Kristy A. Lewis

Curriculum vitae

Environmental Science and Policy
George Mason University
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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* Advisor: James H. Cowan, Jr.
M.A.	Environmental Studies-Conservation Biology and Management, 2008 Prescott College, Prescott, AZ
B.S.	Biology, 2000 Shorter University, Rome, GA

PROFESSIONAL APPOINTMENTS

2014 -	Postdoctoral Research Fellow Department of Environmental Science and Policy George Mason University, Fairfax, VA Fish Ecology Lab PI: Kim de Mutsert

PUBLICATIONS

Peer Reviewed

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*. Available online: doi:10.1016/j.ecolmodel.2016.01.017

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.* Available online: doi:10.1016/j.ecolmodel.2015.10.013.

2010 Stevenson, D. E., **Lewis, K. A**. Observer-reported skate bycatch in the commercial groundfish fisheries of Alaska. *Fish Bull*. 108(2):208 – 217.

In prep **Lewis, K.A**., Sills, A., De Mutsert, K., and Cowan, Jr., J.H... Tipping points in coastal fisheries: An investigation in Barataria Bay, Louisiana, USA. *Marine Ecology Progress Series.* (Manuscript available)

In prep Schlick, CJ., Pehrson, C., De Mutsert, K., and **Lewis, K.A..** Diet Analysis of juvenile river herring in Gunston Cove, VA. *Open Fish Science Journal.* (Manuscript available)

In prep **Lewis, K.A.,** Cowan Jr., J.H., McClenachan, G., De Mutsert, K.. Historical descriptive models using fisheries and environmental data in Barataria Bay, Louisiana, USA. *Fish Bull*. (Manuscript available)

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: $584,554)

PENDING

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.

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. 01Sept2016 – 31August2019, $899,996.

2016 De Mutsert, K. (PI), **Lewis, K.A**.. (**co-PI**). The Water Institute of the Gulf and the Coastal Protection and Restoration Authority. Ecopath with Ecosim Modeling for the Mississippi River Hydrodynamic Study. $8332.

FUNDED

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

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

2015 Environmental Science and Policy Lecture Series. "Tipping points in coastal fisheries." George Mason University, Fairfax, VA, 4 December 2015.

2014 Environmental Science and Policy Lecture Series. "Addressing the land-loss fish production paradox--Applied Fisheries Ecology." George Mason University, Fairfax, VA.

2010 Science Seminar Featured Speaker. "Wanderings of a Shorter University Biologist." Shorter University, Rome, GA, April 2010.

2010 Integrated Ecosystem Assessment Workshop. "Data synthesis, historical distribution changes, and ecosystem model development." NOAA, New Orleans, LA.

CONFERENCE ACTIVITY/PARTICIPATION

Papers Presented

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

2016 Mason Water Research Symposium. "Informing an estuarine food web model with spatially-explicit and time-dynamic GIS data." George Mason University, Fairfax, VA, 18 March.

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.

TEACHING EXPERIENCE

George Mason University: Department of Environmental Science and Policy
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 2015)

Louisiana State University: Department of Oceanography and Coastal Sciences
Introduction to Oceanography (TA, Spring 2010, Fall 2010, Spring 2011)

RESEARCH EXPERIENCE

2014 -	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 nekton sampling techniques:
--Nekton sampling (multiple gear types: trawl, seine, fyke, etc.)
--Zooplankton sampling (plankton trawls)
--Nutrient sampling
--Sediment/benthic macroinvertebrate sampling
--Small boat trailering, launch, navigation
--Hand-held YSI

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

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

SERVICE TO PROFESSION

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*
2016	Journal Reviewer *Estuaries and Coasts*, Coastal and Estuarine Research Federation
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. 2015. "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

RELATED PROFESSIONAL SKILLS

SAS, v. 9.3
ArcGIS/ArcMap, v. 10.3
R, v. 3.2.3
Ecopath with Ecosim and Ecospace v. 6.5 (VB)
Primer, v. 6

NON-ACADEMIC RELATED WORK

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

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