

Mark R. Besonen

Texas A&M University-Corpus Christi
Science & Engineering, Physical & Environmental Sciences
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Education

PhD, University of Massachusetts, 2006.

MS, University of Minnesota, 1997.

BS, Tufts University, 1993.

Professional Employment

Assistant Professor of Earth System Science, Department of Physical and Environmental Sciences, Texas A&M University--Corpus Christi. (September 2009 - Present).

Research and teaching tenure-track position in Earth System Science.

Lecturer in Sedimentology and Climatic Change, Department of Geosciences, University of Massachusetts Amherst. (September 2008 - May 2009).

Taught upper level undergraduate sedimentology course with laboratory, and co-taught upper level undergraduate climatic change course.

Sr. Post-Doctoral Research Associate and Adjunct Assistant Professor, Department of Geosciences, University of Massachusetts Amherst. (June 2006 - May 2009).

High-resolution paleoclimate studies of laminated Arctic lake records at Climate System Research Center. Adjunct Assistant Professor status starting in 2008.

Lecturer in Sedimentology, Department of Geology, Smith College. (September 2003 - December 2003).

Taught undergraduate sedimentology course with laboratory.

Systems Support Group Graduate Intern, Undergraduate Registrar's Office, University of Massachusetts Amherst. (May 1998 - August 2003).

Administrated and supported a ~60 node, TCP/IP-networked Microsoft Windows NT domain with file, print, mail services.

Graduate Teaching Assistant, Department of Computer Sciences, University of Massachusetts Amherst. (September 2000 - May 2002).

Coordinated and managed a pool of GTAs for a thigh enrollment, undergraduate Computer Literacy class.

Graduate Teaching Assistant, Department of Geosciences, University of Massachusetts Amherst. (September 1995 - May 1998).

Instructed laboratories and conducted field trips in undergraduate classes including Physical Geology and Oceanography.

Graduate Teaching Assistant, Department of Geology, University of Minnesota Duluth. (September 1993 - May 1995).

Instructed laboratories and conducted field trips in undergraduate classes including Geological Computer Applications, Technical Drawing and Geologic Map-making with AutoCad, Physical Geology, Environmental Science, and Mineralogy.

Undergraduate Lab Instructor, Geology Department, Tufts University. (September 1991 - May 1993).

Independently instructed laboratories and conducted field trips in undergraduate classes including Physical Geology and Environmental Geology.

Nighttime Dining Student Manager, Unit Manager, and Student Supervisor, Tufts University Dining Services. (January 1989 - May 1993).

Organized and managed staff of eight intermediate students managers and ~70 student workers, and provided direct interface between full-time management and student staff.

Professional Memberships

American Geophysical Union
American Quaternary Association
Association for the Sciences of Limnology and Oceanography
Corpus Christi Geological Society
Geological Society of America

TEACHING

Teaching Experience

CMSS 6996, RESEARCH
CMSS 6998, DISSERTATION RESEARCH
ESCI 3490, SELECTED TOPICS
ESCI 4498, INTERNSHIP IN ENVIRO SCIECE
ESCI 5292, THESIS I: THESIS PROPOSAL
ESCI 5293, THESIS II: THESIS RESEARCH
ESCI 5294, THESIS III: THESIS SUBMISSION
ESCI 5392, THESIS I: THESIS PROPOSAL
ESCI 5393, THESIS II: THESIS RESEARCH
ESCI 5394, THESIS III: THESIS SUBMISSION
ESCI 5397, DIRECTED RESEARCH
ESCI 5596, XRD Analysis of Sarikum Golu
ESCI 5940, PROJECT RESEARCH.
GEOL 3442, GEOMORPHOLOGY
GEOL 3490, SELECTED TOPICS
GEOL 4411, SEDIMENTATION AND STRATIGRAPHY
GEOL 4430, INTERNSHIP IN GEOLOGY
GEOL 4490, SELECTED TOPICS: Exploratory Sedimentary Research
GEOL 4496, DIRECTED INDEPENDENT STUDY
GEOL 4650, FIELD GEOLOGY
GEOL 5101, GEOLOGY SEMINAR

Teaching Awards and Honors

NAGT/USGS Summer Internship, National Association of Geology Teachers/United States Geologic Survey. (1994).

