

***ELI's Summer School Series:  
Basics of the Clean Water Act  
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**WILLIAM & MARY  
LAW SCHOOL**

VIRGINIA COASTAL POLICY CENTER

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# Regulation of Water Quality vs. Quantity

- Clean Water Act: water quality
- States do quantity

# Policy Challenges: Water Demand & Sea Level Rise



# Water Demand

**“The U.S. population has doubled over the past 50 years, while our thirst for water has tripled. With at least 40 states anticipating water shortages by 2024, the need to conserve water is critical.”**

<https://www.epa.gov/greeningepa/water-conservation-epa>

**Global demand for fresh water will exceed supply by 40% in 2030**

*Water for a Sustainable World*, UN World Water Development Report (2015)

## **Options:**

- More surface water withdrawals, & desalination
- More reservoirs
- Groundwater injection (UIC permit under SDWA, not CWA)

# Water Demand – Policy Challenges

- **Surface water withdrawals: Can trigger in-stream flow concerns – compliance with water quality standards**
- **Reservoirs: wetlands impacts trigger permitting by USACOE and EPA under CWA**
- **Inadvertent interbasin transfers when creating reservoirs between water bodies and supplying to multiple recipients?**

# Sea Level Rise & Flooding

- Exacerbated in Va., La. & other coastal areas because of land subsidence
- NOAA predictive data updated – Jan. 2017  
(NOAA Technical Report NOS CO-OPS 083, *Global and Regional Sea Level Rise Scenarios for the United States*)
- 2050: most East Coast military bases will see 10x the number of floods as today  
(Union of Concerned Scientists, *The U.S. Military on the Front Lines of Rising Seas* (2016))

***For example, coastal Virginia:***

# Relative Sea Level Rise for SE Virginia

in feet above 1992 level

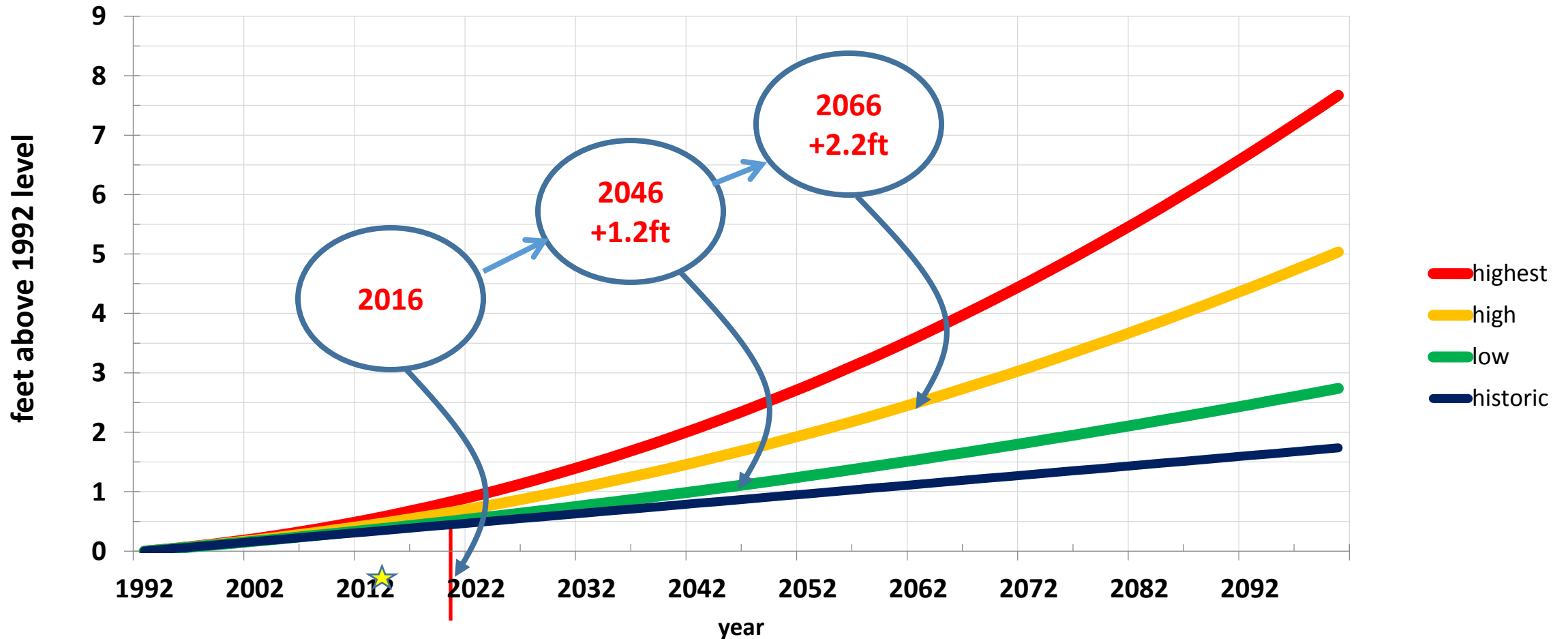
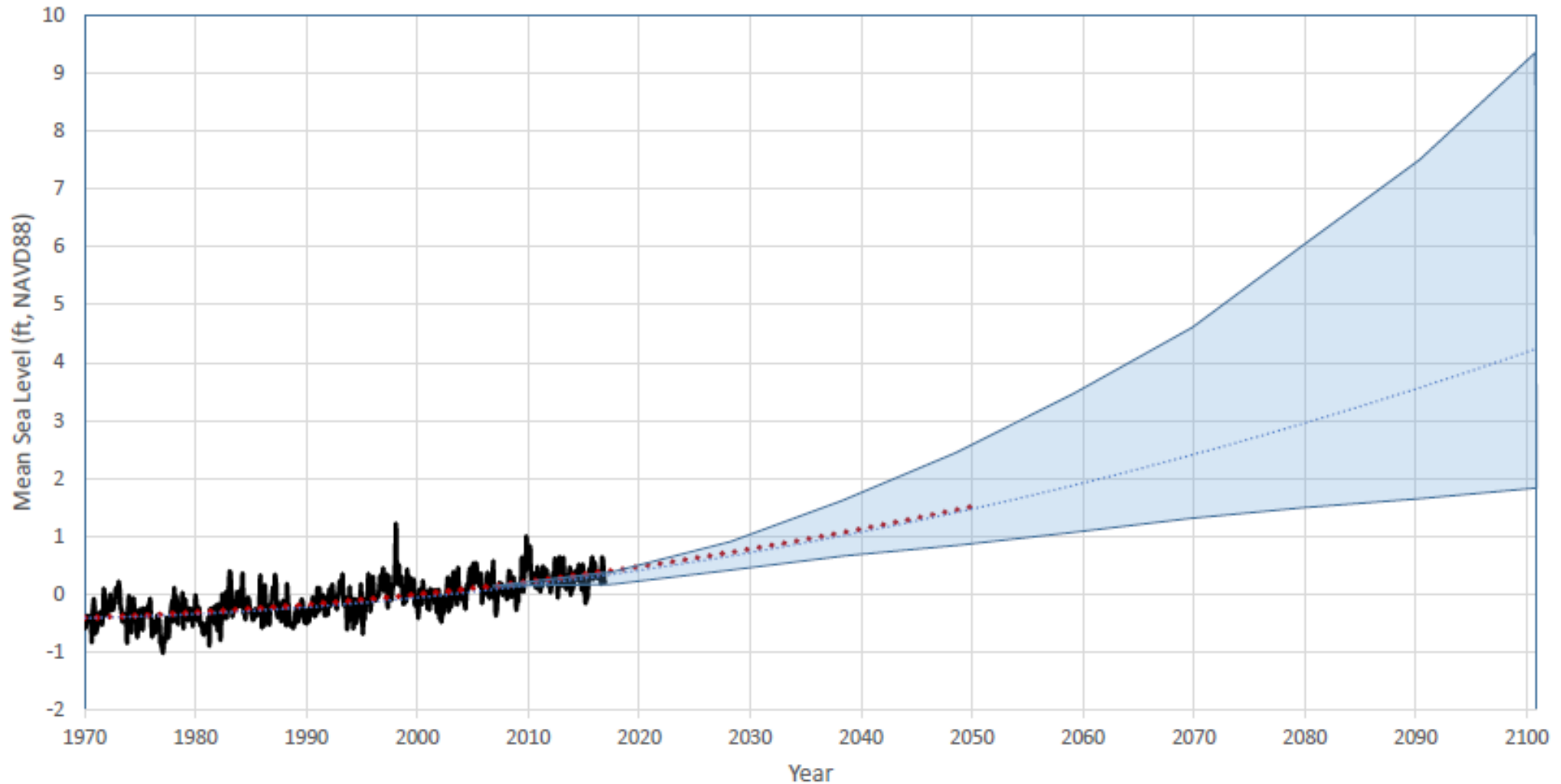


