Research Digest

Issue No. 12 (July - September 2024)

VIMS | William & Mary
Virginia Institute of Marine Science

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Message from the Associate Dean of Research and Advisory Services

This Digest is intended to provide stakeholders, colleagues, and interested persons a sense of the depth and breadth of the research happening at VIMS. While we attempt to be as comprehensive as possible, it likely does not contain every article published in the issue's timespan due to differences in timelines and release dates across various publishers and databases that curate peer reviewed research.

If you are interested in reading the full text of any article that you do not have appropriate library/institution access for, please contact the VIMS author or corresponding author of the paper. Contact information for current VIMS scientists can be found on our website: www.vims.edu/about/directory/search/.

Mark W. Luckenbach, Associate Dean

Office of Research & Advisory Services
Virginia Institute of Marine Science
William & Mary

Topics In This Issue

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Navigating this document

Click on one of the headings listed above to jump to the desired section. Alternatively, search the document using keywords or an author's name. To search for words or names, simultaneously press the 'ctrl' and 'F' keys, type the desired word or name in the search field, then press 'enter' or 'return'. If the search term is in the document, it will be highlighted.

VIMS authors in this issue

(Listed alphabetically by last name. An asterisk (*) indicates VIMS student.)

Additional Topics

*(VIMS authors in **bold**, asterisk indicates VIMS student)*

Topic	**Economics**
Title	Market development for an invasive fish species: Blue catfish in the Chesapeake Bay, US.
Author(s)	**Scheld A.M.**, **Calhoun W.R.***, **Gilsinan C.B.***, **White S.B.**
Journal	Fisheries Research, 278: 107009 (2024)
Link	https://doi.org/10.1016/j.fishres.2024.107099
Summary	This research evaluated market development and consumer demand for wild caught blue catfish from the Chesapeake Bay, US using a small set of interviews with seafood processors and a large, online seafood consumer panel survey. Consumer willingness-to-pay was estimated at $9.70/lb to $22/lb, depending on product information provided.

Topic	**Management & Policy**
Title	A randomized controlled trial of a housing intervention to reduce endocrine disrupting chemical exposures in children
Author(s)	Fossa A.J., Manz K.E., Papandonatos G.D., Chen A., **La Guardia M.J.**, Lanphear B.P., **Hale R.C.**, Pagano A., Pennell K.D., Yolton K., Braun J.M.
Journal	Environment International, 191: 108994 (2024)
Link	https://doi.org/10.1016/j.envint.2024.108994
Summary	This study considered household interventions for reducing endocrine disrupting chemical (EDC) exposures during childhood. Results indicate household interventions that include paint stabilization and dust mitigation may reduce exposures to some EDCs in Black/African American children. Highlighting the need for larger studies with tailored and sustained housing interventions.

Topic	**Phycology**
Title	Genomic relationships among diploid and polyploid species of the genus *Ludwigia* L. section *Jussiaea* using a combination of molecular cytogenetic, morphological, and crossing investigations.
Author(s)	Barloy D., Portillo-Lemus L., **Krueger-Hadfield S.**, Huteau V., Coriton O.
Journal	Peer Community Journal, 4: art no. e8 (2024)
Link	https://doi.org/10.24072/pcjournal.364
Summary	This manuscript resolves the relationships of species in the genus *Ludwigia* - a riparian plant that has invasive species.

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Additional Topics (cont.)

*(VIMS authors in **bold**, asterisk indicates VIMS student)*

Topic	**Science Communication**
Title	Some baby fish like it hot, but not too hot
Author(s)	**Dichiera, A.**
Journal	Journal of Experimental Biology, 227(15): JEB246614 (2024)
Link	https://doi.org/10.1242/jeb.246614
Summary	This is a short science communication article for Blanchard, T.S., Earhart, M.L., Shatsky, A.K. and Schulte, P.S. (2024) summarizing how young Atlantic killifish from northern and southern populations cope with warming temperatures.