SCHOLARLY AND CREATIVE ACTIVITIES

Publications

Refereed

Journal Articles

Kanamaru, K., Francus, P., Francois, R., Besonen, M., Laj, C. (2013). New insight into Saanich Inlet varved sediments (British Columbia, Canada) from micro-scale analysis of sedimentary facies and micro-XRF core scanning analyses. *GFF (Journal of the Geological Society of Sweden)*. geologiskaforeningen.se/gff_eng.html

Ojala, A. E.K., Francus, P., Zolitschka, B., Besonen, M., Lamoureux, S. F. (2012). Characteristics of sedimentary varve chronologies-A review. *Quaternary Science Reviews*. www.journals.elsevier.com/quaternary-science-reviews

Besonen, M., Bradley, R. S., Mudelsee, M., Abbott, M. B., Francus, P. (2008). A 1,000-year, annually-resolved record of hurricane activity from Boston, Massachusetts. *Geophysical Research Letters*, 35(14), L14705 (6 pages total). onlinelibrary.wiley.com/doi/10.1029/2008GL033950/abstract

Besonen, M., Patridge, W., Bradley, R. S., Francus, P., Stoner, J. S., Abbott, M. B. (2008). A record of climate over the last millennium based on varved lake sediments from the Canadian High Arctic. *The Holocene*, 18(1), 169-180. <http://hol.sagepub.com/content/18/1/169>

Francus, P., Keimig, F., Besonen, M. (2002). An algorithm to aid varve counting and measurement from thin-sections. *Journal of Paleolimnology*, 28(2), 283-286. link.springer.com/article/10.1023%2FA%3A1021624415920

Ridge, J. C., Besonen, M., Brochu, M., Brown, S. L., Callahan, J. W., Cook, G. J., Nicholson, R. S., Toll, N. J. (1999). Varve, paleomagnetic, and 14C Chronologies for late Pleistocene events in New Hampshire and Vermont (U.S.A.). *Géographie physique et Quaternaire*, 51(1), 79-107. <http://www.erudit.org/revue/gpq/1999/v53/n1/004864ar.html>

Research Reports

Besonen, M., Rapp, G. (. J., Jing, Z. (2003). The Lower Acheron River Valley: Ancient Accounts and the Changing Landscape. *Hesperia Supplements, Vol. 32, Landscape Archaeology in Southern Epirus, Greece 1* (vol. 32, pp. 199-263). Princeton, NJ: American School of Classical Studies. www.jstor.org/stable/1354049

Non-Refereed

Book Chapters

Weiss, H., Manning, S. W., Ristvet, L., Mori, L., Besonen, M., McCarthy, A., Quenet, P., Smith, A., Bahrani, Z. (2012). Tell Leilan Akkadian Imperialization, Collapse and Short-Lived Reoccupation Defined by High-Resolution Radiocarbon Dating. *Seven Generations Since the Fall of Akkad* (pp. 163-192). Wiesbaden: Harrassowitz Verlag. www.harrassowitz-verlag.de/title_4321.ahtml

Conference Proceedings

Besonen, M. (2011). In Mark Besonen (Ed.), *Program and Abstracts--Second Workshop of the PAGES Varves Working Group and INQUA Project Number 1102*. www.pages.unibe.ch/products/3676-2nd-varves-working-group-workshop-abstract-volume

Voett, A., Bruckner, H., Schriever, A., Besonen, M., van der Borg, K., Handl, M. (2004). Holocene coastal changes in the Acheloos alluvial plain (northwestern Greece) and their effects on the ancient site of Oiniadai. *CIESM Workshop Monographs No. 24, Human records of recent geological evolution in the Mediterranean Basin—historical and archaeological evidence* (vol. 24). CIESM. www.ciesm.org/online/monographs/Santorin.html

Voett, A., Bruckner, H., Schriever, A., Handl, M., Besonen, M., van der Borg, K. (2004). Holocene evolution of the Acheloos alluvial plain around the ancient seaport of Oiniadai (Akarnania, NW Greece). In Chatzipetros, A. and Pavlides, S. (Ed.), *Proceedings of the 5th International Symposium on Eastern Mediterranean Geology, 14-20 April 2004, Thessaloniki. Extended Abstracts Volume plus CD-ROM, Volume II* (pp. 815-818). Thessaloniki:

Periodicals

Besonen, M., Francus, P., Ojala, A. E.K., Behl, R., Zolitschka, B. (2011). Learning from other communities: Towards more robust varve chronologies. *PAGES News* (2nd ed., vol. 19, pp. 88-89).