Chart courtesy of Carl Hershner, VIMS; originally from Molly Mitchell, *et al.*, *Recurrent Flooding Study for Tidewater Virginia*, Virginia Institute of Marine Science (January 2013).

## Sea Level in Virginia Historic data and projections



2060 Low Climate Change Scenario: 1.1'; Intermediate 2'; Extreme: 3.4'.  
Adapt VA website, [http://www.adaptva.org/info/virginia\\_sea\\_level.html](http://www.adaptva.org/info/virginia_sea_level.html)



# Sea Level Rise Policy Challenges

- **Environmental Concerns – Sea Level Rise & Recurrent Flooding**

- Hazardous chemicals, metal USTs & submerged pipes, rusting metal concrete reinforcements
- Saltwater inundation of agricultural fields & water supplies
- Overwhelmed stormwater BMPS – higher water tables
- Inundated septic systems – shellfish condemnation areas

*Have to control flooding/water quantity in order to protect water quality*

# Stormwater Policy Challenges

- CWA drafted to address point sources; in 1972 stormwater runoff was not the significant issue it is today
- Accotink TMDL – attempt to regulate flow

*Then what are we to do about urban stormwater?*

- ***State stormwater regulations not based on CWA***
- ***Stream restoration & daylighting streams***
- ***CWA Residual Designation Authority***
- ***EPA-issued Chesapeake Bay TMDL, with states implementing via their own Watershed Implementation Plans. But:***

# SLR Policy Challenges

- Chesapeake Bay TMDL model must respond to climate change impacts. Difficult to predict with precision.
- *e.g.*: 2017 – change in estimated Chesapeake Bay sea level rise from 1' to 6.7" by 2025 (based on trends from historical records of tide gauges at Sewell's Point, rather than based on regional adjustments to global tide gauges)
- Result: Less dilution, more nutrient reductions required from Bay states

*Questions?*

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