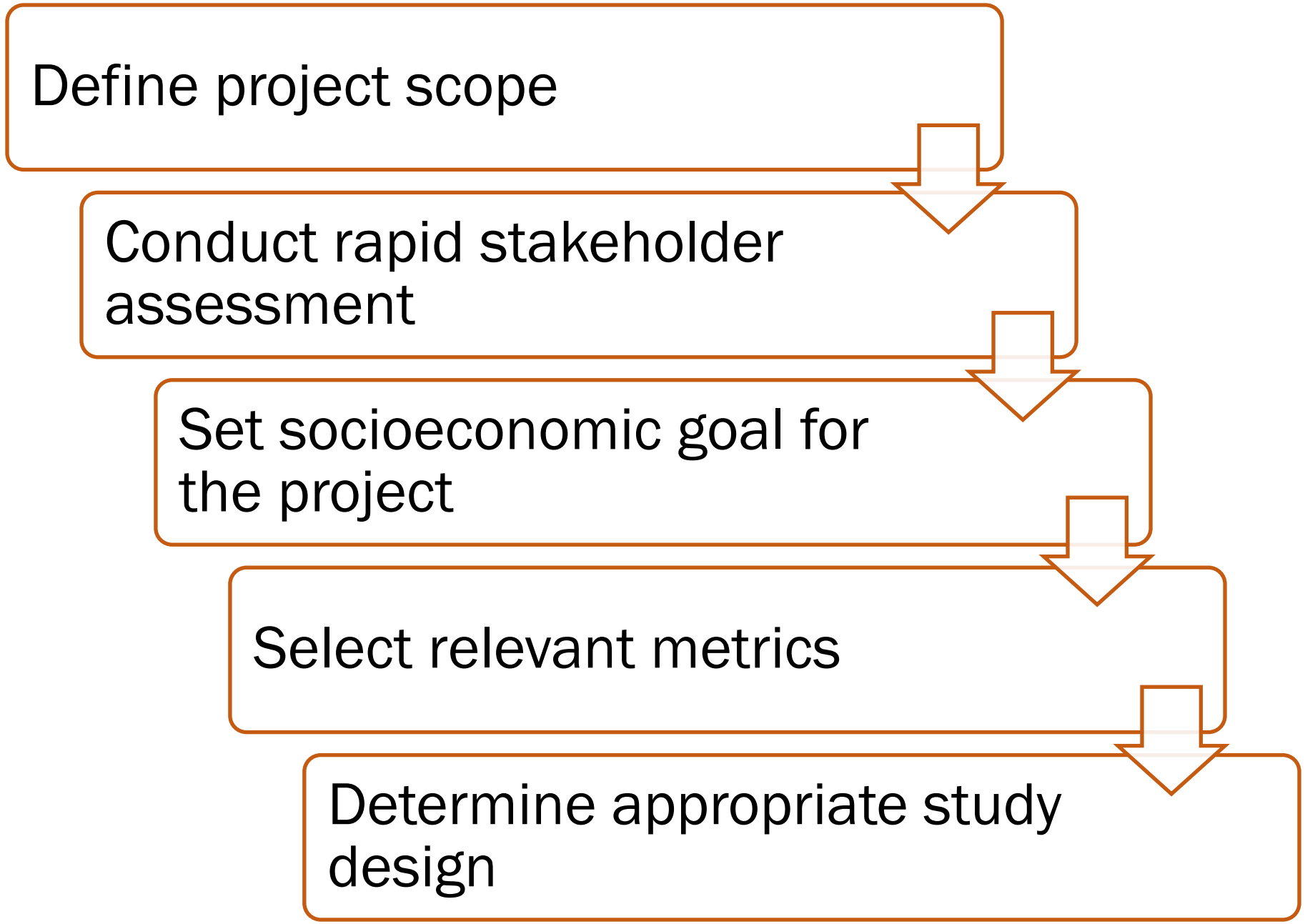
Decision making tools

Today's presentation

- Ecosystem service valuation guidebook
- Example of an ecosystem service valuation study
- An introduction to the ESII tool to assess the value of nature in decision making, developed through a collaboration between TNC and Dow Chemical Company.

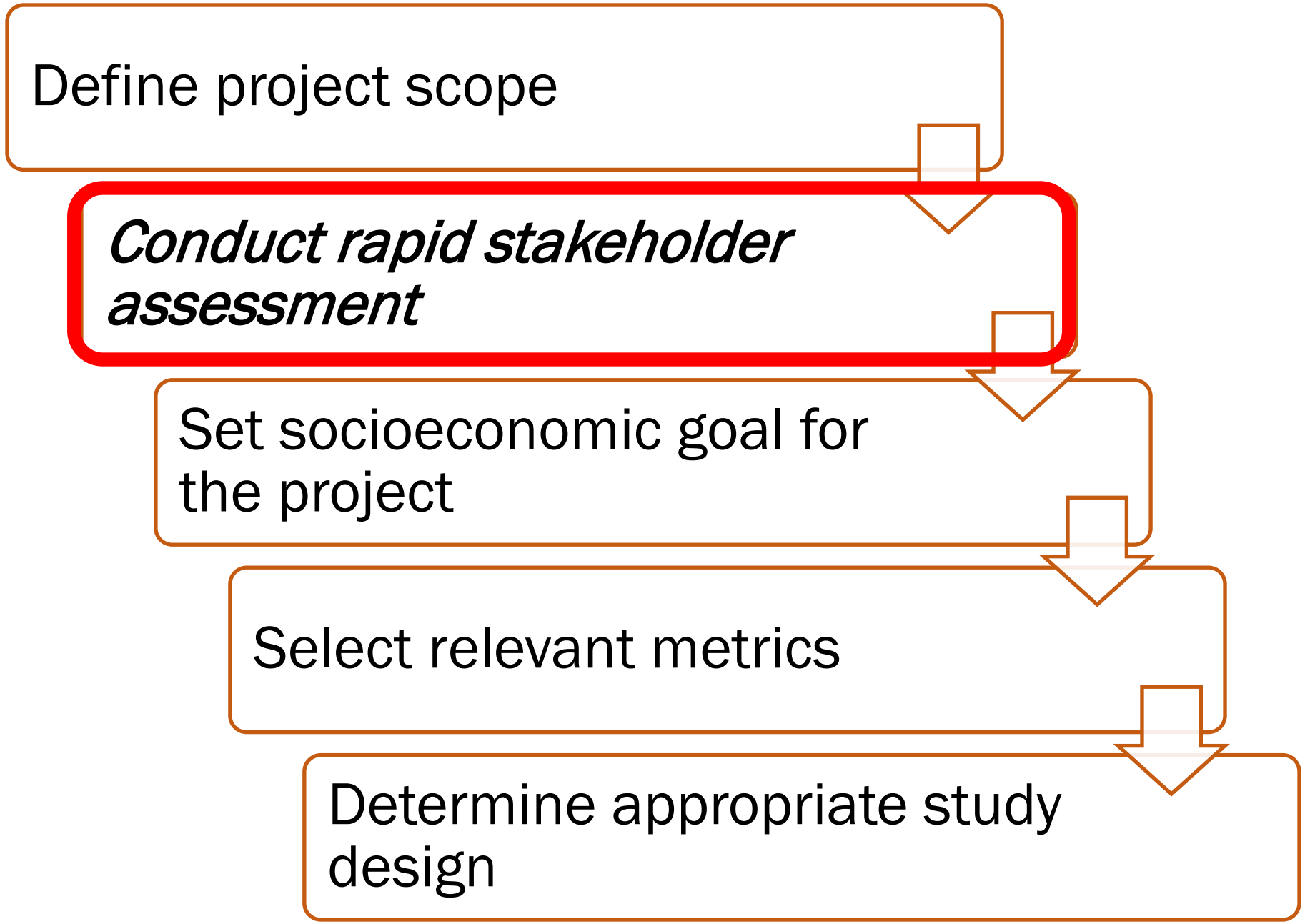
A guide for incorporating ecosystem service valuation into coastal restoration projects

