

Noah P. Snyder

Department of Geology and Geophysics
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EDUCATION

Ph.D., Massachusetts Institute of Technology, Cambridge, MA, geology (2001)

B.S., Bates College, Lewiston, ME, high honors in geology (1993)

EMPLOYMENT

Assistant Professor, Dept. of Geology and Geophysics, Boston College, Chestnut Hill, MA (2004-2009)

Postdoctoral Research Geologist, U.S. Geological Survey Coastal and Marine Geology Team, Santa Cruz, CA (2001-2004)

Research and Teaching Assistant, Department of EAPS, MIT, Cambridge, MA (1996-2001)

Visiting Instructor, Department of Geology, Colorado College, Colorado Springs, CO (2000)

Geologist, Utah Geological Survey, Salt Lake City, UT (1994-1996)

Teaching Assistant, Department of Geology, Bates College, Lewiston, ME (1990-1993)

RESEARCH INTERESTS

Rivers are conduits for transport of fresh water, sediment and nutrients throughout the landscape. At the same time, rivers are vital pathways for the migration of aquatic species, such as salmon. My research focuses on understanding how rivers respond to changes, ranging from long-term variations in tectonics or climate to short-term shifts in management style or land use. I link measurements of channel morphology from high-resolution airborne lidar digital elevation models with field-based measurements of stream processes.

FUNDING

American Chemical Society, Petroleum Research Fund (2008-2010)

Dam-controlled river deltas as meso-scale analogues for offshore sedimentary systems. Funded, began June 1, 2008 (\$50,000).

NOAA Open Rivers Initiative / Gomez and Sullivan Engineers, P.C. (2008-2010)

On-site monitoring related to the Merrimack Village Dam removal project. Funded, began June 1, 2008 (\$28,000).

NSF, Division of Geomorphology and Land Use Dynamics (2007-2012)

CAREER: Land use, geologic and climatic controls on stream processes in northern New England using airborne laser swath mapping. Funded, NSF #0645343, began August 1, 2007 (\$438,806).

National Fish and Wildlife Foundation, Maine Atlantic Salmon Conservation Fund (2006-2007)

Controls on channel morphology, sediment transport, and Atlantic salmon habitat in the Sheepscot and Narraguagus River watersheds, coastal Maine (\$40,000).

NCALM Seed Proposal (2004-2005)

Transient response of a desert river to forced diversion: Furnace Creek Wash, Death Valley National Park, California. Airborne laser altimetry data collection completed in February 2005.

U.S. Geological Survey Cooperative Agreement (2004-2006)

Quantifying sediment size and transport rates in Englebright Lake and the Yuba River. Collaborative work with the USGS Water Resources Division in Sacramento, California (\$21,675).

CALFED Science Fellows Program, California Sea Grant College Program (2002-2005)

Using stratigraphic and hydrologic data from the Yuba River system to develop reliable sediment transport predictions. Postdoctoral salary and research funding (\$139,537 to USGS; \$22,099 to BC).

Geological Society of America student research grant (1997)

Student Research Fund grant, Department of EAPS, MIT (1997)

Sigma Xi research grant (1992)

HONORS

USGS STAR Award, Englebright Lake coring project (2002)

Teaching Assistant Excellence Prize

Department of EAPS, MIT (2000)

Course: *Geological Image Interpretation*

J. Hoover Mackin Research Award

GSA Quaternary Geology & Geomorphology Division (1998)

Proposal title: *Channel response to varying uplift, King Range, northern California*

Magna Cum Laude, Phi Beta Kappa, Sigma Xi (1993); **Dean's List** (1989-1993)

PUBLICATIONS (available at <http://www2.bc.edu/~snyder/no/>)**REFEREED ARTICLES** (*Boston College student coauthors)

Wilkins, B.C.*, and **Snyder, N.P.**, in press, Geomorphic comparison of two Atlantic coastal rivers: toward an understanding of physical controls on Atlantic salmon habitat, submitted to *River Research and Applications*, May 2009, accepted November 2009.

Snyder, N.P., 2009, Studying stream morphology with airborne laser elevation data, *Eos, Transactions, American Geophysical Union*, v. 90, n. 6, p.45-46.

Snyder, N.P., Castele, M.R.*, and Wright, J.R., 2008, Bedload entrainment in low-gradient paraglacial coastal rivers of Maine, U.S.A.: Implications for habitat restoration, *Geomorphology*, v. 103, p. 430-446, doi: 10.1016/j.geomorph.2008.07.013.

Snyder, N.P., and Kammer, L.L.*, 2008, Dynamic adjustments in channel width in response to a forced diversion: Gower Gulch, Death Valley National Park, California, *Geology*, v. 25, doi: 10.1130/G24217A.1, p. 187-190.

