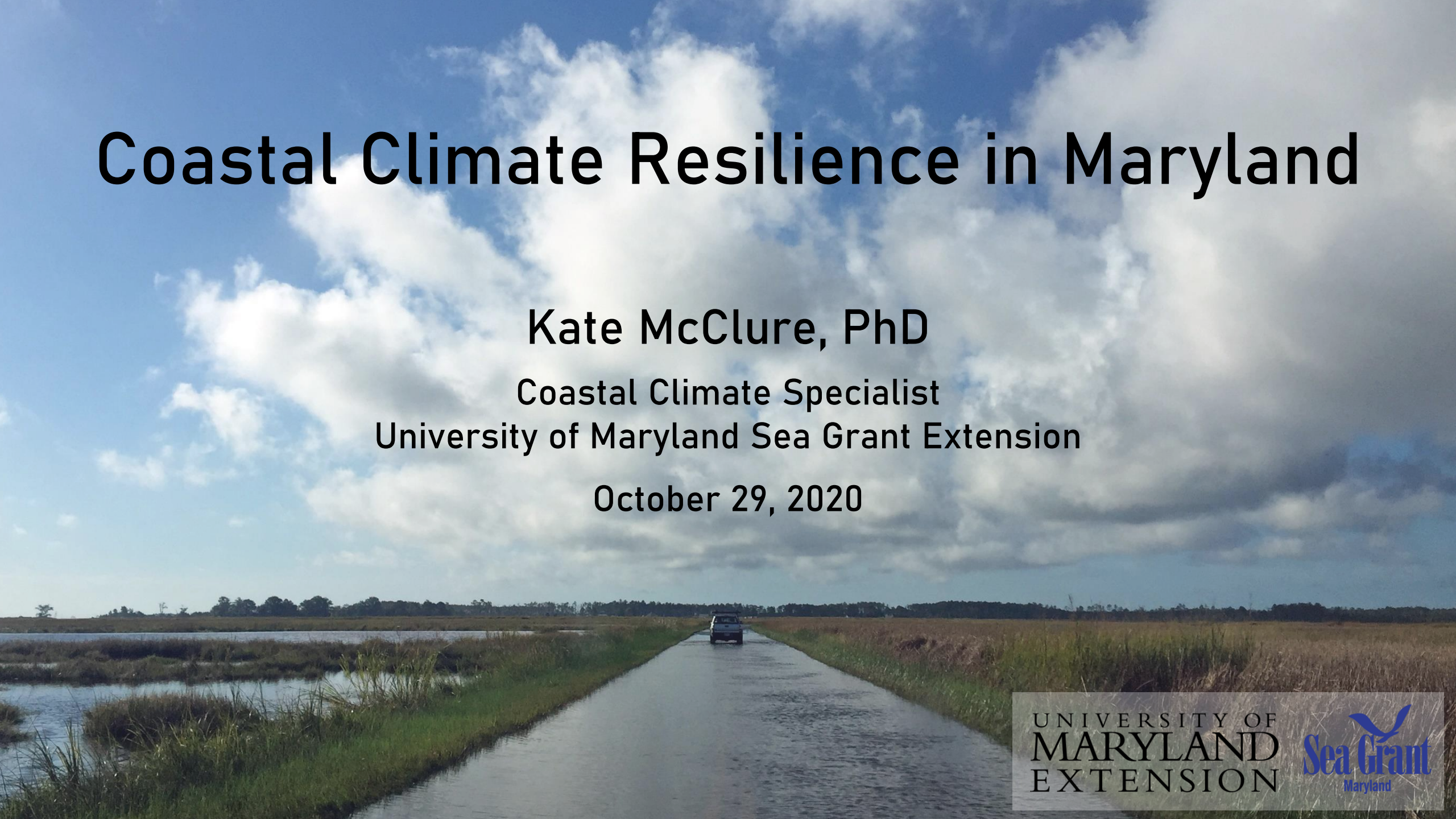


Coastal Climate Resilience in Maryland

Kate McClure, PhD

Coastal Climate Specialist
University of Maryland Sea Grant Extension

October 29, 2020

UNIVERSITY OF MARYLAND EXTENSION

Sea Grant Maryland

Climate-related stressors

Sea Level Rise

Lisa Tossey (MDSG)