Photo: The Nature Conservancy/Jim Wright with aerial support from LightHawk


Define project scope
Conduct rapid stakeholder assessment
Set socioeconomic goal for the project
Select relevant metrics
Determine appropriate study design

Define project scope

Photo: The Nature Conservancy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Identifying project benefits and stakeholders

Photo: The Nature Conservancy

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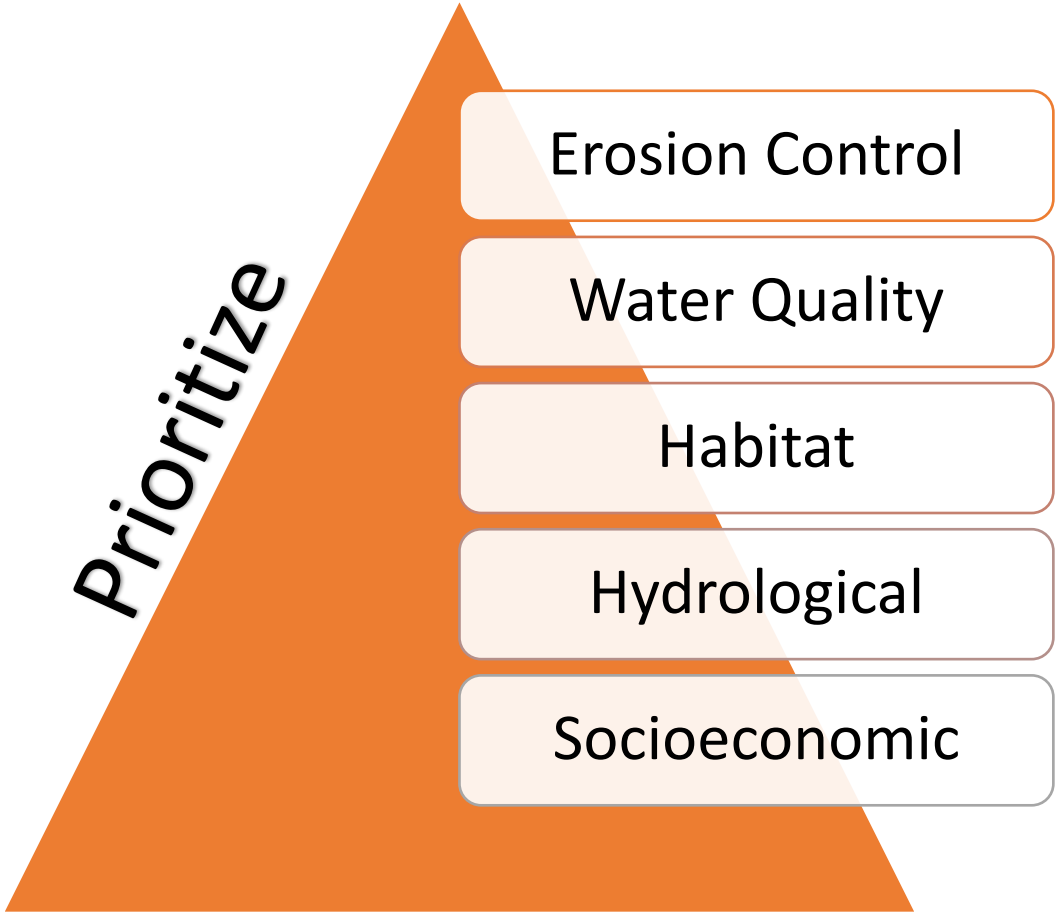
Types of restoration project goals

