

# Capitol Lake-Deschutes Estuary Long-Term Management Project Environmental Impact Statement

## Use of Third Party Experts to Enhance the EIS Process

Third party reviews are used in an EIS process to ensure technical analyses are conducted using industry-recognized best practices and include a reasonable level of analysis to allow for the comparison of alternatives, consistent with the requirements of the State Environmental Policy Act (SEPA). Third party review is not required under SEPA, but is considered an opportunity to provide independent review of the technical analyses conducted by the competitively selected EIS Project Team that is also made up of members with specialty experience in EIS processes and expertise in the disciplines that will be studied. Enterprise Services hired third party experts in three discipline areas: 1) Water Quality, 2) Hydrodynamics and Sediment Transport Modeling, 3) Economics.

The scope of work for the third party reviews includes review of the draft technical methodology memoranda (2019) and the draft technical discipline reports (2020). The review for Hydrodynamics and Sediment Transport Modeling also includes review of calibration validation. Review of draft documents by the third party experts is expected to focus on the assumptions used, supporting data and conclusions drawn from the technical analyses. As the analysis progresses, there may be additional check-ins with third-party experts to review assumptions for reasonableness.

## Process to Select Third Party Experts

Step 1: Enterprise Services received recommendations for third party experts from various sources, including EIS Work Group members.

In order to maintain objectivity, subject matter experts were expected to not have connections to the Thurston County area or the watershed, and have no history of involvement or advocacy regarding Capitol Lake-Deschutes Estuary. Experts who had done previous work on Capitol Lake-Deschutes Estuary were not considered.

Step 2: Enterprise Services invited recommended experts to apply, and to provide a resume or CV summarizing education/training, expertise in the discipline, including similar project work, publications, references and a brief description of why they were interested in and qualified to provide this review. Several experts applied for each discipline.

Step 3: Screening and selection was done by a separate panel for each discipline, each comprised of Enterprise Services staff with assistance from Work Group members or others with knowledge/experience in the discipline area. The EIS project team did not participate in the selection process.

Each panel member individually reviewed the applications. Applicants were ranked based on qualifications (academic, employment and publications) and relevant experience (including review of other EIS documents). The group then convened to discuss and combine their rankings, to reach consensus on the top candidates.

## **Selected Third Party Experts**

### **Economics:**

1. Dr. Ken Cousins, Earth Economics
2. Dr. Lisa McDonald, Abt Associates, Inc.

### **Hydrodynamics and Sediment Transport Modeling:**

1. Dr. Ioannis Georgiou (University of New Orleans), Coastal Hydrodynamics, LLC,
2. Dr. Alexander Horner-Devine (University of Washington)

### **Water Quality:**

1. Dr. Raymond Timm, Siskowet Enterprises, LLC

**Attached resumes: Personal contact information has been redacted for privacy reasons**

## **Ioannis Y. Georgiou**

Earth and Environmental Sciences and  
University of New Orleans

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New Orleans LA 70148

[REDACTED]  
<https://sites.google.com/site/ioannisgeorgiougrou>

### **Appointments**

Olga Braunstein Endowed Professor in Sedimentary Geology (Nov. 2017 – Present)  
Chair, Dept. of Earth and Environmental Sciences, University of New Orleans (May 2017 – Present)  
Associate Professor, Earth and Environmental Sciences, University of New Orleans (Aug. 2012 – Present)  
Director, Pontchartrain Institute for Environmental Sciences, University of New Orleans (2013 - present)  
Assistant Professor, Earth and Environmental Sciences, University of New Orleans, (2007 – Aug. 2012)  
Assistant Professor Research, Pontchartrain Institute for Environmental Sciences, University of New Orleans (2005 – 2007)  
Post-Doctoral Associate, Pontchartrain Institute for Environmental Sciences, University of New Orleans (2002 – 2004)  
Adjunct Professor, College of Science, University of New Orleans (2002 – 2004)  
Adjunct Professor, College of Engineering, University of New Orleans (2002 – 2004)

### **Education**

Ph.D., Engineering and Applied Sciences, University of New Orleans, New Orleans LA, 2002  
(major: Hydrodynamics; minor: Coastal Geomorphology). Advisor: John Alex McCorquodale, 2002,  
Dissertation: *Three-dimensional Hydrodynamics Modeling of Circulation and Salinity Intrusion in Shallow Estuaries*  
M.Sc., Water Resources, Civil and Environmental Engineering, University of New Orleans, University of New Orleans, New Orleans, LA, 1999. Advisor: Marty Tittlebaum. Thesis: *Infiltration Inflow in Urban Stormwater Systems associated with non-NPDES entities*,  
B.Sc., Louisiana State University, Civil Engineering (minor: Env. Engineering) Baton Rouge, LA, 1997.  
HND, Higher Technical Institute, Civil Engineering, Lefkosia, Cyprus, HND, 1992. Thesis: *High workability concrete using admixtures*

### **Fellowships, Honors, Recognition**

Reviewer Distinction Recognition, Estuarine Coastal and Shelf Science, Elsevier (2018)  
Outstanding Reviewer Award, Estuarine Coastal and Shelf Science, Elsevier (2017)  
Olga Braunstein Endowed Professorship in Sedimentary Geology (2017)  
Reviewer Distinction Recognition, Journal of Hydrology, Elsevier (2008)  
Team Achievement Award (2005); presented by the US Army Corps of Engineers and the State of Louisiana (for contribution to the Louisiana Coastal Area Ecosystem Restoration Study)  
Crescent City Doctoral Fellowship, University of New Orleans (2000 – 2002)  
Freeport McMoRan Graduate Research Assistantship, Freeport McMoRan Inc. (1999 – 2001)  
Urban Water Research Assistantship - Environmental Protection Agency (EPA) (1997-1999)

### **Courses Taught**

EES 4900/5900 Coastal Processes and Geomorphology (senior undergraduate and graduate level). Every Fall from 2008 - Present  
EES 4925/5925 - Introduction to Physical Oceanography, (senior undergraduate and graduate level). Every spring from spring 2012 – Present  
EES 6096 - Special Topics - Data Analysis Methods in Earth and Environmental Sciences graduate level (Fall 2015; 2017)

EES 6925 - Earth Surface Processes and Environment Dynamics (graduate level), Every spring from spring 2011-present

EES 6096 - Special Topics - Barrier Island Dynamics (graduate level), Spring 2010-2016

EES 6780 – Applied Environmental Modeling, Fall 2009, 2010

### **Student and Postdoctoral Research Advised**

#### **Undergraduate (at UNO) and High School Students:**

Nelsy Osorio (2019) Controls on lateral migration in meandering channels using physical modeling

Leah Tevis (2018-19) Grain size distribution along deltaic headlands and the shoreface post beach and dune nourishment

Brennan Robertson (2019) Holy Cross High School, Marsh shear strength and surface water characteristics as indicators of vulnerability.

Ernesto Hernandez (2018) Distribution of grain size in fluvial and tidal (dominant) systems

Scott Romain (2017) Does floodplain width control meander intensity? Physical experiments of sedimentation and meandering dynamics in fluvially dominated systems

Camryn Martin (2016) Controls on tidal point bar evolution and sedimentary architecture using physical modeling

Tara Yocum (2013-2014) Delta scaling laws for small crevasses in the Mississippi River delta plain; implications for land building

Jeremy Henley (2013-2014) The occurrence of stratification induced hypoxia in the Chandeleur Sound; Insights into physical controls

Emily Harper (2012-2014) Settling properties and particle size distribution of natural sand/mud mixtures

Mia Muhsen (2011) Ursuline Academy in New Orleans, Dependency of concrete strength to water-cement ratio and aggregate ratios

Angela Scheuer (2011) Wave transformation during storms in nearshore environments at Barrier Islands

#### **PhD students as secondary advisor or contributing advisor:**

Patrick Smith (2014) Dissertation: Red Drum (*Sciaenops ocellatus*) site fidelity, movement patterns, and habitat use in coastal Louisiana, including an assessment of the response of Red Drum and associated fish assemblages to a change in water quality management in an urban waterway in New Orleans, Louisiana

William Stein III (2013) Dissertation: Fish assemblage change along the New Orleans land bridge; contributions to stocks in the Gulf of Mexico

Karim El Kheishy (2007) Dissertation: Three-dimensional hydrodynamic and sediment transport modeling in the lower Mississippi River.

Chilmakuri Chandra Sekhar (2005) Dissertation: Sediment Transport and Pathogen Indicator Modeling in Lake Pontchartrain.

#### **Post-doctoral advisees/co-advisees:**

Madeline Foster-Martinez (2019) – Coastal Wetland Hydrodynamics and Sediment Dynamics

Ahmed Gaweesh (2015-2016) – Fluvio-deltaic Morphodynamics

Joao Pereira (2012-2013) – Riverine Morphodynamics

#### **PhD students as primary advisor/co-advisor:**

##### *Current*

Kevin Hanegan (2019) Dissertation: Morphodynamics of Transgressive Coastal Systems - Modeling allogenic and autogenic response to sea level rise and changes in sediment supply

Pricilla Souza (2019) Dissertation: Sedimentology, stratigraphy, and physical processes driving the evolution and internal architecture of tidal point bars

Sean Kenny, (2020) Dissertation: Storm Induced Sediment Transport: Understanding depositional trends and connections between shelf, shoreface, estuaries and wetlands

*Completed*

Michael Eller, (2013) Dissertation: Utilizing economic and environmental data from desalination operations as a progressive approach to Ocean Thermal Energy Conversion (OTEC) planning  
Gregorzewski Alison Sleath (2012) Medical withdrawal, Dissertation: Storm induced sediment transport on Barrier Islands Systems.

**Masters students as primary advisor:**

Joshua Thomas (2019) Thesis: Evolution of Water and Sediment Fluxes in newly formed distributary: Mardi Gras Pass, Louisiana USA.  
Jessica Villers (2020) Thesis: Water and Sediment Fluxes in restored and un-Restored shorelines  
Joshua Hansen (2019) Thesis: Channel Evolution and Distributary Network Stability of a Recent Natural Levee Breach under Microtidal Influence  
MD Mohiuddin Sakib (2020) Thesis: Storm-induced Shoreface Sediment fluxes in the Mississippi Delta

*Completed*

Brittany Kime (2018) Thesis: A comparison of Barrier Island Morphology Trajectories using nearshore versus outer continental shelf sand for nourishment  
Benjamin Beasley (2018) Thesis: Coupled Barrier Island and Shoreface Dynamics: Observations and Modeling in Coastal Louisiana  
Joshua Flathers (2018) Thesis: Controls on stratigraphic evolution in tidally-influenced systems with intra-channel and intra-basin tidal point bars  
Timothy Nelson (2017) Thesis: Hydrodynamic Controls on the Morphodynamic evolution of subaqueous landforms  
Tara Yocum (2017) Thesis: Growth laws for sub-delta crevasses in the Mississippi River Delta: observations and modeling  
Joshua Alarcon (2016) Thesis: Overwash controls on barrier island morphodynamics during storms  
Kevin Trosclair (2013) Thesis: Wave transformation on a saltmarsh edge; non-linear effects of breaking waves  
Robin Schroeder (2011) Thesis: Tidal exchange flows in an urban water body; implications on habitat management as a result of anthropogenic alteration  
Chris Esposito (2011) Thesis: Differential Sedimentation in a Mississippi River Crevasse Splay (May 2011).  
Jennifer Schindler (2010) Thesis: Estuarine Dynamics as a Function of Barrier Island Transgression and Wetland Loss: Understanding the Transport and Exchange Processes

**Other committee Service (Member, Masters and Doctoral):**

Meghan Gham (PhD) Development of Specialized Turtle Excluder Devices (TEDs) Designed to Eliminate Bycatch of Sea Turtles in Small Skimmer Trawls, Wing Nets, and Try Nets  
Julie Torres (M.Sc.) Geomorphic Evolution of Grand Isle Louisiana  
Damon Morse (M.Sc.) Controls on the Distribution of Apple Snails in an Urban Park

*Completed*

Andrew Courtois (M.Sc.) A Regional Survey of River-plume Sedimentation on the Mississippi River Delta Front and its Implications for Submarine Landslide Activity (2018)  
Frances Crawford (M.Sc.) Shell Berms Evolution in southeast Louisiana (2018)  
Arnaud Kerisit (M.Sc.) Zooplankton Community Composition in Natural and Artificial Estuarine Passes of Lake Pontchartrain, Louisiana. (2018)  
Nina Rijns (PhD) Long Term Bathymetry Changes in the Lower Mississippi River due to Variability in Hydrograph and Variable Diversion Schemes (2018)

- Ronald Giardina (M.Sc.) On The Ramberg-Osgood Stress-Strain Model And Large Deformations of Cantilever Beams (2017)
- Lamine Meroudj (M.Sc.) Seismic Facies Classification of an Intraslope Minibasin in The Keathley Canyon, Northern Gulf of Mexico (2017)
- Prabhat Neupane (PhD) Paleohydrology and Paleoecology of the Neogene Siwalik rocks, Nepalese Himalaya using multi-proxy lipid biomarker isotopic study (2017)
- Brian Carter (M.Sc.) Tidal Creek Equilibrium: Barataria Bay, Louisiana (2017)
- Trey Kramer (M.Sc.) Barrier spit evolution and primary consolidation of backbarrier facies: West Belle Pass Barrier, LA (2016)
- David Cross (M.Sc.) High-frequency tectonic sequences in the Campanian Castlegate Formation during a transition from the Sevier to Laramide orogeny, Utah, U.S.A. (2016)
- Rachelle Thomason (M.Sc.) Biloxi Marsh Platform Response to Meteorological forcing (2016)
- Geoff Udolf (M.Sc.) An Alternate Trawling Method: Reduced Bycatch and Benthic Disturbance Achieved with the Wing Trawling System (2016)
- Steve Ayres (PhD) A Simulation of the Mississippi River Salt Wedge Estuary Using a Three-Dimensional Cartesian Z Coordinate Model (2015)
- Jordyn Spizale (M.Sc.) Modern Evolution of the Caminada Pass Inlet, South Louisiana (Summer 2013).
- Rebecca Weatherall Cope (M.Sc.) Transition changes in larvae transport and assemblages in Lake Pontchartrain as a function of MRGO closure (December 2013).
- Hiranya R. (PhD) Stratigraphic compartmentalization of Cretaceous coastal-plain deposits of the Blackhawk Formation - Wasatch Plateau, Utah (May 2012)
- Ben Kirkland (M.Sc.) Longshore Transport and Effects on Island Geomorphology, Isles Dernieres, LA (Summer 2012)
- Kyriakos Tsiappoutas (PhD) - Statistical Spectral Parameter Estimation of Acoustic Signals with Applications to Byzantine Music (December 2011)
- Prabat, N. (M.Sc.) Understanding uplift of the Ethiopian Plateau from longitudinal profile analysis of the Blue Nile drainage system (December, 2011)
- Mathjis Bos (MSc – TU Delft, Delft Netherlands) The morphological effects of sediment diversions on the Lower Mississippi River. (June 2011)
- Sanne van den Heuvel (M.Sc., Delft University) The effect of salinity gradients on conditions for marsh stabilization and marsh growth in the St. Bernard Parish, Louisiana, U.S. (May 2010)
- Kathlyn Rose (MSc) – Geologic evolution and shallow stratigraphy of Cat Island, MS.
- Joao Pereira (PhD, College of Engineering) - Three-dimensional sediment transport modeling in the lower Mississippi river (May 2011).
- Alissa Gros (M.Sc.) – Buoyancy effects of restored and natural wetlands in Louisiana
- Sunny J. Brogan (M.Sc.) – Redfish habitat use in an urban fishery. (May 2009).
- Scott P. Eustis (M.Sc.) – Assemblage composition of shrimp trawl bycatch. (December 2011).
- Mark Ischen (M.Sc.) Using two-dimensional numerical models to analyze hydraulic effects of constricted flows through the Rigolets Pass in southeast Louisiana (May 2009)
- M. Chad Ellinwood (M.Sc.) – Response and recovery of fish assemblages to hurricane impacts at the Chandeleur Islands, Louisiana. (May 2009).
- Frank Willis (PhD,) A Multidisciplinary Approach for determination of the 1812 Ordinary High Water Mark of Catahoula Lake in Central Louisiana (May 2009)
- Jennifer Roberts, (M.Sc.), Storm induced deposition of sediment in three coastal Louisiana wetlands (August 2009)
- Andrea Bourgeois-Calvin (Ph.D.) – Relationship between land use and surface water quality in a rapidly developing watershed in southeast Louisiana (July 2008).
- Michael D., Miner (Ph.D.) Morphologic and Stratigraphic Evolution of a Transgressive Tidal Inlet System, Little Pass Timbalier, Louisiana (May 2006)
- Giron Efrain (Ph.D.) Development of a SWMM – GIS Flood Model for New Orleans Drainage Pumping Station No 4 Basin, (2004)

Martinez Maria Carolina (M.Sc.) Water Quality Study of Southshore of Lake Pontchartrain, (graduated in 2005)

### **Invited Scholarly Presentations**

2018: U.S. Army corps of Engineers, New Orleans District, New Orleans LA.  
2017: Naval Research Laboratory, Physical Sciences, Stennis Space Center, MS  
2016: Deltares and Technical University Delft (TUDelft), Delft, The Netherlands  
2016: Tulane University, Department of Earth and Environmental Sciences, New Orleans LA  
2016: Universidade Federal de Santa Catarina, Centro de Filosofia e Ciências Humanas, Florianopolis, Santa Catarina, Brazil  
2016: University of Southern Mississippi, Dept. of Marine Sciences, Stennis Space Center, MS  
2015: Louisiana State University, Dept. of Oceanography and Coastal Studies, Baton Rouge LA  
2013: Louisiana State University, School of the Coast and Environment, Baton Rouge, LA  
2010: US Army Corps of Engineers, Engineering Research and Development Center, Coastal Hydraulics Laboratory, Vicksburg, MS  
2009: US Army Corps of Engineers, New Orleans District, Hydraulics and Hydrology Division, New Orleans LA  
2009: Louisiana Universities Marine Consortium (LUMCON), Cocodrie, LA  
2009: American Society of Civil Engineers, Annual Conference, Baton Rouge Chapter.  
2005, 2006: Louisiana State University, School of the Coast and Environment, Baton Rouge, LA

### **Academic Service**

#### ***On-campus***

2012 – Present; Graduate Coordinator for the Department of Earth and Environmental Sciences  
2013 – 2015, Member of the Doctoral Diversity Committee  
2013 – 2015, Member of the Engineering and Applied Science Doctoral Program Steering Committee  
2013 – 2014, 2017, Served as judge for the Innovate UNO  
2011 – 2015, University of New Orleans Undergraduate Retention Committee (College of Science).  
2011 – Represented the EES department on the NSF Career Award forum, Baton Rouge, LA  
2011, served as judge for the College of Science Undergraduate Research Fair.  
2010 – 2015, University Library Senate Committee  
2010 – 2015, Teaching Award Selection Committee Member, College of Science.  
2007 – 2011, Attended Commencement ceremonies since (2 in 2010 as Marshal).  
2009, Earth Week demonstration (fine sediment dynamics), October 12-16.  
2009 – Present, Assistant Graduate Coordinator, Earth and Environmental Sciences Department.  
2008 to 2009 – Participated in UNO's Get to Know UNO Open House.  
2008 – Present, Library Liaison for the Department.  
2009 – 2012, Advisory Member, Coastal Education Research Facility (CERF), a Pontchartrain Institute for Environmental Sciences field station.

#### **Off campus**

*Journal review:* Journal of Geophysical Research – Oceans Earth Surface Dynamics, Geophysical Research Letters, Journal of Coastal Research, Journal of Hydraulic Engineering, Journal of Hydrology, Journal of Hydraulic Research, Journal of Climate Research, Nature Climate Research, Continental Shelf Research, Estuarine Coastal and Shelf Science, Estuaries and Coasts, Journal of Hydrologic Engineering, Journal of Marine Geology, Journal of Coastal Research, Ecological Engineering.

*Proposal Review:* NOAA Sea Grant (Louisiana, MS, and AL – 2008, 2010-2011), NSF – Geomorphology and Earth Surface Dynamics Program (2008-present), NSF – Marine Geology program (2009-present), NMFS Cooperative Research Program (2011-13), Louisiana CREST Program (2005-2008). Hudson River Foundation (2018-2019)

- 2013 - 2016 – Served on the State of the Coast (SOC) Program Committee  
2013 – Member of the Operational Science Advisory Team for Coast Guard during the Deepwater Horizon  
2012 – 2017, Sciences and Education Advisory Council member for the Louisiana Universities Marine Consortium (LUMCON)  
2011 - 2013, Served in advisory capacity for the Bayou St. John Alliance group  
2010 – 2015, NASA Develop Program External Reviewer  
2010 – Appeared on several news casts, interviews, and provided service to organizations, news agencies, and NGOs regarding the oil spill.  
2010 – U.S. Coast Guard advisory role in booming operations (Grand Isle Emergency Response unit) – guided booming operations in the vicinity of tidal inlets and in Barataria Bay.  
2010 – Member of the SERT Advisory Committee during the BP Oil Spill, Office of Coastal Protection and Restoration and LSU  
2010 – Lead Adviser to U.S. Coast Guard on booming activities in Barataria Bay operations during the BP Oil Spill  
2009 – Invited participant on table discussion on Desktop Modeling, April 9, LSU Coast and Environment Building.  
2007 – Served on Multiple Lines of Defense Assessment Team, Lake Pont. Basin Foundation  
2006 – served on advisory board for the development of the Bayou St. John Comprehensive Management Plan  
2006 – Served as advisor for scientific development regarding State of Louisiana restoration initiatives, Coastal Louisiana Ecosystem Assessment and Restoration Program (CLEAR), LSU  
2006 - Conceptual Ecological Modeling Workshop, Reducing flood damage in Coastal Louisiana, Communities, Culture, commerce, CLEAR Program, Louisiana State University.  
2005 – Served on the Comprehensive Habitat Management Plan, Lake Pont. Basin Foundation

## Publications

Please see <https://scholar.google.com/citations?user=P4ADwfIAAAAJ&hl=en> for an up-to-date publication list.

Google Scholar citation h-index = 16 i10-index = 28 Citations = 1145.

\* denotes a graduate student, post-doctoral scholar or Georgiou group author

## Manuscripts submitted, in review, and near submission

FitzGerald, D.M., Hughes, Z.J., **Georgiou, I.Y.**, Black, S., Novak, A., An Extreme Marsh Sedimentation Event, **PNAS**, *in-review*

Esposito, C., **Georgiou, I.Y.**, Straub, K.M., The role of flow loss in distributary networks on channel sedimentation and morphology, **Journal of Geophysical Research - Earth Surface**, *submitted – in review*

### *Near submission*

Yocum, T.E.\*, **Georgiou, I.Y.**, Straub, K.M., Growth laws for sub-delta crevasses in the Mississippi River Delta, **Geophysical Research Letters**, *near submission*

**Georgiou, I.Y.**, Troclair, K.\*, Yocum, T.E.\*, Beasley, B.\*, Overestimation of salt marsh resiliency to violent storms, *near submission*

Hanegan, K.\*, **Georgiou, I.Y.**, FitzGerald, D.M., Hughes, Z.J., Modeling Interactions between Backbarrier Marshes, Tidal Inlets, Ebb-deltas, and Adjacent Barriers Exposed to Rising Sea Levels, *near submission*



- Souza, P.\*, **Georgiou, I.Y.**, Hughes, Z.J., Howes, N., Gani, M.D., FitzGerald, D.M., Kulp, M.A., Sedimentology of tidal point bars with and without fluvial influence, **Sedimentology**, *near submission*
- Souza, P.\*, **Georgiou, I.Y.**, Hughes, Z.J., Howes, N., FitzGerald, D.M., Facies distribution and lateral accretion of tidal point bars with and without fluvial influence, **Journal of Sedimentary Research**, *near submission*
- Howes, N.C., Hughes, Z.J., **Georgiou, I.Y.**, Wolinsky, M.A., A Conceptual Framework and Classification for the Fluvial-Backwater-Marine Transition in Coastal Rivers Globally. Review article in **Marine Geology**, *in revision for re-submission*

## Manuscripts Published

### Books Chapters and Monographs

1. Bondoni, M.\*, **Georgiou, I.Y.**, Novak, A. Chapter 14, 2019. Marsh Edge Erosion, in Marshes: Function, Dynamics and Stresses, FitzGerald, D.M., and Hughes, Z.J., Editors, **Cambridge Press**, *in press*
2. Carney, J.A., Twilley, R.R., Agre, C., Hird, J., **Georgiou, I.Y.**, Shelden, J., The Giving Delta, 2019. In: Elizabeth Mossop (eds) Sustainable Coastal Design and Planning, CRC Press - Taylor and Francis, ISBN 978-1-4987-7454-3
3. FitzGerald, D.M., Hein, C.J., Hughes, Z., Kulp, A.M., **Georgiou, I.Y.**, Miner, M.D., Runaway barrier island transgression concept: Global case studies, 2018. In: Moore, L.J. and Murray, A.B., (eds) Barrier Dynamics and the Impact of Climate Change on Barrier Evolution, ISBN 978-3-319-68084-2, pp 3-56.
4. FitzGerald, D., **Georgiou, I.Y.**, and Kulp, M.A., 2016, Deltas, in: Encyclopedia of Marine Geosciences (Harff, J., Meschede, M., Petersen, S., Thiede, J., eds), Springer, New York, DOI 10.1007/978-94-007-6644-0\_159-1, 17 pp. (invited)
5. FitzGerald, D., **Georgiou, I.Y.**, and Miner, M., 2014, Estuaries and Tidal Inlets, in: *Coastal Environments and Global Change* (Masselink, G. and Gehrels, R., eds), Wiley Press, New York, Chapter 12, p. 356-465.
6. Kulp, M.K., FitzGerald, D.M., **Georgiou, I.Y.**, 2014, The Mississippi River Delta; in: Encyclopedia of the worlds Deltas, Elsevier, 17 pp
7. **Georgiou I.Y.**, Kulp, M.A., FitzGerald, D.M., Miner, M., 2010, “The Louisiana Coastline”, in: Encyclopedia of the World’s Coastal Landforms, (eds) E.C.F. Bird, Springer, New York, ISBN: 1402086385, pp. 61 - 68. (invited)
8. McCorquodale J. A., Carnelos S., **Georgiou I.Y.**, Barbé D., Cothren G., Englande A.J., 2004, Fate of Pathogens in Stormwater Plumes, Chapter 5 in: Innovative Modeling of Urban Water Systems, James, William, (eds), Monograph 12, pp. 91-113, CHI Publications.

