

THE FRONT LINES OF CLIMATE RESILIENCE: HAMPTON ROADS



WETLANDS WATCH



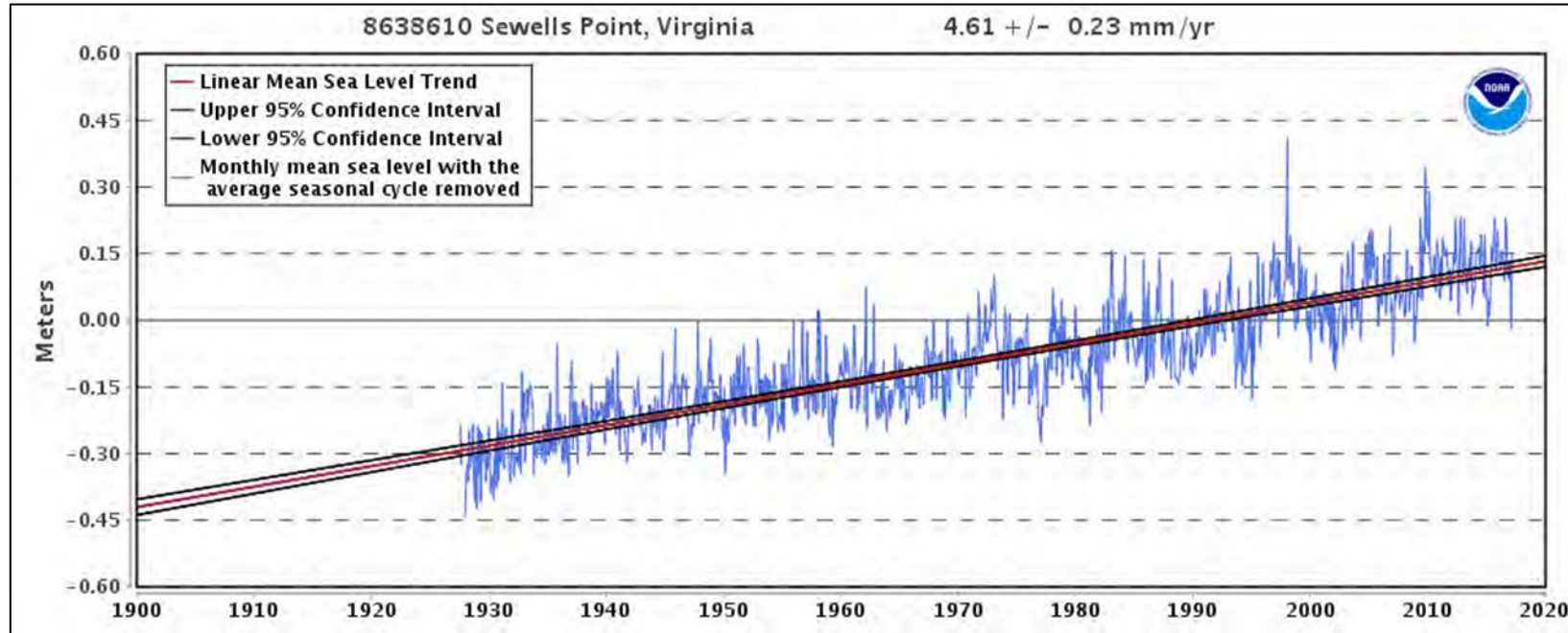
We work where land, communities, and water meet to conserve nature in a changing climate



ENVIRONMENTAL DEFENSE FUND

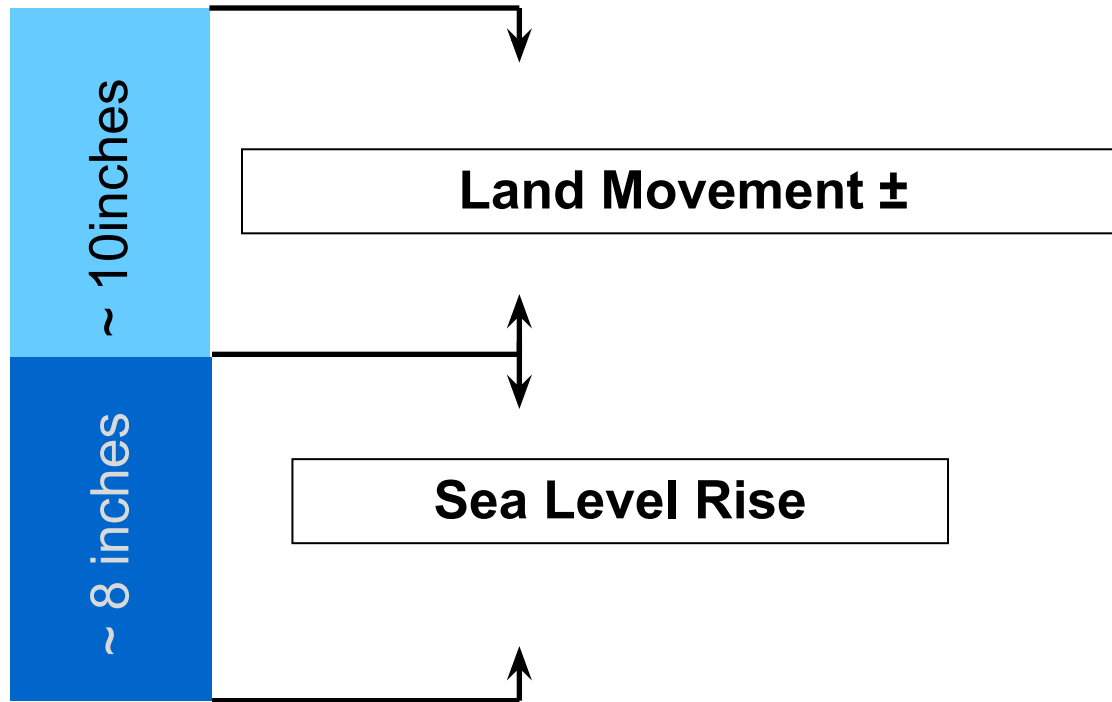


HISTORICAL SEA LEVEL RISE: NORFOLK VA



Mean sea level trend = 4.42 millimeters/year
1.45 feet/century = highest rate of relative SLR on Atlantic Coast

WHAT MAKES UP OUR RELATIVE SEA LEVEL RISE?



