

Daniel Wayne Cullen
2 Lake Street ~ West Brookfield, MA 01585
Home Phone: (508) 414 - 2105 ~ Email: bwtegu@gmail.com

EDUCATION:

Doctor of Philosophy in Marine Estuarine Environmental Science

Fisheries Area of Specialization, University of Maryland Eastern Shore, May 2016 (GPA: 4.00)

Dissertation: The use of remote underwater video to assess the abundance and behavior of black sea bass (*Centropristis striata* L.) in the Mid-Atlantic Bight.

Master of Science in Marine Estuarine Environmental Science

Fisheries Area of Specialization, University of Maryland Eastern Shore, May 2010 (GPA: 3.82).

Thesis: The influence of temperature on the distribution of monkfish (*Lophius americanus* V.), 1968 - 2008.

Bachelor of Science in Marine Biology

Biological Concentration, University of Maine, Machias, Maine, May 2005 (GPA: 3.28).

Thesis: Interactions between the common periwinkle, *Littorina littorea* L., and the soft-shell clam, *Mya arenaria* L., in eastern Maine, USA: effects on growth and survival.

RESEARCH EXPERIENCE:

Postdoctoral Research Fellow

Spring 2018 to Present

NOAA Living Marine Resources Cooperative Science Center, U. of Maryland Eastern Shore, Princess Anne, Maryland

Exploring the use of different statistical methods to model the distribution of demersal fish in waters of the Mid-Atlantic Bight.

Graduate Research Assistant III

Fall 2010 to Spring 2016

NOAA Living Marine Resources Cooperative Science Center, U. of Maryland Eastern Shore, Princess Anne, Maryland

Used underwater video, fish trap, and hook-and-line sampling methods to assess the abundance of black sea bass on structurally complex hardbottom habitats in the Mid-Atlantic Bight. Duties included field sampling on a commercial fishing vessel, counting fish and documenting fish behavior on videos, statistical data analysis using the R statistical environment and ArcGIS, and manuscript preparation. Also supervised undergraduate research interns and assisted with grant proposal and progress report writing.

Graduate Research Assistant III

January 2007 to Fall 2010

NOAA Living Marine Resources Cooperative Science Center, U. of Maryland Eastern Shore, Princess Anne, Maryland

Assisted in field and laboratory projects to investigate the growth, reproduction, and biology of large monkfish and the influence of sea-water temperature on monkfish distribution. Duties

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included fish dissection, tissue processing, hard structure preparation and ageing, data collection both on and off fishing vessels, and statistical analysis of data including NOAA NEFSC bottom trawl survey data using the R statistical environment, SAS/STAT, and ArcGIS. Also supervised undergraduate research interns and assisted with grant proposal, progress report, and manuscript preparation.

Aquaculture Field Research Technician

August 2005 to December 2006

Haskins Shellfish Research Laboratory ~ Cape Shore Facility, Rutgers State University, Cape May, New Jersey

Assisted in the grow-out of Atlantic oysters to establish Dermo and MSX disease resistant progeny groups in the Delaware Bay. Duties included daily husbandry care of $\approx$ 250,000 sub-adult and adult native oysters via an intertidal rack and bag system, operation and maintenance of a 75,000 gallon land based upweller nursery and non-native oyster quarantine system, and collection of growth and survival data for progeny groups. Also assisted with oyster hatchery maintenance.

Fisheries Field Research Intern

June 2004 to August 2004

Department of Watershed Sciences, Utah State University, Logan, Utah

Participated in extensive fieldwork to support a mark/recapture project examining population dynamics of threatened bull trout in remote regions of northeastern Oregon. Duties included backpacking, electrofishing, seining, snorkeling, trap netting, fish collection, assisting with PIT fish tagging, and data recording. Also conducted stream water quality and habitat assessment.

Water Quality Intern

July 2002 to September 2002

Department of Marine Resources, West Boothbay Harbor, Maine

Prepared, initiated, analyzed, and collected coastal seawater and shellfish samples from approximately 2000 established sample sites in order to classify shellfish growing areas according to the National Shellfish Sanitation Program (NSSP). Also assisted with data entry, media preparation for lab tests, lab equipment operation, and laboratory maintenance.

