

**The College of William & Mary**  
*Curriculum Vita*  
**Donna Marie Bilkovic (Stewart)**

**PERSONAL INFORMATION**

Name: **Donna Marie Bilkovic**

Date: 14 February 2018

Office Address: Virginia Institute of Marine Science, Gloucester Point, VA 23062

Phone: 804-684-7331

Home Address: 7944 Terrapin Cove Rd, Gloucester Point, Virginia 23062

Home Phone: 804-642-1629

Email: [donnab@vims.edu](mailto:donnab@vims.edu)

Position: Research Associate Professor, Center for Coastal Resources Management, Virginia Institute of Marine Science, College of William & Mary

**EDUCATION**

Ph.D., Marine Science, The College of William & Mary, 2000

M.S., Biology, University of Michigan, 1995

B.S., Biology, University of Michigan, 1993

**ACADEMIC POSITIONS**

2014–present	Research Associate Professor, College of William and Mary (VIMS)
2008–2014	Research Assistant Professor, VIMS, College of William & Mary
2001–2007	Postdoctoral Research Associate, VIMS, College of William & Mary
1995–2000	Graduate Research Assistant, Departments of Fisheries and Coastal and Ocean Policy, VIMS, College of William & Mary
1997	Adjunct Professor, Rappahannock Community College
1994–1995	Teaching Assistant, Department of Biology, University of Michigan
1993–1995	Lab Technician, Department of Biology, University of Michigan

**HONORS AND AWARDS**

2016	Vice Provost Innovation Challenge Award, 2016 (with K. Havens, D. Stanhope, K. Angstadt)
2015–2017	Appointed to serve on the Executive Board of the Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC)
2008–present	Appointed to serve on Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC) – Alternate (2008–2009), Member (2010–)
2010–2014	Appointed to serve on Chesapeake Bay Programs's Habitat Goal Implementation Team
2011–2017	Associate editor, <i>Tropical Ecology</i> , the journal of the International Society of Tropical Ecology which serves as an outlet for scientists from developing nations to publish research

- 2001 Selected participant, ASLO-DIALOG IV symposium
- 1999 Virginia Institute of Marine Science-GSA Conference Fund Award
- 1999 Honorable Mention Presentation, American Fisheries Society, Annual Meeting
- 1999 First Place Student Presentation, American Fisheries Society, Tidewater Chapter Meeting
- 1995–1998 Graduate Research Fellowship, School of Marine Science, VIMS
- 1992 University of Michigan Community College Scholarship
- 1991–92 Michigan Competitive Scholarship

## **CONTRIBUTIONS TO THE EDUCATIONAL PROGRAM**

### **Courses taught (Undergraduate and Graduate)**

- Fall 2017 Contributing lecturer. Taught a lecture on living shorelines to William & Mary undergraduate students in the course *Sustainability and the Chesapeake Bay* (BUAD492, PUBP491, or MSCI398, instructors Dr. Andrew Scheld and Tonya Boone)
- Spring 2015 MSCI 698 – Headwater wetlands ecology; co-instructor with Carl Hershner and Kirk Havens (2 credits)
- Spring 2013 Contributing lecturer. Taught a one day field lab on shoreline conservation and management to William & Mary undergraduate students in the Conservation Biology course (BIO 318, instructor Dr. Matthias Leu)

### **Students Mentored**

#### Graduate Student Mentor

- Ph.D. Robert Isdell – VIMS, entered Jan 2014 (co-advisor with C. Hershner)
- Ph.D. Molly Mitchell – VIMS, entered 2015 (co-advisor with C. Hershner)
- M.S. James DelBene – VIMS, entered 2016 (co-advisor with A. Scheld)
- Ph.D. Amanda Guthrie – VIMS, entered 2017

#### Graduate Student Committee Service

- Ph.D. Xin Yu – VIMS, entered 2017
- M.S. Robert Galvin – College of William & Mary, entered 2017
- Ph.D. David Perkey– VIMS, entered 2016
- M.S. Abbey Humphreys – College of William & Mary, entered 2015, graduated 2017
- Ph.D. Pamela Braff – VIMS, entered 2015
- Ph.D. Karinna Nunez – VIMS, entered 2015
- M.S. Emily Egginton – VIMS, entered 2012, graduated 2015
- Ph.D. Cielomar Rodriguez – VIMS, entered 2010, graduated 2014
- M.S. Robert Isdell – College of William & Mary, entered 2011, graduated Dec 2013
- Ph.D. Cielomar Rodriguez – VIMS, entered 2010, graduated Dec 2014
- Ph.D. Mary Huang – VIMS, graduated Jan 2011

#### Undergraduate Student Mentor

- Summer 2016 Kathrene Lo, NSF REU program (co-mentor with R. Isdell)

Summer 2014 Matthew Schliep, NSF REU program (co-mentor with M. Mitchell)  
2013-2014 Matthew Schliep, College of W&M undergraduate  
2004 Inia Soto – participating in the NSF REU program (co-mentor with Marcia Berman)

High School Student Mentor

2012 Tom Moss –Virginia Governor School Student from Norfolk Academy

**FELLOWSHIPS AND GRANTS**

2016-2020 NSF Coastal SEES. Sustainability in Chesapeake Bay shorescapes: climate change, management decisions, and ecological functions. (\$1M, co-PI).

2016-2019 EPA. Enhancing the adaptive capacity of Virginia coastal wetlands to lessen vulnerability to climate change. (\$475,738, PI)

2017-2018 EPA. Building capacity for wetland program protection of wetland resources in Virginia. (\$646,207, co-PI)

2017-2018 CIT. An Innovative Mechanism for Reducing Nitrogen and Phosphorus Inputs to Virginia Waters (\$99,450, co-PI)

2017-2018 ABT Associates. Evaluation of Hurricane Sandy coastal resiliency program. \$126K

2014–2017 EPA. Development of strategies to improve conservation of Virginia headwater wetland ecosystems in the face of climate change (\$523,712 [\$392,773 direct], PI)

2016 ABT Associates. Development of Biogeochemical and Cultural Metrics to Assess Performance of SAGE Green/Grey Infrastructure (\$26,653, PI)

2014–2016 NOAA. Regional Impact Assessment of Derelict Fishing Gear in the Chesapeake Bay (\$486,438, Co-PI)

2015–2016 CIT. Eliminating plastic shotgun wads as a source of harmful aquatic debris (\$83,971, Co-PI)

2015-2016 CCEE. Plastics in the Environment: Problems, Opportunities and Solutions. *An Interdisciplinary Environmental Enquiry Group Proposal* (\$10K, Co-PI)

2014–2015 National Fish & Wildlife Foundation. Reducing Bycatch Mortality in Crab Pots (\$87,168, Co-PI)

2014-2015 US Department of Commerce Economic Development Administration. Market Advantage of Ocean Safe Biodegradable Microbead Sequestration in Marine Sediments (\$39,846, Co-PI)

2013–2015 National Science Foundation, Coastal SEES Program. Chesapeake Bay sustainability: Implications of changing climate and shifting management objectives (\$595,409, Co-PI)

2013–2014 Virginia Secretary of Natural Resources. Using created marshes to reduce watershed NPS pollution (\$144,147, PI)

2013–2014 National Fish and Wildlife Foundation. Johns Point living shoreline (\$19,375, PI)

2013–2015 Virginia Innovation Partnership (VIP). Market Advantage of Ocean Safe Biodegradable Microbead Sequestration in Marine Sediments (\$35,000, Co-PI)

2013–2014 North Carolina University. Lost and abandoned blue crab pot removal in North Carolina (\$6,575, Co-PI)

2013–2014 National Science Foundation, Women in Science and Engineering (WISE), W&M. Travel Grant Recipient. 106<sup>th</sup> Annual Meeting of National Shellfisheries (\$1000)

2013–2014 National Science Foundation, Women in Science and Engineering (WISE), W&M. Seed Research grant. Biofiltration capacity of ribbed mussel populations (\$2935, PI)

2013–2014 National Science Foundation, Women in Science and Engineering (WISE), W&M. Seed Research grant. Composition, distribution, and dynamics of intertidal epibiota on coastal defense structures (\$3406, PI)

2013–2014 Virginia Secretary of Natural Resources. Removal of lost and abandoned blue crab pots from Virginia Chesapeake Bay hotspots – 2013. (\$99,549, Co-PI)

2013–2014 National Fish and Wildlife Foundation. Testing biodegradable panels and ferrous metal “O” rings for lobster pots in Maine & Massachusetts (\$157,746 (\$78,872 direct), Co-PI)

2013–2014 Virginia Innovation Partnership (VIP). Ocean-safe Biodegradable Microspheres for the Cosmetic and Toiletries Industry (\$60,000, Co-PI)

2012–2013 National Fish and Wildlife Foundation. Removal of lost and abandoned blue crab pots from Virginia Chesapeake Bay hotspots (\$100,118 (\$50,000 direct), Co-PI)

2012–2013 Commonwealth Research Commercialization Fund (CRCF). Biodegradable Panels for Crab and Lobster Pots (\$108,500, PI)

2012–2013 National Science Foundation, Women in Science and Engineering (WISE), W&M. Seed Research grant. Ecological trade-offs of living shoreline erosion control approaches (\$2909, PI)

2012–2015 Environmental Protection Agency (EPA). Development of strategies to improve protection of wetlands and headwater resources in Virginia (\$999,640, Co-PI)

2011–2012 Chesapeake Bay Trust. Comprehensive monitoring of ecological & erosion protection functions of Chesapeake Bay living shorelines, Phase 2 (\$76,672, PI)

2011–2012 Virginia Sea Grant. Foundation for future development of by-catch reduction strategies for commercial and recreational blue crab fisheries: diamondback terrapin habitat mapping (\$38,907, PI with R. Chambers and M. Leu (W&M))

2011–2012 NOAA. Derelict blue crab trap removal – Virginia (Watermen’s program extension) (\$154,758, Co-PI with K. Havens)

2011 Shirley Plantation. Marine Science Studies in the James River, Virginia in the Vicinity of Shirley Plantation (\$4500, Co-PI with S. Kuehl and C. Hobbs)

2011 NOAA/NFWF. Testing biodegradable crab pot cull ring panels in the blue crab fishery (\$4,961, Co-PI with K. Havens)

2010–2011 Chesapeake Bay Trust. Comprehensive monitoring of ecological & erosion protection functions of Chesapeake Bay living shorelines, Phase 1 (\$70,000, PI)

2009–2011 NOAA. Shallow water derelict blue crab trap removal (supplement to the Watermen’s program) (\$304,630, Co-PI with K. Havens)

2008–2011 NOAA. Derelict blue crab trap removal – Virginia (Watermen’s marine debris removal program) (\$760,601, Co-PI with K. Havens)

2009–2010 NFWF. Reducing Impact of Lost Crab Traps on Fishery Resources (\$32,317, Co-PI with K. Havens)

2008–2010 EPA. On-going development of nontidal wetland inventory and monitoring strategy for Virginia (\$385,699, Co-PI with K. Havens and C. Hershner)

2008–2009 NOAA (Versar Inc). Abandoned and derelict blue crab traps in Virginia (\$65,000, Co-PI with K. Havens)

2008–2009 Philip Morris. York River Watershed Water Budget. (\$67,205, Co-PI with C. Hershner and K. Havens)

2007–2009 NOAA Chesapeake Bay Program. Assessing the potential for changes in Virginia's shallow tidal water habitats (\$120,000, PI)

