

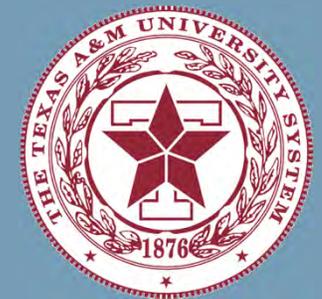
Balancing Freshwater Inflows in a Changing Environment

Kiersten Madden

Stewardship Coordinator

Mission-Aransas National Estuarine Research Reserve

kiersten.madden@mail.utexas.edu



Freshwater inflows: Determining flow regimes in the face of land use, climate change, and other unknowns

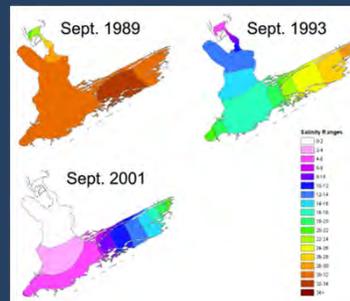
OBJECTIVE 1

Examine the **effects of land use and climate change on freshwater inflows** to the Guadalupe and Mission-Aransas.



OBJECTIVE 2

Improve inputs to the TxBLEND salinity model of the Texas Water Development Board.



OBJECTIVE 3

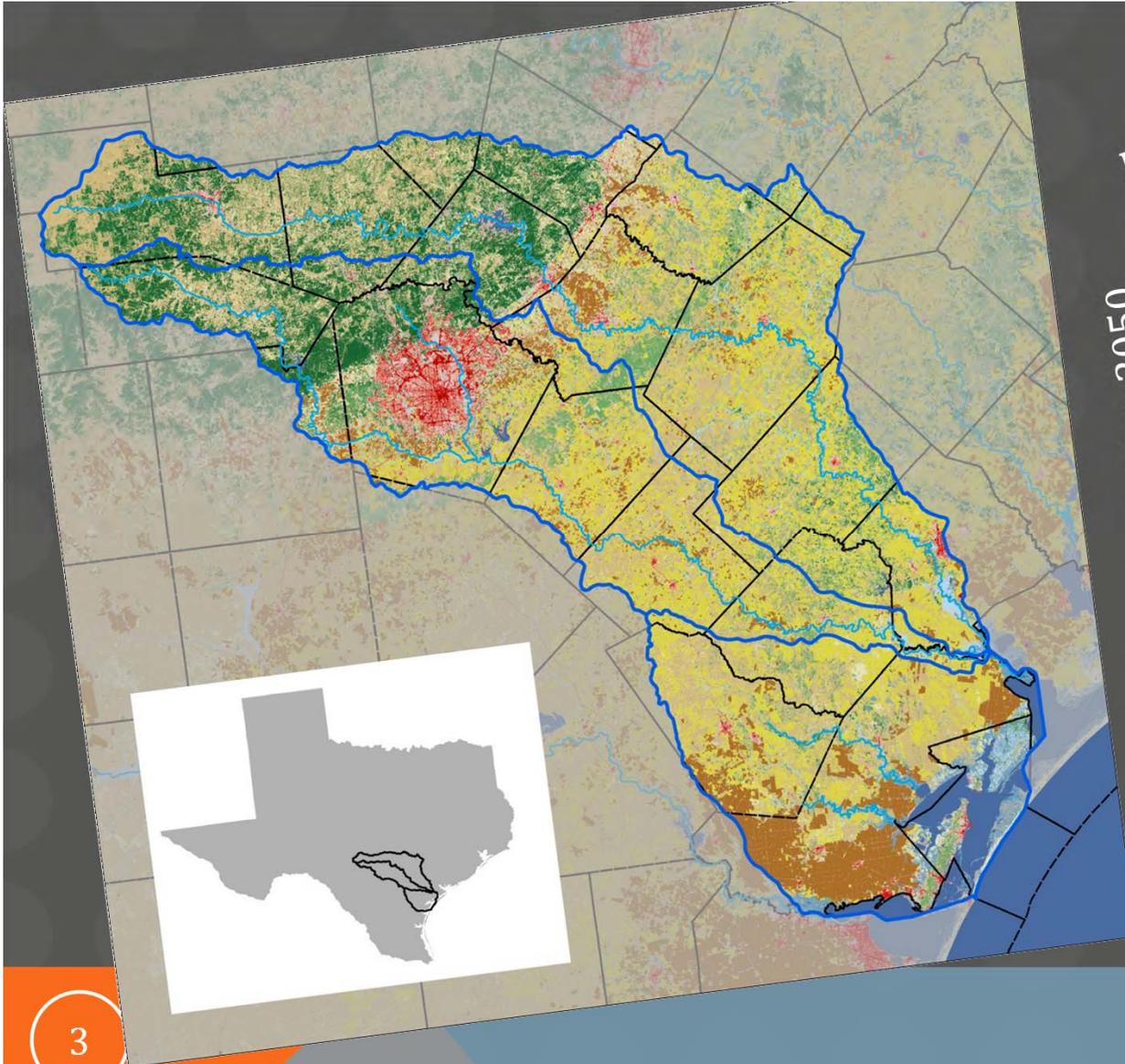
Collaborate with intended users to **identify and conduct a priority research project related to a focal species** mentioned in the BBEST report.



