

Climate Change and Coastal Hazards in the Kaua`i General Plan Update

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Kaua'i General Plan Update Technical Study

Kaua'i Climate Change and Coastal Hazards Assessment

University of Hawai'i Sea Grant College Program

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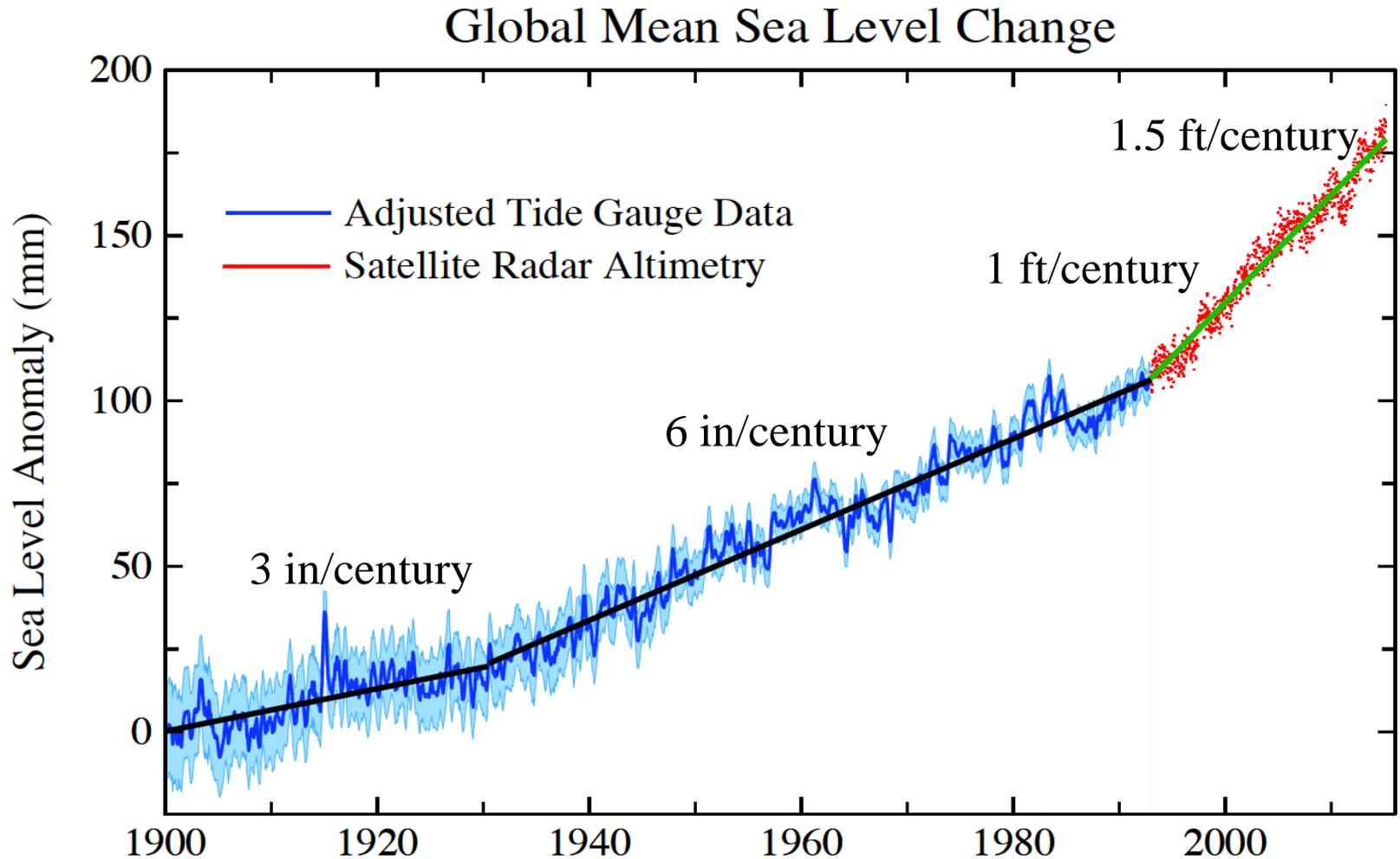
SEA LEVEL RISE

