

# San Diego Regional SLR & Coastal Impacts Planning Workshop

## “Adaptive” Adaptation: A Sea Level Rise Planning Process

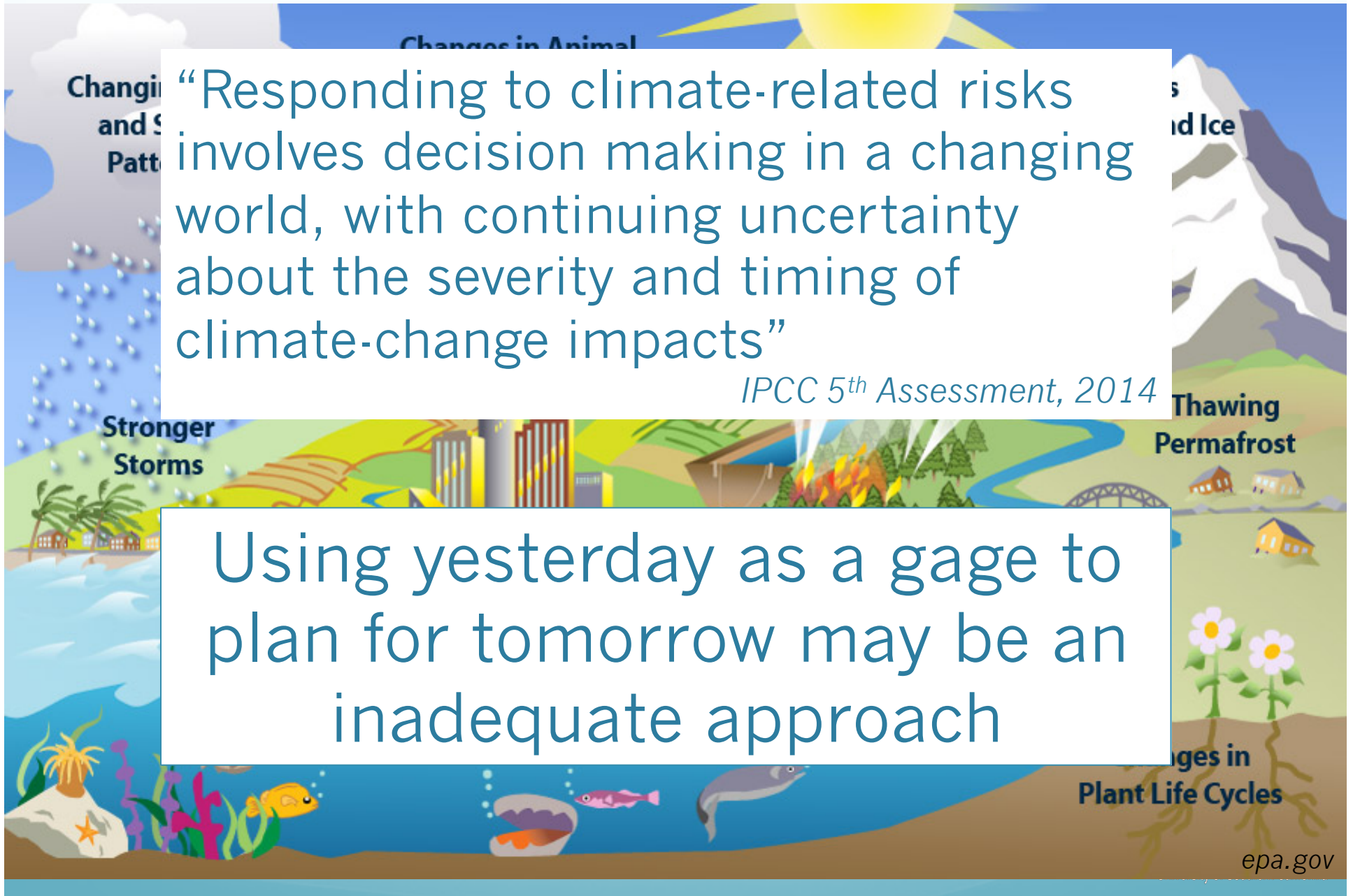
Alyssa Newton Mann  
Phyllis Grifman & Juliette Hart

How is Climate Change changing the way we plan?