OBJECTIVE 4

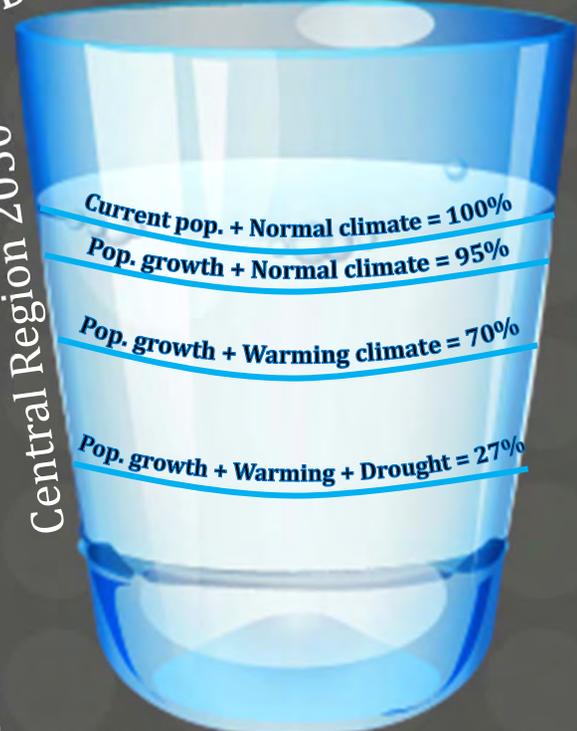
Develop shared systems learning among the local stakeholders and scientists for construction of a system dynamics model.





Downstream flows to coast...