2007–2009 NOAA Chesapeake Bay Program. Atlantic sturgeon Spawning Habitat on the James River (\$20,000, PI)

2007–2009 NOAA Chesapeake Bay Program. Facilitation of the development of a prototype integrated ecological assessment approach for the Chesapeake Bay (\$30,000, Co-PI with C. Hershner)

2007–2008 NOAA Chesapeake Bay Program. The influence of spatial arrangement of habitats on tidal marsh fish communities within Mobjack Bay, Virginia, Phase 1 (\$167,745, PI)

2007–2008 NFWF. Development and testing of gear modification for blue crab pots to reduce crab and by-catch mortality by derelict crab pots (\$50,978, Co-PI with Kirk J. Havens)

2006–2007 NFWF. Affects of Ghost Crab Pots in the Chesapeake (VA) (\$35,000, Co-PI with K. Havens)

2006–2007 U.S. Army Corps of Engineers. Lynnhaven River Shallow Water Fish Survey and Shoreline Inventory (\$134,695, PI)

2006–2007 USFWS. Atlantic Sturgeon Habitat Assessment Project (\$3,000, PI)

2006 Dominion Power. 316 (b) Phase II restoration option scaling for Dominion Resources Virginia Generating Stations (\$80,000, Co-PI with C. Hershner and M. Roggero)

2005–2006 USFWS. Atlantic Sturgeon Habitat Assessment Project (\$9,945, PI)

2005–2006 NOAA Chesapeake Bay Program. Determination of the feasibility of using side scan sonar surveys to locate abandoned or “ghost” fishing gear, and the potential impacts of marine debris in Virginia Coastal waters (\$65,000, Co-PI with C. Hershner, K. Havens)

2005–2006 NOAA Chesapeake Bay Program. Ecosystem approaches to aquatic health assessment: linking subtidal habitat quality, shoreline condition and estuarine fish communities (\$100,000, PI)

2005–2006 CH2MHILL. 316(b) Phase II Preliminary Restoration Support Activities for Dominion Virginia Generating Stations (\$68,000, Co-PI with C. Hershner)

2001–2006 EPA-STAR. Development, testing, and application of ecological and socioeconomic indicators for integrated assessment of aquatic ecosystems of the Atlantic Slope in the Mid-Atlantic States. Cooperative project with Penn State, Smithsonian, and East Carolina University (\$6.0 million (VIMS portion \$1.2 million), Co-PI with C. Hershner and others)

2000-2004 Private funds/National Fish and Wildlife Foundation. Monitoring Active Replenishment of Subsiding Habitat (MARSH Project) (\$250,000, Co-PI with C. Hershner)

2002–2003 CCRM. Assessing larval American shad growth and survival with in situ mesocosm experiments in three differing habitat within a coastal estuary (\$15,000, PI)

2003 CCRM. Assessing anadromous fish habitat for conservation (\$25,000, Co-PI with K. Havens)

1999–2000 NOAA/NMFS. Identification of Potential American Shad (*Alosa sapidissima*) Spawning and Nursery Habitats in the Mattaponi and Pamunkey Rivers Based on Physical Habitat and Landscape Variables (Grant No. NA96FA0192, \$76,000, PI)

1997–1998 NOAA/NMFS. Locating upriver spawning reaches of American shad (*Alosa sapidissima*) on the Mattaponi and Pamunkey Rivers via ichthyoplankton surveys and the examination of relative juvenile abundance and distribution in relation to river discharge (Grant No. NA76FA0361, \$52,500, PI)

1994–1995 University of Michigan Teaching Assistantship, 1994–1995, tuition and stipend

## RESEARCH

### Refereed publications

Mitchell, M., J. Herman, **D.M. Bilkovic\***, and C. Hershner. 2017. Marsh persistence under sea-level rise is controlled by multiple, geologically variable stressors. *Ecosystem Health and Sustainability*:1–16. doi:10.1080/20964129.2017.1396009.

\***Bilkovic, D.M.**, M. Mitchell, M. Schliep, R. Isdell, A. Smyth. 2017. Mutualism between ribbed mussels and cordgrass enhance salt marsh nitrogen removal. *Ecosphere* 8(4):e01795.

\***Bilkovic, D.M.**, M.M. Mitchell. 2017. Designing living shoreline salt marsh ecosystems to promote coastal resilience. Chapter In *Living Shorelines: The Science and Management of Nature-based Coastal Protection* In D.M. Bilkovic, M. Mitchell, M. La Peyre, and J. Toft (eds), CRC Press, Taylor & Francis Group. \*lead editor of book.

\***Bilkovic, D.M.**, M. Mitchell, J. Toft, M. La Peyre. 2017. A Primer to Living Shorelines. Chapter In *Living Shorelines: The Science and Management of Nature-based Coastal Protection* In D.M. Bilkovic, M. Mitchell, M. La Peyre, and J. Toft (eds), CRC Press, Taylor & Francis Group. \*lead editor of book.

\*Toft, J. **Bilkovic, D.M.**, M. Mitchell, M. La Peyre. 2017. A Synthesis of Living Shoreline Perspectives. Chapter In *Living Shorelines: The Science and Management of Nature-based Coastal Protection* In D.M. Bilkovic, M. Mitchell, M. La Peyre, and J. Toft (eds), CRC Press, Taylor & Francis Group.

\*Beck, A.J., R.M. Chambers, M.M. Mitchell, **D.M. Bilkovic**. 2017. Evaluation of living shoreline marshes as a tool for reducing nitrogen pollution in coastal systems. In D.M. Bilkovic, M. Mitchell, M. La Peyre, and J. Toft (eds), *Living Shorelines: The Science and Management of Nature-based Coastal Protection*, CRC Press, Taylor & Francis Group.

\*Kornis, M., D. Breitburg, R. Balouskus, **D.M. Bilkovic**, L. Davias, S. Giordano, K. Heggie, A. Hines, J. Jacobs, T. Jordan, R. King, C. Patrick, R. Seitz, H. Soulen, T. Targett, D. Weller, D. Whigham, J. Uphoff Jr. 2017. Linking the abundance of estuarine fish and crustaceans in nearshore waters to shoreline hardening and land cover. *Estuaries and Coasts* DOI:10.1007/s12237-017-0213-6

\*M. Kornis, **D.M. Bilkovic**, L.A. Davias, S. Giordano, and D.L. Breitburg. 2017. Shoreline hardening affects nekton biomass, size structure and taxonomic diversity in nearshore waters, with responses mediated by functional species groups. *Estuaries and Coasts*. DOI: 10.1007/s12237-017-0214-5

\*Du, J., Shen, J., **D.M. Bilkovic**, C.H. Hershner, and M. Sisson. 2017. A numerical modeling approach to predict the effect of a storm surge barrier on hydrodynamics and long-term transport processes in a partially mixed estuary. *Estuaries and Coasts* 40:387-403.

\*Corso, A.D., Huettenmoser, J.C., Trani, O.R., Angstadt, K., **Bilkovic, D.M.**, Havens, K.J., Russell, T.M., Stanhope, D. and Chambers, R.M.. 2017. Experiments with by-catch reduction devices to exclude diamondback terrapins and retain blue crabs. *Estuaries and Coasts*, DOI: 10.1007/s12237-017-0223-4.

\***Bilkovic, D.M.**, M. Mitchell, J. Davis, E. Andrews, A. King, P. Mason, J. Herman, N. Tahvildari, J. Davis. 2017. Review of boat wake wave impacts on shoreline erosion and potential solutions for the Chesapeake Bay. STAC Publication Number 17-002, Edgewater, MD. 68 pp.

**Bilkovic, D.M.**, M. Mitchell, P. Mason, K. Duhring. 2016. The role of living shorelines as estuarine habitat conservation strategies. Special Issue (Conserving Coastal and Estuarine Habitats) in *Coastal Management Journal* 44:161-174.

Scheld, A, **D.M. Bilkovic**, K. Havens. Jan 2016. The Dilemma of Derelict Gear. *Nature Scientific Reports* 6:19671. <http://www.nature.com/articles/srep19671>

Isdell, R.E.\*, R.M. Chambers, **D.M. Bilkovic**, M. Leu. 2015. Effects of terrestrial–aquatic connectivity on an estuarine turtle. *Diversity and Distributions*, 1–11. (\*graduate student)

**Bilkovic, D.M.**, K. Havens, D. Stanhope, K. Angstadt. 2014. Derelict fishing gear in Chesapeake Bay, Virginia: Spatial patterns and implications for marine fauna. *Marine Pollution Bulletin* 80:114-123.

**Bilkovic, D.M.**, T.F. Ihde. 2014. *Review of the Final Report of the Sustainable Fisheries Goal Implementation Team Invasive Catfish Task Force*. STAC (Chesapeake Bay Program Scientific and Technical Advisory Committee). Publ. #14-007, Edgewater, MD. 46 pp.

Horan, J., **D. Bilkovic**, N. Gardner, J. Greiner, L. Karrh, K. Sellner, Q. Stubbs. 2014. *Designing Sustainable Coastal Habitats*. STAC (Chesapeake Bay Program Scientific and Technical Advisory Committee) Publ. #14-003), Edgewater, MD. 74 pp.

**Bilkovic, D.M.**, M.M Mitchell. 2013. Ecological tradeoffs of stabilized salt marshes as a shoreline protection strategy: effects of artificial structures on macrobenthic assemblages. *Ecological Engineering* 61:469-481.

Luckenbach, M., **D. Bilkovic**, C. Bott, R. Chambers, M. Ford, N. Gardner, J. Meisinger, G. Yagow. 2013. *Evaluation of the Use of Shellfish as a Method of Nutrient Reduction in the Chesapeake Bay*. STAC (Chesapeake Bay Program Scientific and Technical Advisory Committee) Publ. #13-005, Edgewater, MD. 65 pp.

**Bilkovic, D.M.**, K. Havens, D. Stanhope, K. Angstadt. 2012. Use of fully biodegradable panels to reduce derelict pot threats to marine fauna. *Conservation Biology* 26(6): 957–966. **This research was featured in Scientific American, Jan 2013.**

**Bilkovic, D.M.**, M.R. Mitchell, C.H. Hershner, K.J. Havens. 2012. Transitional wetland faunal community characterization and response to precipitation-driven salinity fluctuations. *Wetlands* 32:425–437.

**Contributing author** to *Evaluating the Validity of the Umbrella Criteria Concept for Chesapeake Bay Tidal Water Quality Assessment*. January 2012. Findings of the Umbrella Criteria Action Team. Tidal Monitoring and Assessment Workgroup (TMAW) 2009–2011. Final Report to Chesapeake Bay Scientific and Technical Advisory Committee.

Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. 2011. Fishery Failure, Unemployed commercial fishers, and lost blue crab pots: An unexpected success story. *Environmental Science and Policy* 14:445-450.