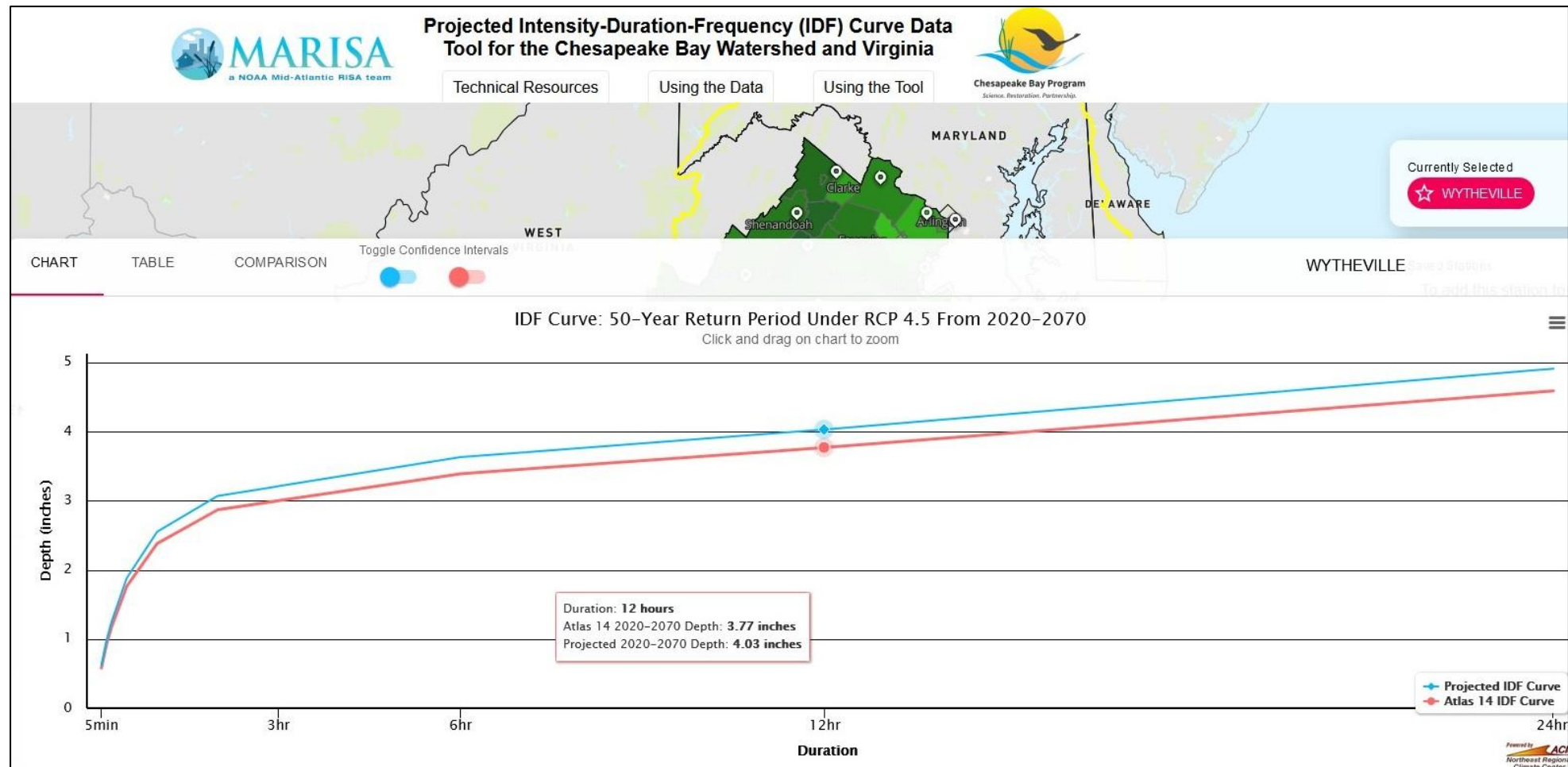
Isostatic Rebound – land is sinking after glaciers to north melted 20 thousand years ago

