C PATRICK BARRINEAU

COASTAL SCIENTIST

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PROFILE

Dr. Barrineau serves as a coastal scientist and project manager for CSE, performing work in the field, laboratory, and office. He served as project manager for the Arcadian Shores (SC) beach renourishment and Singleton Swash realignment project (2018), developed a post-storm dune recovery plan for the City of Myrtle Beach following Hurricane Matthew (2017), and regularly curates coastal data from collection to publication in concert with CSE staff.

While at CSE, Dr. Barrineau has prepared reports and/or permit documents for projects at Nags Head (NC), Buxton (NC), Myrtle Beach (SC), Pawleys Island (SC), Debidue Island (SC), Edisto Beach (SC), and Sea Island (GA). Prior to joining CSE, Dr. Barrineau studied coastal processes and landforms through field-based research on sediment transport and barrier-lagoon evolution. He has organized and led field studies in South Carolina, Texas, New Mexico, California, Brazil, and Israel. In addition to his work at CSE, Dr. Barrineau teaches a graduate-level course in Coastal Zone Management at the University of South Carolina.

RESEARCH EXPERIENCE

Conceptual modeling of landscape evolution in coastal systems; modeling fluid dynamics and sediment transport; identifying controls on sediment transport patterns; and monitoring beach and dune response and recovery following storm impact. Field research at Isle of Palms (SC); Padre Island (TX); White Sands (NM); Pismo Beach (CA); Jericoacoara, Brazil; Ashkelon, Israel.

TECHNICAL EXPERIENCE

Dr. Barrineau has extensive experience working in coastal and desert settings, collecting elevation and geophysical data using RTK-GPS, Total Station, ground-penetrating RADAR, and Electromagnetic Induction Profilers.

He has also collected vibracores and analyzed hundreds of sediment samples for grain size, sorting, and X-ray fluorescence analysis.

EDUCATION

PhD. Geography, Texas A&M University
MS. Geography, University of South Carolina
BS. Geography, Auburn University

SPECIALTIES

- Collection and analysis of elevation and geophysical data
- Collection and analysis of coastal sediments
- Beach and Dune processes
- Conceptual models of landscape evolution

SOFTWARE PROGRAM CAPABILITIES

- ArcGIS
- ERDAS Imagine
- QGIS
- ENVI

SELECT PUBLICATIONS

Barrineau et al., 2018. Deconstructing aeolian landscapes. CATENA, in press.

Houser, Barrineau, Hammond, Saari, Rentschler, Trimble, Wernette, Weymer, Young, 2017. Role of the foredune in controlling barrier island response to sea level rise. In: Barrier Islands, ed. Moore and Murray.

Barrineau et al., 2016. Deconstructing a polygenetic landscape with multi-scale LiDAR. Geomorphology 258, 51-57.

Weymer, Everett, Houser, Wernette, Barrineau, 2016. Testing the utility of broadband electromagnetic sensors in coastal environments. Geophysics 81(5), E347-E361.

Barrineau et al., 2015. Coastal Landscapes in the Critical Zone. In: Principles and Dynamics of the Critical Zone, Vol. 19, pp. 495-420.

Houser, Bishop, Barrineau, 2015. Characterizing instability of aeolian environments using analytical reasoning. Earth Surface Processes and Landforms 40(5), 696-705.

Barrineau, Ellis, 2013. Sediment transport and wind flow around hummocks. Aeolian Research 8, 19-27.