THE WATER INSTITUTE
OF THE GULF

# WHO'S KEEPING SCORE? DEVELOPING A REPORT CARD FOR COASTAL LOUISIANA

Ann Commagere Hijuelos, Denise Reed, Nick Speyrer

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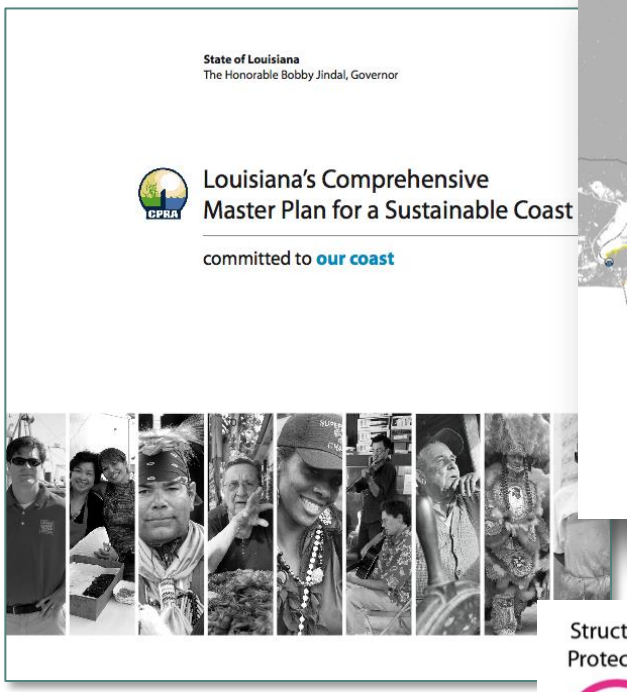
# ACKNOWLEDGEMENTS


- **Coastal Protection and Restoration Authority**
  - Andrea Galinski, Natalie Peyronnin, Carol Parsons Richards, Rick Raynie
- **University of Maryland Center for Environmental Science**
  - Bill Dennison
- **The Water Institute**
  - Taylor Marshall

# TODAY'S TALK

- Setting the context for a coastal LA report card
- Fundamentals of report card development
- Development of a prototype and feedback received from focus groups

# LOUISIANA'S 2012 COASTAL MASTER PLAN

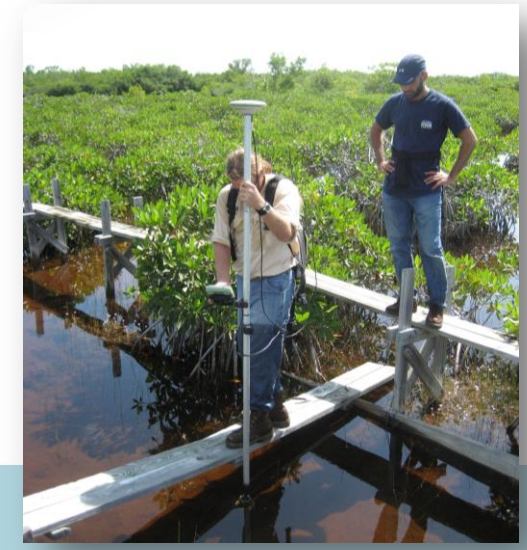


# FUNDAMENTALS OF REPORT CARD DEVELOPMENT

- Establish the need, purpose, and audience(s)
- Identify performance measures
- Consider monitoring design
- Assess performance
  - Identifying targets and thresholds
  - Assigning grades
  - Assessing spatial and temporal patterns and trends
- Develop communication strategy

# PURPOSE OF A COASTAL LOUISIANA REPORT CARD

- Provide scientific results in a concise and understandable way to decision makers;
- Inform the general public on the environmental and socio-economic condition of coastal Louisiana;
- Encourage active discussions amongst community leaders to prompt action and drive change in their communities.

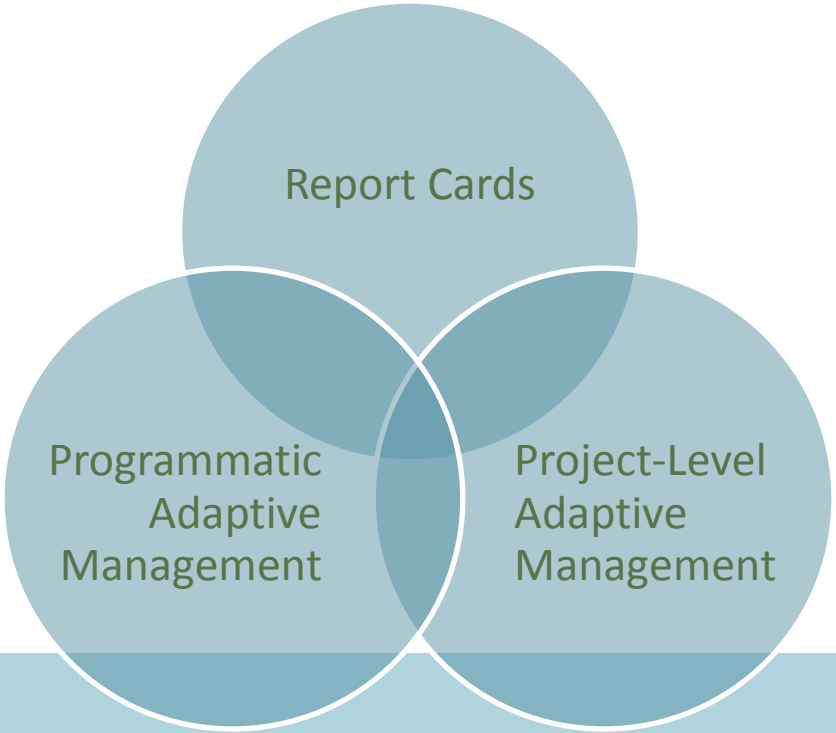


coastal.louisiana.gov

coastalmasterplan.louisiana.gov

# PERFORMANCE MEASURES

- Quantifiable attributes of the system used to assess project or program performance, track progress towards meeting goals and objectives, and/or communicate scientific information to policy-makers, scientists, and the general public.