**Bilkovic, D.M.** 2011. Response of tidal creek fish communities to dredging and coastal development pressures in a shallow water estuary. *Estuaries & Coasts*. Volume 34(1):129–147. *This research was featured in Coastal & Estuarine Science News (CESN, Nov 2010).*



- Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. 2009. Location, location, location: the importance of cull ring placement in blue crab traps. *Transactions of the American Fisheries Society*. 138:720–724.
- Perry, J., **D.M. Bilkovic**, K. Havens, C. Hershner. 2009. Tidal Freshwater Marshes of the Mid-Atlantic and Southeastern United States. In *Tidal Freshwater Wetlands*, pp. 157–166. Eds: A. Barendregt, D.F. Whigham, A.H. Baldwin; Backhuys Publishers, Leiden, The Netherlands.
- Bilkovic, D.M.**, M. Roggero. 2008. Effects of coastal development on nearshore estuarine nekton communities. *Marine Ecology Progress Series* 358:27–39.
- Havens K.J., **D.M. Bilkovic**, D. Stanhope, D. K. Angstadt, C. Hershner. 2008. The effects of derelict blue crab traps on marine organisms in the lower York River, Virginia. *North American Journal of Fisheries Management* 28(4):1194–1200.
- L. Varnell, **D.M. Bilkovic**, J. Olney, D. Evans, H. Wang, C. Hershner, R. Mann. 2008. Estuarine surface water allocation: A case study on the interactive role of science in support of management. *Environmental Science and Policy* 11(7):602–612.
- Olney, J.E., **D.M. Bilkovic**, C.H. Hershner, L.M. Varnell, H. Wang, R.L. Mann. March 2008. Six Fish and 600,000 Thirsty Folks - A Fishing Moratorium on American Shad Thwarts a Controversial Municipal Reservoir Project in Virginia, USA. In Nielsen, J., J. Dodson, K. Friedland, T. Hamon, N. Hughes, J. Musick, and E. Verspoor, editors. Proceedings of the Fourth World Fisheries Congress: reconciling fisheries with conservation. American Fisheries Society, Symposium 49, Bethesda, Maryland. 1,946 pages/2 volumes.
- Havens, K.J., C. Hershner, **D.M. Bilkovic**, D.H. Wardrop. 2007. Assessment of Chesapeake Bay Program selection and use of indicators. *EcoHealth* 4(2): 187–193
- Wardrop, D.H., C. Hershner, K. Havens, K. Thornton, **D.M. Bilkovic**. 2007. Developing and communicating a taxonomy of ecological indicators: A case study from the Mid-Atlantic. *EcoHealth* 4(2):179–186.
- Bilkovic, D.M.**, M. Roggero, C.H. Hershner, K. Havens. 2006. Influence of land use on macrobenthic communities in nearshore estuarine habitats. *Estuaries and Coasts* 29(6B): 1185–1195. *This research was selected to be featured in an edition of Coastal and Estuarine Science News (February 2007).*
- Bilkovic, D.M.**, C.H. Hershner, M.R. Berman, K.J. Havens, D.M. Stanhope. 2005. Evaluating nearshore communities as indicators of ecosystem health. In *Estuarine Indicators*, S.A. Bortone (ed.). CRC Press, Inc. Boca Raton, Florida. pp 365–379.
- Bilkovic, D.M.** and C.H. Hershner, J.E. Olney. 2002. Macroscale assessment of American shad spawning and nursery habitats in the Mattaponi and Pamunkey rivers. *North American Journal of Fisheries Management* 22(4):1176–1192.
- Bilkovic, D.M.**, J.E. Olney, C.H. Hershner. 2002. Spawning of American shad (*Alosa sapidissima*) and striped bass (*Morone saxatilis*) in the Mattaponi and Pamunkey Rivers, Virginia. *Fishery Bulletin* 100(3):632–640.

**Bilkovic, D.M.** 2000. Assessment of spawning and nursery habitat suitability for American Shad (*Alosa sapidissima*) in the Mattaponi and Pamunkey Rivers. Doctoral Dissertation. Virginia Institute of Marine Science, Gloucester Point.

**Bilkovic, D.M., J.T. Lehman.** 1997. Lipid concentration and size variation of *Bythotrephes cederstroemi* (*Cladocera: Cercopagidae*) from Lakes Erie, Huron and Michigan. *Journal of Great Lakes Research* 23(2):151–161.

Lehman, J.T., **D.M. Bilkovic**, C. Sullivan. 1997. Predicting development, metabolism, and secondary production for an invertebrate predator *Bythotrephes*. *Freshwater Biology* 38:343–352.

### **Work in progress or submitted**

#### *Pending Proposals*

Quantifying the relative value of shorescapes in sustaining forage fishes in Chesapeake Bay (submitted to CBT Jan 2018, Co-PI, \$80K)

Collaborative Research: Engineering Nature-Based Shore Protection Measures as Blue Carbon Reservoirs (submitted to NSF-ES Oct 2017, PI, \$141K)

Incentives and action: Determining effective derelict gear mitigation strategies by evaluating fisher preferences and behavioral response (submitted to NOAA Marine Debris Program Dec 2017, co-PI, \$317K)

Evaluation of the Chesapeake Bay Stewardship Fund's Small Watershed Grant Program (submitted to NFWF, co-PI, 15K)

#### *In Progress Proposals*

#### *Manuscripts*

**Bilkovic, D.M., M. Mitchell, K. Havens, C. Hershner.** Chesapeake Bay. Chapter in *World Seas: An Environmental Evaluation, Volume I: Europe, The Americas And West Africa, Second Edition*, Elsevier Limited, *in press*

K.Havens, C. Hershner, T. Rudnicki, D. Stanhope, D.Schatt, K. Angstadt, M. Henicheck, D.Davis, **D.M. Bilkovic.** Virginia Wetland Condition Assessment Tool (WetCAT): A Model for Management. In John Dorney, Rick Savage, Ralph Tiner, and Paul Adamus, editors, *Wetland and Stream Rapid Assessments: Development, Validation, and Application*. Elsevier Publishing. *In press*.

**Bilkovic, D.M., K. Havens, A. Scheld, W. Slacum, C. Jeffrey, etc.** Managing Derelict Fishing Gear in Estuarine and Coastal Ecosystems. *Fish and Fisheries*, *in revision*.

Isdell, R., **D.M. Bilkovic**, C. Hershner. Shorescape-level factors drive distribution and condition of a salt marsh facilitator (*Geukensia demissa*), *Ecosphere*, *in review* (submitted Jan 2018)

Isdell, R., **D.M. Bilkovic**, M. Leu. Land use and rural development effects on shoreline armoring and dock growth in coastal Virginia. *In prep*.

Mitchell, M., **D.M. Bilkovic**. Embracing dynamic design for climate-resilient living shorelines. *Journal of Applied Ecology*. *In prep*.

**Bilkovic D.M.**, M. Mitchell, J. Davis, E. Andrews, A. King, P. Mason, J. Herman, N. Tahvildari, J. Davis. Review of boat wake wave impacts on shoreline erosion: Chesapeake Bay Case Study. *In prep*.

### *Books*

**D.M. Bilkovic (Lead editor)**, M. Mitchell, M. LaPeyre, and J. Toft (eds). 2017. *Living Shorelines: The Science and Management of Nature-based Coastal Protection*. CRC Marine Science Series, CRC Press/Taylor & Francis Group.

### **Invited scholarly papers and talks**

\***Bilkovic, D.M.** M. Mitchell, R. Isdell, A. Smyth, P. Mason, K. Duhring, M. Berman, R. Chambers, S. Stafford, M. Covi, M. Hauer, C. Hershner. Sep 21, 2017. Sustainable shorescapes: using natural and created marshes to preserve coastal resilience. SAGE (Systems Approach to Geomorphic Engineering) Webinar Series.

\***Bilkovic, D.M.**, M. Mitchell, R. Isdell, M. Schliep, and A. Smyth. Mar 2017. Mutualism between *Guekensia demissa* and *Spartina alterniflora* enhances salt marsh nitrogen removal: implications for living shorelines. 109<sup>th</sup> Annual Meeting of the National Shellfisheries Association. Knoxville, TN. *Invited Presentation*.

\***Bilkovic, D.M.**, M. Mitchell. Nov 2016. *Current Initiatives to Better Understand, Monitor and Predict Climate-Related Changes*. Plenary Session: Climate Change and Coastal Ecosystem Resilience: Research, Monitoring and Information Management Priorities. Virginia Coastal Partners Workshop - 30 Years of Connecting People with Our Coast. Virginia Department of Environmental Quality, Richmond, VA. *Invited Presentation*.

\***Bilkovic, D.M.**, M. Mitchell, A. Smyth, and R. Isdell. Ribbed mussels as mediators of salt marsh nitrogen removal. Annual Spring Meeting of the Virginia Association of Wetland Professionals. May 2016. Richmond, Virginia. *Invited Presentation*.

\***Bilkovic, D.M.** and M. Mitchell. February 9-10, 2016. Local lessons on co-benefits and trade-offs of living shorelines. Workshop on Engineering, Design and Implementation of Natural Coastal Infrastructure Solutions to Enhance Hampton Roads' Resiliency hosted by the Environmental Defense Fund and partners in Norfolk, VA. *Invited Presentation*.

**Bilkovic, D.M.**, K. Havens, D. Stanhope, K. Angstadt, R. Chambers. June 2015. Invited Speaker to the NOAA Marine Debris Reduction Planning Workshop. Derelict fishing gear in Chesapeake Bay: implications for marine fauna.

**Bilkovic, D.M.**, Climate change and Chesapeake Bay habitats. Nov 2014. Invited speaker to the STAC workshop entitled *Assessing the Chesapeake Bay Forage Base: Existing Data and Research Priorities*. Solomons, MD.

**Bilkovic, D.M.,** K.Havens, D. Stanhope, K. Angstadt. Nov 2014. Derelict fishing gear in Chesapeake Bay, Virginia: Spatial patterns and implications for marine fauna. Session: Derelict Fishing Gear: Impacts and Solutions, Restore America's Estuaries 7<sup>th</sup> National Summit on Coastal and Estuarine Restoration and 24<sup>th</sup> Biennial Meeting of the Coastal Society, National Harbor, MD.

**Bilkovic, D.M.,** M. Mitchell. March 30-April 2, 2014. Potential for living shorelines to augment biogenic habitat in soft-bottom estuaries. Invited speaker to the 106<sup>th</sup> Annual Meeting of the National Shellfisheries Association. Jacksonville, Florida

**Bilkovic, D.M.** Jan 15, 2014. Chesapeake Bay living shorelines: Ecological attributes and trade-offs. Invited speaker to Science of Living Shorelines webinar, hosted by the National Estuarine Research Reserve System and NOAA's Estuarine Reserves Division.

**Bilkovic, D.M.,** M.Mitchell. December 10-11, 2013. Ecological attributes and trade-offs of living shorelines . Invited speaker to Mid-Atlantic Living Shoreline Summit. Cambridge, Maryland.

**Bilkovic, D.M.,** C. Hershner, M. Berman, K. Havens. April 16-17, 2013. Coastal wetland status and trends in the Chesapeake Bay Watershed. Invited speaker to STAC sponsored workshop – Designing Sustainable Coastal Habitats. Easton, Maryland.

**Bilkovic, D.M.** April 11, 2013. Habitat provision of marsh-sills in relation to natural & hardened shorelines – Helping to Inform Public Policy. Invited speaker to the *Living Shoreline Site Visit and Discussion* organized by Interagency Coastal Wetlands Workgroup (EPA, USACOE, NOAA, USFWS, NRCS, USGS) in cooperation with the Smithsonian Environmental Research Center, Restore America's Estuaries, Southeast Regional Partnership for Planning and Sustainability, Albemarle-Pamlico Estuary Partnership, & N.C. Coastal Federation. Edgewater, Maryland.

**Bilkovic, D.M.,** K.Havens, D. Stanhope, K. Angstadt. February 27-28, 2013. Marine Debris: Commercial Fishing Gear in Virginia Waters. Invited speaker to the Virginia Marine Debris Summit held at Virginia Beach, Virginia.