### Journal Articles

1. Bondoni, M.\*, **Georgiou, I.Y.**, Roelvink, D., Oumeraci, H., Numerical Modeling of the Erosion of Marsh Boundaries due to Wave Impact, **Coastal Engineering**, in-press
2. Shawler, J.L., Hein, C.J., Canuel, E.A., Kaste, J.M., Fitzsimons, G.G., **Georgiou, I.Y.**, Willard, D.A., 2019, Historical land-use changes drive time-varying sedimentation in a formerly glaciated New England estuary, **Anthropocene Coasts**, in-press
3. Hein, C.J. Fallon, A.R., Rosen, P., Hoagland, P., Morris, M., **Georgiou, I.Y.**, FitzGerald, D.M., Baker, S., Marino, G.B., 2019. Shoreline dynamics along a developed river mouth barrier island: Multi-decadal cycles of erosion and event-driven mitigation, **Frontiers in Earth Sciences**, 7, 103, 10.3389/feart.2019.00103
4. Maloney, J.M., Bentley, S.J., Xu, K., Obelcz, j., **Georgiou, I.Y.**, Miner, M.D., 2018. Mississippi River subaqueous delta is entering a stage of decline, **Marine Geology**, 400, pp 12-23, DOI 10.1016/j.margeo.2018.03.001

5. Obelcz, J., Xu, K., **Georgiou, I.Y.**, Maloney, J., Bentley, S.J., Miner, M.D. 2017. Sub-decadal submarine landslides are important drivers of deltaic sediment flux: insights from the Mississippi River Delta Front, *Geology*, 45(8), pp 703-706, DOI 10.1130/G38688.1
6. Darnell, K., Carruthers, T., Biber, P., **Georgiou, I.Y.**, Michot, T.C., Boustany, R.G., 2017. Spatial and temporal patterns in *Thalassia testudinum* tissue nutrients at the Chandeleur Islands, *Estuaries and Coasts*, 40:1288-1300, DOI 10.1007/s12237-017-0229-y
7. Keller, G., Bentley S.J., **Georgiou, I.Y.**, Maloney, J., Miner, M.D., Xu, K, 2016. River-plume sedimentation and <sup>210</sup>Pb/<sup>7</sup>Be seabed delivery on the Mississippi River delta front, *Geo-Marine Letter*, DOI 10.1007/s00367-016-04760-0
8. Hein, C.J., FitzGerald, D.M., de Souza, L.H.P.\*, **Georgiou, I.Y.**, Buynevich, I.V., Klein, A.H.F., de Menezes, J.T., Cleary, W.J., \*Scolaro, T., 2016. Complex coastal change in response to autogenic basin infilling: An example from a sub-tropical Holocene strandplain, *Sedimentology*, doi: 10.1111/sed.12265.
9. Hanegan, K.\*, **Georgiou, I.Y.**, 2015. Tidal modulated flow and sediment flux through Wax Lake Delta distributary channels: Implications for delta development. *International Association of Hydrological Sciences*, 367(367), 391–398. doi:10.5194/piahs-367-391-2015
10. El Keiashy K.\*, McCorquodale J.A., **Georgiou I.Y.**, Meselhe, E.A., 2014, Bed forms resistance dependency on numerical model grid size spatial resolution, *Journal of Spatial Science*, DOI: 10.1080/14498596.2014.879746
11. Esposito, C.R.\*, **Georgiou, I.Y.**, Kolker, A.K., 2013, Hydrodynamic and Geomorphic controls on mouth bar evolution, *Geophysical Research Letters*, doi: 10.1002/grl.50333
12. Barbier E.B., **Georgiou I.Y.**, Enchelmeyer, B., Reed, D.J., 2013, The Value of Wetlands in Protecting Southeast Louisiana from Hurricane Storm Surges. *PLoS ONE* 8(3): e58715. doi:10.1371/journal.pone.0058715
13. Meselhe, E., **Georgiou, I.Y.**, Allison, M.A., McCorquodale, J.A., 2012, Delta building diversions: Numerical modeling of hydrodynamics and sediment transport in the Lower Mississippi River near Myrtle Grove River Bend, *Journal of Hydrology*, 472, 340-354.
14. Grzegorzewski, S.A.\*, **Georgiou, I.Y.**, 2011, Sediment transport trends along an island terminus; A model study during storms in the northern Chandeleur Islands, in *Coastal Sediments*, eds. Wang, P., Rosati, J.D., and Roberts, T.M., v. 3, 2198-2211
15. El Kheishy, K.\*, McCorquodale, J.A., **Georgiou, I.Y.**, and Meselhe, E., 2010, Three dimensional hydrodynamic modeling over bed forms in open channels, *International Journal of Sediment Research*, Vol. 25, No.4, 2010, pp. 431 - 440.
16. Howes, N.C., FitzGerald, D.M., Hughes, Z.J., **Georgiou, I.Y.**, Kulp, M.K., Miner, M.D., Smith, J.M., and Barras, J.A., 2010, Hurricane Induced failure of low salinity wetlands, *Proceedings of the National Academy of Science*, v. 107, 32, 14014-14019, doi/10.1073/pnas.0914582107.
17. Meselhe, E., Pereira, J.F., **Georgiou, I.Y.**, Allison, M.A., McCorquodale, J.A., Davis, M.A., 2010, Numerical modeling of mobile bed hydrodynamics in the lower Mississippi River, in *World Environmental and Water Resources Congress*, Richard N. Palmer, Ed., ASCE, New York, pp. 1433-1442
18. **Georgiou, I.Y.**, McCorquodale, J. A., Schindler, J., Retana A.G., FitzGerald, D.M., Hughes, Z., Howes, N., 2009, Impact of Multiple Freshwater Diversions on the Salinity Distribution in the Pontchartrain Estuary under Tidal Forcing, *Journal of Coastal Research*, Vol. 54, pp. 59 – 70.
19. McCorquodale, J.A., Roblin, R.J., **Georgiou, I.Y.**, Haralampides, K., 2009, Salinity, nutrient, and sediment dynamics in the Pontchartrain Estuary, *Journal of Coastal Research*, Vol. 54, pp. 71- 87.
20. Pereira, J.F., J.A. McCorquodale, E.A. Meselhe, **I.Y. Georgiou** and M.A. Allison, 2009, Numerical Simulation of Bed Material Transport in the Lower Mississippi River, *Journal of Coastal Research*, v. 56, ISSN 0749-0248, pp. 1449 – 1453.
21. **Georgiou, I.Y.**, Schindler, J.\*, 2009, Wave forecasting and longshore sediment transport gradients along a transgressive barrier island; Chandeleur Islands, Louisiana, *GeoMarine Letters*, DOI 10.1007/s00367-009-0165-3, pp. 467 – 476.

22. Miner, M.D., Kulp, M.A., FitzGerald, D.M., and **Georgiou, I.Y.**, 2009, Hurricane-associated ebb-tidal delta sediment dynamics: *Geology*, v. 37, no. 9, p. 851-854, doi: 10.1130/G25466A.1.
23. **Georgiou, I.Y.**, and Schindler, J.\*, 2009, Numerical simulation of waves and sediment transport along a transgressive barrier island, Chapter H., *in* Lavoie, D., ed., Sand resources, regional geology, and coastal processes of the Chandeleur Islands coastal system—an evaluation of the Breton National Wildlife Refuge: U.S. Geological Survey Scientific Investigations Report 2009–5252, Reston, VA, p. 143–168.
24. Li, C, N., Walker, A., Hou, **Georgiou I.Y.**, H., Roberts, E., Laws, E., Weeks, X., Li, J., Crochet. 2008. Circular Plumes in Lake Pontchartrain under Wind Straining, *Estuarine Coastal and Shelf Science*, v. 80, iss. 1, p. 161-172.
25. Li, C., Chen, D. Guadagnoli, **I.Y. Georgiou**. 2008. Geometry-Induced Residual Eddies in Estuaries with Curved Channels: Observations and Modeling Studies, *J. Geophys. Res.*, 113, C01005, doi:10.1029/2006JC004031.
26. Meselhe, E., Habib, E., Griborio, A., **Georgiou, I.Y.**, and McCorquodale, J.A., 2006, Multidimensional Modeling of the Lower Mississippi River, *Estuarine and Coastal Modeling*, Malcolm L. Spaulding and Butler Lee H., Eds., ASCE, New York, pp. 152-160.
27. **Georgiou, I.Y.**, Fitzgerald, D., Stone, G., 2005, Physical Processes Along the Louisiana Coastal Waters, *J. of Coastal Research*, Vol. 44, pp. 72-89.
28. Reyes, E., **Georgiou, I.Y.**, McCorquodale, J.A., Reed, D., 2005, Modeling Barrier Island Effects in Coastal Ecosystems, *J. of Coastal Research*, Vol. 44, pp. 176-185.
29. McCorquodale, J.A., **Georgiou, I.Y.**, Susanne Carnelos, and Andrew J. Englande, 2004, Modeling Coliforms in Storm Water Plumes, *J. Environ. Eng. Sc.*, Vol. 3, pp. 419-431.
30. **Georgiou, I.Y.** and McCorquodale J.A., 2004, Modeling Freshwater Inflows into a Shallow Lake, *J. of Hydro-Engineering and Env. Mechanics*, Vol. 51, No. 1, pp. 75-84.
31. **Georgiou, I.Y.**, McCorquodale, J.A., 2002, Stratification and Circulation Patterns in Lake Pontchartrain, *Estuarine and Coastal Modeling*, Malcolm L. Spaulding and Butler Lee H., Eds., ASCE, New York, pp. 140-151.
32. **Georgiou, I.Y.**, Tittlebaum, E.M., 2001, Sanitary Sewer Overflows Associated with non-NPDES Entities, *J. of Environ. Engg. and Policy*, Springer & Verlag, Vol. 2, No.3, pp. 121-130.
33. **Georgiou, I.Y.**, McCorquodale, J.A., 2000, Salinity Stratification from a Navigation Canal in a Shallow Lake, *Stratified Flows*, Laurence G.A., Pieters R. and Yonemitsu N., Eds., IAHR, Vol. 2, 859 – 864.

**Other Publications (includes Technical Reports – since 2007)**

1. **Georgiou, I.Y.**, Yocum, T., 2019, Hydrodynamic measurements and stage discharge relationships for Mardi Gras Pass in southeast Louisiana. Technical Report submitted to the Lake Pontchartrain Basin Foundation, 15 pp.
2. **Georgiou, I.Y.**, Yocum, T.E., and Brown, M.A., 2018. Caminada Headland Beach and Dune Restoration Incr 1 (BA-0045) and Incr 2 (BA-0143): Restoration impacts to Sediment Characteristics. Prepared for Louisiana Coastal Protection and Restoration Authority (CPRA) by the Pontchartrain Institute for Environmental Sciences, University of New Orleans, New Orleans, LA, 55 p
3. Bentley, S.J., Kehui, K., Jafari, N., **Georgiou, I.Y.**, Maloney, J., 2018. Mass Wasting Processes and Products of the Mississippi Delta Front: Data Synthesis and Observation, Progress Report submitted to the Bureau of Ocean Energy Management (BOEM), Louisiana State University, University of New Orleans and San Diego State University, 9pp
4. **Georgiou, I.Y.**, Yocum, T., 2018. Measurements of lateral flow from the Mississippi River at Mardi Gras Pass and flow distribution within the Bohemia Spillway using synoptic and tripod ADCP observations. Technical Report submitted to the Lake Pontchartrain Basin Foundation, 68 pp.
5. Kulp, M.A., **Georgiou, I.Y.**, Brown, M., Courtois, A., Flocks, J.G., Tuten, T., 2017, Louisiana Barrier Island Comprehensive Monitoring Program (BICM) Phase 2 - 2015 Characterization of Surficial Sediments in the Early Lafourche Delta, Late Lafourche Delta, Modern Delta, and

- Chandeleur Islands Regions: Part A - Data Collection, Sample Processing and Products. Prepared for Louisiana Coastal Protection and Restoration Authority (CPRA) by Pontchartrain Institute for Environmental Sciences, Baton Rouge, LA and New Orleans, LA, 16 p.
6. **Georgiou, I.Y.**, Kulp, M.A., Brown, M., Courtois, A., Flocks, J.G., Tuten, T., 2017, Louisiana Barrier Island Comprehensive Monitoring Program (BICM) Phase 2 - 2016 Characterization of Surficial Sediments in the Western and Eastern Chenier Plain and Atchafalaya and Wax Lake Delta Regions: Part A - Data Collection, Sample Processing and Products. Prepared for Louisiana Coastal Protection and Restoration Authority (CPRA) by Pontchartrain Institute for Environmental Sciences, Baton Rouge, LA and New Orleans, LA, 15 p.
  7. **Georgiou, I.Y.**, Kulp, M.A., Brown, M., Courtois, A., Flocks, J.G., Tuten, T., 2017B, Louisiana Barrier Island Comprehensive Monitoring Program (BICM) Phase 2 - 2016 Characterization of Surficial Sediments in the Western and Eastern Chenier Plain and Atchafalaya and Wax Lake Delta Regions: Part B - Data Collection, Sample Processing and Products. Prepared for Louisiana Coastal Protection and Restoration Authority (CPRA) by Pontchartrain Institute for Environmental Sciences, Baton Rouge, LA and New Orleans, LA, 7 p
  8. Kulp, M.A., **Georgiou, I.Y.**, Brown, M., Courtois, A., Flocks, J., and Tuten, T., 2017B, Louisiana Barrier Island Comprehensive Monitoring Program (BICM) Phase 2 - 2015 Characterization of Surficial Sediments in the Early Lafourche Delta, Late Lafourche Delta, Modern Delta, and Chandeleur Islands Regions: Part B – Sediment Sample Distribution Maps, submitted to Louisiana Coastal Protection and Restoration Authority 10 pp.
  9. **Georgiou, I.Y.**, Gaweesh, A., Hanegan, K., Yocum, T.E., 2016. Flow Distribution and salt-wedge propagation in the lower Mississippi River and Delta: Multidimensional Modeling using FVCOM. Technical Report submitted to the Coastal Protection and Restoration Authority (CPRA) for the LCA Mississippi River Hydrodynamic and Delta Management Feasibility Study, 66 pp.
  10. **Georgiou, I.Y.**, Yocum, T., Brown, M. 2016, Hydrodynamic measurements and stage discharge relationships for Mardi Gras Pass in southeast Louisiana. Technical Report submitted to the Lake Pontchartrain Basin Foundation, (4 incremental volumes, 30 pp)
  11. Kulp, M.A., **Georgiou, I.Y.**, Kramer, T., Marchal, K., 2016. Geomorphic Evolution of the Couple Raccoon Pass and West Belle Pass Spit, Louisiana. Technical Report submitted to the Water Institute of the Gulf, June 8, 2016. 57pp
  12. Hein, C.J., **Georgiou, I.Y.**, FitzGerald, D.M., de Souza, L.H.P., Klein, A.H.F., de Menezes, J.T, 2015. Wave energy, sediment supply, and sea-level fall: Late Holocene basin infilling in southern Brazil, In: Coastal Sediments '11, Proceedings of the 10th International Symposium on Coastal Engineering and Science of Coastal Sediment Processes.
  13. FitzGerald, D.M., **Georgiou, I.Y.**, Kulp, M.A., Miner, M.D., 2015. Chandeleur Islands: a post-berm analysis and island nourishment plan. Technical Report submitted to the Lake Pontchartrain Basin Foundation. 56 pp
  14. **Georgiou, I.Y.**, Kulp, M., Leadon, M., Poff, M., Thomson, G., and Walstra, D.J.R., 2014. 2017 Coastal Master Plan: Model Improvement Plan, Barrier Island Model Development (Subtask 4.3). Version I.(p. x). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority.
  15. Brown, M., Yocum, T., **Georgiou, I.Y.**, 2014, An Analytical and Statistical Examination of the St. Bernard Shoals Sediment Cores, block 118 northern Gulf of Mexico, A technical report submitted to the Bureau of Ocean Energy Management-BOEM, 71pp.
  16. Howes, N.C., FitzGerald, D.M., Hughes, Z.J., **Georgiou, I.Y.**, 2014 Barataria Bay Inlets Management Considerations, in, Louisiana Barrier Island Comprehensive Monitoring (BICM) Program Summary Report: Data and Analyses 2006 through 2010: Edited by Kindinger, J.L., Buster, N.A., Flocks, J.G., Bernier, J.C., and Kulp, M.A., U.S. Geological Survey Open-File Report 2013–1083, 86 p., at <http://pubs.usgs.gov/of/2013/1083>.
  17. **Georgiou, I.Y.**, Hughes, Z.J., Trosclair, K., 2013. Application of Hydrodynamic Models in support of the Buried Oil Project Along the Coast of Louisiana and Mississippi, Technical Report prepared for OSAT3, 17pp

18. **Georgiou, I.Y.**, Hughes, Z.J., Trosclair, K., 2013. Application of Hydrodynamic and Sediment Transport Models for Cleanup Efforts Related to the Deepwater Horizon Oil Spill Along the Coast of Mississippi and Louisiana, Technical Report prepared for OSAT3, 44pp
19. **Georgiou, I.Y.**, Trosclair, K., 2013, Hydrodynamic measurements and stage discharge relationships for Mardi Gras Pass in southeast Louisiana. Technical Report submitted to the Lake Pontchartrain Basin Foundation, (6 incremental volumes, 30 pp)
20. Sadid, K., Meselhe, E., Allison, M.A, McCorquodale, J.A., Gaweesh, A., Pereira, P\*, **Georgiou, I.Y.**, Vosburg, B., 2012, Numerical Modeling of Bonnet Carré Spillway as a large controlled diversion during the 2011 Mississippi River Flood, Environmental Water Resources Institute, American Society of Civil Engineers, May 19-23, Cincinnati, Ohio
21. **Georgiou, I.Y.**, Hughes, Z., Weathers, H.D., Kulp, M.A., FitzGerald, D.M., 2012. Barrier Shoreline Morphology Model, in: Louisiana Comprehensive Master Plan 2012 for a sustainable Coast, Coastal Protection and Restoration Authority, 37 pp.
22. **Georgiou, I.Y.**, Trosclair, K., 2011. Water discharge in a deltaic Louisiana estuary: overbank flow and distribution from the Lower Mississippi River during the 2011 flood, Technical Final Report submitted to the Lake Pontchartrain Basin Foundation, 26 pp.
23. Meselhe, E., **Georgiou, I.Y.**, McCorquodale, J.A., 2011. Myrtle Grove Delta Building Diversion: Numerical Modeling of Hydrodynamics and Sediment Transport in Lower Mississippi near Myrtle Grove River Bend, Final Report submitted to the Office of Coastal Protection and Restoration, Baton Rouge LA, 45 pp.
24. **Georgiou, I.Y.**, B. Enchelmeyer, E. Barbier and D. J. Reed, 2011. Quantifying Ecosystem Services in Coastal Louisiana: A Pilot Study of Hurricane Surge and Wave Attenuation. Coastal Restoration Enhancement through Science and Technology - CREST 10-6 Final Report.
25. **Georgiou, I.Y.**, H.D. Weathers, M.A. Kulp, M. Miner and D.J. Reed. 2011. Interpretation of Regional Sediment Transport Pathways using Subsurface Geologic Data. Final Report submitted to US Army Corps of Engineers, CESU Contract # W912HX-09-2-0027.
26. McCorquodale, J.A., **Georgiou, I.Y.**, Pereira, J.F., Davis, M.A., 2011, Hydrology and Hydrodynamic modeling of the Mississippi River in southeast Louisiana – PART 1, Technical Final Report submitted to the Lake Pontchartrain Basin Foundation, Pontchartrain Institute for Environmental Sciences, New Orleans, LA 70148, 321 pp.
27. McCorquodale, J.A., **Georgiou, I.Y.**, Pereira, J.F., Davis, M.A., 2011, Hydrology and Hydrodynamic modeling of the Mississippi River in southeast Louisiana – PART 2, Technical Final Report submitted to the Lake Pontchartrain Basin Foundation, Pontchartrain Institute for Environmental Sciences, New Orleans, LA 70148, 150 pp.
28. **Georgiou, I.Y.**, 2010, High Frequency Response and Transport in the Pontchartrain Basin due to wind stress, Technical Final Report submitted to Post, Buckley, Schuh & Jernigan, Inc., Pontchartrain Institute for Environmental Sciences, March 2010, New Orleans, LA 70148, 38 pp.
29. **Georgiou, I.Y.**, McCorquodale, J.A., Nepani, J., Howes, N., Hughes, Z., FitzGerald, D.M., Schindler, J.K., 2010, Modeling the hydrodynamics of diversions into Barataria Bay, Technical Final Report submitted to the Lake Pontchartrain Basin Foundation, Pontchartrain Institute for Environmental Sciences, March 2010, New Orleans, LA 70148, 82 pp.
30. **Georgiou, I.Y.**, McCorquodale, J. A., Schindler, J., Retana A.G., FitzGerald, D.M., Hughes, Z., Howes, N., 2009, Impact of Multiple Freshwater Diversions on the Salinity Distribution in the Pontchartrain Estuary under Tidal Forcing, final report submitted to the National Oceanic and Atmospheric Administration (NOAA), New Orleans, LA, 40 pp.
31. McCorquodale, J.A., **Georgiou, I.Y.**, Retana, A.G., Roblin, R.J., 2008, Assessment of integrated hydrodynamics and transport for long-term predictions: Subtask 5.5, Final report submitted to the CLEAR Program, v. 1 and 2, 430 pp.
32. **Georgiou, I.Y.**, McCorquodale, J. A., Schindler, J., Retana A.G., FitzGerald, D.M., Hughes, Z., 2008, Hydrodynamic and salinity modeling in the Pontchartrain Basin: assessment of freshwater

diversion at Violet with MRGO modifications, final report submitted to the National Oceanic and Atmospheric Administration (NOAA), New Orleans, LA, 34 pp.

33. McCorquodale, J.A., **Georgiou, I.Y.**, Retana, A.G., Barbe, D., Guillot, M.J., 2007, Hydrodynamic modeling of tidal prism in the Pontchartrain Basin, Final report to the Army Corps of Engineers, New Orleans District, US Army Corps of engineers, New Orleans, LA.