Snyder, N.P., Wright, S.A., Alpers, C.N., Flint, L.E., Holmes, C.W., and Rubin, D.M., 2006, Reconstructing depositional processes and history from reservoir stratigraphy: Englebright Lake, Yuba River, northern California, *Journal of Geophysical Research*, v. 111, F04003, doi:10.1029/2005JF000451.

Wobus, C.W., Whipple, K.X., Kirby, E., **Snyder, N.P.**, Johnson, J., Spyropolou, K., Crosby, B., and Sheehan, D., 2006, Tectonics from topography: Procedures, promise, and pitfalls, in Willett, S.D., Hovius, N., Brandon, M.T., and Fisher, D.M., editors, *Tectonics, Climate, and Landscape Evolution*, Geological Society of America Special Paper 398, p. 55-74, doi: 10.1130/2006.2398(04).

Snyder, N.P., Rubin, D.M., Alpers, C.N., Childs, J.R., Curtis, J.A., Flint, L.E., and Wright, S.A., 2004, Estimating rates and properties of sediment accumulation behind a dam: Englebright Lake, Yuba River, northern California, *Water Resources Research*, v. 40, W11301, doi:10.1029/2004WR003279.

- Snyder, N.P.**, Whipple, K.X., Tucker, G.E., and Merritts, D.J., 2003, Importance of a stochastic distribution of floods and erosion thresholds in the bedrock river incision problem, *Journal of Geophysical Research*, v. 108 (B2), 2117, doi: 10.1029/2001JB001655.
- Snyder, N.P.**, Whipple, K.X., Tucker, G.E., and Merritts, D.J., 2003, Channel response to tectonic forcing: analysis of stream morphology and hydrology in the Mendocino triple junction region, northern California, *Geomorphology*, v. 53, p. 97-127.
- Snyder, N.P.**, Whipple, K.X., Tucker, G.E., and Merritts, D.J., 2002, Interactions between onshore bedrock-channel incision and nearshore wave-base erosion forced by eustasy and tectonics, *Basin Research*, v. 14, p. 105-127.
- Snyder, N.P.**, and Hodges, K.V., 2000, Depositional and tectonic evolution of a supradetachment basin: $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of the Nova Formation, Panamint Range, California, *Basin Research*, v. 12, n. 1, p. 19-30.
- Snyder, N.P.**, Whipple, K.X., Tucker, G.E., and Merritts, D.J., 2000, Landscape response to tectonic forcing: digital elevation model analysis of stream profiles in the Mendocino triple junction region, northern California, *Geological Society of America Bulletin*, v. 112, n. 8, p. 1250-1263.
- Whipple, K.X., **Snyder, N.P.**, and Dollenmayer, K., 2000, Rates and processes of bedrock incision by the Upper Ukak River since the 1912 Novarupta ash flow in the Valley of Ten Thousand Smokes, Alaska, *Geology*, v. 28, n. 9, p. 835-838.

PEER-REVIEWED REPORTS

- Alpers, C.N., Hunerlach, M.P., Marvin-DiPasquale, M.C., Antweiler, R.C., Lasorsa, B.K., De Wild, J.F., and **Snyder, N.P.**, 2006, Geochemical data for mercury, methylmercury, and other constituents in sediments from Englebright Lake, California, 2002, U.S Geological Survey Data-Series Report 2005-151, <http://pubs.water.usgs.gov/ds151/>, 95 p.
- Curtis, J.A., Flint, L.E., Alpers, C.N., Wright, S.A., and **Snyder, N.P.**, 2006, Use of sediment rating curves and optical backscatter data to characterize sediment transport in the upper Yuba River watershed, California, 2001–03, U.S. Geological Survey Scientific Investigations Report 2005-5246, <http://pubs.usgs.gov/sir/2005/5246/>, 74 p.
- Snyder, N.P.**, Allen, J.R., Dare, C., Hampton, M.A., Schneider, G., Wooley, R.J., Alpers, C.N., and Marvin-DiPasquale M.C., 2004, Sediment grain-size and loss-on-ignition analyses from 2002 Englebright Lake coring and sampling campaigns, U.S. Geological Survey Open-File Report 2004-1080, <http://pubs.usgs.gov/of/2004/1080/>, 46 p.
- Snyder, N.P.**, Alpers, C.N., Flint, L.E., Curtis, J.A., Hampton, M.A., Haskell, B.J., and Nielson, D.L., 2004, Report on the May-June 2002 Englebright Lake deep coring campaign, U.S. Geological Survey Open-File Report 2004-1061, <http://pubs.usgs.gov/of/2004/1061/>, 32 p., 10 plates.
- Snyder, N.P.**, and Hampton, M.A., 2003, Preliminary cross section of Englebright Lake sediments, U.S. Geological Survey Open-File Report 03-397, <http://geopubs.wr.usgs.gov/open-file/of03-397/>, 1 plate.
- Childs, J.R., **Snyder, N.P.**, Hampton, M.A., 2003, Bathymetric and geophysical surveys of Englebright Lake, Yuba-Nevada Counties, California, U.S. Geological Survey Open-File Report 03-383, <http://geopubs.wr.usgs.gov/open-file/of03-383/>, 20 p.
- Hampton, M.A., **Snyder, N.P.**, Chin, J.L., Allison, D.W., and Rubin, D.M., 2003, Bed-sediment grain-size and morphologic data from Suisun, Grizzly, and Honker Bays, CA, 1998-2002, U.S. Geological Survey Open-File Report 03-250, <http://geopubs.wr.usgs.gov/open-file/of03-250/>.
- Snyder, N.P.**, 1998, Map of recharge and discharge areas for the principal valley-fill aquifer, Sevier Desert, Millard County, Utah, Utah Geological Survey Map 175, 21 p.