Photo: The Nature Conservancy

Project Goals

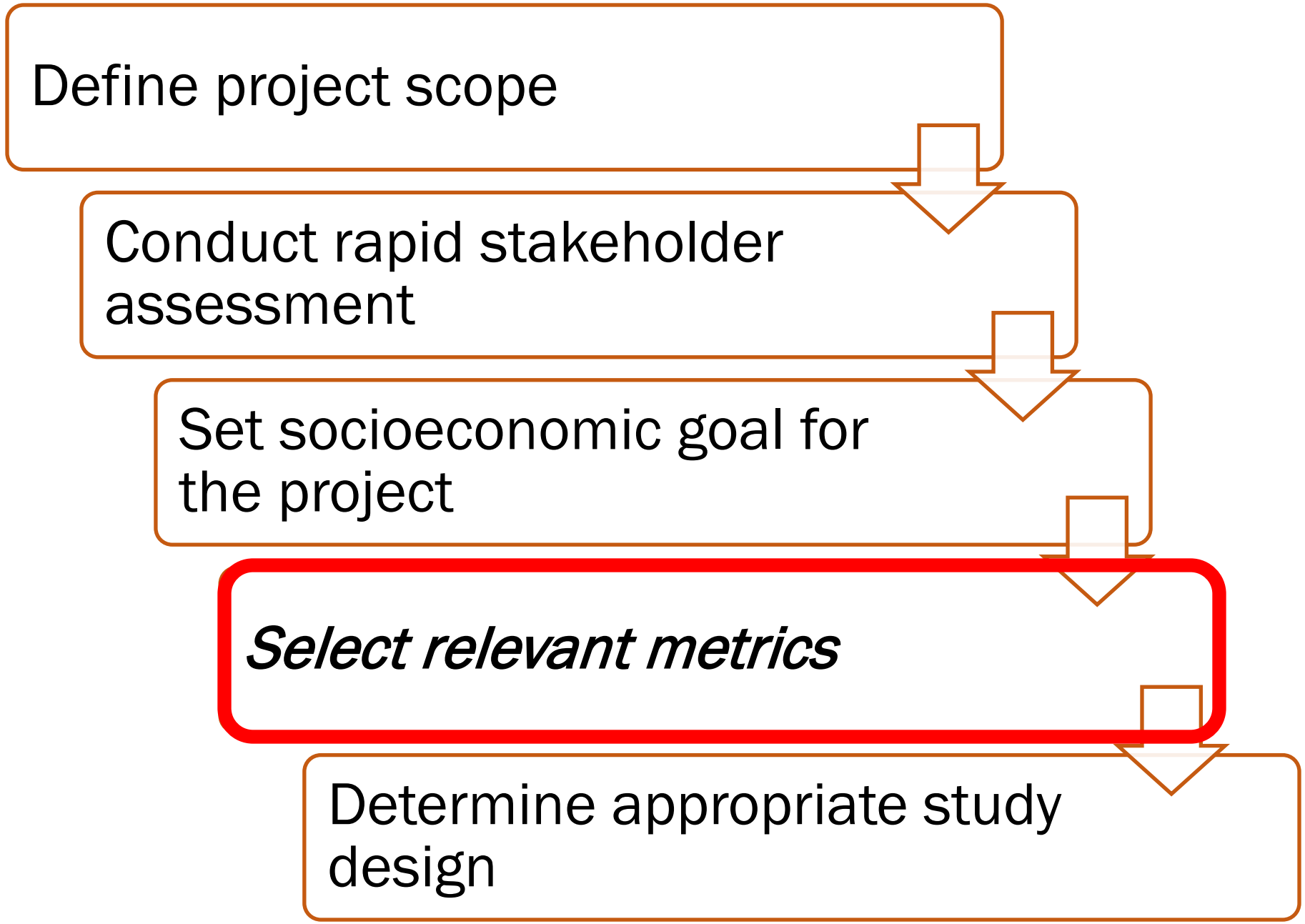


Writing a socioeconomic goal

Flood reduction likely to benefit 20 homes

Flooding reduced by 1 in. per flood event to 20 homes

$10,000 avg. saved per flood event to each of 20 homes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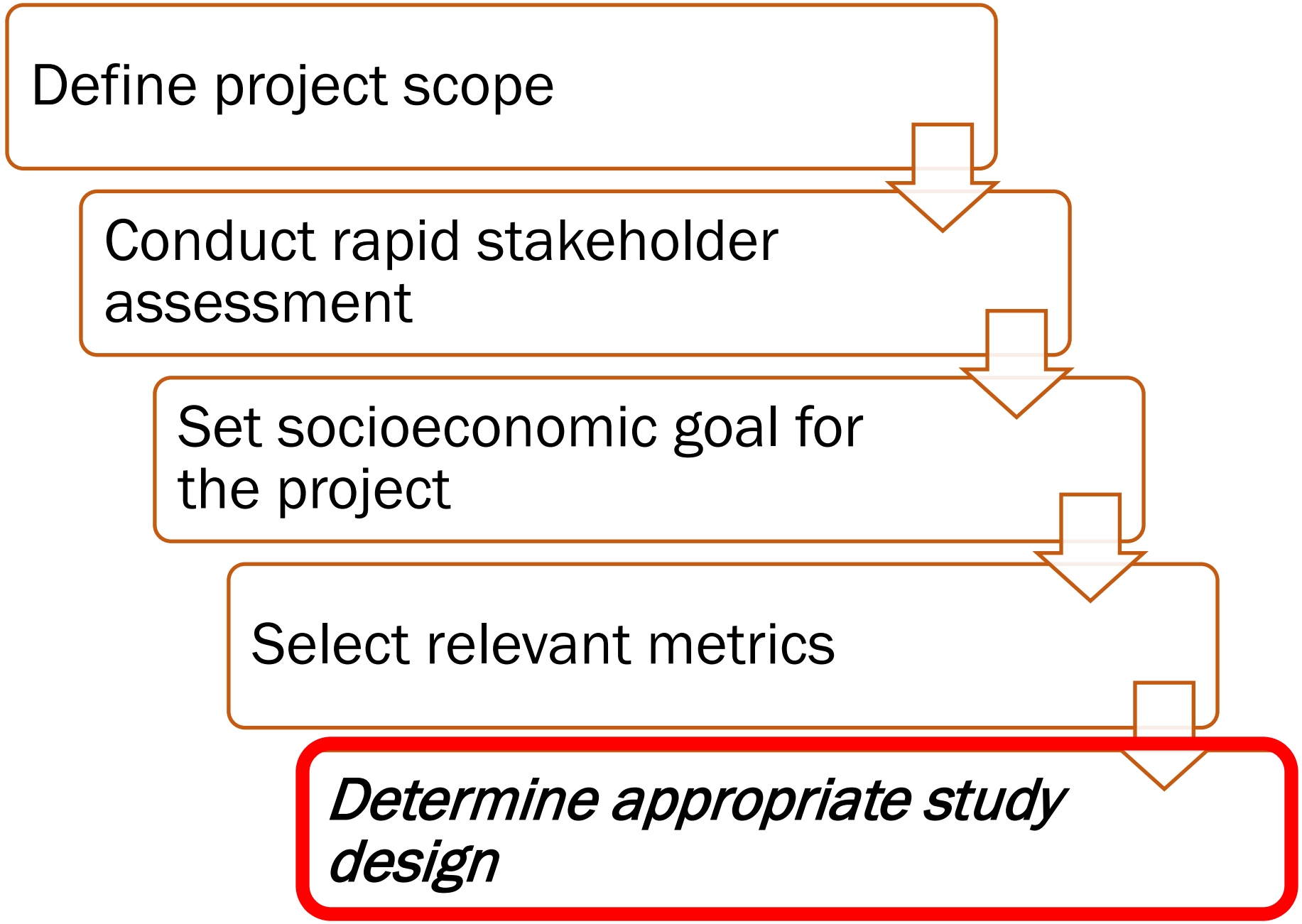
Selecting relevant metrics