#### **Participation at Professional Meetings (\*student/researcher in Georgiou group)**

1. King, K., Hein, C.J., FitzGerald, D.M.; Hughes, Z.J., Georgiou, I.Y., Connell, J.E., 2019. Saltmarsh event sedimentation: a comparative study of Hurricane IRMA deposits across the southeast USA. Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
2. Connell, Jennifer E.; Herbine, Lauren E.; Gedan, Keryn B.; Hughes, Zoe J.; FitzGerald, Duncan M.; Georgiou, Ioannis Y.; Hein, Christopher J., 2019. Event-Driven Sedimentation in Massachusetts and Virginia Salt Marshes, Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
3. Ryerson, O., FitzGerald, D.M., Hughes, Z.J., Black, S., Georgiou, I.Y., Hein, C.J., Novak, A., 2019. Temporal and spatial variability in inorganic sediment contributions to the Great Marsh, Massachusetts. Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
4. Hein, C.J. Fallon, A.R., Rosen, P., Hoagland, P., Morris, M., **Georgiou, I.Y.**, FitzGerald, D.M., Baker, S., Marino, G.B., 2019. Shoreline dynamics along a developed river mouth barrier island: Multi-decadal cycles of erosion and event-driven mitigation, Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
5. Torres, J., Kulp, M.K., Georgiou, I.Y., FitzGerald, D.M., Lepper, K., 2019. Barrier Island Growth Rates from OSL dated beach ridge sequence in Louisiana. Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
6. Georgiou, I.Y., Beasley, B.\*, Miner, M.D., 2019. Coupled Barrier-System Shoreface and Shoreline Dynamics, Louisiana, USA, Geological Society of America – Southeastern Section. Abstract with Program, Charleston, SC.
7. Torres, J., Kulp, M.K., Georgiou, I.Y., FitzGerald, D.M., 2018. Using Optically Stimulated Luminescence dating of beach ridges to measure Barrier Progradation of Grand Isle, LA. Geological Society of America. Abstract with Program, Mineapolis: GSA.
8. Hughes, Z., FitzGerald, D.M., Georgiou, I.Y., 2018. Assessing the extent and Importance of sedimentation from a 100-year winter storm on salt marsh resilience (Invited Presentation). Geological Society of America. Abstract with Program. Mineapolis: GSA.
9. Cadigan, J., Jafari, N., Georgiou, I.Y., Xu, K., Maloney, J.M., Obelcz, J., Miner, M.D., 2018. Geotechnical Characterization of Mississippi River Delta Front Sediments, AGU Fall Meeting, Abstract with program, #EP31D-2389
10. Obelcz, J., Wood, W.T., Bentley, S.J., Chaytor, J.D., Georgiou, I.Y., Jafari, N., Maloney, J.D., Miner, M.D., Xu, K., 2018, Bringing deltaic geology into the 21st century: A multidisciplinary investigation of the subaqueous Mississippi River Delta Front, AGU Fall Meeting, Abstract with program, #EP23B-04
11. Bentley, S. J., Maloney, J. M., Xu, K., Georgiou, I. Y., Miner, M. D., 2018. Mass Wasting Processes and Products of the Mississippi Delta Front: Data Synthesis and Observation, Louisiana Coastal Geology Symposium, Baton Rouge LA.
12. Courtois, A., Bentley, S.J., Xu, K., Georgiou, I.Y., Maloney, J., Miner, M.D., Chaytor, J., 2018. A Regional Survey of River-plume Sedimentation on the Mississippi River Delta Front, Louisiana Coastal Geology Symposium, Baton Rouge LA.
13. \*Beasley, B., Georgiou, I.Y., Miner, M.D., 2018. Shoreface sediment budget influence on barrier island evolution, Louisiana USA, State of the Coast Conference, New Orleans, LA.

14. \*Hanegan, K., Georgiou, I.Y., 2018. Maximizing diversion land building with enhanced sediment supply, State of the Coast Conference 2018, New Orleans, LA.
15. \*Nelson, T., Georgiou, I.Y., 2018. Hydrodynamic controls on the geomorphic evolution of subaqueous landforms, State of the Coast Conference 2018, New Orleans, LA.
16. \*Kime, B., Georgiou, I.Y., 2018. The Effects of Sediment Properties on Barrier Island Morphology and Processes: Numerical Modeling State of the Coast Conference 2018, New Orleans, LA.
17. Caffrey, R., Petrolia, D., Wang, H., Georgiou, I.Y., Miner, M.D., 2018. Economic and Geomorphic comparison of OCS sand vs nearshore sand for coastal restoration projects, State of the Coast Conference 2018, New Orleans, LA.
18. Jobe, Z., Howes, N., Georgiou, I.Y., Cai, D., Deng, H., Laugier, F.J., Shumaker, L., 2018. Comparing Aggradation, Superelevation, and Avulsion Frequency of Submarine and Fluvial Channels, AAPG Annual Conference
19. \*Beasley, B., Georgiou, I.Y., Miner, M.D., 2017. Transgressive Shoreface Response in the Mississippi River Delta: Shoreface Sediment Budget Influence on Barrier Island Evolution, Louisiana, USA. AGU Fall Meeting, Abstract with program, EP22B-08.
20. Smith, J.E., Bentley, S.J., Courtois, A., Obelcz, J. Maloney, J., Georgiou, I.Y., Xu, K., Miner, M.D., 2017. Facies-dependent variations in sediment physical properties on the Mississippi River Delta Front, USA: evidence for depositional and post-depositional processes, AGU Fall Meeting, Abstract with program.
21. Hughes, Z.J., Georgiou, I.Y., \*Gaweesh, A., \*Hanegan, K., FitzGerald, D.M., 2017. Assessing saltmarsh resilience to sea-level rise by examining sediment transport trends in the Great Marsh MA, AGU Fall Meeting, Abstract with program.
22. FitzGerald, D.M., Hein, C.J., Georgiou, I.Y., Klein, A.F., 2017. Chenier Development within a Prograding Strandplain Complex, AGU Fall Meeting, Abstract with program.
23. Courtois, A., Bentley, S.J., Xu, K., Georgiou, I.Y., Maloney, J., Miner, M.D., Chaytor, J., 2017. A Regional Survey of River-plume Sedimentation on the Mississippi River Delta Front, AGU Fall Meeting, Abstract with program.
24. \*Yocum, T.E., Georgiou, I.Y., Straub, K.M., 2017. Growth laws for sub-delta crevasses in the Mississippi River Delta, AGU Fall Meeting, Abstract with program.
25. Obelcz, J., Xu, K., Bentley, S.J., Wood, W.T., Georgiou, I.Y., Maloney, J., Miner, M.D., 2017. Sneaky submarine landslides, and how to quantify them: A case study from the Mississippi River Delta Front contrasting geophysical and machine learning techniques, AGU Fall Meeting, Abstract with program.
26. Georgiou, I. Y., (2016, November). Testing the runaway transgression hypothesis - Modeling Interactions between Backbarrier Marshes, Tidal Inlets, Ebb-deltas, and Adjacent Barriers Exposed to Rising Sea Levels. Invited talk at Deltares, Netherlands.
27. Souza, P. C. M.\*, Georgiou, I. Y., Hughes, Z. J., Howes, N., Gani, M. R., & Fitzgerald, D. M. (2015, November). Architecture and evolution of tidal point bars: influence of the hydrodynamic processes on the sedimentary record. GSA Annual Meeting. Baltimore, Maryland: Geological Society of America Annual Meeting.
28. Georgiou, I. Y. (2016, Spring - Invited). Barrier Island Dynamic Processes on Deltaic Coasts. Universidade Federal de Santa Catarina, Centro de Filosofia e Ciências Humanas. Florianopolis, Brazil: Departamento de Geociências Laboratório de Oceanografia Costeira.
29. Hein, C. C., FitzGerald, D. M., Georgiou, I. Y., & Hein, E. A. (2014, Fall - Invited). Coupled Barrier-Backbarrier Dynamics and the Formation and Stability of Barrier-Island Systems. GSA Annual Meeting. GSA Annual Meeting 2015 Vancouver: GSA.
30. Hird, J., Twilley, R., Sheldon, J., Carney, J., Georgiou, I. Y., & Agre, C. (2016, February). Changing Course - The Moffatt & Nichol Team Solution- A "Systems Approach" to a consolidated and sustainable Lower Mississippi River Delta. AGU Ocean Science 2016. New Orleans: American Geophysical Union. <https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/89094>

31. Maloney, J. M., Bentley, S. J., Xu, K., Georgiou, I. Y., Miner, M. D. (2016, February). Impacts of Declining Mississippi River Sediment Load on Subaqueous Delta Front Sedimentation and Geomorphology. AGU Ocean Science 2016. New Orleans: American Geophysical Union.  
<https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/90701>
32. Georgiou, I. Y. (2016, February). Mississippi River Delta front loading mechanisms using non-linear wave modeling. AGU Ocean Sciences 2016. New Orleans: American Geophysical Union.  
<https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/93803>
33. FitzGerald, D. M., Georgiou, I. Y., & Kulp, M. A. (2016, Spring). Restoration of the Chandeleur Barrier Arc, Louisiana. International Coastal Conference 2016. Sydney Australia: Coastal Education and Research Foundation.
34. Keller, G., Bentley, S. J., Xu, K., Georgiou, I. Y., Maloney, J. M., Obelcz, J., & Miner, M. D. (2016, February). Geochronology of Mudflow Deposits on the Mississippi River Delta Front, Louisiana, USA. AGU Ocean Sciences 2016. New Orleans: American Geophysical Union.  
<https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/91536>
35. Yocum, T.\*, & Georgiou, I. Y. (2016, February). Growth laws for delta crevasses in the Mississippi River Delta: observations and modeling. AGU Ocean Sciences 2016. New Orleans: AGU.  
<https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/93144>
36. Hanegan, K.\*, Georgiou, I. Y., & FitzGerald, D. M. (2016, February). Modeling Interactions between Backbarrier Marshes, Tidal Inlets, Ebb-deltas, and Adjacent Barriers Exposed to Rising Sea Levels. AGU Ocean Sciences 2016. New Orleans: American Geophysical Union.  
<https://agu.confex.com/agu/os16/meetingapp.cgi/Paper/93401>
37. Hanegan, K\*, Georgiou, I.Y., FitzGerald, D.M., 2016, Modeling interactions between backbarrier marshes, inlets, ebb-deltas, and adjacent barriers exposed to rising sea levels (in review), AGU Ocean Sciences 2016 conference, New Orleans, LA, February
38. Hanegan, K\*, Georgiou, I.Y., FitzGerald, D.M., 2015, Modeling interactions between backbarrier marshes, inlets, ebb-deltas, and adjacent barriers exposed to rising sea levels, ASBPA 2015 conference, New Orleans, LA
39. Hanegan, K\*, Georgiou, I.Y., FitzGerald, D.M., Modeling interactions between backbarrier marshes, inlets, ebb-deltas, and adjacent barriers exposed to rising sea levels, CERF 2015 conference, Portland, OR
40. Souza, P. C. M.\*, Georgiou, I. Y., Hughes, Z. J., Howes, N., Gani, M. R., & Fitzgerald, D. M. (2015, November). Architecture and evolution of tidal point bars: influence of the hydrodynamic processes on the sedimentary record. , CERF 2015 conference, Portland, OR
41. Hein, C.J., FitzGerald, D.M., Georgiou, I.Y., Hein, E.A., 2014, INVITED, Coupled Barrier-Backbarrier Dynamics and the Formation and Stability of Barrier-Island Systems, GSA Abs. with Programs, vol. 46, no. 6, abs. 249075.
42. Yocum, T.\*, Georgiou, I.Y., 2014, Do Constructed crevasses obey delta laws? Implications for the restoration of the Mississippi River delta, Poster presentation at UL Summit, Lafayette, April 2014.
43. Henley, J. V.\*, Georgiou, I. Y., 2014, The Occurrence of Stratification Induced Hypoxia near the Chandeleur Islands, LA: An Insight into Physical Controls, Poster Presentation at Innovate UNO, Feb. 2014, New Orleans, LA
44. Yocum, T.\*, Georgiou, I.Y., 2014, Do Constructed crevasses obey delta laws? Implications for the restoration of the Mississippi River delta, Poster presentation at Innovate UNO 2014, New Orleans, February, 2014.
45. Yocum, T.\*, Georgiou, I.Y., 2014, Do Constructed crevasses obey delta laws? Implications for the restoration of the Mississippi River delta, Poster presentation at State of the Coast 2014, New Orleans, March, 2014.
46. Hanegan, K. C.\*, I. Y. Georgiou, 2014, Flow and Sediment Flux through Wax Lake Delta Distributary Channels: Implications for Delta Development, Presentation at State of the Coast 2014, New Orleans, March, 2014



47. Hanegan, K. C.\*, I. Y. Georgiou, 2014, Flow and Sediment Flux through Wax Lake Delta Distributary Channels: Implications for Delta Development Community Surface Dynamics Modeling System Meeting, Boulder, CO, May 2014
48. Henley, J. V.\*, Georgiou, I. Y., 2014, The Occurrence of Stratification Induced Hypoxia near the Chandeleur Islands, LA: An Insight into Physical Controls, Poster Presentation at the State of the Coast Conference 2014, March, 2014, New Orleans, LA
49. Georgiou, I. Y. , K. C. Hanegan\*, Yocum, T., 2014, "Hydrodynamics and Salinity Modeling in the Lowermost Mississippi River and Delta", Presentation at State of the Coast 2014, New Orleans, March, 2014
50. Georgiou, I.Y., K. C. Hanegan, 2014, Hydrodynamics and Salinity Modeling in the Lowermost Mississippi River and Delta, Presentation to the Technical Session of the Mississippi River Hydrodynamic and Delta Management, Louisiana Coastal Area, New Orleans, October, 2013.
51. Kirkland, B., Georgiou, I.Y., and Kulp, M., 2013. Geomorphic Evolution of a Rapidly Deteriorating Barrier Island System with Multiple Sediment Sources: Eastern Isles Dernieres, Louisiana, 1887 to 2006. GCAGS Transactions, p. 299-306.
52. Howes, N. C., Georgiou, I. Y., Hughes, Z. J., & FitzGerald, D. M., 2013. On the Interaction of Wetland Loss, Tidal Range, and Tidal Prism: A Case Study in the Mississippi River Delta Plain, Barataria Bay. GCAGS Transactions, p. 257-260.
53. Howes, N.C., Georgiou , I.Y., Hughes, Z.J., & Wolinsky, M.A., 2013, A Conceptual Framework and Classification for the Fluvial-Backwater-Marine Transition in Coastal Rivers. International Conference of Fluvial Sedimentology, July 14-19, Leeds, United Kindom.
54. Clark, R., Georgiou, I.Y., & FitzGerald, D.M., 2013. An Evolutionary Model of a Retrograding Subdeltaic Distributary of a River-dominated System. GCAGS Transactions, p. 527-530
55. M. Gaweesh; E. A. Meselhe; M. A. Allison; J. A. McCorquodale; K. M. Sadid; J. F. Pereira; I. Y. Georgiou; B. M. Vosburg, 2013, Examining the long term impact of pulsed sediment diversions on the stability of lateral sand bars in the Lower Mississippi River, World Environmental and Water Resources Congress, ASCE-EWRI, Cincinnati, Ohio.
56. K. M. Sadid; E. A. Meselhe; M. A. Allison; J. A. McCorquodale,; A.M. Gaweesh; J. F. Pereira; I. Y. Georgiou; B. M. Vosburg, 2013, Numerical modeling of Bonnet Carré Spillway as a large controlled diversion during the 2011 Mississippi River flood, World Environmental and Water Resources Congress, ASCE-EWRI, Cincinnati, Ohio
57. Clark, R.\*, Georgiou, I.Y., FitzGerald, D.M.,2013, An Evolutionary Model of a Retrograding Subdeltaic Distributary of a River-Dominated System, Abstracts with Programs, Presentation at the Association for the Sciences of Limnology and Oceanography - ASLO, February 17 – 22, New Orleans, LA.
58. M. Gaweesh, E. A. Meselhe, M. A. Allison, J. A. McCorquodale, K. M. Sadid; J. F. Pereira; I. Y. Georgiou, B. M. Vosburg, 2013, Numerical Modeling of pulsed sediment diversions; effect on stability of lateral sand bars in the lower Mississippi River, ASLO 2013 Aquatic Sciences Meeting, 17-22 February in New Orleans, Louisiana, USA
59. K. M. Sadid, E. A. Meselhe, M. A. Allison, J. A. McCorquodale, A. M. Gaweesh, J. F. Pereira; I. Y. Georgiou, B. M. Vosburg, 2013, Numerical Modeling of Bonnet Carre Spillway as a Large Controlled Diversion During The 2011 Mississippi River Flood, ASLO 2013 Aquatic Sciences Meeting, 17-22 February in New Orleans, Louisiana, USA
60. Howes, N.C., Georgiou, I.Y., Hughes, Z.J., Wolinsky, M.A., 2012, A Conceptual Framework and Classification for the Fluvial-Backwater-Marine Transition in Coastal Rivers Globally. Abstracts with Programs, AGU Fall meeting, San Francisco, Dec 2-7, 2012
61. Hughes Z.J., I.Y. Georgiou, N.C. Howes, D.H., M. A. Kulp, D.M. FitzGerald, 2012, Development and morphology of point bars in tidal rivers, observations from Sapelo and the Altamaha River, GA. AGU Fall meeting, San Francisco, Dec 2-7, 2012.
62. Hughes Z.J., N.C. Howes, I.Y. Georgiou, M. Kulp, D.M. FitzGerald, (2012). Development and morphology of point bars in tidal rivers, observations from Sapelo and the Altamaha River, GA. AGU

- Chapman Conference (Hydrogeomorphic Feedbacks and Sea Level Rise in Tidal Freshwater River Ecosystems), Reston Virginia, 13-16 November 2012. Poster presentation.
63. Georgiou, I.Y., Hughes Z.J., Weathers, H.D., M., Kulp, D.M. FitzGerald, 2012. Short-term modeling of coastal response to wave climate and relative sea level rise, State of the Coast Conference, New Orleans, LA, June 23-25.
  64. Georgiou, I.Y., Hughes Z.J., Weathers, H.D., M., Kulp, D.M. FitzGerald, 2012. Short-term modeling of coastal response to wave climate and relative sea level rise, International Wetlands conference, Orlando, Florida, June 3-8.
  65. Pereira, P., McCorquodale, J.A., Georgiou, I.Y., Meselhe, E., Allison, M.A., Holly, F., 2012, One-Dimensional Hydrodynamic and Sediment Transport Modeling of the Lower Mississippi River Below Belle Chasse, Cascais World Forum on Soil Bioengineering and Land Management - New Challenges, September 2012, Portugal
  66. Sadid, K., Meselhe, E., Allison, M.A, McCorquodale, J.A., Gaweesh, A., Pereira, P, Georgiou, I.Y., Vosburg, B., 2012, Numerical Modeling of Bonnet Carre Spilway as a large controlled diversion during the 2011 Mississippi River Flood, Environmental Water Resources Institute, American Society of Civil Engineers (ASCE), May 19-23, Cincinnati, Ohio
  67. Hughes Z.J., I.Y. Georgiou, N.C. Howes, C.A. Wilson, M. Kulp, D.M. FitzGerald, 2011. Development mechanics and morphology of point bars in tidal creeks, observations from Sapelo and the Altamaha, GA. AGU Chapman conference, November, 11, 2012.
  68. Georgiou, I.Y., Hughes Z.J., Weathers, H.D., M., Kulp, D.M. FitzGerald, 2012. Short-term modeling of coastal response to wave climate and relative sea level rise, State of the Coast Conference, New Orleans, LA, June 23-25.
  69. Georgiou, I.Y., Hughes Z.J., Weathers, H.D., M., Kulp, D.M. FitzGerald, 2012. Short-term modeling of coastal response to wave climate and relative sea level rise, International Wetlands conference, Orlando, Florida, June 3-8.
  70. Hughes Z.J., I.Y. Georgiou, N.C. Howes, C.A. Wilson, M. Kulp, D.M. FitzGerald, 2011. Development mechanics and morphology of point bars in tidal creeks, observations from Sapelo and the Altamaha, GA. South East Tidal Creek Summit, Charleston SC, December 5-6 2011.
  71. Howes, N., Georgiou, I.Y., Kulp, M.,A., FitzGerald, D.M., Hughes, Z., 2011, A Novel Method Linking Processes and Stratigraphy in a Tidal Environment: Barataria Basin, Louisiana, American Association of Petroleum Geologists (AAPG) Search and Discovery Article #90135, International Conference and Exhibition, Milan, Italy, 23-26 October
  72. Meselhe, E., Georgiou, I.Y., Allison, M.A., Mccorquodale, J.A., 2011. Myrtle Grove Delta Building Diversion, Geological Society of America Abstracts with Programs, Vol. 43, No. 3, p. 47
  73. \*Esposito, C.R., Georgiou, I.Y., 2011, Patterns of Sediment Transport and Deposition during a Flood Event in a Mississippi River Crevasse Splay. Geological Society of America Abstracts with Programs, Vol. 43, No. 3, p. 46
  74. Pereira, J.F., Davis, M.A., McCorquodale, J.A., Georgiou, I.Y., Meselhe, E.A., Allison, M.A., and Lopez, John A., 2011. Three-dimensional modeling of diversions from the lower mississippi river Geological Society of America Abstracts with Programs, Vol. 43, No. 3, p. 47
  75. Georgiou, I.Y., Esposito, C.R.\*, Kolker, A. , 2011, Differential sedimentation in a Mississippi River crevasse splay, Coastal Estuarine Research Federation, Annual Meeting, Daytona Beach, FL.
  76. Sallenger, A.H. Jr, Plant, N., Doran, K.S., Flocks, J.G., Georgiou, I.Y., Guy, K., Long, J., Morgan, K., Sherwood, C., and Thompson, D., 2011, The island and the berm: interactions between the sand-starved chandeleur islands and a sand-rich berm constructed to capture spilled oil, Geological Society of America Abstract with Programs, Southcentral Meeting, New Orleans LA.
  77. MacDonald, S., Kulp, M.A., FitzGerald, D.M., Georgiou, I.Y., 2011. Oiling inside Barataria Bay, Geological Society of America Abstracts with Programs, Vol. 43, No. 3, p. 12
  78. \*Grzegorzewski, S.A., Georgiou, I.Y., 2011, Sediment transport trends along an island terminus; A model study during storms in the northern Chandeleur Islands, Coastal Sediments 2011, Miami, FL

79. \*Esposito, C.R., Georgiou, I.Y., 2010, Patterns of Sediment Transport and Deposition during a Flood Event in a Mississippi River Crevasse Splay. Poster presented at AGU Fall Meeting, December 2010
80. Allison, M.A., Meselhe, E., McCorquodale, J.A., Georgiou, I.Y., 2011. Hydrodynamics and Sediment Transport in Lower Mississippi River Meander Bends (Louisiana): Implications for Large Sediment Diversions, State of the Coast Conference, Baton Rouge, LA, Jun 8-10, 2010.
81. Zoe J. Hughes, Nick C. Howes, Duncan M. FitzGerald, Ioannis Y. Georgiou, Mark A. Kulp, Michael D. Miner, Jane M. Smith, and John A. Barras. Wetland Loss During Hurricanes: Failure of Low Salinity Marshes in Breton Sound, State of the Coast Conference, Baton Rouge, LA, Jun 8-10, 2010.
82. Cohn, Nicholas; FitzGerald, D.M., Buynevich, I.V., Georgiou, I.Y., Hein, C.J., 2010. Restoring storm intensity from overwash deposits: A case study at Bald Head Cove, Maine. GSA Northeast Meeting, Baltimore Maryland.
83. Miner, M.D., Georgiou, I.Y., FitzGerald, D.M., Kulp, M.A., Flocks, J.G., Twichell, D.C., 2010. The Chandeleur Islands as an analog for understanding barrier response to sea-level rise and increase storminess, Southcentral GSA annual Meeting, Baltimore, Maryland
84. \*Esposito, C.R., Georgiou, I.Y., 2010, Delta Evolution During a Single Flood Event in a River Dominated Wetland. Geological Society of America (GSA) annual meeting, Denver CO. Programs with abstracts
85. Meselhe, E., Pereira, J.F., Georgiou, I.Y., Allison, M.A., McCorquodale, J.A., 2010, Multidimensional modeling of mobile bed hydrodynamics in the lower Mississippi River, Environmental Water Resources Institute Congress meeting, ASCE, Providence, Rhode Island, May 16 – 20.
86. Miner, M.D., Georgiou, I.Y., FitzGerald, D.M., Kulp, M.A., Twichell, D., Flocks, J., Lavoie, D., 2009, Geomorphic-based barrier island transgression management, Chandeleur Islands, Louisiana, Geological Society of America annual meeting, Portland Oregon, October 12-14, Abstracts with programs.
87. \*Grzegorzewski, S.A., Georgiou, I.Y., 2009, Storm surge response to barrier island restoration and storm characteristics in Southeast Louisiana, 3rd National Conference on Ecosystem Restoration (NCER), July 20-24, Los Angeles, CA
88. Retana, A.G., McCorquodale, J.A., Georgiou, I.Y., 2009, Observations and modeling of two-layer exchange flow through constrictions, International Association for Hydraulic Research - IAHR, Annual Meeting, Vancouver, Canada, August 11-15
89. FitzGerald, D.M., Howes, N., Hughes, Z., Kulp, M.A., Georgiou, I.Y., and Miner, M.D., 2008, Evolving wetlands and field and modeling studies, Annual CIRP Technology-Transfer Workshop Estuarine Design and Research Needs: Navigation Channels, Estuarine Vegetation, Placement of Dredged Sediments, and Long-term Estuary Evolution, vol. 9, 43p.
90. Georgiou, I.Y., Kulp, K., Miner, M., Flocks, J.G., Twichell, D.C., 2008, Preliminary Assessment of Transport Trends in a Transgressive Barrier Island Chain using Multidimensional Numerical Models, Proceedings of the Geological Society of America, October 12-17, Houston, TX.
91. Twichell, D.C., Flocks, J.G., Miner, M.D., Baldwin, W., Pendleton, E.A., Kulp, M.A., Georgiou, I.Y., 2008. Assessing the Importance of Shoreward Vs. Alongshore Sand Transport during the Late Holocene Evolution of the Chandeleur Islands, LA, Proceedings of the Geological Society of America, October 12-17, Houston, TX.
92. Kulp, M.A., FitzGerald, D.M., Miner, M.D., Georgiou, I.Y., 2008. Geologic Considerations for the Management of the Transgressive Mississippi River Delta Plain, Proceedings of the Geological Society of America, October 12-17, Houston, TX.
93. Howes, N., FitzGerald, D.M., Georgiou, I.Y., Hughes, Z., Kulp, M., Miner, M., 2008, Hydrodynamics of Barataria Bay, Annual Meeting of the Association of Engineering Geologists, Sept. 12-14, New Orleans, LA
94. Miner, M., Kulp, M., Georgiou, I.Y., Flocks, J., Twichell, D., Sallenger, A., FitzGerald, D.M., 2008, The role of Hurricanes in the Long-Term Evolution of the Chandeleur Islands, Louisiana, Annual Meeting of the Association of Engineering Geologists, Sept. 12-14, New Orleans, LA

