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## RESEARCH INTERESTS and EXPERTISE

- Coastal Geologic Hazards
  - Seacliff and bluff erosion
  - Short-term and long-term changes in sandy beach geomorphology
  - Response to coastal hazards
  - Reductions to natural sand supply
  - Spatiotemporal shoreline change mapping with unmanned aerial vehicles (UAVs/Drones)
- Climate Change and the Impact on Coastal Geologic Systems
  - Policy and management strategies as it relates to sea level rise and coastal resilience
- Littoral Processes
- Sediment Budget Analysis of Littoral Systems
- Conservation Mechatronics

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## EDUCATION

Ph.D.	Earth Sciences, University of California Santa Cruz Advisor: Dr. Gary Griggs Dissertation: <i>An Analysis of Littoral Cell Sand Budgets in California</i>	2000-2004
B.A.	Environmental Sciences, University of Virginia, Charlottesville, Virginia High Distinction Thesis Advisor: Dr. Robert Dolan	1996-2000

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## PROFESSIONAL ACTIVITIES and EXPERIENCE

ASSISTANT PROFESSOR 2015-PRESENT

- [California State University Channel Islands](#)  
Environmental Science and Resource Management  
Dr. Sean Anderson (Chair)

ADJUNCT PROFESSOR/LECTURER 2013-2015

- [James Madison University](#)  
Geology Department  
Contact: Dr. Steven Leslie (Chair)
- [Lynchburg College](#)  
Environmental Studies Department  
Contact: Dr. David Perault (Chair)

## PROFESSIONAL CONTRIBUTIONS

Anderson, S., **Patsch, K.**, Issacs, J. (in prep). Drone Field Operations Manual for Conservation Professionals. *Open source textbook/drone manual*.

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**Patsch, K.** (2018). A Review of Coasts in Crisis: A Global Challenge. *Coastal Management*. Vol. 46(2). pp. 1-3. DOI 10.1080/08920753.2018.1426378.

Griggs, G.B., **Patsch, K.** (2018). Natural changes and human impacts on the sand budgets and beach widths of the Zuma and Santa Monica littoral cells, southern California. *Shore and Beach*. March.

**Patsch, K.**, Coty, A., and Costa, P. (2017). Establishing Sea Cliff Erosion Rates and Identifying Erosional Hotspots for Becher's Bay, Santa Rosa Islands. *CSU Geospatial Review: Geographic Information Science in the California State University System*. Vol. 14, Spring 2017, pp 1; 6-7. [http://csugis.sfsu.edu/CSU\\_Geospatial\\_Review/2017.pdf](http://csugis.sfsu.edu/CSU_Geospatial_Review/2017.pdf)

Moore, L.J., **Patsch, K.**, Williams, S.J., and List, J.L. (2014). The potential for sea-level-rise-induced barrier island loss: Insights from the Chandeleur Islands, Louisiana, USA. *Marine Geology*, 355, 244-259.

Moore, L. J., J. H. List, S. J. Williams, and **K. Patsch**. (2011). Barriers on the brink: the complex intertwined roles of geologic framework, sediment availability and sea-level rise in island evolution. In: *Coastal Sediments 2011*, edited by P. Wang, J. D. Rosati and T. M. Roberts, pp. 272-285, World Scientific, Miami, FL, USA.

Moore, L.J. List, J.H., **Patsch, K.**, and Williams, S.J. (2009). Barrier island sensitivity to sea-level rise: Insights from numerical model experiments, North Carolina Outer Banks and Chandeleur Islands, LA, USA. *EOS Transactions*. AGU, 9(22), Fall Meet. Suppl., Abstract U51A-0012.

**Patsch, K. B.**, & Griggs, G. B. (2008). Development of a Sediment Budget for the Santa Barbara Littoral Cell. *Marine Geology*, 252(1-2), 50-61.

Kraus, N. C., **Patsch, K. B.**, & Munger, S. (2008). Barrier Beach Breaching from the Lagoon Side with Reference to Northern California. *Shore and Beach*, 76(2), 33-43.

Limber, P. W., **Patsch, K. B.**, & Griggs, G. B. (2008). Coastal Sediment Budgets and the Littoral Cut-off Diameter: A Grain Size Threshold for Quantifying Active Sediment Inputs. *Journal of Coastal Research Special Issue*, 24(2), 122-133.

**Patsch, K. B.**, & Griggs, G. B. (2007). *Development of Sand Budgets for California's Major Littoral Cells: Eureka, Santa Cruz, Southern Monterey Bay, Santa Barbara, Santa Monica (including Zuma), San Pedro, Laguna, Oceanside, Mission Bay, and Silver Strand Littoral Cells*. Oakland, California: Report to the California Coastal Sediment Management Work Group, California Department of Boating and Waterways.