Photo: The Nature Conservancy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Social science methods


Photo: The Nature Conservancy

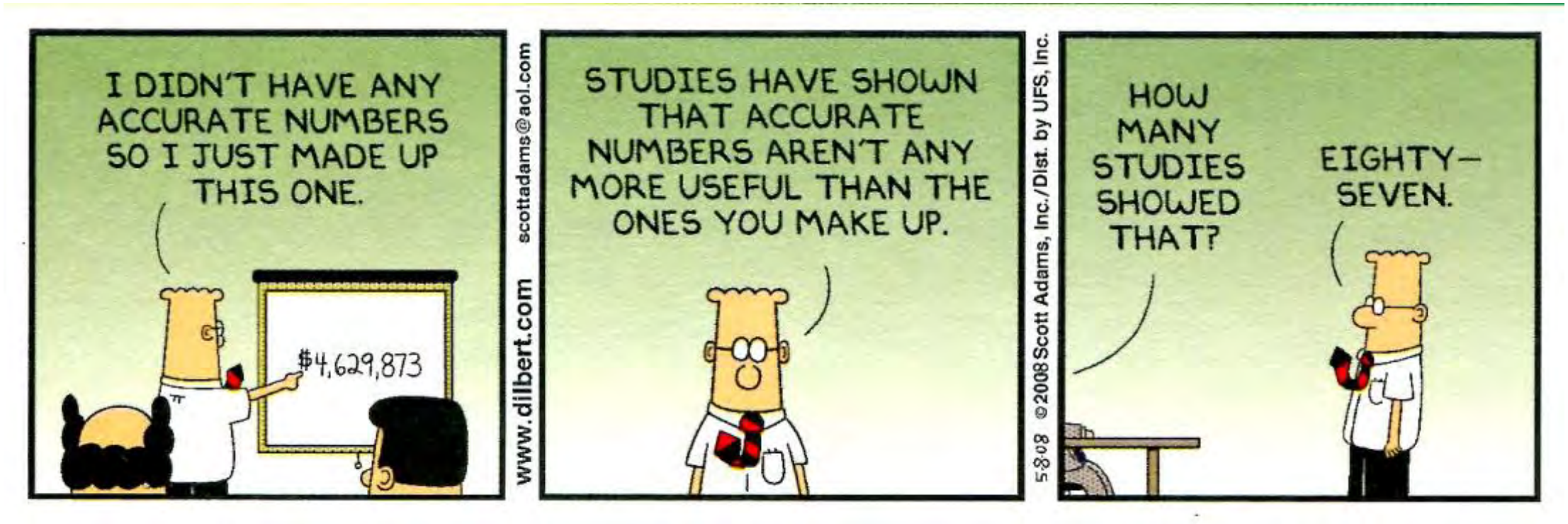
Photo-documentation.

Hurricane	Value, wetlands/acre
Floyd	$144
Isabel	$134
Irene	$179

Margaret Walls, Resources for the Future

Quantitative Analysis

Social science research



<u>How</u> trustworthy do your results need to be?