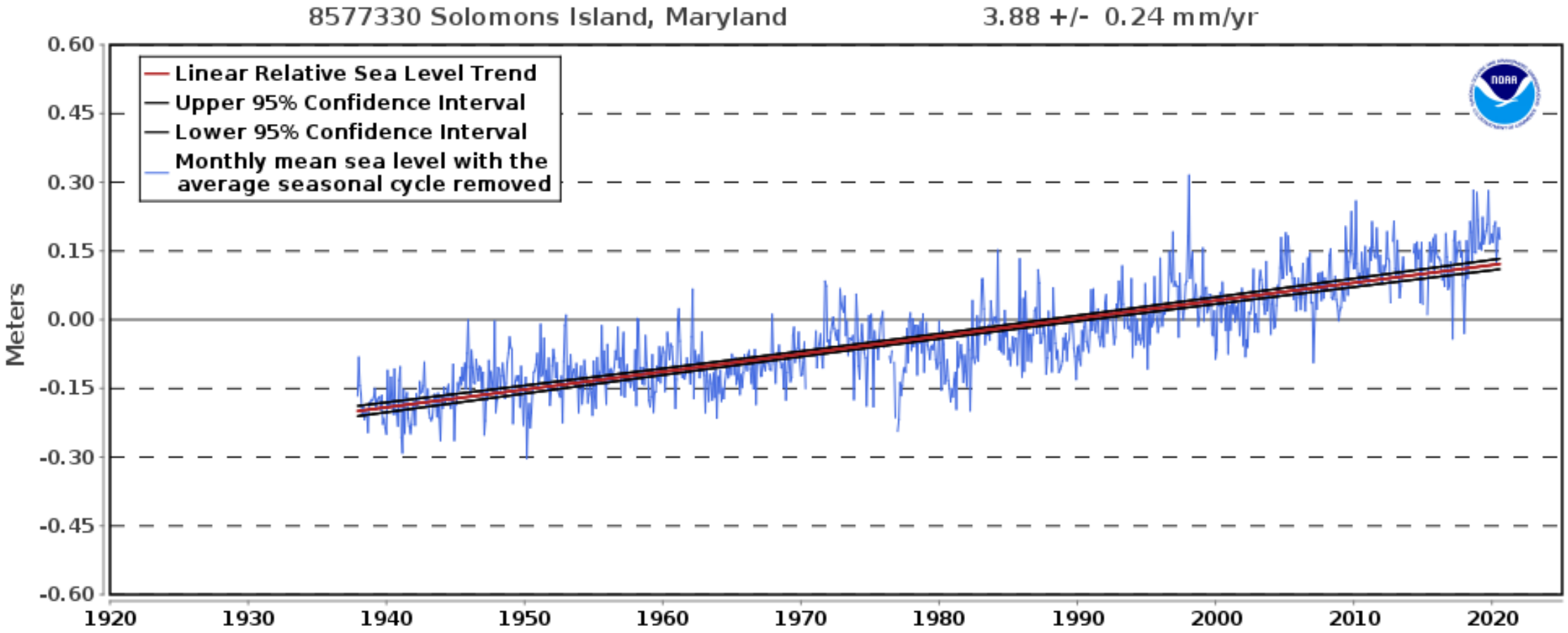
Extreme Precipitation Events

Eleanor Stokes

Coastal Storms

Jccohen (Wikimedia)

Sea Level Rise in Maryland



Source: NOAA Tides and Currents (https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8577330)