Increasing severity and extent of:

- Coastal erosion
- Wave overwash
- Groundwater flooding
- Drainage failure
- Hurricane and tsunami inundation

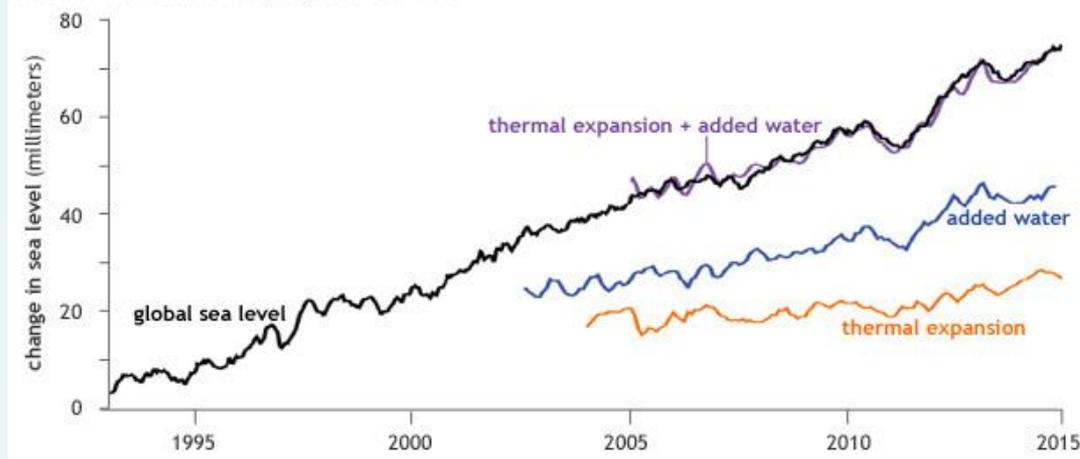


INCREASING GLOBAL MEAN SEA LEVEL

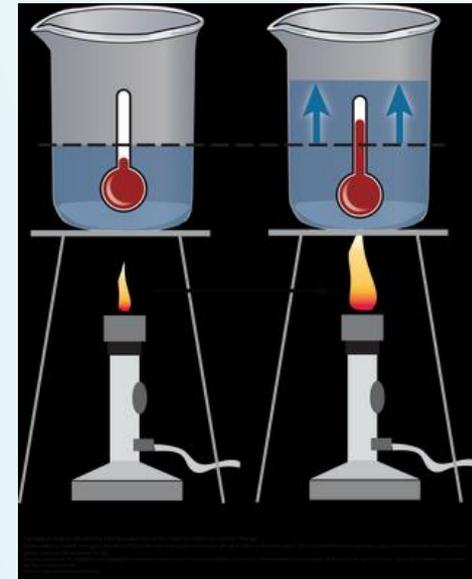


CONTRIBUTIONS TO SEA LEVEL RISE

Global mean sea level budget since 1993

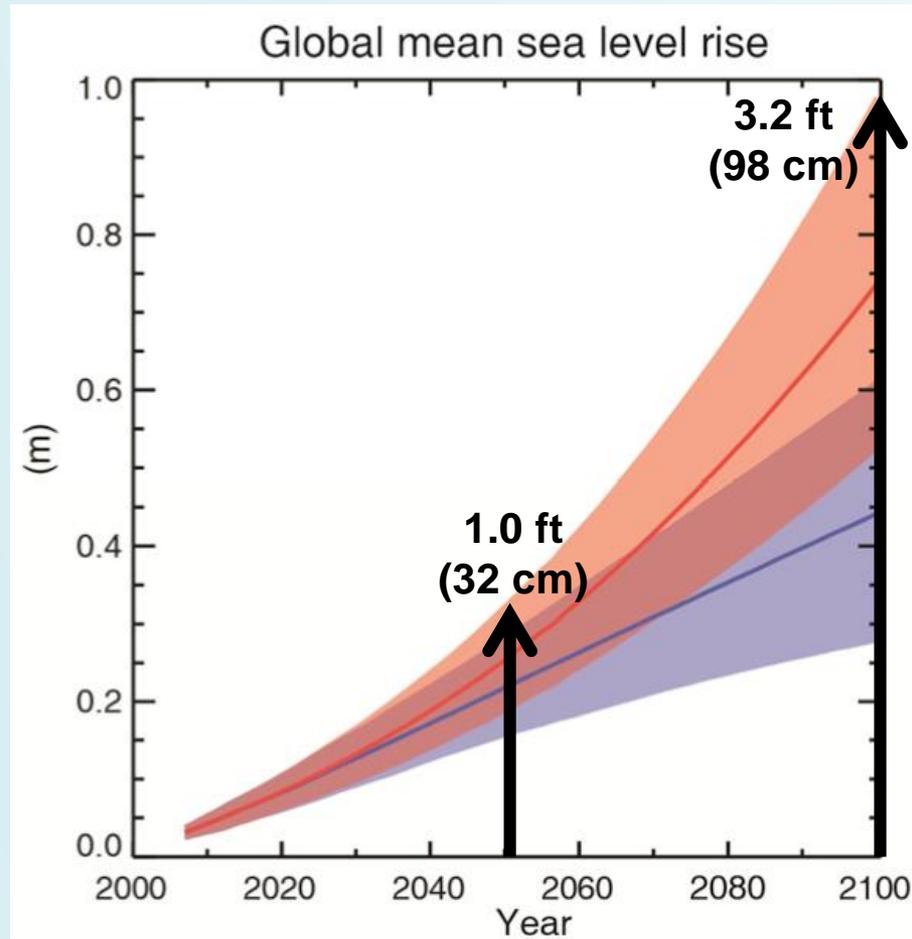