Groundwater Withdrawal – water table down 100-200 feet from pre-colonial times

Meteor Crater in southern Chesapeake Bay

Gulf Stream is slowing down, pushing more water to VA's coast

RAINFALL INCREASING: ~18% SINCE 2006



Source: MARISA

THE IMPACTS

TRANSPORTATION SYSTEM IMPACTS



EDUCATION SYSTEM IMPACTS



Source: The Virginian-Pilot

AVAILABLE / SAFE HOUSING IMPACTS



AVAILABLE / SAFE HOUSING IMPACTS



Photo: Red Cross Virginia

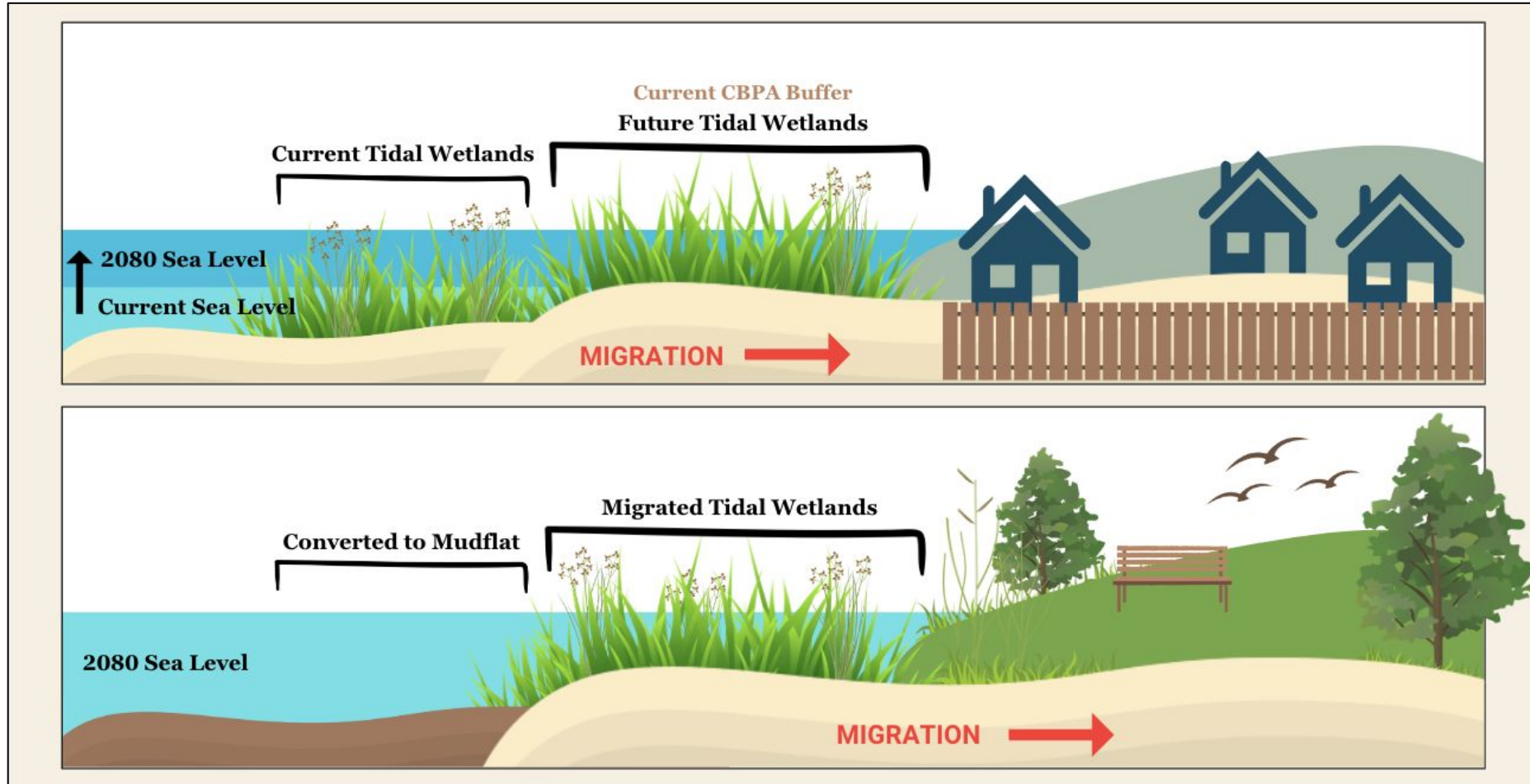
AVAILABLE / SAFE HOUSING IMPACTS



NATURAL RESOURCE LOSS: “GHOST FORESTS”