- Snyder, N.P.**, and Lowe, M., 1998, Map of recharge and discharge areas for the principal valley-fill aquifer, Sanpete Valley, Sanpete County, Utah, Utah Geological Survey Map 174, 21 p.
- Snyder, N.P.**, and Lowe, M., 1998, Map of recharge areas for the principal valley-fill aquifer, Ogden Valley, Weber County, Utah, Utah Geological Survey Map 176, 16 p.
- Snyder, N.P.**, 1996, Recharge area and water quality of the valley-fill aquifer, Castle Valley, Grand County, Utah, Utah Geological Survey Report of Investigation 229, 22 p.; and in Huffman, A.C., Jr., Lund, W.R., and Godwin, L.H. (eds.) *Geology and Resources of the Paradox Basin*, Utah Geological Association Guidebook 25, p. 395-404.

OTHER PUBLICATIONS: REPORTS, THESES, GUIDEBOOK ARTICLES

- Merritts, D., Hilley, G., Arrowsmith, J.R., Carter, B., Dietrich, W., Jacobs, J., Martel, S., Roering, J., Shrestha, R., and **Snyder, N.P.**, 2009, *Workshop on Studying Earth Surface Processes with High-Resolution Topographic Data*, Report to the National Science Foundation.
- Snyder, N.P.**, 2004, Annual Highlights: Geomorphology, *Geotimes*, v. 49, n. 7, p. 22, http://www.geotimes.org/july04/high_geomorph.html.
- Snyder, N.P.**, 2004, The topography of California, p. 3E-3F in *Topographies*, curated by Karen Moss, San Francisco Art Institute, San Francisco.
- Snyder, N.P.**, 2001, Bedrock channel response to tectonic, climatic and eustatic forcings, Ph.D thesis, Dept. of Earth, Atmospheric, and Planetary Sciences, MIT, 142 p.
- Lowe, M., and **Snyder, N.P.**, 1996, Protecting ground water at its source through recharge-area mapping, *Survey Notes* - Utah Geological Survey, v. 28, n. 1, p. 6-7.
- Snyder, N.P.**, 1993, Effects of the October 30, 1991 storm on the dune area of Seawall Beach, Morse Mountain Scientific Preserve, Phippsburg, Maine, Bachelor of Science thesis, Department of Geology, Bates College, Lewiston, ME, 97 p.

ABSTRACTS AND MEETING PRESENTATIONS (*Boston College student coauthors)

- Johnson, E.A.*, and **Snyder, N.P.**, 2009, Hydraulic and geomorphic effects of large woody debris additions in the Narraguagus River watershed, coastal Maine, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Portland, ME, March 22-24, 2009. Also presented at Restoration of Diadromous Fishes and Their Ecosystems: Confluence of Science and Restoration, University of Maine, Orono, July 22-24, 2009.
- Pearson, A.J.*, **Snyder, N.P.**, and Collins, M.J., 2009, River response to dam removal: initial results from the Souhegan River and the Merrimack Village Dam, Merrimack, New Hampshire, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Portland, ME, March 22-24, 2009. Also presented at: NOAA Restoration Center, Gloucester, MA, March 10, 2009; Association of Environmental and Engineering Geologists New England Section, Chestnut Hill, MA, April 4, 2009; New Hampshire River Restoration Task Force, Concord, NH, May 26, 2009; Restoration of Diadromous Fishes and Their Ecosystems: Confluence of Science and Restoration, University of Maine, Orono, July 22-24, 2009.
- Snajczuk, P.B.*, and **Snyder, N.P.**, 2009, Using airborne lidar data to create a surficial geologic map of the upper Narraguagus River watershed, Maine, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Portland, ME, March 22-24, 2009.
- Wilkins, B.C.* and **Snyder, N.P.**, 2009, Geomorphic comparison of two Atlantic coastal streams: toward a better understanding of anthropogenic impacts on Atlantic salmon spawning and rearing habitat, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Portland, ME, March 22-24, 2009.