“Responding to climate-related risks involves decision making in a changing world, with continuing uncertainty about the severity and timing of climate-change impacts”

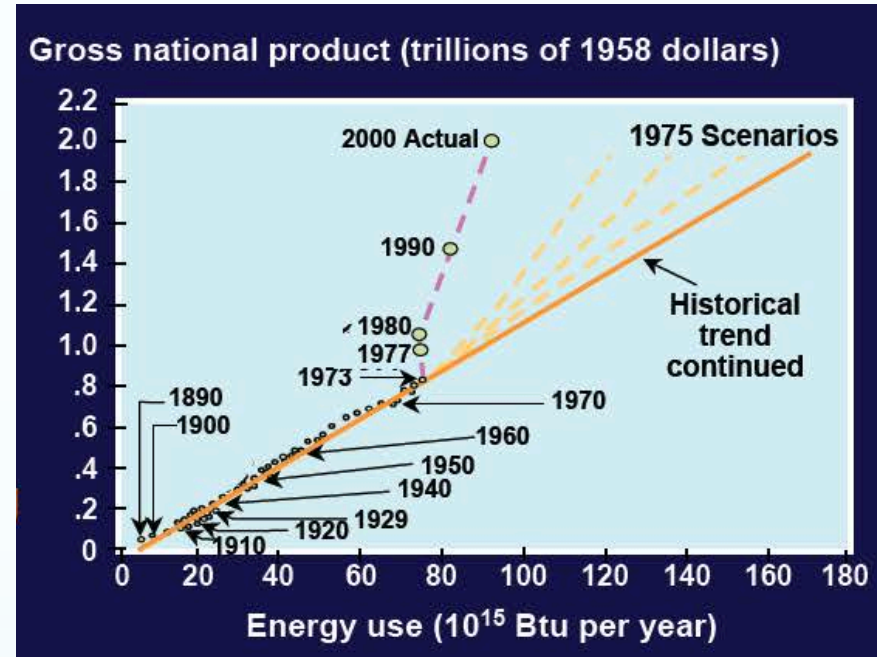
*IPCC 5<sup>th</sup> Assessment, 2014*

Using yesterday as a gage to plan for tomorrow may be an inadequate approach



