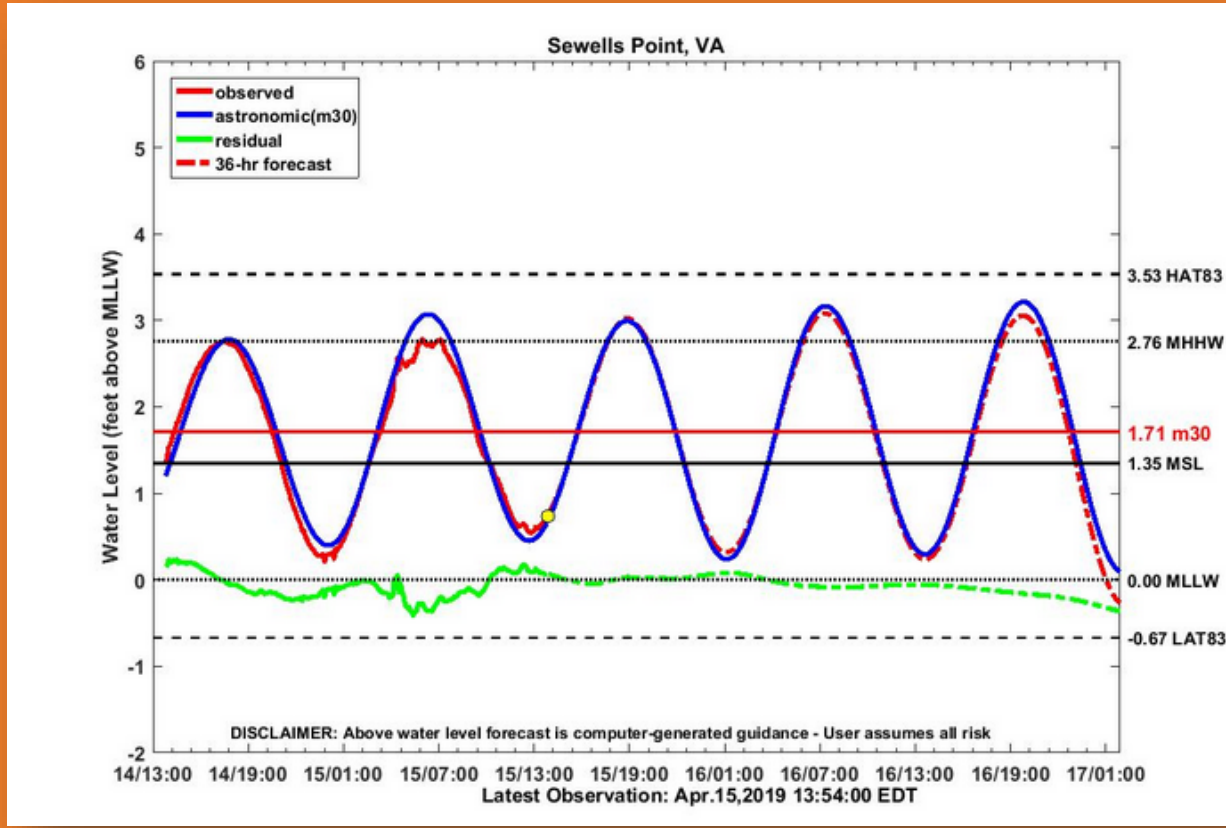# Quantifying and Conveying Future Flood Risk to Virginia

Short Term Risk

Tidewatch Charts©

This tool combines water levels from tide gauges, wind field predictions and harmonic analysis to forecast water levels at the gauges 36-hours in advance.

Team: John Boon, David Forrest, Tim Grass, David Malmquist

StormSense

This tool brings the utility of Tidewatch farther inland to help prepare for flooding due to storm surge, heavy rain, or both. StormSense advances the field of emergency preparedness by advancing research to ultimately help better predict flooding resulting from storm surge, rain, and tides. Real-time water levels and short term projections are based on wide-spread gauges, both in tidal rivers and in small creeks that continuously monitor water levels.