Bulletin of the American Meteorological Society, *State of the Climate in 2014* report



Integration and Application Network,
University of Maryland Center for
Environmental Science

SEA LEVEL RISE PROJECTIONS



IPCC AR5

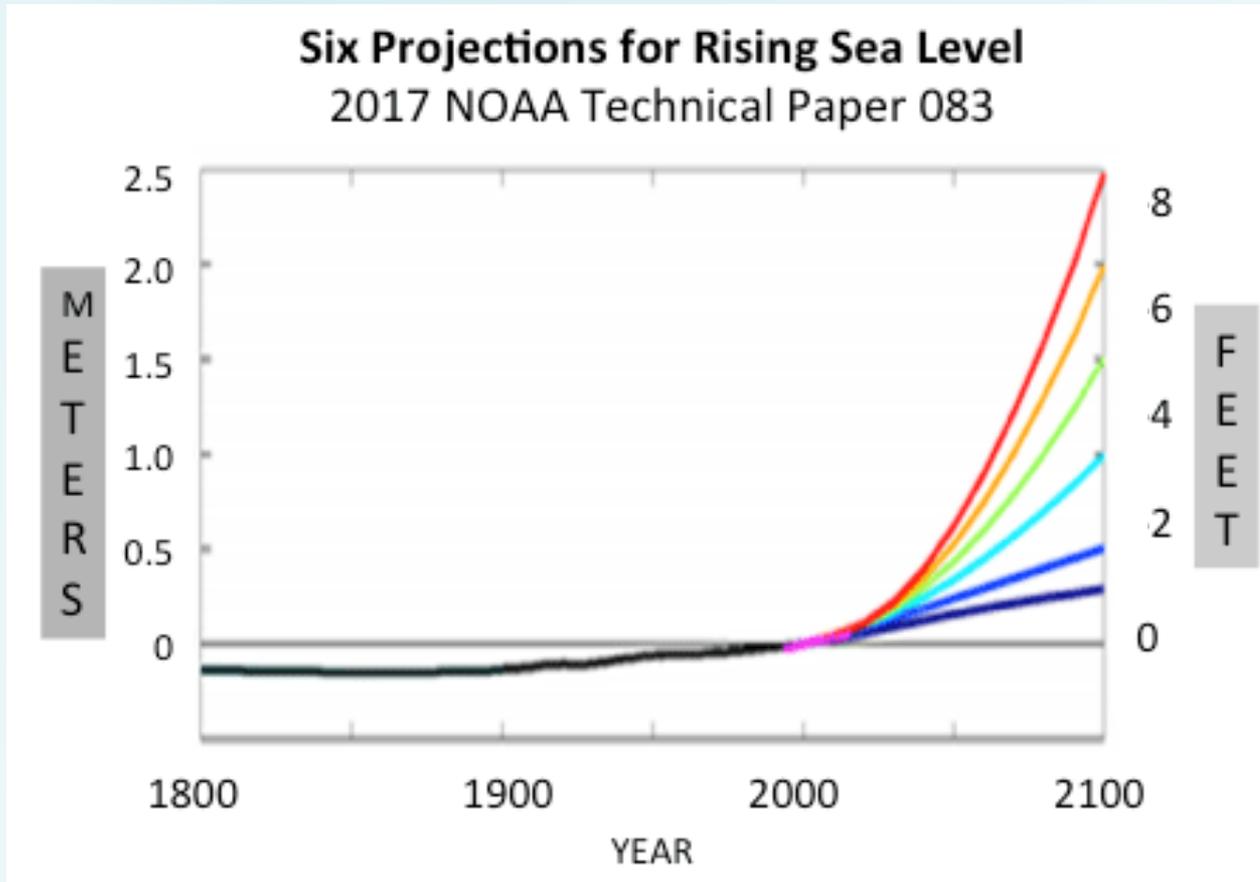
Intergovernmental Panel on Climate Change (IPCC), 2013: Fifth Assessment Report (AR5)