<http://www.pages-igbp.org/products/pages-news/1031-19-2-integrative-paleoscience-for-sustainable-management>

Besonen, M. (2011). Project 1102: VWG—Varves Working Group. *Quaternary Perspective--Newsletter of the International Union for Quaternary Research* (1st ed., vol. 19, pp. 14-15). www.inqua.org/publicationsQuatPersp.html

Research Reports

Hill, E. M., Besonen, M., Tissot, P., A., N. B. (2014). *Nueces Bay Zinc in Sediment Profiling Assessment (CBBEP Project Number 1313, CBBEP Publication Number 91)*. www.cbbep.org/water-sediment-and-air-quality-publications/

Voett, A., Bruckner, H., Schriever, A., Handl, M., Besonen, M., van der Borg, K. (2004). Holocene coastal evolution around the ancient seaport of Oiniadai, Acheloos alluvial plain, NW Greece. In Schernewski, G. and Dolch, T. (Ed.), *Geographie der Meere und Küsten. Coastline Reports (1)* (vol. 1, pp. 43-53). www.eucc-d.de/coastline-reports-1-2004.html

Voett, A., Bruckner, H., Schriever, A., Besonen, M., van der Borg, K., Handl, M. (2003). Landschaftsveränderungen im Mündungsgebiet des Acheloos Nordwestgriechenland) während des Holozäns. *Essener Geographische Arbeiten* (vol. 35, pp. 115-136). www.uni-due.de/geographie/publikationen/ega.shtml

Doonan, O., Gantos, A., Hiebert, F., Yaycıoğlu, A., Besonen, M. (2001). Sinop Regional Archaeological Survey 1998-1999: The Karasu Valley Survey. *TÜBA-AR [Türkiye Bilimler Akademisi Arkeoloji Dergisi = Turkish Academy of Sciences Journal of Archaeology]* (vol. 4, pp. 113-133). TÜRKİYE BİLİMLER AKADEMİSİ. www.tuba.gov.tr/upload/files/TUBA-ar/tuba-ar-4.PDF

Presentations

Besonen, M. (Author & Presenter), Rosenmeier, M. F. (Author), Curtis, J. H. (Author), Magill, C. R. (Author), Moody, J. M. (Author), Weiss, H. (Author), "[INVITED]--Holocene climate and environmental change as recorded at Lake Kournas (western Crete)," Too cold for this P(a)lace? Climate and Environment in the late 2nd Millennium B.C. Aegean and Mediterranean, ARC "A World in Crisis?" and Aegis (UCL-INCAL-CEMA), Louvain-la-Neuve (Belgium), Université catholique de Louvain. (October 2014).

Besonen, M. (Author & Presenter), "Water Quality of the Baffin Bay System Since AD 1850 as Inferred from Sediment Cores," Baffin Bay Study Group Meeting, Coastal Bend Bays & Estuaries Program, HRI 127 (TAMUCC). (April 2014).

Besonen, M. (Author & Presenter), Zimba, P. V. (Author), Hill, E. M. (Author), Tissot, P. (Author), McKay, M. C. (Author), Nicolau, B. (Author), Hu, X., Silliman, J. E., "Long-term Water Quality and Environmental Changes in Baffin Bay as Inferred from Sediment Cores—Preliminary Results," Texas Bays and Estuaries Meeting, University of Texas Marine Sciences Institute, Port Aransas, TX. (April 2014).

McKay, M. C. (Author & Presenter), Besonen, M. (Author), Tissot, P., Zimba, P. V., Hill, E. M., "Understanding the Development of South Texas Bays and Estuaries from a Paleoperspective," 2014 Ocean Sciences Meeting, ASLO, AGU, and TOS; Association for the Sciences of Limnology and Oceanography, American Geophysical Union, and The Oceanography Society, Honolulu, Hawaii USA. (February 2014).

Smith, B. (Author & Presenter), Silliman, J. (Author), Besonen, M. (Author), "The Depositional History of Oso Bay; A South Texas Tidal Flat," Ocean Sciences Meeting, Honolulu, HI. (February 2014).