**Bilkovic, D.M.,** C. Hershner, M. Berman. September 19-20, 2012. Vulnerability of coastal habitats in Virginia to climate change. Invited speaker to the Water Environment Research Foundation (WERF), NOAA, EPA, Water RF, CTC workshop – Adaptation Strategies and Information Needs in Response to Extreme Events: Virginia Tidewater Case Study. Williamsburg, Virginia.

**Bilkovic, D.M.,** M. Mitchell, C. Hershner. November 6-10, 2011. Ecological threshold responses by estuarine fauna to shoreline development with potential management solutions. 21st Biennial Conference of the Coastal and Estuarine Research Federation, Daytona Beach, Florida. Session SCI-061 - Multidisciplinary Evaluations of Ecosystem Services at the Regional Scale. Session Co-Chair with M. Russell.

**Bilkovic, D.M.,** R. Chambers, M. Leu, K. Havens. 2011. Foundation for future development of by-catch reduction strategies for commercial and recreational blue crab fisheries: *Diamondback terrapin habitat mapping*. Virginia Sea Grant's 2nd Annual Project Participants' Symposium. Richmond, Virginia.

**Bilkovic, D.M.,** M. Roggero. 2010. Invited speaker on 'Living shoreline monitoring' to the Tidal Wetlands Workshop held at VIMS on November 2010.

Berman, M., **D.M. Bilkovic** (joint presenters), C. Hershner, K. Havens, P. Mason. December 2009. Comprehensive Coastal Resources Management Plan for Local Governments. Interagency Coastal Wetlands Workgroup, EPA Headquarters in Washington D.C.

**Bilkovic, D.M.** K. Havens, D. Stanhope, K. Angstadt. April 2009. Derelict Blue Crab Traps in the Virginia Portion of the Chesapeake Bay. NOAA Chesapeake Bay Office (NCBO) Annual Fisheries Symposium. Laurel, MD.

**Bilkovic, D.M.**, other ASC researchers. Coastal development impacts on biological communities in the Chesapeake Bay- Examples from the Atlantic Slope Consortium. December 2006. Living Shorelines Summit. Bringing together diverse perspectives to address shoreline protection alternatives, Williamsburg, Virginia. *Keynote speaker.*

**Bilkovic, D.M.**, C.H. Hershner, D.M. Stanhope, K.T. Angstadt. Ecosystem approaches to aquatic condition assessment: linking subtidal habitat, shoreline condition and estuarine fish communities. Session: SPS-19 Innovative Techniques for Assessing Fish and Invertebrate Habitat Linkages in Estuaries and Coastal Systems. The 18th Biennial Conference of the Estuarine Research Federation. October 16–20, 2005. Norfolk, Virginia.

**Bilkovic, D.M.** The Trials and Tribulations of a Shad on the Run. King and Queen Women's Club. February 2005. King and Queen, Virginia.

**Bilkovic, D.M.**, M.R. Berman, C.H. Hershner, K.J. Havens, D.M. Stanhope, L. Varnell. Evaluating Estuarine Indicators of Ecosystem Condition in the Nearshore of Chesapeake Bay. December 3-5, 2003. 3<sup>rd</sup> Annual Estuarine and Great Lakes Indicator Development (EaGLe) meeting in Bodega Bay, CA.

M.R. Berman, **D.M. Bilkovic**, T. Rudnický, C. Hershner. May 13–15, 2003. Evaluating shoreline conditions at different spatial scales: implications as an ecological indicator. Using science to assess environmental vulnerabilities. A ReVA-MAIA Conference in Valley Forge Hilton –King of Prussia, PA.

**Bilkovic, D.M.** October 2002. Linkages between research and fisheries management in the Mid-Atlantic Coastal Plain system. Croatia-USA Workshop. Biocomplexity and Sustainable Ecosystem Management: Integrating natural, social and economic sciences in Dubrovnik, Croatia.

### **Contributed scholarly papers and talks (with published abstracts unless indicated)**

Chambers, R., **D.M. Bilkovic\***, A. Gorsky, M. Mitchell and T. Russell. Nov 2017. Accrual of Nutrients in Created Fringing Tidal Marshes (Poster). 24<sup>th</sup> Biennial Conference Coastal and Estuarine Research Federation (CERF). Providence, Rhode Island.

R. Isdell,\*, **D.M. Bilkovic**, and C. Hershner. Mar 2017. Beyond the clump: identifying optimal shorelines for ribbed mussel (*Geukensia demissa*) Recruitment. 109<sup>th</sup> Annual Meeting of the National Shellfisheries Association. Knoxville, TN. *\*Graduate student*

**Bilkovic, D.M.\***, M. Mitchell. Aug-Sep 2016. Designing living shoreline salt marsh ecosystems to promote coastal resilience. Session: The Role of Living Shorelines as Habitat Conservation Strategies. 5<sup>th</sup> International EcoSummit Congress, *EcoSummit 2016*. Montpellier, France. *\*Presenter and session chair.*

Scheld, A.M., **Bilkovic, D.M.** and Havens, K.J., 2015. The Effects of Derelict Gear on Blue Crab Production in the Chesapeake Bay. North American Association of Fisheries Economists, 8<sup>th</sup> Biennial Forum “Economic Sustainability, Fishing Communities, and Working Waterfronts”, Ketchikan, Alaska.

Chambers, R.M., T.M. Russell, A.D. Corso, D. Stanhope, K. Angstadt, K.J. Havens and **D.M. Bilkovic**. Nov 8-12, 2015. Marsh Madness: Keeping diamondback terrapins out of the blue crab fishery (Poster). 23<sup>rd</sup> Biennial Conference Coastal and Estuarine Research Federation (CERF). Portland , Oregon.

Isdell, R., **D.M. Bilkovic**, C.H. Hershner. Nov 8-12, 2015. Barriers to Inland Migration: Salt Marshes and Sea Level Rise (Poster). 23<sup>rd</sup> Biennial Conference Coastal and Estuarine Research Federation (CERF). Portland , Oregon.

Shen, J., J. Du, C. Hershner, **D. Bilkovic**, M. Sisson. The influences of a storm-surge barrier on hydrodynamics and transport processes in Chesapeake Bay (Poster). 23<sup>rd</sup> Biennial Conference Coastal and Estuarine Research Federation (CERF). Portland , Oregon.

M. Mitchell, **D.M. Bilkovic**, T. Moss. April 24, 2013. The potential role of mussels for living shoreline enhancement. CCRM Wetlands Workshop. (without published abstract).

**Bilkovic, D.M.**, M. Mitchell, C. Hershner. March 21–24, 2012. Ecological trade-offs of living shoreline erosion control approaches. 41<sup>st</sup> Benthic Ecology Meeting. Norfolk, Virginia. Presenter and Session Chair.

Kornis, M.S., D.L. Breitburg, R.D. Seitz, J. Upoff, **D. Bilkovic**, et al. Aug 2012. Relating community composition, abundance, growth, and condition of aquatic macrofauna to watershed landuse and shoreline alteration in Chesapeake Bay. 142<sup>nd</sup> Annual American Fisheries Society Meeting, St. Paul, Minnesota.

**Bilkovic, D.M.**, R. Chambers, M. Leu, K. Havens, T. Russell. February 1, 2012. Diamondback terrapin bycatch reduction strategies for commercial and recreational blue crab fisheries. (without published abstract). Virginia Sea Grant's 3rd Annual Project Participants' Symposium. Richmond, Virginia.

Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. February 28–29, 2012. Engaging fishermen in the removal of derelict traps. New England Derelict Fishing Gear Workshop (without published abstract). Portland Maine

Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. March 20–25, 2011. Derelict crab pots in the Chesapeake Bay. *Presentation and published short technical paper*. Pages 320–323 in Carswell, B., K. McElwee, and S. Morison (eds.). Technical Proceedings of the Fifth International Marine Debris Conference. NOAA Technical Memorandum NOS-OR&R-38.

Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. March 20–25, 2011. Engaging unemployed commercial fishers to retrieve lost blue crab pots in the Chesapeake Bay, USA. *Presentation and published short technical paper*. Pages 412–414 in Carswell, B., K. McElwee, and S. Morison (eds.). Technical Proceedings of the Fifth International Marine Debris Conference. NOAA Technical Memorandum NOS-OR&R-38.

Stanhope, D., Havens K.J., **D.M. Bilkovic**, K. Angstadt, J. McDevitt. March 20–25, 2011. Biodegradable cull panels decrease lethality of lost and abandoned blue crab traps. *Presentation and published short technical paper*. Pages 650–653 in Carswell, B., K. McElwee, and S. Morison (eds.). Technical Proceedings of the Fifth International Marine Debris Conference. NOAA Technical Memorandum NOS-OR&R-38.

Havens K.J., **D.M. Bilkovic**, D. Stanhope, K. Angstadt. October 7, 2011. Derelict blue crab traps in the Chesapeake Bay. (without published abstract). Coastal EE Leaders Summit. Williamsburg, Virginia

**Bilkovic, D.M.,** K. Havens, D. Stanhope, K. Angstadt. April 2009. Derelict blue crab traps in the Virginia portion of the Chesapeake Bay. NOAA Chesapeake Bay Office (NCBO) Annual Fisheries Symposium. Laurel, Maryland

**Bilkovic, D.M.,** K. Angstadt, D. Stanhope. February 23–25, 2009. Identification of suitable spawning substrate for Atlantic sturgeon with acoustic technologies. Seaboard Fisheries Institute 1st Symposium on Atlantic Sturgeon—A Regional Approach to Atlantic Sturgeon Recovery. Newark, Delaware.

**Bilkovic, D.M.,** M. Berman, C. Hershner, D. Schatt. October 20–24, 2008. Climate change induced shifts in shallow tidal water habitats in the Chesapeake Bay. 5th World Fisheries Congress. Yokohama, Japan.

**Bilkovic, D.M.,** K. Angstadt, D. Stanhope. February 26, 2008. Sturgeon spawning habitat in the James River. James River Atlantic sturgeon planning meeting of the Virginia Sturgeon Restoration Partnership. Held at Virginia Department of Game and Inland Fisheries Office, Charles City, VA.

**Bilkovic, D.M.,** M.M. Roggero. September 2–6, 2007. Coastal development impacts on nearshore estuarine nekton communities. 137<sup>th</sup> Annual American Fisheries Society Meeting, San Francisco, CA.

**Bilkovic, D.M.** and M.R. Berman. Shallow water use studies and shoreline inventory. June 2007. Without published abstract. Presented to the The Lynnhaven Ecosystem Restoration Project, led by U.S Army Corps of Engineers.

**Bilkovic, D.M.,** C.H. Hershner, D.M. Stanhope, K.T. Angstadt. October 16–20, 2005. Ecosystem approaches to aquatic condition assessment: linking subtidal habitat, shoreline condition and estuarine fish communities. Session: SPS-19 Innovative Techniques for Assessing Fish and Invertebrate Habitat Linkages in Estuaries and Coastal Systems. 18th Biennial Conference of the Estuarine Research Federation, Norfolk, Virginia.

**Bilkovic, D.M.,** C.H. Hershner, M.R. Berman, K.J. Havens, D.M. Stanhope, L.Varnell. September 30–October 1, 2004. Evaluating estuarine indicators of ecosystem condition in the nearshore of Chesapeake Bay. 4<sup>th</sup> Annual Estuarine and Great Lakes Indicator Development (EaGLE) meeting, Duluth, MN.

