

Kristy A. Lewis
Curriculum vitae

Washington, DC
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Department of Biology
St. Mary's College of Maryland
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EDUCATION

- Ph.D. Department of Oceanography and Coastal Sciences, 2014
Louisiana State University, Baton Rouge, LA
Official Departmental Minor: Experimental Statistics
- M.A. Environmental Studies-Conservation Biology and Management, 2008
Prescott College, Prescott, AZ
- B.S. Biology, 2000
Shorter University, Rome, GA

PROFESSIONAL APPOINTMENTS

- 2017 – Present Assistant Professor
Department of Biology
St. Mary's College of Maryland, St. Mary's City, MD
- 2016 – Present Affiliate Professor
Department of Environmental Science and Policy
George Mason University, Fairfax, VA
- 2016 – 2017 Visiting Assistant Professor
Department of Biology
St. Mary's College of Maryland, St. Mary's City, MD
- 2014 - 2016 Postdoctoral Research Fellow
Department of Environmental Science and Policy
George Mason University, Fairfax, VA
Fish Ecology Lab
PI: Kim de Mutsert

PUBLICATIONS

(*Indicates students I mentored)

Peer Reviewed

- 2017 De Mutsert, K., **Lewis, K.A.**, Milroy, S., Buszowski, J., Steekbeek, J. Using ecosystem modeling to evaluate tradeoffs: effects of using river diversions on fish and fisheries. *Ecological Modelling. ISEM 2016 Special Issue* 360: 14 – 26.
- 2016 **Lewis, K.A.**, De Mutsert, K., Cowan, J.H., Steenbeek, J., and Buszowski, J.. Employing ecosystem models and Geographic Information Systems (GIS) to investigate the response of changing marsh edge on the historical biomass of estuarine nekton in Barataria Bay, Louisiana, USA. *Ecological Modelling. Ecopath 30 Years Special Issue: 331: 129-141*
- 2015 De Mutsert, K., Steenbeek, J., **Lewis, K.A.**, Cowan Jr., J.H., Christensen, V., Exploring effects of hypoxia on fish and fisheries in the northern Gulf of Mexico using a dynamic spatially-explicit ecosystem model. *Ecological Modelling. Ecopath 30 Years Special Issue: 331: 142-150*
- 2010 Stevenson, D. E., **Lewis, K. A.** Observer-reported skate bycatch in the commercial groundfish fisheries of Alaska. *Fish Bull.* 108(2):208 – 217.
- Rev&Resub **Lewis, K.A.**, Sills, A., De Mutsert, K., and Cowan, Jr., J.H.. Living on the edge: Investigating the importance of marsh edge in coastal fisheries. *Marine Ecology Progress Series.*
- Rev&Resub *Reynolds, E., Cowan Jr., J.H., **Lewis, K.A.**. Combining Acoustics and Video Surveys Determine the Relative Value of Standing and Topped Oil and Gas Platforms as Fish Habitat in the Northern Gulf of Mexico. *Ices Journal of Marine Science.*
- Rev&Resub *Schlick, C.J., *Pehrson, C., **Lewis, K.A.**, and De Mutsert, K.. Diet selectivity in juvenile river herring in Gunston Cove, Virginia, USA. *Marine and Freshwater Research.*
- In prep **Lewis, K.A.**, *Jacobs, P., Cowan Jr., De Mutsert, K.. Estuarine fisheries on the marsh edge? A food web modeling approach. *Fisheries Research.*

PEER REVIEWED TECHNICAL REPORTS

- 2015 De Mutsert, K., **Lewis, K.A.**, Buszowski, J., Steenbeek, J. & Milroy, S.. Louisiana Coastal Area Delta Management Ecosystem Modeling: Delta Management Fish and Shellfish Ecosystem Model. Final Report. (73 p.) Baton Rouge, Louisiana: Coastal Protection and Restoration Authority.
- 2015 De Mutsert, K., **Lewis, K.A.**, Buszowski, J., Steenbeek, J. & Milroy, S.. 2017 Coastal Master Plan: Ecosystem Outcomes, Community Model Description (4.5). Final Report. (99 p.) Baton Rouge, Louisiana: Coastal Protection and Restoration Authority.
<http://coastal.la.gov/wp-content/uploads/2016/01/Attachment-C3-20-EWE.pdf>