Causes of relative sea level rise in Maryland

Global Factors

- Thermal expansion of ocean water
- Melting of ice from land into the ocean

Local Factors

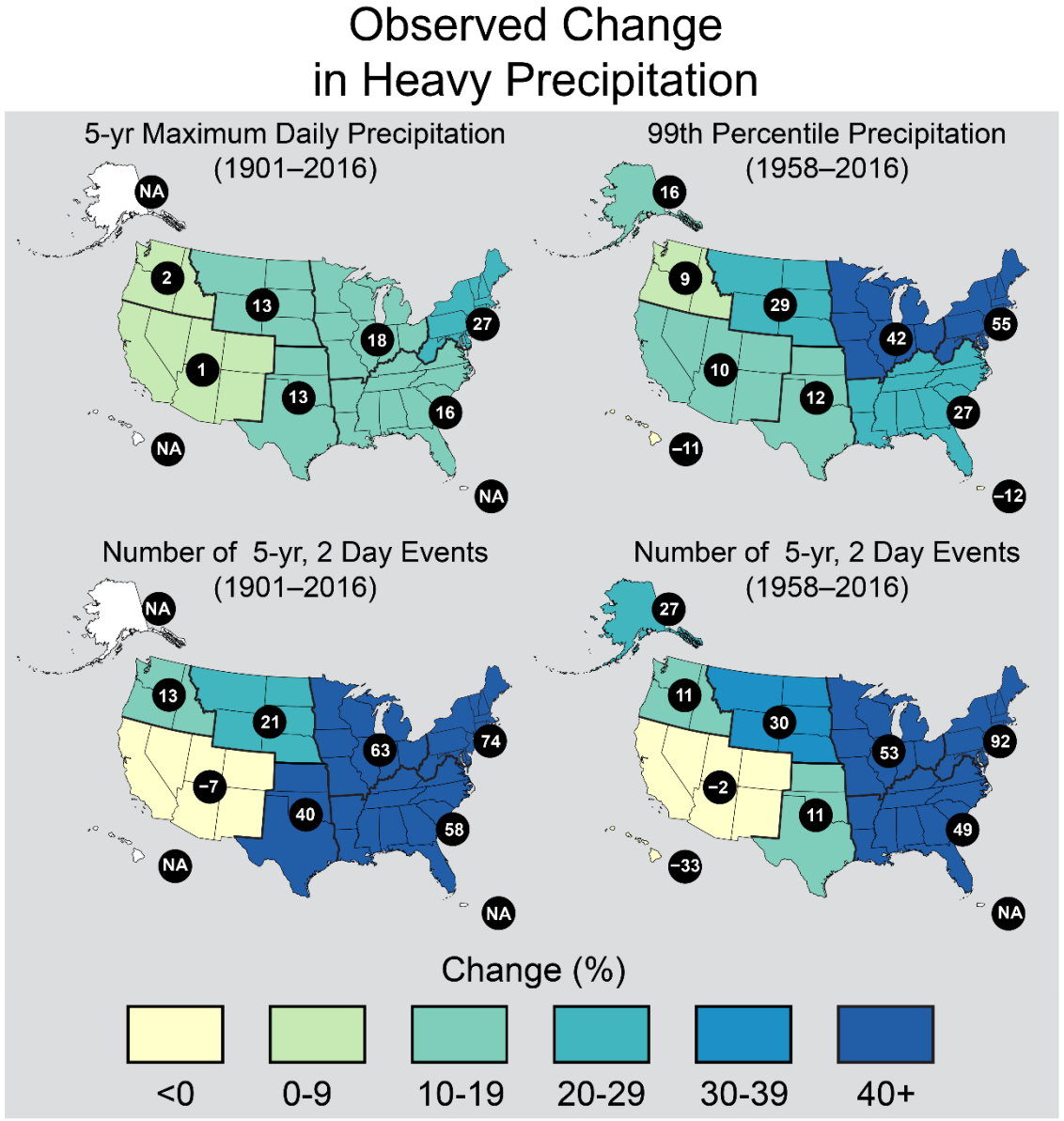
- Changes in ocean circulation patterns
- Land subsidence due to glacial isostatic adjustment and groundwater withdrawal