# PERFORMANCE MEASURES FOR LOUISIANA

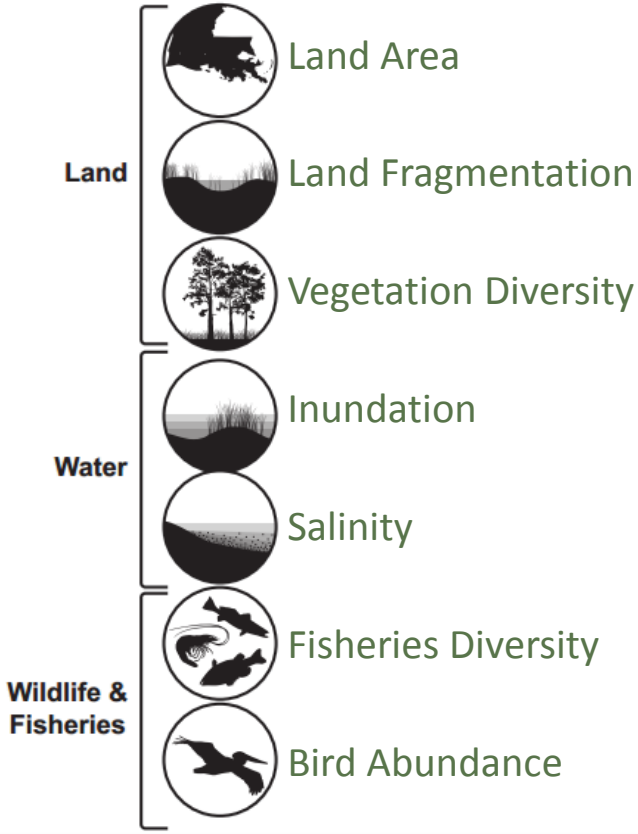
- Two workshops with local experts: natural and built system
  - 40+ ecological/environmental measures
    - Land quantity, landscape quality, geophysical processes, water

http://thewaterinstitute.org/products/plans-reports

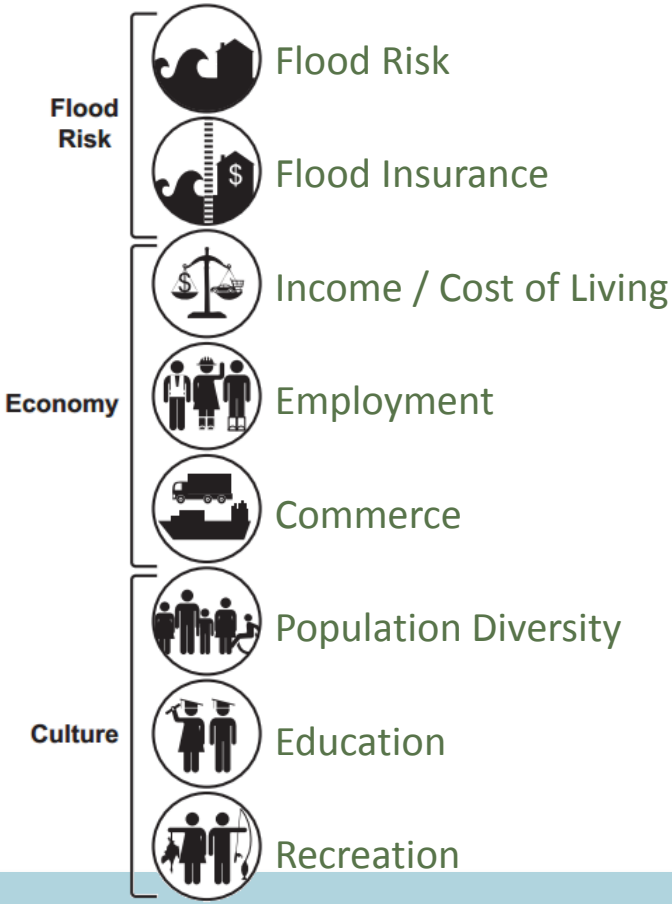
  - 50+ socio-economic measures
    - Resilient community, quality of life, robust and resilient economy, reduced flooding and damages

# PERFORMANCE MEASURES FOR REPORT CARDS

## Landscapes




## Communities



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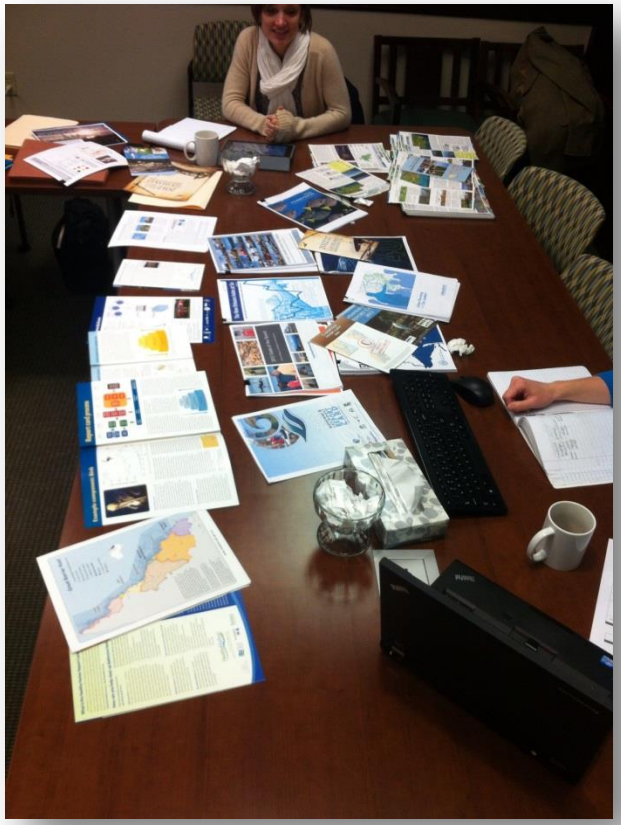
# DEVELOPMENT OF A PROTOTYPE AND FEEDBACK RECEIVED FROM FOCUS GROUPS