- Pearson, A.J.*, **Snyder, N.P.**, Collins, M.J., Santaniello, D.J.*, and Gontz, A.M., 2008, Preliminary analysis of changes in the lower Souhegan River, New Hampshire due to removal of Merrimack Village Dam, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 15-19, 2008.
- Snyder, N.P.**, Wilkins, B.C.*, and Wright, J.R., 2008, Toward a simple, DEM-based model for linking channel morphology with Atlantic salmon habitat, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 15-19, 2008.
- Snyder, N.P.**, 2008, Channel responses to climate and land-use change: applications of high-resolution topographic data in California and Maine, *Studying Earth Surface Processes with High-Resolution Topographic Data*, NSF workshop, Boulder, CO, June 15-18, 2008 (**invited talk**).
- Kasprak, A.*, **Snyder, N.P.**, Buynevich, I.V., and Johnson, E.A.*, 2008, Measuring sedimentation rates and land-use change in a dam-influenced lake delta: Narraguagus River, Maine, Abstracts with Programs, Geological Society of America, Northeastern Section Annual Meeting, Buffalo, NY, March 27-29, 2008. Also presented at *Research Forum: Atlantic Salmon and Their Ecosystems*, University of Maine, Orono, ME, January 8-9, 2008.
- Wilkins, B.C.* and **Snyder, N.P.**, 2008, Comparison of channel morphology in two Atlantic coastal streams: preliminary results and analysis, Abstracts with Programs, Geological Society of America, Northeastern Section Annual Meeting, Buffalo, NY, March 27-29, 2008. Also presented at *Research Forum: Atlantic Salmon and Their Ecosystems*, University of Maine, Orono, ME, January 8-9, 2008.
- Snyder, N.P.**, Castele, M.R.*, and Wright, J.R., 2008, Observations of bedload sediment transport in Maine rivers: implications for Atlantic salmon habitat restoration, *Research Forum: Atlantic Salmon and Their Ecosystems*, University of Maine, Orono, ME, January 8-9, 2008.
- Hazlinsky, E.J.*, Wilkins, B.C., and **Snyder, N.P.**, 2007, Measuring changes in river geometry using aerial photographs and field surveys: Narraguagus and Sheepscot Rivers, Maine, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 10-14, 2007.
- Snyder, N.P.**, and Kammer, L.L.*, 2007, Dynamic Adjustments in Channel Width in Response to a Forced Diversion: Gower Gulch, Death Valley National Park, California, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 10-14, 2007 (**invited talk**).
- Lopez, C.*, Hallett, L., Aigler, B.V., Hancock, G., and **Snyder, N.P.**, 2007, Evaluation of the effectiveness of a retention pond for channel protection downstream of a suburban development, James City County, Virginia, *Abstracts with Programs*, Geological Society of America, Southeastern Section Annual Meeting, Savannah, GA, March 29-30, 2007.
- Castele, M.R.*, and **Snyder, N.P.**, 2007, Modeling sediment transport and quantifying channel morphology of the Sheepscot River, coastal Maine, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Durham, NH, March 12-14, 2007. Also presented at *Maine Water Conference*, Augusta, ME, March 21, 2007.
- Hazlinsky, E.J.*, and **Snyder, N.P.**, 2007, Documenting 20th century changes in river morphology using aerial photographs and field surveys: Narraguagus and Sheepscot rivers, Maine, *Abstracts with Programs*, Geological Society of America, Northeastern Section Annual Meeting, Durham, NH, March 12-14, 2007. Also presented at *Maine Water Conference*, Augusta, ME, March 21, 2007.
- Snyder, N.P.**, 2006, Exploiting anthropogenic “natural” experiments to measure river erosion rates and processes, *Annual Meeting Expanded Abstracts*, Geological Society of America, Philadelphia, PA, October 22-25, 2006 (**invited talk**).
- Wright, S.A., and **Snyder, N.P.**, 2006, Reconstructing reservoir stratigraphy from hydrologic history and simple transport calculations: Englebright Lake, Yuba River, northern California, Joint Federal Interagency Conference (8th Federal Interagency Sedimentation Conference & 3rd Federal Interagency Hydrologic Modeling Conference), Reno, NV, April 2-6, 2006.