TEACHING EXPERIENCE:

Graduate Teaching Assistant

Department of Natural Sciences, University of Maryland Eastern Shore, Princess Anne, MD 21853

Fisheries Survey Sampling

September 2012 to December 2012
September 2011 to December 2011

Marine Zoology Laboratory

January 2011 to May 2011

Oceanography Laboratory

September 2010 to December 2010
September 2008 to December 2008

Principles of Biology III Laboratory

September 2007 to December 2007

PRESENTATIONS:

Oral: Application of Systematic Adaptive Cluster Sampling for the Assessment of Black Sea Bass *Centropristis Striata* Abundance. American Fisheries Society 148th Annual Meeting, Atlantic City, New Jersey (August 17 to August 23, 2018).

Oral: Examination of black sea bass trap catches in relation to soak time in the Mid-Atlantic Bight. NOAA Living Marine Resources Cooperative Science Center Science Meeting, Woods Hole, Massachusetts (May 11 to May 12, 2016)

Oral: Examining the Relationship between Black Sea Bass Catch in Traps and Soak Time. Association for the Sciences of Limnology and Oceanography, 2014 Ocean Sciences Meeting, Honolulu, Hawaii (February 23 to February 28, 2014)

Oral: Evaluating the Use of Baited and Unbaited Video to Assess the Abundance and Behavior of Black Sea Bass (*Centropristis striata* L.). American Fisheries Society 143rd Annual Meeting, Little Rock, Arkansas (September 8 to September 12, 2013).

Oral: Developing a Remote Video Assessment Method for Black Sea Bass (*Centropristis striata* L.). UMES Coastal Fisheries Research Workshop, Paul S. Sarbanes Coastal Ecology Center, Berlin, Maryland (April 15, 2013)

Oral: Temperature Related Distribution Shifts of Monkfish (*Lophius americanus* V.), 1968 - 2008. MEES Graduate Student Colloquium, University of Maryland Eastern Shore, Princess Anne, Maryland (September 24 to September 25, 2010).

Oral: Temperature Related Distribution Shifts of Monkfish (*Lophius americanus* V.), 1968 - 2008. American Fisheries Society 140th Annual Meeting, Pittsburg, Pennsylvania (September 12 to September 16, 2010).

Oral: Temperature and Depth Associations of Monkfish (*Lophius americanus*). NOAA 5th Annual Education and Science Forum, Howard University, Washington D.C. (November 12 to 14, 2009).

Oral: Temperature and Depth Associations of Monkfish (*Lophius americanus*). American Fisheries Society 139th Annual Meeting, Nashville, Tennessee (August 30 to September 3, 2009).

Poster: Comparison of Underwater Video and Controlled Fishing Methods for Sampling Black Sea Bass (*Centropristis striata* L.). MEES Graduate Student Colloquium, UMCES Horn Point Laboratory, Cambridge, Maryland (September 27 to September 28, 2013).

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Poster: Comparing baited and unbaited video to assess the abundance of black sea bass (*Centropristis striata* L.). American Fisheries Society 142nd Annual Meeting, St. Paul, Minnesota (August 19 to 23, 2012).

Poster: Comparing baited and unbaited video to assess the abundance of black sea bass (*Centropristis striata* L.): Research in Progress. NOAA 6th Annual Education and Science Forum, Florida A&M University, Tallahassee, Florida (March 26 – 28, 2012).

Poster: The Influence of Temperature on Monkfish (*Lophius americanus* V.) Distribution: Research in Progress. American Fisheries Society 138th Annual Meeting, Ottawa, Canada (August 17 to 22, 2008).

Poster: Comparing Age and Growth Estimates for Large Monkfish (*Lophius americanus* V.) Using Illicium and Vertebral Ageing Methods. International Council for the Exploration of the Sea (ICES), Helsinki Finland (September 17 to 21, 2007).

Poster: Comparing Age and Growth Estimates for Large Monkfish (*Lophius americanus* V.) Using Illicium and Vertebral Ageing Methods. American Fisheries Society 137th Annual Meeting, San Francisco, California (September 2 to 6, 2007).

PUBLICATIONS:

Peer Reviewed Publications:

Cruz-Marrero, W., **Cullen, D. W.**, Gay, N. R., and Stevens, B. G. 2019. Characterizing the benthic community in Maryland's offshore wind energy areas using a towed camera sled: Developing a method to reduce the effort of image analysis and community description. PLoS One, 14(5):e0215966.

