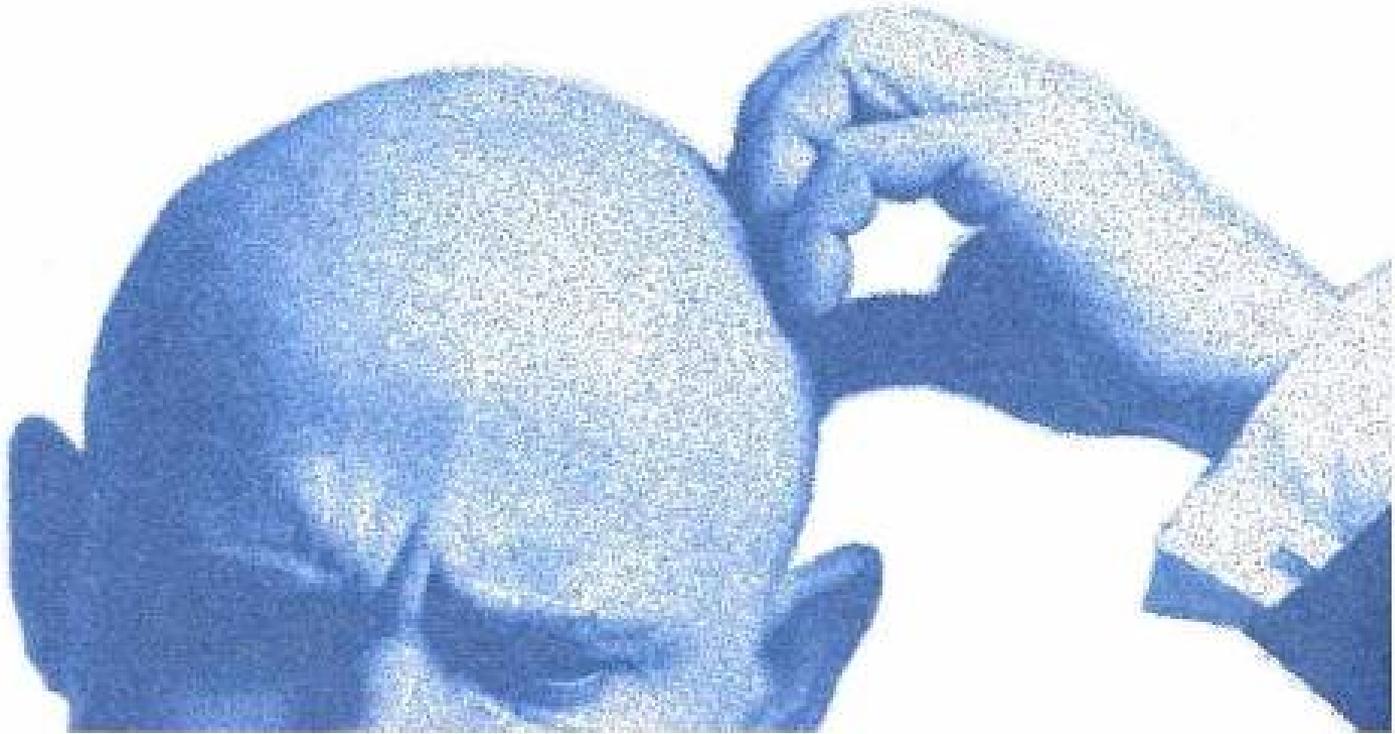


# Planning Under Uncertainty



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# Why Plan for Climate Change? The Evidence is Seen Everywhere

*Positive proof of global warming.*



**18th  
Century**

**1900**

**1950**

**1970**

**1980**

**1990**

**2006**

# Why Plan for Climate Change

- The climate is already changing
- We have already committed ourselves to additional climate changes due to the emissions of past greenhouse gases – even if we cut emissions by 100% we would still feel impacts – meaning that we will see heightened impacts
- Today’s choices will shape tomorrow’s vulnerabilities
- Significant time is required to motivate and develop adaptive capacity, and to implement changes.
- Proactive planning is often more effective and less costly than reactive planning, and can provide immediate benefits.



# Planning for Climate Change



# Dealing with Uncertainty

We rarely have perfect information. Uncertainty is everywhere.