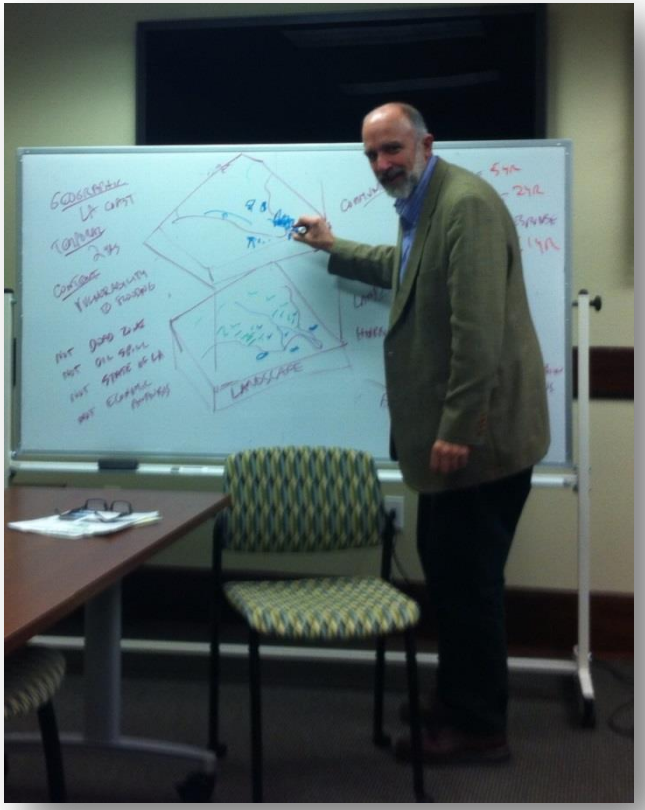
# LOCAL EFFORTS

# NATIONAL EFFORTS

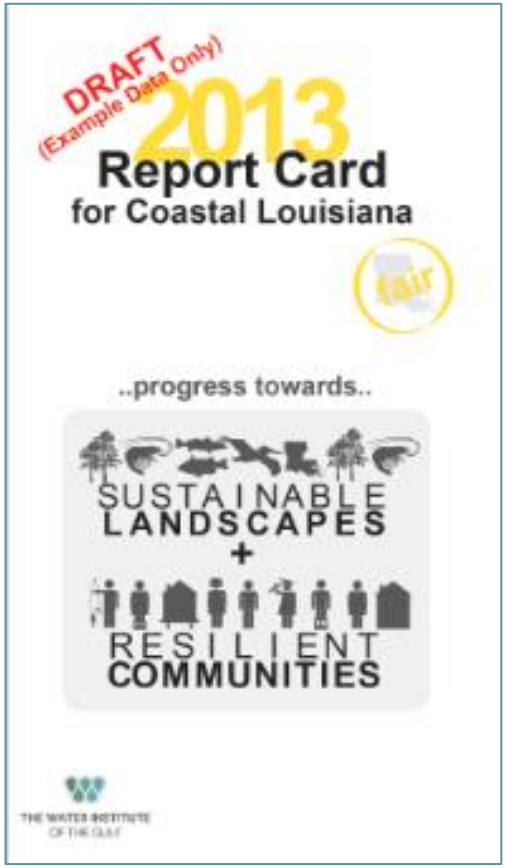
and many more…

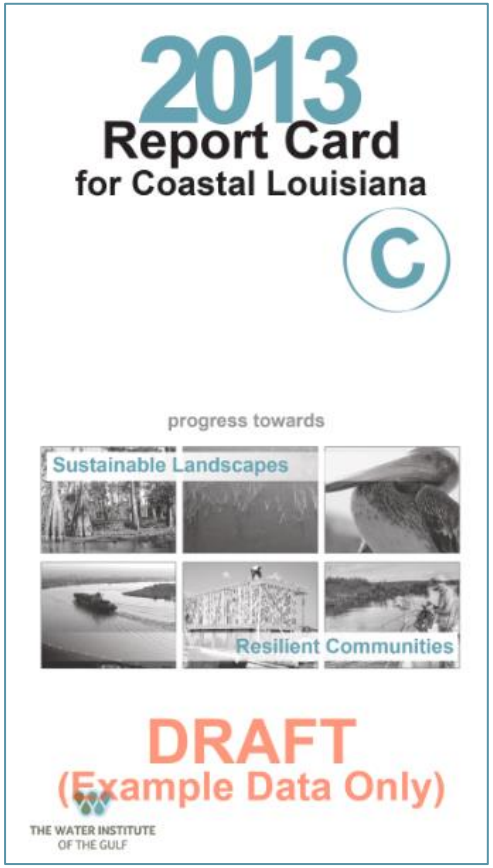
# A REPORT CARD FOR COASTAL LOUISIANA



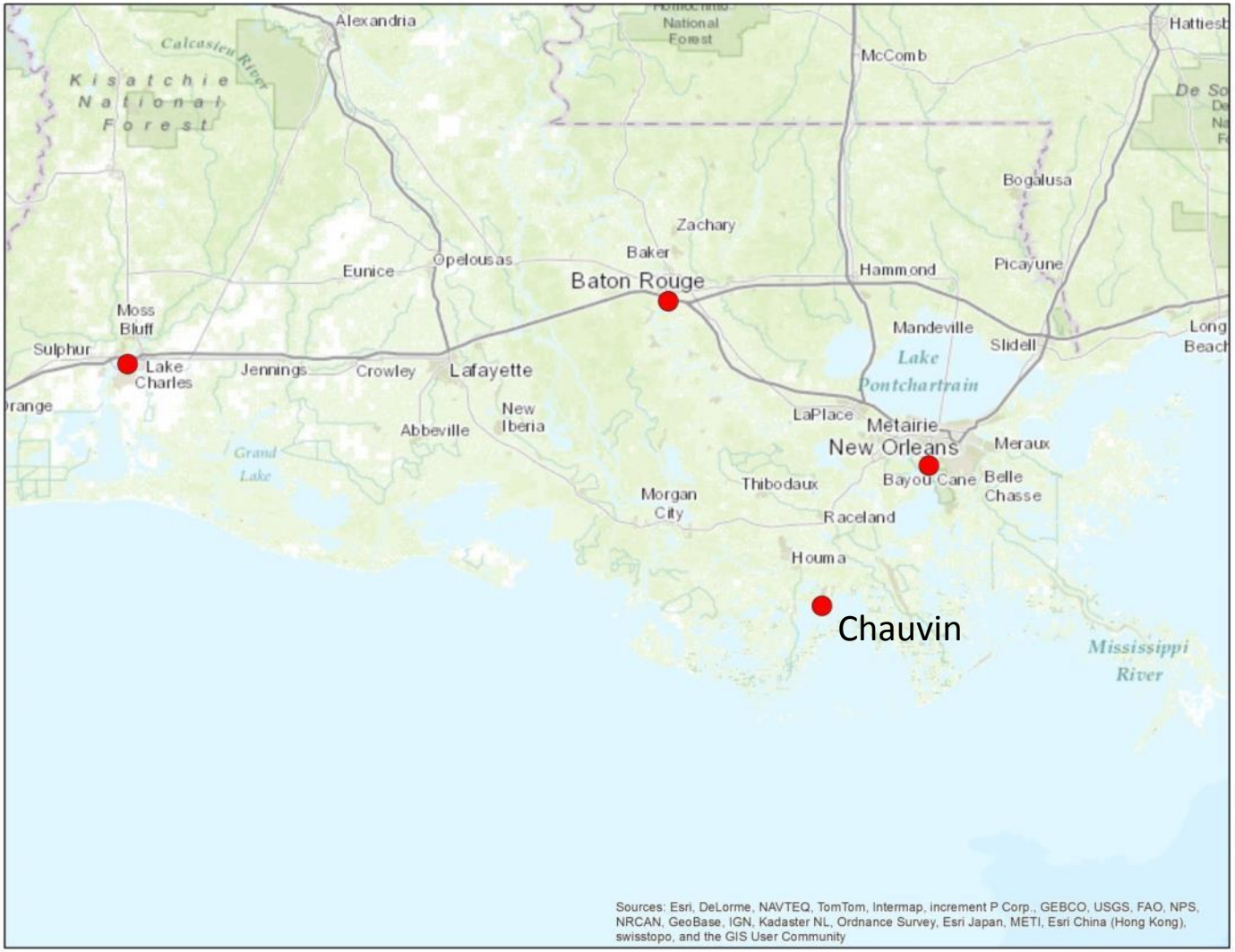


# REPORT CARD PROTOTYPES



# TESTING PROTOTYPES AT FOCUS GROUPS



# PURPOSE OF FOCUS GROUPS

- Receive input and feedback on the prototypes
- Objectives:
  - Determine most effective way to present information
  - Collect feedback on the layout, aesthetics, and ease of understanding and interpreting the report card
  - Receive feedback on relevance of performance measures

# FOCUS GROUP

THE WATER INSTITUTE OF THE GULF

Questionnaire

REPORT CARD ONE:

1. What does this Report Card tell you?

2. How informative is this report card? Please rank on a scale of 1-4 (1 being uninformative and 4 being very informative)

   1 2 3 4

3. How clear is this report card? Please rank on a scale of 1-4 (1 being unclear and 4 being very clear)

   1 2 3 4

4. Are the performance measures chosen for **Sustainable Landscapes** understandable? Please rank on a scale of 1-4 (1 being not understandable and 4 being very understandable)

   1 2 3 4

5. Are the performance measures chosen for **Resilient Landscapes** understandable? Please rank on a scale of 1-4 (1 being not understandable and 4 being very understandable)

   1 2 3 4

6. Overall does this Report Card make sense to you?

REPORT CARD TWO:

1. Compared to Report Card One, what do you prefer about this Report Card, what do you dislike?

2. Is this Report Card easier to understand, or harder to understand?

3. Do you prefer this grading scheme? Does it make more sense to you?

4. Is the lay out of this Report Card more user friendly? Why or why not?

Additional comments or recommendations:

# FOCUS GROUPS: REPORT CARD PROTOTYPES

Which performance measures indicate a sustainable & resilient Louisiana coast?

## Sustainable Landscapes:

**Land**

- **Land Area** — Total area of natural landscape features including barrier islands, ridges, and wetlands in the coastal zone.
- **Land Fragmentation** — Indicates the amount of broken marsh or patchiness in the landscape.
- **Vegetation Diversity** — Variety and abundance of different vegetation types in the landscape.

**Water**

- **Inundation** — Frequency and duration of flooding of wetlands, coastal forests, and other natural landscapes.
- **Salinity** — Change in mean salinity levels over time.

**Wildlife & Fisheries**

- **Fisheries Diversity** — Variety and abundance of fish species.
- **Bird Abundance** — Variety and abundance of shorebirds, marsh birds, and waterfowl.

## Resilient Communities:

**Flood Risk**

- **Flood Risk** — Number of people and assets protected at 50 or 100 year flood levels.
- **Flood Insurance** — Number of insurers and number of policies; cost of flood insurance.

**Economy**

- **Income/ Cost of Living** — Ratio between income and costs associated with lifestyle expenditures such as housing, groceries, gas, and taxes.
- **Employment** — Total number of jobs and job growth reflect job security in a community.
- **Commerce** — Waterborne commerce, oil and gas, agriculture, and commercial fishing industries.

**Culture**

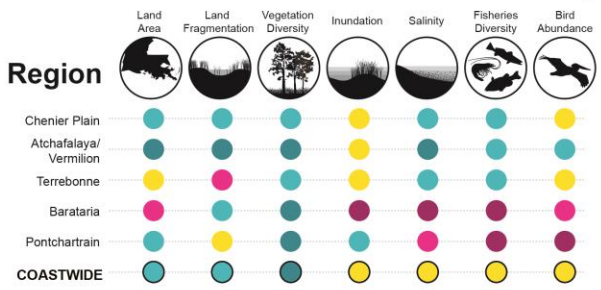
- **Population Diversity** — Number of individuals by age and cultural group.
- **Education** — The number of individuals with post-secondary education; educational opportunities in a community.
- **Recreation** — Hunting and fishing licenses; number of trails accessible by hikers, off-road vehicles, or bicycles.