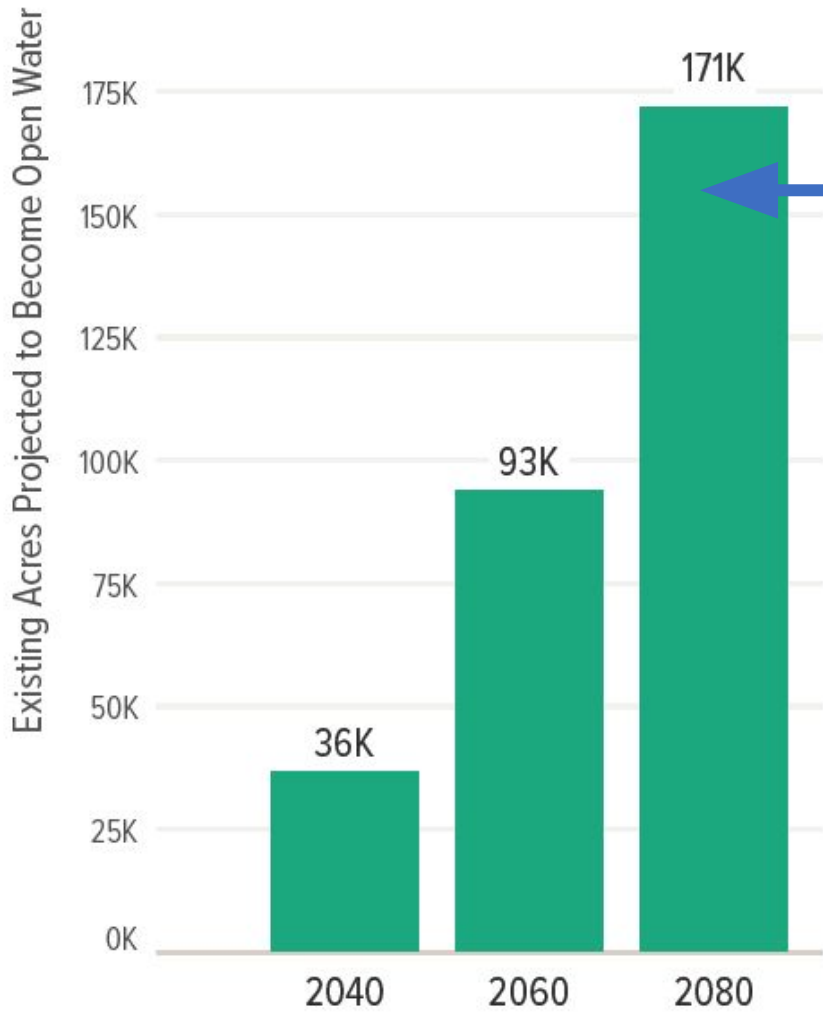


SHORELINE ECOSYSTEMS CHANGE UNDER SEA LEVEL RISE: ZONES SHIFT & HABITAT LOSS



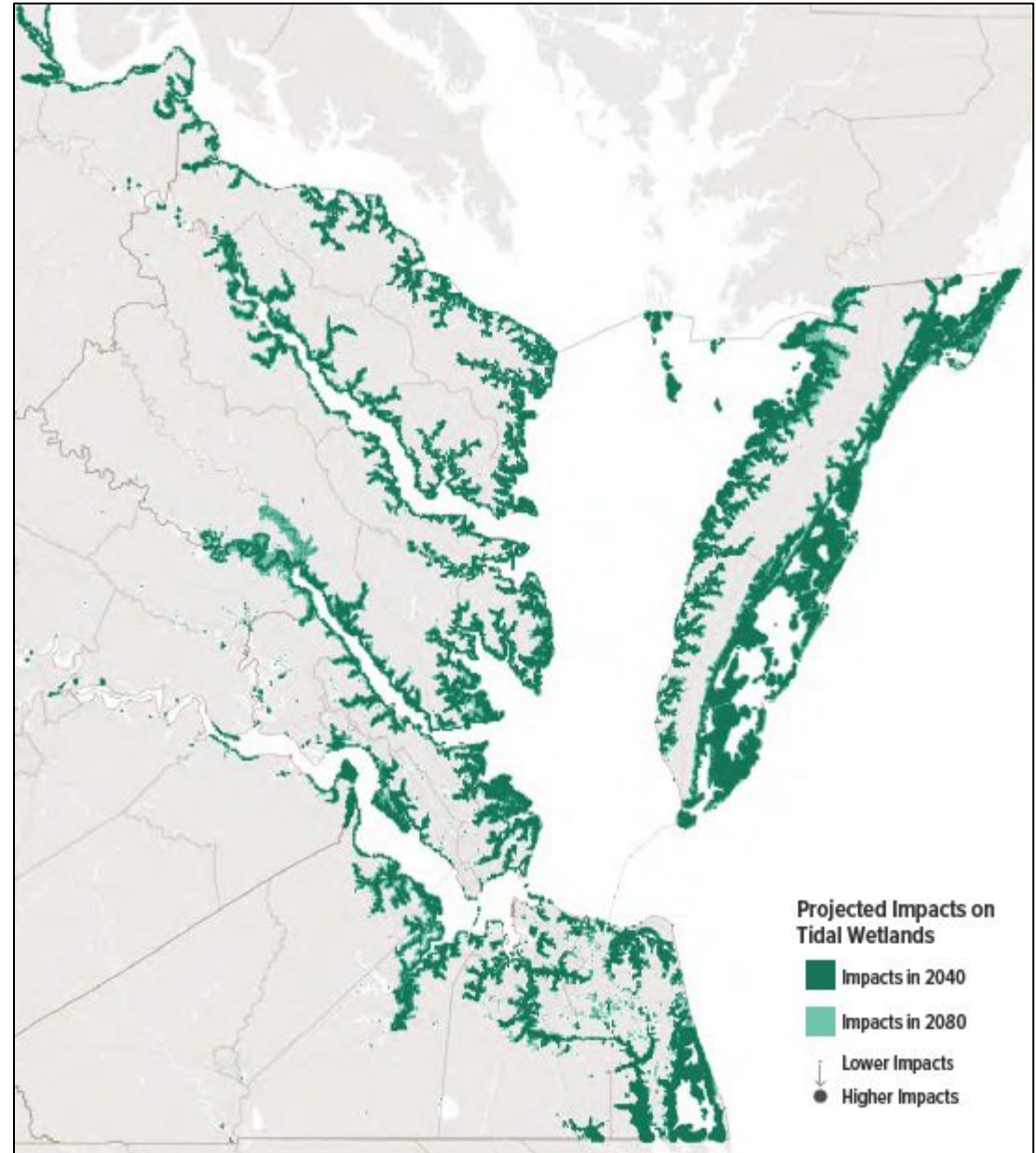
Tidal Wetland Habitat Loss

Relative to habitat in 2020



89%
loss
in
2080

Source: VA Coastal Resilience Master Plan



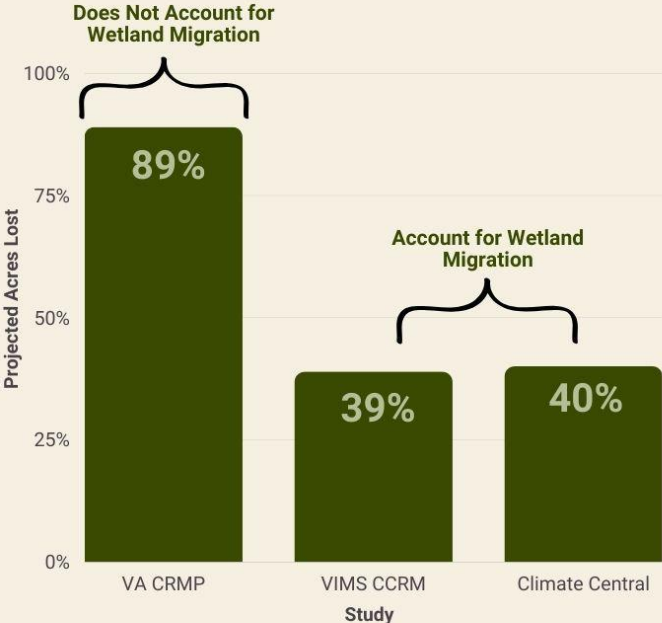
WETLANDS LOSSES: ALL ABOUT MIGRATION OR PERSISTENCE

The Variability in VA Wetlands Loss Projections by 2080

Recent studies paint an alarming picture of tidal wetland survivability as sea levels rise. Decision-makers have important conservation choices to make as we face the inevitable -- but which projection is best to use?

Data Variability

A key difference between the Virginia Coastal Resilience Master Plan (VA CRMP), research from the Virginia Institute of Marine Science, and Climate Central is the consideration of marsh migration. As sea levels rise, tidal wetland plants can move landward on favorable slopes to escape high water -- but only if the built environment does not stand in the way.



**WHAT ARE WE DOING TO ADAPT TO THESE
CHANGING CONDITIONS?**

NEWPORT NEWS: CREEK RESTORATION+BUYOUTS (1999)



CITY OF CHESAPEAKE: PROPERTY BUYOUTS+OPEN SPACE (2005)



STATE-LED FOCUS ON THIS ISSUE (2008)



ACCOMACK COUNTY: SEA LEVEL RISE IN COMP PLAN (2008)

Respecting the Past, Creating the Future:

Accomack County Comprehensive Plan

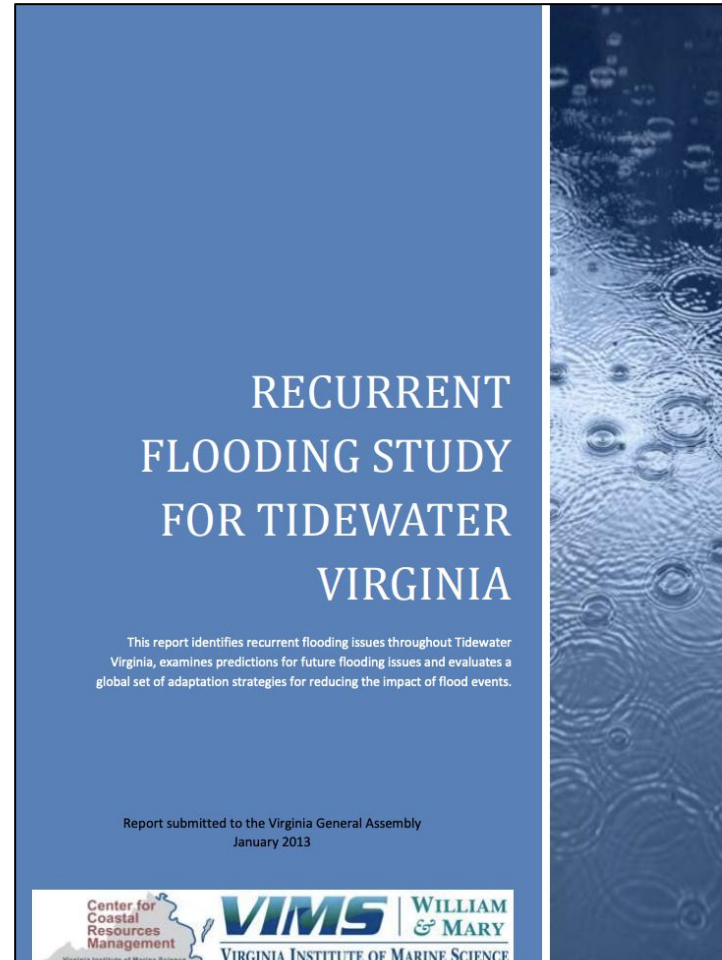


Adopted May 14, 2008

LOCAL GOVERNMENT FLOOD STAFF COMMUNITY OF PRACTICE ESTABLISHED (2010)



GENERAL ASSEMBLY COMMISSIONS VIMS TO STUDY “RECURRENT FLOODING” (2013)



EMPHASIS ON LIVING SHORELINES (2013-present)



BOND RATING COMPANIES SOUND THE ALARM (2015-2017)

Credit Rating Agency Issues Warning On Climate Change To Cities

DECEMBER 1, 2017 · 5:10 PM ET

HEARD ON [ALL THINGS CONSIDERED](#)



Nathan Rott

Moody's To Cities and States: Address Climate Change—or Else



Steve Dubb

December 4, 2017

DUTCH DIALOGUES COMES TO VA (2015)