M.R. Berman, **D.M. Bilkovic,** C.H. Hershner. Sept 30–Oct 1, 2004. Assessing Shoreline Condition as an Indicator of Aquatic Ecosystem Health. 4<sup>th</sup> Annual Estuarine and Great Lakes Indicator Development (EaGLE) meeting, Duluth, MN.

**Bilkovic, D.M.,** C.H. Hershner, K.J. Havens, M.R. Berman, D.M. Stanhope, L.Varnell. June 20–25, 2004. ERF-Australia. Assessment of linkages between nearshore habitat and estuarine fish communities in the Chesapeake Bay. ECSA37-ERF2004. Ballina, New South Wales, Australia.

J.E. Olney, **D.M. Bilkovic,** C.H. Hershner, L.M. Varnell, H. Wang, R.L. Mann. May 2004. Six Fish and 600,000 Thirsty Folks - A Fishing Moratorium on American Shad Thwarts a Controversial Municipal Reservoir Project in Virginia, USA. 4<sup>th</sup> World Fish Congress.

**Bilkovic, D.M.,** C.H. Hershner, M.R. Berman, K.J. Havens, D.M. Stanhope. Oct 29–31, 2003. Evaluating nearshore communities as indicators of ecosystem health. Estuarine Indicator Workshop, Sanibel Island, Florida.

**Bilkovic, D.M.,** M.R. Berman, C.H. Hershner, D.M. Stanhope, K.J. Havens, L.Varnell. September 14–18, 2003. Evaluating shoreline conditions as indicators of ecosystem health in estuarine nearshore. 17th Biennial Conference of the Estuarine Research Federation, Seattle, WA.

**Bilkovic, D.M.** November 2002. Shallows, Shorelines, Seines, Sciaenids, and other stuff. Annual Atlantic Slope Consortium (ASC)-EPA Estuarine and Great Lakes Indicator Development (EaGLE) meeting, Williamsburg, VA.

**Bilkovic, D.M.,** C.H. Hershner. June 2002. The applicability of ecological indicators for assessment of fish habitat in the Mid-Atlantic slope across spatial scales. American Society of Limnology and Oceanography Meeting, Victoria, British Columbia.

**Bilkovic, D.M.** October 2001. Fisheries data compilation and index development. Annual Atlantic Slope Consortium (ASC)-EPA Estuarine and Great Lakes Indicator Development (EaGLE) meeting, Williamsburg, Virginia.

**Bilkovic, D.M.** May 2001. Assessment of spawning and nursery habitat suitability for American shad (*Alosa sapidissima*) in the Mattaponi and Pamunkey rivers. Shad 2001: A Conference on the Status and Conservation of Shads Worldwide. National Aquarium, Baltimore, Maryland.

**Bilkovic, D.M.** March 2001. Watershed selections for the Atlantic Slope Consortium Project. Atlantic Slope Consortium – 4<sup>th</sup> All Hands Meeting, Berkeley Springs, WV.

**Bilkovic, D.M.,** J.E. Olney, C.H. Hershner. June 2000. Identification of American shad spawning habitats and the associated riverine and landscape variables. American Society of Ichthyologist and Herpetologists Meeting, La Paz, Mexico.

**Bilkovic, D.M.,** C.H. Hershner, J.E. Olney. August 1999. Identification of potential American shad (*Alosa sapidissima*) spawning and nursery habitats in the Mattaponi and Pamunkey rivers based on riverine habitat and landscape variables. 84<sup>th</sup> Ecological Society of America Annual Meeting, Spokane Washington.

**Bilkovic, D.M.,** J.E. Olney, C.H. Hershner. August-September 1999. (Honorable mention poster) Identification of potential American shad (*Alosa sapidissima*) spawning and nursery habitats in the Mattaponi and Pamunkey rivers. American Fisheries Society Annual Meeting, Charlotte, North Carolina.

**Bilkovic, D.M.,** J.E. Olney, C.H. Hershner. March 1999. (Award-winning poster) Egg and larval distribution of American shad in the Pamunkey and Mattaponi rivers. American Fisheries Society, Tidewater Chapter meeting, Gloucester Point, Virginia.

**Bilkovic, D.M.,** J.T. Lehman. June 1996. (Poster) Lipid concentration and size variation of *Bythotrephes cederstroemi* from Lakes Erie, Huron and Michigan. American Society of Limnology and Oceanography Meeting, Milwaukee, Wisconsin.

### **Unrefereed publications not listed above**

**Contributing author** to *Comprehensive Coastal Resource Management Plans*. Rivers and Coasts. Spring 2011, Vol 6, No. 1. [http://ccrm.vims.edu/publications/pubs/rivers&coast/vol6\\_no1\\_shoreline\\_mgt.pdf](http://ccrm.vims.edu/publications/pubs/rivers&coast/vol6_no1_shoreline_mgt.pdf)

**Contributing author** to *Derelict crab pots in the Chesapeake Bay*. Rivers and Coasts. Fall 2010, Vol. 5, No. 3. [http://www.ccrm.vims.edu/publications/pubs/rivers&coast/vol5\\_no3\\_marine\\_debris\\_1.pdf](http://www.ccrm.vims.edu/publications/pubs/rivers&coast/vol5_no3_marine_debris_1.pdf)



Contributed to the development of a *Bridge* DATA Series entitled *Ghostbusting in the Chesapeake Rounding Up Derelict Fishing Gear*, written by: Christopher J. Petrone, Virginia Sea Grant for the Bridge Ocean Education Teacher Resource Center.

[http://www2.vims.edu/bridge/DATA.cfm?Bridge\\_Location=archive1010.html](http://www2.vims.edu/bridge/DATA.cfm?Bridge_Location=archive1010.html)

**Contributing author** to *Shallow water dredging*. Rivers and Coasts. Winter 2010, Vol. 5, No. 1.

<http://www.ccrm.vims.edu/publications/pubs/rivers&coast/Winter2010.pdf>

### **Research reports from grant or contract work**

\***Bilkovic, D. M.**, M. Mitchell, J. Herman, C. Hershner, K. Havens. 2017. Development of strategies to improve conservation of Virginia's headwater wetland ecosystems in the face of climate change. Prepared for Environmental Protection Agency. 53p.

**Bilkovic, D.M.**, Slacum, Jr., H.W., Havens, K.J., Zaveta, D., Jeffrey, C.F.G., Scheld, A.M., Stanhope, D., Angstadt, K., Evans, J.D. 2016. *Ecological and Economic Effects of Derelict Fishing Gear in the Chesapeake Bay: 2015/2016 Final Assessment Report*. Prepared for Marine Debris Program, Office of Response and Restoration, National Oceanic and Atmospheric Administration. 93p.

Jeffrey, C.F.G., Havens, K.J., Slacum, Jr., H.W., **Bilkovic, D.M.**, Zaveta, D., Scheld, A.M., Willard, S., Evans, J.D. 2016. *Assessing Ecological and Economic Effects of Derelict Fishing Gear: a Guiding Framework*. Prepared for Marine Debris Program, Office of Response and Restoration, National Oceanic and Atmospheric Administration. 31p.

**Bilkovic, D.M.**, M. Mitchell. 2014. Biofiltration potential of ribbed mussel populations. Final Report to the Women in Science and Engineering (WISE), National Science Foundation, College of William & Mary. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 7p.

**Bilkovic, D.M.**, M. Mitchell, R. Isdell. 2014. Johns Point Landing Living Shoreline Ecological Monitoring. Final Report to Gloucester County and NFWF. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 7p.

**Bilkovic, D.M.**, M. Mitchell. 2014. Composition, distribution, and dynamics of intertidal epibiota on coastal defense structures. Final Report to the Women in Science and Engineering (WISE), National Science Foundation, College of William & Mary. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 7p.

**Bilkovic, D.M.**, K. Havens. 2013. Biodegradable Panels for Crab and Lobster Pots. CRCF Award Number: CP-011-W. Final Report to the Center for Innovative Technology.

**Bilkovic, D.M.**, M. Mitchell. 2012. Ecological and erosion protection functions of Chesapeake Bay living shorelines (Phase II). Final Report to Chesapeake Bay Trust, NOAA, and MDE. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 38p.

**Bilkovic, D.M.**, R. Chambers, M. Leu, T. Russell. 2012. Diamondback terrapin bycatch reduction strategies for commercial and recreational blue crab fisheries. Final Report to Virginia Sea Grant, National Oceanic and Atmospheric Administration. Agency Award Number: NA10OAR4170085.

Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, Virginia. 21p. *This research was featured in Virginia Marine Resource Bulletin Vol 44 No.2, Summer 2012.*

**Bilkovic, D.M.,** M. Mitchell. 2011. Ecological and erosion protection functions of Chesapeake Bay living shorelines (Phase I). Final Report to Chesapeake Bay Trust, NOAA, and MDE. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 37p.

**Bilkovic, D.M.** May 2011. Shirley Plantation Riverbed Survey. Final Report to Shirley Plantation. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia. 13p. + DVD.

**Contributing author,** Ongoing development of a nontidal wetland inventory and monitoring strategy for Virginia – 2008–2010, Final Report to the US Environmental Protection Agency Region III. Virginia Institute of Marine Science, College of William & Mary, December 2010.

**Bilkovic, D.M.,** C. Hershner, T. Rudnicky, K. Nunez, D. Schatt, S. Killeen, M. Berman. 2009. Vulnerability of shallow tidal water habitats in Virginia to climate change. Final report to NOAA Chesapeake Bay Office, Award Number NA07NMF4570342. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia.

**Bilkovic, DM,** K. Angstadt, D. Stanhope. 2009. Atlantic sturgeon spawning habitat on the James River, Virginia. Final report to NOAA Chesapeake Bay Office, Award Number NA06NMF4570303. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia.

Havens, K., **D.M. Bilkovic.** 2009. Gear modification testing for blue crab traps. Final Report to National Fish and Wildlife Foundation, #2007-0088-005.

**Bilkovic, D.M.,** K. Angstadt, D. Stanhope, C.H. Hershner. 2008. Benthic habitat characterization within the nearshore of Mobjack Bay, Virginia. Final report to NOAA Chesapeake Bay Office, Award Number NA06NMF4570303. Virginia Institute of Marine Science, Center for Coastal Resources Management, Gloucester Point, Virginia.

**Bilkovic, D.M.,** D. Stanhope, K. Angstadt. August 2007. Shallow water fish communities and coastal development stressors in the Lynnhaven River. Final Report to U.S. Army Corps of Engineers. Award Number: W91236-06-C-0065. Center for Coastal Resources Management, Virginia Institute of Marine Science, Gloucester Point, Virginia. 44pp.

Havens, K.J., **D.M. Bilkovic,** D. Stanhope, K. Angstadt, C. Hershner. December 2006. Derelict blue crab trap impacts on marine fisheries in the lower York River, Virginia. Final Report to NOAA Chesapeake Bay Program Office. Center for Coastal Resources Management, Virginia Institute of Marine Science.

Havens, K.J., D.O'Brien, D. Stanhope, K. Angstadt, D. Schatt, **D.M. Bilkovic,** C. Hershner. December 2006. Intermediate development of a forested headwater wetland HGM model for wetlands management in Virginia. Center for Coastal Resources Management, Virginia Institute of Marine Science. Final Report to The U.S. Environmental Protection Agency (CD # 973078-01).

**Bilkovic, D.M.,** M. Roggero, C. Hershner. Nov 2006. A review of habitat restoration scaling methods and options for freshwater generating stations subject to 316(b) Phase II Rule. Report to Dominion Power.