- Should I buy earthquake insurance?
- Should I change jobs?
- How long will this recession last?

## “No regrets” strategies

*Address climate change projections in a manner that provides benefits now regardless of the future impacts. Focus on existing weather-related problems and flexible actions.*

## “Low regrets” strategies

*Address climate change projections in a manner that creates greater climate resilience at little additional cost or risk*

## “Win-win” or “Co-benefit” strategies

*Reduce climate change impacts while providing other environmental, social, or economic benefits*



# Examples from on the Ground...



# Adaptation in Keene, NH

- One of the first communities in the country to undertake adaptation planning
- Full Planning Process – looking holistically at climate impacts and vulnerabilities – integrated into Comprehensive Plan
- Member of ICLEI’s CRC Pilot
- Established Committee of Department Heads to go through process
- Used a ‘climate lens’ to evaluate impacts on an internal operations basis first



# Planning for Water Impacts in Fort Collins

- Pilot community in ICLEI's Climate Resilient Communities program
- Effort spearheaded by Fort Collins Utilities
- Internal operations focused
- Focus on water supply and water quality as entry point to adaptation planning
- Now revisiting other vulnerabilities



# Adaptation in Miami-Dade County, FL

- Adaptation and Mitigation Planning Together
- Formed Climate Change Advisory Task Force in 2006 to address both mitigation and adaptation (6 subcommittees):
  - Science
  - Built Environment
  - Greenhouse Gas Mitigation
  - Natural Systems
  - Economic, Social, and Health
  - Intergovernmental Affairs
- Working on updated sea-level rise mapping – no full vulnerability assessment yet (SE Florida Climate Compact)
- Working with USGS to analyze how SLR will impact drinking water



# Hazard Mitigation and Climate Adaptation in Lewes, Delaware

- Work with City to develop a strategy for mitigating to natural hazards and adapting to climate change.
- Looks at planning for future climate as opposed to historic
  1. Synthesizing available information on risks and hazards in the community;
  2. Assessing vulnerabilities and identifying data/planning gaps, especially related to natural coastal hazards, climate change and associated risks;
  3. Best practice recommendations and model ordinances for mitigation developing and adaptation; and
  4. Identifying strategic opportunities to increase community resiliency.