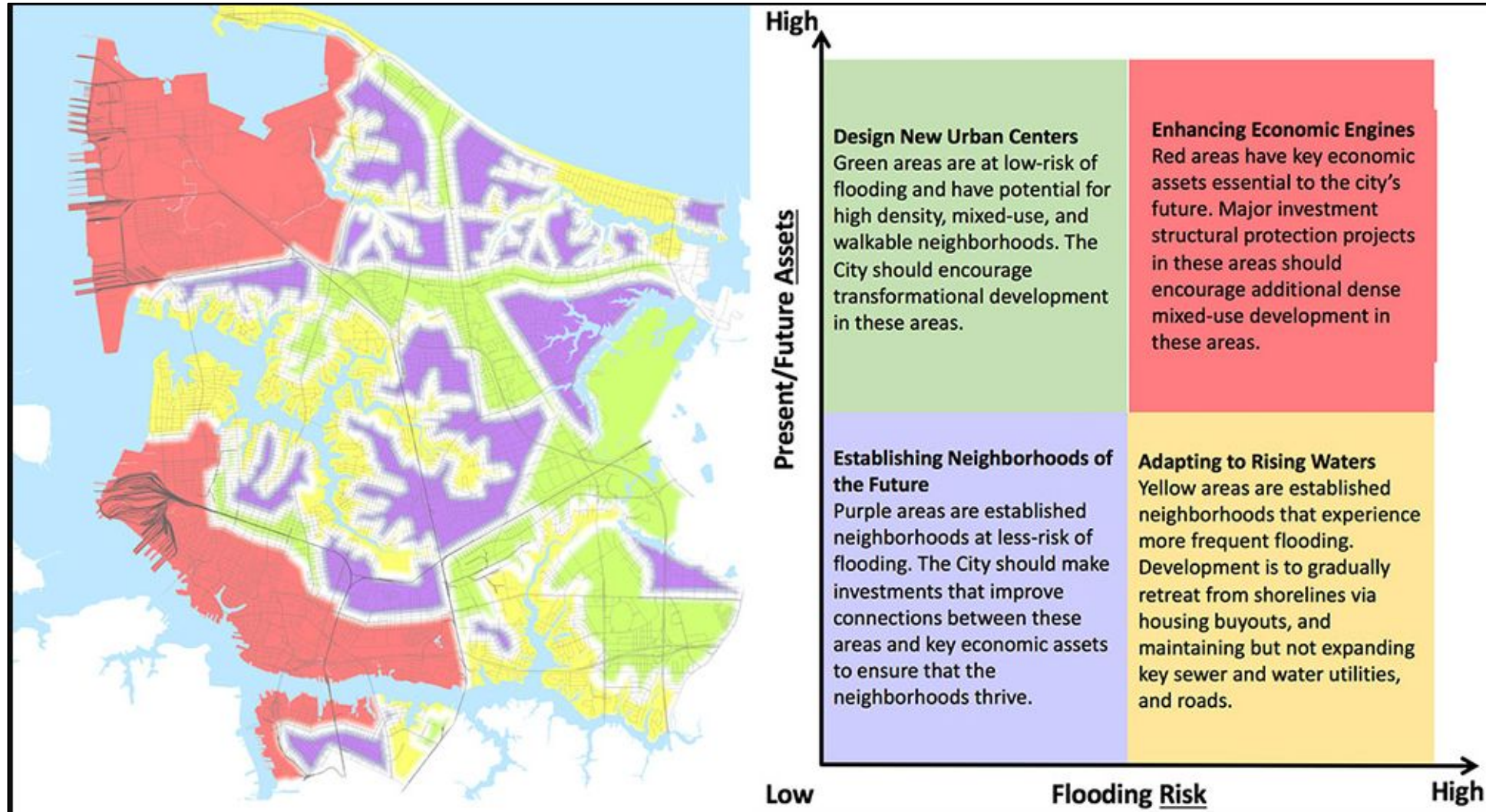


HURRICANE MATTHEW BRINGS THE RAIN (2016)