Central Region 2050

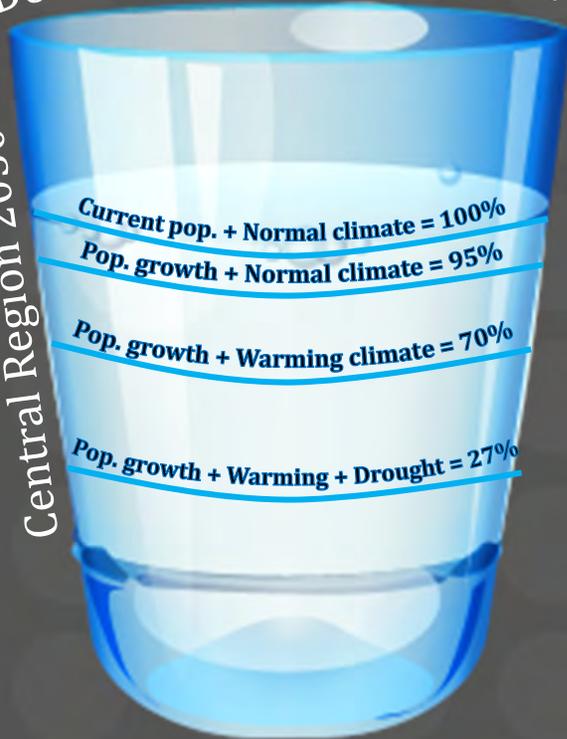


Ward (2011)

Land Use & Climate Change

Downstream flows to coast...

Central Region 2050



Ward (2011)

Scenarios



Future Water Use

- Current land use
- Building/dwelling units
- Projected areas of future growth
- Population projections

Water Use

Circulation Model

- Bay bathymetry
- Rainfall & evaporation
- Wind
- Freshwater from rivers
- Exchange with bays