Target audiences' rigor needs

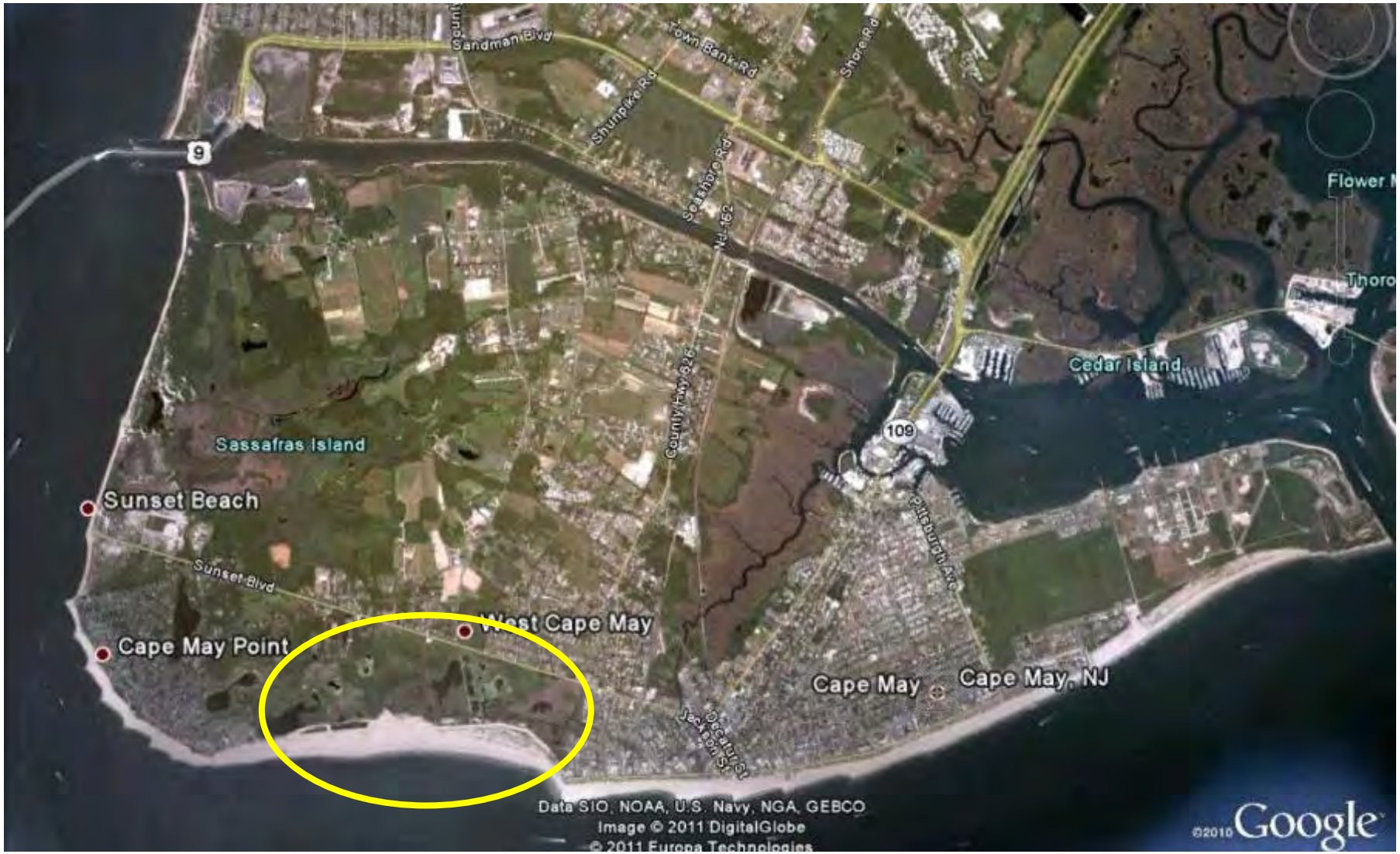
Increasing level of rigor

Target audience	Residents	State policy maker	Municipal engineer
Goal of study	Advocate for conservation	Select management alternatives	Cost benefit analysis

Guidebook Summary

- Nature has value to people
- Restoration projects = opportunities
- Incorporate people from the start
- This process = greater stakeholder support & more funding opportunities

Lower Cape May Meadows ecosystem restoration



Restoration completed in 2007

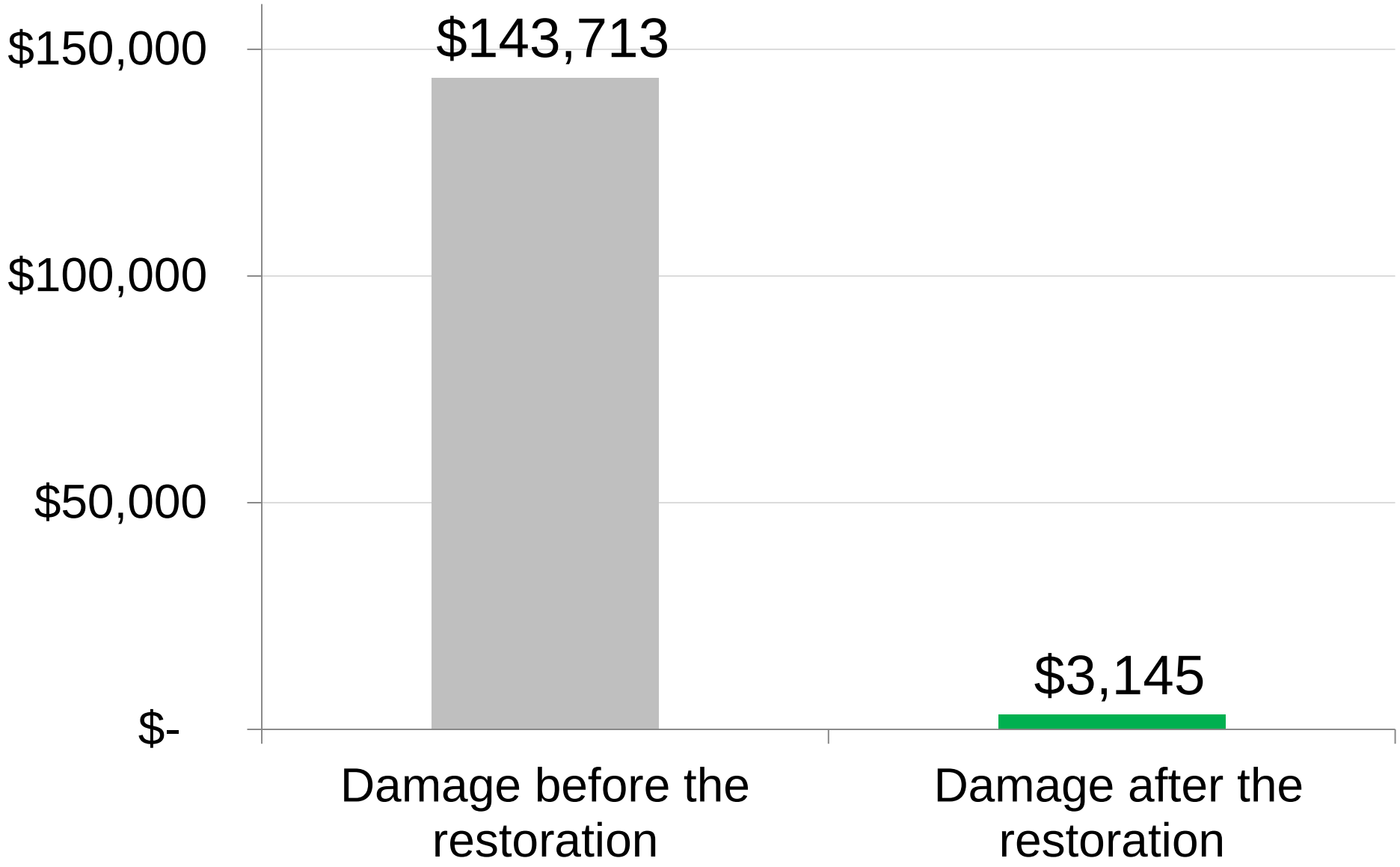
Analysis of economic benefits

Mixed methods analysis:

Flood damage reduction

Ecotourism benefits

Average damage ($) per storm with storm surge over 2.5 feet



Hurricane Sandy comparison

	Damage ($)	**Storm surge (ft)**	**3-day Precipitation (inches)**
Nor'easter of January 1992	$727,000	3.22	0.6
Superstorm Sandy	$6,290	3.24	10

Total damage costs avoided

Habitat improvement for birds

Improvements in public access

BEFORE

AFTER

Economic Impact for Cape May County

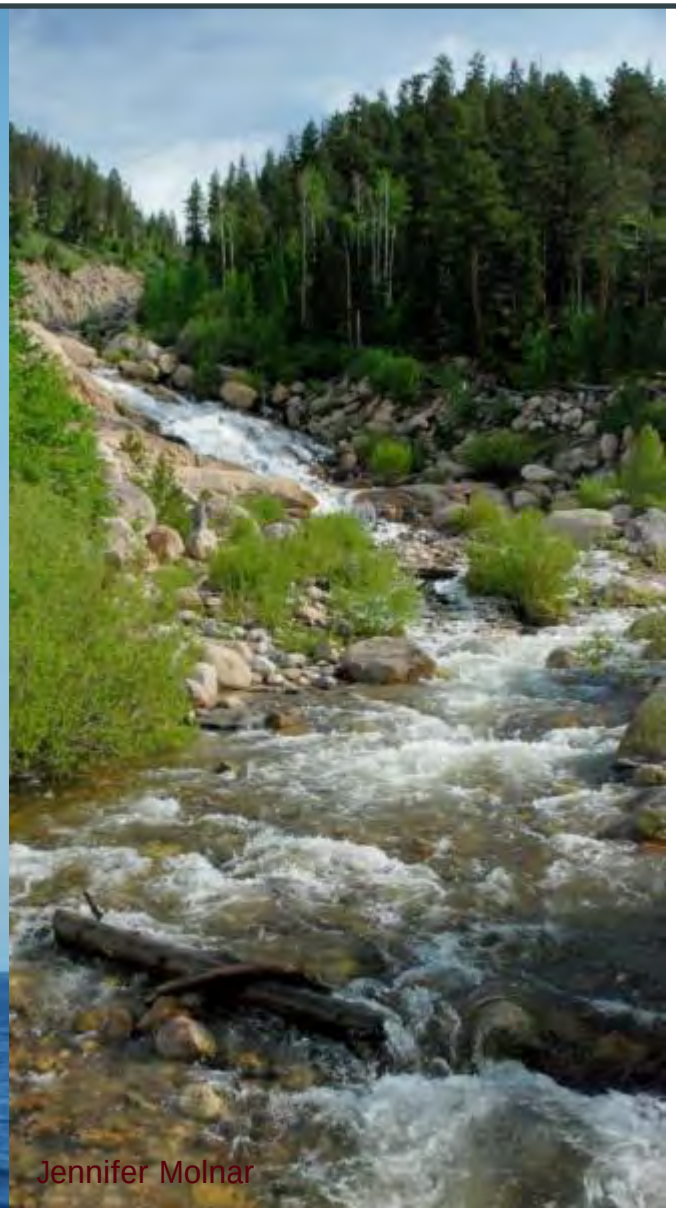
ESII: A Tool to Value Nature

- Overview of TNC and Dow Chemical collaboration
- Ecosystem Service Identification and Inventory tool (ESII)

Natural Capital – Informing business decisions

http://galleryhip.com/american-car-factory-workers.html

Jennifer Molnar



Jennifer Molnar

Our history – the TNC-Dow Collaboration

Goal: Find ways for companies to incorporate the value of nature into business decisions.

Jennifer Molnar

First Four Years: Two Big Pilot Projects

1. Freeport, Texas

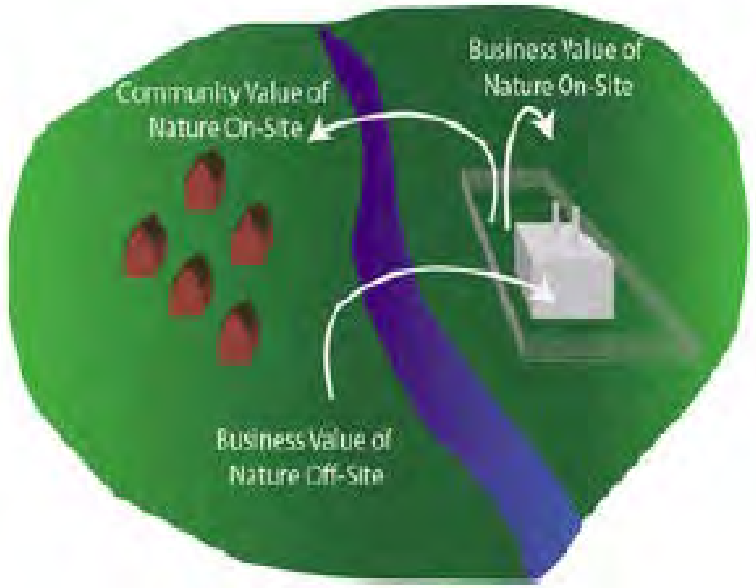
2. Santa Vitória, Brazil

Globe: http://www.worldmapsonline.com/earth_satellite_image_mural.htm; Photos: Jennifer Molnar

The Ecosystem Service Identification & Inventory Tool (ESII)

Initial Ecosystem Services

- **Air Quality Regulation**
  - Nitrogen
  - Particulates
- **Climate Regulation**
  - Carbon uptake
  - Shading
- **Erosion Control**
- **Flood Hazard Mitigation**
- **Water Quality Control**
  - Nitrogen
  - Sediment
- **Water Quantity Control**
- **Water Provisioning**
- **Aesthetics**
  - Visual screening
  - Sound reduction