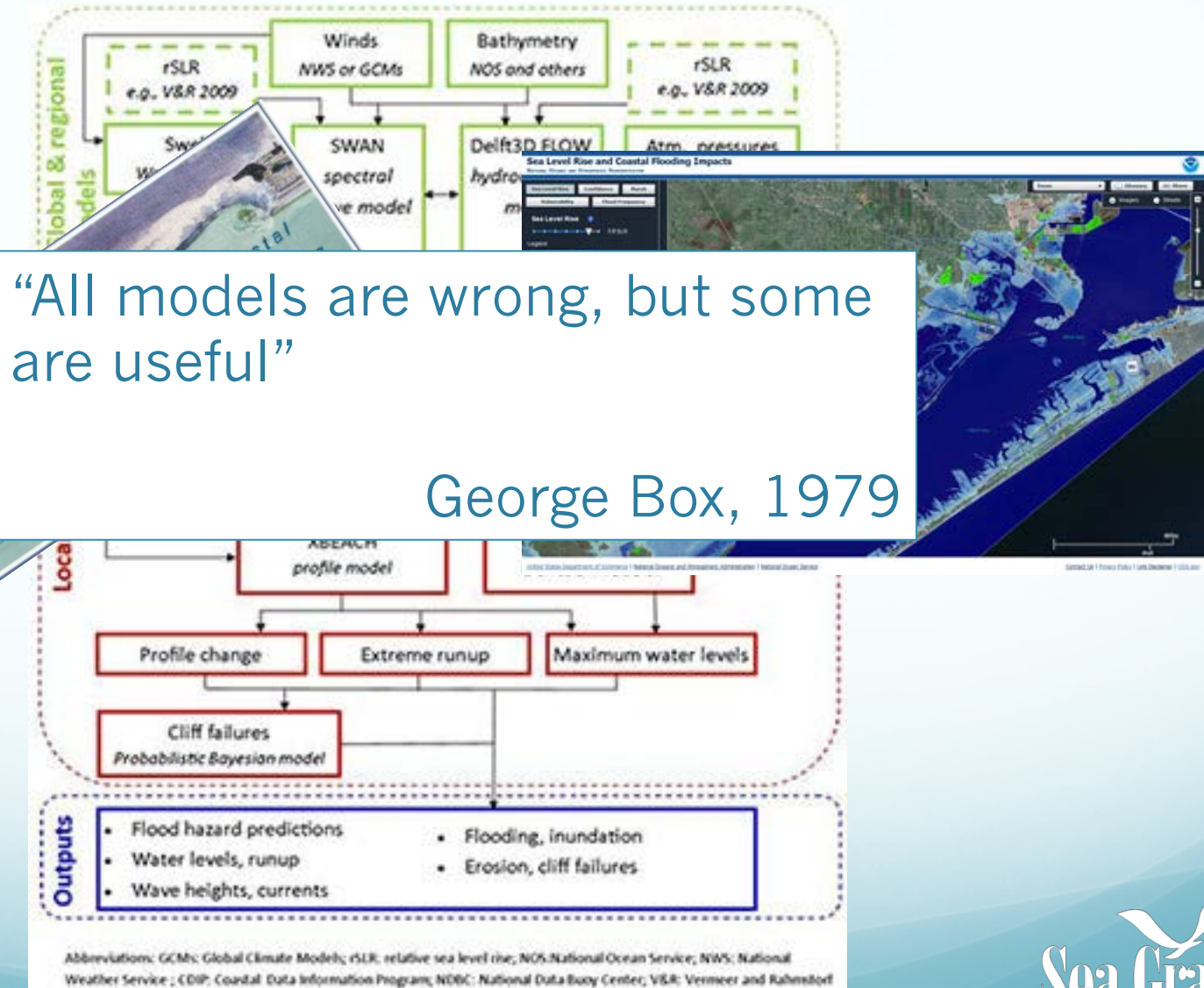
# Problems can arise when....

- Uncertainties are underestimated
- Stakeholders or experts don't agree = gridlock
- Misplaced confidence -- Blind to surprises



*R. Lempert, 2011*

# Without this to guide our planning?



“All models are wrong, but some are useful”