Cullen, D. W., and Stevens, B. G. 2017. Application of systematic adaptive cluster sampling for the assessment of black sea bass *Centropristis striata* abundance. Fisheries Science, 83(5):671–682.

Cullen, D. W., and Stevens, B. G. 2017. Use of an underwater video system to record observations of black sea bass (*Centropristis striata*) in waters off the coast of Maryland. Fishery Bulletin, 115(3):408–418.

Cullen, D. W., and Stevens, B. G. 2017. Examination of black sea bass trap catches in relation to soak time in the Middle Atlantic Bight. North American Journal of Fisheries Management, 37(1):9–15.

Johnson, A. K., Richards, R. A., **Cullen, D. W.**, and Sutherland, S. J. 2008. Growth, reproduction, and feeding of large monkfish, *Lophius americanus*. ICES Journal of Marine Science, 65(7): 1306–1315.

Other Publications and Reports:

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Johnson, A.K., Richards, A., **Cullen, D.W.**, Nguluwe, B., and Lang, K. 2007. The biology of large monkfish, *Lophius americanus*. Proceedings of the International Conference for the Exploration of the Sea Annual Science Conference. Helsinki, Finland

Manuscripts Accepted, in Press, or in Review:

Cullen, D. W., and Stevens, B. G. (in prep). Alternative methods for sampling black sea bass (*Centropristis striata*) off the Maryland coast.

Cullen, D. W., Guida, V. G., and Stevens, B. G. (in prep). Predicting the presence of black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), and summer flounder (*Paralichthys dentatus*) in the Middle Atlantic Bight using artificial neural networks.

Cullen, D. W., Guida, V. G., and Stevens, B. G. (in prep). Application of geographically weighted regression to model the distribution of three demersal species in the Mid-Atlantic, USA.

SKILLS:

- Ability to execute demanding work under adverse conditions
- Ability to conduct independent field and laboratory work
- Ability to collect, analyze, and report scientific data
- Ability to convey information effectively through written and oral communication
- Ability to effectively organize and prepare scientific reports and manuscripts
- Ability to identify marine and freshwater fish and invertebrates to genus/species
- Ability to use software programs including MS Office Suite, QGIS, PC-ORD, SAS/STAT, SYSTAT, R, ArcGIS, Sigmaplot, WinBUGS
- Knowledgeable in ecological statistics, Bayesian statistics, spatial and time series analyses, survey sampling theory and analyses, and fisheries stock assessment modeling and population dynamics analyses.

AWARDS AND HONORS:

- Cum Laude, University of Maine at Machias 2005
- Dean's List, University of Maine at Machias 2001 to 2005
- Excellence in Biological Science Award, University of Maine at Machias 2003
- Volunteer Spotlight, Wild Salmon Resource Center, Pleasant River Salmon Hatchery 2004

ACTIVITIES AND AFFILIATIONS:

- Member, American Fisheries Society 2007 to Present
- Member, Downeast Salmon Federation 2002 to Present
- Member, North American Native Fishes Association 2005 to 2007
- Member, University of Maine-Machias Student Government 2001 to 2002, 2004
- Member, University of Maryland Eastern Shore, American Fisheries Society Student Subunit 2007

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to Present

- Member, University of Maryland Eastern Shore, Graduate Student Government Association, 2011 to Present
- Member, University of Maryland Eastern Shore, Graduate Studies Job Search Committee, 2012 to Present
- NAUI Worldwide SCUBA Certification 1999
- Participant, Maine Audubon Christmas Bird Count 2002
- Participant, NOAA/NMFS/NEFSC Annual Sea Scallop Trawl Survey 2008
- Participant, NMFS/NMFS/NEFSC Cooperative Monkfish Survey 2009
- Participant, NOAA/LMRCSC Winter Research Trawl Survey 2010
- President, University of Maryland Eastern Shore, American Fisheries Society Student Subunit 2012 to 2014
- Reviewed Journal Articles for *Journal of Experimental Marine Biology and Ecology* and *North American Journal of Fisheries Management*
- Student Representative, University of Maine-Machias Student Conduct Code Committee 2004
- Vice President, University of Maine-Machias Fly Tying & Knitting Club 2004
- Vice President, University of Maryland Eastern Shore, American Fisheries Society Student Subunit 2010 to 2011
- Volunteer, Wild Salmon Resource Center, Pleasant River Salmon Hatchery 2002 to 2004