Roggero, M., **D.M. Bilkovic,** C. Hershner. October 2006. Habitat Restoration Scaling Workshop Outcomes. Report to Dominion Power.

**Bilkovic, D.M.,** C.H. Hershner, K. Angstadt. May 2006. Ecosystem approaches to aquatic health assessment: linking subtidal habitat quality, shoreline condition and estuarine fish communities. Final Report to NOAA/NCBO. Project Award Number: NA04NMF4570360.

**Contributing author** to: Brooks, R.P., D.H. Wardrop, K.W. Thornton, D. Whigham, C. Hershner, M.M. Brinson, J.S. Shortle, eds. 2006. Integration of ecological and socioeconomic indicators for estuaries and watersheds of the Atlantic Slope. Final Report to U.S. Environmental Protection Agency STAR Program, Agreement R-82868401, Washington, DC. Prepared by the Atlantic Slope Consortium, University Park, PA. 96pp.+ attachments (CD).

**Contributing author** to *A manager's guide to indicator selection*. 2006. Published by U.S. EPA Office of Research and Development, Washington D.C. EPA/600/S-06/002.

**Bilkovic, D.M.** January 2006. Sturgeon spawning habitat on the James and Appomattox Rivers. Final Report to USFWS.

**Bilkovic, D.M.,** M. Roggero, J. Herman, K. Reay, J. Bradshaw. C.H. Hershner. December 2005. Dominion Power Generating Stations Background Information for 316(b) Restoration Options. Final Report to Dominion Power. 233p.

**Bilkovic, D.M.** 2005. authored sections: MARSH Fish Survey, Prey Community Surveys, and Insect Surveys of the final report MARSH: Monitoring Active Replenishment of Subsiding Habitat. Virginia Institute of Marine Science.

**Bilkovic, D.M.** June 2003. Current research in the assessment of the condition and integrity of an aquatic ecosystem: a bibliography. Final Report. Center for Coastal Resources Management, VIMS.

**Bilkovic, D.M.,** D. Stanhope, C.H. Hershner. December 2002. Assessing Larval American Shad Growth and Survival with in situ mesocosm experiments in three differing habitats within a coastal estuary. Final Report. Center for Coastal Resources Management, VIMS.

**Contributing Author** to *MARSH: Monitoring Active Replenishment of Subsiding Habitat*. Newsletter and Progress Report. 2002 Virginia Institute of Marine Science. 12pp.

**Bilkovic, D.M.** May 2002. Fish community and habitat quality indices. Annual report to the Atlantic Slope Consortium (ASC) on the EPA Estuarine and Great Lakes Indicator Development (EaGLE) project, Grant Number: R-82868401.

**Bilkovic, D.M.,** C.H. Hershner. Aug 2000. Locating upriver spawning reaches of American shad (*Alosa sapidissima*) on the Mattaponi and Pamunkey Rivers via ichthyoplankton surveys and the examination of relative juvenile abundance and distribution in relation to river discharge. Final Report to National Marine Fisheries Service, Grant Number: NA96FA0192.

**Bilkovic, D.M.,** C.H. Hershner. Nov 1998. Identification of potential American Shad (*Alosa sapidissima*) spawning and nursery habitats in the Mattaponi and Pamunkey Rivers based on physical habitat and landscape variables. Final Report to National Marine Fisheries Service, Grant Number: NA76FA0361.

Olney, J.E., **D.M. Bilkovic.** Nov 1998. Literature survey of reproductive finfish and ichthyoplankton present in proposed sand mining locations within the Middle Atlantic Bight. *Final Report Environmental*

*Survey of Potential Sand Resource Sites Offshore Delaware and Maryland* for U.S. Department of the Interior (Mineral Management Service). Contract 1435-01-97-CT-30853.

### **Other Scholarly Activity**

#### *Professional Development: Workshop and Course Participant*

Permanova+ Multivariate Analysis in Ecology Workshop, Williamsburg, VA. March 6-10, 2017.

NSF Coastal SEES PI Meeting. National Science Foundation, Arlington, VA. Jan 29-30, 2015.

Geostatistics. Course taught by Dr. Patrick Sullivan, Cornell University, VIMS Jan 8–10, 2014.

Multivariate Statistics in R (MS698). Course taught by John Hoenig, VIMS. Jan–Feb 2012.

Model Selection and Multimodel Inference. Three-day workshop taught by David Anderson at the College of William & Mary, Williamsburg, VA. January 12–14, 2011.

Structural Equations Modeling. Two-day workshop taught by Jim Grace, USGS at the College of William & Mary, Williamsburg, VA. December 8–9, 2010.

Statistical and Graphical Analysis in R (MS698). Course taught by John Hoenig, VIMS. Sept–Oct 2010.

Environmental Statistics. Online course taught by Bryan Manly. Oct–Nov 2010.

EPA Coastal Wetlands Initiative - York, Pamunkey and Mattaponi Watersheds. Gloucester Point, VA. September 29, 2009

Invited participant in a workshop to modify habitat suitability models for American shad funded by NOAA/NMFS and hosted by North Carolina State University (Dr. Joe Hightower). January 2009. Workshop results published in 2012. Hightower et al. A Bayesian Spawning Habitat Suitability Model for American Shad in Southeastern United States Rivers. *Journal of Fish and Wildlife Management* 3:184-198.

Scientific and Technical Advisory Committee Review of the CBP Monitoring Programs, Workshop 3, December 8, 2008.

Facilitated and co-hosted with NOAA-CBO the second annual ‘Benthic Mapping and Characterization Workshop’ held in February 2007 in Edgewater, Maryland with participants from various groups throughout the U.S., Canada and Taiwan. The objective was to continue to link efforts to establish a more comprehensive approach to describing benthic habitat Bay-wide, and to update training on new technologies offered by Questar Tangent Corp.

Course participant in *Analysis of Multivariate Data from Ecology and Environmental Science, Using Primer v6*, lecturer: Bob Clarke, St. Petersburg, FL October 16–21, 2006

Scientific and Technical Advisory Committee-Spatial Analyses workshop. CBP. Annapolis, MD, March 21–22, 2006.

Facilitated a ‘Benthic Mapping and Characterization Workshop’ for 4 days in February 2006 with participants from various groups throughout the U.S. and Canada, including NOAA-CBO. The

objective was to link efforts to establish a more comprehensive approach to describing benthic habitat Bay-wide.

Development and implemented QAQC plans (*Center for Coastal Resources Management: Field and Laboratory Quality Assurance Plan*; and *Standard Operating Procedures for the Coastal Watershed Program*) for CCRM and the Coastal Watershed Program 2005–present.

EPA-STAR Estuarine and Great Lakes (EaGLe) Program, Atlantic Slope Consortium (ASC) All-Hands Meetings

May 25–26, 2005, Edgewater, MD  
January 25–26, 2005, Edgewater, MD  
September 15–17, 2004, Harpers Ferry, WV  
March 23–25th, 2004, Lewes, Delaware  
November 6–7, 2003, Greenville, NC  
April 23–25, 2003, Milford, PA  
November 13–14, 2002, Williamsburg, VA  
March 13–14, 2002, Cacapon, WV  
December 3–5, 2001, Morehead City, NC

Estuarine Indicator Workshop. October 29–31, 2003. Sanibel Island, Florida.

Croatia-USA Workshop. Biocomplexity and Sustainable Ecosystem Management: Integrating natural, social and economic sciences in Dubrovnik, Croatia. NSF, October 2002.

Atlantic Slope Consortium—Ecological Scaling Workshop, ASC-EPA, 12–13 December 2001, Cacapon, WV.

EPA-STAR Estuarine and Great Lakes (EaGLe) Program, 3–5 December 2001, Morehead City, NC

Chesapeake Bay EcoPath with Ecosim, NOAA Chesapeake Bay Office, 22–24 Oct 2001, Laurel, MD

Atlantic Slope Consortium—Estuarine Workgroup, SERC, 13 Sept 2001 and 19 June 2001

Chesapeake Bay Program Joint Meeting: Tidal Habitat Workgroup, Non-Tidal Habitat Workgroup, & Fisheries Management Planning and Coordination August 9, 2001, United States Fish and Wildlife Service, Annapolis, MD.

### **Patents from Research**

**\*Biodegradable plastic netting. U.S. Provisional Patent Application No. 62/561,364 filed with College of William and Mary Technology Transfer Office Sept 21, 2017.** Inventors: Kirk Havens, Donna Marie Bilkovic, David Stanhope, Kory Angstadt, and Randolph Chambers.

**Degradable shotgun wad. US Patent Application Number 14/303496 filed with College of William and Mary Technology Transfer Office on June 2014.** Inventors: Kirk Havens, Donna Marie Bilkovic, David Stanhope, Kory Angstadt, and Wade Blackwood. **Patent No. 9,528,800 B2 Issued on Dec 27, 2016.**

**Degradable Identification Component. US Provisional Patent Application Number 61/766,860 filed with College of William and Mary Technology Transfer Office on Feb 2013.** Inventors: Kirk Havens,

Donna Marie Bilkovic, David Stanhope, and Kory Angstadt. **Regular patent application filed Feb 2014. Patent No. 9,520,074 B2 Issued on Dec 13, 2016.**

**Crustacean Trap with Degradable Cull Ring Panel. US Patent Application No. 13/403,083 filed with College of William and Mary Technology Transfer Office on February 2012, patent allowed on Jan 2013, issued on 19 Feb 2013.** Inventors: Kirk Havens, Donna Marie Bilkovic, David Stanhope, and Kory Angstadt. This application is a continuation-in-part of co-pending U.S. Patent Application No. 12/714,370, filed on February 26, 2010, which is a continuation-in-part of co-pending U.S. Patent Application No. 12/394,917, filed February 27, 2009, which claims the benefit of and priority to U.S. Provisional Patent Application Serial No. 61/032,266, filed February 28, 2008. An additional continuation-in-part application covering PHA-based elements in fishing traps, including Dungeness hinges, stone crab slats, etc., was filed on February 20, 2013, and given U.S. Patent Application No. 13/771,661. **Allowed.**

**Fishing Gear with Degradable Component. The universal degradable panel for fishing traps was allowed on October 2014, and issued on Jan 27, 2015. A divisional Application Serial number 14/603,735 was filed Jan 2015.** Inventors: Kirk Havens, Donna Marie Bilkovic, David Stanhope, and Kory Angstadt. **Allowed. Patent No. 8,938,908 B2 Issued on Jan 27, 2015.**

**Polyhydroxyalkanoate Microbeads.** US Provisional Patent Application Number 61/675,410 filed with College of William and Mary Technology Transfer Office on July 2012. Inventors: Kirk Havens, Donna Marie Bilkovic, David Stanhope, and Kory Angstadt. **US Patent Application Number 13/950,483 filed April 2014. Not Issued.**

## **PROFESSIONAL SERVICE ACTIVITIES**

### **Professional Affiliations**

Ecological Society of American, 1999–present  
American Fisheries Society, 1999–present  
Early Life History Section of AFS, 2002–2013; Fish Habitat Section of AFS, 2013–present  
Estuaries Section of AFS, 2008–present  
Atlantic Estuarine Research Society, 2007–present  
American Society of Ichthyologists and Herpetologists, 1999–2000

### **Editorial Board Services, review panels, program reviews, national or international research programs**

#### *Meetings and conferences:*

Session organizer and Chair, Session: The role of living shorelines as habitat conservation strategies. 5<sup>th</sup> International EcoSummit Congress, *EcoSummit 2016*. Montpellier, France, Aug-Sep 2016.