## Sustainable Landscapes

Across the coast, landscapes were assessed a "Fair" grade for their overall sustainability, which continues the pattern from 2011. Some of the performance measures showed improvement, such as vegetation diversity, while others continue to decline. There were also distinct differences in the grades assigned to the regions.

- Barataria Region received the lowest grade, "Poor."
- The Chenier Plain and Vermillion-Atchafalaya Regions received "Good" scores.

This assessment reveals the dynamic nature of the coast and shows that not all areas will respond the same to changes in the environment. As a result, achieving sustainable landscapes will require targeted approaches to address the unique issues that face each region.




## Resilient Communities

Overall, coastal communities were assigned a "Fair" score, which is a slight decrease from a "Good" grade in 2011. The performance measures reveal a wide range of scores and also show distinct differences among the various parishes.

- Employment and commerce scored highest in most parishes, indicating the economy has remained relatively robust and commerce is still very strong along the coast.
- Flood risk and cost of living received some of the lowest scores among parishes, but averaged to a "Fair" score coast-wide.
- Cultural performance measures (population diversity, education, and recreation) have decreased slightly from 2011 also resulting in a coast-wide "Fair" grade.

Progress towards achieving resilient communities has slowed slightly relative to 2011, but with both local and the combined efforts of parishes working together, Louisiana can achieve a resilient coast.

**Grading**

| Very Good | Good | Fair | Poor | Very Poor |
|---|---|---|---|---|

DRAFT
(Example Data Only)

# FOCUS GROUPS: REPORT CARD PROTOTYPES

**Performance Measures** We used these performance measures to indicate a sustainable & resilient Louisiana coast.

## Sustainable Landscapes

### Land

**Land Area**
Total area of natural landscape features including barrier islands, ridges, and wetlands in the coastal zone.

**Land Fragmentation**
Amount of patchiness and deterioration in wetlands.

**Vegetation Diversity**
Variety and abundance of plants.

### Water

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**Salinity**
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### Wildlife/ Fisheries

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2009 D | 2011 C | 2013 C

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## Region

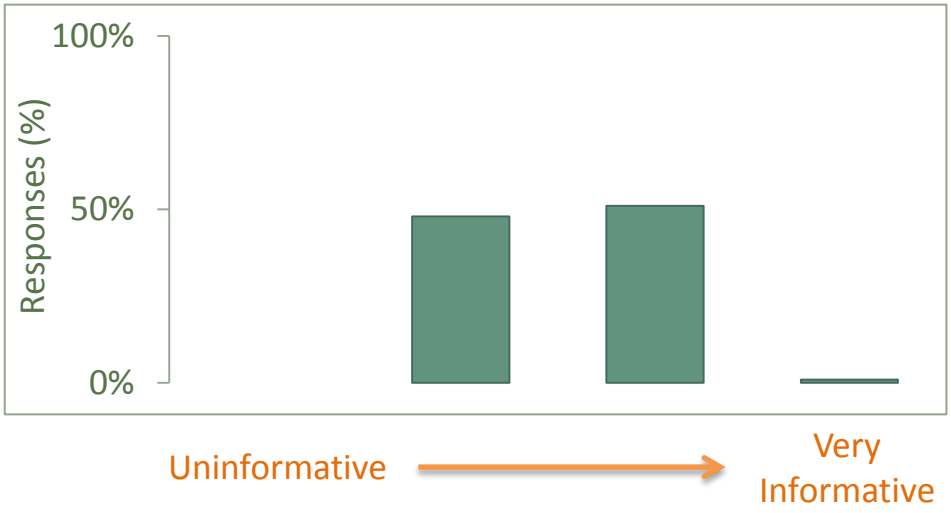
| | Chenier Plain | Atchafalaya/ Vermilion | Terrebonne | Barataria | Pontchartrain | COASTWIDE |
|---|---|---|---|---|---|---|
| Land Area | B | A | C | D | B | B |
| Land Fragmentation | B | A | D | B | C | B |
| Vegetation Diversity | B | A | B | A | A | A |
| Inundation | C | C | C | F | B | C |
| Salinity | B | A | B | F | D | C |
| Fisheries Diversity | B | B | B | F | F | C |
| Bird Abundance | C | B | C | D | F | C |
| Overall Sustainability | B | B | C | D | C | C |