George Box, 1979



## Getting passed “analysis paralysis”

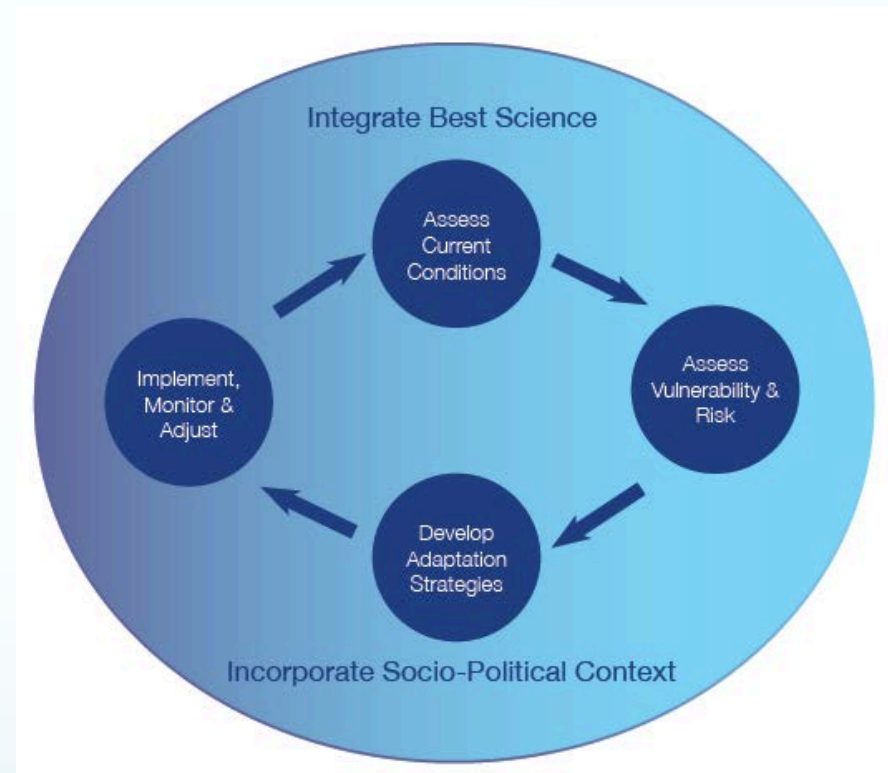
I THOUGHT I WAS  
INTERESTED IN UNCERTAINTY  
BUT NOW I'M NOT SO SURE



**Adaptive Adaptation!**

# “Adaptive” adaptation planning

- Iterative process
- Science is ever-evolving
- Plan for range of scenarios
  - Scenario-planning
  - Robust decision-making
  - Adaptive management



The solution involves rethinking how we use uncertain and evolving information in our planning!

# “Adaptive” adaptation planning

“When the future proves hard to predict, plans ought to be flexible and robust.”

J. Rosenhead, 1989

Adaptive plans are “designed to respond over time to new information and perform well over a wide range of future scenarios”

R. Lempert, 2003

# How can this work in practice?

- Productive relationships between scientists and decision-makers
- Iterative assessments of vulnerability and risk, incorporating the best available science
- Embracing uncertainty by developing a range of possible outcomes
- Planned re-evaluation of policies and monitoring
- A systematic process for acquiring new information
- Flexible language in planning documents



# Engaging the wide range of local stakeholders



NGOs  
Academia  
Educators  
Museums, Aquariums  
Community Organizations  
Professional Associations  
Regional Organizations  
MPOs, JPAs, COGs  
Neighborhood Councils  
Social Justice Organizations  
State Agencies  
Federal Agencies

Political Leaders  
City Councils  
Emergency Managers  
Private Industry  
Consultants  
Public Utilities  
Public Works  
Wastewater Treatment  
Harbor Depts  
Sustainability Depts  
Planning Depts  
Park Managers

# Precedence for Adaptive Adaptation

Draft *Sea Level Rise Policy Guidance*, California Coastal Commission, 2013

“If the likelihood of impacts is expected to

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*include design flexibility  
that will allow future project  
changes or modifications*

amount of sea-level rise used in the design is not sufficient.”

# Precedence for Adaptive Adaptation

Draft *Sea Level Rise Policy Guidance*, California Coastal Commission, 2013

“Develop a monitoring program [that]

*Flexible monitoring with various triggers or change points*

before the end of the expected life of the development.”

# King County, Washington

- Washington State Law (Growth Management Act) requires counties and cities to use the best available science in planning

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[RCWs](#) > [Title 36](#) > [Chapter 36.70A](#) > [Section 36.70A.172](#) [Print Version](#) | *[No disponible en esp]*

[36.70A.171](#) <

**RCW 36.70A.172**  
**Critical areas**

(1) In designating critical areas, local governments shall adopt regulations to protect the functions and values of critical areas which include frequently flooded areas.

...policies and development or protection measures

# King County, Washington

- The Environment Chapter of the King County Comprehensive Plan also addresses the use of Best Available Science, which includes climate change policies

Climate Change & Biodiversity section:

*“King County should evaluate a range of projected future climate scenarios based on best available science to help ensure that conservation efforts are able to meet their objectives in a changing climate.”*



# King County, Washington

- King County Code has language *how* and *when* the Comprehensive plan is updated and development regulations are implemented. This enables the County to adopt updated technical information and hazard designations outside of the 4-year Comprehensive Plan update cycle.