95. Kheiashy K, McCorquodale A, Georgiou I.Y., Meselhe E, 2007. Non Hydrostatic Versus Hydrostatic Three Dimensional Simulation of Flow Separation Over Bed Forms. Proceedings of ASCE - EWRI World and Environmental Congress, Tampa Florida - May 2007.
96. Kheiashy K, McCorquodale A, Georgiou I.Y., Meselhe E, 2007. Geometric and Statistical Characteristics of Bed Forms in the Lower Mississippi River. Proceedings of ASCE Coastal Sediment CS07, New Orleans, LA - May 2007.
97. Kheiashy K, McCorquodale A, Georgiou I.Y., Meselhe E., 2007, "Modeling of Flow Structure and Sediment Movement on the Surface of Bed Forms" Proceedings of The International Conference on Geo-Resources, Cairo, Egypt.
98. Griborio, A., McCorquodale, J.A., Georgiou, I.Y., 2007, Application of a CFD Model to Improve the Performance of Rectangular Clarifiers, Proceedings of the Annual Conference of the Water Environment Federation, WEFTEC 07, Dallas, TX.
99. FitzGerald, D.M., Howes, N., Kulp, M., Hughes, Z., Georgiou, I.Y., and Penland, P., 2007, Hurricane impacts to the Caernarvon wetlands, Saint Bernard Parish, Louisiana, Abstracts with Programs, Estuarine Research Federation, Providence, RI, p. 63.
100. FitzGerald, D., Howes, N., Kulp, M., Hughes, Z., Georgiou, I.Y., and Penland, S., 2007, Impacts of rising sea level to backbarrier wetlands, tidal inlets, and barriers: Barataria Coast, Louisiana, Coastal Sediments 07, Conference Proceedings, CD-ROM13.
101. Kheiashy, K., McCorquodale, J.A., Georgiou, I.Y., Meselhe, E., 2007, Geometric and Statistical Characteristics of Bed Forms in the Lower Mississippi River, Sixth International Symposium on Coastal Engineering and Science of Coastal Sediment Processes—Coastal Sediments 07, New Orleans, Louisiana.
102. Kulp, M.A., FitzGerald, D., Georgiou, I.Y., Miner, M., and Penland, S., 2007, The demise of the Chandeleur Islands in southern Louisiana: Not yet!: Geological Society of America, Abstracts with Programs, v. 39, no. 6, p. 69.
103. Meselhe, E., Habib, E., Griborio, A., Gautam, S., McCorquodale, J.A., Georgiou, I.Y., 2006, Multidimensional Modeling of The Lower Mississippi River, 8th Federal Interagency Sedimentation Conference And 3rd Federal Interagency Hydrologic Modeling Conference.
104. Chen, C., Meselhe, E., McCorquodale, J.A., Stronach, J., Georgiou, I.Y., and Griborio, A., 2006, Modeling the Morphologic Dynamics of an Underwater Earthen Sill, in: Environmental Water Resources Institute Congress, Omaha, Nebraska.
105. McCorquodale, J.A., Griborio, A., and Georgiou, I.Y., 2005, A Public Domain Settling Tank Model. Proceedings Water Environment Federation 78th Annual Conference & Exposition, Washington DC, pp. 2546-2561.
106. McCorquodale, J.A., Georgiou, I.Y., Gerges, H., Yu, W., Ullensvang, T., 2005, Physical Modeling of the Sacramento WWTP, Proceedings Water Environment Federation 78th Annual Conference & Exposition, Washington DC.
107. Chilmakuri, C.\*, McCorquodale, J.A., Georgiou, I.Y., 2005, The fate of Stormwater Runoff In An Estuarine Lake, in: 33rd CSCE Annual Conference, Toronto Canada, June 2-4, 10 pp.
108. Georgiou, I.Y., McCorquodale, J.A., Chilmakuri, C., 2005, Numerical investigation of sediment-nutrient loading and algal bloom risk assessment in a shallow estuarine lake, in: 33rd CSCE Annual Conference, Toronto Canada, June 2-4, 12 pp.
109. Meselhe, E., Habib, E., Griborio, A., Georgiou, I.Y., and McCorquodale, J.A., 2005, Multidimensional Modeling of the Lower Mississippi River, CREST Symposium, Lafayette, Louisiana.
110. McCorquodale, J.A., Georgiou, I.Y., Chilmakuri, C., 2004, Application of a 3-D Hydrodynamic Model for assessing the risk of an Algal Bloom, in: Proceedings of the 6th International Conference on Hydro-Science and –Engineering, M.S. Altinakar, (eds), Volume VI, Brisbane, Australia.
111. Chilmakuri, C.\*, Castellano, J.L., Georgiou I.Y., McCorquodale J.A., Englande A.J., 2004, On the Development of a Predictive Model for Pathogens on the North Shore of Lake Pontchartrain, Basics of the Basin Seventh Biennial Research Symposium, New Orleans, Louisiana.

112. Chilmakuri, C.\*, Castellano, J.L., Georgiou I.Y., McCorquodale J.A., Englande A.J., Pratt, L., Sinclair, R., 2004, Development of a Predictive Pathogen Model for the North Shore of the Lake Pontchartrain, Basics of the Basin Seventh Biennial Research Symposium, New Orleans, Louisiana.
113. Gala, S.S.R., Chilmakuri, C.\*, Georgiou, I.Y., and McCorquodale, J.A., 2004, Wave Climate Studies and Longshore Sediment Transport in Lake Pontchartrain, Basics of the Basin Seventh Biennial Research Symposium, New Orleans, Louisiana.
114. McCorquodale, J.A. and Georgiou, I.Y., 2002, Hydrodynamic Modeling of Salinity Intrusion into a Shallow Lake, 5th International Conference of Hydro-Science and Engineering, Warsaw, Poland.
115. McCorquodale, J.A., Georgiou, I.Y., Carnelos, S., and Haralampides, K., 2002, Modeling of Fresh and Saltwater Inflow to Lake Pontchartrain, Proceedings from the Coastal Water Resources Conference, AWRA, May 15-17, Tampa, Florida.
116. Georgiou I.Y., McCorquodale J.A., 2002, Hydrodynamic Modeling of Salinity Intrusion into Lake Pontchartrain, Basics of the Basin Firth Biennial Research Symposium, New Orleans, Louisiana.
117. McCorquodale J.A., Carnelos S., Georgiou, I.Y., Barbé, D.E., 2002, Fate of Urban Stormwater Runoff Discharges to Lake Pontchartrain, Basics of the Basin Firth Biennial Research Symposium, New Orleans, Louisiana.
118. Georgiou, I.Y., McCorquodale, J. A., 2001, Stratification and Circulation Patterns in Lake Pontchartrain, Proc. of the 7th Estuarine and Coastal Modeling Conference, November 5-7, Tampa, Florida.
119. Haralampides, K., McCorquodale, J. A., Georgiou, I.Y., 2001, Modelling of Lake Pontchartrain, Louisiana; Environmental Management Applications, Proceedings of the 15th Bi-annual Canadian Hydrotechnical Conference, CSCE, May 30 – June 2, Victoria, British Colombia, Canada.
120. Georgiou, I. Y., McCorquodale, J. A., 2000, Salinity Stratification from a Navigation Canal in a Shallow Lake, 5th International Symposium on Stratified Flows, July 10-13, Vancouver, British Colombia, Canada.
121. Haralampides, K., Georgiou, I.Y., and McCorquodale, J. A., 2000, Water Quality Impacts on the Lake Pontchartrain Estuarine System, Proceedings from the 75th Annual Conference of the Water Environment Federation, October 15-21, Anaheim, California.

#### **Grants and Contracts received**

- 2019 \$50,114, Coastal Masterplan 2023 Model Improvements: Barrier Island Morphology, Coastal Protection and Restoration Authority (CPRA), (lead PI)
- 2019- \$35,850, Water, Sediment and Nutrient Fluxes in Barataria Inlets, The Water Institute of the Gulf, (lead PI)
- 2019- \$25,550, Sediment Change Analysis using BICM sediment Samples 2008-2016, Coastal Protection and Restoration Authority (CPRA), (lead PI)
- 2018-2019 \$37,620, Caminada Headland Beach and Dune Incr 1 (BA-0045) Sediment Characterization Tasks - 2018 Surficial Sediment Characterization Analysis and Report, Coastal Protection and Restoration Authority (CPRA), (lead PI)
- 2018-2019 \$225,840, Assessing storm energy reduction by the vegetated salt marsh platform in Newbury, MA: a background to enhancing natural protection by the living shoreline, Municipal Vulnerability Preparedness (MVP) Program, Massachusetts, (co-PI with FitzGerald and Hughes, Boston University)
- 2018-2019 \$65,000, Pontchartrain-Maurepas Surge Consortium (PMSC) Storm Surge Reduction Modeling, Lake Pontchartrain Basin Foundation (lead PI, with Moffatt and Nichol).

- 2018-2021 \$75,000, Water and Sediment Fluxes in Restored and un-restored Shorelines, Louisiana Sea Grant (lead PI, Student Fellowship).
- 2017 \$7,177, RAPID: Collaborative Research: Storm Surge Deposition on Salt Marshes: Impacts of Hurricane Irma from Florida to South Carolina, National Science Foundation
- 2017 \$16,000, ADCP Surveys and Hydraulic Investigation of Mardi Gras Pass, Lake Pontchartrain Basin Foundation (lead PI)
- 2016-2017 \$15,000, Mass Wasting Processes and Products of the Mississippi Delta Front: Data Synthesis and Observation, Bureau of Ocean Energy Management (BOEM); Louisiana State University subaward (co-PI with Bentley and Xu, supplemental award)
- 2016 – 2017 104,049, BICM2-Shoreline Assessment and Caminada Headland Sediment sampling and analysis, Office of Coastal Protection and Restoration, Louisiana (lead PI)
- 2016-2018 \$75,000, Coupled Barrier Islands and Shoreface Dynamics, Louisiana Sea Grant (lead PI, Student Fellowship).
- 2016 – 2017 \$257,219, BICM2- 2016 Chenier Plain Sediment Data Collection, Office of Coastal Protection and Restoration, Louisiana (co-PI with Kulp)
- 2016 \$15,000, Field observations of hydrodynamics and sedimentation patterns in Avoca Island, Moffatt and Nichol Engineers (lead PI)
- 2015 – 2018 \$84,843, Economic and Geomorphic Comparison of OCS Sand vs. Nearshore Sand for Coastal Restoration of Barrier Islands, Bureau of Ocean Energy Management (BOEM) through LSU, (lead PI on Physical Processes of Sedimentation)
- 2015 – 2016 \$185,000, BICM2- 2015 Central Coast and Chandeleur Islands Sediment Data Collection, Office of Coastal Protection and Restoration (through CDSU and United States Geological Surveys), Louisiana (co-PI with Kulp)
- 2014-2016 \$165,000, Modeling exchange processes in the Lower Mississippi River; saltwater intrusion dynamics. Office of Coastal Protection and Restoration, through the Water Institute of the Gulf.
- 2014 \$49,999, Sedimentary framework of the eastern Isles Dernieres, Water Institute of the Gulf, CPRA-2012-SED-MA, co-PI.
- 2013-2014 \$16,357, Barrier Island Model Development in Support of the 2017 LA Masterplan, Water Institute of the Gulf, PI.
- 2013 \$209,440, Inquiry-Based Wetlands Science and Mathematics in Middle and High School, (July 1, 2013-June 15, 2014), co-PI.
- 2013-2016 \$35,986, Mass Wasting Processes and Products of the Mississippi Delta Front: Data Synthesis and Observation, Bureau of Ocean Energy Management (BOEM); Louisiana State University subaward (co-PI with Bentley and Xu)
- 2013-2014 \$43,000, Modeling Hydrodynamics in the Lower Mississippi River. , Lake Pontchartrain

Basin Foundation, New Orleans La (co-PI with McCorquodale)

2013 \$6,905, Workshop for Model Tool Improvements funded by LA CPRA. The Water Institute of the Gulf, Baton Rouge LA (co-PI with McCorquodale and Kulp)

2013-2014 \$275,000, Modeling exchange processes in the Lower Mississippi River; saltwater intrusion dynamics. Office of Coastal Protection and Restoration, through C.H. Fenstermaker and associates.

2012 \$50,000, Storm induced inundation and coastal hazard vulnerability assessment in the northern Gulf of Mexico. United States Geological Survey, Northern Gulf of Mexico Program (lead PI)

2011 \$25,000, Overbank flow and distribution near natural levees during Mississippi River spring flood of 2011; The Bohemia spillway, Lake Pontchartrain Basin Foundation (lead PI)

2011-2012 \$100,000, Variability in lateral accretion and internal architecture of bars in tidally-influenced channels, Shell Oil (Collaborative proposal with Boston University – co-PI, with FitzGerald, D.M.).

2011-2012 \$110,000, Modeling barrier island evolution due to sea-level-rise, subsidence, and restoration scenarios. Coastal Protection and Restoration Authority through Brown and Caldwell (co-PI with Kulp, M.A.)

2010-2012 \$75,000, Quantifying the attenuation of wave energy and surge in Louisiana salt marshes, Louisiana Sea Grant (lead PI, Student Fellowship).

2010-2012 \$150,000, Storm induced inundation and coastal hazard vulnerability assessment in the northern Gulf of Mexico. United States Geological Survey, Northern Gulf of Mexico Program (lead PI)

2009-2010 \$297,000, Northern Gulf of Mexico Program; Florida Integrated Coastal Science Program, Storm induced inundation and coastal hazard vulnerability assessment in the northern Gulf of Mexico. United States Geological Survey (co-PI, with Kulp, M.A.)

2009-2010 \$100,000, Quantifying ecosystem services in coastal Louisiana, A pilot study of the ecological benefits of wave and surge attenuation, Coastal Restoration Enhancement through Science and Technology – CREST (co-PI, with Reed, D.J.)

2009-2010 \$100,000, Hydrodynamic Modeling of the lower Mississippi River, Lake Pontchartrain Basin Foundation (co-PI, with McCorquodale, J.A.)

2008-2009 \$101,000, Modeling Hydrodynamics of Diversion Flows into Barataria Basin, Lake Pontchartrain Basin Foundation (lead PI)

2006-2008 \$125,000, Framework Geology, Seafloor change, and modeling of the resiliency of the Chandeleur Islands, United States Geological Survey (co-PI, with Penland, S.P., and Kulp, M.A.)

2008-2009 \$65,000, Modeling Hydrodynamic and Sediment Transport in the Lower Mississippi River, LCA Science and Technology Office (co-PI, with Meselhe, E, and McCorquodale, J.A.)

2006-2007 \$130,000, Optimizations of the Violet Freshwater Diversion in Conjunction with other Freshwater Diversions in the Upper and Middle Basin, National Oceanic and Atmospheric Administration

(lead PI).

2005-2006 \$130,000, Hydrologic/Hydraulic Modeling in the Pontchartrain Basin: Habitat Restoration using Violet Diversion and MRGO modifications, National Oceanic and Atmospheric Administration (lead PI).

2004-2006 \$60,000, Multidimensional Modeling in the Lower Mississippi River, Governor's Office of Coastal Activities, Baton Rouge. (co-PI, with Meselhe, E. and McCorquodale, J.A.)

2004-2006 \$35,000, Water and Sediment budget for the Louisiana Chenier Plain, Coastal Restoration through Science and Technology – CREST - and DNR (co-PI with Meselhe, E.A., at University of Louisiana Lafayette)

2004-2006 \$93,000, Water Quality Modeling in the Pontchartrain Basin, National Oceanic and Atmospheric Administration. (co-PI, with McCorquodale)

2006-2007 \$55,000, Rapid prototyping of MODIS 250m data for sediment transport and data assimilation studies in the Pontchartrain Estuary, National Aeronautics and Space Administration (NASA), Applied Science Directorate (lead PI).



# Ken Cousins | Senior Research Lead



Ken is a detail-oriented researcher with a passion for creating empirically grounded models that are holistic and well designed. He combines a broad knowledge of research design and statistical and geospatial methodology with the most current research on ecosystem services to deliver analyses that strengthen healthy relationships with the lands and waters that sustain communities. Drawing on over thirty years of work on sustainability and resilience issues, Ken leads our research related to agriculture, forestry, and habitat restoration.

## EXPERTISE

Agroecology  
Research Design  
Content Analysis

Ecological Economics  
Statistical Analysis  
Network Analysis

Natural Resource Policy  
Geospatial Analysis  
Scenario Modeling

## PROJECTS

### *A Benefit-Cost Analysis of the Melvin Price Locks and Dams: A Review – Senior Research Lead and Ecological Economist*

This report aims to offer recommendations for incorporating environmental change in the benefit-cost analysis (BCA) process for evaluating navigation projects on the Upper Mississippi River (UMR). Ken designed and implemented a framework for assessing net changes in ecosystem services benefits attributable to lock and dam operations.

### *National Economic Analysis of the Four Lower Snake River Dams: A Review of the 2002 Lower Snake Feasibility Report / Environmental Impact Statement – Senior Research Lead*

This report presents a comprehensive analysis of the benefits and costs of the four Lower Snake River dams under multiple scenarios. Ken assessed their relative contribution to the northwest energy grid since commissioning alongside other sources, including wind and solar, as well as coal and natural gas generation.

### *Natural Capital in Responsible Mining Assessments – Senior Research Lead and Ecological Economist*

Earth Economics developed a framework to assess the risks to ecosystem services and biodiversity associated with hard rock mining. That framework was applied to two gold mines in Alaska (one underground, and the other open-cast) to inform responsible mining dialogue and regulation. Ken ensured that these analyses supported a wide range of mining technologies and environmental settings, and led quality assurance for both case studies.

## RECENT PUBLICATIONS + PRESENTATIONS

*Accounting for Environmental Change: A Modernized Approach to Benefit-Cost Analysis.* Earth Economics. 2019

*Quantifying the Benefits of Culvert Replacement to Restore Salmon Access to Inland Habitat.* Earth Economics. 2018

*The Economic Benefits and Costs of Snow in the Upper Colorado Basin.* Earth Economics. 2017.

## EDUCATION

B.A. Ecological Agriculture (minor in Computer Science) | The Evergreen State College

B.A. Political Science (concentration in Latin American Studies) | University of Washington

M.A. Political Economy (concentration in Ecological Economics) | University of Maryland

Ph.D. Politics of the Environment and Natural Resources | University of Maryland

Certificate in Geospatial Information Systems | University of Washington



## Key Qualifications

Dr. McDonald has more than 25 years of professional experience conducting economic analysis studies focused on various natural resource or infrastructure issues. At various times throughout her career, she has directed or been the lead economist on highly visible and controversial projects subject to close public scrutiny or technical peer review. She has conducted numerous studies using economic impact analysis, benefit-cost analysis, financial modeling, and market and non-market valuation studies. She has led the development of economic impact tools used to evaluate large investment and divestment decisions. In addition, she has led or completed several socioeconomic impact analyses for various projects including evaluating employment, earnings, and taxes with changes in land use policies, energy and infrastructure development. Her experience includes working closely with several Federal agencies including U.S. Army Corps of Engineers (USACE), National Park Service (NPS), US Fish and Wildlife Service (USFWS), US Forest Service (USFS), Bureau of Land Management (BLM), US Department of Defense (DOD), US Department of Agriculture (USDA), Federal Energy Regulatory Commission (FERC) and the Western Area Power Administration (WAPA).

### Education

PhD, Colorado School of Mines,  
Mineral Economics

BS, University of South Dakota,  
Earth Science

### Expertise/Skills

- Regulatory Impact Analysis
- Economic Impact Analysis
- Socioeconomics

### Honors/Awards

NA.

### Professional Organizations

U.S. Association of Energy  
Economics

Denver Association of Business  
Economists

Society of American Military  
Engineers

### Relevant Experience and Technical Accomplishments

#### Senior Associate, Abt Associates

Dr. McDonald is responsible for managing tasks and contracts with EPA, DOT, NOAA, Army Corps of Engineers, Department of Interior and other state agencies as necessary. Her management responsibilities include client relations, development of methodologies, management of project budgets, staff oversight and QA/QC. She works within multi-disciplinary teams in the preparation of reports, briefings and other project deliverables.

**Socioeconomic Analysis, Mid-Barataria Sediment Diversion Project (2018- present).** Dr. McDonald is currently providing support to the Louisiana Coastal Protection and Restoration Agency (CPRA) in the development of an Environmental Impact State for the Mid-Barataria Sediment Diversion Project. As applicant for the project, CPRA is providing information to the USACE, who is the lead agency developing and EIS for the project. Dr. McDonald is collecting and evaluating data and information that will be relevant to the baseline and impact analysis for socioeconomic resources. She is also assisting in the assessment of recreation and commercial fishing resource areas.

## Additional Professional Experience

### Missouri River Recovery Management Plan and Environmental Impact Statement, USACE Kansas City and Omaha Districts (2012-2018)

Dr. McDonald assisted the USACE in the development of the Missouri River Management Plan and Environmental Impact Statement. She was part of a technical team of economists supporting the project



and led the economic evaluation of water supply and irrigation and provided oversight on land ownership, recreation, thermal power, ecosystem services, and wastewater operations. The project was fast-tracked, and Dr. McDonald and her team met all project deadlines while conducting extensive economic research, outreach to experts and stakeholders, and economic modeling (e.g. regression models) most of which were based on USACE hydrology and hydraulics models (HEC RES SIM and HEC RAS)

**Socioeconomic Analysis of the Boardman to Hemingway Transmission Line Project, U.S. Bureau of Land Management. (2015-2017)** Dr. McDonald led the socioeconomic analysis of the proposed Boardman to Hemingway Transmission line in Oregon and Idaho. The socioeconomic analysis evaluated the potential socioeconomic impacts (both direct and indirect) associated with the construction and operation of the proposed B2H Project. Impacts assessed included: property values; property taxes and other fiscal impacts; labor force and employment, with a focus on construction activities; housing; public infrastructure and services, such as schools and emergency services; and impacts to important sectors of the economy, including agriculture and recreation and tourism. In addition, the analysis considered comments received on the draft EIS re-evaluated the impact of the transmission line on high valued agricultural production.

**Socioeconomic Analysis of Ozark National Scenic Riverways Trails and Roads Management Plan, NPS, Van Buren, Missouri (2015–2016)**

Dr. McDonald led the development of a socioeconomic baseline and impact analysis for the Trails and Roads Management Plan/Environmental Assessment (EA) for the Ozark National Scenic Riverways in southern Missouri. This plan helped improve the management of important natural resources and multiple recreational uses along trails and roads that parallel or cross the Current and Jacks Forks rivers within the park. The analysis considered how changes in management policies will affect visitor use, concessionaires, local businesses, and the economy.

**Socioeconomic Analysis of Enefit American Oil (EAO) Utility Corridor Project, BLM, Uintah County, Utah (2014–2015)**

EAO, a wholly owned subsidiary of Eesti Energia, planned to develop an oil shale mining, retorting, and upgrading operation in southern Uintah County, Utah. EAO's resource holdings included private fee land, options on private land held by others, state leases, and federal leases totaling approximately 30,000 acres, which contained an estimated 2.6 billion barrels of recoverable shale. Dr. McDonald led the baseline and impact analysis for socioeconomic and environmental justice (EJ) resource areas for the EIS.

**Army 2020 Force Structure Realignment Supplemental Programmatic Environmental Assessment, Headquarters Department of the Army (2014)**

As part of the preparation of a Supplemental Programmatic Environmental Assessment (PEA) for the Army 2020 Force Structure Realignment PEA, Dr. McDonald led the evaluation of potential direct, indirect, and cumulative socioeconomic impacts of stationing realignments at 30 Army and Joint Basing installations within the United States, including 9 that were not previously analyzed for force reductions in 2013. The proposed actions supported Headquarters Department of the Army stationing decisions and downsizing of the Army, and generated over 12,000 public comments, some of which were extremely sophisticated and complex, from various stakeholders outside of the Army including, but not limited to, the general public, other federal, state, and local agencies, members of Congress, and state legislators.

**Susitna-Watana Hydroelectric Project, FERC, Alaska (2014–2015)**

Dr. McDonald provided support to FERC in the Integrated Licensing Process (ILP) for the Susitna-Watana Hydroelectric Project. The Alaska Energy Authority was proposing to build the facility on the Susitna River approximately 250 miles north of Anchorage. Dr. McDonald provided support to FERC by reviewing proposed study plans and providing comments on socioeconomic and recreational issues associated with the project.



**Lake Powell Hydroelectric Project, FERC, St. George, Utah (2014)**

Dr. McDonald provided support to FERC during the ILP for the Lake Powell hydroelectric system. The combined water conveyance and hydroelectric system, proposed by the Utah Board of Water Resources, was to take water from Lake Mead and move it to St. George, Utah. Dr. McDonald reviewed the socioeconomic sections of the pre-application document and the related analysis submitted to FERC by the proponent, as required by the ILP process.