- 2014 De Mutsert, K., **Lewis, K.A.**, Steenbeek, J., Buszowski, J., Milroy, S., Cowan Jr., J.H.. Louisiana Coastal Area Delta Management Ecosystem Modeling: Delta Management Fish and Shellfish Ecosystem Model. Prepared for: Louisiana Coastal Protection and Restoration Authority. (101 p.)
- 2014 De Mutsert, K., **Lewis, K.A.**, Steenbeek, J., Buszowski, J., Milroy, S., Cowan Jr., J.H... 2017 Coastal Master Plan: Ecosystem Outcomes, Community Modeling Justification. (4.5). Version 1. Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. (52 p.)
- 2014 De Mutsert, K., **Lewis, K.A.**, Steenbeek, J., Buszowski, J., Milroy, S.. 2017 Coastal Master Plan: Ecosystem Outcomes, Community Model Description (4.5). Version 1. Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. (117p.)

OTHER PUBLICATIONS

- 2014 **Lewis, K.A.**, De Mutsert, K., Steenbeek, J., Buszowski, J., Cowan, Jr., J.H.. Using Ecopath with Ecosim and Ecospace to model the response of estuarine nekton to multiple habitat scenarios in Barataria Bay, Louisiana, USA. Page 192 *in* Fisheries Centre Research Reports 22(3). University of British Columbia, Canada.
- 2014 **Lewis, K.A.**. Addressing the Land-Loss Fish Production Paradox. Dissertation in Oceanography and Coastal Sciences (Baton Rouge, Louisiana State University), (138 p.)

GRANTS AND FELLOWSHIPS

(Total funding to date: \$1,984,554)

Submitted

- 2017 Carruthers, T., Jung, H., Hemmerling, S., **Lewis, K. A.**, +6 Key Personnel. National Academy of Sciences: Gulf Research Program: Research-Practice Grants. Monitoring and evaluation of marsh creation restoration projects—is monitoring land area sufficient? 3 years. \$600,000; \$115738 attributable as a sub-contract to St. Mary’s College of Maryland. Submission date: 28 June 2017.

Funded

- 2016 Cheong, S., Crowder, L., **Lewis, K.A.**, Model, J. National Academy of Sciences: Gulf Research Program. Scientific Synthesis Connecting Environmental, Social, and/or Health Data. Community cohesion and recovery after the Deepwater Horizon oil spill. 2 years. \$590,000, \$77,000 attributable to St. Mary’s College of Maryland).
- 2016 De Mutsert, K. (PI), **Lewis, K.A. (co-PI)**, Campbell, M. (co-PI), Brandt, S. (co-PI), Laurent, A., Buszowski, J., & Steenbeek, J.. User-driven predictive tools to assess effects of reduced nutrients and hypoxia on living resources in the Gulf of Mexico. RFP: NOAA-NOS-NCCOS-2016-2004640. 01 Sept 2016 – 31 August 2020, \$900,000.

- 2015 De Mutsert, K. (PI), **Lewis, K.A. (co-PI)**, Steenbeek, J., and Buszowski, B.. 2017 Louisiana Coastal Master Plan: Fish and Shellfish Model Development and Application. The Water Institute of the Gulf. \$131,759 (2.25 years)
- 2014 De Mutsert, Kim (PI), **Lewis, K.A. (co-PI)**, and 4 others. Delta Management Ecosystem Modeling. The Water Institute of the Gulf. \$194,613.10. (1.25 years).
- 2013 De Mutsert, Kim (PI), **Lewis, K.A. (co-PI)**, and 4 others. Simulating Coastal Restoration Impacts on Fish and Shellfish Communities in Louisiana. The Water Institute of the Gulf. \$258,182 (1-2.5 years).
- 2009 - 2014 Graduate Research Assistantship. Louisiana State University. Baton Rouge, LA.

Not Funded

- 2016 **Lewis, K.A. (PI)**, De Mutsert, K. (co-PI). Evaluation of fishing operations within and adjacent to Assateague Island National Seashore. United States Department of the Interior: National Park Service. \$25,000.
- 2015 **Lewis, K.A.** (co-lead PI); de Mutsert, K. (co-lead PI); van der Ham, J. L. (co-PI); Zhang, Y. (co-PI), McClenachan, G.; Boswell, K.. Fish and shellfish ecology in flux: network analyses and community dynamics following the Deepwater Horizon oil spill. Gulf of Mexico Research Initiative. \$734,314. (2 years)