- Snyder, N.P.**, and Schultz, L.L.*, 2005, Stream morphologic measurements from airborne laser swath mapping: Comparisons with field surveys, traditional DEMs, and aerial photographs, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 5-9, 2005 (**invited talk**).
- Schultz, L.L.*, and **Snyder, N.P.**, Investigation of the transient response of Gower Gulch to forced diversion, Death Valley, California, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 5-9, 2005.
- Snyder, N.P.**, Alpers, C.N., Childs, J.R., Curtis, J.A., Flint, L.E., Holmes, C.W., Rubin, D.M., and Wright, S.A., 2004, Reconstructing watershed history from reservoir stratigraphy: Englebright Lake, northern California, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 15-19, 2004.
- Snyder, N.P.**, Alpers, C.N., Childs, J.R., Curtis, J.A., Flint, L.E., Holmes, C.W., Rubin, D.M., and Wright, S.A., 2004, Rates and history of sediment accumulation behind Englebright Dam, CALFED Science Conference, Sacramento, CA, October 4-6, 2004.
- Alpers, C.N., Hunerlach, M.P., Marvin-DiPasquale, M.C., **Snyder, N.P.**, and Krabbenhoft, D.P., 2004, Mercury and methylmercury in the upper Yuba River watershed: fluvial transport and reservoir sedimentation, CALFED Science Conference, Sacramento, CA, October 4-6, 2004.
- Kirby, E., **Snyder, N.P.**, Whipple, K.X., Walker, J.D., and Andrew, J., 2003, Neotectonics of the Panamint Valley fault zone: Active slip on a low-angle normal fault system, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 8-12, 2003.
- Whipple, K.X., Wobus, C.W., Kirby, E., and **Snyder, N.P.**, 2003, Tectonics from topography: methods, applications, and limitations, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 8-12, 2003.
- Snyder, N.P.**, Childs, J.R., Hampton, M.A., Rubin, D.M., Alpers, C.N., Flint, L.E., Curtis, J.A., Wright, S.A., and Topping, D.J., 2003, The history and future of sediment deposition behind Englebright Dam, Yuba River, northern California, *Annual Meeting Expanded Abstracts*, Geological Society of America, Seattle, WA, November 2-5, 2003.
- Snyder, N.P.**, 2003, Geologic setting and sedimentation: field studies on bedrock streams in coastal northern California, *Applying What we are Learning: Sedimentation in Northern California Watersheds*, University of California Cooperative Extension Sedimentation Workshop, Santa Rosa, CA, May 22, 2003 (**invited talk**).
- Snyder, N.P.**, Rubin, D.M., Alpers, C.N., Flint, L.E., Curtis, J.A., Childs, J.R., and Haskell, B.J., 2003, Preliminary results from the 2002 Englebright Lake coring project: a record of rapid sedimentation in the Yuba River system, CALFED Science Conference, Sacramento, CA, January 14-16, 2003.
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 2003, The importance of a stochastic distribution of floods and erosion thresholds in the bedrock river incision problem: field application to the Mendocino triple junction region, *Tectonics, Climate, and Landscape Evolution*, Geological Society of America Penrose Conference, Taroko National Park, Taiwan, January 13-17, 2003.
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 2002, Modeling the influence of sea-level fluctuations on fluvial morphology in tectonically active coastal regions, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 6-10, 2002.
- Snyder, N.P.**, Rubin, D.M., Alpers, C.N., Flint, L.E., Curtis, J.A., Childs, J.R., and Haskell, B.J., 2002, A record of rapid fluvial sedimentation in the Sierra Nevada hydraulic-mining region: Preliminary results from the 2002 Englebright Lake coring project, *Annual Meeting Expanded Abstracts*, Geological Society of America, Denver, CO, October 27-30, 2002.

- Snyder, N.P.**, Whipple, K.X., and Tucker, G.E., 2001, Modeling stochastic floods and erosion thresholds in bedrock rivers: Field data from northern California, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 10-14, 2001.
- Snyder, N.P.**, Whipple, K.X., and Tucker, G.E., 2000, The influence of a stochastic distribution of storms and a critical shear stress for detachment on the relation between steady-state bedrock channel gradient and rock-uplift rate, *Annual Meeting Expanded Abstracts*, Geological Society of America, Reno, NV, November 12-16, 2000.
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 2000, Channel response to tectonic forcing: field-based analysis of channel morphology in the Mendocino triple junction region, northern California, International Binghamton Geomorphology Symposium, Binghamton, NY, October 13-15, 2000. **(invited talk)**
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 1999, Evaluation of the shear-stress bedrock incision model in an area of variable rock-uplift rates, *Eos, Transactions, AGU*, American Geophysical Union, San Francisco, CA, December 13-17, 1999.
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 1999, Evidence for an equilibrium between main-trunk-channel incision and tectonic uplift: Mendocino triple junction region, northern California, *Annual Meeting Expanded Abstracts*, v. 31, n. 7, p. 444-445, Geological Society of America, Denver, CO, October 24-28, 1999.
- Snyder, N.P.**, Tucker, G.E., Whipple, K.X., and Merritts, D.J., 1999, Comparison of Slope-Area Datasets From Coastal Streams in the Mendocino Triple Junction Region, Northern California: Implications for Channel Concavity in an Area of Variable Rock-Uplift Rates, *Eos, Transactions, AGU*, v. 80, n. 17, p. S126, American Geophysical Union, Boston, MA, June 1-4, 1999.
- Snyder, N.P.**, Hodges, K.V., Krol, M.A., 1998, Depositional and tectonic evolution of an extensional basin revealed through $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology; the Nova Basin, Panamint Mountains, California, *Abstracts with Programs*, v. 30 n. 7, p. 234, Geological Society of America, Toronto, ON, Canada, October 26-29, 1998.
- Snyder, N.P.**, and Whipple, K.X., 1998, New constraints on bedrock channel response to varying uplift, King Range, California, *Annual Meeting Expanded Abstracts*, American Association of Petroleum Geologists, Salt Lake City, UT, United States, May 17-20, 1998.
- Dollenmayer, K., Whipple, K.X., and **Snyder, N.P.**, 1997, Rates and processes of bedrock channel incision along the upper Ukak River, Valley of Ten Thousand Smokes, AK, *Eos, Transactions, AGU*, v. 78, n. 26, p. F299, American Geophysical Union, San Francisco, CA, December 8-12, 1997.
- Snyder, N.P.**, and Lowe, M., 1996, Recharge and discharge areas for the principal valley-fill aquifer, Sanpete Valley, Sanpete County, Utah, *Abstracts with programs*, v. 28, n. 4, p. 38, Geological Society of America, Rocky Mountain Section, 48th annual meeting, Rapid City, SD, April 18-19, 1996.
- Snyder, N.P.**, 1993, Effects of the October 30, 1991 storm on the dune area of Seawall Beach, Morse Mountain Scientific Preserve, Phippsburg, Maine, *Abstracts with Programs*, v. 25 n. 2, p. 80, Geological Society of America, Northeastern Section, 28th annual meeting, Burlington, VT, March 22-24, 1999.

