

## October 2021 Announcement

**Virtual meeting** – *Register online for the virtual event*

### Program Topic

Human Influence on Large-scale Coastal Behavior: Evidence from the New England and Mid-Atlantic Coast

### Speaker

Dr Cheryl J. Hapke, Research Professor, University of South Florida's College of Marine Science and Coastal Science Solutions

**WHEN:** Tuesday, October 26, 2021 @ **NOON** CDT

Cocktails – n/a

Dinner – Virtual meals encouraged Presentation begins promptly at scheduled time.

**COST:** **NO CHARGE** for Virtual meeting

**RSVP:** Register for this meeting at

[https://illinois.zoom.us/meeting/register/tZYqc-CpqzwiE9TM\\_py55qcRItnzmT0SmNh4?\\_x\\_zm\\_rtaid=AdJaDnceSsqaglDzo\\_BXaA.1631991919937.8561fbd35aa2f7b84ee4e7b72bb167fb&\\_x\\_zm\\_rhtaid=975](https://illinois.zoom.us/meeting/register/tZYqc-CpqzwiE9TM_py55qcRItnzmT0SmNh4?_x_zm_rtaid=AdJaDnceSsqaglDzo_BXaA.1631991919937.8561fbd35aa2f7b84ee4e7b72bb167fb&_x_zm_rhtaid=975)

After registering, you will receive a confirmation email containing information about joining the meeting.

If you have trouble registering contact [chair.aeg.chicago@gmail.com](mailto:chair.aeg.chicago@gmail.com)

# Human Influence on Large-scale Coastal Behavior: Evidence from the New England and Mid-Atlantic Coast

## Abstract

Regional assessments of shoreline change are essential for a broader understanding of coastal erosion hazards and vulnerabilities on spatial scales of hundreds to thousands of kilometers. However, regional assessments provide little information on factors that influence the coastal behavior on scales of kilometers to tens of kilometers. This study was part of a national project aimed at measuring, evaluating, and disseminating rates of shoreline change using a consistent methodology and a systematic approach for all open-ocean coastal regions of the U.S. The data and associated analyses are ideal for examining coastal change on a variety of spatial and temporal scales. Measurements of shoreline position are made at 50-meter intervals over large coastal regions (>1000 km) and rates of change are assessed over multiple time periods, with the longest record going back more than 150 years.

An assessment was completed for the New England and Mid-Atlantic coasts. From a regional perspective, the averaged rate of shoreline change is lower in New England (Maine to Rhode Island) relative to the Mid-Atlantic region (New York to Virginia), primarily due to differences in the geomorphology of the two coastal regions. New England beaches can be characterized as those found along rocky coastlines as well as bluff-backed, mainland and barrier-island beaches, while barrier island beaches dominate the Mid-Atlantic. However, despite the lower rates of change, a larger percentage of the New England coast is experiencing retreat on both the long (~150 yr) and short (decadal) time scales. Additionally, averaging the measured rates across smaller spatial scales indicates that human modifications to the coastline impact the regionally-averaged rate of change. This is particularly evident along the Mid-Atlantic seaboard where jetties at engineered inlets impound large volumes of sediment, resulting in sections of shoreline with a discrete progradational signal. When the rates are averaged over a region, this anthropogenic influence is significant enough to shift the regional average to be less erosional or more accretional. If regional shoreline change rates are to be applied in management decisions or predictive change models, the degree to which human-modification of the shoreline impacts these rates needs to be addressed. The anthropogenic influence on shoreline change rates is more apparent in the short-term record where negative shifts in the rates of change and the number of large-scale engineering structures in a given region are correlated.

## Speaker Biography



Dr. Cheryl Hapke is a coastal geologist with more than 25 years of experience studying coastal evolution and coastal change processes in a variety of geomorphic settings. She received her Ph.D. from the University of California Santa Cruz, a Master's from the University of Maryland, and her B.S. in Geology from the University of Pittsburgh. Dr. Hapke worked for the U.S. Geological Survey as a research scientist, and now is a senior consultant in coastal resiliency with Integral Consulting. She also is a research professor at the University of South Florida, College of Marine Science. Her current research focuses on coastal vulnerability and sea-level rise adaptation, developing new tools and approaches to coastal hazards. She has authored over 80 peer-reviewed papers, book chapters, and technical reports, and served as a subject matter expert on coastal change hazards to local, state, and federal agencies, and international groups.