Session organizer and Chair. Session: *The Missing Link: Connecting Water Quality and Living Resources Models to Support Ecosystem-Based Decisions*. Chesapeake Modeling Symposium (CheMS16), Williamsburg, VA, 1-2 June 2016.

Session Chair, *Monitoring and Assessment of Living Shorelines: Key components in informing design and evaluating restoration success towards adaptive management*. Restore America's Estuaries 7<sup>th</sup> National Summit on Coastal and Estuarine Restoration and 24<sup>th</sup> Biennial Meeting of the Coastal Society, National Harbor, MD, Nov 2014

Chesapeake Bay STAC workshop steering committee. *Designing Sustainable Coastal Habitats*. Easton, MD, 16–17 April 2013. Planning meeting dates: 2012: Sept 5<sup>th</sup>, Nov 16<sup>th</sup>. 2013: Jan 16<sup>th</sup>, 24<sup>th</sup>, Feb 6<sup>th</sup>, Feb 8<sup>th</sup>, Mar 21<sup>st</sup>, Apr 9<sup>th</sup>, Apr 15<sup>th</sup>.

Session chair, *Living Shorelines*. 41<sup>st</sup> annual Benthic Ecology Meeting. Norfolk, Virginia, Mar 2012

Session co-chair, *Multidisciplinary Evaluations of Ecosystem Services at the Regional Scale*. 21st Biennial Conference of Coastal and Estuarine Research Federation, Daytona Beach, FL, Nov 2011

#### *Review Panel:*

*Led a STAC review panel and lead author on final report (2016, published May 2017)*

“Review of boat wake wave impacts on shoreline erosion and potential solutions for the Chesapeake Bay”. As requested by the Chesapeake Bay Commission (CBC), this report reviews the relevant information on the potential impacts of boat generated waves on shoreline stability and attendant ecosystem properties, and provide advice on available policy actions to minimize any adverse effects.

*Led a STAC review panel and lead author on final report (published 2014)*

“Review of the Final Report of the Sustainable Fisheries Goal Implementation Team Invasive Catfish Task Force.” As requested by the CBP Sustainable Fisheries Goal Implementation Team, this report reviews the the technical feasibility, reasonableness, likelihood of success, and potential unintended effects that may result for recommendations from the Invasive Catfish Task Force for the management of invasive catfish in Chesapeake Bay.

*Served on Review Panel for the North Atlantic Landscape Conservation Cooperative (NALCC) and was charged with reviewing one of three habitat vulnerability assessments commissioned by the Northeast Association of Fish and Wildlife Agencies (NEAFWA) and the NALCC – “The Vulnerabilities of Northeastern Fish and Wildlife Habitats to Sea Level Rise” by Manomet Center for Conservation Sciences; the National Wildlife Federation. September 2013.*

*STAC review panel member and co-author on final STAC report (published August 2013)*

“Evaluation of the use of shellfish as a method of nutrient reduction in Chesapeake Bay”. As requested by the CBP Management Board, this report reviews the potential for oysters to remove nutrients and identifies guiding principles for potential incorporation into the Bay TMDL. Jan-Aug 2013

#### *Proposal Reviews:*

Sultan Qaboos University, Oman – 2018

North Carolina Seagrant – 2017

Connecticut Seagrant – 2017

National Estuarine Research Reserve System (NERRS) Science Collaborative Funding Opportunity – 2016

Hudson River Foundation – 2016

Chesapeake Bay Program Climate Resiliency (4 proposals) – 2016

Gulf Restoration Program - Exploratory Grants (5 proposals) – 2015

National Estuarine Research Reserve System (NERRS) Science Collaborative Funding Opportunity (2 proposals) – 2015

Hudson River Foundation – 2015

North Carolina Sea Grant – 2014

NSF – 2013

New Jersey Sea Grant – 2011

NOAA/NMFS – 2008

*Associate Editor:*

Tropical Ecology (2011-2017), the journal of the International Society of Tropical Ecology which serves as an outlet for scientists from developing nations to publish peer-reviewed research

*Program reviews:*

Served as an External Peer Reviewer for EPA's Global Change Research Program (GCRP) – reviewed EPA's Draft Climate Change Vulnerability Assessment for the Massachusetts Bays National Estuaries Program in the Climate Ready Estuaries Program. Sept 2011.

*Document Reviews:*

Scientific Reviewer of the UN World Ocean Assessment - *Salt Marshes* (Ch. 50). Feb 2015

As a member of the Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC) regularly review technical reports relating to the management of the Chesapeake Bay.

Book Chapter Review – "Terrapin Bycatch in the Blue Crab Fishery" submitted as a chapter for a book *The Ecology and Conservation of Diamondback Terrapin* to be published by The Johns Hopkins University Press. December 2013.

Scientific Reviewer of the Chesapeake Bay Program's *Chesapeake Bay 2008 Health and Restoration Assessment*, February 2009

Scientific Reviewer of *A Framework for Assessing the Nation's Fish Habitat* a document developed by the National Fish Habitat Science and Data Committee to provide a framework plan for assessing current habitat conditions, prioritizing waters, and evaluating the success of National Fish Habitat Action Plan projects. January 2007.

Reviewed Scientific Papers for Virginia Junior Academy of Science competition

Scientific Reviewer of the American Shad Section of the Diadromous Fish Species Habitat Source Document for ASMFC, 2003–2005

*Manuscript Reviews:*

2018 Regional Studies in Marine Science (1)

2017 Marine Ecology (1), Ecological Engineering (1)

2016 Ecological Engineering (1), Marine Pollution Bulletin (2), Ocean and Coastal Management (1), Marine Ecology Progress Series (1), Plos One (1), Aquatic Conservation: Marine and Freshwater Ecosystems (1), Estuaries and Coasts (1), Annals of the New York Academy of Sciences (1), Bioscience (1)

2015 Ecological Engineering (1), Northeastern Naturalist (1), USGS (1), J. Applied Ecology (1), Tropical Ecology (5)

2014 Estuaries and Coasts (1), Fisheries Management and Ecology (1), Ecological Engineering (1), Tropical Ecology (7)



- 2013 Bulletin of Marine Science (1), Estuaries & Coasts (1), Tropical Ecology (7), Ecological Indicators (1), Marine Ecology Progress Series (1), JEMBE (1)
- 2012 Marine Ecology Progress Series (1), PLoS ONE (1), Estuarine, Coastal and Shelf Science (2), Estuaries and Coasts (1), Tropical Ecology (5), Transactions of the American Fisheries Society (1), Northeastern Naturalist (1), Bulletin of Marine Science (1)
- 2011 Marine Ecology Progress Series (1), Marine and Coastal Fisheries (1), Estuarine, Coastal and Shelf Science (1), Transactions of the American Fisheries Society (1), Tropical Ecology (3)
- 2010 Marine Ecology Progress Series (1), North American Journal of Fisheries Management (1), Marine Pollution Bulletin (1), Fishery Bulletin (1), Tropical Ecology (4)
- 2009 North American Journal of Fisheries Management (1), Marine Pollution Bulletin (1), Fishery Bulletin (1), Tropical Ecology (1)
- 2008 North American Journal of Fisheries Management (1), Transactions of the American Fisheries Society (1), Tropical Ecology (2), USEPA Gulf Ecology Division (1)
- 2007 North American Journal of Fisheries Management (1), Transactions of the American Fisheries Society (1), Journal of Great Lakes Research (1), Ecological Engineering (1)

## ADVISORY SERVICE ACTIVITY

### Advisory service relative to VIMS state mandates, regional & international advice

#### *Service to state agencies*

**\*Involved in numerous ongoing internally funded activities at Center for Coastal Resources Management**, including the development of science-based integrated management guidance and decision-support tools for coastal communities (e.g., Comprehensive Coastal Resources Management Plans for localities), translation of science to guidance for multiple end users (federal, state, localities, general public), the integration and application of CCRM monitoring survey databases for applied research (e.g., tidal marshes and shoreline condition inventories), and the assessment of coastal habitat vulnerability to climate change. 2005–present

**\*Member of the Virginia Marine Debris Reduction Plan (VMDRP) Leadership Team.** The Leadership Team has been directed by Virginia Coastal Zone Management Program to create a VMDRP, as required under VCZMP's Section 309 Ocean Resources Management Strategy, with an analysis of key marine debris issues, prioritization of these issues, and development of a plan to address the high priority issues. The first of its kind, this Plan is expected to provide a model for the U.S. Atlantic coast. Final Plan published October 2014. In 2015, the Team began planning the 2nd Virginia Marine Debris Summit, held March 7-9, 2016 at Virginia Institute of Marine Science. The goal of this summit was to inspire and empower partners in Virginia and the Mid-Atlantic in marine debris reduction. The Summit provided updates on current marine debris science and trends and explored techniques and tools effective in enhancing knowledge, changing behavior and influencing policies that reduce marine debris. The intent was to increase the capacity to help accomplish the goals of the Virginia Marine Debris Reduction Plan as well as explore regional efforts to reduce the sources and impacts of marine debris.

\*Invited participant to the EPA Region 3 Regional Monitoring Network (RMN) Workshop - Indicators of Long-Term Wetland Change, Cacapon State Park, WV, April 26-27, 2017. Organized and hosted by EPA's Office of Research and Development and EPA Region 3. The goal of the workshop was to develop a proposed framework to establish a Regional Monitoring Network (RMN) to detect changing baselines in non-tidal and tidal wetlands in the mid-Atlantic region.

\*Invited participant to a NOAA Marine Debris Program planning workshop to develop the first Virginia Marine Debris Emergency Response Guide. The workshop goal was to strengthen coordination between federal, state, and local stakeholders to improve preparedness for an incident that generates marine debris in coastal waters. The Mariner's Museum and Park, Newport News, VA. Aug 2-3, 2017.

Advisory review of a proposal to construct a tidal freshwater wetland within the Dyke Marsh Wildlife Preserve. Nov-Dev 2017.

Advisory review and data summary for New Kent County's proposed surface water withdrawal project (pre-proposal stage, Dec 2014-Jan 2015, proposal stage June 2016, Feb 2017)

Invited speaker at the Virginia Coastal Partners Workshop - 30 Years of Connecting People with Our Coast. *Current Initiatives to Better Understand, Monitor and Predict Climate-Related Changes*. Virginia Department of Environmental Quality, Richmond, VA. Nov 2016

Invited speaker at the Workshop on Engineering, Design and Implementation of Natural Coastal Infrastructure Solutions to Enhance Hampton Roads' Resiliency hosted by the Environmental Defense Fund and partners in Norfolk, VA. Feb 2016.

Participant in the Virginia Coastal Partners Workshop: Assessing Past Progress, Planning the Future. Virginia Department of Environmental Quality, Richmond, VA. Dec 2014

Scientific input into the development of the Chesapeake Atlantis Model (CAM) – a fisheries ecosystem model of the Bay system being developed by NOAA Chesapeake Bay Office (Tom Ihde) (June 2010, Nov 2010, Feb 2011, Mar 2013, ongoing 2014)

Advisory review of the Chesapeake Bay Program Draft Bay Agreement, VIMS (August 2013)

Regularly provide expert advice on the potential ecological impacts of a myriad of proposed activities including dredging, shoreline alteration, and water withdrawal to requesting agencies (e.g., VMRC, USACE) – *select examples listed below*.

