



Fitzgerald Environmental Associates, LLC.

Applied Watershed Science & Ecology

Evan P. Fitzgerald

Principal Hydrologist/Geomorphologist

SUMMARY OF EXPERIENCE:

Evan is the founder of Fitzgerald Environmental and has a diverse professional background in water resources planning. Evan has 15 years experience in applied hydrology, fluvial geomorphology, watershed science, and geospatial science. As Principal of FEA, Evan has managed numerous large-scale river assessments and watershed planning and restoration projects throughout the Northeast; he is currently engaged in applied fluvial geomorphology and watershed planning work in the states of Vermont, New Hampshire, and New York.

Through his research and consulting work affiliated with the University of Vermont and the Vermont Department of Environmental Conservation (VTDEC), Evan has helped test and improve Vermont's geomorphic assessment protocols and associated river corridor planning methods. Evan is currently engaged in numerous river assessment and restoration projects in the wake of Tropical Storms Irene and Lee involving hydrologic and hydraulic modeling with one and two-dimensional models. This work includes river/road embankment restoration designs and floodplain restoration designs at various sites throughout Vermont and New York. Evan recently worked with another consulting firm to develop river management and flood recovery protocols for the State of Vermont to codify best practices and improve river and floodplain management. Evan and his colleagues are currently working with a team of consulting firms to assist VTrans with flood resiliency planning along the Vermont Highway System.

HIGHLIGHTED PROJECT EXPERIENCE:

VTrans Methods and Tools in Transportation Flood Resiliency, Central and Southern VT

Working with a team of consultants led by Milone & MacBroom to develop methods and tools to evaluate flood vulnerability and road network criticality within three pilot watersheds in central and southern Vermont. Work involves extensive analysis of watersheds and river networks to identify flood damage potential within river corridors and floodplains, and criticality of road networks during moderate and large floods. Evaluation of relative risk for each road segment will lead to prioritization of roadways for mitigation based on overall risk.

HIGHLIGHTED PROJECT EXPERIENCE (continued):

VTrans Vermont State Highway Repairs Statewide, Vermont

Worked with VTrans, VTDEC, and USACE to incorporate geomorphology guidance into permanent structural repairs along road and river corridors throughout Vermont. Evan was selected by VTrans to be the lead coordinator of a team of five consulting river scientists and engineers from various companies to address river concerns on over 150 sites throughout Vermont. Evan has provided technical design guidance including hydrologic-hydraulic modeling (and mapping of erosion hazards, coordinated statewide permitting efforts, and overseen construction on over 40 sites in Vermont since 2012.

Gulf and Beede Brook Channel and Floodplain Restoration Keene, New York

Performed geomorphic assessment and hydrologic-hydraulic modeling of Gulf Brook in support of channel and floodplain restoration design alternatives for Phase 1 in 2014. Developed planting plan for the riparian area. Performed construction oversight in Fall 2014 to ensure successful installation of channel and floodplain treatments. Phase 2 includes further assessment and preliminary design of five (5) channel/floodplain restoration sites upstream of Keene along Gulf Brook. Also assisting Town with similar study of Beede Brook in the hamlet of St. Huberts as part of a Long Term Community Recovery project.

Vermont Economic Resiliency Initiative: Flood Hazard Mitigation Analysis in Brandon, Vermont

Performed field geomorphic surveys and river corridor analysis to support flood mitigation strategies along the Neshobe River in Brandon. Work included geomorphic field survey to support hydraulic modeling, the development on conceptual designs, and public outreach.

Boquet River Geomorphic-Based Bank Stabilization Willsboro, New York

Performed geomorphic assessment and hydrologic-hydraulic modeling in support of a natural bank stabilization approach on the Boquet River. Selected alternative included engineered log jams (ELJs) and bioengineering approaches to stabilizing the upper bank. Assisted with environmental permitting efforts for proposed bank and channel work for permitting agencies (NYDEC and USACE).