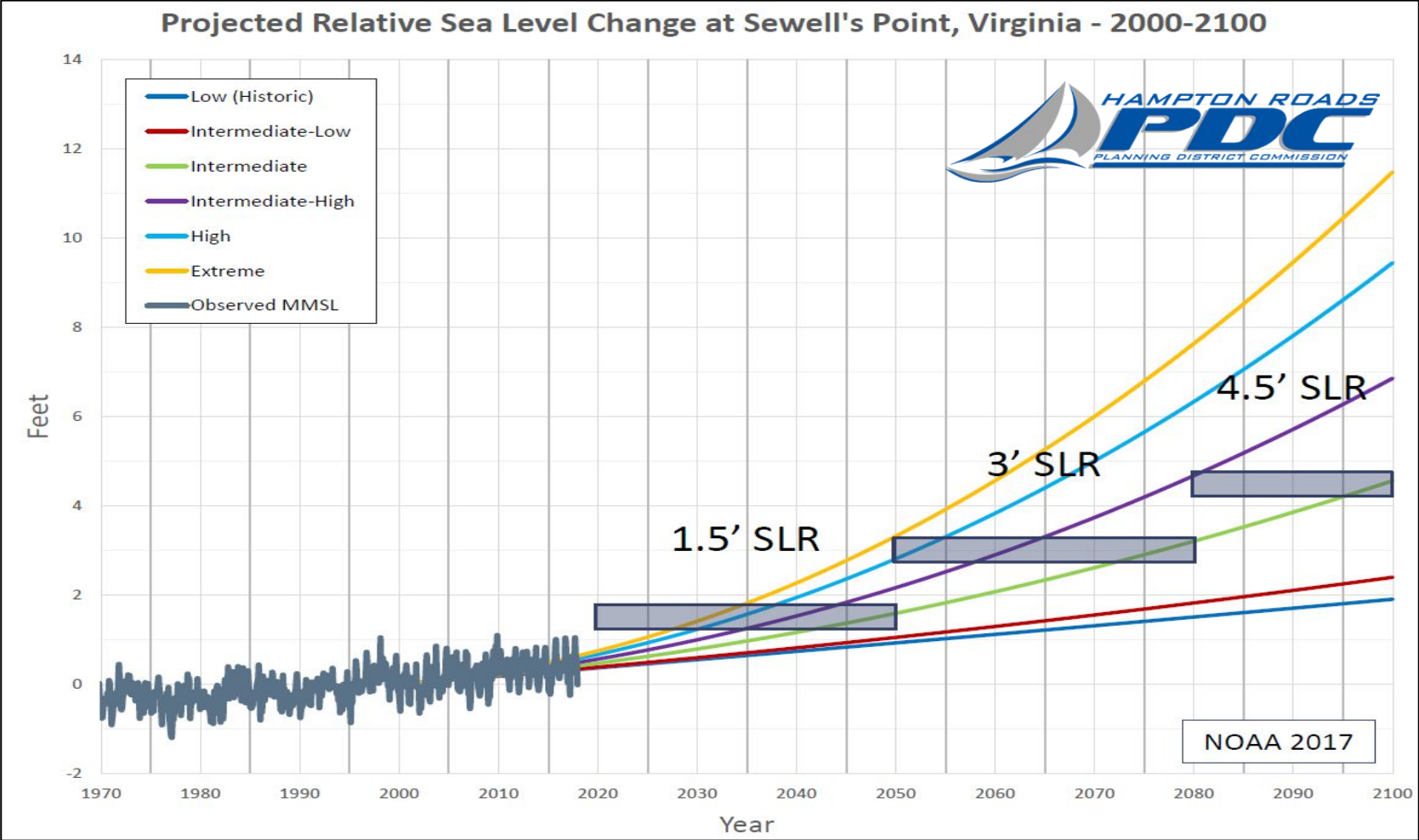


Source: Bill Tiernan | The Virginian-Pilot

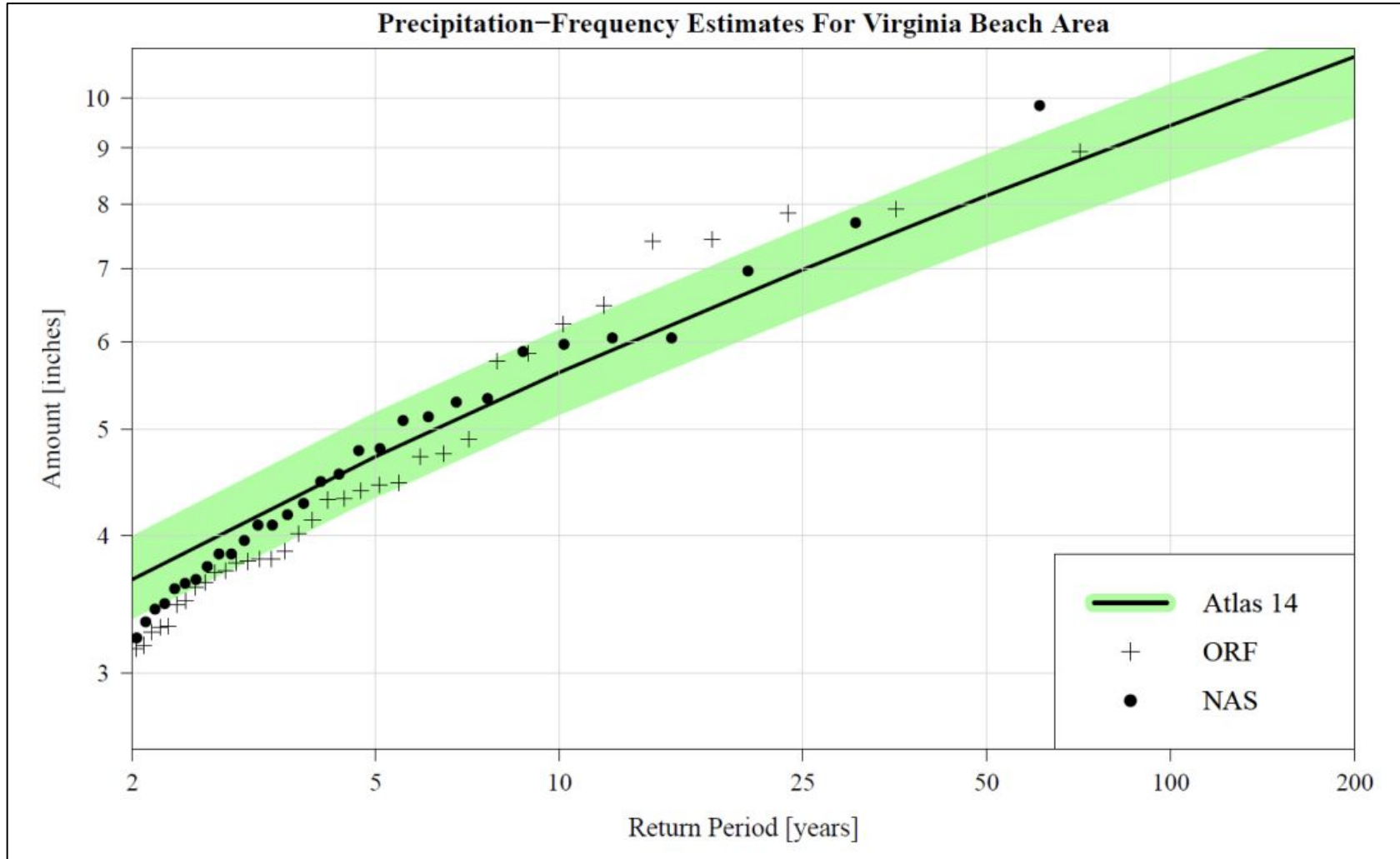
NORFOLK'S VISION 2100 IMAGINES RETREAT (2016)