*Representative Concentration Pathways (RCP) characterize a range of global Greenhouse Gas (GHG) emissions scenarios through the 21st century from RCP2.6 (dramatic GHG emission reductions after 2020) to RCP8.5 (increasing GHG emissions through 21st century).

Sea level rise forecasts continue to evolve with the science.

- NASA December, 2015: “ Given what we know now about how the ocean expands as it warms and how ice sheets and glaciers are adding water to the seas, it’s pretty certain we are locked into at least 3 feet of sea level rise, and probably more.”
- Recent results regarding Antarctic and Greenland ice-sheet instability indicate that such outcomes may be more likely than previously thought.

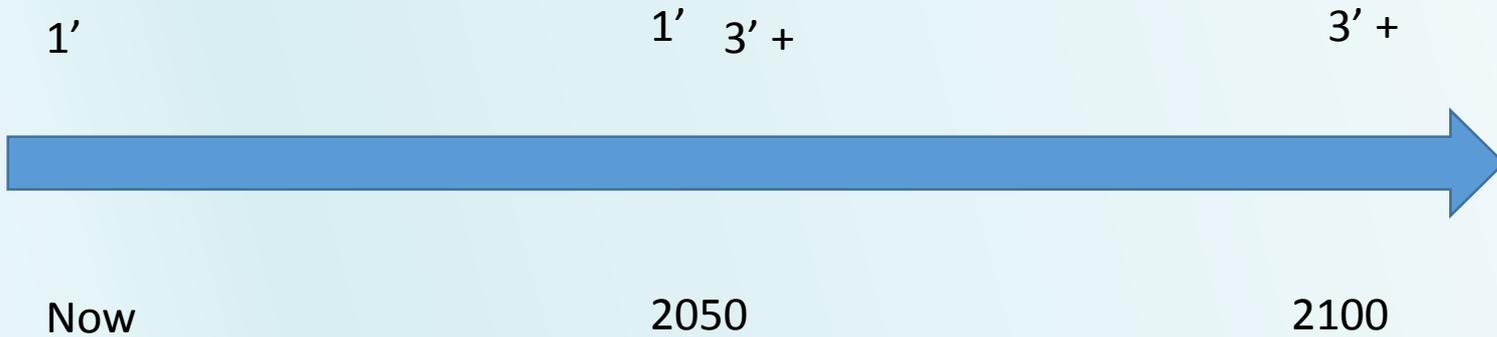
SEA LEVEL RISE PROJECTIONS: NOAA 2017



“Physically plausible” global mean sea level rise in the range of 2.0 to 2.7 m (6.5 to 8.6 ft) by the end of this century.