## **20.18.030 General procedures.**

B. Every year the Comprehensive Plan may be amended to address technical updates and corrections, and to consider amendments that do not require substantive changes to policy language, changes to the priority areas map, or changes to the urban growth area boundary, except as permitted in subsection B.5, 10. and 12. of this section. This review may be referred to as the annual cycle. The Comprehensive Plan, including subarea plans, may be amended in the annual cycle only to consider the following:

1. Technical amendments to policy, text, maps or shoreline designations;

# Florida Adaptation Planning

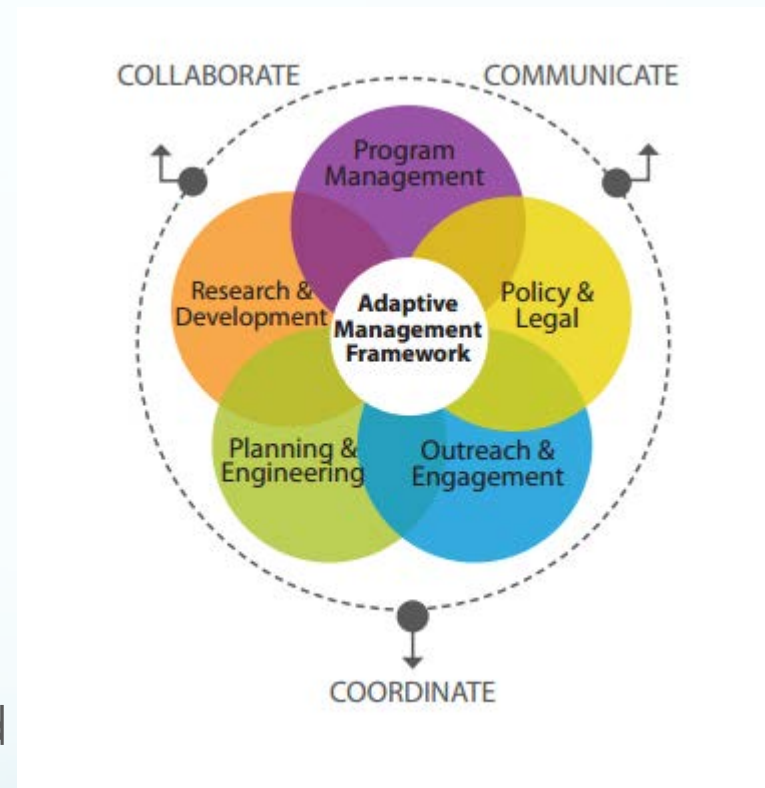
- City of Punta Gorda Adaptation Plan
  - Plan is a *living document*, one that allows for relatively easy revisiting and updating in response to changing conditions and lessons learned from monitoring and evaluation of results
  - Update as information changes regarding vulnerability, uncertainty, management priorities, technology, adaptation methods and costs.
- City of Satellite Beach, Florida SLR Adaptation planning
  - City is using adaptive management in their response to SLR threats
  - Overall plan and specific actions are monitored and adjusted as outcomes from management actions and new scientific information becomes available.
  - Beginning with low regrets strategies with high uncertainty, and plan to implement more robust plans as uncertainty diminishes.

# Solana Beach Local Coastal Program

- LCP adopted Feb 2013, amended June 2014
- High erosion rates
- Goals/Policies:
  - Acknowledging changing nature of the shoreline and development shouldn't be considered permanent
  - Prioritize monitoring of SLR – both short-term for permitting and long-term to respond to potential development policies
  - Inventory of available studies on coastal processes to help fill information gaps
  - Re-evaluate erosion rate every 10 years or more often if physical condition warrant – i.e. climate change / SLR

# Louisiana Comprehensive Master Plan for a Sustainable Coast

“To accommodate the dynamic nature of coastal processes, reducing flood risks and the restoration of coastal Louisiana is an evolving process. The master plan should lay the groundwork for an effective monitoring and evaluation process that seeks to reduce scientific and engineering uncertainty, assesses the success of the plan, and supports the adaptive management program. The plan will be revisited regularly...and will also be refined as necessary to respond to changing economic, social, environmental, and climatic conditions.”



# City of Imperial Beach

- SLR Vulnerability Assessment & Adaptation Planning
- “Adaptive approach” for study and planning
  - Will use best available science for vulnerability assessment
  - Will use CoSMoS 3.0 for adaptation strategy development (or earlier if available)





Thank you and questions?