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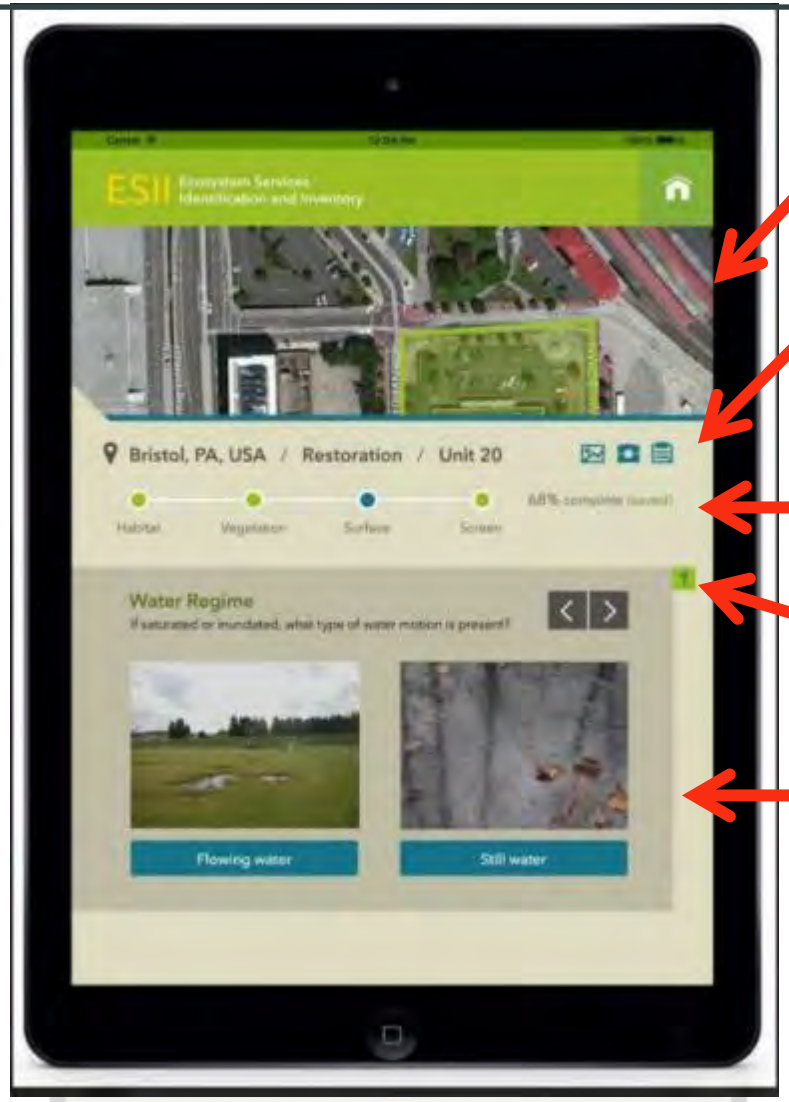
The ESII Field App



Map functionality

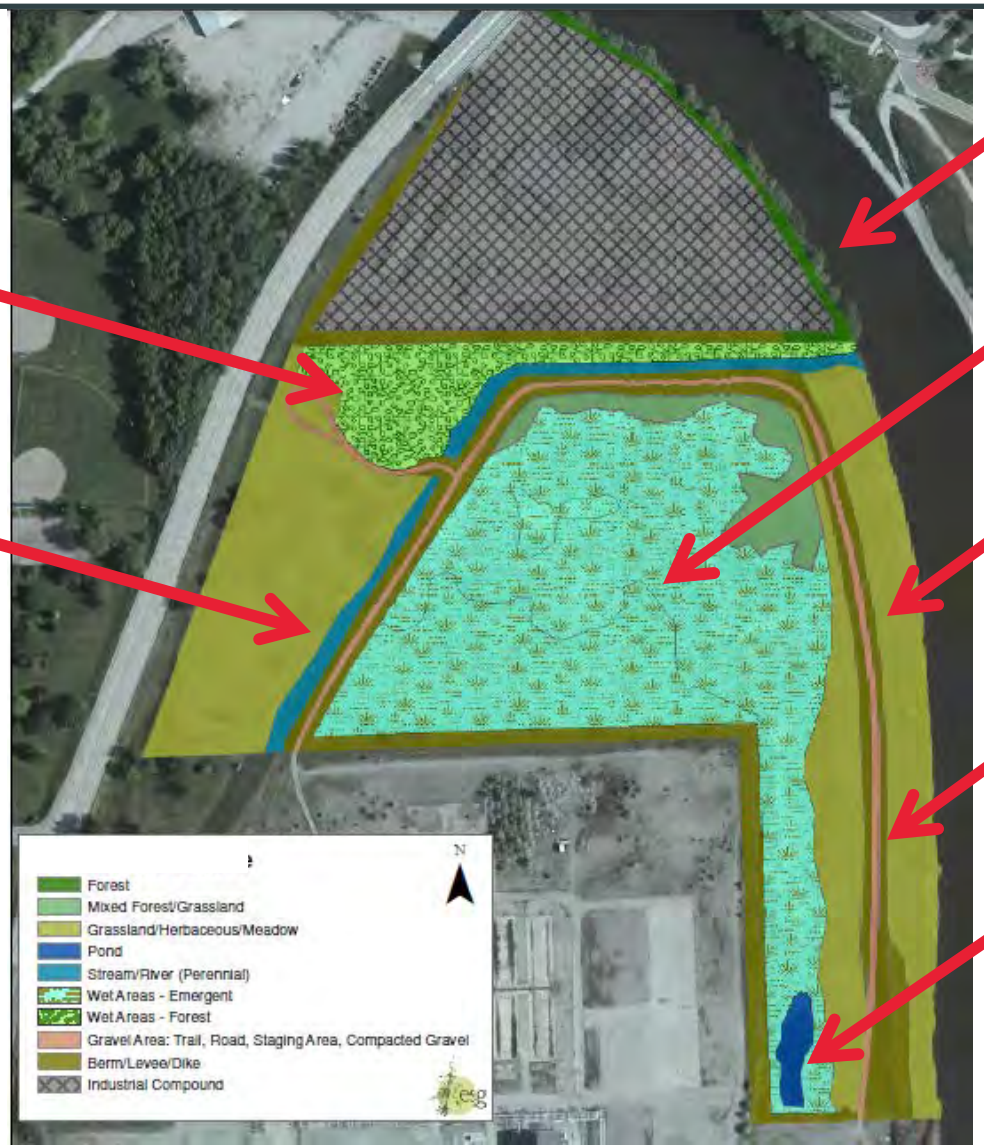
Capture photos of site and notes to support assessments