INVITED LECTURES

- NOAA Restoration Center, Gloucester, MA, March 10, 2009
- Bridgewater State College, Geology Club Lecture, March 5, 2009
- Boston College, Boisi Center for Religion and American Public Life, February 4, 2009
- College of the Holy Cross, Environmental Studies and Biology Seminar, April 15, 2008
- University of Maine, Orono, Dept. of Earth Sciences, March 22, 2007
- University of Massachusetts, Amherst, Dept. of Geosciences, December 1, 2006
- Association of Engineering Geologists, Northeast Section, Woburn, MA, February 16, 2006
- Rensselaer Polytechnic Institute, Dept. of Earth and Environmental Sciences, October 26, 2005
- Boston College, Weston Geophysical Observatory, November 10 and 17, 2004
- USGS Coastal and Marine Geology Team, Santa Cruz and Menlo Park, April 15 and 27, 2004
- Cornell University, Dept. of Earth and Atmospheric Sciences, April 8, 2003
- University of Montana, Dept. of Geology, March 17-18, 2003
- Rice University, Dept. of Earth Sciences, March 3, 2003
- Boston College, Dept. of Geology and Geophysics, February 27-28, 2003
- San Francisco State University, Dept. of Geosciences, February 21, 2003
- Oregon State University, Geosciences Dept., February 13, 2003
- UCSC, Institute of Marine Sciences, January 29, 2003
- USGS Coastal and Marine Geology Team, Menlo Park, CA, July 25, 2002
- Dartmouth College, Dept. of Earth Sciences, January 31-February 1, 2002
- Boston Bay Group, Cambridge, MA, May 16, 2001
- UCSC, Institute of Marine Sciences, April 16, 2001
- University of Virginia, Dept. of Environmental Sciences, February 27, 2001
- Middlebury College, Geology Dept., January 11, 2001
- Bates College, Geology Dept., February 2, 2000

TEACHING

COURSES TAUGHT AT BOSTON COLLEGE

Exploring the Earth I (GE132-GE133-GE136, 4 credits, 35-56 students, Fall 2004-2009)

First semester of the introductory course for Geology and Geophysics majors, and core students seeking a rigorous introduction to Earth science. Readings from a textbook and recent journal articles. Included one or two Saturday fieldtrips designed to emphasize field observations and problem solving. Grading based on tests, fieldtrip reports and laboratory. Usually co-taught with Prof. Chris Hepburn.

Rivers and the Environment (GE170, 3 credits, 45-100 students, Spring 2005-2007, 2009)

Core course geared for non-science majors. Readings selected from textbooks, recent journal articles and popular nonfiction. Included a one-day fieldtrip to the Quabbin Reservoir in central Massachusetts. Grading based on papers, exercises (short essays and calculations), class participation, and midterm and final examinations. Was the first natural science course to participate in the pilot Writing Fellows Program (in 2006 and 2007).

Watershed Geomorphology (GE400-GE401, 4 credits, 13-16 students, Spring 2006, Fall 2007, 2009)

Taught to majors and graduate students. Readings from a textbook and recent journal articles. Centered on a series of 6 multiweek field and computer lab projects designed to teach quantitative methods, problem-solving skills, and scientific report writing. Included one Saturday fieldtrip. Grading based on lab projects, a midterm, a take-home final exam, and participation.