Team: Derek Loftis, David Forrest, Locality Partners
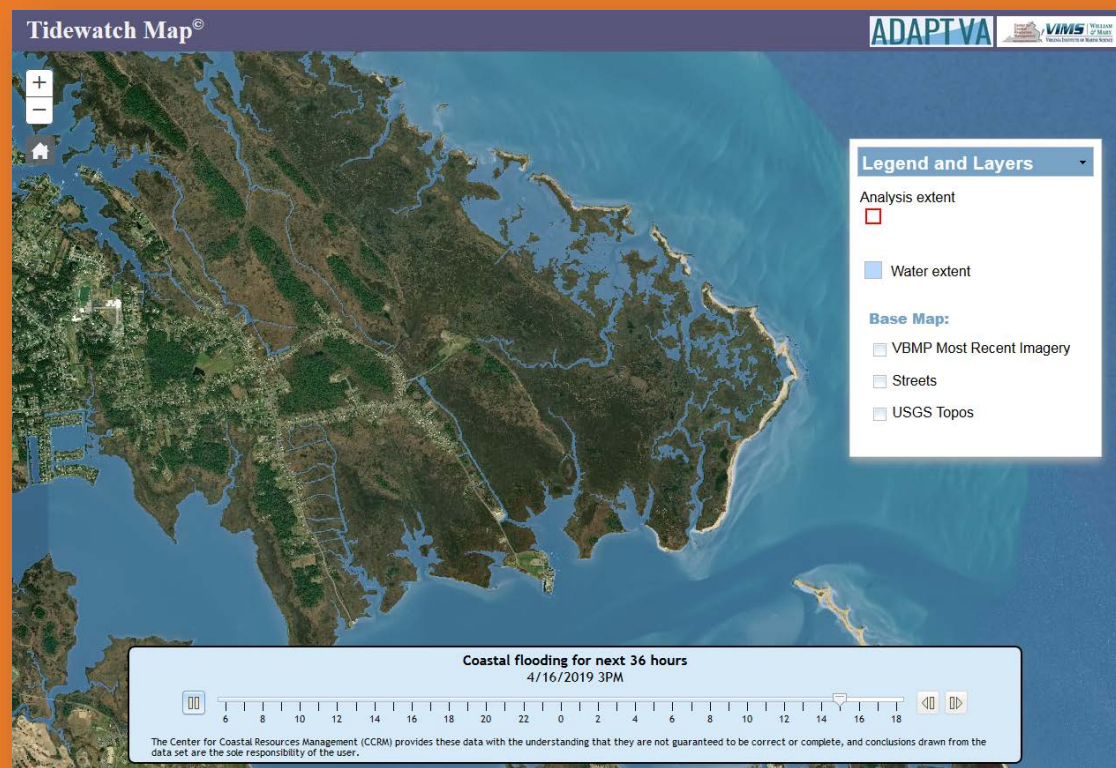
Tidewatch Map ©

This tool brings our coastal flooding predictions to the landscape, making it easier to visualize impacts to roads, properties, and structures. Based on SCHISM modeling, the Map projects water levels at HUC units around the Bay. These water levels are mapped onto a LIDAR surface to provide an effective way to visualize the magnitude and impacts of coastal flooding within the Chesapeake Bay and along Virginia's Eastern Shore. The data are generated in 36 hour forecasts each morning and evening.