Future Runoff

- Land use/land cover
- Elevation
- Soils
- Precipitation

Runoff



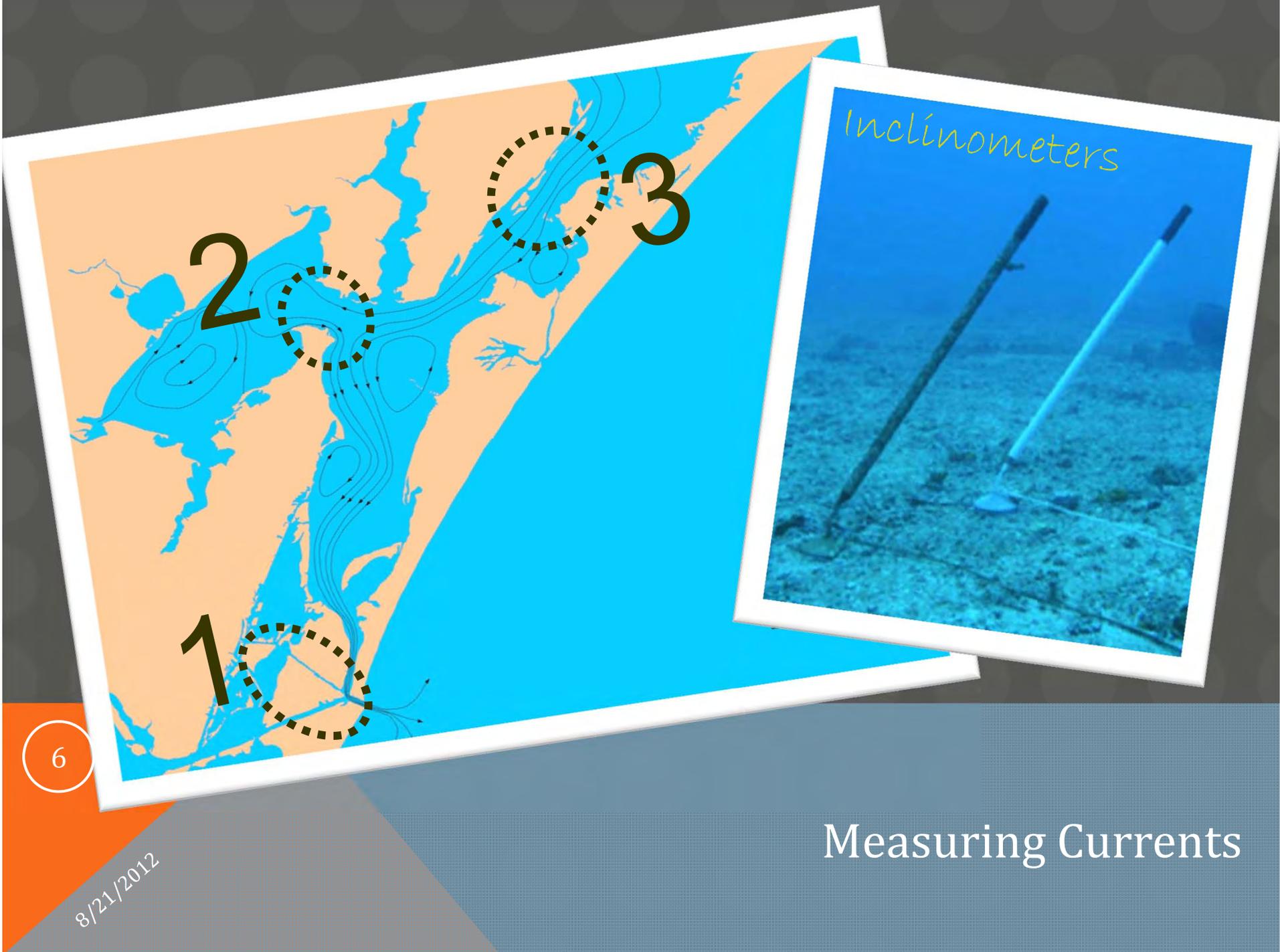
Land Use
2060



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8/21/2012

Input from stakeholders ...



Inclinometers

1 2 3

6

8/21/2012

Measuring Currents



← Heat Map



Input from stakeholders ...

7

8/21/2012

*Guadalupe, San Antonio, Mission, & Aransas Rivers and