**Socioeconomic Analysis of Badlands National Park General Management Plan (GMP), NPS, South Dakota (2013)**

Dr. McDonald led the development of a socioeconomic baseline and impact analysis for the General Management Plan (GMP)/EIS for the South Unit of Badlands National Park. The project evaluated different management options for the South Unit, which is comprised of two largely undeveloped and remote tracts of land in southwest South Dakota that offer an experience rich in the history and culture of the Lakota people, and the natural heritage and scenery of the White River badlands. The analysis considered how a change in management will affect visitor use and frequency, and the socioeconomic impacts associated with this change in use.

**Socioeconomic Analysis of Ozark National Scenic Riverways GMP, NPS, Van Buren, Missouri (2013)**

Dr. McDonald led the development of a socioeconomic baseline and impact analysis for the GMP/EIS for the Ozark National Scenic Riverways in southern Missouri. The GMP will help to improve the management of important natural resources and multiple recreational uses along the Current and Jacks Forks rivers within the park. The analysis considered how changes in management policies will affect visitor use, concessionaires, local businesses, and the economy.

**Socioeconomic Analysis of Jefferson National Expansion Memorial GMP, NPS, St. Louis, Missouri (2009)**

Dr. McDonald led an economic feasibility analysis of expanded commercial services at the Jefferson National Expansion Memorial for NPS. The project evaluated several options to expand commercial services considering important factors such as visitation and visitor profiles, available services in the downtown St. Louis area, and viable locations within the park to expand services and general economic conditions. The analysis considered a variety of opportunities including new and expanded retail, expanded food and beverage services, and new or expanded heritage education facilities.

**Antelope Valley Station (AVS) to Northwestern North Dakota 345 kilovolt (kV) Transmission Project, Basin Electric, North Dakota (2013–2015)**

Dr. McDonald served as project manager for the preparation of an EIS for the Antelope Valley Station for this project. Basin Electric proposed to construct, operate, and maintain a new, approximately 278-mile, electric transmission line connecting the AVS, Charlie Creek, and Williston and Nest Substations with four newly proposed delivery substations. Basin Electric originally requested financial assistance from the Rural Utility Service (RUS) to construct the project. RUS determined that the agency's decision about whether to finance the project would constitute a major federal action within the context of the National Environmental Policy Act (NEPA). Dr. McDonald was responsible for coordinating with resource specialists, project communication, public scoping, and document preparation.

**Floyd Hill Distribution Line Environmental Assessment, USFS, Idaho Springs, Colorado (2013)**

Dr. McDonald was the project manager to lead the development of an EA of the Floyd Hill Electric Distribution Line in central Colorado. The Intermountain Rural Electric Association (IREA) was requesting an amendment to their Master Permit to add a new electric line that would connect IREA's Conifer Substation with the Floyd Hill Substation. Dr. McDonald managed the development of the EA, including biological, wetland, and cultural resource surveys, and evaluation of impacts to these resources and others such as visual resources; and management of public scoping and document development.



**Socioeconomic Analysis of Sigurd to Red Butte No. 2 Transmission Line Project, Rocky Mountain Power, Utah (2012)**

Dr. McDonald completed a socioeconomic impact analysis of the Sigurd to Red Butte No. 2 Transmission Line Project. The analysis evaluated current socioeconomic baseline conditions in seven counties in central and southwest Utah covering a 23,000-square-mile study area and estimated impacts of a proposed overhead transmission line. The socioeconomic analysis was integrated within a larger EIS as required by NEPA.

**Socioeconomic Analysis of Mona-Quirrh Transmission Line Project, Rocky Mountain Power, Utah (2009)**

Dr. McDonald completed a socioeconomic impact analysis of the Mona-Quirrh Transmission Line in north-central Utah. The analysis evaluated current socioeconomic baseline conditions in the 1,700-square-mile study area, and estimated impacts of a proposed 500/345 kV overhead transmission line and two new 500/345 kV substations. The socioeconomic analysis was integrated within a larger EIS as required by NEPA.

**Socioeconomic Analysis of Sonoran Solar Energy Project (SSEP), Boulevard Associates, LLC, Maricopa County, Arizona (2010)**

Dr. McDonald led this socioeconomic assessment of the SSEP in Maricopa County, Arizona. This project would be located almost entirely on BLM-administered land in the Little Rainbow Valley, located approximately 15 miles southwest of the City of Goodyear and 23 miles northeast of the Town of Gila Bend in Maricopa County, Arizona. The evaluation was intended to provide a description and discussion of existing socioeconomic conditions of the study area, and an evaluation of all socioeconomic impacts (positive and negative) of developing and operating the solar facilities. In addition, an EJ analysis was completed to determine if any EJ populations were present within the study area that could be potentially be impacted by the proposed development and operation of the solar project.

**Socioeconomic Analysis of Pinedale Resource Management Plan and EIS, BLM, Pinedale, Wyoming (2002–2005)**

Dr. McDonald worked with the BLM to develop both a Resource Management Plan and EIS for the Pinedale Field Offices in Wyoming. As part of the NEPA process, she developed the Socioeconomic Baseline Report that described current management practices, laws, and regulations concerning these public lands. Dr. McDonald then directed the socioeconomic impact analysis associated with changes in grazing, oil and gas development, and recreation as required for the EIS, which included economic impact modeling using an I/O model.

**Socioeconomic Analysis of Rawlins Resource Management Plan and EIS, BLM, Rawlins, Wyoming (2002–2005)**

Dr. McDonald worked with the BLM to develop both a Resource Management Plan and EIS for the Rawlins Field Offices in Wyoming. As part of the NEPA process, she developed the Socioeconomic Baseline Report, which described current management practices, laws, and regulations concerning these public lands. In addition, she completed the socioeconomic impact analysis associated with changes in grazing, oil and gas development, and recreation as required for the EIS, which included economic impact modeling using an I/O model.

**Jack Morrow Hills, Coordinated Activity Plan and EIS, BLM, Wyoming (2002–2003)**

As a part of the NEPA process, Dr. McDonald completed the socioeconomic analysis for the supplemental coordinated activity plan/EIS for the Jack Morrow Hills planning area in Wyoming for the BLM. Her tasks included describing the economic impacts of various alternatives associated with changes in grazing, oil and gas development, and recreation estimated with an I/O model, developed by the University of Wyoming. She also researched other implications of changed management in the Jack Morrow Hills, including EJ and social issues.



**Socioeconomic Analysis of the Sloan Canyon National Conservation Area (NCA), BLM (2004–2005)**

As a part of the NEPA process, Dr. McDonald completed a socioeconomic analysis for the NCA Plan/EIS for the Sloan Canyon planning area in Nevada for the BLM. The analysis focused largely on the importance of recreation activities within Sloan Canyon to local communities and visitors. The analysis also evaluated other implications of changed management in the proposed Sloan Canyon NCA, including EJ and social issues.

**Socioeconomic Impact Analysis of Chenier Plain National Wildlife Refuge Comprehensive Conservation Plan, U.S. Fish and Wildlife Service (USFWS), Texas. (2004)** Dr. McDonald directed an analysis of the socioeconomic impacts associated with two proposed actions of the USFWS associated with the Chenier Plain National Wildlife Refuge Complex in southeast Texas which was the subject of an EIS. The goal of this EIS was to evaluate the overall human and natural environment impacts of implementing alternative management strategies and acquiring up to 108,000 acres of additional coastal habitat. The comprehensive socioeconomic analysis focused on potential economic, fiscal and social impacts in local areas from USFWS actions and provide important sections for the EIS.

**Platte River Endangered Species Program, U.S. Bureau of Reclamation (1998)**

Dr. McDonald directed an evaluation of the third-party impacts associated with the Platte River Endangered Species Program. This program was established by an agreement between Colorado, Nebraska, Wyoming, and the Department of Interior to protect habitat for endangered species in central Nebraska. The study evaluated the potential economic, fiscal, and social impacts to individuals, businesses, and local governments from implementing a voluntary habitat management plan in central Nebraska. The proposed habitat plan would acquire approximately 10,000 acres of agricultural land from willing sellers suitable as habitat for endangered species. A major task of this study was developing an economic impact model using the IMPLAN model to evaluate the change in employment, income, and taxes due to a change in land use in the study area.

**Selected Relevant Publications and Papers**

Lisa McDonald (2014). Economic Benefit Evaluation of Enhanced Oil Recovery in Texas. Texas Economic Development Meeting in Houston.

Lisa McDonald, H. Bender and C. Dixon, (2014) "Economic Benefit Evaluation of Enhanced Oil Recovery in Texas", presented at the IMPLAN National User's Conference, June 3, 2014 in Madison, Wisconsin.

Molly Finn, G. Rahl, W. Rowe, Jr. and L. McDonald, (2006) "Unrecognized Assets", Strategy + Business, Issue 44.

Richard D. Pinkham and L. McDonald, (2004) "Economic Valuation of Multi-Benefit Projects," Water Resources IMPACT, September.

Lisa McDonald and G. Johns (1999). The Importance of Integrating Social Benefit Cost Accounting into Watershed Restoration and Protection Programs, Journal of American Water Resources Association, vol. 35, no. 3.

Wade E. Martin and L. McDonald (eds) (1997). Modeling Environmental Policy, editor with Wade E. Martin, Kluwer Academic Publishers: Amsterdam.

Carol Dahl and L. McDonald (1998). Forecasting Energy Demand in Developing World. Energy Sources, vol. 29, Taylor & Francis, London, U.K.



# ALEXANDER R. HORNER-DEVINE

*Curriculum Vitae*

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Civil and Environmental Engineering

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## EDUCATIONAL HISTORY

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Stanford University, Stanford, CA  
PhD, Civil and Environmental Engineering  
December 2003

Dissertation: The dynamics of buoyant, rotational river plumes.

Stanford University, Stanford, CA  
MS, Civil and Environmental Engineering  
June 1998

Princeton University, Princeton, NJ  
BSE, Mechanical and Aerospace Engineering  
June 1995

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## EMPLOYMENT HISTORY

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University of Washington, Seattle, WA, USA  
Professor, 2017-present

Delft University of Technology, Delft, The Netherlands  
Visiting researcher, 2012-2013

University of Washington, Seattle, WA, USA  
Associate professor, 2011-2017

University of Washington, Seattle, WA, USA  
Assistant professor, 2004-2011

Stanford University, Stanford, CA, USA  
Postdoctoral scholar, 2003-2004

Stanford University, Stanford, CA, USA  
Research assistant / teaching assistant 1996-2003

Delta Geoscience, Vancouver, BC, Canada  
Field engineer, 1996



Imperial College of Science Technology and Medicine, London, UK  
Hydraulics laboratory summer intern, 1994

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## AWARDS AND HONORS

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Allan & Inger Osberg Associate Professorship, 2012-2018  
CEE Outstanding Teacher Award, 2011, 2015

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## AFFILIATIONS AND OTHER APPOINTMENTS

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Adjunct Professor, School of Oceanography (University of Washington), 2017-present  
Adjunct Associate Professor, School of Oceanography (University of Washington), 2012-2017  
Adjunct Assistant Professor, School of Oceanography (University of Washington), 2009-2012

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## PUBLICATIONS

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### Refereed archival journal publications and book chapters

1. Poggioli, A.R. and **A.R. Horner-Devine**, 2018. Two-layer hydraulics at the river-ocean interface. *J. Fluid Mech.* (856)633-672. doi:10.1017/jfm.2018.688
2. Kastner, S.E., **A.R. Horner-Devine** and J.M. Thomson, 2018. The influence of wind and waves on spreading and mixing in the Fraser River plume. *J. Geophys. Res.* 123. <https://doi.org/10.1029/2018JC013765>
3. Flores, R., S. Rijnsburger, S. Meirelles, **A.R. Horner-Devine**, A.J. Souza, J.D. Pietrzak, M. Henriquez and A.J.H.M. Reniers, 2018. Wave generation of gravity-driven sediment flows on a predominantly sandy seabed. *Geophys. Res. Lett.* doi: 10.1029/2018gl077936
4. Rijnsburger, S., Flores, R., J.D. Pietrzak, **A.R. Horner-Devine**, A.J. Souza, 2018. The influence of tide and wind on the propagation of fronts in a shallow river plume *J. Geophys. Res.* 123, doi: 10.1029/2017jc013422
5. Branch, R. **A. Horner-Devine**, C. Akan, C. Chickadel, G. Farquharson, A. Hudson, S. Talke, J. Thomson, and A. Jessup, 2018. Airborne Lidar measurements and model simulations of tides, waves, and surface slope at the Mouth of the Columbia River. *Geosci. Remote Sens.* doi: 10.1109/TGRS.2018.2847561
6. Yuan, Y., **A.R. Horner-Devine**, M. Avenier, and S. Bevan, 2018. The role of periodically varying discharge on river plume structure and transport. *Cont. Shelf Res.*, 158: 15-25.
7. Meirelles, S., Henriquez, M., A. Reniers, A.P. Luijendijk, J.D. Pietrzak, **A.R. Horner-Devine**, A. Souza, M. Stive, 2018. Cross-shore stratified tidal flow seaward of a mega nourishment. *Estuar. Coast Shelf Sci.* 200, 59-70

8. Yuan, Y. and **A.R. Horner-Devine**, 2017. Experimental investigation of vortex dynamics in a freely spreading gravity current. *Phys. Fluids*, 29, 106603.
9. Flores, O., Riley, J.J. and **A.R. Horner-Devine**, 2017. On the dynamics of turbulence near a free surface. *J. Fluid Mech.* 821: 248-265, doi:10.1017/jfm.2017.209.
10. **Horner-Devine, A.R.**, J.D. Pietrzak, A. Souza, S. Meirelles, M. Henriquez, M.A. McKeon, R. Flores, S. Rijnsburger, 2017. Cross-shore transport of surf-zone sediment by river plume frontal pumping. *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL073378.
11. Flores, R., S. Rijnsburger, **A.R. Horner-Devine**, A. Souza, J.D. Pietrzak, 2017. Sediment fluxes in the mid-field region of the Rhine region of freshwater influence. *J. Geophys. Res.* 122, doi:10.1002/2016JC012362.
12. **Horner-Devine, A. R.** and C.C. Chickadel, 2017. Lobe - cleft instability in the buoyant gravity current generated by estuarine outflow. *Geophys. Res. Lett.* 44, doi:10.1002/2017GL072997.
13. Beuzen, T., C.C. Chickadel and **A.R. Horner-Devine**, 2016. The Influence of Sub-Surface Stratification on Turbulence and Aeration in a Tidal River. *IEEE Geosci. Remote Sens. Lett.* 13(12): 1975-1978.
14. Poggioli, A.R. and **A.R. Horner-Devine**, 2015. The sensitivity of salt wedge estuaries to channel geometry, *J. Phys. Oceanogr.*, 45(12):3169–3183.
15. Hooshmand, A., **A.R. Horner-Devine** and M. P. Lamb, 2015. Structure of turbulence and sediment stratification in wave-supported mud layers, *J. Geophys. Res.* 120(4): 2430-2448.
16. **Horner-Devine, A. R.**, R.D. Hetland and D.G. MacDonald, 2015. Transport and mixing in coastal river plumes. *Annu. Rev. Fluid Mech.* 47:569–94.
17. Thomson, J., **A. R. Horner-Devine**, S. Zippel, C. Rusch, and W. Geyer, 2014. Wave breaking turbulence at the offshore front of the Columbia River Plume, *Geophys. Res. Lett.*, 41(24): 8987-8993.
18. Kakoulaki, G., D.M. MacDonald, **A.R. Horner-Devine**, 2014. The role of wind in the near field and midfield of a river plume. *Geophys. Res. Lett.*, 41(14): 5132-5138.
19. Yuan, Y. and **A.R. Horner-Devine**, 2013. Laboratory investigation of the impact of lateral spreading on buoyancy flux in a river plume. *J. Phys. Oceanogr.*, 43(12): 2588-2610
20. Talke, S.A., **A.R. Horner-Devine**, C.C. Chickadel and A.T. Jessup, 2013. Turbulent kinetic energy and coherent structures in a tidal river. *J. Geophys. Res.* 118: 6965–6981.
21. Nowacki, D.J., **A.R. Horner-Devine**, J.D. Nash, D.A. Jay, 2012. Rapid sediment removal from the Columbia River plume near field. *Cont. Shelf Res.* 35:16–28.
22. Giddings, S. N., D. A. Fong, S. G. Monismith, C. C. Chickadel, K. A. Edwards, W. J. Plant, B. Wang, O. B. Fringer, **A. R. Horner-Devine**, and A. T. Jessup, 2012. Frontogenesis and frontal progression of a trapping-generated estuarine convergence front and its influence on Mixing and Stratification. *Estuaries Coasts*, 35(2): 665-681.

23. Roberts, P. L. D., J. V. Steinbuck, J. S. Jaffe, **A. R. Horner-Devine**, P. J. S. Franks and F. Simonet, 2011. Estimation of in situ, three-dimensional particle distributions from a stereo laser imaging profiler. *IEEE J. Oceanic Eng.*, 36(4): 586-601.
24. Chickadel, C. C., S. A. Talke, **A. R. Horner-Devine**, A. T. Jessup, 2011. Infrared based measurements of velocity, turbulent kinetic energy, and dissipation at the water surface in a tidal river. *IEEE Geosci. Remote Sens. Lett.*. 8(5):849-853.
25. Yuan, Y., M.E. Avenier and **A.R. Horner-Devine**, 2011. A two-color optical thickness method for determining layer depth in two interacting buoyant plumes. *Exp. Fluids*. 50(5): 1235-1245.
26. Kudela, R. M., **A. R. Horner-Devine**, N. S. Banas, B. M. Hickey, T. D. Peterson, E. J. Lessard, E. Frame, K. W. Bruland, M. Lohan, D. A. Jay, J. Peterson, B. Peterson, M. Kosro, S. Palacios and E. P. Dever, 2010. Multiple trophic levels fueled by recirculation in the Columbia River plume. *Geophys. Res. Lett.* 37: 7 pg. L18607 doi:10.1029/2010GL044342.
27. Talke, S.A., **A.R. Horner-Devine** and C.C. Chickadel, 2010. Mixing layer dynamics in periodically stratified flow over an estuarine sill. *J. Geophys. Res.*, 115: 17 pg, C09004.
28. J.V. Steinbuck, P. Roberts, C.D. Troy, **A.R. Horner-Devine**, F. Simonet, Uhlman, J.S. Jaffe, S.G. Monismith and P.J.S. Franks, 2010. An Autonomous Open-Ocean Stereoscopic PIV Profiler. *J. Atmos. Ocean. Tech.* 27:1362-1380.
29. Hickey, B. M., R. M. Kudela, J. D. Nash, K. W. Bruland, W. T. Peterson, P. MacCready, E. J. Lessard, D. A. Jay, N. S. Banas, A. M. Baptista, E. P. Dever, P. M. Kosro, L. K. Kilcher, **A. R. Horner-Devine**, E. D. Zaron, R. M. McCabe, J. O. Peterson, P. M. Orton, J. Pan, and M. C. Lohan, 2010. River Influences on Shelf Ecosystems: Introduction and Synthesis. *J. Geophys. Res.*, 115: 26 pg, C00B17.
30. Spahn, E.Y., **A.R. Horner-Devine**, J.D. Nash, D.A. Jay and L. Kilcher, 2009. Particle re-suspension in the Columbia River plume near-field. *J. Geophys. Res.*, 114: 16 pg, C00B14.
31. **Horner-Devine, A.R.**, 2009. The bulge circulation in the Columbia River plume. *Cont. Shelf Res.*, 29: 234–251.
32. Plant, W.J., R. Branch, G. Chatham, C.C. Chickadel, K. Hayes, B. Hayworth, **A.R. Horner-Devine**, D.A. Fong, O.B. Fringer, S. N. Giddings, and B. Wang, 2009 Remotely sensed river surface features compared with modeling and in-situ measurements. *J. Geophys. Res.*, 114: 13 pg, C11002.
33. Chickadel, C. C., **A. R. Horner-Devine**, S. A. Talke, A. T. Jessup, 2009. Vertical boil propagation from a submerged estuarine sill. *Geophys. Res. Lett.*, 36: 6 pg.
34. Curtiss, G.M., P.D. Osborne and **A.R. Horner-Devine**, 2009. Seasonal patterns of coarse sediment transport on a mixed sand and gravel beach due to vessel wakes, wind waves, and tidal currents. *Mar. Geol.*, 259: 73-85.
35. **Horner-Devine, A.R.**, D. A. Jay, P. M. Orton and E.Y. Spahn, 2009. A conceptual model of the strongly tidal Columbia River plume. *J. Mar. Sys.*, 78: 460–475.

36. Morrison, R.R., R.H. Hotchkiss, M. Stone, D. Thurman and **A. R. Horner-Devine**, 2009. Turbulence characteristics of flow in a spiral corrugated culvert fitted with baffles and implications for fish passage. *Ecol. Engineer.* 35: 381-392.
37. Jay, D. A., J. Pan, P. M. Orton, and **A.R. Horner-Devine**, 2009. Asymmetry of Columbia River tidal plume fronts. *J. Mar. Sys.*, 78: 442-459.
38. **Horner-Devine, A.R.**, D.A. Fong, and S.G. Monismith, 2008. Evidence for the inherent unsteadiness of a river plume: Satellite observations of the Niagara River discharge. *Limnol. Oceanogr.*, 53: 2731-2737.
39. MacDonald, D. G., and **A. R. Horner-Devine**, 2008. Temporal and spatial variability of vertical salt flux in a highly stratified estuary. *J. Geophys. Res.*, 113: 16 pg, C09022.
40. **Horner-Devine, A.R.**, 2006. Velocity, density, and transport measurements in rotating, stratified flows. *Exp. Fluids*, 41: 559-571.
41. **Horner-Devine, A.R.**, D.A. Fong, S.G. Monismith and T. Maxworthy, 2006. Laboratory experiments simulating a coastal river discharge. *J. Fluid Mech.*, 555: 203-232.

#### **Book chapters (refereed)**

42. **Horner-Devine, A.R.** C.C. Chickadel and D.M. MacDonald, 2013. Coherent Structures and Mixing at a River Plume Front. *Coherent Flow Structures in Geophysical Flows at the Earth's Surface* eds. J.G. Venditti, J. Best, M. Church and R.J. Hardy. Pg. 359-369
43. Jessup, A. T. , C.C. Chickadel, S.A. Talke and **A.R. Horner-Devine**, 2013. COHSTREX: Coherent Structures in Rivers and Estuaries Experiment. *Coherent Flow Structures in Geophysical Flows at the Earth's Surface* eds. J.G. Venditti, J. Best, M. Church and R.J. Hardy. Pg. 215-230.

#### **Refereed archival journal publications (Submitted and in review)**

44. Henriquez, M., S. Meirelles, **A.R. Horner-Devine**, J.D. Pietrzak, A.J. Souza, M. Stive. Cross-shore sediment transport by the tide on the shoreface. *Submitted Journal of Geophys. Res.*
45. McKeon, M.A., **A.R. Horner-Devine** and S.N. Giddings. Seasonal changes in structure and dynamics in an urbanized salt wedge estuary. *Submitted Estuaries and Coasts*
46. Flores, R., S. Rijnsburger, **A.R. Horner-Devine**, N. Kumar, A.J. Souza, J.D. Pietrzak, 2018. The formation of turbidity maximum zones by minor axis tidal straining in regions of freshwater influence. *Submitted J. Phys. Oceanogr.*

#### **Conference proceedings and other non-journal articles (Refereed by abstract only)**

1. Meirelles, S, M. Henriquez, A.J. Souza, **A.R. Horner-Devine**, J.D. Pietrzak, S. Rijnsburg, and M.J.F. Stive, 2016. Small Scale Bedform Types off the South-Holland Coast, *J. Coastal Res.* 75:423-426.
2. Meirelles, S.; Henriquez, M.; Horner-Devine, A.R.; Souza, A.J.; Pietrzak, J.; Stive, M.. 2015 Bed shear stress on the middle shoreface of the south of Holland coast. In: Wang, P.; Rosati, J.D.; Cheng, J., (eds.) *The Proceedings of the Coastal Sediments 2015*. Singapore, World Scientific, 10p.
3. Meirelles, S., **A.R. Horner-Devine**, M. Henriquez, M. Stive, J. Pietrzak and A.J. Souza, 2014. Middle shoreface sand transport under the influence of a river plume, *J. Coastal Res.* 70:182-186.
4. **Horner-Devine, A.R.**, Y. Yuan and M. Avenir, 2009. Measuring volume and transport in laboratory-generated gravity currents, IAHR Congress, Vancouver, Canada.
5. **Horner-Devine, A.R.**, B.A. Hayworth and A. Venturato, 2007. Acoustic imaging of estuarine coherent structures downstream of a sill, ASCE Hydraulic Measurements & Experimental Methods Conference, Lake Placid, NY.
6. Chickadel, C.C., **Horner-Devine, A. R.** and A.T. Jessup, 2007. Thermal remote sensing of macroturbulent boil generation in a tidal estuary, ASCE Hydraulic Measurements & Experimental Methods Conference, Lake Placid, NY.
7. **Horner-Devine, A.R.** and B.A. Hayworth, 2007. Generation of coherent structures due to tidal forcing in an estuary, IAHR International Symposium on Environmental Hydraulics, Tempe, AZ.
8. Thurman, D.R., **A.R. Horner-Devine**, R.R.Morrison, R.H. Hotchkiss, 2007. Juvenile Salmon Passage in Sloped-Baffled Culverts, International Conference on Ecology and Transportation, Little Rock, AR.
9. Thurman, D.R., **A.R. Horner-Devine**, A.Compton, R.R.Morrison, R.H. Hotchkiss, 2006. Hydrodynamics of Juvenile Salmon Passage in Sloped-Baffle Culverts, World Environmental and Water Resources Congress, Omaha, NE.
10. Morrison, R.R., D.R. Thurman, R.H. Hotchkiss, **A.R. Horner-Devine**, 2006. Turbulence Characteristics of Flow in a Culvert with Sloped-weir Baffles, World Environmental and Water Resources Congress, Omaha, NE.
11. **Horner, A.R.**, D.A. Fong, J.R. Koseff, T. Maxworthy and S.G. Monismith, 2000. The control of coastal current transport. Fifth International Symposium on Stratified Flows, IAHR, 2:865-870, Vancouver, B.C.