Doonan, O. (Author & Presenter), Bauer, A., Besonen, M. (Author), Casson, A., Conrad, M., Domzalski, K., Smokotina, A., "Sinop Regional Archaeological Project, 2010–2012," 115th Annual Meeting of the AIA, Archaeological Institute of America, Chicago, IL (USA). (January 2014).

Oaden, A. (Author & Presenter), Besonen, M. (Author), "Fields of coal: Environmental change along the Rio Grande in a former coal mining area," AGU Fall Meeting, American Geophysical Union, San Francisco, CA (USA). (December 2013).

Besonen, M. (Author & Presenter), Zimba, P. V., Hill, E., Tissot, P., McKay, M., Silliman, J. E., "Finding The Baseline—Putting Recent Eutrophication Of Two South Texas Coastal Water Bodies Into Perspective By Using Sedimentary Records To Examine The Long-Term, Natural Variability Of The Systems," AGU Fall Meeting, American Geophysical Union, San Francisco, CA (USA). (December 2013).

Rodbell, D. T. (Author & Presenter), Delman, E., Besonen, M., Abbott, M. B., "An Unintended Consequence Of The Juxtaposition Of Hydroelectricity And Mining In The Peruvian Andes: The Heavy Metal Contamination Of The Lake Junin National Reserve," GSA 125th Anniversary Annual Meeting and Expo, Geological Society of America, Denver, CO (USA). (October 2013).

Oaden, A., Besonen, M. (Author & Presenter), "Fields of coal: Environmental change along the Rio Grande in a former coal mining area," TAMUCC 13th Annual Undergraduate Research Symposium, TAMUCC. (October 2013).

Besonen, M. (Author & Presenter), Roosevelt, C. H., Luke, C., "Late Holocene Paleohydrology in Central Western Turkey," GSA South-Central Section- 47th Annual Meeting, Geological Society of America, Austin, TX (USA). (April 2013).

Garcia, J. (Author & Presenter), Triplett, E. (Author), Besonen, M. (Author), Kowalski, J. (Author), DeYoe, H. (Author), "Sediment grain size patterns in the Lower Laguna Madre," Texas Academy of Science (116th Annual Meeting), Texas Academy of Science, Schreiner University, Kerrville, TX. (March 2013).

Delman, E. (Author & Presenter), Rodbell, D. T. (Author), Besonen, M. (Author), Abbott, M. B. (Author), "Heavy Metal Deposition In Lake Junin Peru," GSA Northeastern Section - 47th Annual Meeting, Geological Society of America, Hartford, CT (USA). (March 2012).

Ojala, A. E.K. (Author & Presenter), Francus, P. (Author), Zolitschka, B. (Author), Behl, R. (Author), Besonen, M. (Author), Lamoureux, S. F. (Author), "Varve data base (VDB)," Third workshop of the PAGES Varves Working Group, PAGES, Manderscheid, Germany. (March 2012).

Besonen, M. (Author & Presenter), Doonan, O. (Author), Dogan, U. (Author), "Holocene Geomorphic Evolution Of The Akliman River Valley (Sinop, Turkey)," GSA Annual Meeting and Expo, Geological Society of America, Minneapolis, MN (USA). (October 2011).

Moore, S. A. (Author & Presenter), Besonen, M. (Author), Drolet, R. P. (Author), "Petrographic analysis of Toyah Phase ceramics recovered at Fort Lipantitlan State Historic Site," GSA Annual Meeting and Expo, Geological Society of America, Minneapolis, MN (USA). (October 2011).

Besonen, M. (Author & Presenter), Rosenmeier, M. F., Curtis, J. H., Weiss, H., Moody, J. A., Magill, C. R., "Increasing Evidence for a Pronounced, Mid-1st Millennium A.D. Desiccation Event in the Eastern Mediterranean," AGU Chapman Conference on Climates, Past Landscapes and Civilizations, American Geophysical Union, Santa Fe, NM (USA). (March 2011).

Ojala, A. E.K. (Author & Presenter), Francus, P., Zolitschka, B., Behl, R., Besonen, M. (Author), Lamoureux, S. F., "The fidelity of sediment varve chronologies – a review," Second workshop of the PAGES Varves Working Group, PAGES, Corpus Christi, TX (USA). (March 2011).