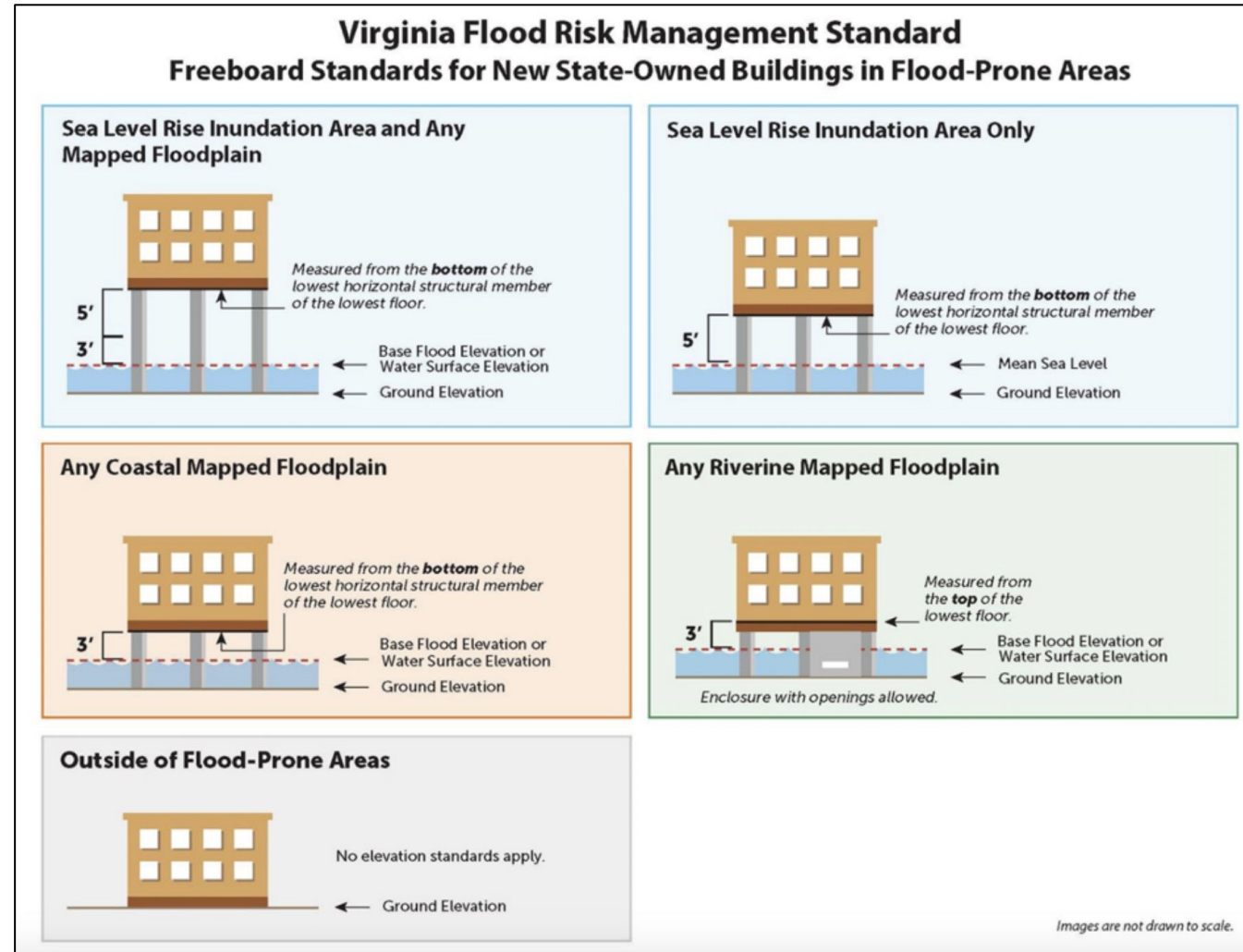
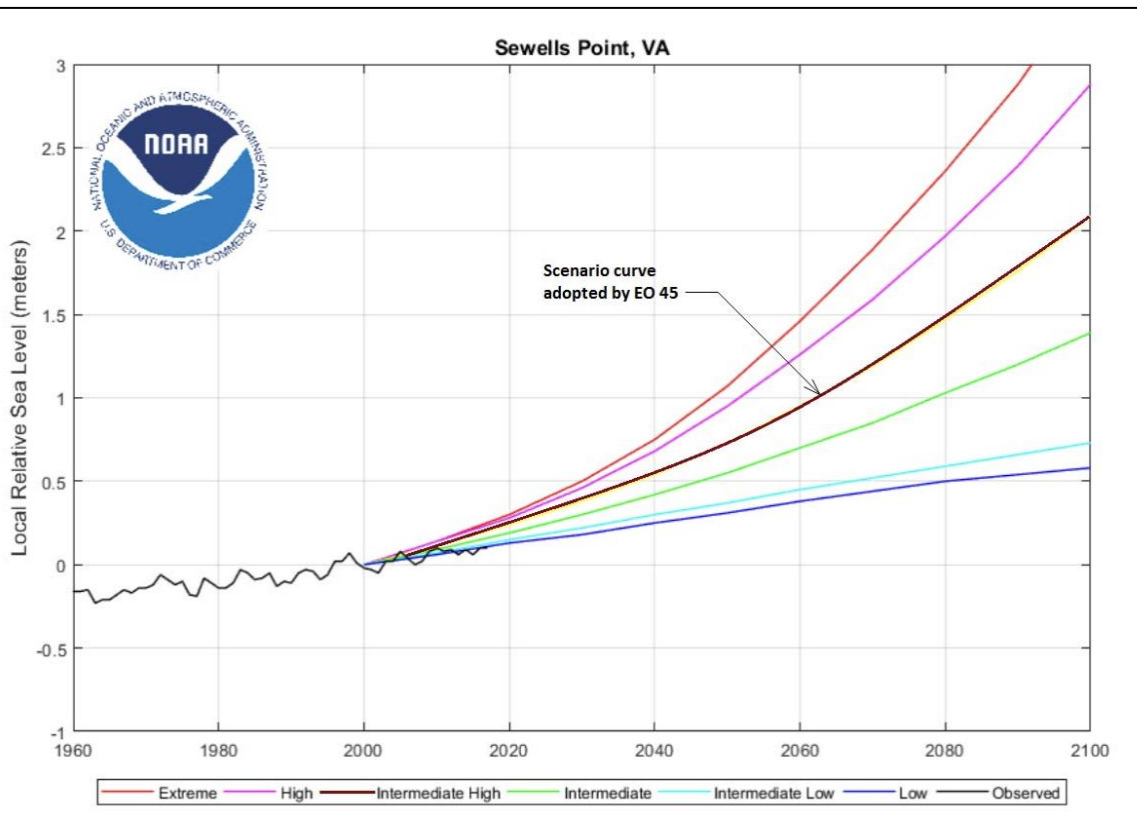
GOVERNMENTS IN HAMPTON ROADS REGION ACTING TOGETHER (2018)