#### **Abstracts, letters, non-refereed papers, technical reports**

##### **Technical reports**

1. Thurman, D.R., **A.R. Horner-Devine**, 2007. Hydrodynamic regimes and structures in weir baffle culverts and their influence on juvenile salmon passage. WA-RD 687.1, Washington State Department of Transportation (WSDOT), Olympia, WA.

2. Pearson, W.H., S.L. Southard, C.W. May, J.R. Skalski, R.L. Townsend, **A.R. Horner-Devine**, D.R. Thurman, R.H. Hotchkiss, R.R. Morrison, M.C. Richmond, D. Deng, 2006. Research on the Upstream Passage of Juvenile Salmon through Culverts: Retrofit Baffles. WA-RD 644.1, Washington State Department of Transportation (WSDOT), Olympia, WA.

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## OTHER SCHOLARLY ACTIVITY

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### **Invited lectures, seminars and panels.**

*Note: Invited talks at conferences listed in next section*

1. University of Washington, Earth and Space Science, Seattle, WA. *Field observations of lobe-cleft instability in a gravity current traveling along a free-slip boundary.*
2. Marine-Terrestrial Interactions in the Coastal Temperate Rainforest Domain workshop, Vancouver, B.C., Canada. *Sediment transport at the river-ocean interface: estuary and river plume dynamics*, Feb 1, 2018
3. Stanford University, Stanford, CA. *Field observations of lobe-cleft instability in a gravity current travelling along a free-slip boundary.* Jan. 2018
4. East China Normal University, Shanghai, China. *The role of sand in wave-supported gravity currents*, Nov 6, 2017
5. Zhejiang University, Zhoushan, China. *The role of sand in wave-supported gravity currents*, Nov 2, 2017
6. National Taiwan University, Taipei, Taiwan. *The role of sand in wave-supported gravity currents*, Oct 28, 2017
7. US Environmental Protection Agency, Region 10, Seattle WA. *Measurements and modeling of hydrodynamics and sediment transport in the Duwamish River estuary.* Sept 2017
8. WA Dept of Ecology, Bellevue WA, *Measurements and modeling of hydrodynamics and sediment transport in the Duwamish River estuary.* May 2017
9. University of Washington, Center for Engineering Teaching and Learning. *Doing a Partial Flip: How to Move Some Lecture Content Online Without Landing on Your Head*, May 2015
10. University of Washington, College of the Environment. *Meet, Greet, Teach: Wag the Dog – A panel discussion on the merits of technology in teaching*, May 2015
11. University of Ottawa, Ottawa, Canada. *Infrared sensing of coherent structures in rivers, estuaries and the coastal ocean*, Feb 2015
12. University of British Columbia, Department of Earth, Ocean and Atmospheric Sciences Vancouver, Canada. *The impact of stratification on coastal sediment transport.* Aug. 2014.
13. U.S Army Corps of Engineers. Seattle WA. *The sensitivity of hydrodynamics and sediment transport in the Duwamish River estuary to changes in river discharge.* Aug 2014.
14. Stanford University, Stanford, CA. *Instabilities and Mixing in Coastal River Plumes: Insights and Questions from Laboratory and Field Studies.* May 2014.
15. U.S. Environmental Protection Agency. Region 10. Seattle, WA. *The sensitivity of hydrodynamics and sediment transport in the Duwamish River estuary to changes in river discharge*, Dec. 2013
16. Deltares research institute and consultancy, Delft, The Netherlands, *The STRAINS experiment: sediment transport in the Rhine River ROFI*, June 2013

17. Leibniz Institute for Baltic Sea Research, Warnemunde, Germany, *The STRAINS experiment: sediment transport in the Rhine River ROFI*, May 2013
18. National Oceanography Centre, Liverpool, United Kingdom, *The STRAINS experiment: sediment transport in the Rhine River ROFI*, May 2013
19. Faculty of Civil Engineering and Geosciences, Delft University of Technology, The Netherlands, *Exploiting infrared imaging for characterizing environmental flows*, December 2012.
20. Royal Netherlands Institute for Sea Research, The Netherlands, *Exploiting infrared imaging for characterizing fluid structures and dynamics in the environment*, October 2012
21. Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland. Declined
22. Department of Civil and Environmental Engineering, University of Washington, *Interpreting remotely sensed coherent structures on the water surface in rivers and estuaries*, January 2010.
23. Department of Civil Engineering, Saint Anthony Falls Laboratory, University of Minnesota, *Interpreting remotely sensed coherent structures on the water surface in rivers and estuaries*, October 2009.
24. Department of Civil Engineering, Purdue University, *Interpreting remotely sensed coherent structures on the water surface in rivers and estuaries*, October 2009.
25. Department of Civil and Environmental Engineering, Hydrosystems Laboratory, University of Illinois, *Interpreting remotely sensed coherent structures on the water surface in rivers and estuaries*, October 2009.
26. Department of Civil and Environmental Engineering, Stanford University, *Nine orders of magnitude and a lot more plankton: testing laboratory results on the continental shelf*, February 2009.
27. Zachary Department of Civil Engineering, Texas A & M University, *The onset of surface boils in the Snohomish River estuary*, April 2008.
28. Annual Review of Research, The Water Center, University of Washington, *Plume soup: How a dash of river water affects Washington's coastal ecosystem*, February 2008.
29. The Water Center, University of Washington, *Retention and transport in coastal river plumes: how a plume-generated eddy may affect coastal productivity*, October 2007.
30. Applied Ocean Physics and Engineering Department, Woods Hole Oceanographic Institution, *Retention and transport in coastal river plumes: how a plume-generated eddy may affect coastal productivity*, May 2007.
31. School of Oceanography, University of Washington, *The role of turbulence and stratification in determining the source of sediment to the Columbia River plume*, April 2007.
32. Civil, Environmental and Architectural Engineering Department, University of Colorado, *Retention and transport in coastal river plumes: how a plume-generated eddy may affect coastal productivity*, March 2007.
33. Department of Physical and Environmental Sciences, University of Toronto, Canada, *Retention and transport in coastal river plumes: how a plume-generated eddy may affect coastal productivity*, March 2007.
34. Department of Applied Mathematics, University of Washington, *Retention and transport in coastal river plumes: how a plume-generated eddy may affect coastal productivity*, February 2007.
35. Department of Civil and Environmental Engineering, University of Washington, *Boil, boil, toil and trouble: Characterization of coherent structures in the Snohomish River estuary using subsurface acoustic imaging*, January 2007.
36. Department of Civil and Environmental Engineering, University of Washington, *Take two: Why the Columbia River plume comes back around*, February 2006.

37. Hydrology Group, Pacific Northwest National Laboratory, *Plumes, Blooms, and Flumes: Modeling Large-Scale Coastal River Inflows in the Fluid Mechanics Lab*, May 2005.
38. Department of Civil and Environmental Engineering, University of California at Berkeley, *Plumes, Blooms, and Flumes: Modeling Large-Scale Coastal River Inflows in the Fluid Mechanics Lab*, April 2005.
39. Department of Civil and Environmental Engineering, University of Washington, *Plumes, Blooms, and Flumes: Modeling Large-Scale Coastal River Inflows in the Fluid Mechanics Lab*, January 2005.
40. Department of Civil Engineering, Queen's University, Canada, *Alongshore transport in a buoyant river plume: can the near-field affect the far-field?* October 2002.
41. Department of Civil Engineering, University of British Columbia, Canada, *The alongshore transport of buoyant water in a river plume: implications and mechanisms of an unsteady bulge*, December 2001.

### **Presentations given at conferences.**

The presenter is in bold. Only presentations by Horner-Devine are listed.

1. R. Flores and **A.R. Horner-Devine** "Observations of a wave-supported gravity flow on a sandy seabed", Physics of Estuaries and Coastal Seas, Galveston, TX, October 2018
2. **A.R. Horner-Devine** and A.R. Poggioli, "The hydraulics of the river-ocean interface" AGU Ocean Sciences Meeting, Portland, OR. February 2018.
3. **A.R. Horner-Devine** "The influence of shifting sediment dynamics on flood risk in the coastal watersheds of the Pacific Northwest", H2O Headwaters to Oceans Conference, UC Irvine, May 2017. (*Invited*)
4. **A.R. Horner-Devine** "The three-dimensional structure of river plume fronts", Gordon Research Conference, University of New England, Biddeford, ME, June 2017.
5. **A.R. Horner-Devine** "Surface wave processes in river plumes", Physics of Estuaries and Coastal Seas, Scheveningen, The Netherlands, October 2016
6. A.R. Poggioli and **A.R. Horner-Devine**. "River-estuary dynamics and implications for river morphodynamics," *Coastal and Estuarine Research Federation Conference*, Portland, OR, Nov. 2015.
7. A.R. Poggioli and **A.R. Horner-Devine**. "Laboratory experiments at the estuary – river plume interface," *Coastal and Estuarine Research Federation Conference*, Portland, OR, Nov. 2015.
8. **Horner-Devine, A.R.** and J. Pietrzak, M. Stive, A. Souza, S. Meirelles, M. Henriquez, M. McKeon, G. de Boer. "Cross-shore sediment transport due to near-shore frontal processes in the Rhine region of freshwater influence," *American Geophysical Union, Ocean Sciences Meeting*, Honolulu, HI, February 2014.
9. **Horner-Devine, A.R.** "A recipe for a plume: Can we construct a plume mixing budget?" Workshop on river plume mixing, Timberline, OR, Oct. 2013. *Invited speaker*



10. **Horner-Devine, A.R.** “STRAINS: The impact of density stratification on sediment transport in the Rhine ROFI,” Coastal and Estuarine Research Federation Conference, San Diego, CA, Nov. 2013. *Invited speaker*
11. **Horner-Devine, A.R.** “The impact of stratification on coastal sediment transport,” Gordon Research Conference on Coastal Ocean Circulation, Biddeford, ME, June 2013. *Invited speaker*
12. **Horner-Devine, A.R.** and C.C. Chickadel. “The multiscale physics of river plumes,” *International workshop on Multi-scale Unstructured mesh numerical Modeling*, Delft, The Netherlands. August 2012.
13. **Horner-Devine, A.R.** and C.C. Chickadel. “Mixing and instability at a river plume front,” *American Geophysical Union, Ocean Sciences Meeting*, Salt Lake City, UT, February 2012.
14. **Horner-Devine, A.R.** and C.C. Chickadel. “Lobe and cleft structures in the Merrimack River plume front: detailed measurements of a geophysical-scale gravity current,” *Coherent Flow Structures in Geophysical Flows*, Vancouver BC, August, 2011.
15. **Horner-Devine, A.R.** and C.C. Chickadel. “Instability in a river plume front: the Merrimack plume at night,” *American Geophysical Union, Fall Meeting*, San Francisco, CA, December, 2010.
16. **Horner-Devine, A.R.**, S.A. Talke, C.C. Chickadel, A.T. Jessup. “Near surface turbulence and coherent structures: Part II near-surface modification of turbulent structures,” *American Geophysical Union, Ocean Sciences Meeting*, Portland, OR, February, 2010.
17. **Horner-Devine, A. R.** and D. A. Fong, “The role of inflow angle in the alongshore momentum balance in a coastal river plume,” *Coastal and Estuarine Research Federation conference*, Portland, OR, November, 2009.
18. **Horner-Devine, A.R.**, M. Nagamine, S. Bevan, and Y. Yuan, “The distribution of age in a coastal river plume,” *American Physical Society – Division of Fluid Dynamics Conference*, Minneapolis, MN, November, 2009.
19. **Horner-Devine, A.R.**, Y. Yuan and M. Avener, “Measuring volume and transport in laboratory-generated gravity currents,” *International Association of Hydraulic Researchers Congress*, Vancouver, Canada, August, 2009.
20. **Horner-Devine, A.R.**, M. Nagamine and S. Bevan, “The distribution and evolution of age in a coastal river plume,” *Gordon Research Conference*, New London, NH, May, 2009.
21. **Horner-Devine, A.R.**, E.Y. Spahn, J.D. Nash, D.A. Jay and L. Kilcher, “Sediment removal and entrainment in the Columbia River plume,” *Physics of Estuaries and Coastal Seas*, Liverpool, UK, August, 2008.

22. **Horner-Devine, A.R.**, S.A. Talke and C. C. Chickadel, “COHSTREX: The structure of estuary boils observed with a digital echosounder,” *American Geophysical Union, Ocean Sciences Meeting*, Orlando, FL, March, 2008.
23. **Horner-Devine, A.R.**, “The half-meter plume: a comparison of recent laboratory results and river plume observations,” *Physics of Estuaries and Coastal Seas*, Astoria, OR, August, 2006.
24. **Horner-Devine, A.R.**, Jay, D.A. and P.M. Orton, “Plume within a plume: a conceptual model of the strongly tidal Columbia River Plume,” *American Geophysical Union, Ocean Sciences Meeting*, Honolulu, HI, February, 2006.
25. **Horner-Devine, A.R.**, D.A. Jay and T.A. Chisholm, “Frontal circulation and particle distribution in the Columbia River plume during the 2004 RISE cruise,” *American Geophysical Union, Annual Fall Meeting*, San Francisco, CA, December, 2004.
26. **Horner-Devine, A.R.**, D.A. Fong, S.G. Monismith and T. Maxworthy, “Bulge dynamics and alongshore transport in a river plume,” *American Geophysical Union, Ocean Sciences Meeting*, Portland OR, February, 2004.
27. **Horner-Devine, A.R.** and **D.A. Fong**, “Modeling alongshore transport as a function of river inflow angle,” *American Geophysical Union, Ocean Sciences Meeting*, Portland, OR, February, 2004.
28. **Horner-Devine, A.R.**, S.G. Monismith<sup>5</sup> and D.A. Fong, “High resolution measurement of density and velocity in a laboratory scale river plume,” *American Geophysical Union, Annual General Meeting*, San Francisco, CA, December, 2002.
29. **Horner, A.R.**, D.A. Fong and S.G. Monismith, “The river plume bulge: Does it grow and why?” *Gordon Conference on Coastal Circulation*, New London, NH, June 2001.
30. **Horner, A.R.**, S.G. Monismith, D.A. Fong, and T. Maxworthy, “Laboratory investigation of buoyant river plumes,” *American Geophysical Union, Ocean Sciences Meeting*, San Antonio, TX, February, 2000.

#### **Professional society memberships.**

International Association of Hydraulic Researchers (2005-2010)  
American Geophysical Union (1998-present)  
American Society of Civil Engineers (1996 – present)  
American Physical Society (2004, 2009 - 2012)  
Coastal and Estuarine Research Foundation (2009 – present)

#### **Other.**

**Editorial:** Associate editor, *Journal of Geophysical Research – Oceans*, 2015-present

**Journal reviewer** (approximate number of reviews): *Journal of Geophysical Research* (15), *Geophysical Research Letters* (6), *Journal of Physical Oceanography* (6), *Environmental Fluid Mechanics* (6), *Continental Shelf Research* (6), *Limnology and Oceanography* (5), *Journal of*

Fluid Mechanics (4), Journal of Hydraulic Research (4), Water Resources Research (4), Journal of Marine Research (4), Experiments in Fluids (2), Ocean Modeling (2), Estuaries and Coasts (2), Climate Dynamics (1), Journal of Hydraulic Engineering (1), Measurement Science and Technology (1), Journal of Marine Systems (1), Ecological Engineering (1), Marine and Freshwater Research (1), Sedimentology (1), PLOS ONE (1), Geology (1), Marine Geology (1), Marine Pollution Bulletin (1), Geochemistry, Geophysics, Geosystems (1), Nature (1), Philosophical Transactions of the Royal Society (1).

**Proposal reviewer:** National Science Foundation (2-3 total per year; Hydrology, Marine Geology and Geophysics, Physical Oceanography, Major Research Instrumentation, Sedimentary Geology and Paleobiology), National Oceanic and Atmospheric Administration, Louisiana Board of Regents Support Fund, Oregon Transportation Research and Education Consortium, UW Royalty Research Fund, Woods Hole SeaGrant.

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## GRADUATE STUDENTS

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### Chaired Doctoral Degrees

| Student Name     | Dissertation Title   | Completed (Year) | Current Employer                         |
|------------------|--|------------------|--|
| Yeping Yuan      | The effect of lateral spreading on river plumes<br>*Dissertation won international Lorenz G. Straub Award<br>*Burgess Fellowship | 2012             | Zhejiang University (Asst. Prof.)        |
| Abbas Hooshmand  | Turbulence and sediment re-suspension in the wave boundary layer   | 2015             | U.S. Geological Survey                   |
| Anthony Poggioli | Backwater effects on spreading and mixing in a coastal river plume   | 2015             | École Normale Supérieure                 |
| Raul Flores      | Sediment transport processes along the Dutch coast<br>* Fullbright Fellowship  | 2018             | Universidad Técnica Federico Santa María |

### Current Doctoral Students

| Student Name                              | Dissertation Title   | Expected graduation |
|---|--|---------------------|
| Ruth Branch                               | Remote sensing of river discharge at river mouths<br>* NASA Fellowship           | 2019                |
| Zhuochen Han                              | Grain-size dependence in wave-supported gravity currents<br>* Burgess Fellowship | 2020                |
| Samuel Kastner                            | Wave-plume interactions in a small coastal discharge                             | 2020                |
| Samantha Fung (Co-advise with B. Neumann) | Geochemical and physical fluxes of arsenic from lake bed sediments               | 2021                |
| Shelby Ahrendt                            | Modeling geomorphic flood hazards  | 2022                |

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| (Co-advise with<br>Nirnimesh Kumar) |  |  |
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### Chaired Masters Degrees

| Student Name     | Level of Supervision   | Thesis/Paper Title  | Completed | Current Employer     |
|------------------|------------------------|---|-----------|----------------------|
| Bronwyn Hayworth | Chair                  | Observations of Tidally Generated Coherent Structures in the Snohomish River Estuary  | 2007      | US EPA               |
| Emily Spahn      | Chair                  | Particle re-suspension in the Columbia River plume near-field   | 2007      | West Consultants     |
| David Thurman    | Chair                  | Hydrodynamic regimes and structures in weir baffle culverts and their influence on juvenile salmon passage                          | 2007      | Golder Associates    |
| Gregory Curtiss  | Chair                  | Seasonal patterns of coarse sediment transport on a mixed sand and gravel beach due to vessel wakes, wind waves, and tidal currents | 2008      | Golder Associates    |
| Yeping Yuan      | Chair                  | A two-color optical thickness method for determining layer depth in two interacting buoyant plumes                                  | 2008      | Zhejiang University  |
| Margaret Avenier | Chair                  | Modification of river plume structure and transport due to periodically varying discharge   | 2009      | Temple University    |
| Daniel Nowacki   | Chair                  | Rapid sediment removal from the Columbia River Plume near field   | 2010      | US Geological Survey |
| Samuel Kastner   | Co-chair<br>J. Thomson | Wave-plume interactions   | 2017      | UW CEE<br>PhD        |

### Current Masters Students

| Student Name | Level of Supervision | Thesis/Paper Title | Expected graduation |
|--------------|----------------------|--------------------|---------------------|
| NA           |                      |                    |                     |

### Other significant student supervision

Undergraduate research supervision

| Student Name  | Level of Supervision                   | Thesis/Paper Title                                  | Completed |
|---------------|--|---|-----------|
| Alex Compton  | Advisor for summer research internship | Fish passage in culverts                            | 2005      |
| Owen Sullivan | Project (2 quarters)                   | Satellite remote sensing of the Niagara River plume | 2006      |

|                  |  |   |           |
|------------------|--|---|-----------|
| Phillip Guan     | Advisor for summer research internship                         | Fish passage in culverts  | 2006      |
| Kevin Shaffer    | Project (2 quarters)   | Infrared remote sensing of an internal hydraulic jump             | 2008      |
| Shaun Bevan      | Project (3 quarters) and advisor for summer NSF REU internship | Effect of periodically varying discharge on river plume structure | 2009-2010 |
| Melyssa Nagamine | Project (5 quarters) Summer NSF REU Mary Gates and WRF Fellow  | Distribution of age in a river plume                              | 2009-2010 |
| Stephanie Wei    | Advisor for summer NSF REU internship                          | PIV/PLIF of a spreading river plume                               | 2010      |
| Amanda Gehman    | Advisor for summer research internship                         | Infrared imaging of a laboratory river plume                      | 2010      |
| Nathan Secrett   | Advisor for summer NSF REU internship                          | Acoustic backscatter measurements of gravity currents             | 2010      |
| Anthony Poggioli | Project (3 quarters) Summer NSF REU Mary Gates Fellow          | Momentum balance in a laboratory scale river plume                | 2011-2012 |
| James Neher      | Project (3 quarters) Summer NSF REU Mary Gates Fellow          | Numerical modeling of salt wedge intrusion                        | 2014-2015 |
| Lexie England    | Summer NSF REU   | River-ocean hydraulics  | 2015      |

Graduate student committees (GSR indicates Graduate School Representative)

| <b>Student Name</b> | <b>Level of Supervision</b>     | <b>Department</b> | <b>Completed</b> |
|---------------------|---------------------------------|-------------------|------------------|
| Stephanie Kampf     | PhD Committee                   | CEE               | 2006             |
| Chris Brummer       | PhD Committee                   | ESS               | 2006             |
| Maria Stephandottir | MS Committee                    | CEE               | 2006             |
| John Crockett       | PhD Committee (GSR)             | Oceanography      | 2006             |
| Ryan McCabe         | PhD Committee                   | Oceanography      | 2007             |
| Amoreena MacFadyen  | PhD Committee (GSR)             | Oceanography      | 2007             |
| Tina Drexler        | PhD Committee (GSR)             | Oceanography      | 2008             |
| Wayne Martin        | PhD Committee (GSR)             | Oceanography      | 2008             |
| Preston Martin      | PhD Committee                   | Oceanography      | 2011             |
| Mark Raleigh        | PhD Quads Committee             | CEE               | 2012             |
| Colin Bateson       | PhD Committee (GSR)             | ME                | 2016             |
| Michael Schwendeman | PhD Committee Reading Committee | CEE               | 2016             |
| Maricarmen Guerra   | PhD Committee                   | CEE               | Current          |
| Elizabeth Phillips  | PhD Committee (GSR)             | SAFS              | Current          |
| Adam Barker         | PhD Committee (GSR)             | ESS               | Current          |
| Sarah Schanz        | PhD Committee (GSR)             | ESS               | Current          |
| Edwin Zappel        | PhD Committee (GSR)             | SAFS              | Current          |

|                     |                     |              |         |
|---------------------|---------------------|--------------|---------|
| Seth Zippel         | PhD Committee       | CEE          | 2017    |
| Chase Dowling       | PhD Committee (GSR) | EE           | Current |
| Elizabeth Brasseale | PhD Committee (GSR) | Oceanography | Current |