“Nuisance” Tidal Flooding

Saltwater Intrusion

Loss of Coastal Habitats

Extreme Precipitation Events

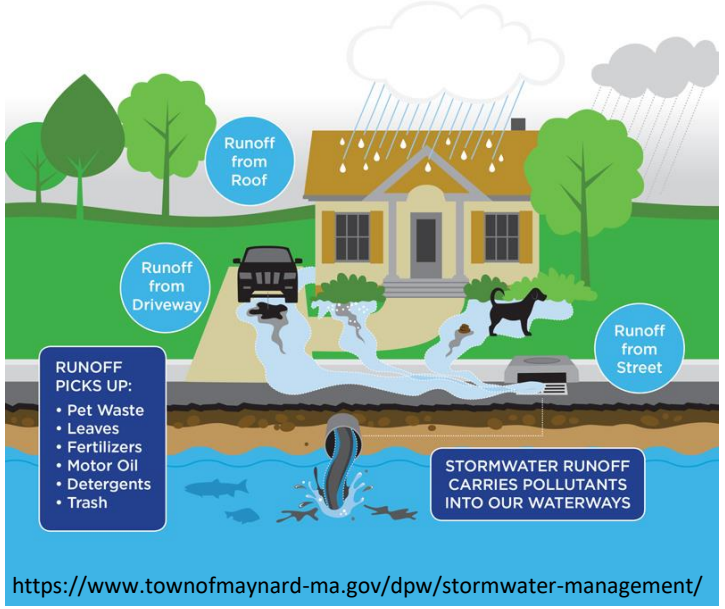


Source: Fourth National Climate Assessment (https://science2017.globalchange.gov/chapter/7/)

Flooding Impacts


Maryland GovPics


MEMA



https://www.townofmaynard-ma.gov/dpw/stormwater-management/


Marilyn Thelen, MSU Extension

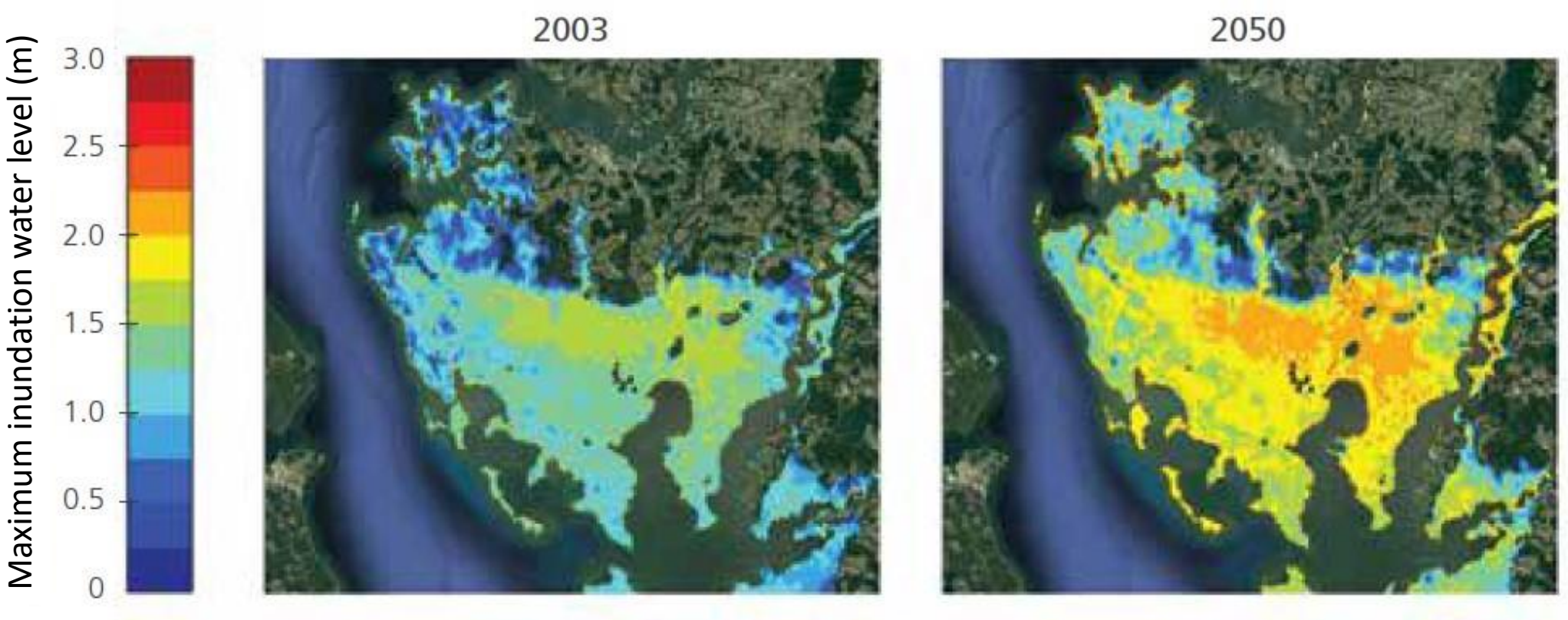
Coastal Storms

Michael Land (CBP)


Butch Ducote (FEMA)

Hurricane Isabel, September 2003

Coastal Storms



Model estimates of storm-surge inundation from a Hurricane Isabel-like storm in 2050.

