

# Coastal Resilience and Ecosystem Services Workshop

## TNC and the Natural Capital Project

Rice University, Houston, TX  
June 20 - 21, 2013

### **Objectives:**

1. Share highlights from TNC and the Natural Capital Project's approach and tools implementing ecosystem service assessments to inform decision-making and increase the resilience of coastal communities in the Gulf of Mexico region.
2. Introduce participants to the InVEST ecosystem service accounting tool, how it works and its capabilities and limitations. After the training, participants will have basic familiarity with InVEST, should be able to run some of the models, troubleshoot and use InVEST to create and assess scenarios using sample data. We will also discuss other models that can be linked to InVEST.
3. Explore how InVEST can be used to facilitate the designation of conservation areas, prioritize restoration activities, inform permitting processes, conduct marine spatial planning and explore climate adaptation strategies and plans.

### **Please prepare before-hand:**

- Laptops with InVEST installed (<http://www.naturalcapitalproject.org/download.html>)
- Mapping software: QGIS (free) or ArcGIS installed and licensed
- Completion of ecosystem assessment scoping worksheet

### **Day #1 – (Overview and Technical Demonstrations; full day) – June 20, 2013**

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| 9:00 am  | Participant intros and introduction to workshop goals  |
| 9:20 am  | Introduction to the Natural Capital Project approach and InVEST – Lisa Mandle, Natural Capital Project, Stanford University  |
| 10:00 am | Coastal Resilience to Date: Ecosystem Services and TNC/NatCap partnership – Jorge Brenner, The Nature Conservancy  |
| 10:20 am | <i>coffee break</i>  |
| 10:40 am | Participatory Modeling Exercise: Choose your own adventure in Galveston Bay! – Greg Guannel, NatCap, Stanford University   |
| 11:00 am | Introduction to one key locally-relevant InVEST model: running and interpreting model outputs – Greg Guannel, NatCap, Stanford University ( <i>includes Q &amp;A</i> ) |

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| 11:10 am  | Explore model inputs  |
| 11:25 am  | Run model for current scenario  |
| 11:45 am  | Interpret outputs and linking to social metrics<br>(population, housing value, elderly / disadvantaged people)  |
| 12:00 pm  | Lunch ( <i>provided</i> )   |
| 1:00 pm   | TNC/Dow partnership work in Freeport, Texas – Sheila Walsh, TNC<br><i>Example of how scenarios came to be in this project (iteration), less focus on model results</i>  |
| 1:30 pm   | Stakeholder engagement for coastal resilience application in Galveston Bay<br>( <i>introduction followed by discussion</i> )  |
| 2:30 pm   | Fire hose of all ecosystem services models in Galveston Bay ( <i>3 min per model</i> )<br>– Jess Silver, Lisa Mandle, Greg Guannel, Jorge Brenner and Mike Thompson   |
| 2:45 pm   | Further Adventures in InVEST: exploring 2 service models in break-out groups where we compare two scenarios and weigh tradeoffs. Participants will have the opportunity to communicate actual results and obtain feedback.<br>– facilitated by the Natural Capital Project, Stanford University |
| <i>**Note that this time will include a break for coffee while models are running**</i> |   |
| 4:30 pm   | Plenary discussion, questions, and wrap-up – Lisa Mandle, NatCap  |
| 5:00 pm   | Close of Day 1  |

## **Day #2 (Feedback and Innovation; half day) – June 21, 2013**

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| 8:30 am | WeTable and CHARM Models that Support Coastal Resilience<br>– Dr. John Jacob and Steve Mikulencak, Texas Sea Grant Program  |
| 9:00 am | InVEST Model Parallel Sessions (3 break-out groups). Some of these will feature models that are currently available as part of the InVEST toolbox. Others are not currently in the toolbox, but have been used locally. These sessions will feature the approach and results. All sessions will include some hands-on work.<br><br>A) <i>Coastal Defense in Galveston Bay</i> – Greg Guannel and Jorge Brenner<br><br>B) <i>Fisheries (blue crab and shrimp, loop analysis) and Habitat (climate adaptation tool)</i> – Jess Silver<br><br>C) <i>Blue Carbon and Biodiversity</i> – Mike Thompson and Lisa Mandle |

- 10:15 am      *coffee break*
- 10:30 am      Research dialogue sessions, including model improvements and innovations to all coastal resilience models, tools and approach (marine and terrestrial)
- 11:15 am      Discussion: Synergies between TNC Gulf, NatCap and other groups working in the Gulf of Mexico – Facilitated by Jorge Brenner and Greg Guannel  
*(includes Q & A)*
- 12:15 pm      Close of Day 2