Besonen, M. (Author & Presenter), Bradley, R. S. (Author), Abbott, M. B. (Author), "AMS 14C dates and the reworking of terrestrial macrofossils as deduced from a varve chronology," First workshop of the PAGES Varves Working Group, PAGES, Palmse, Estonia. (April 8, 2010).

Besonen, M. (Author & Presenter), Roosevelt, C. H., "Evidence for an abrupt, mid-1st millennium AD desiccation event recorded in lacustrine sediments from central western Turkey," AGU Chapman Conference on Abrupt Climate Change, American Geophysical Union, Byrd Polar Research Center, The Ohio State University, Columbus, Ohio (USA). (June 2009).

Besonen, M. (Author & Presenter), Roosevelt, C. H., "An abrupt, late 5th century AD desiccation event recorded in lacustrine sediments from central western Turkey," ESF-MedCLIVAR and IGBP-PAGES Symposium "Climate Extremes During Recent Millennia and their Impact on Mediterranean Societies", ESF-MedCLIVAR and IGBP-PAGES, Athens, Greece. (September 2008).

Besonen, M. (Author & Presenter), Bradley, R. S. (Author), Mudelsee, M. (Author), Abbott, M. B. (Author), Francus, P. (Author), "A 1,000-year, annually-resolved record of hurricane activity from Boston, Massachusetts.," NCAR-ECSA Junior Faculty Forum on Future Scientific Directions, NCAR-ECSA, Boulder, CO. (July 2008).

Zalzal, K. S. (Author & Presenter), Besonen, M. (Author), Bradley, R. S. (Author), "A search for cryptotephra in minerogenic High Arctic lake sediments to aid in establishing an accurate varve chronology and lamination thickness record," 38th International Arctic Workshop, University of Colorado at Boulder, Boulder, CO (USA). (March 2008).

Weiss, H. (Author & Presenter), Manning, S. (Author), Guilderson, T. (Author), Besonen, M. (Author), "Leilan Akkadian Palace radiocarbon dates, absolute chronology, and the 4.2 ka BP event synchronism," British Association for Near Eastern Archaeology Annual Meeting, British Association for Near Eastern Archaeology and University of Liverpool, University of Liverpool. (March 2008).

Besonen, M. (Author & Presenter), Roosevelt, C. H. (Author), "Living in central Lydia (Turkey): changing environmental conditions," Society for American Archaeology Annual Meeting, Society for American Archaeology, Vancouver, Canada. (March 2008).

Voett, A. (Author & Presenter), Bruckner, H. (Author), Schriever, A. (Author), Besonen, M. (Author), van der Borg, K. (Author), Handl, M. (Author), "The Acheloos alluvial plain during the Holocene – a new approach to decipher ancient Oiniadai's connection to the sea (Akarnania, NW Greece)," International Workshop on Sea Level Changes in Eastern Mediterranean during Holocene – Indicators and Human Impacts, Harokopio University, Department of Geography, Athens, Greece. (October 2003).

Contracts, Grants and Sponsored Research

Grant

Besonen, Mark (Co-Principal), Rodbell, Donald T. (Principal), Abbott, Mark B. (Principal), Tapia, Pedro (Principal), Bush, Mark (Co-Principal), Colman, Steve (Co-Principal), Francus, Pierre (Co-Principal), McGee, David (Co-Principal), Moy, Chris (Co-Principal), Polissar, Pratigya (Co-Principal), Schwalb, Antje (Co-Principal), Steinman, Byron (Co-Principal), Stoner, Joe (Co-Principal), Valero-Garces, Blas (Co-Principal), "CKD--FUNDED--The Lake Junín (Perú) Drilling Project," Sponsored by International Continental Scientific Drilling Program, Other, \$555,000.00. (April 2013 - Present).

Besonen, Mark (Supporting), Cifuentes, Luis (Principal), Hu, Xiping (Co-Principal), Stunz, Gregory W. (Co-Principal), Wetz, Michael S (Co-Principal), Naehr, Thomas H. (Co-Principal), Fahlman, Andreas (Supporting), Montagna, Paul A. (Supporting), Pollack, Jennifer (Supporting), Hogan, James D (Supporting), Zimba, Paul V. (Supporting), Coffin, Richard (Supporting), "CKD--FUNDED--MRI: Acquisition of Elemental Stable Isotope Chemistry (ESIC) Mass Spectrometer," Sponsored by U.S. National Science Foundation, Federal, \$419,259.00. (October 1, 2013 - September 30, 2014).