Source: *Sea-Level Rise Projections for Maryland 2018* (https://www.umces.edu/sites/default/files/Sea-Level%20Rise%20Projections%20for%20Maryland%202018_0.pdf)

Climate-related stressors

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National Sea Grant Program

- A federal/university partnership between NOAA and 34 university-based programs
- Unbiased honest-broker of scientific information

Maryland Sea Grant

Maryland Sea Grant serves as a bridge between scientific expertise and the needs of people who manage, conserve, enjoy and make their living from the Chesapeake Bay and Maryland's coastal waters.

- Research
- Education
- Communication
- Extension

Sea Grant
Maryland

Maryland Sea Grant Extension

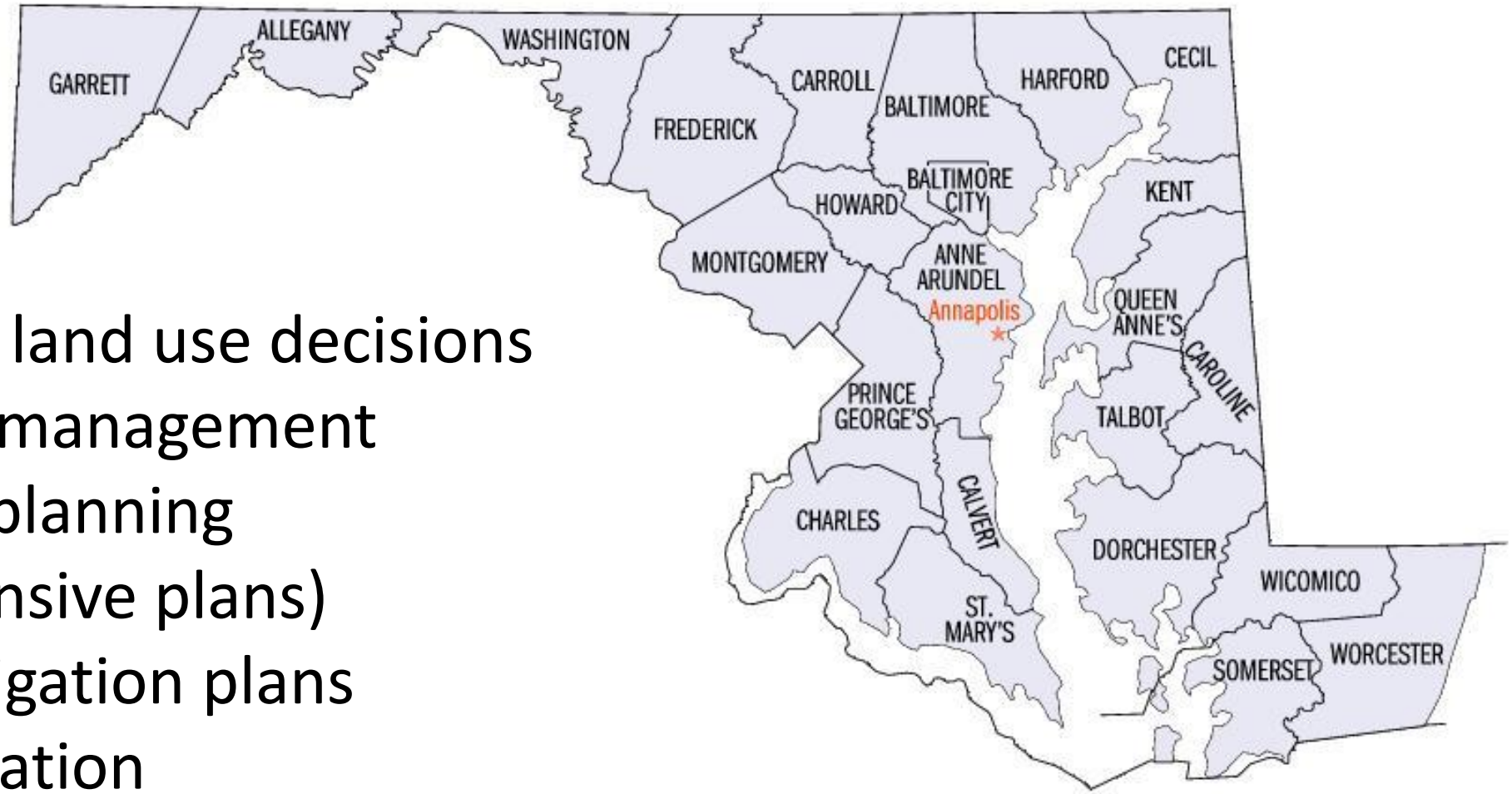
Building connections and facilitating partnerships