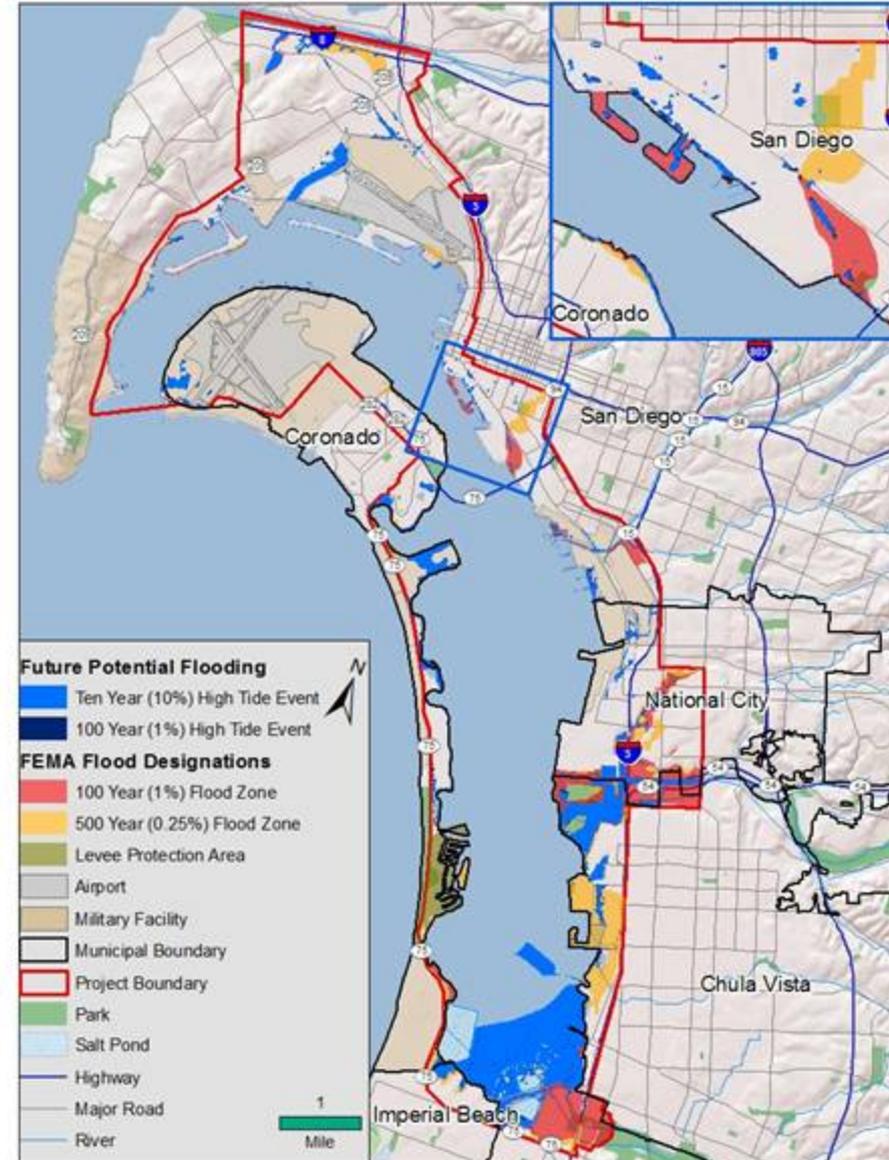
The City of Lewes



# Preparing Regionally for SLR in San Diego Bay

- Collaboration of 5 municipalities, Port, and Airport
- Focused on preparing for sea level rise
- Integration of individual municipality plans/strategies with regional strategy
- Steering Committee guides process – supported by Stakeholder Committee
- Initiated in Spring 2010 and end products due in September 2011
  - Existing Conditions Report
  - Vulnerability Analysis
  - Final Sea Level Rise Strategy

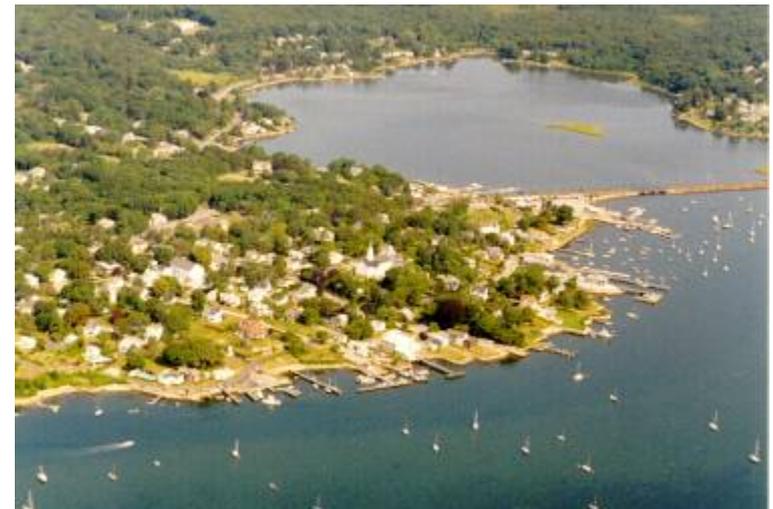
Figure 3.4 Half Meter of Sea Level Rise - Potential Future Flooding



# Stakeholder Engagement in Groton, CT

- Unite together federal, state, and local stakeholders to discuss strategies for increasing coastal resilience
- Three step process:
  - Align on the science of climate change
  - Identify vulnerabilities
  - Start defining strategies that can be taken to increase resilience or seize opportunities
- Focus on respective roles each agency can fill
- Provide recommendations on next steps for all levels of governance
- Led to funding for ART

Connecticut



# Common Themes of Success

- Strong political leadership
- Staff support and clear lines of authority
- Led by a few by supported by many
- Integration of climate into existing planning processes (not a new process)
- Connection to science provider (university, RISA, state climatologist, etc.)
- Engaged citizenry

