



RESEARCH BRIEF SERIES

MITIGATION MATTERS

AWARD RECIPIENTS

NICOLE HUTTON
Old Dominion University

THOMAS ALLEN
Old Dominion University

AWARD AMOUNT:
\$2,443.54

FEMA defines mitigation as the effort to reduce loss of life and property by lessening the impact of disasters. Effective mitigation requires that we all understand local risks and invest in long-term planning to reduce risks and enhance community well-being.

THE TRADITIONAL ECOLOGICAL KNOWLEDGE AND MITIGATION NEXUS: THE PAMUNKEY INDIAN RESERVATION

SUMMARY

Sea level rise has reduced land area and altered the way the Pamunkey Indian Tribe interacts with the shoreline. Existing mitigation projects require carefully considered expansion to limit further damage.

This participatory mapping exercise assessed the influence of sea level rise maps on traditional ecological knowledge holder priorities and solutions for flood management. Input was spatially referenced and entered into a matrix to identify resilience building benchmarks.

KEY FINDINGS

- Maps of sea level rise highlight the urgency of protecting housing and heritage sites along the shoreline.
- Traditional ecological knowledge suggests that relocation is appropriate to adapt to sea level rise. However, structural solutions implemented with respect for traditional livelihoods (i.e., fishing, hunting, and clay digging) are less extreme, interim alternatives to maintaining access to the reservation and protecting known and unknown artifacts.
- Mitigation decision making and implementation requires impact assessments, tribal council support, federal assistance, and community capacity building.



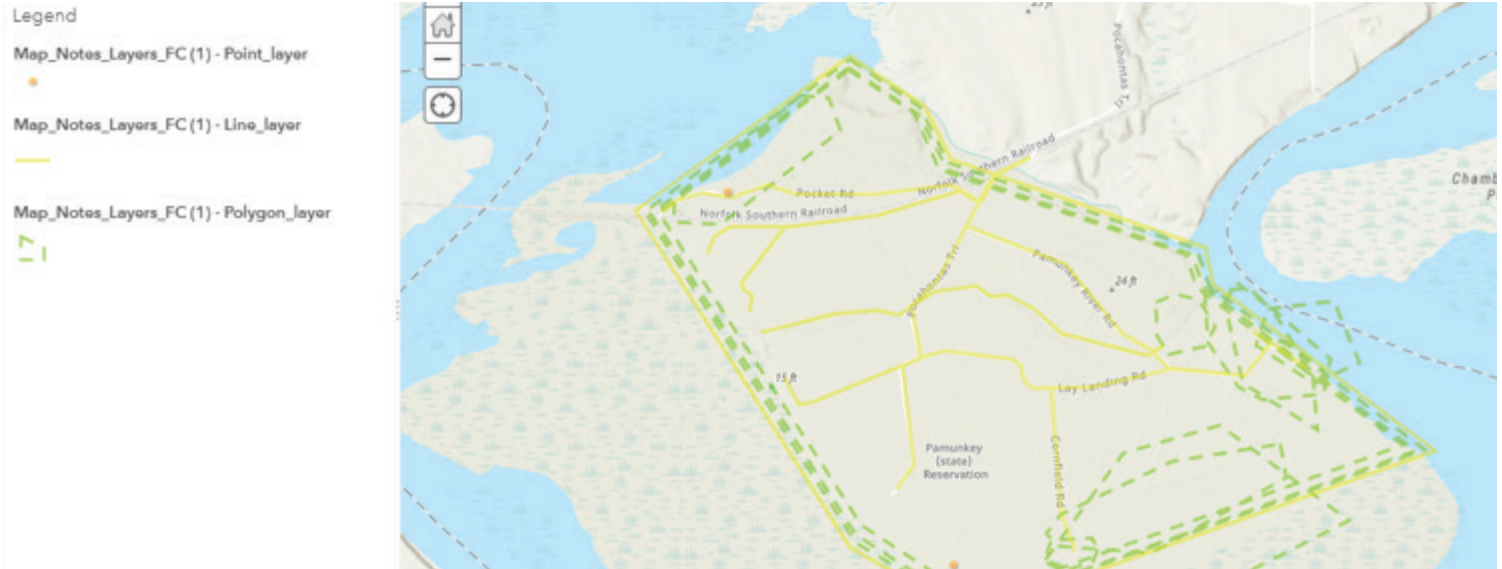
The site of a traditional fishing hut removed to limit erosion.

POLICY IMPLICATIONS

- The impacts of sea level rise have accelerated, and traditional ecological knowledge is relevant to establish multi-generational parameters for mitigation and adaptation for associated flooding.
- Land rights, infrastructure, cultural assets, and human-water relationships should be considered in risk assessments on reservations and surrounding jurisdictions.
- Local priority assets are clear to mitigation stakeholders when georeferenced and integrated into interactive visualization tools.

STAKEHOLDERS

Stakeholders who may find this work interesting include coastal tribes, federal agencies, emergency management organizations, and mitigation planners.



Flood Protection Priorities Web Map Used for Participatory Mapping

Full report: Hutton, N. S. & Allen, T. R. (2021). The Traditional Ecological Knowledge and Mitigation Nexus: The Pamunkey Indian Reservation. Natural Hazards Center Mitigation Matters Grant Report Series, 1. Boulder, CO: Natural Hazards Center, University of Colorado Boulder. Available at: <https://hazards.colorado.edu/mitigation-matters-report/the-traditional-ecological-knowledge-and-mitigation-nexus>



The Mitigation Matters program is based on work supported by the National Science Foundation (NSF Award #1635593) through supplemental funding from the Federal Emergency Management Agency (FEMA). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of NSF, FEMA, or the Natural Hazards Center.



University of Colorado Boulder

Natural Hazards Center
Institute of Behavioral Science | University of Colorado Boulder

1440 15th Street | Boulder, CO 80309-0483 USA
hazctr@colorado.edu | (303) 492-6818

hazards.colorado.edu