Translating science-based information for specific user groups

UNIVERSITY OF MARYLAND EXTENSION

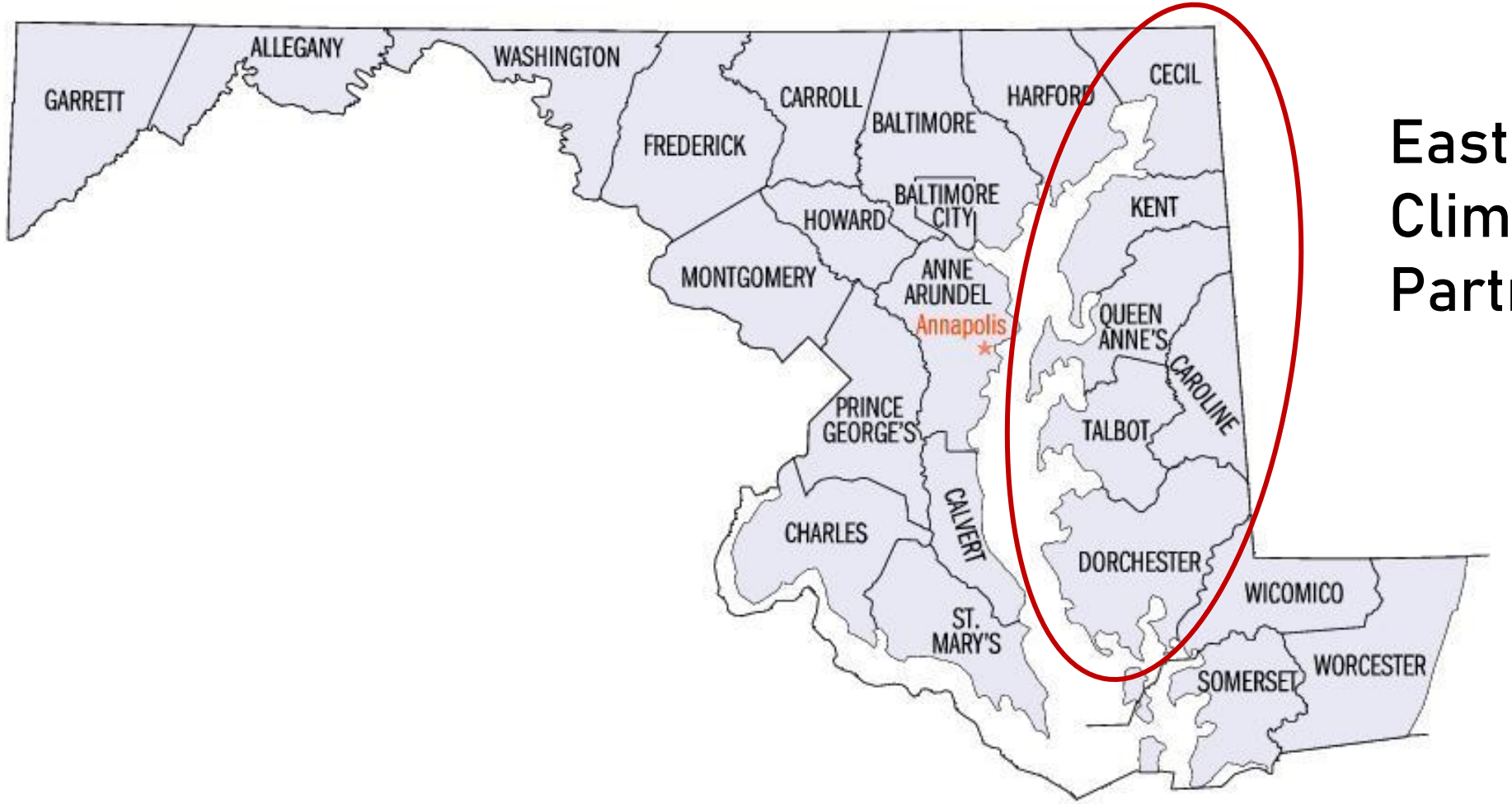
Sea Grant Maryland

Local Government



- Zoning and land use decisions
- Floodplain management
- Long term planning (comprehensive plans)
- Hazard mitigation plans
- Flood mitigation
- Shoreline restoration

Local Government
Regional Partnerships



Eastern Shore Climate Adaptation Partnership

EASTERN SHORE LAND CONSERVANCY

Local Government

Table 2. Projected sea-level rise estimates above 2000 levels for Maryland based on the Baltimore tide-gauge station. Columns correspond to different projection probabilities and rows represent to time horizons and emissions pathways. See caveat in the text concerning potentially greater sea-level rise late this century under higher emissions pathways.

Year	Emissions Pathway	Central Estimate 50% probability SLR meets or exceeds:	Likely Range 67% probability SLR is between:	1 in 20 Chance 5% probability SLR meets or exceeds:	1 in 100 Chance 1% probability SLR meets or exceeds:
2030		0.6 ft	0.4 – 0.9 ft	1.1 ft	1.3 ft
2050		1.2 ft	0.8 – 1.6 ft	2.0 ft	2.3 ft
2080	Growing	2.3 ft	1.6 – 3.1 ft	3.7 ft	4.7 ft
	Stabilized	1.9 ft	1.3 – 2.6 ft	3.2 ft	4.1 ft
	Paris Agreement	1.7 ft	1.1 – 2.4 ft	3.0 ft	3.2 ft
2100	Growing	3.0 ft	2.0 – 4.2 ft	5.2 ft	6.9 ft
	Stabilized	2.4 ft	1.6 – 3.4 ft	4.2 ft	5.6 ft