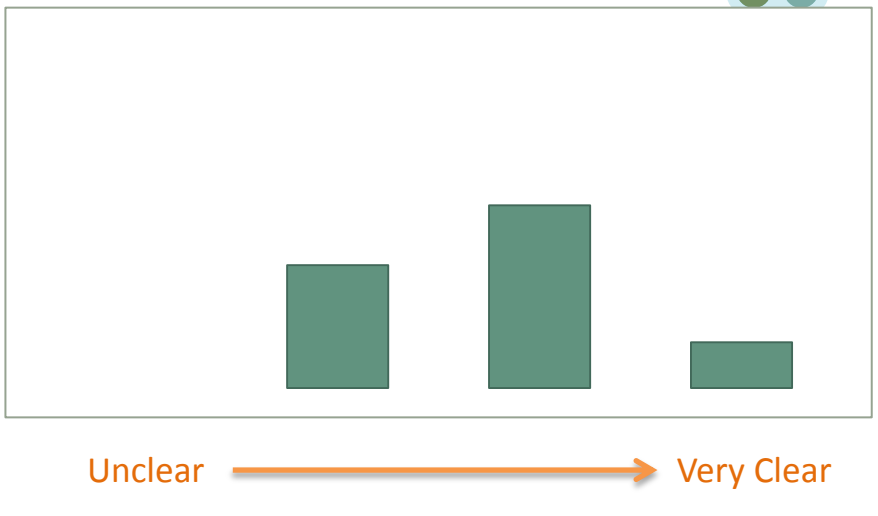
## Parish

| | Ascension | Assumption | Calcasieu | Cameron | Iberia | Jefferson | LaFourche | Livingston | Orleans | Plaquemines | St Bernard | St Charles | St James | St John the Baptist | St Martin | St Mary | St Tammany | Tangipahoa | Terrebonne | Vermilion | COASTWIDE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flood Risk | F | C | B | D | B | F | F | C | D | C | A | C | C | B | D | D | D | D | B | A | C |
| Flood Insurance | D | A | F | B | D | A | B | D | A | D | A | A | A | A | C | C | D | F | B | B | C |
| Income/ Cost of Living | F | D | D | B | A | C | D | F | B | A | F | D | A | D | D | A | C | D | F | D | C |
| Employment | C | B | A | A | C | F | B | B | C | A | B | B | B | C | F | F | A | A | A | D | B |
| Commerce | B | A | A | A | C | A | A | B | C | A | A | A | A | A | C | C | C | B | F | B | B |
| Population Diversity | B | F | F | B | A | F | B | C | A | D | C | B | F | B | D | D | C | A | F | C | C |
| Education | C | D | A | D | F | C | A | C | B | F | A | F | D | A | A | D | F | D | A | A | C |
| Recreation | C | C | B | C | B | A | B | D | D | D | D | C | C | A | B | B | A | C | A | C | C |
| Overall Resiliency | C | C | C | B | C | C | B | C | B | C | B | C | B | B | C | C | C | C | C | B | C |

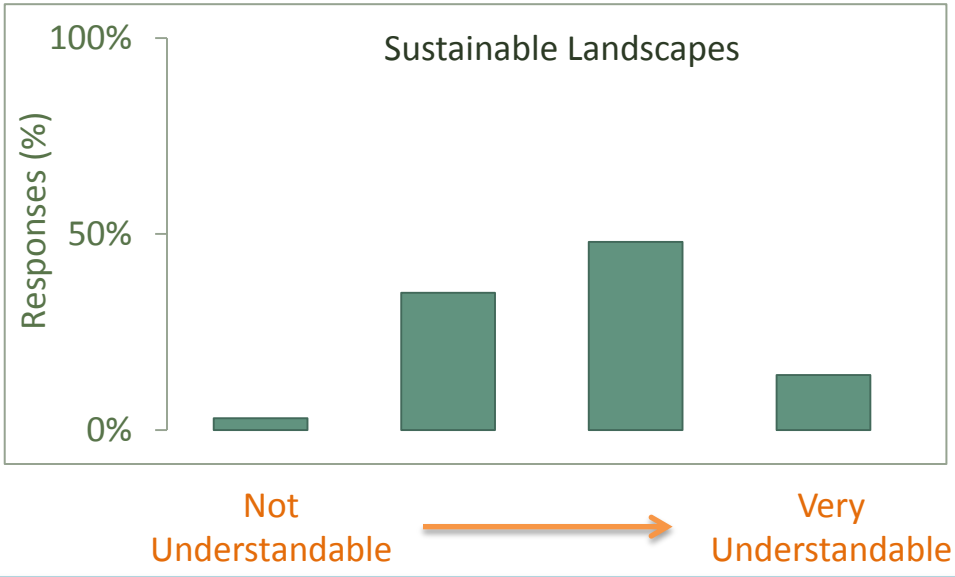
DRAFT (Example Data Only)

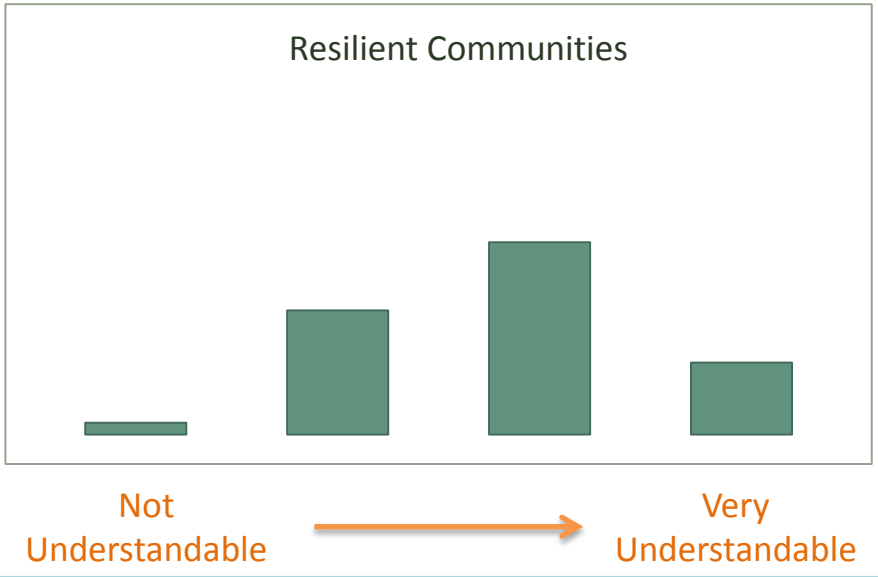
# Overall Report Card




# Performance Measures



# COMMON FEEDBACK

- AUDIENCE:
  - Who is this report card intended to influence?
- INTENDED ACTION:
  - More information on “call to action” or next steps.
- OVERALL:
  - “Reporting out” versus a graded Report Card
  - Impact of Report Cards on communities
- PERFORMANCE MEASURES:
  - How are the Performance Measures graded?
  - What direction is the grade moving towards?
  - What is the link between Sustainable Landscapes and Resilient Communities?