Progress bar

Help button

Photo-based questions to guide users

An ESII Tool Example: Evaluate Options in Michigan



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We generated three scenarios for redevelopment

Scenario 1 / Business as Usual

Less Forest, Wetland

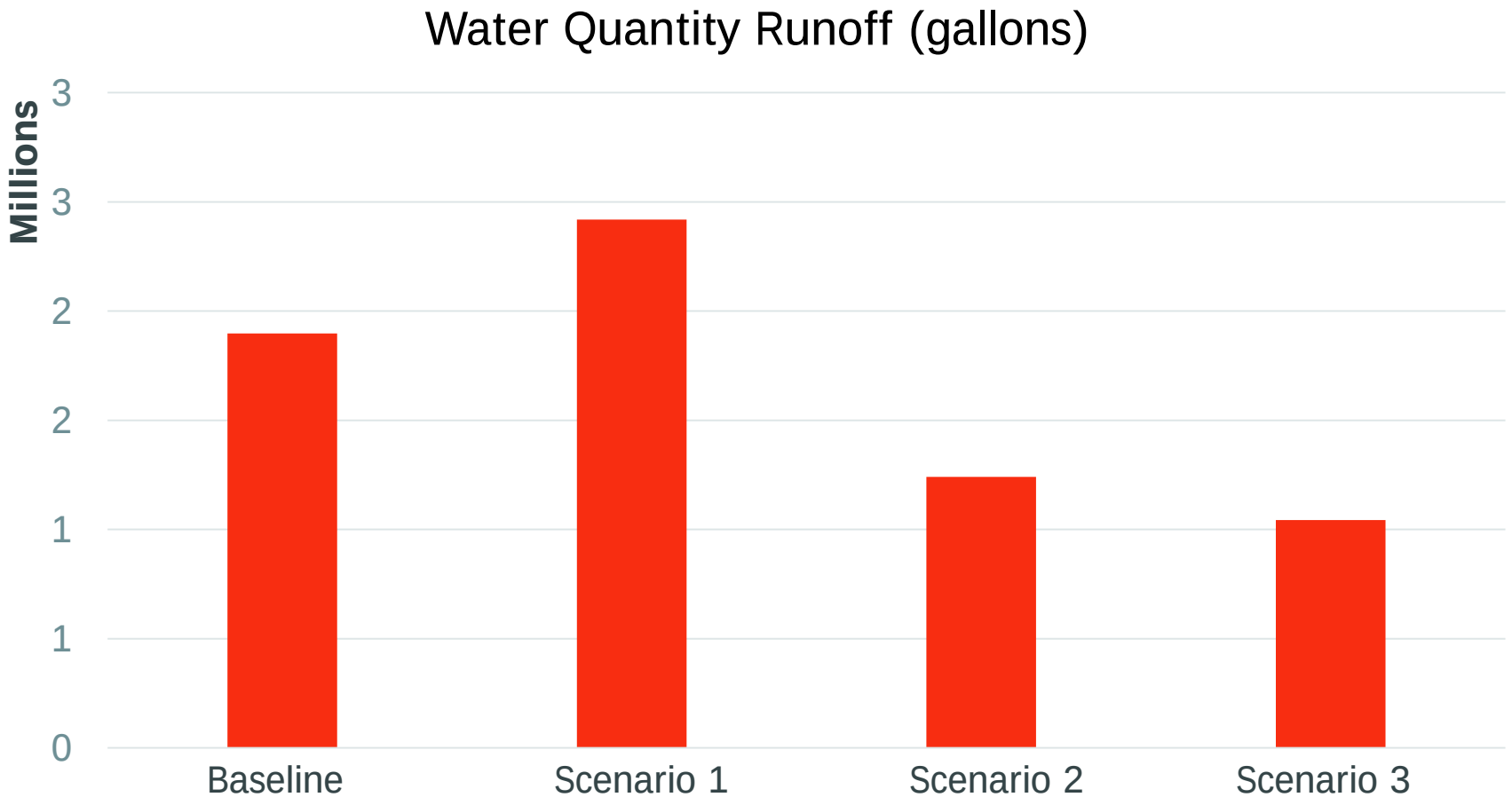
Scenario 2: Some Restoration

More Forest, Wetland, Pond

Scenario 3: Full Restoration

Most Forest, Wetland, Pond

Ecosystem service results in recognizable units



The economic case – how can this translate into business value?

Restoration can save money –

- Less earthwork
- Reduced mowing costs
- Reduced fence maintenance (erosion led to regular replacement costs)

The savings are evaluated by you according to your unique circumstances – a generic cost is not assigned in the tool.

How else can you use it?

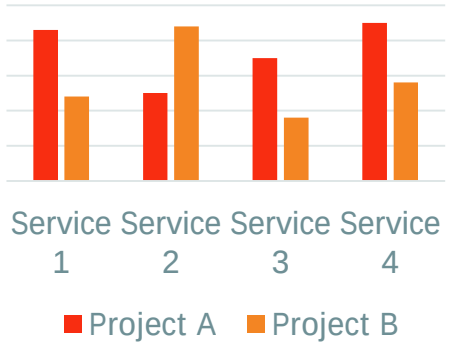
CREATE AN INVENTORY OF YOUR NATURAL CAPITAL

REPORT ON THE ECOSYSTEM SERVICES YOUR LAND IS PROVIDING

COMPARE GREEN AND GREY INFRASTRUCTURE

PLAN YOUR RESTORATION PROJECT

EVALUATE AND OPTIMIZE PROJECT DESIGN ALTERNATIVES



SUPPORT CONVERSATIONS WITH STAKEHOLDERS

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Email us at info@esiitool.com with your questions and comments.

Visit http://www.nature.org/about-us/working-with-companies/companies-we-work-with/dow/ for more information on the collaboration between TNC and Dow Chemical.

Questions?

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