

PhD Student & Postdoctoral Research Associate in Process Coastal Geology Coastal Geology Lab, Virginia Institute of Marine Science

Applications are open for (1) a Postdoctoral Research Associate and (2) a PhD student to join the Virginia Institute of Marine Science Coastal Geology Lab (Dr. Christopher Hein, PI) as part of a multi-institutional study of coastal change and management along Wallops Island (home to the NASA Wallops Flight Facility) and nearby barrier islands of the Virginia Eastern Shore.

The postdoc and student will work as part of a team of scientists at VIMS, state and federal agencies, and several academic institutions. This project has goals focused on both management and fundamental coastal science. A primary outcome is to provide beach and nearshore mapping and monitoring information to assist NASA with future stabilization efforts and help predict associated physical habitat impacts. This work scope focuses on collecting shoreline-change, sediment-volume, and habitat-area-change data at high temporal and spatial resolution along Wallops Island and nearby barriers. It uses publicly available historical maps, satellite imagery, and new topographic, shallow bathymetric, and sedimentologic mapping data to establish pre-construction baselines and calculate change rates before and during future nourishment activities. Both candidates will have opportunities to engage in numerical hydrodynamic and/or morphodynamic modeling, and associated experience is a plus. Experience with (or willingness to learn) methods associated with vessel- and drone-based topographic and bathymetric mapping, and satellite remote sensing are required.

The project will also allow both the postdoc and PhD student to explore basic scientific questions about barrier-island behavior and sensitivities to sea-level rise, changing longshore sediment fluxes, and management activities. Exact topics and questions to be addressed can be developed collaboratively with other lab members; possible topics include using satellite data to quantify the role of shoreline hardening and inlet dynamics in downdrift barrier growth and/or erosion, exploring how available 'geomorphic capital' influences island response to storm events and long-term sediment flux asymmetries, and sedimentation couplings between barrier islands and backbarrier marshes.

The Postdoctoral Research Associate position is designed for a two-year period, starting in Fall 2023 or early 2024. Application review starts after 31 October 2023. A detailed job description and application portal are available here: <https://jobs.wm.edu/postings/56047>

The PhD student would matriculate in Fall 2024. Students can apply as post-bachelor's M.S. track (with the intent to bypass later to the PhD program) or post-masters PhD track. Complete details on VIMS' School of Marine Science are available at <https://www.vims.edu/education/graduate/index.php>. Applications are due by 4 January 2024, and information on how to apply is here: <https://www.vims.edu/education/graduate/admissions/howtoapply/index.php>.

We encourage all interested candidates to learn more about the Coastal Geology Lab by visiting www.vims.edu/coastal_geology. All questions should be addressed to Dr. Christopher Hein at hein@vims.edu.