# AUDIENCE SPECIFIC FEEDBACK

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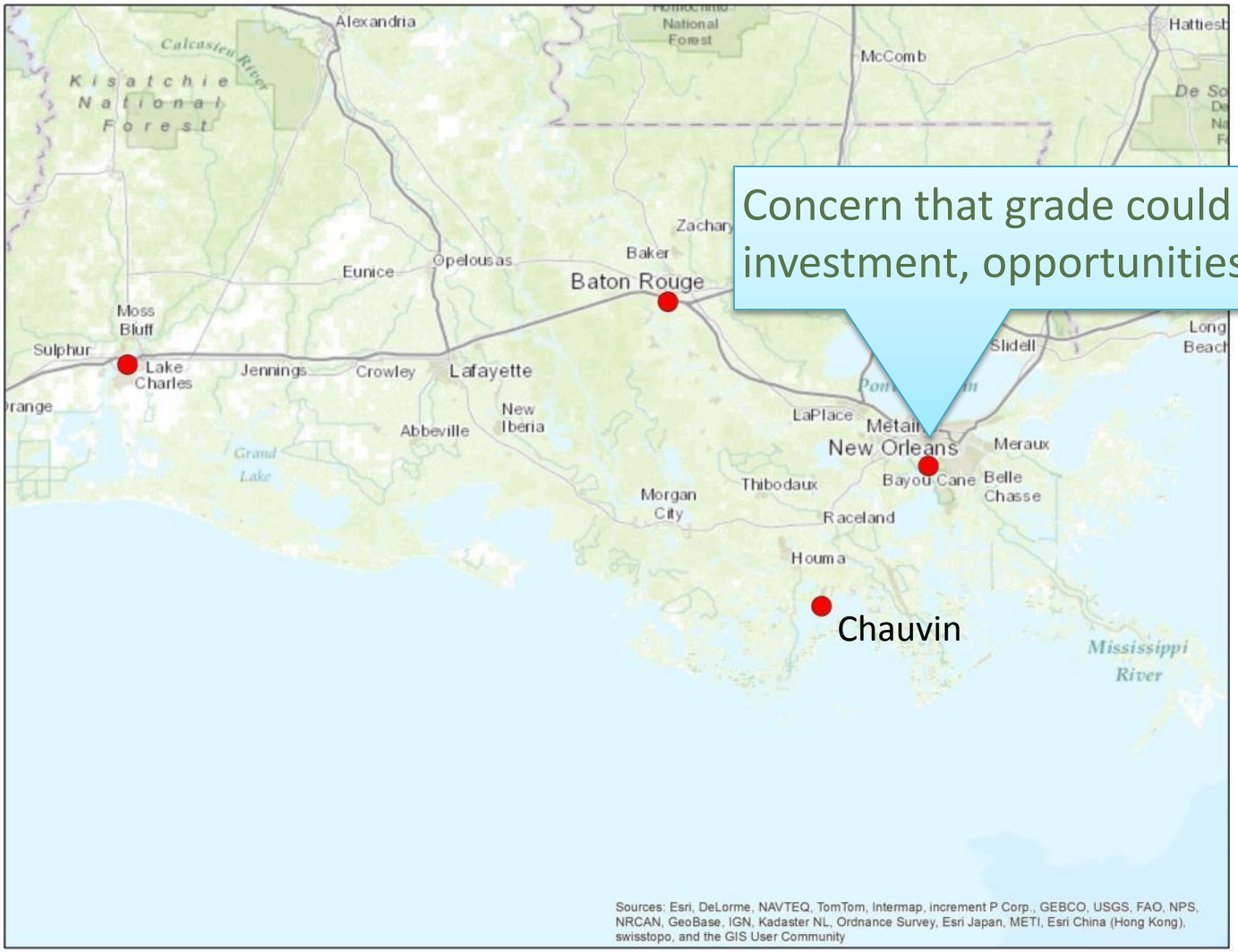
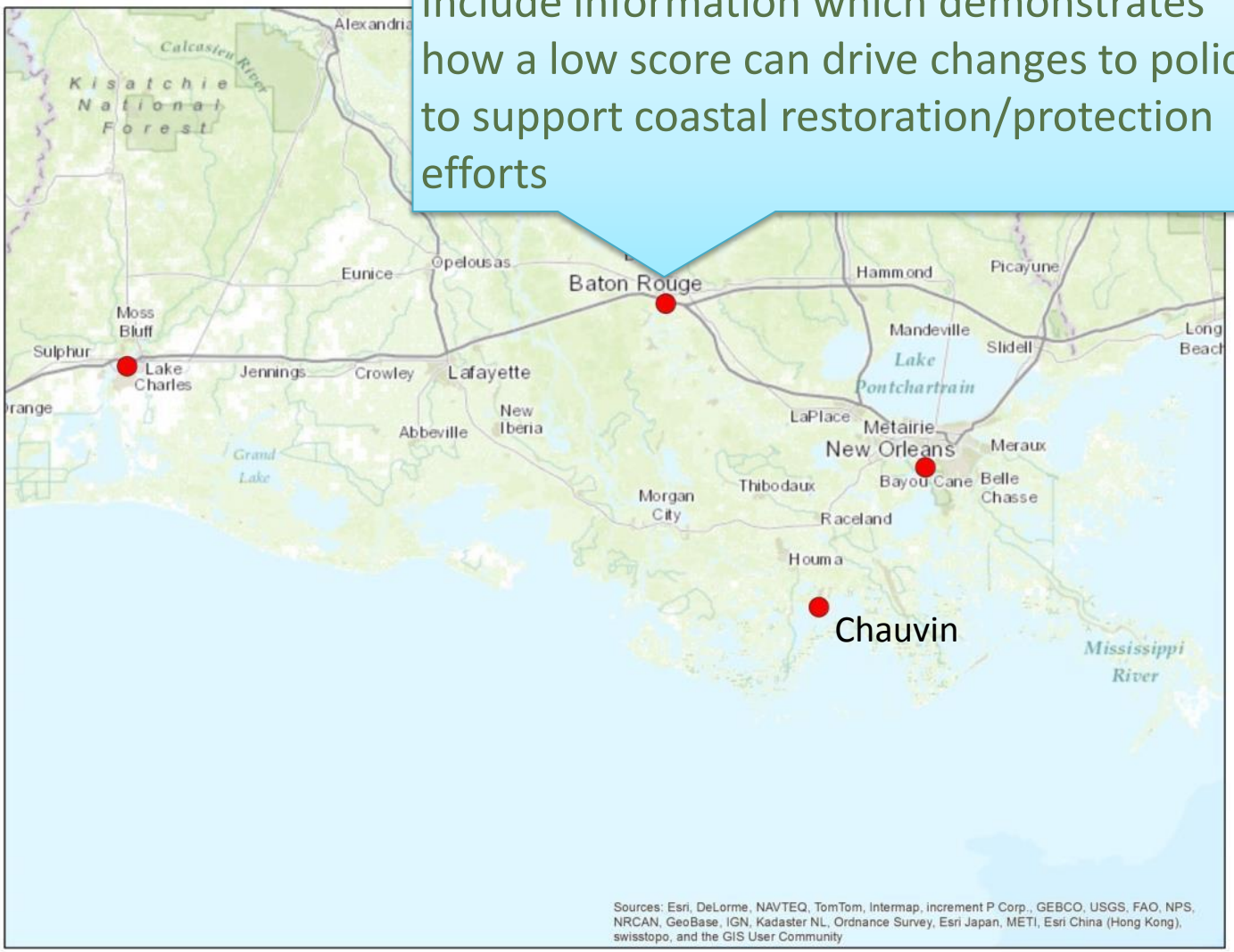