Mission, Copano, Aransas, & San Antonio Bays
Basin & Bay Area Stakeholders Committee (GSA BBASC)*

Work Plan for Adaptive Management

**Compilation of Preliminary Scopes of Work
October 11, 2011**

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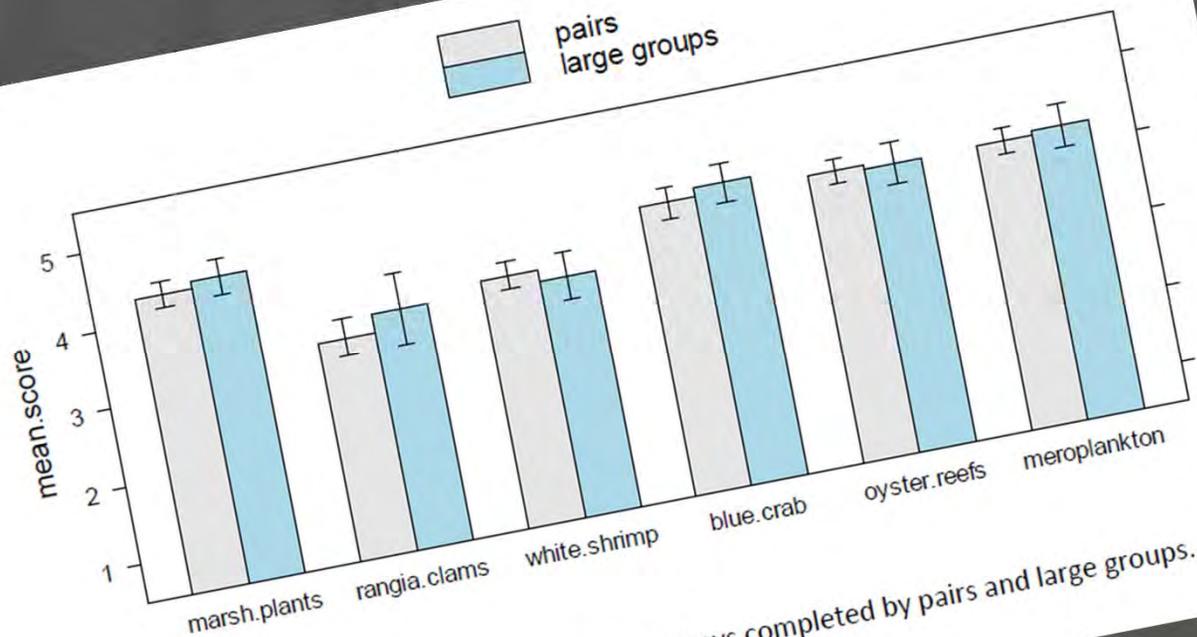


Figure 1. Mean focal species scores (\pm SE) from surveys completed by pairs and large groups.

