

# Coastal Impacts Planning for the Southern California Coast

Alyssa Newton Mann  
Phyllis Grifman & Juliette Hart

Restoring America's Estuaries  
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# USC Sea Grant – The Urban Ocean Program



## 10 Million by the Sea...

- Climate Change Science & Planning
- Coastal Ecosystem Science

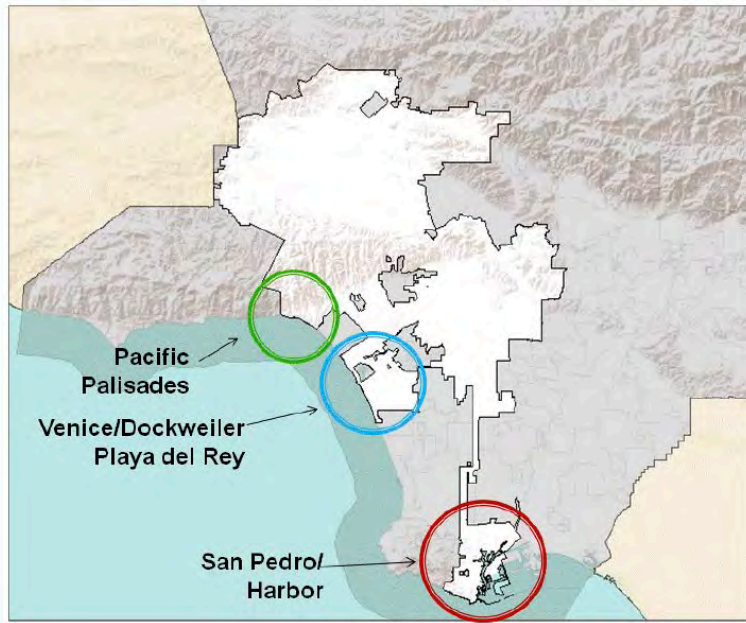
## USC SG Provides

- Fund Research
- Community Outreach & Education
- Technical assistance to local/regional government