# AUDIENCE SPECIFIC FEEDBACK

Include information which demonstrates how a low score can drive changes to policy to support coastal restoration/protection efforts



# AUDIENCE SPECIFIC FEEDBACK

# REPORT CARD DEVELOPMENT PATH FORWARD

- Evaluate preliminary set of performance measures for use in the report card
- Review current data collection efforts to assess if data is available to generate the performance measures.  Work with the data providers to access data.
- Development of points of reference: targets, thresholds and programmatic triggers
- Define reporting regions
- Define report card cycle

# STAY TUNED…

# MONITORING CONSIDERATIONS

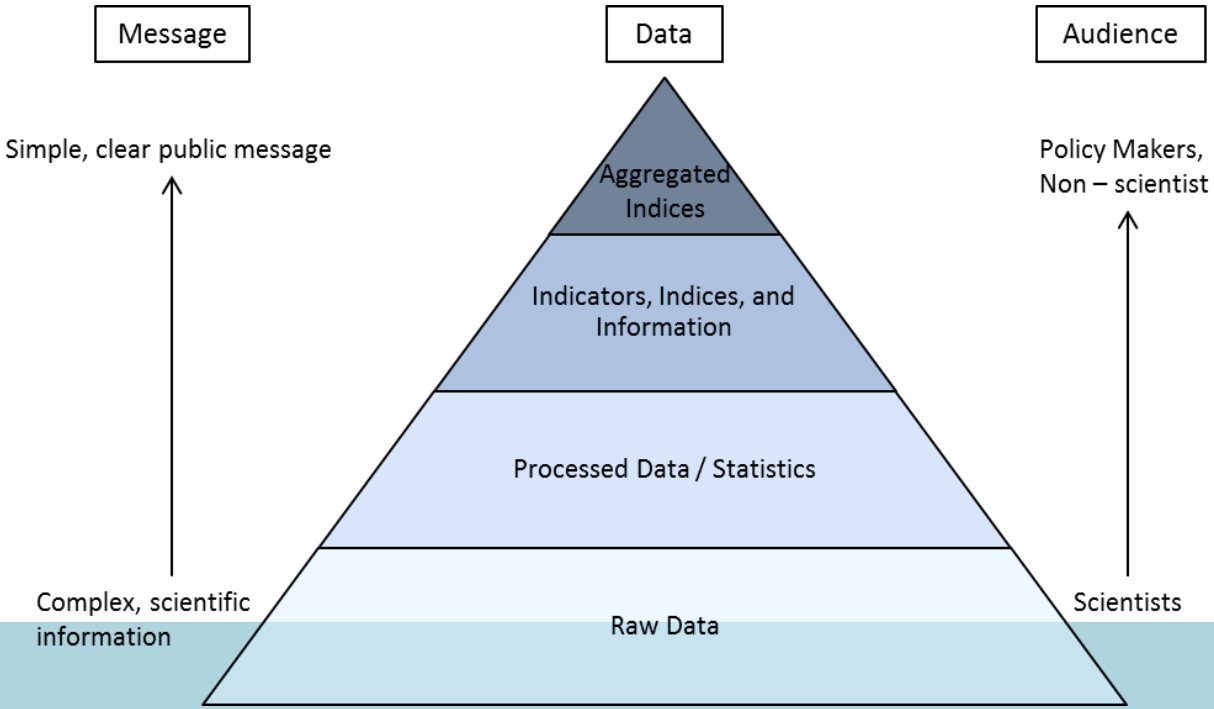
- Consider the underlying monitoring data:
  - data collection methodology,
  - logistical and monetary requirements for collecting data,
  - management of data including processing, analysis, storage and retrieval,
  - quality assurance for accurate interpretation of results, and
- Need a statistically robust monitoring design in order to detect change
- Data should be available on a time frame that allows for near-term reporting

# PERFORMANCE ASSESSMENT

- Identify targets and thresholds:
  - Long-term datasets from reference conditions or comparative systems
  - Quantitative benchmark from model predictions
  - Baseline measurement
- Assign Grades:
  - Based off of frequencies of stations meeting desired thresholds for each data type
  - Relative ranking of scores
  - Statistical procedures that characterize background variability (model-based assessment)
- Validation procedures should be employed to determine robustness of grading thresholds

# PERFORMANCE ASSESSMENT

- Detecting spatial and temporal patterns can be done using
  - Trend analysis
  - Geographic Information Systems to integrate multiple data sources to perform spatial statistics
- Statistical assumptions are important and should be considered prior to conducting any analysis or modeling procedures

# COMMUNICATION STRATEGY

- A successful communication strategy identifies:
  - Key messages to be conveyed,
  - Targeted audience,
  - Spokesperson to deliver message,
  - Medium(s) to disseminate the information.