Trophic

Ecosystem

Commercial
value

Guadalupe, San Antonio, Mission, & Aransas Rivers and
Mission, Copano, Aransas, & San Antonio Bays
Basin & Bay Area Stakeholders Committee (GSA BBASC)

Work Plan for Adaptive Management

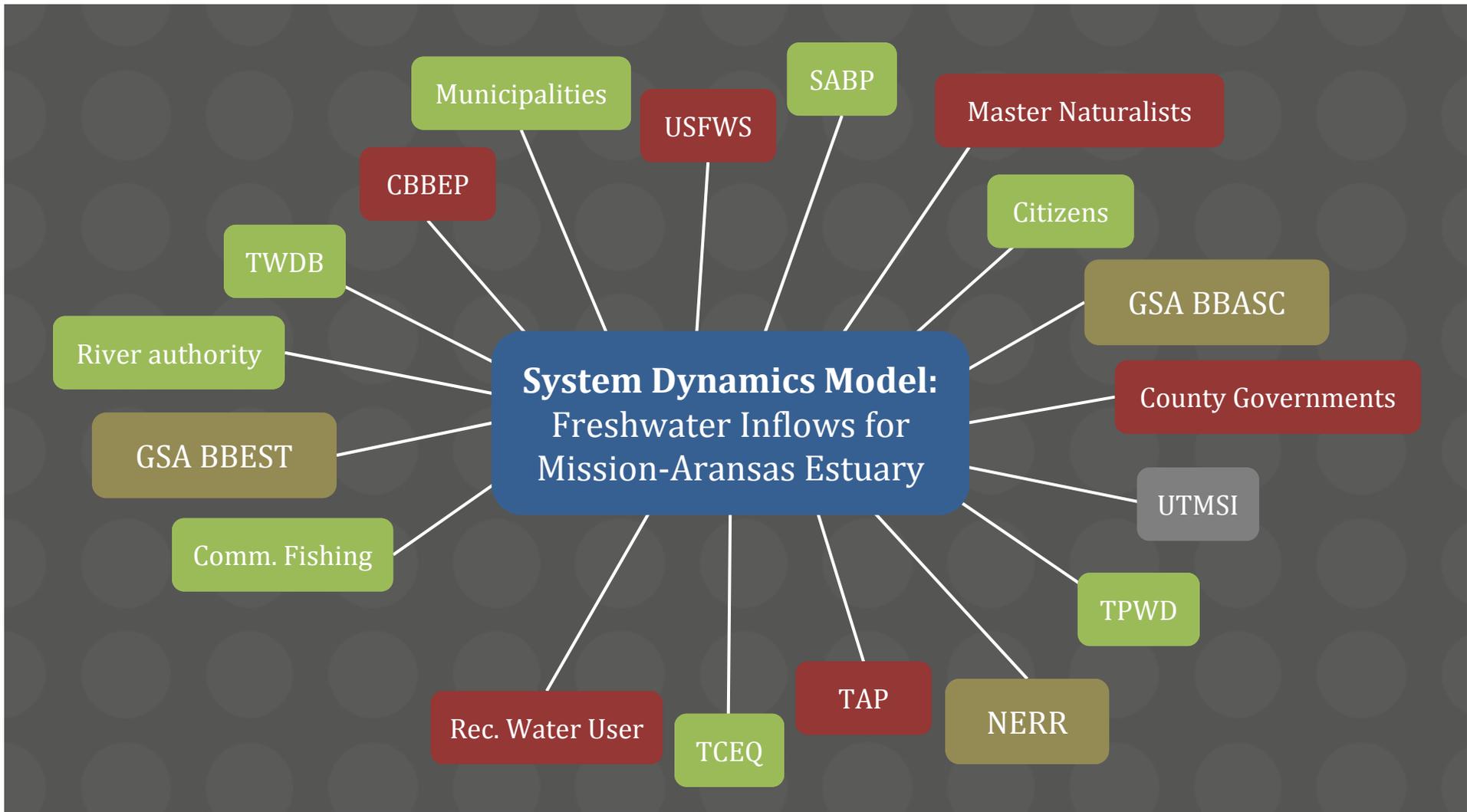
Compilation of Preliminary Scopes of Work
October 11, 2011