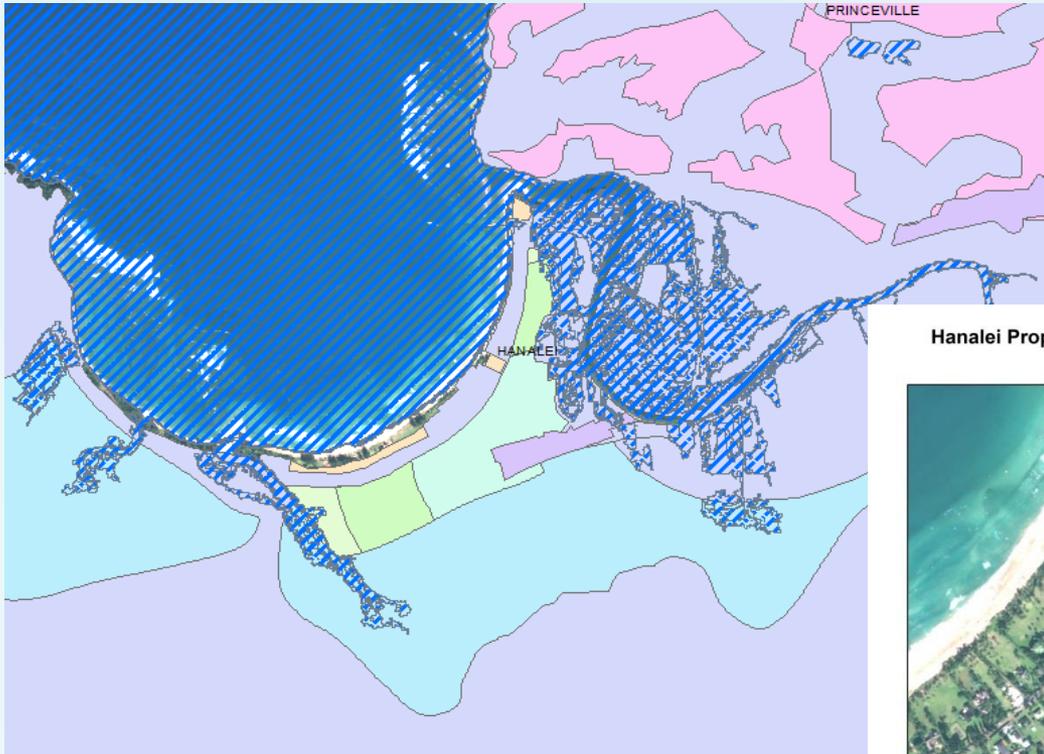
GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES, 2017.
NOAA Technical Report NOS CO-OPS 083