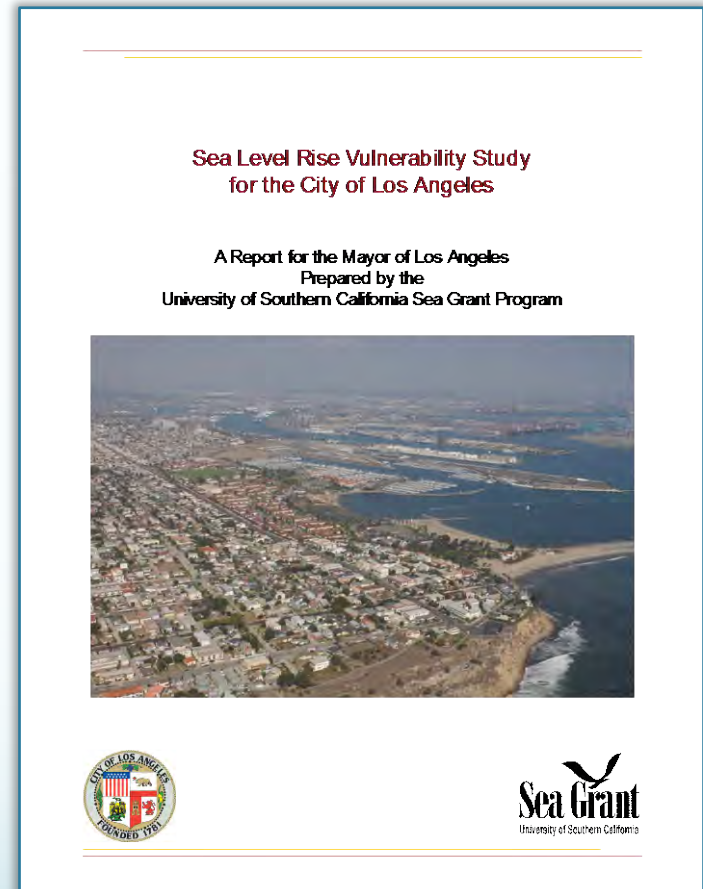


- Coastal Management
- Maritime Affairs

# AdaptLA: SLR Vulnerability Assessment for the City of L.A.



- Assessed physical, economic, social and ecological vulnerabilities

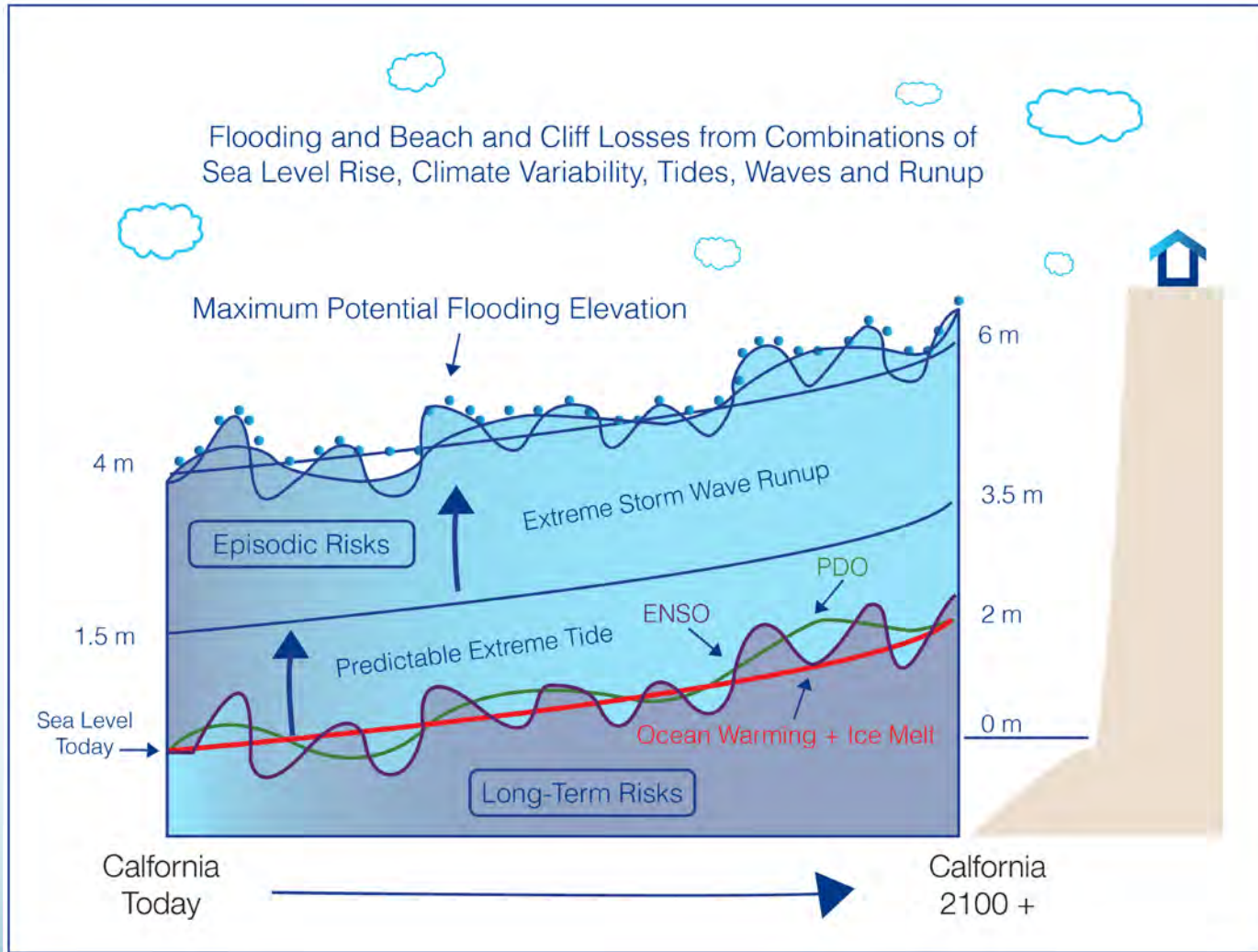


# Beyond SLR...



Hurricane Marie  
September 2014

# Coastal Storms



Source: Bill O'Reilly, Scripps

# Coastal Storms Modeling System (CoSMoS 1.0 and 2.0)



- Dr. Patrick Barnard & colleagues, USGS
- Pilot Study 1.0 (2010)
  - Hindcasts Jan. 2010 storm (~10 yr storm)
  - Forecasts 100 yr storm @ current, 0.5 m & 1.4 m SLR
- 2.0 for SF Bay and Outer coast
  - Driven by GCMs & SWAM wave model
  - 40 SLR and storm scenarios
  - Flood depth, extent, duration
  - Wave heights & velocities