	Paris Agreement	2.0 ft	1.2 – 3.0 ft	3.7 ft	5.4 ft
2150	Growing	4.8 ft	3.4 – 6.6 ft	8.5 ft	12.4 ft
	Stabilized	3.5 ft	2.1 – 5.3 ft	7.1 ft	10.6 ft
	Paris Agreement	2.9 ft	1.8 – 4.2 ft	5.9 ft	9.4 ft

Source: *Sea-Level Rise Projections for Maryland 2018* (https://www.umces.edu/sites/default/files/Sea-Level%20Rise%20Projections%20for%20Maryland%202018_0.pdf)

Coastal Residents

Deal Island Peninsula Project

Partnership between the University of Maryland, Maryland DNR, Deal Island communities, researchers, and NGOs to increase the resilience of local environments and communities to coastal flooding, erosion, and other environmental changes

Map adapted from T. Saxby,
IAN Image Library, UMCES, ian.umces.edu/imagelibrary/

Coastal Residents

Purchasing Coastal Property in Maryland:
Questions and Answers for Prospective Buyers

- How can I find out if the property has flooded in the past?
- How will sea level rise impact the property in the future?
- Will I need to buy flood insurance? How can I find out how much it will cost?
- Is the property's shoreline eroding? What can I do to protect my property if it becomes threatened by erosion?

Guide coming soon!

Questions?

Contact:

Kate McClure
Coastal Climate Specialist
University of Maryland Sea Grant Extension

mcclure@umd.edu
301-892-2193

https://www.mdsg.umd.edu/coastal-climate-resilience