Besonen, Mark (Principal), "CKD--FUNDED--Support for PAGES Varves Working Group 2nd Workshop," Sponsored by U.S. National Science Foundation, Federal, \$15,008.00. (June 15, 2011 - May 31, 2012).

Besonen, Mark, "CKD--FUNDED--A sub-bottom profiling survey to aid the reconstruction of late Holocene paleoclimate in western Turkey," Sponsored by TAMUCC College-level Faculty Research Enhancement Grant, Texas A&M University-Corpus Christi, \$2,500.00. (September 1, 2010 - August 31, 2011).

Besonen, Mark, "CKD--FUNDED--Development of speleothem-based climate records for Crete, Greece," Sponsored by Texas Research Development Fund, State, \$36,000.00. (September 1, 2010 - August 31, 2011).

Besonen, Mark, "CKD--FUNDED--The Sedimentary Record of the "Florida Keys" Hurricane (1919) and Hurricane Celia in the Corpus Christi Area," Sponsored by TAMUCC University-level Faculty Research Enhancement Grant, Texas A&M University-Corpus Christi, \$8,500.00. (September 1, 2010 - August 31, 2011).

Besonen, Mark (Co-Principal), Francus, Pierre (Principal), Behl, Richard (Co-Principal), Grosjean, Martin (Co-Principal), Ojala, Antti E.K. (Co-Principal), Zolitschka, Bernd (Co-Principal), "CKD--FUNDED--Support for INQUA Working Group 1102—Varves Working Group activities for 2011 [i.e. the VWG Second Workshop]," Sponsored by INQUA (International Union for Quaternary Research), Other, \$5,000.00. (March 2011 - May 2011).

Besonen, Mark (Principal), "CKD--FUNDED--Support for PAGES Varves Working Group 2nd Workshop," Sponsored by PAGES (Past Global Changes), Other, \$5,000.00. (March 2011 - May 2011).

Besonen, Mark (Principal), "CKD--FUNDED--Development of a long term hurricane activity record for the South Texas area," Sponsored by Texas Research Development Fund, State, \$15,000.00. (November 1, 2009 - August 31, 2010).

Sponsored Research

Besonen, Mark (Co-Principal), Hill, Erin M. (Principal), Tissot, Philippe (Co-Principal), Nicolau, Brien A., "CKD--FUNDED--Nueces Bay Zinc in Sediment Profiling Assessment Project 1313," Sponsored by Coastal Bend Bays & Estuaries Program, Other, \$75,000.00. (November 1, 2012 - August 31, 2013).

Scholarly and Creative Awards and Honors

Dr. Louis Berger Scholars Fund, Department of Geology, Tufts University. (1992).
James E. Casey Scholarship, U.P.S. Foundation. (1988).

SERVICE

Department

Committee Member, Search Committee--Atmospheric Scientist position. (September 2011 - May 2012).
Committee Member, Search Committee--Hydrogeologist position. (September 2010 - May 2011).

College

Committee Member, S&E Field Operations Advisory Committee. (April 2011 - Present).
Committee Member, S&E Distinguished Speaker Series Committee. (October 2009 - Present).
Committee Member, S&E Scholarship Committee. (February 2014 - 2014).
Committee Member, Ad-Hoc Scholarship Committee. (August 2013 - February 2014).
Committee Chair, S&E Scholarship Committee. (October 2010 - February 2014).

Professional

Reviewer, Grant Proposal.
Reviewer, Journal Article.
Session Chair, South-Central Section Geological Society of America. (April 2013 - Present).

Public

Guest Speaker, Windsor Park Elementary School, Mrs. Hicks 3rd grade class. (April 2014 - Present).
Attendee, Meeting, Baffin Bay Study Group (a CBBEP special focus group). (2013 - Present).
Attendee, Meeting, Habitat and Living Resources Implementation Team (a CBBEP focus group). (January 2013 - Present).
Attendee, Meeting, Water and Sediment Quality Implementation Team (a CBBEP focus group). (January 2013 - Present).
Guest Speaker, Jewish Community Center Preschool, Mrs. Ruthie's kindergarden class. (2011 - Present).