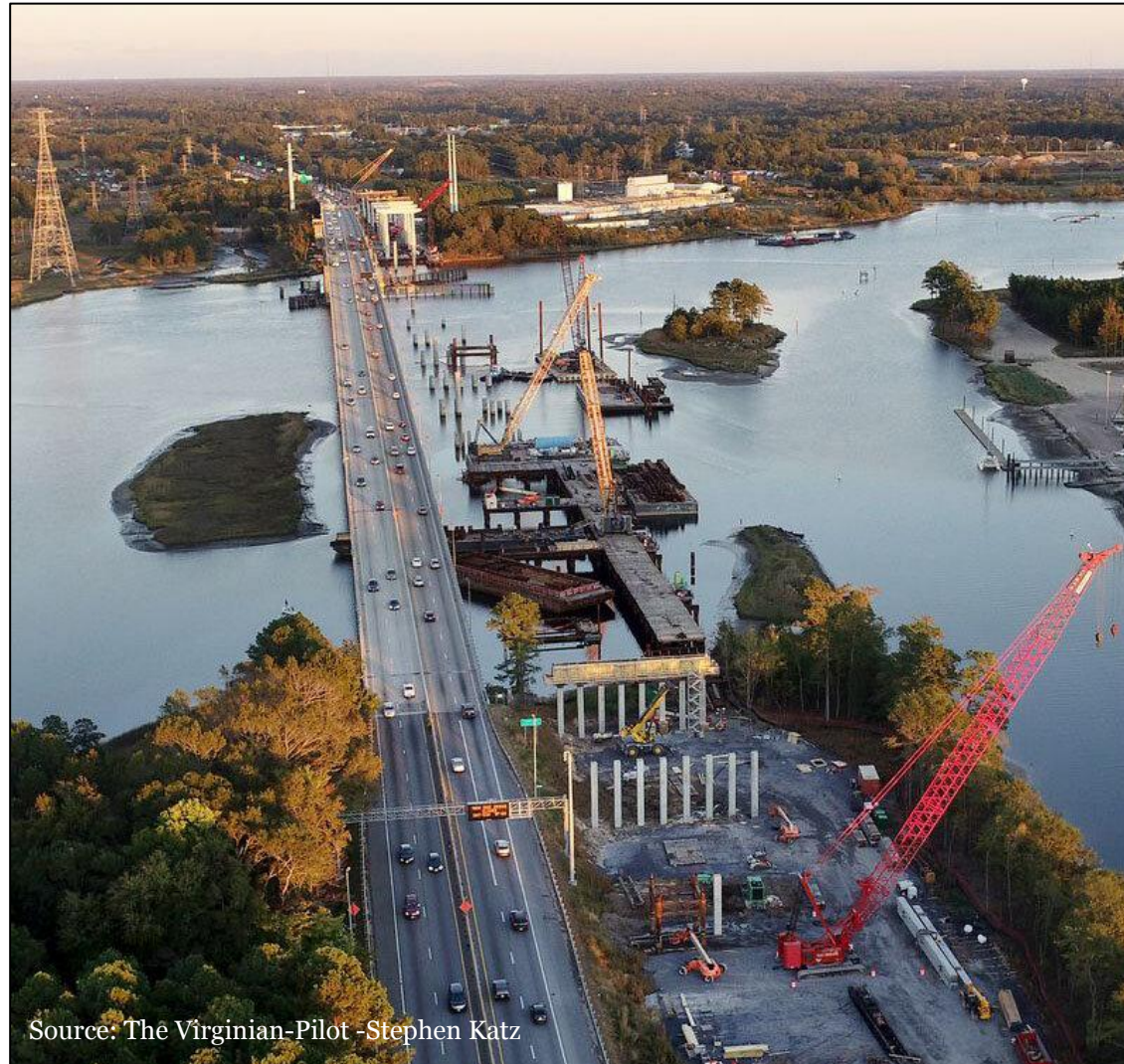
VA BEACH RAINFALL STUDY (DEWBERRY) (2018) CONFIRMS ATLAS 14 OUTDATED



VA PICKED A CURVE & STANDARDS FOR STATE BUILDINGS (2019)



VDOT UPDATED BRIDGE DESIGN STANDARDS (2020)



Source: The Virginian-Pilot -Stephen Katz

VA BEACH RELEASES SEA LEVEL WISE (2020) VA BEACH PASSES \$567 BOND REFERENDUM (2021)



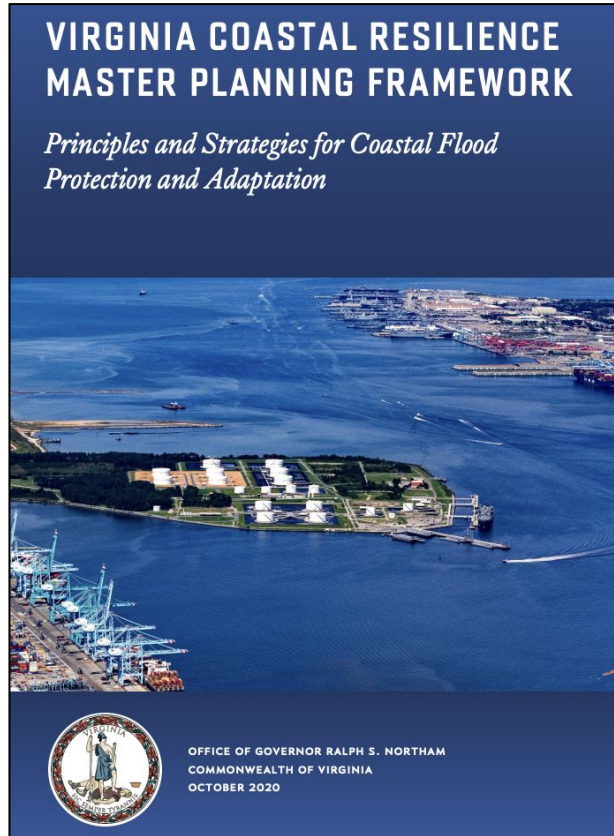
Virginia Beach

Sea Level Wise

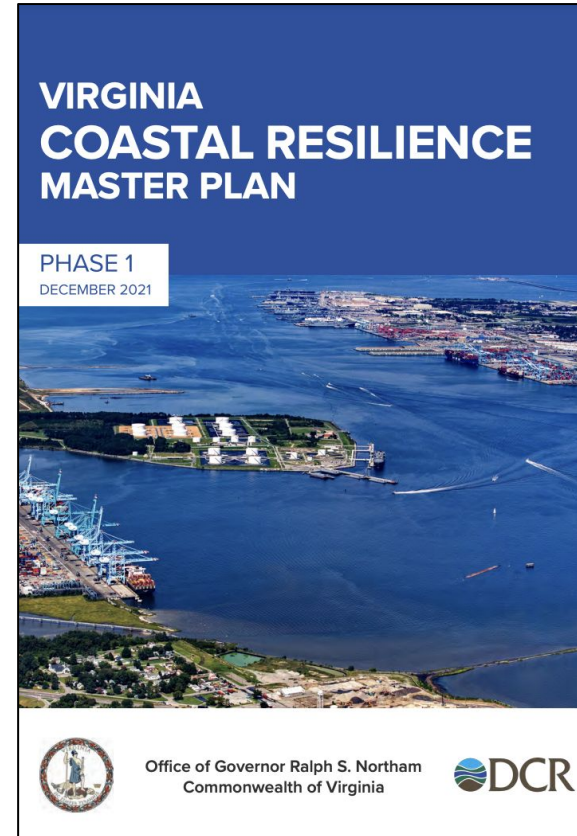
Adaptation Strategy

VB Sea Level Wise
A vibrant future for Virginia Beach

COASTAL FOCUS → STATEWIDE FOCUS IS NEXT



2020



2021

“BIG PROJECT” WORK JUST NOW STARTING
HUD \$112 MILLION GRANT: NORFOLK (2023)
10 YEARS AFTER VIMS RECURRENT FLOODING STUDY!



Photo: WHRO



CALL TO ACTION FOR THE BAY

Photo: Emily Steinhilber

WE NEED YOU!

- **Speak Out** about how climate change and flooding impacts your community and the Bay **AND** the solutions that work!
- **Reach Out** to partners like us with any questions - We love to share!



Photo: Emily Steinhilber

ACKNOWLEDGE...

- The **TIME** in both years and man hours this work takes our communities!
- The **DISPARITY** between low resource and high resource communities!
- The **SCALE** of need is accelerating!



Photo: Emily Steinhilber

WHICH MEANS:

- **Championing legislation that includes funding for both capacity building (including planning) at the local level AND implementation of projects**
- **Creating/supporting pipelines to success! Communities, particularly low resourced communities need consistent funding over YEARS. They need political will to invest & learn**
- **We must create many buckets / many tools to meet the scale and diversity of need. These buckets and toolboxes must be filled with \$\$\$ and ideas.**

**NATURAL
HABITAT IS A
CRITICAL TOOL
FOR THE BAY
AND OUR
COMMUNITIES
TO ADAPT TO
CLIMATE
CHANGE**



THANK YOU!



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