Team: David Forrest, Dan Schatt, Derek Loftis, Molly Mitchell, Carl Hershner

Communication Portal
Adaptva.org

ADAPTVA is a gateway to information for individuals, local programs, and agencies engaged in climate adaptation. ADAPTVA focuses on the physical and social vulnerabilities by integrating the best available science, legal guidance, and planning strategies. Visitors will find legal and policy resources, stories that explain adaption through maps and pictures, a searchable web catalogue, and mapping tools that address short and long-term predictions for rising water levels.
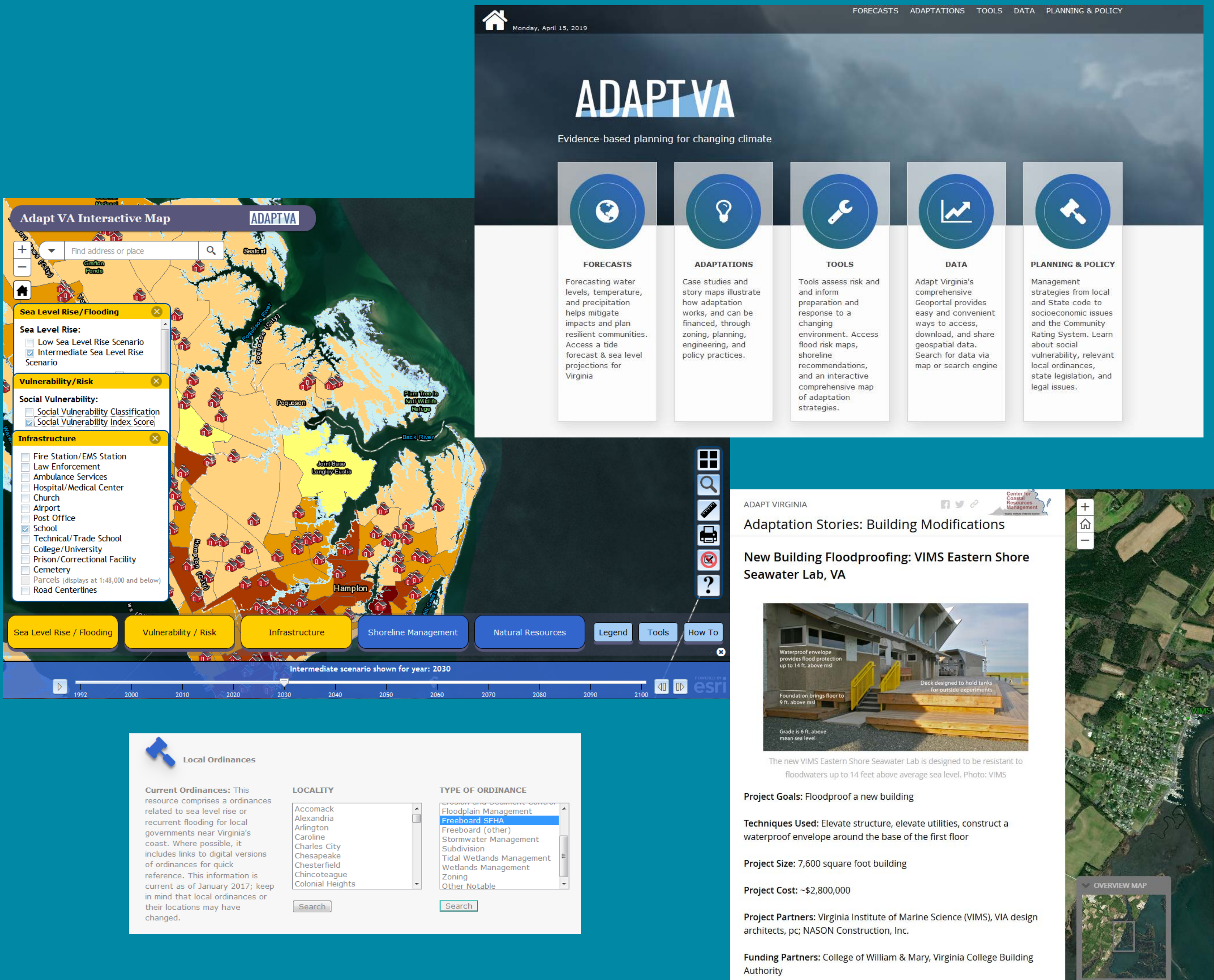
Project team:
Carl Hershner, Molly Mitchell, Pam Mason, Marcia Berman : Center for Coastal Resources Management, Virginia Institute of Marine Science, College of William and Mary
Elizabeth Andrews: Virginia Coastal Policy Center, William and Mary Law School; Sarah Stafford: Public Policy Program, College of William and Mary
Skip Stiles, Mary-Carson Stiff, Shereen Hughes, Ross Weaver: Wetlands Watch

Long Term Risk

Sea level report cards

This tool uses statistical analysis of long term tide gauge records (1969-present) to investigate changes in rise and acceleration rates. It provides an empirically-based relative sea level rise projection for location around the United States.