INVITED TALKS

- 2017 UMCES Chesapeake Bay Biological Laboratory Distinguished Scholar Seminar Series. “Life on the Edge: Revisiting the importance of marsh interface on fisheries productivity. Soloman’s Island, MD. 27 September.
- 2016 Smithsonian Environmental Research Center Seminar Series. “Using ecosystem modeling to evaluate tradeoffs: effects of using river diversions on fish and fisheries” Edgewater, MD. 27 October.
- 2016 Chesapeake Bay Modeling Symposium. “A spatial fish and shellfish model used in delta management decisions.” Williamsburg, VA, 01 – 02 June.
- 2015 Environmental Science and Policy Lecture Series. “Tipping points in coastal fisheries.” George Mason University, Fairfax, VA, 04 December.
- 2014 Environmental Science and Policy Lecture Series. “Addressing the land-loss fish production paradox--Applied Fisheries Ecology.” George Mason University, Fairfax, VA. 23 October 2014
- 2010 Science Seminar Featured Speaker. “Wanderings of a Shorter University Biologist.” Shorter University, Rome, GA, April.
- 2010 Integrated Ecosystem Assessment Workshop. “Data synthesis, historical distribution changes, and ecosystem model development.” NOAA, New Orleans, LA. June.

CONFERENCE ACTIVITY/PARTICIPATION

Papers Presented

- 2017 24th Biennial Conference Coastal Estuarine Research Federation. “Food web modeling in support of the 2017 Louisiana Coastal Master Plan.” Providence, RI, 5 -9 November.
- 2017 American Fisheries Society, 147th Meeting. “Revisiting the importance of marsh interface—fisheries on the edge.” Tampa, FL, August 20 – 24 August.
- 2016 Atlantic Estuarine Research Society. “Tipping Points in Coastal Fisheries.” Catonsville, MD, 17 – 19 November.
- 2016 The International Society for Ecological Modelling Global Conference 2016. “Informing an estuarine food web model with spatially-explicit and time-dynamic GIS data.” Baltimore, MD, 8 -12 May.
- 2016 American Fisheries Society Tidewater Chapter Annual Meeting. “Employing ecosystem models and Geographic Information Systems (GIS) to investigate the response of changing marsh edge on the historical biomass of estuarine nekton in Barataria Bay, Louisiana, USA.” Edgewater, MD, 7 -9 April.
- 2015 23rd Biennial Conference Coastal Estuarine Research Federation. “Addressing the land-loss fish production paradox.” Portland, OR, November 8-12.
- 2014 Ecopath 30 Years: Modelling dynamic ecosystems: beyond boundaries with EwE. “Using Ecopath with Ecosim and Ecospace to model the response of estuarine nekton to multiple habitat restoration scenarios in Barataria Bay, Louisiana, USA.” Barcelona, Spain, November 4-14.
- 2011 American Fisheries Society, 141st Meeting. “Historical analysis of species abundance distributions of nekton with emphasis on economically important fish species. “ Seattle, WA, September 4-8.

Posters

- 2015 Student Conference on Conservation Science-New York. “Exploring the land-loss fish production paradox in coastal Louisiana.” October 7-9.
- 2015 Ecological Society of America Annual Meeting. “Employing statistical models and Geographic Information Systems (GIS) to investigate the effect of changing marsh edge on the biomass of estuarine nekton in Barataria Bay, Louisiana, USA.” August 9-14.

Conferences Organized

- 2017 Atlantic Estuarine Research Society. “Continuing Science in the Face of Change.” St. Mary’s College of Maryland. 16 March 2017 – 18 March 2017.

TEACHING EXPERIENCE

St. Mary's College of Maryland: Department of Biology (Undergraduate Courses)

Ecology of Coastal Systems (Fall 2017, Fall 2016)
Principles of Biology Lab (Fall 2017, Fall 2016)
Contemporary Bioscience – Fish, Humans, and Change (Spring 2017)
Ecology and Evolution Lab (Spring 2018, Spring 2017)
Ecology and Evolution (Spring 2018)

George Mason University: Department of Environmental Science and Policy (Graduate Courses)

Ecosystem Modeling using Ecopath with Ecosim and Ecospace (Spring 2016)
Controversy in Fisheries Science Seminar (Co-taught, Summer 2015)
Estuarine and Coastal Ecology Lab (Co-taught, Summer 2015)

Guest Lectures

Diversity in Organizations. “Gender Inequality in STEM and Beyond.” (Fall 2015)
Introduction to Oceanography. “Applied Oceanography in a Changing World.” (Fall 2015)
Fundamentals of Geographic Information Science. “Using GIS techniques to track ocean-going sharks.” (Spring 2016, Spring 2015)