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## RESEARCH ACTIVITIES

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### Funded Research

| <b>Funding Agency</b>                           | <b>Project title</b>  | <b>Total (Horner-Devine)</b> | <b>Role</b> | <b>Start/Finish</b> |
|---|---|------------------------------|-------------|---------------------|
| National Science Foundation                     | <i>PREEVENTS Track 2: Integrated modeling of hydro-geomorphic hazards: Floods, landslides and sediment</i>  | \$2M<br>(\$372)              | Co-PI       | 9/2017<br>-9/2021   |
| Washington State Ferries                        | <i>Ferry vessel propeller wash effects on scour at terminal structures</i>  | \$175K<br>(\$92K)            | PI          | 7/2017<br>-6/2019   |
| Environmental Protection Agency                 | <i>Arsenic in Shallow Unstratified and Seasonally Stratified Urban Lakes: Mobility, Bioaccumulation and Ecological Toxicity</i>                                   | \$1.3M<br>(\$211)            | Co-I        | 4/2017<br>-3/2022   |
| National Science Foundation                     | <i>Collaborative Research: The effect of sand fraction and event evolution on fine-sediment transport and the depositional record in wave-supported mud flows</i> | \$510K<br>(\$338K)           | PI          | 8/2015<br>-8/2019   |
| National Science Foundation                     | <i>Intensification and impact of wave-breaking in river plumes</i>  | \$585K<br>(\$330K)           | PI          | 3/2015<br>-2/2020   |
| UW College of Engineering                       | <i>Mountain to Sea Strategic Research Initiative (Year 1)</i>   | \$39k                        | PI          | 7/2015<br>-6/2016   |
| National Science Foundation                     | <i>REU Supplement: Backwater plumes</i>   | \$9k<br>(\$9k)               | PI          | 6/2014<br>-6/2015   |
| University of Washington                        | <i>Installation of a 23 m wind-wave flume in the Harris Hydraulics Laboratory</i>   | \$380K<br>(na)               | Co-PI       | 2013-<br>2016       |
| National Science Foundation                     | <i>Collaborative research: Coupled backwater and river-plume dynamics and their control on terrestrial-to-marine sediment transport</i>                           | \$282K<br>(\$282K)           | Co-PI       | 10/2012<br>-9/2015  |
| Royalty Research Fund                           | <i>A new modeling platform for determining the input of toxic compounds to Puget Sound from the Duwamish River estuary</i>  | \$39K<br>(\$39K)             | PI          | 6/2011<br>-6/2012   |
| UW College of Eng. / Applied Physics Laboratory | <i>Infrared remote sensing as a tool for measuring river plume mixing and frontal processes</i>   | \$49K<br>(\$5K)              | Co-PI       | 3/2010<br>-3/2011   |

|   |  |                    |       |                    |
|---|--|--------------------|-------|--------------------|
| National Science Foundation             | <i>REU supplement: Sediment transport in wave-supported gravity currents</i>   | \$9K<br>(\$9K)     | PI    | 6/2010<br>-9/2010  |
| National Science Foundation             | <i>REU supplements: Creation of a coastal current -- The transition of an energetic river discharge from buoyant jet to geostrophic plume</i>        | \$21K<br>(\$21K)   | PI    | 6/2009<br>-9/2010  |
| National Science Foundation             | <i>Collaborative Research: Creation of a coastal current -- The transition of an energetic river discharge from buoyant jet to geostrophic plume</i> | \$327K<br>(\$327K) | Co-PI | 4/2009<br>-3/2012  |
| National Science Foundation             | <i>Laboratory study: Sediment transport in wave-supported gravity currents</i>   | \$365K<br>(\$249K) | PI    | 10/2008<br>-9/2011 |
| Pacific International Engineering       | <i>Anthropogenic and natural transport mechanisms on a cobbled beach: The effect of Fast Ferries on beach erosion</i>                                | \$59K<br>(\$59K)   | PI    | 6/2006<br>-6/2008  |
| National Science Foundation             | <i>Particle removal and re-suspension in the near-field of the Columbia River Plume.</i>   | \$301K<br>(\$242K) | PI    | 4/2007<br>-3/2011  |
| Office of Naval Research                | <i>Acoustic system for subsurface imaging of coherent structures.<br/>Supplement to larger ONR project.</i>  | \$15K<br>(\$15K)   | PI    | 6/2006<br>-6/2007  |
| Washington Department of Transportation | <i>Effect of intermediate-scale flow structures on upstream passage of juvenile salmon in culverts.</i>  | \$158K<br>(\$158K) | PI    | 7/2005<br>-6/2007  |
| Royalty Research Fund                   | <i>Sediment dispersal in a high volume plume during a low flow year</i>  | \$25K<br>(\$25K)   | PI    | 3/2006<br>-2/2007  |
| Office of Naval Research                | <i>Remote sensing and modeling of coherent structures in river and estuarine flows</i>   | \$5.0M<br>(\$447K) | Co-PI | 5/2005<br>-10/2010 |
| <b>Total</b>                            |  | \$8.1M<br>(\$2.9M) |       |                    |
|   |  |                    |       |                    |

### Pending Research

| <b>Funding Agency</b>       | <b>Project title</b>  | <b>Total (Horner-Devine)</b> | <b>Role</b> | <b>Start/Finish</b> |
|-----------------------------|---|------------------------------|-------------|---------------------|
| National Science Foundation | <i>Collaborative Research: Interaction Between Plumes and Surface Waves from the Surf Zone to the Inner-Shelf</i> | \$396K<br>(\$140K)           | Sr.<br>Pers | 9/2019<br>-9/2022   |

### Un-sponsored research.

- **MEGApex experiment: Dutch coast.** Two PhD students and I returned to The Netherlands to make further measurements along the Dutch coast. This involved two trips in the fall of 2015. I have one PhD student working on this project (Flores) and I help to advise one Dutch PhD student (Rijnsburger, TU Delft), who has spent two summers (2015, 2016) in Seattle working with my research group. I also continue to work with other Dutch PhD students and postdocs (Henriquez and Meirelles). Three papers have recently been submitted from this project and one more will be submitted in Oct 2016.
- **Sediment transport in the Rhine Region of Freshwater Influence.** During my sabbatical (2012-2013) in the Netherlands I led a large-scale field campaign to understand the impact of the outflow from the Rhine River on sediment transport along the Dutch coast. During this time I helped to advise one Phd student from the Technical University of Delft.
- **Salt wedge dynamics and sediment transport in the Duwamish River estuary.** We have been studying the influence of river discharge on estuary and sediment dynamics in the highly contaminated Duwamish River estuary in south Seattle.



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DOCUMENTATION OF TEACHING EFFECTIVENESS

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**Courses Taught & Student Evaluations**

| Course              | Title               | Quarter     | Credit Hrs | Enrollment | Item 1 <sup>+</sup> | Item 3 <sup>+</sup> | Item 4 <sup>+</sup> | Average, Items 1-4 |
|---------------------|---------------------|-------------|------------|------------|---------------------|---------------------|---------------------|--------------------|
| CEWA 570            | Hydrodynamics       | Winter 2019 | 4          | 12         | 4.6                 | 4.6                 | 4.8                 | 4.7                |
| CEE 347             | Fluid Mechanics     | Fall 2018   | 5          | 72         | 4.6                 | 4.9                 | 4.8                 | 4.8                |
| CEE 474             | Sediment Transport  | Spring 2018 | 3          | 28         | 4.9                 | 4.8                 | 5.0                 | 4.9                |
| CEE348              | Environmental Flows | Spring 2018 | 4          | 17         | 4.1                 | 4.6                 | 4.4                 | 4.3                |
| CEWA 570            | Hydrodynamics       | Winter 2018 | 4          | 10         | 4.9                 | 5.0                 | 5.0                 | 5.0                |
| CEE 474             | Sediment Transport  | Spring 2017 | 3          | 26         | 4.8                 | 4.9                 | 4.9                 | 4.8                |
| CEE 570             | Hydrodynamics       | Winter 2017 | 4          | 6          | 4.4                 | 4.6                 | 4.5                 | 4.5                |
| CEE 474             | Sediment Transport  | Spring 2016 | 3          | 25         | 4.4                 | 4.8                 | 4.7                 | 4.6                |
| CEE 570             | Hydrodynamics       | Spring 2016 | 4          | 8          | 4.2                 | 4.7                 | 4.7                 | 4.8                |
| CEE 474             | Sediment Transport  | Spring 2015 | 3          | 33         | 4.4                 | 4.9                 | 5.0                 | 4.8                |
| CEE 570             | Hydrodynamics       | Spring 2015 | 4          | 10         | 3.4                 | 3.7                 | 3.4                 | 3.6                |
| CEE 347             | Fluid Mechanics     | Winter 2015 | 5          | 66         | 4.8                 | 5.1                 | 5.1                 | 5.0                |
| CEE 570             | Hydrodynamics       | Spring 2014 | 4          | 20         | 4.4                 | 4.8                 | 4.8                 | 4.5                |
| CEE 474             | Sediment Transport  | Spring 2014 | 3          | 18         | 4.8                 | 5.0                 | 4.8                 | 4.9                |
| CEE 347 (prev. 342) | Fluid Mechanics     | Winter 2014 | 5          | 119        | 4.8                 | 5.0                 | 4.9                 | 4.9                |
| CEE 570             | Hydrodynamics       | Spring 2012 | 4          | 8          | 4.0                 | 4.7                 | 4.7                 | 4.4                |
| CEE 474             | Sediment Transport  | Winter 2012 | 3          | 42         | 4.3                 | 4.6                 | 4.6                 | 4.4                |
| CEE 342             | Fluid Mechanics     | Fall 2011   | 4          | 62         | 4.4                 | 4.7                 | 4.5                 | 4.5                |
| CEE 570             | Hydrodynamics       | Spring 2011 | 4          | 11         | 4.9                 | 5.0                 | 4.8                 | 4.9                |
| CEE 474             | Sediment Transport  | Winter 2011 | 3          | 34         | 4.5                 | 4.8                 | 4.9                 | 4.7                |
| CEE 342             | Fluid Mechanics     | Fall 2010   | 4          | 61         | 4.5                 | 4.8                 | 4.6                 | 4.6                |
| CEE 570             | Hydrodynamics       | Spring      | 4          | 9          | 4.0                 | 4.5                 | 4.7                 | 4.2                |

|         |                                | 2010        |   |    |     |     |     |     |
|---------|--------------------------------|-------------|---|----|-----|-----|-----|-----|
| CEE 474 | Sediment Transport             | Winter 2010 | 3 | 35 | 4.3 | 4.6 | 4.6 | 4.4 |
| CEE 570 | Hydrodynamics                  | Spring 2009 | 4 | 9  | 4.3 | 4.8 | 4.2 | 4.5 |
| CEE 474 | Sediment Transport             | Winter 2009 | 3 | 24 | 4.0 | 4.2 | 4.2 | 4.1 |
| CEE 342 | Fluid Mechanics                | Fall 2008   | 4 | 64 | 4.1 | 4.4 | 4.1 | 4.2 |
| CEE599  | Topics in Env. Fluid Mechanics | Winter 2008 | 2 | 4  | 3.7 | 4.0 | 4.5 | 4.3 |
| CEE 474 | Sediment Transport             | Winter 2008 | 3 | 20 | 3.3 | 3.5 | 3.7 | 3.5 |
| CEE 342 | Fluid Mechanics                | Fall 2007   | 4 | 61 | 4.1 | 4.4 | 4.0 | 4.2 |
| CEE 474 | Sediment Transport             | Winter 2007 | 3 | 18 | 4.4 | 4.9 | 4.9 | 4.8 |
| CEE 570 | Hydrodynamics                  | Spring 2006 | 4 | 9  | 4.0 | 4.1 | 4.1 | 4.1 |
| CEE 342 | Fluid Mechanics                | Winter 2006 | 4 | 44 | 4.2 | 4.6 | 4.4 | 4.4 |
| CEE 474 | Sediment Transport             | Fall 2005   | 3 | 18 | 4.0 | 4.5 | 4.6 | 4.4 |
| CEE 342 | Fluid Mechanics                | Winter 2005 | 4 | 69 | 4.4 | 5.0 | 4.4 | 4.6 |

+ Item 1: Adjusted median rating of course as a whole, Item 2: Course content (not shown), Item 3: Adjusted median rating of instructor's contribution, Item 4: Adjusted median rating of instructor's effectiveness. All ratings are on a scale from 0 – 5.

#### Supervision of independent study\*

| Course  | Student Name (Title)  | Year |
|---------|---|------|
| CEE 600 | Jeff Wilson<br>(Sediment transport in the Duwamish River estuary)                                     | 2012 |
| CEE 600 | Paul Smidansky<br>(Evaluation of salmon passage in a Snohomish County stream)                         | 2008 |
| CEE 600 | Brian Scott<br>(Characterization of sediment transport regimes upstream of a proposed bridge project) | 2008 |

\* Excludes independent study credits by my graduate students or undergraduate researchers listed in previous sections.

#### Other teaching contributions

- Catalyst focus group on technology in the classroom (May 2005).
- UW Center for Engineering Learning and Training workshop to incorporate new pedagogical research into engineering education (April 2009).
- Built and developed a new 3m flume equipped for Particle Image Velocimetry (PIV) and an accompanying set of labs for CEE and ME undergraduate and graduate fluids classes together with Alberto Aliseda, ME. This was funded through a competitive grant from the College of Engineering for \$60K.

- Technology Teaching Fellows. As part of the TTF program I developed a new component in my junior-level Fluid Mechanics course (CEE347) using online teaching methods in winter 2015.

#### **Teaching Awards, Nominations for Teaching Awards**

- CEE Outstanding Teacher of the year in 2011 and 2015. Nominated and voted by graduate and undergraduate students.
- Nominated for College of Engineering, Junior Faculty Innovator Award (2009), based in large part on teaching in CEE342 (Fluid Mechanics) and development of new laboratory curriculum associated with the PIV flume listed above.

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### SERVICE

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#### **Departmental service**

##### CEE leadership

- CEE executive committee (2006-2007, 2013-present).
- Program head, Environmental and Water Program (2013-present)
- Graduate admissions coordinator, Hydrology and Hydrodynamics program (2007- 2011).
- Departmental affairs committee (2017-present)

##### Search committees

- Hydrology faculty search committee (2005).
- Transportation faculty search committee (2005).
- Hydrology faculty search committee (2009).
- Chair of Hydrodynamics faculty search committee (2016).
- Chair of Innovations in Water Treatment faculty search committee (2018).

##### Other committees and functions

- UWE Tsunami Certificate Advisory Board (2007).
- Curriculum committee (2010-2011).
- CEE Faculty Affairs committee (2013-2016).
- Valle Fellowship Committee (2013-present).
- BS Environmental Engineering degree program development committee (2013-present).
- CEE Departmental Affairs committee (2016-present).

##### Student mentoring

- Chi Epsilon CEE student honor society faculty advisor (2007 – 2010).
- Mentored undergraduate and graduate students for COE open house (2005-2011).

#### **College service**

- Leader, College of Engineering Mountain to Sea Research Initiative

#### **University service**

- College of the Environment Working Group on proposed college structure (2008).

#### **Professional society and other service**

##### **Professional committee membership**

- ASCE Technical Committee on Hydraulic Measurements and Experimentation (2009-present).

#### **Conference organization**

- ASCE Hydraulic Measurements & Experimental Methods Conference (2012).

#### **Conference scientific advisory panel**

- “Coherent Structures in Geophysical Flows,” Aug. 2011, Vancouver, Canada.

#### **Conference session organizer, chair or moderator**

- Session co-chair and co-organizer, “River plumes and buoyancy-driven shelf circulation,” American Geophysical Union, Ocean Sciences Meeting, Feb. 2014, Honolulu, HI (with R. Hetland).
- Session co-chair and co-organizer, “Oceanic fronts: observations, modeling and applications,” American Geophysical Union, Ocean Sciences Meeting, Feb. 2012, Salt Lake City, UT (with I. Belkin, P. Cornillon, D. Wang and J. Nash).
- Session co-chair and co-organizer, “Turbulence, Mixing, and Multi-Scale Interactions in Rivers and Estuaries,” American Geophysical Union, Fall Meeting, Dec. 2010, San Francisco CA (with A. Jessup and S. Monismith).
- Session co-chair and co-organizer, “Mixing Processes and Buoyant Flows II: Plumes and the Coastal Ocean,” American Geophysical Union, Ocean Sciences Meeting, Feb. 2010, Portland, OR (with D. MacDonald and R. Hetland).
- Session co-chair and co-organizer, “Structure and function of river plumes in coastal margins,” American Geophysical Union, Ocean Sciences Meeting, Mar. 2008, Orlando, FL (with T. Petersen).
- Session co-chair and co-organizer, “River and estuary dynamics,” IAHR International Symposium on Environmental Hydraulics, Dec. 2007, Tempe, AZ (with B. Hickey).
- Session co-chair and co-organizer, “River Plume – Ocean Interactions,” American Geophysical Union, Ocean Sciences Meeting, Feb. 2006, Honolulu, HI (with M. Lohan).
- Session moderator, “Drops and emulsions,” American Physical Society, Division of Fluid Dynamics Meeting, Nov. 2004, Seattle, WA.
- Session co-chair and co-organizer, “Dynamics of River Plume Systems,” American Geophysical Union, Ocean Sciences Meeting, Feb. 2004, Portland OR (with D. Fong).

#### **Community service**

- *Pro bono* consulting on sedimentation impact on sewer overflows at low-income housing development.

#### **Technical advisory committee**

- Contamination Assessment and Reduction Project, Port of New York contaminated sediment remediation

#### **International, national or governmental service**

- Associate editor on Scientific Review Committee for Washington Department of Natural Resources.
- PhD committee (Sabine Rijnsburger) TU Delft

#### **Outreach activities**

- Mentored student teams for demos in College of Engineering Open House (approximately 7000 K-12 students) every year at UW. Demos won CEE Departmental awards in two years.
- Two BRIDGE workshops for entering engineering students from under-represented groups. 1) Measurements of planktonic thin layers in a local reservoir (with M. Brett), and 2) Scale model laboratory experiments describing residence time in Puget Sound.

Raymond K. Timm II

Seattle, Washington, USA 98103

### **Education:**

Ph.D., Aquatic and Fishery Sciences January, 2013

University of Washington, Seattle, WA..

- Salmonid habitat restoration coupled with flood reduction initiatives.
- Doctoral Dissertation: *Definition of Channel and Riparian Dynamics across a Disturbance Continuum: Implications for Salmonid Restoration.*

M.S., Environmental Studies December, 1996

Eastern Michigan University, Ypsilanti, MI

- Area of concentration in Remote Sensing and Geographic Information Systems (GIS).
- Master's Thesis: *Changes in Submersed Aquatic Macrophyte Distributions in Lake St. Clair, Michigan and Ontario, 1985-1995, as Mapped with LANDSAT TM Imagery.*

B.S., Biology December, 1992

Northern Michigan University, Marquette, MI

- Specialization in Water Science.
- Minor in Chemistry.

### **Employment, Consulting and Management Experience:**

Founding Scientist, Siskowet Enterprises, Seattle, WA

April 2018 – Present

- Corporate development and fund raising.
- Develop and lead scientific vision for the company.
- Spatial modeling and analyses.
- Experimental Design
  - Develop rigorous scientific evaluations
  - Identify field locations for study
- Watershed investigations.
  - Landscape modeling.
  - Restoration planning and prioritization.
  - Aquatic ecosystem condition.
  - Temperature studies.
  - Habitat assessments.

48 North Solutions, Seattle, WA

April 2018 - Present

- Associate Scientist.

Senior Scientist, Cramer Fish Sciences, Watershed Sciences Lab, Issaquah, WA,

December 2014 - Present

- Manage Senior and Junior Scientists and Biological Technicians on a variety of watershed assessment, restoration, and management projects.
- Manage GIS and database team.
- Business development.

- Project Manager
  - Solicit funding/ write proposals (>\$800,000 awarded in 2017).
  - Manage budgets and project schedules.
  - Manage sub-contracts.
  - Establish experimental designs.
  - Collect and manage data.
  - Perform analyses.
  - Write reports and manuscripts.
  - Write restoration plans.
  - Present results to clients and stakeholders.
- Member of Expert Science Panel to define potential habitat breaks (PHB) and review methods to develop the fish habitat assessment method (FHAM) in Washington streams related to forestry management.
- Current Clients
  - Washington Department of Natural Resources
  - Whatcom County Flood Control Zone District
  - Nooksack Tribe
  - Lummi Tribe
  - Confederated Colville Tribes
  - US Forest Service
  - Pacificorp
  - John Day Basin Partnership
  - Puget Sound Partnership
  - Nez Perce Tribe
  - Bonneville Power Administration
  - Washington State Recreation and Conservation Office
  - Island County
  - King County
  - Hood Canal Coordinating Council
  - Snohomish County
  - Northwest Hydraulic Consultants
- Fish and Habitat Surveys.
- Water temperature studies.
- Present scientific studies at professional meetings, guest lecture university courses, webinars.

Senior Aquatic Scientist, King County Watershed Ecological Assessment Team, Water and Land Resources Division, Seattle, WA, April 2005 – November 2014.

- Project Manager for Boise Creek Microbial Source Tracking Study.
- Project Manager for Routine Water Quality Monitoring Study in the King County waters of the Snohomish River drainage.
- Co-Author of proposal to EPA to study effects of landuse regulation on natural resources processes and functions following implementation of the critical areas ordinance (CAO). Funded Spring 2008, \$625,000.
- Use of SONAR and underwater digital photography to map bathymetry, current velocities, shear stress, and sediment storage and recruitment dynamics following a levee setback on the Snoqualmie/ Tolt Rivers (pending).
- Lead author on scientific opinion paper regarding effects of November 2006 floods on salmonid resources in King County.
- Fluvial geomorphic and biological assessment of Stuck River levee repair, White River, WA (2008).
- Studied effects of low impact development on high-value headwaters aquatic resources.
- Lead scientist on spatially explicit water quality study in Soos Creek to assess restoration

potential related to temperature and dissolved oxygen listings under 303(d) of the Clean Water Act.

- Spatially explicit model estimating cumulative effects of future development along King County shorelines for Shoreline Master Program (SMP).
- Project Ecologist on Stuck River Revetment Repair of 400 feet of flood-damaged flood control facility on the White River.

#### Seattle Public Utilities, Seattle, WA, January – September 2005

- Temporary employee
- “Habitat Complexity” enhancement work in Seattle’s urban streams.
- Key member of team charged with “Improving Use and Quality of Science” at the Utility.
- Provided technical template in the Utility’s effort to manage “Desired Future Conditions” of Seattle’s aquatic resources.

#### King County Department of Natural Resources, Seattle, WA

- Consultant – Lower Jones Road bridge project, Spring 2004
- Student Intern, Summer 2000

#### Geographic Information & Solutions, Inc. Ann Arbor, MI, November 1996 – December 2000.

- Business Owner and President.
- Start-up Capital acquisition.
- Daily Business/Project Management.
- 3-D and 2-D GIS Modeling and Analysis.
- Resource Modeling and Mapping

#### Institute for Geospatial Research and Education (IGRE), Eastern Michigan University, Ypsilanti, MI, February 1998 – April 1999

- GIS Manager of one of the premier GIS Research Centers in southeast Michigan.
- Managed and implemented approximately \$1.5 Million in grants and contracts.
- Certified (ESRI) GIS Training.

#### J & L Consulting, Ypsilanti, MI, May 1992 - November 1996.

- Project Management.
- Wetland mapping.
- Assessment of wetland ecology and function.
- Wetland mitigation and permitting.
- Environmental Assessments.
- Lake and Stream Hydrologic and Ecological Studies.
- Phase I Environmental Audits.
- Endangered species surveys/assessments.
- Tree surveys - species identification and mapping.

#### Johnson, Johnson & Roy inc, Ann Arbor, MI, March 1994 - April 1995.

- Designed, Managed, and Populated database of Public Comments regarding highway construction impacts.
- Performed statistical analyses on Environmental Impact Statement Public Comments.
- Environmental Inspector for natural gas pipeline construction.
- Placed sediment control structures in high-risk erosion areas.
- Acted as intermediary between pipe-yard crews, construction management, and regulatory agencies.



- Wetland mapping.
- Tree surveys/GPS.

## **Research**

Founding Scientist, Siskowet Enterprises, Seattle, WA,  
April 2018 – Present

- Design research and implementation of riparian management strategies to evaluate their impact on stream shading.
- Watershed condition assessment.
- Ecological studies of riparian management scenarios.
- Aquatic temperature empirical and modeling studies.
- Sediment delivery to small headwaters (Type N) streams and other receiving waterways.

Senior Scientist, Cramer Fish Sciences, Watershed Sciences Lab, Issaquah, WA,  
December 2014 – April 2018

- Fisheries subject area expert on Environmental Impact Study of privately managed watershed restoration actions on U. S. Forest Service land.
- Employ unmanned aerial vehicles (UAV) and 2-D hydraulic models to determine the timing and intensity of hydraulic barriers to upstream steelhead migrations.
- Watershed restoration modeling and planning.
- Model floodplain habitat capacities as a function of inundation extent, frequency, and duration.
- Estimate smolt production potential (SPP) relative to habitat restoration alternatives.
- Quantify near-bed water temperatures in stream reaches with and without LWD additions using spatial interpolation methods.

Senior Aquatic Scientist, King County Department of Natural Resources and Parks,  
Seattle, WA, April 2006 – November 2014.

- Effects of large wood in a thermally stressed river. 2014. \$69,000 Funded by Cooperative Watershed Management Grants, WRIA 7, Washington, USA.
- Determining the source: Microbial Source Tracking in a rural drainage. 2009 – currently, King County, Washington, USA.
- Regulatory effectiveness monitoring for developing rural areas. 2009 – 2013. \$625,000 Funded by USEPA Region 10 Targeted Watersheds Grants – 2008 Puget Sound Initiative.
- Fluvial geomorphic response to increased roughness in a bioengineered revetment repair on the White River, Washington. 2008 – 2009. King County, Washington, USA
- Soos Creek TMDL water quality investigation. 2007 – 2008. King County, Washington, USA
- Effectiveness of best management practices (BMP) in a large Urban Planned Development, 2006 - 2009. King County, Washington, USA

Research Assistant, School of Aquatic and Fishery Sciences, University of  
Washington, Seattle, WA, May 1999 - Present

- Use of a RADAR-derived digital elevation model to quantify watershed and stream characteristics as a predictor of fish habitat on Prince of Wales Island, Alaska, USA.
- Empirical and modeling study of ecological impacts of natural and anthropogenic disturbances across continua of spatial and temporal scales in the Cedar River, Washington, USA.
- Hydrologic dynamics of fluvial ecosystems and interactions between riparian and channel systems in Western Washington, USA.
- Human/ Socioeconomic influences on habitat quality and restoration potential.