Our report cards have 3 components: the 2050 projection, recent trends in the rates of sea-level change, and an explanation of processes affecting sea level at each locality. The web-based interface was specifically designed for use by a wide array of users and decision makers.

Team: John Boon, Molly Mitchell, Derek Loftis, David Malmquist
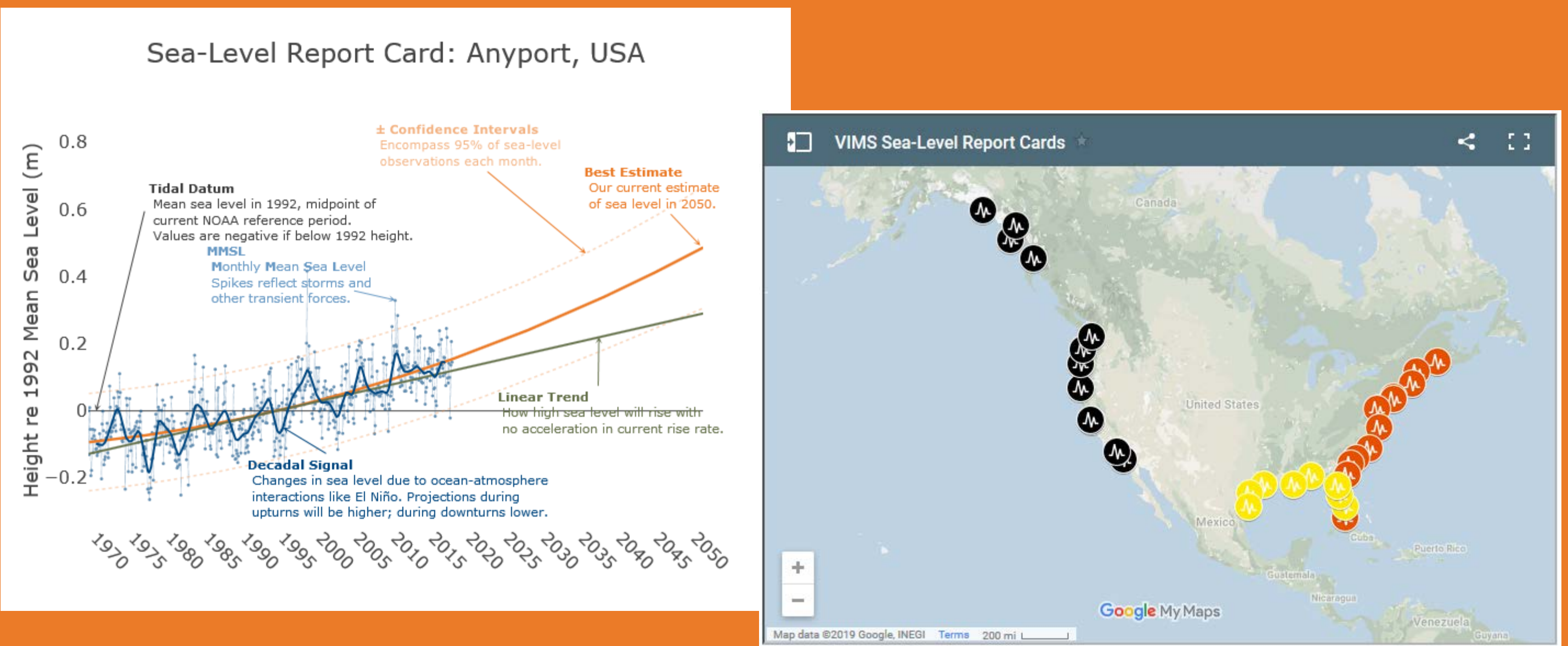
State projections

These projections were designed as specific guidance for state and locality decision-making. They combine empirical projections (for shorter term decision making, ~30 years) and down-scaled global model projections (for longer term decision making). Projections are presented in NAVD88, since this most closely relates to "depth above the ground" that decision makers have requested.

This is a communication tool—no new projections were developed for it.

Team: Molly Mitchell, Carl Hershner, David Malmquist

Questions? Contact: molly@vims.edu