EDUCATION:

M.S. Aquatic Ecology and Watershed Science, 2007,
University of Vermont, Burlington, VT

Thesis Title: *Linking Urbanization to Stream
Geomorphology and Biotic Integrity in the Lake
Champlain Basin, Vermont*

Graduate Certificate of Ecological Economics, 2007,
Gund Institute, Burlington, VT

B.S. Environmental Science, 1998, University of New
Hampshire, Durham, NH

PROFESSIONAL CERTIFICATIONS:

Certified Professional in Erosion and Sediment Control
(# 5051)

RELATED WORK EXPERIENCE:

2006 to present, *Principal Hydrologist and
Geomorphologist*, Fitzgerald Environmental
Associates, LLC. Colchester, VT

Founder of water resources consulting firm
specializing in applied fluvial geomorphology,
watershed hydrologic/hydraulic analysis, ecological
restoration planning, and applied geospatial sciences.
Responsible for managing multi-disciplinary projects
ranging from the site-scale to watershed-scale
involving extensive field data collection and analysis.
Specific areas of expertise and services include fluvial
geomorphic assessments and restoration designs,
stormwater and erosion control permitting,
hydrologic/hydraulic modeling, GIS/GPS, remote
sensing, wetland delineation/permitting, and expert
witness services.

1999 to 2002; 2004, *Hydrogeologist*, Pioneer
Environmental Associates, LLC. Vergennes, VT
Responsible for field work, data analysis, computer
modeling, and report writing associated with studies
in watershed management and GIS analysis
throughout New England. Areas of focus included
stormwater runoff modeling; stormwater treatment
system evaluation and design; hydraulic modeling and
flood analysis for river channels and bridges;
streamflow withdrawal monitoring for snowmaking
and bottled-water supply; and stream sampling for
indirect wastewater discharge systems.

PROFESSIONAL AFFILIATIONS:

American Water Resources Association
Association of Watershed & Stormwater Professionals
International Erosion Control Association

SELECTED PUBLICATIONS AND PRESENTED PAPERS:

Fitzgerald, E.P., Bowden, W.B., Kline, M.J. and Parker, S.P.
(2012). Urban impacts on streams are scale-
dependent with non-linear influences on their
physical and biotic recovery in Vermont, U.S.A
Journal of the American Water Resources Association,
48(4): 679-697.

Whitney, D.H. and Fitzgerald, E.P. (2008). An Advanced
Application of a Gravel Wetland for Stormwater
Treatment in South Burlington, Vermont, In
*Proceedings of American Ecological Engineering
Society Annual Meeting*, Blacksburg, VA

Whitney, D.H., Liner, M.O., Fitzgerald, E.P. (2007).
Application of Engineered Wetlands in Stormwater
Management. *Stormwater*, 9(1)

Fitzgerald, E.P., McBride, M., Clark, J.S., Hannon, J.,
Pearce, A., Mouser, P. & Newcomb, D. (2006).
Stormwater Treatment on a Shoestring Budget: An
AWRA Student Chapter's Experience. In *Proceedings
of the 2006 Meeting of the American Water
Resources Association*. Baltimore, MD

Fitzgerald, E.P., Bowden W.B. & Foley, J. (2006). Linking
Urban Land Use to Stream Geomorphology and Biotic
Integrity in the Lake Champlain Basin. In *Proceedings
of the 2006 Meeting of the North American
Benthological Society*. Anchorage, AK

Fitzgerald, E.P., & Bowden, W.B. (2006). Quantifying
Increases in Stream Power and Energy Using Flow
Duration Curves for Potash Brook, South Burlington,
VT. *Stormwater*, 7(2): 88-94

AWARDS:

2007 Rubenstein School of Environment and Natural
Resources Graduate Student Award for Outstanding
Research and Scholarship

2006 North American Benthological Society Student
Award for Best Poster Presentation in Applied
Research during the Annual Meeting in Anchorage,
AK