**Patsch, K. B.**, & Griggs, G. B. (2006). *Littoral Cells, Sand Budgets, and Beaches: Understanding California's Shoreline*. Oakland, California: California Sediment Management Group. <http://www.dbw.ca.gov/CSMW/PDF/LittoralDrift.pdf>

Griggs, G. B., **Patsch, K. B.**, & Savoy, L. (2005). *Living with the Changing California Coast*. Berkeley, California: University of California Press. 540pp

Griggs, G. B., & **Patsch, K. B.** (2004). *California's Coastal Cliffs and Bluffs: Formation, Evolution, and Stability of Coastal Cliffs Status and Trends*: United States Geological Survey Professional Paper Number 1693. 123pp.

Griggs, G. B., & **Patsch, K. B.** (2004). Cliff Erosion and Bluff Retreat along the California Coast. *Sea Technology*, 45(9), 36-40.

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Griggs, G. B., & **Runyan, K. B.** (2004). Cliff Erosion and Bluff Retreat along the California Coast. Paper presented at the *Proceedings from the Oceans 2003 Marine Technology and Ocean Science Conference*.

**Patsch, K. B.** (2004). *An Analysis of Littoral Cell Sand Budgets for California*. Unpublished Ph.D. Dissertation, University of California, Santa Cruz, Santa Cruz.

**Runyan, K. B.,** & Griggs, G. B. (2003). *CIRP Web Database: Net/Gross Longshore Transport Rates, California*. Vicksburg, Mississippi: Army Engineer Research and Development Center.

**Runyan, K. B.,** & Griggs, G. B. (2003). The Effects of Armoring Sealiffs on the Natural Sand Supply to the beaches of California. *Journal of Coastal Research* 19(2), 336-347.

**Runyan, K. B.,** & Griggs, G. B. (2003). Implications of Harbor Dredging for the Santa Barbara Littoral Cell. Paper presented at the *Proceedings from the California and the World Ocean Conference 2002*, Santa Barbara, California.

**Runyan, K. B.,** & Griggs, G. B. (2002). Chapter 8: Contributions from Coastal Cliff Erosion to the Littoral Budget. In M. Coyne & K. Sterrett (Eds.), *California Beach Restoration Study* (pp. 8.1-8.5). Sacramento, California: California Division of Boating and Waterways and the State Coastal Conservancy.

**Runyan, K. B.,** & Dolan, R. (2001). Origin of Jockey's Ridge, North Carolina: End of the Highest Sand Dune on the Atlantic Coast? *Shore and Beach*, 69(3).

**Runyan, K. B.** (2000). *A Dune Called Jockey's Ridge*. Unpublished Undergraduate Honor's Thesis, University of Virginia, Charlottesville, Virginia.

#### CONFERENCE ABSTRACTS/TALKS/POSTERS AND INVITED LECTURES

**Patsch, K.** and King, P. (2017). The Development of Beach Sustainability Indices to Assess and Monitor the Value of Sandy Beach Ecosystems in the Santa Barbara, California Littoral Cell. *2017 American Shore and Beach Preservation Association (ASBPA) National Coastal Conference: Beaches, Bays & Beyond*. Fort Lauderdale, Florida, October 24-26, 2017. (Speaker)

**Patsch, K.,** and Anderson, S. (2017). Coastal Geomorphology and Monitoring Beaches with Drones. *Beach Ecology Coalition 14<sup>th</sup> Annual Winter Meeting*. February 2, 2017, Pepperdine University, Malibu, CA. (Invited speaker)

**Patsch, K.,** Cruz, C., Ashton, C., Stark, B., Sashen, W. (2016). Drone Education Program Panel. *Drone Educators Conference: Aerial Pathways to the Future*. Skyline College, Oct 22, 2016 San Bruno CA. (Invited Closing Panel Speaker).

Moore, L., List, J., Williams, S.J., and **Patsch, K.** (2011). Barriers on the Brink? The Complex Intertwined Roles of Geologic Framework, Sediment Availability, and Sea-level Rise in Island Evolution. *The Proceedings of the Coastal Sediments Conference*. Miami, Florida, USA, May, 2011.

Griggs, G.B., **Runyan, K.B.,** Willis, C. (2003). Challenges to Understanding Littoral Sand Budgets along Active Margin, High Energy Coastlines. *GSA Conference 2003-Session: Coastal Processes and Hazards along Active Margin and Low Latitude Coasts*. Seattle, Washington, November 2003. (Speaker)

Griggs, G.B. and **Runyan, K.B.** Cliff Erosion and Bluff Retreat along the California Coast. *Oceans 2003 Marine Science and Ocean Technology Conference*. San Diego, California, September 2003. (Speaker)

**Runyan, K.B.** Implications of Harbor Dredging for the Santa Barbara Littoral Cell. *California and the World Ocean '02*. Santa Barbara, California, October 2002. (Speaker)