Advisory review of a water intake proposal for an estuarine surface water intake and desalination brine discharge by the James City Service Authority (Joint Permit Application #16-1533). Dec 2016.

Advisory review of pre-application information regarding the proposal for an intake and outfall to support a natural gas-fired electric generating facility in Charles City County (pre-proposal stage, Aug-Sep 2016)

Advisory review of James River Dominion power crossing line (Surry – Skiffes Creek – Whealton 500kV/230kV Line (VMRC #13-0408)) for time of year restrictions for anadromous fish (requested from VMRC, Dec 2014-Jan 2015)

Advisory review of VDOT's bridge project over Sandy Creek, Mattaponi River in King William County for time of year restrictions for anadromous fish (requested from VMRC, Jan 2014).

Advisory review of the ACOE's Lynnhaven Basin Ecosystem Restoration Plan, VIMS (May 2013)

Advisory review of the permit application submitted by PCN, LLC for a project at Curles Neck Farm in Henrico County (Joint Permit Application 12-1534) (May 2013)

Advisory review of a multi-jurisdictional tunnel project involving the Midtown Tunnel, Downtown Tunnel and Martin Luther King extension and crossing the Elizabeth River. (Joint Permit Application 11-1116) (Feb-Mar 2012)

Advisory review of Loudoun water withdrawal proposal (Joint Permit Application for the Potomac Water Supply Program) (January 2011)

Invited speaker on 'Living shoreline Monitoring' to the Tidal Wetlands Workshop held at VIMS on November 2010 for local and state resource managers advisory board members, marine contractors, permitting agents, and environmental consultants regarding coastal management decision tools being developed at CCRM.

Advisory review on 'Weir effects on fish spawning in Lake Tecumseh, Virginia Beach' (May 2010)

Advisory review of time of year restrictions variance request by USACE for dredging activities on College Creek, James River. Provided to NOAA & VMRC (January 2010)

Provided extensive information and guidance to the Eastern Research Group, Inc (Arleen O'Donnell) on the amounts and effects of shoreline armoring in the Chesapeake Bay for inclusion in a Mid-Atlantic Coastal Wetlands Report (December 2009 & January 2010)

Advisory review of time of year restrictions variance request by Norfolk District Corps of Engineers for dredging activities at Tribell Shoal Channel, James River (January 2010)

Advisory review of environmental assessment for the Lesner Bridge replacement effects on anadromous fish within the Lynnhaven River (October 2009)

Advisory meeting with Stafford County, VMRC and Malcolm Pirnie to discuss Rocky Pen Reservoir, Rappahannock River and its effects on anadromous fish (July 2009)

Advisory review of time of year restrictions variance request by Norfolk District Corps of Engineers for dredging activities on the James River (January 2009)

Advisory review of time of year restrictions variance request by VDOT for activities in the Potomac River (January 2009)

Advisory review of potential fish impacts from a dredging permit application in the James River near Hopewell for VMRC (July 2008)

Serving on an advisory committee at VIMS, which produced comments at the request of the Virginia Marine Resources Commission (VMRC) on the potential environmental impact from the proposed King William Reservoir. Contributed extensive data, analyses, written summaries, supplied material for Freedom of Information Act (FOIA) requests, and participated in meetings with the applicant and

VMRC from Nov 2002- Present (~ 46 person days in total). Products of these activities include two reports (dated March 12, 2003 and June 25, 2004) and two manuscripts (both published in 2008).

Meetings Dates in 2004: Jan 21, Mar 15, Mar 19, Apr 8, Apr 19, Apr 30, Jun 1

Monitoring Plan Review: July, Oct 2006, Jan, Mar 2007, Jan, Feb 2008

Conducted advisory review of products from the Caroline County, Virginia water supply intake proposed monitoring survey (January 2007)

Completed advisory review of proposed water supply intake project on Powell's Creek off of the Potomac River in Prince William County for impacts to ichthyoplankton (January-February 2007)

Facilitated a technical workshop entitled *Habitat Restoration Scaling* in regards to the use of habitat restoration under 316b regulations for state agencies including VMRC, VGIF, and DEQ. Richmond, Virginia (September 27, 2006)

In an advisory capacity for VIMS, I met with VMRC, Stafford County and County-hired consultants on multiple occasions and provided oral and written guidance in reference to the required Rappahannock River monitoring of fish communities for Stafford County intake (approximately 4 person days, 2004). Reviewed annual monitoring plan & results (2008).

In an advisory capacity for VIMS, discussed the potential impacts of temperature increases on striped bass in Lake Anna and the Pamunkey River with representatives from Dominion Power (July 2005)

#### *Regional, national or international management commissions or programs*

\*Serve on the Executive Board for the Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC), Dec 2015–Dec 2017

\*Serve on Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC)  
Quarterly Meeting dates (2017): Mar 14-15, Jun 13-14, Sep 12-13, Dec 5-6, Annapolis, MD  
Quarterly Meeting dates (2016): Mar 15-16, Jun 7, Sep 13-14, Dec 6-7, Annapolis, MD  
Quarterly Meeting dates (2015): Mar 10-11, Jun 9-10 (VA), Sep 8-9, Dec 8, Annapolis, MD  
Quarterly Meeting dates (2014): Mar 18-19, Jun 17-18, Sep 9-10, Dec 9-10, Annapolis, MD  
Quarterly Meeting dates (2013): Mar 12-13, Jun 11-12, Sep 18, Dec 3-4, Annapolis, MD  
Quarterly Meeting dates (2012): Mar 27-28, Jun 19-20, Sep 11-12, Dec 4, Annapolis, MD  
Quarterly Meeting dates (2011): Mar 22-23, Jun 7-8, Sep 13-14, Dec 13-14, Annapolis, MD  
Quarterly Meeting dates (2010): Sept 14-15 and Dec 13–15, Annapolis, MD  
Quarterly Meeting dates (as alternate): December 9–10, 2008, Annapolis, MD

\*Serve on Chesapeake Bay Program Climate Resiliency Workgroup (2014–present)

\*Serve on Chesapeake Bay Program Fish Habitat Workgroup (2015–present)

\*Serve on Steering Committee to organize and prepare pre-workshop materials for a Scientific and Technical Advisory Committee Workshop (planned for April 2018) – *Chesapeake Bay Fish Habitat Assessment*. 2017-

Serve on Chesapeake Bay Program's Habitat Goal Implementation Team (2010–2014)

Serve on the *Natural and Green Infrastructure Metrics Workgroup* (2015-2016). An interagency (including federal and state agencies, conservation organizations, engineering firms, and academic institutions) workgroup charged with facilitating the role natural and nature based features have in safeguarding people and wildlife, especially in an era of climate change natural features provide benefits to ecosystems, habitats, and fish and wildlife, enrich local communities through recreation and economic development, and protect communities from storm events. An initial focal area is the development of science-based metrics to evaluate the success of natural and nature-based infrastructure shoreline projects.

Invited participant in the Living Shoreline Restoration Workshop held by FWS, Northeast Region, Refuge Division. The workshop intent was to gather experts to provide technical guidance on living shoreline design, implementation, and monitoring for USFWS National Wildlife Refuges (New England to Virginia). Dover, DE. Feb 25–26, 2014.

Serve on subcommittee of Chesapeake Bay Program’s STAC to produce a document detailing *STAC Recommendations for Chesapeake Bay agreement goal and outcome statements*. The intent of the document is to guide drafting efforts toward a formulation of intentions that will support both the need for program accountability and effective adaptive management of program actions. 2013–2014

Served on subcommittee of Chesapeake Bay Program’s STAC to develop a document “Criteria for Science-Based Restoration and Management” which offers criteria as practical elements to guide and, in some cases evaluate, prospective agreements among the Bay Program Partners. Dec 2013–Jan 2014

NOAA Living Shorelines Technical Advisory Workgroup – participate as a member of the technical advisory committee to inform living shoreline project prioritization. Feb 2013 –

Serve on Steering Committee to organize, plan, and document results from a Scientific and Technical Advisory Committee Workshop (April 2013) – *Designing Sustainable Coastal Habitats*. 2012 – 2014

Contributed to the development of an essential fish habitat reference document by NOAA Fisheries for use by professionals engaged in marine habitat assessment, permitting agencies, and state and federal marine resource managers in the Atlantic Coast. Technical Workshop on Impacts to Coastal Fishery Habitat from Non-Fishing Activities. Jan 10–12, 2005, Mystic, CT.

### *Public outreach*

\*Staffed Educational booth for Marine Science Day, VIMS, May 2004, 2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017. Riverfest, representing VIMS, June 2, 2001

Poster presentation on Marine Debris (Havens (*presenting*), Bilkovic, Angstadt, Stanhope) – Malama’ Honua Summit, Honolulu, Hawaii. June 19-23, 2017.

Presentation to the VIMS Industry Partnership on biopolymer innovation. December 8, 2017. (K. Havens presenting, co-author).

Invited to host an educational booth for the Rosewell Foundation's Annual BBQ and Wine Tasting fund raiser on ghost crab pots and the history of crabbing in Chesapeake Bay. Gloucester, Virginia. Oct 18, 2015 and Oct 16, 2016.

Presentation to the journalists and staff with the U.S. State Department's Foreign Press Center on marine debris, VIMS. July 7, 2016.

Living shoreline presentation and field tour for the *Alliance For The Bay* Board. April 29, 2016.

Advised a First Lego League Team participating in the Trash Trek Challenge (their project considered ways to reduce the impacts of lost fishing gear) which took first place for their Division 2 (ages 12 -15 years old), at the First Lego League Tournament held at Deep Run High School in Glen Allen, Virginia. Oct 2015.

Guest Blogger on NOAA's Marine Debris Blog, 'Thousands of Chesapeake Bay Blue Crabs lost each year in derelict pots', May 14, 2014, <https://marinedebrisblog.wordpress.com/tag/chesapeake-bay/>

Volunteer for the Blue Crab Bowl – Virginia's regional competition of the National Ocean Sciences Bowl. March 3, 2012. Old Dominion University. Norfolk, Virginia

Presentation to the Potomac River Fisheries Commission on Derelict Crab Pots and the marine debris removal program, July 2009

Conversation with the Conservation Corp, 2008

Teaching Marsh Tour for "Tag a Marine Scientist for a Day" auction winners, September 2008

Invited Speaker at local King and Queen County Women's Club meeting on American shad life history and restoration King and Queen, Virginia, Feb 2005

Contributed to a public service video produced by the Friends of the Rappahannock on the importance of forested riparian buffers to fish communities, Spring 2003

Staffed Educational display booth for VIMS Tidal Wetlands Seminar, 2001, 2003, 2004

### *Governance*

\*Serve as the VIMS representative on the Environmental Science and Policy Program (ENSP) Executive Board at College of William & Mary. 2016–

\*Serve on the VIMS Best Student Paper Award Committee. 2018–

\*Member of the Society for Women in Marine Science (SWMS) Chapter at VIMS. 2017–

Serve on the Women's Network Executive Committee at College of William & Mary/VIMS. 2013–2017

-Co-organized a women's networking lunch, Feb 24, 2016

-On subcommittee, planned and organized the session - How To Get Ahead At Work (Even With No Promotion In Sight): Panel and Discussion, April 22, 2015

-Co-organized the charity event - Wine & Design To Support The Haven, April 14, 2015

-Chaired session for the Women's Network Fall Reception, Sept 23, 2014.

Serve as Officer on the Executive Committee of the Non Tenure Eligible Faculty Association (NTEFA) of the College of William and Mary (VIMS representative). 2013–2017