Remote Sensing and Image Interpretation (GE490, 3 credits, 10-13 students, Fall 2006, spring 2009)

Taught to majors and graduate students. Readings selected from textbooks and recent journal articles. Centered on a series of 7 image-analysis projects using a variety of methodologies and technologies.

Environmental Seminar (GE580, 3 credits, 29 students, Spring 2007)

Final seminar for Environmental Studies minors. Co-taught with Prof. Gail Kineke. Grading based on three written assignments, final group presentations and class participation. Discussed topic-specific assigned readings, including contemporary books and articles. Teams of 3-4 students were responsible for leading the discussion each week. Included one all-day fieldtrip to Cape Cod.

Earth Systems Seminar (GE692 or GE693, 3 credits, 9-12 students, Fall 2005 and 2009)

Co-taught with Professor Gail Kineke. Focused on training in research skills for new graduate students in Geology and Geophysics. Included a fieldtrip following the Merrimack River in New Hampshire and Massachusetts. Grading based on problem sets and written assignments, a final research proposal and oral presentation, and class discussions of recent scientific literature.

Seminar in Geology: Tectonic Geomorphology (GE794, 3 credits, 6 students, Fall 2004)

Readings and Research in Environmental Geoscience (GE596); **Readings and Research in Geology** (GE597 and GE799); **Advanced Independent Research** (GE599); **Thesis Seminar** (GE801)

STUDENT MENTORING AT BOSTON COLLEGE**M.S. STUDENTS**

Stephanie Strouse, Eric Hazlinsky (current)

Adam Pearson, expected thesis completion 2010, *River response to dam removal: case study of the Souhegan River and the removal of the Merrimack Village Dam, Merrimack, New Hampshire*

Elizabeth Johnson, expected thesis completion 2009, *Hydraulic and geomorphic effects of large woody debris additions in the Narraguagus River watershed, coastal Maine*

Benjamin Wilkins, graduated 2009, *Geomorphic comparison of two Atlantic coastal rivers: toward an understanding of physical controls on Atlantic salmon habitat*

Michael Castele, graduated 2007, *Modeling sediment transport and quantifying channel morphology of the Sheepscot River, coastal Maine*

Lisa Schultz, graduated 2005, *Investigation of the transient response of Gower Gulch to forced diversion, Death Valley, California*

B.S. THESIS SUPERVISION

Billy Armstrong, David Santaniello (current)

Peter Snajczuk, graduated 2009, *Using airborne lidar data to create a surficial geologic map of the upper Narraguagus River watershed*

Alan Kasprak, graduated 2008, *Measuring sedimentation rates and land-use change in a dam-influenced lake delta: Narraguagus River, Maine*

Cristina Lopez, graduated 2007, *The evaluation of the effectiveness of retention ponds at stormwater control and downstream channel protection*

Michele Gryga, graduated with honors 2006, *Controls on water temperature in the Sheepscot River, Maine*

SERVICE ACTIVITIES AT BOSTON COLLEGE

DEPARTMENT OF GEOLOGY AND GEOPHYSICS

- Member of the department Undergraduate Studies Committee (2004-2009). Director, 2009. Worked with the other natural science departments to develop a proposal for a minor in Environmental Science. Assessed and developed a new curriculum for all undergraduate majors.
- Member of four faculty search committees. The first successfully hired Yvette Kuiper in 2005, the second Amy Frappier in 2006, the third Doug Edmonds in 2009, and the fourth is ongoing. Organized and conducted informal interviews with top candidates (selected from the pool) during the American Geophysical Union meeting in San Francisco (December 2004, 2005 and 2008).
- Faculty coordinator of the Geology and Geophysics department lecture series committee (2004-2009). Brought 5-10 speakers to campus each year.
- Organized (with Sergio Fagherazzi of Boston University and Taylor Perron of Harvard University) the William Morris Davis Lecture, a new, annual event hosted a Boston-area university (2007-2009). BC hosted the lecture by Prof. Dorothy Merritts on October 17, 2008.
- Participated in *Strengthening Your Geoscience Program: A Practical Workshop with Ideas and Examples* (College of William and Mary, Williamsburg, VA, June 2-4, 2009).
- Participated in the *Early Career Faculty Workshop: Teaching, Research, and Managing Your Career*, part of the *NSF On the Cutting Edge* program (College of William and Mary, Williamsburg, VA, June 8-13, 2005).
- Gave presentations on the department during Admitted Students Weekends (2005-2009).
- Organized (with Prof. Gail Kineke) evening information sessions during advising period for majors and minors in the department (2005-2009).
- M.S. thesis committee member for Tracey Arvin, Matthew Brennan, Maria Crosby, Kristy Heath, Michelle Lermon, Ross Markwort, James Pyburn, Michael Robbins, Misty Stroud, and Jia Yan.