Louisiana State University: Department of Oceanography and Coastal Sciences

Introduction to Oceanography (TA, Spring 2010, Fall 2010, Spring 2011)

RESEARCH EXPERIENCE

2014 - 2016 George Mason University
 Fairfax, VA
 Postdoctoral Research Fellow

2009-2014 Louisiana State University
 Baton Rouge, LA
 Graduate Research Assistant

2006-2008 Prescott College
 Chattahoochee Hill Country, GA
 Independent Researcher

FIELD RESEARCH SKILLS

Tidal freshwater, estuarine, and coastal sampling techniques

--Nekton sampling (multiple gear types: trawl, seine, fyke, etc.)
--Zooplankton sampling (plankton trawls)
--Nutrient sampling, hand-held YSI
--Sediment/benthic macroinvertebrate sampling
--Small boat trailering, launch, navigation

Large, ocean-going fishing vessel sampling techniques

- Sample collection from trawls
- Crab pots and long-lines
- Otolith, gonad and stomach extraction and collection
- Motion-compensated platform scales
- Catch counts and estimations
- CTD

QUANTITATIVE SKILLS

- Univariate analyses
- Multivariate analyses
- Categorical analyses
- Non-parametric analyses
- Network analyses
- Food web modeling
- Spatial modeling
- Time series analyses

SERVICE TO PROFESSION

- 2017 Attendee Experience Committee: CERF Ambassador Program, Coastal Estuarine Research Federation (CERF). November 5 – 9, Providence, RI
- 2017 Local Host and Sponsor: Atlantic Estuarine Research Society (AERS), March 16 – 18 St. Mary's College of Maryland
- 2016 Panelist: Chesapeake Modeling Symposium, June 1-2
"The Challenge of Transparency in Management Modeling: What is transparency, why do we need it and how do we get there?"
- 2016 Journal Reviewer
Ecological Modelling, Estuaries and Coasts, Bulletin of Marine Science, Marine Ecology Progress Series
- 2015 Provost's Multidisciplinary Research Seed Grant Review Panel
George Mason University, Fairfax, VA
Environmental Public Health Panel
- 2014 Independent Science Reviewer
Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act)
Gulf Coast Ecosystem Restoration Council.
- 2014-present Training Coordinator
Ecopath Research and Development Consortium, Barcelona, Spain.

SERVICE TO COMMUNITY

2008-2009 Expanding Your Horizons. Bellevue Community College. Bellevue, WA. “Creature Features from Alaska.” STEM education for middle and high school girls.

EXTRACURRICULAR UNIVERSITY SERVICE

2016 Poster Judge
Mason Water Forum, March 18
George Mason University, Fairfax, VA

2015 Founder
Women in Science Lunch Series (WISLS)
George Mason University, Fairfax, VA

2015 Poster Judge
Undergraduate Research Symposium
George Mason University, Fairfax, VA

GRADUATE COMMITTEES

Jackie McCool. M.S. Oceanography and Coastal Sciences. 2016. “Using ecosystem models to predict the spatial distribution of spotted seatrout (*Cynoscion nebulosus*) in Lake Pontchartrain, Louisiana.” Louisiana State University. Baton Rouge, LA.

Robert Owens. M.A. Environmental Studies. 2016. “The Triple Bottom Line of the Cannabis Industry of Humboldt County, California and Prospects for Posterity in a Post-prohibition Era.” Prescott College. Prescott, AZ

PROFESSIONAL SKILLS

SAS, v. 9.3
R, v. 3.2.3
ArcGIS/ArcMap, v. 10.5
Ecopath with Ecosim and Ecospace v. 6.5 (VB)
Primer, v. 7

RELATED WORK

2014 – Present Academic Document Editor
The Professor Is In, LLC.

2012-2013 Stock Assessment Biologist
Louisiana Department of Wildlife and Fisheries
Fisheries Management: Research and Assessment Division
Baton Rouge, LA

2008-2009 Marine Biologist
NOAA Fisheries
Alaska Fisheries Science Center
Fisheries Monitoring and Analysis Division
Seattle, WA

2000-2003 North Pacific Groundfish Observer, Field Marine Biologist
Northwest Observers, Inc. (NOAA Fisheries)
Alaska, Various Locations and Ports

CURRENT PROFESSIONAL MEMBERSHIPS

International Society for Ecological Modelling
American Fisheries Society
Coastal and Estuarine Research Federation
Atlantic Estuarine Research Society
Ecopath Research and Development Consortium
Ecological Society of America
American Institute of Fishery Research Biologists