# CoSMoS 3.0 – Southern California



- CoSMoS 2.0 + shoreline change modeling
- Point Conception to Border
- Outputs on decision support tool
  - 100 yr + multiple SLR – Sep. 2015
  - Full suite of storms/SLR scenarios – June 2016
- Funding from CA State Coastal Conservancy & Ocean Protection Council

# An embarrassment of riches...

## CA-based tools

- CoSMoS & OCOF
- Coastal Resilience Ventura (The Nature Conservancy)
- Pacific Institute SLR Report
- Many, many academic- & consultant-led modeling efforts

## National tools

- NOAA Sea Level Rise Viewer
- Climate Central's Surging Seas 2.0



# Regional AdaptLA: Coastal Impacts Planning for L.A. County

- “Best of the best” models
  - CoSMoS 3.0
  - TerraCosta Consulting Group
  - ESA/Revell Coastal
- Stakeholder Engagement and Outreach
  - Trainings/Workshops
  - Webinar series (available to you too!)
  - Public Education



# Getting passed “analysis paralysis”

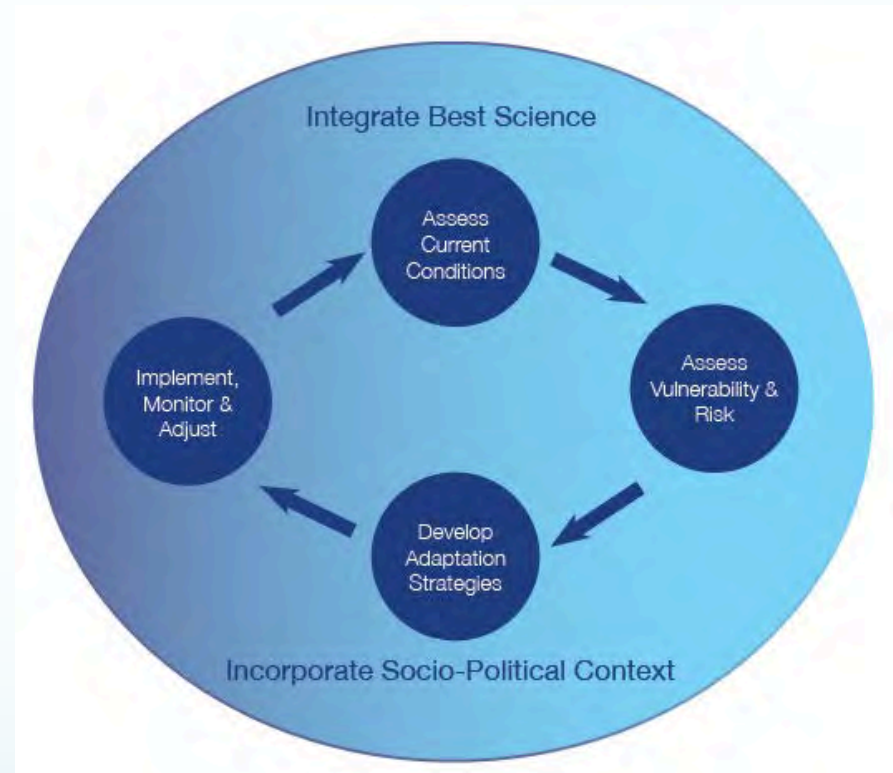
I THOUGHT I WAS  
INTERESTED IN UNCERTAINTY  
BUT NOW I'M NOT SO SURE



JUSTIN

# “Adaptive” adaptation planning

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



# 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

# 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?



Alyssa Newton Mann | [agnewton@usc.edu](mailto:agnewton@usc.edu)  
Website: [dornsife.usc.edu/uscseagrant](http://dornsife.usc.edu/uscseagrant)