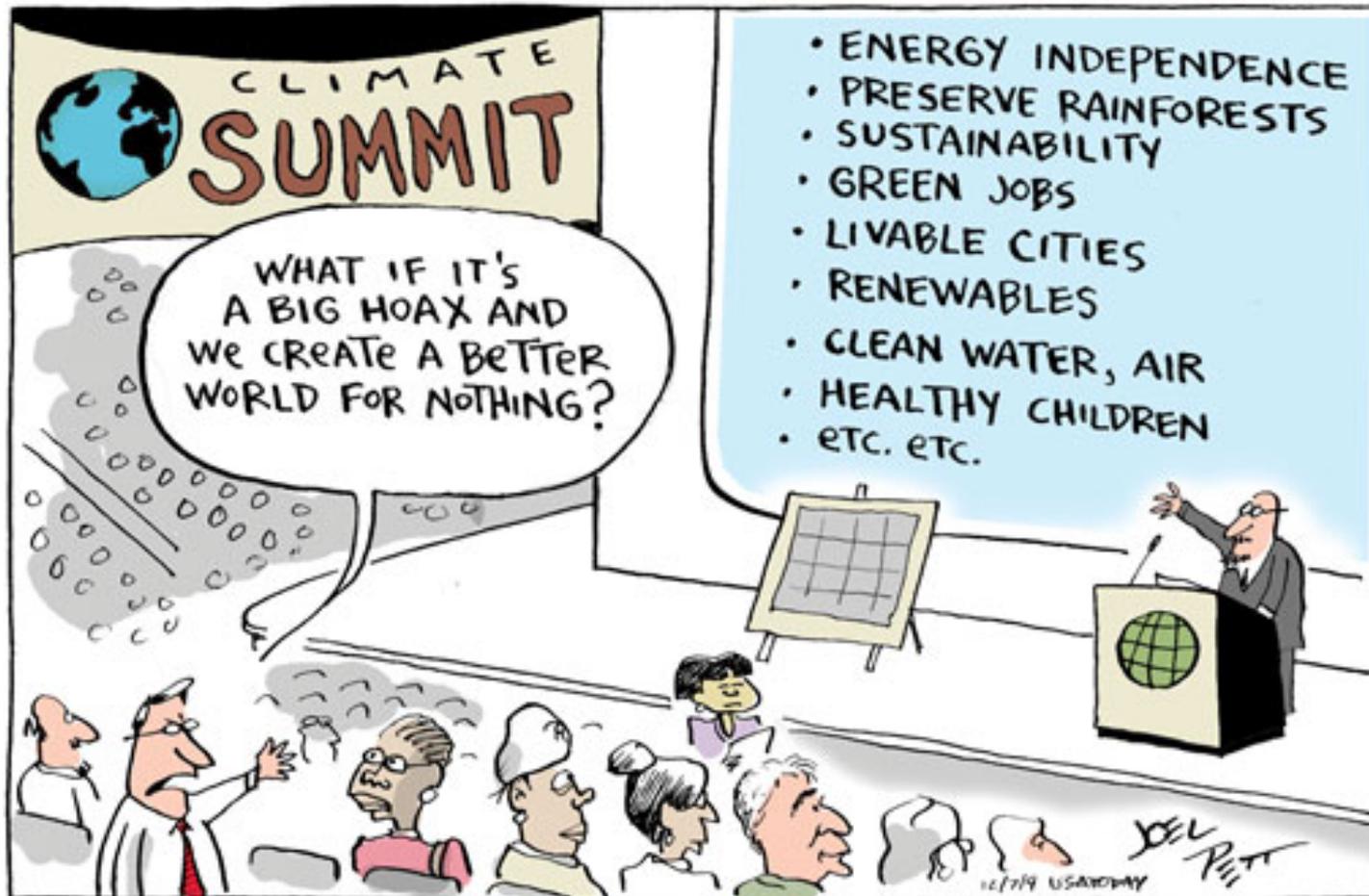


# Barriers to Action

- In perfect Information (temporally and spatially)
- Lack of access to data – including streamlined access
- Lack of knowledge about what to do and what impacts will be
- Governance and institutional barriers
- Perceived competition with other priorities
- Lack of resources (staffing, financial)
- Communication and visualization challenges



# Questions?



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