- Salmonid habitat preferences of off-channel and mainstem habitat types through empirical models.
- Spatially explicit probabilistic modeling of floodplain inundation/ off-channel linkage with mainstem habitats.
- Modeled erosion risk in west slope Cascades drainages to produce variable-width buffers to protect stream channels, Washington, USA.

Institute for Geospatial Research and Education (IGRES), Eastern Michigan University, Ypsilanti, MI, February 1998 – April 1999.

- Assisted in the implementation of the Fully Integrated Environmental Location Decision Support (FIELDS) system.
- Directed team of graduate students in QA/QC of 1.8 million stereo, digital images collected along Wayne County, Michigan roads.
- Key member of the NSF-funded *WorkSite / Alliance* (WSA) team of researchers.
- Geocoded sites of environmental contamination in Wayne County, Michigan as part of a *Brownfields Redevelopment Potential* study.

Geographic Information & Solutions, Inc, Ann Arbor, MI, April 1997 – January 2001.

- Spatially modeled contaminant levels of 21 persistent organic and metal analytes in both surface waters and sediments at a petroleum refinery site in Texas.
- Planned, performed field sampling, and populated databases for a comprehensive GIS model to assess the extent of contamination in a dredged-spoils island in the Detroit River, Michigan, under contract to the United States Geological Survey, Biological Resources Division.
- Spatially modeled contaminant levels of 40 analytes, including metals, metalloids, and organic contaminants in a dredged-spoils island in the Detroit River, Michigan.

Eastern Michigan University, Ypsilanti, MI, April 1995 - December 1996.

- Member of Inter-agency team to assess, and manage the ecology of Lake St. Clair, Michigan.
- Utilized satellite imagery to quantify the response of submersed aquatic vegetation distributions related to the invasion of the zebra mussel (*Dreissena polymorpha*) in Lake St. Clair.
- Performed supervised and unsupervised classifications of raw satellite data using *ERDAS Imagine* software package.
- Assessment of hydrologic and ecological impacts on an urban drain in Southfield, Michigan.
- Geomorphic and biological restoration of Hennepin Marsh, Detroit River, Michigan.
- Biophysical Characterization of a Fen in the Flemming Creek Watershed, Washtenaw County, Michigan.

U.S. National Biological Survey, Ann Arbor, MI, August 1993- December 1994.

- Established a computer archive on aquatic *Oligochaete* worms.
- Performed particle size analysis on sediments taken from 47 stations in the western basin of Lake Erie and 14 stations in the St. Mary's River.
- Assisted in an investigation into "swim-up syndrome" in *Salvelinus namaycush* fry.

Northern Michigan University, Marquette, MI, February 1991.

- Self-directed undergraduate study. Assessment of spawning success by *Salvelinus fontinalis* in rehabilitated habitat.

### **Publications and Gray Literature:**

Tepley, M., and R. K. Timm. 2019. Riparian characteristics and shade response experimental project: Draft experimental design. Cooperative Monitoring Evaluation and Research (CMER).

Department of Natural Resources. Olympia, WA.

- Timm, R. K.** 2019. Identification of east slope Cascade Mountain study watersheds for Eastside Type N Riparian Effectiveness Study (ENREP). Cooperative Monitoring Evaluation and Research (CMER). Department of Natural Resources. Olympia, WA.
- Timm, R. K.,** L. Caldwell, A. Nelson, C. Long, M. B. Chilibeck, M. Johnson, K. Ross, A. Muller, and J. Brown. In review. Drones, hydraulics, and climate change: Inferring barriers to steelhead spawning migrations. WIRES Water p. online.
- Berge, H., P. Bisson, B. Fransen, J. Kershner, J. Maroney, P. Roni, K. Ross, **R. Timm,** and P. Trotter. 2018. Review and recommendations for potential fish habitat breaks to begin protocol surveys to determine end of fish habitat on state and private forest lands in Washington State. Report for the Washington Forest Practices Board. Submitted by PHB Science Panel Members. Olympia, WA. 46p.
- Timm, R. K.,** K. Ross, and P. Roni. 2017. Upper Columbia and Sanpoil habitat restoration plan. Confederated Colville Tribes. Nespelem, WA. 128 pp.
- Timm, R. K.** 2017. Review of pocket estuary and marine nearshore ecology of Island County, Washington. Puget Sound Partnership. Tacoma, WA. 10 pp.
- Roni, P. and **R. K. Timm.** 2016. Lewis River Project: limiting factors and identification of restoration alternatives to fish passage. PacifiCorp. Portland, OR. 56 pp.
- Timm, R. K.,** and P. Roni. 2016. Review of marine nearshore ecology of juvenile salmon in Puget Sound, Washington. Puget Sound Partnership. Tacoma, WA. 136 pp.
- Timm, R. K.,** and R. C. Wissmar. 2014. Influence of natural and anthropogenic disturbances on spawning sockeye salmon (*Oncorhynchus nerka*) distributions in the Cedar River, Washington. Transactions of the American Fisheries Society. 143: 3, 709-720.  
<http://dx.doi.org/10.1080/00028487.2014.890131>
- Lucchetti, G., J. Burkey, C. Gregersen, L. Fore, C. Knutson, J. Latterell, P. McCombs, **R. K. Timm,** J. Vanderhoof, and J. Wilhelm. 2014. Assessing land use effects and regulatory effectiveness on streams in rural watersheds of King County, Washington. Prepared by Water and Land Resources Division. Seattle, Washington.
- Lucchetti, G., J. J. Latterell, **R. K. Timm,** and C. Gregersen. 2014. Monitoring physical changes in stream channels with salt tracers. Appendix B in: G. Lucchetti, J. Burkey, C. Gregersen, L. Fore, C. Knutson, J. Latterell, P. McCombs, **R. K. Timm,** J. Vanderhoof, and J. Wilhelm. 2014. Assessing land use effects and regulatory effectiveness on streams in rural watersheds of King County, Washington. Prepared by Water and Land Resources Division. Seattle, Washington.
- Timm, R. K.,** 2014. Watershed Resource Inventory Area (WRIA) 7: 2013 Annual Report. King County Department of Natural Resources. Seattle, WA
- Timm, R. K.,** C. B. Knutson, G. Lucchetti, L. Fore, J. J. Latterell, C. Gregerson, J. O. Wilhelm, and K.O. Richter. (in prep.). Potential Effective Impact: A spatially explicit framework for connecting land cover changes to stream ecosystems. Ecological Applications
- Timm, R. K.,** G. Lucchetti, J.J. Latterell, K. Richter. (In prep.). Developing a multi-scale, spatially explicit estimator of the impacts of land cover change on aquatic resources. Landscape Ecology.
- Timm, R. K.,** and R.C. Wissmar. 2013. Response to disturbance in a highly managed alluvial river: Does it conform to LeChatelier's general law? *Geomorphology* **182**: 116-124.
- Timm, R. K.,** 2012. Boise Creek Microbial Source Tracking (MST) Investigation: Year 1 Report. King County Department of Natural Resources. Seattle, WA
- Wissmar, R. C., **R. K. Timm,** and M. D. Bryant. 2010. Radar-Derived Digital Elevation Models and Field-Surveyed Variables to Predict Distributions of Juvenile Coho Salmon and Dolly Varden in Remote Streams of Alaska. Transactions of the American Fisheries Society. **139** (1) 288-302.
- Timm, R. K.,** Schaefer, R., K. Akyuz, J. Koon, L. Brandt. 2010. Best Management Practices (BMP) for limiting impacts during river construction projects in King County, WA. King County River and Floodplain Management Section. Seattle, WA.

- Timm, R. K.** 2009. Fluvial Geomorphic Evaluation of a Bioengineered Revetment in the White River – Before and One Year after Construction. King County Water and Land Resources Division. Seattle, WA.
- Timm, R. K.** 2008. Soos Creek Total Maximum Daily Load (TMDL) Sampling and Analysis Plan (SAP). King County Water and Land Resources Division. Seattle, WA.
- Timm, R. K.** 2008. Biological Evaluation of ESA-Listed fish resources in the White River. King County Water and Land Resources Division. Seattle, WA.
- Timm, R. K.,** G. Lucchetti, J. Moe, L. Casey. 2007. Cumulative Effects Analysis, Technical Appendix D. *In:* King County Shoreline Master Program (SMP) Update. King County, Water and Land Resources Division. Seattle, WA.
- Wilhelm J.O., **R. K. Timm**, K.O. Richter, S. Abella, K. Comanor, D. Funke, and K. Johnson. 2006. Trilogy and Redmond Ridge Urban Planned Development (UPD) Natural Resources Monitoring Midpoint Review. King County, Water and Land Resources Division. Seattle, WA.
- Wissmar R. C. and **R. K. Timm.** 2006. Effect of land cover change on the hydrology of urbanizing watersheds. Proceedings of the ninth biennial watersheds management council conference: Watersheds across boundaries: Science, Sustainability, Security (eds) C. W. Slaughter and N. Berg. Watershed Management Council. Water Resource Center Report 107, University of California, Berkeley, CA.
- Timm, R. K.** and R. C. Wissmar. 2006. Multi-scale prioritization of riparian habitats for restoration and protection. Proceedings of the ninth biennial watersheds management council conference: Watersheds across boundaries: Science, Sustainability, Security (eds) C. W. Slaughter and N. Berg. Watershed Management Council, Water Resource Center Report 107, University of California, Berkeley, CA.
- Wissmar R. C. and **R. K. Timm.** 2006. Watershed and Stream Landscapes, Prince of Wales Island, Alaska. USDA Forest Service, Ketchikan, Alaska. 95
- Pess, G. R., S. R. Morley, J. L. Hall, and **R. K. Timm.** 2005. Monitoring Floodplain Restoration. *In:* P. Roni (ed.) Methods for Monitoring Stream and Watershed Restoration. American Fisheries Society, Bethesda, MD.
- Wissmar, R. C., **R. K. Timm**, and M. L. Logsdon. 2004. Effect of Changing Forest and Impervious Land Covers on Discharge Characteristics of Watersheds. *Environmental Management.* **34**(1) 91-98.
- Timm, R. K.,** R. C. Wissmar, J. W. Small, T. M. Leschine, and G. Lucchetti. 2004. A Screening Procedure for Prioritizing Riparian Management. *Environmental Management.* **33**(1) 151-161.
- Wissmar, R.C. and **R. K. Timm.** 2004. Changes in land uses, hydrology, and fish habitats in an urban drainage, Cedar River, Washington. *In:* the Proceedings of the First Interagency Conference on Research in the Watersheds, Benson AZ.
- Wissmar, R. C., W. N. Beer, and **R. K. Timm.** 2004. Spatially Explicit Estimates of Erosion Risk Indices and Variable Width Riparian Buffers. *Aquatic Sciences*
- Hall, J. L., **R. K. Timm**, and R. C. Wissmar. 2000. Riparian Ponds as Sockeye Salmon Spawning Habitat in the Cedar River, Washington. *In:* P. J. Wigington and R. L. Beschta (eds.) Riparian Ecology and Management in Multi-Land Use Watersheds.
- Wissmar, R. C., D. C. Pflugh, and **R. K. Timm.** 2000. Changes in Developed Land Cover (1991-1998): Cedar River, Washington. *In:* P. J. Wigington and R. L. Beschta (eds.) Riparian Ecology and Management in Multi-Land Use Watersheds.
- Jaworski, E., and **Timm, R. K.** 1996. Affected Environment and Resource Value, Lake St. Clair, Michigan Aquatic Plant Management Investigation, *in:* U.S. Army Corps of Engineers, Detroit District, Lake St. Clair, Michigan Aquatic Plant Management Investigation, Detroit, MI.
- Jaworski, E., and **Timm, R. K.** 1996. Aquatic Plant Distribution Mapping and Review of 1995 Field Studies, Lake St. Clair, Michigan Aquatic Plant Management Investigation. *In:* U.S. Army Corps of Engineers, Detroit District, Lake St. Clair, Michigan Aquatic Plant Management Investigation, Detroit, MI.
- Timm, R. K.** and E. Jaworski 1996. Assessment of Selected Remote Sensing Techniques for

Mapping Submersed Aquatic Plants in Lake St. Clair, Michigan and Ontario. *In: Proceedings of the Second International Airborne Remote Sensing Conference and Exhibition, June 1996.*

### **Papers Presented:**

- Timm, R. K.,** P. Roni, K. Ross, J. McLellan, and D. Moore. 2018. Identifying and prioritizing restoration actions using an integrated watershed approach. River Restoration Northwest. Stevenson, Washington.
- Timm, R. K.,** M. Johnson, A. Nelson, E. Rowland, C. Long, L. Caldwell, and P. Roni. 2017. Assessing the timing and intensity of a suspected hydraulic barrier on migrating steelhead in the S.F. Clearwater River, Idaho: Conservation implications in a changing climate. River Restoration Northwest, Stevenson, Washington.
- Timm, R.K.,** 2017. Society for Ecological Restoration NW, Steelhead conservation in an increasingly dynamic climate, *Invited Webinar*, .
- Timm, R.K.,** 2015. Symposium 188 Barriers to biodiversity in fluvial ecosystems. Society for Conservation Biology, 27<sup>th</sup> International Congress for Conservation Biology, Montpellier, France, *Symposium Co-organizer*.
- Timm, R.K.,** 2015. (Re)envisioning Process-based Restoration, American Fisheries Society, 145<sup>th</sup> Annual Meeting, Portland, Oregon, . *Symposium Organizer*.
- Timm, R.K.,** J. Kahan, J. Monaghan, and K. Pritchard. 2013. Determining the source: Generating a comprehensive approach for remediating microbial pollution in rural drainages. King County Department of Natural Resources Science Seminar. Seattle, WA.
- Timm, R.K.,** 2012. Zeroing in on sources of microbial contamination in Boise Creek, Washington. King County Department of Natural Resources Science Seminar. Seattle, WA.
- Timm, R. K.,** C. B. Knutson, G. Lucchetti, L. Fore, J. J. Latterell, C. Gregerson, J. O. Wilhelm, and K.O. Richter. 2012. Potential Effective Impact: A spatially explicit framework for connecting land cover changes to stream ecosystems. SCB North American Congress for Conservation Biology. Oakland, CA.
- Timm, R. K.,** and R. C. Wissmar. 2011. Fluvial Geomorphic Adjustments Following a Channel-Damming Landslide in the Cedar River, Washington. American Fisheries Society Annual Meeting. Seattle, WA.
- Timm, R. K.,** J. J. Latterell, G. Lucchetti, C. B. Knutson, and K. O.Richter. 2011. A Spatially Explicit Framework for Connecting Land Cover Changes to Stream Ecosystems. American Fisheries Society Annual Meeting. Seattle, WA.
- J. L. Michalak, G. Lucchetti, **R. K. Timm,** J. J. Latterell, and M. Alberti. 2011. Implications of Land-Cover Change History for Monitoring Present and Future Ecological Condition in Nine Basins on the Urban Fringe of Seattle, Washington. American Fisheries Society Annual Meeting. Seattle, WA.
- Lucchetti,G., J. J. Latterell, **R. K. Timm,** J. L. Michalak, M. Alberti, C. E. Torgersen, and C. B. Knutson. 2011. Assessing the Effectiveness of Land Use Regulations in Developing, Rural King County, WA. American Fisheries Society Annual Meeting. Seattle, WA.
- Timm, R. K.,** 2009. Potential Cumulative Impact: Developing a multi-scale, spatially explicit estimator of the impacts of land cover change on aquatic resources. King County Department of Natural Resources Science Seminar. Seattle, WA.
- Timm, R. K.,** 2009. Fractals: Do they describe ecologically important heterogeneity? Guest lecture to CFR 521. University of Washington. Seattle, WA.
- Timm, R. K.,** 2009. How is GIS used in a management agency? Guest lecture to GIS 414. University of Washington. Tacoma, WA.
- Timm, R. K.,** 2007. Population-scale response of sockeye salmon (*Oncorhynchus nerka*) to a landslide disturbance in the Cedar River, Washington. American Fisheries Society Annual Meeting. San Francisco, CA.
- Timm, R. K.,** and J.O. Wilhelm. 2006. Stream and Wetland Response to Landscape Changes in the

Redmond Ridge and Trilogy UPDs. King County Department of Natural Resources Science Seminar. Seattle, WA. 97

- Timm, R. K.**, and H.B. Berge. 2006. Disturbance in a highly managed river: How much is enough for fish?. Northwest Regional Floodplain Managers Association Annual Meeting. Bow, WA.
- Timm, R. K.** 2006. Population-scale response of sockeye salmon (*Oncorhynchus nerka*) to a landslide disturbance in the Cedar River, Washington. Graduate Student Symposium, School of Aquatic and Fisheries Sciences, University of Washington. Seattle, WA.
- Timm, R. K.**, R. C. Wissmar, H. B. Berge, and S. Foley. 2005. Changes in Spawning Salmon Distributions Following Disturbance Regime Shifts in the Cedar River, Washington. 2005 Joint Assembly: AGU, NABS, SEG, SPD/AAS, New Orleans, Louisiana. June 2005.
- Timm, R. K.**, R. C. Wissmar, H. B. Berge, and S. Foley. 2005. Spawning Habitat Preferences of Salmon Following Landslide-Induced Damming and River Channel Adjustments. Society of Ecological Restoration Northwest Chapter Annual Meeting. Seattle, Washington. April 2005.
- Wissmar, R. C. and **R. K. Timm**. 2004. Landscape Perspectives for Managing Riparian Areas. North American Benthological Society. Vancouver, British Columbia. June 2004.
- Wissmar, R. C. and **R. K. Timm**. 2004. Realities of Fish Habitat Improvement in a Developed River. 4th World Fish Congress. Vancouver, British Columbia. May 2004.
- Wissmar, R.C. and **R. K. Timm**. 2003. Changes in land uses, hydrology, and fish habitats in an urban drainage, Cedar River, Washington. *In: the Proceedings of the First Interagency Conference on Research in the Watersheds*, Benson AZ.
- Timm, R.K.** 2002. Multi-Scale Prioritization of Riparian Habitat Restoration. Watersheds Across Boundaries: Science, Sustainability, Security. Stevenson, Washington. November 2002.
- Timm, R.K.** 2002. Biophysical Research Synopsis of Cedar River Studies. Cedar River Watershed Council. Renton, Washington. October, 2002.
- Timm, R.K.** 2002. Multi-Scale Prioritization of Restoration and Preservation Opportunities of Available Riparian Habitat. Foster Wheeler Environmental Corp. Bothell, Washington, March 2002.
- Timm, R.K.** 2002. Multi-Scale Prioritization of Restoration and Preservation Opportunities of Available Riparian Habitat in the Cedar River, Washington. CSS Annual Review. College of Forest Resources, University of Washington, Seattle, Washington, February 2002.
- Timm, R.K.** 2001. Recent Changes in Distributions of *Homo sapiens*, and Implications for Salmonid Habitat Restoration in the Lower Cedar River, Washington. Graduate Student 98 Symposium, School of Aquatic and Fishery Science, University of Washington. Seattle, Washington, October 2001.
- Timm, R.K.** 2000. Changes in Developed Land Cover (1991-1998): Cedar River, Washington. International Conference on Riparian Ecology in Multi-Land Use Watersheds. American Water Resources Association. Portland, Oregon, August 2000.
- Timm, R.K.** 1999. Effects of Strong El Niño on Michigan Snowpacks, 1948 – 1998. The Michigan Academy of Science Arts and Letters. Albion, Michigan. March, 1999.
- Timm, R.K.** 1999. Changes in Michigan Snowfall Depths and Distributions during 1900 - 1998. The Michigan Academy of Science Arts and Letters. Albion, Michigan. March, 1999.
- Timm, R.K.** 1998. Online Spatial Data Sharing and Integrated Mapping: AVIMS vs MOIMS, Third Annual Counties and Local Users GIS Conference, Crystal Mountain, Michigan, October 1998.
- Timm, R.K.** 1998. GIS in Community-Based Problem Solving – Mapping Crime with ArcView. First International Conference on GIS in Education, Ypsilanti, Michigan, October 1998.
- Timm, R.K.** 1998. Use of High Resolution, Multi-Spectral Airborne Scanner Imagery of the Detroit River for Mapping and Environmental Assessment, Fourth International Conference on Remote Sensing for Marine and Coastal Environments, Orlando, Florida, March 1997
- Timm, R.K.** 1996. The Utility of LANDSAT-5 TM as Compared to SHOALS, SAVEWS, and Grapnel Data, When Mapping Submersed Aquatic Plants in Lake St. Clair, Michigan and Ontario, Summer 1995. The Michigan Academy of Science, Arts, & Letters, Alma, Michigan, March 1996.

- Timm, R.K.** 1996. Assessment of Selected Remote Sensing Techniques for Mapping Submersed Aquatic Plants in Lake St. Clair, Michigan and Ontario. The Second International Airborne Remote Sensing Conference and Exhibition, San Francisco, California, June, 1996.
- Timm, R.K.** 1996. The Utility of LANDSAT-5 TM as Compared to SHOALS, SAVEWS, and Grapnel Data, When Mapping Submersed Aquatic Plants in Lake St. Clair, Michigan and Ontario, Summer 1995. American Water Resources Association, Michigan Chapter, Mt. Clemens, Michigan, July 1996.

## Teaching Experience:

### Teaching Assistant

*The University of Washington, Seattle, WA*

- FIS 428 *Restoration of Fish Communities and Habitat in River Ecosystems*, Spring 2003, Spring 2005.

### Adjunct Lecturer

*The University of Michigan, Dearborn, MI*

- ENST 340 *Remote Sensing*, Fall 1997.

*Eastern Michigan University, Ypsilanti, MI*

- GEO 582, *Remote Sensing*, Fall 1997.
- GESC 476 *Introduction to Geographic Information Systems*, Winter 1998.

### Guest Lecturer

- *Steelhead conservation concerns amid accelerating climate dynamism*, Society for Ecological Restoration NW, Webinar. Portland, OR. June, 2017.
- *Understanding ecotones and landscape ecology in fluvial restoration*, Invited Guest Lecture, Stream Ecology ESCI 429, , Western Washington University. Bellingham, WA. May 2017.
- *Watersheds, Ecosystems, and Aquatic Habitats*, Citizen Action Training School, Mid-Sound Fisheries Enhancement Group, Seattle, Washington. March, 2014.
- CFR 521, *Ecological Scale*, College of Forest Resources, The University of Washington, Spring 2009.
- GIS 414, *Advanced Applications of GIS*, Department of Urban Studies, The University of Washington Tacoma, Spring 2009.
- *Pacific Salmon Ecology*. Northwest Environmental Training Center, Seattle, Washington, Spring, 2008.
- FIS 428, *Restoration of Fish Communities and Habitat in River Ecosystems*, School of Aquatic and Fishery Sciences, The University of Washington, Spring 2001, Spring 2007.
- *Backpack Electrofishing*. Northwest Environmental Training Center, Seattle, Washington. Spring, 2006.
- GEO 575, *Interpretation of Aerial Photography*, Eastern Michigan University, Fall 1998.
- *What is a wetland?* Michigan Metro Girl Scout Council, Detroit Michigan, September 1997.
- *Wetland Ecosystems*. Michigan Student Congress, Pontiac Silverdome, October 1996.
- GEOG 568, *Biogeographical Resources*, Eastern Michigan University, March 1996, and February 1997.
- GESC 470, *Quantitative Methods for Geography & Geology*, Eastern Michigan University, November 1995.

### Software Instructor

- Earth Systems Research Institute (ESRI) certified ArcView 3.X instructor, 1996 – 2001.
- Taught numerous short courses on the functionality of GIS software.

Developed specialized datasets and wrote curricula to facilitate specific training objectives.

**Professional Memberships:**

- American Geophysical Union
- American Fisheries Society - Certified Fisheries Professional
- Ecological Society of America
- Society for Conservation Biology

**Service and Pro bono work:**

- Board of Directors of the Freshwater Working Group for the Society for Conservation Biology. 2011 - currently
- Anonymous reviewer for several scientific journals including Ecological Applications, Environmental Management, Bioscience, Fisheries, Landscape Ecology, Transactions of the American Fisheries Society, Environmental Management.
- Science Fair Judge: Bishop Blanchet High School Science Fair. 2010.
- Expert witness: Cedar River Sockeye hatchery hearing. City of Seattle, Hearing Examiner's office. 2005.
- Mentor to 2 U W undergraduate science and engineering students in the Washington State Achievers Program. 2003.
- Tutored groups of Garfield High School students in math and science in after school program for disadvantaged kids. 2003.
- Used GIS technologies to Map Holiday Meal Delivery Routes, Ypsilanti Meals on Wheels, Thanksgiving, Christmas and New Year 1997-1998.