Sea Level Rise



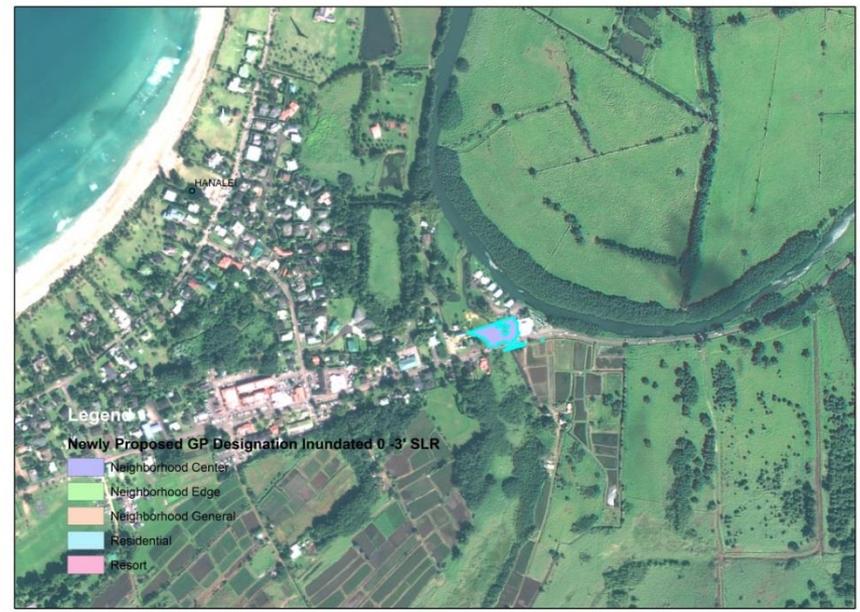
Time

GENERAL PLAN PLANNING TARGET = 3 FEET



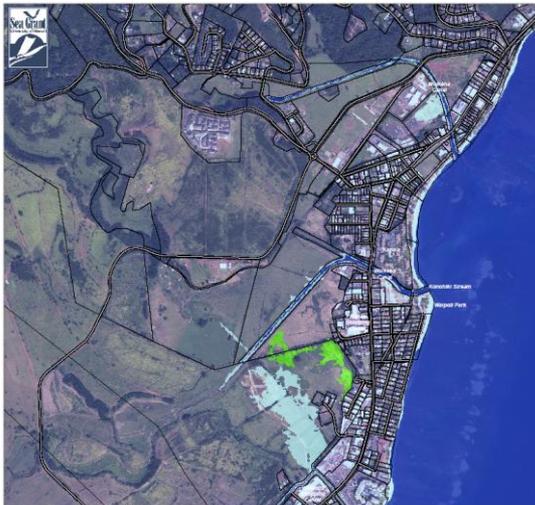
New future growth areas on land use map outside of 0-3' inundation areas and FEMA flood zones

Hanalei Proposed Newly Designated Developable Land Uses Inundated by 0-3' Sea Level Rise

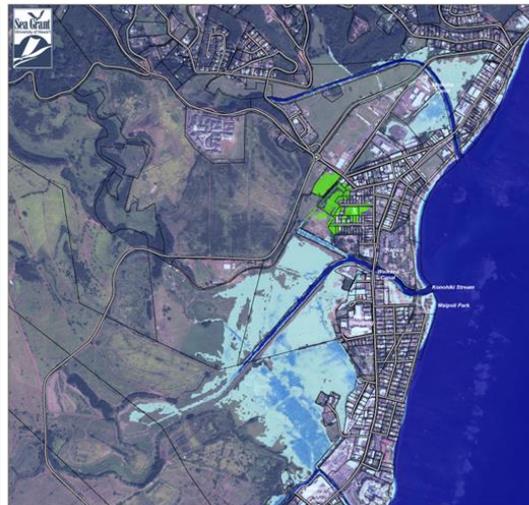


GENERAL PLAN POLICIES AND ACTIONS REFLECT THESE ADAPTATION PLANNING PRINCIPLES

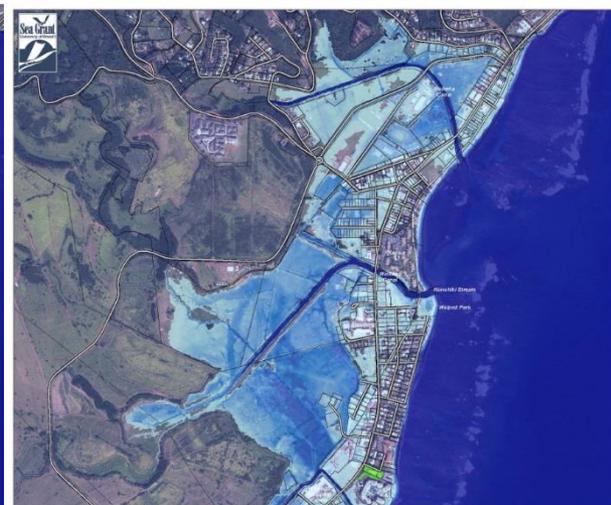
- USE BEST AVAILABLE SCIENCE
- ADAPTIVE MANAGEMENT
- SCENARIO PLANNING APPROACHES
- MOVE FORWARD IN FACE OF UNCERTAINTY



1'



3'



6'



GP SETS THE STAGE FOR COMMUNITY BASED VULNERABILITY ASSESSMENTS



MAHALO!

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