Other
Projects . . .



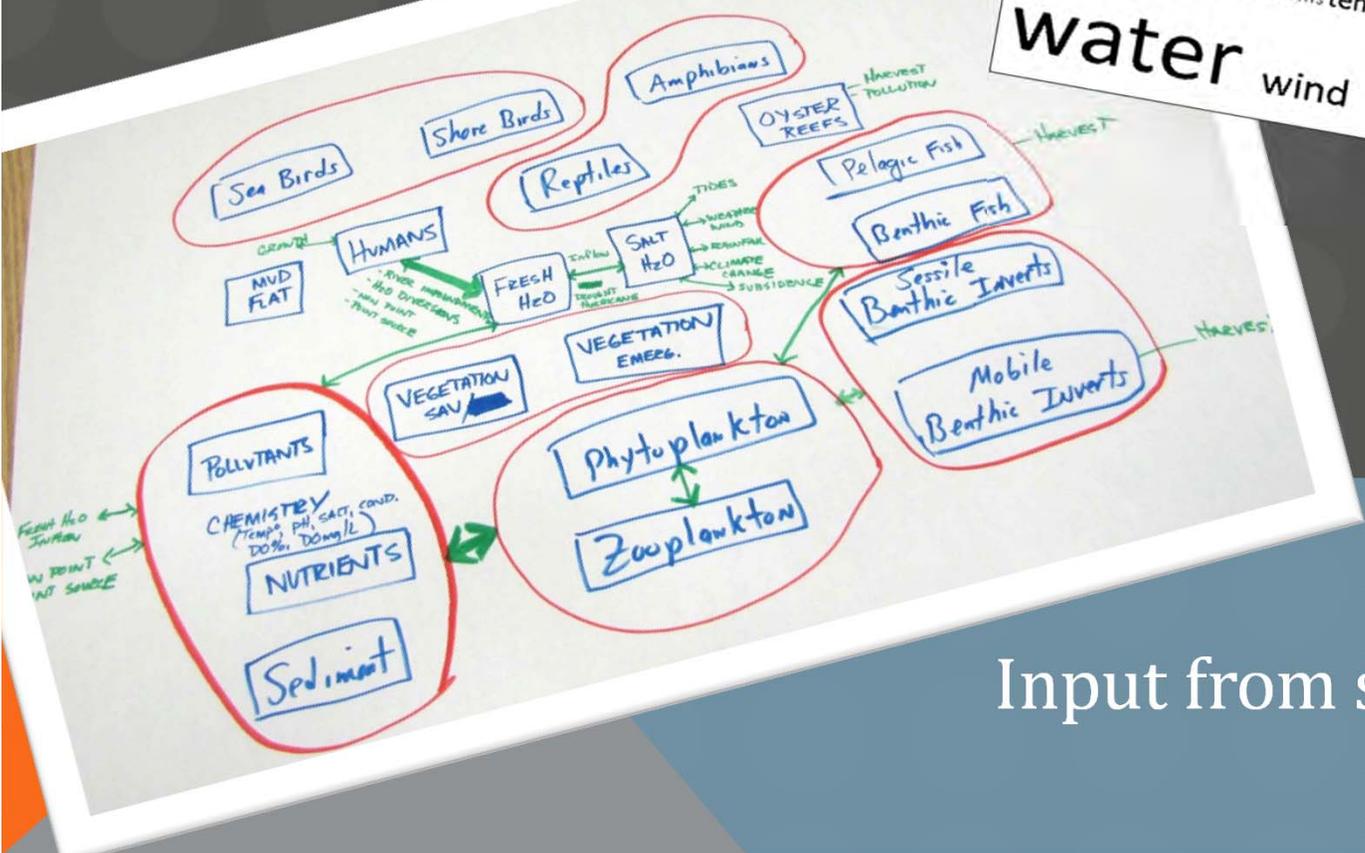
BBEST/BBASC





- Central components = stocks
- System Flows = Actions that tie stocks together
- Converters = Issues that enhance or inhibit system

actions agriculture animals anthropogenic aquatic bacteria bacterial bay birds boating bottom
 change climate communities constraints cover blue crabs cranes
 current development discharges dissolved diversion diversions dredging drought emergent
 erosion estuary evaporation exchange fauna filter fish fisheries fishing flow food fresh
 freshwater growth gulf habitat harvest historic hunting impacts
 inflows invasive land life loading marsh nutrient nutrients off oil
 organisms oysters people plankton plant plants pollution
 quality rainfall reefs river rivers salinity salt saltwater seagrass sediments
 shoreline shrimp species storms temperature tides vegetation
 water wind



Input from stakeholders ...



Year 1

- Introduce project to intended users (i.e., workshops, interviews)
- Gather data for land use and climate scenario analysis
- Begin circulation study
- Identify focal species study with intended users
- Begin mediated modeling

Year 2

- Analyze land use and climate scenarios
- Continue circulation study
- Collect data for priority research project
- Update intended users through a series of workshops
- Expand mediated modeling effort

Year 3

- Summarize results of land use and climate change analysis
- Analyze and summarize circulation datasets
- Analyze and summarize results from priority research topic
- Discuss results with intended users
- Disseminate results to wider audience

BALANCING FRESHWATER NEEDS IN A CHANGING ENVIRONMENT: SECOND MEETING OF COLLABORATIVE PARTICIPANTS

FULL WORKSHOP

WHERE: Guadalupe-Blanco River Authority - The River Annex
905 Nolan St., Seguin, TX 78155

WHEN: September 7th, 1:00 – 4:00 pm

SUMMARY WORKSHOP

WHERE: Bay Education Center
121 Seabreeze Dr., Rockport, TX 78382

WHEN: September 10th, 6:00 – 8:00 pm

Both meetings will (1) present a summary of an initial collaborative meeting held in May, (2) report current research efforts, (3) provide information on next steps, and (4) begin developing a model of the Mission-Aransas Estuary that participants can eventually use to improve freshwater inflow management.

WHO IS INVITED?

This event is open to everyone. We especially encourage stakeholders from the agriculture, commercial fishing, and recreation industries, as well as local government, water resource agencies, scientists, and any interested citizens. Because the estuary covers such a large area, we are holding two sessions for the second meeting. Please attend whichever of the two is most convenient for you.

PLEASE RSVP TO RESERVE YOUR SPACE:
MissionAransas@gmail.com



Questions?

Kiersten Madden

Stewardship Coordinator

Mission-Aransas NERR

361-749-3047

kiersten.madden@utexas.edu

www.missionaransas.org

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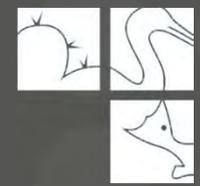
<http://www.youtube.com/watch?v=ep0239Qd0Xs&feature=youtu.be>



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Mission-Aransas National Estuarine Research Reserve

Brings together scientists, landowners, policy-makers, & the public to ensure that coastal management decisions benefit flora & fauna, water quality, and people.