COLLEGE OF ARTS AND SCIENCES

- Worked with Paula Mathieu and Diane Hotten-Somers (English Department/First-Year Writing Program) and Sue Barrett (Connors Family Learning Center) to revise the curriculum of *Rivers and the Environment* (GE 170, core) to be the first natural science course in the pilot BC Writing Fellows Program. The course included two short writing assignments that build toward a final paper. Each of these assignments was revised by the students in consultation with the writing fellows (Spring 2006 and 2007).
- Organized Geology and Geophysics department presentation for the Parent's Weekend undergraduate research poster session (2004-2008).
- Officially advised 3-12 students per year (2005-2009). Unofficially advised at least 12 other undergraduate students during 2005-2009.

UNIVERSITY

- Participant in the *Liberal Education and Beyond* working group of the university Institute for Liberal Arts (2008-2009).
- Participant in the *Ways of Knowing* working group of the university *Catholic Intellectual Traditions* initiative (2008-2009). Gave a public talk at the Boisi Center for Religion and American Public Life on February 4, 2009 (http://www.bc.edu/centers/boisi/publicevents/current_semester/snyder.html).
- Participated in the *Ethics and Sustainability of the Earth* conference, hosted by the Jesuit Institute (March 2009).
- Gave a presentation on NSF-CAREER award to the BC Board of Trustees Academic Affairs Committee (March 9, 2007).
- Participated in the Junior Scholars in Conversation monthly meeting series, hosted by T. Frank Kennedy and James Keenan at St. Mary's (2006-2009).

- Member of SustainBC (2007-2009).
- Participated, with 11 other professors from Atlantic Coast Conference universities, on a three-week trip to meet with researchers in Vietnam and China centered around the subject “Water resources research in major watersheds in southeast Asia” (June 2006).
- Presidential Scholars Program faculty mentor for Ryan Beck, a double major in CSOM (Finance) and Environmental Geoscience (2007-2009).
- Participated in the AnDover Faculty Weekend on Teaching (April 2005).

PROFESSIONAL COMMUNITY SERVICE

- Appointed to a three-year term on the Steering Committee of the National Center for Airborne Laser Mapping (NCALM, <http://www.ncalm.org>, 2008). Made committee chair (2009). Meets annually in June and December.
- Core network participant on the NSF-funded RCN: Diadromous Species Restoration Research Network, which brings together multidisciplinary researchers working on ecosystem restoration in northern New England (2008-2009). Helped organized the first science conference in Orono, Maine (July 2009).
- Panel member for two meetings of the NSF Geomorphology and Land Use Dynamics program. Reviewed and provided recommendations on ~45 proposals at each panel meeting (2007).
- Member of two interdisciplinary task forces related to river restoration in Maine: the Penobscot River Science Steering Committee and the Atlantic Salmon Recovery Habitat Work Group. Also a member of the Hydrology and Hydraulics subcommittee for the Penobscot River project. (2005-2008; <http://www.penobscotriver.org/> and http://www.nero.noaa.gov/prot_res/altsalmon/).
- Member of the agency team of the Upper Yuba River Studies Program, a stakeholder-driven, land-use decision-making process (California, 2001-2006).
- Hosted a meeting on Massachusetts rivers with researchers from the NOAA Restoration Center, Massachusetts Riverways, American Rivers, and the College of Holy Cross (February 2008).
- Participated (with 4 students) in a field campaign at the Merrimack Village Dam in southern New Hampshire with scientists and land managers from the NOAA Restoration Center, NH state agencies, Gomez and Sullivan consultants, and American Rivers (August 2007).
- Provided input on restoration strategies for the Sheepscot River with representatives from the Sheepscot Valley Conservation Association, Kleinschmidt Consultants and the U.S. Fish and Wildlife Service, January 2007.
- Participated in a meeting on *Fluvial Geomorphology and Salmon Habitat on the Narraguagus River* led by the Maine Atlantic Salmon Commission and Project SHARE in April 2007. Provided input, based on research findings, on two river restoration plans presented by consultants.
- Co-chaired a session on *Habitat restoration in North Atlantic watersheds* (Northeastern Section of the Geological Society of America meeting and Maine Water Conference, March 2009).
- Co-chaired a session on *Quaternary landscape changes: sedimentary and geomorphic records* (Northeastern Section of the Geological Society of America meeting, March 2008).
- Chaired a session on *Managed rivers as large-scale experiments in geomorphic processes* (AGU Fall meeting, December 2004).
- Ph.D thesis committee member for William Ouimet at MIT (2007).
- Acted as an external reviewer for 5-10 manuscripts per year for journals including *Geology*, *Geological Society of American Bulletin*, *Journal of Geophysical Research*, *Earth Surface Processes and Landforms*, *Geomorphology*.
- Acted as an external reviewer for 4-8 proposals per year for the National Science Foundation and other funding organizations.
- Member of the American Geophysical Union (1996-2009, <http://www.agu.org/>).
- Member of the Geological Society of America (1996-2009, <http://www.geosociety.org/>).