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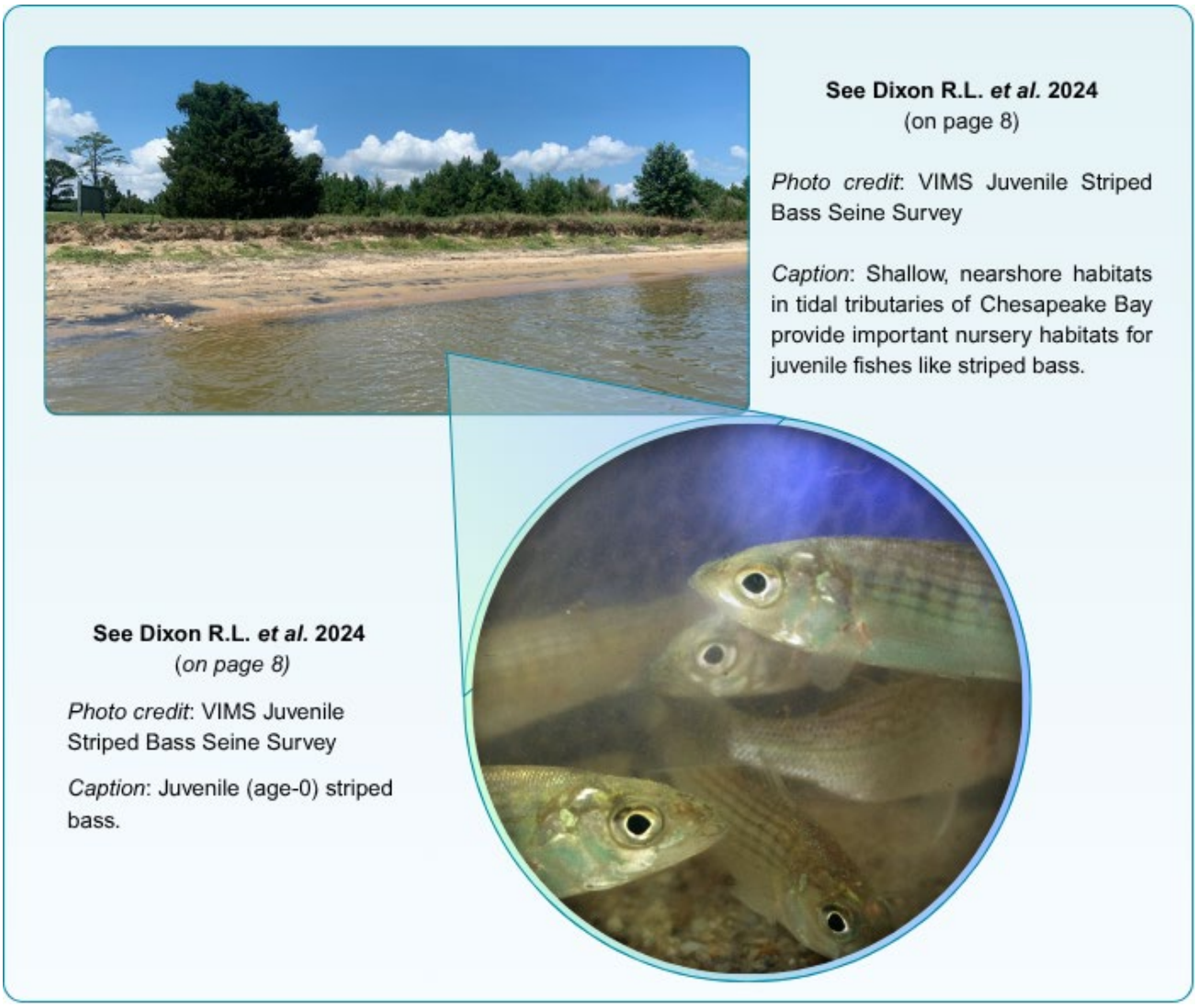

See Dixon R.L. *et al.* 2024
(on page 8)

Photo credit: VIMS Juvenile Striped Bass Seine Survey

Caption: Shallow, nearshore habitats in tidal tributaries of Chesapeake Bay provide important nursery habitats for juvenile fishes like striped bass.

See Dixon R.L. *et al.* 2024
(on page 8)

Photo credit: VIMS Juvenile Striped Bass Seine Survey

Caption: Juvenile (age-0) striped bass.

Biogeochemistry

*(VIMS authors in **bold**, asterisk indicates VIMS student)*

Title	Influence of rivers, tides, and tidal wetlands on estuarine carbonate system dynamics
Author(s)	**Da F.***, **Friedrichs M.A.M.**, **St-Laurent P.** et al.
Journal	Estuaries and Coasts, 47: pg. 2283–2305 (2024)
Link	https://doi.org/10.1007/s12237-024-01421-z
Summary	This study reveals that tidal wetlands contribute 20–30% of alkalinity and inorganic carbon fluxes to the York River estuary, and double estuarine CO2 outgassing. Carbonate system variability is driven by tides and precipitation, with wetter years increasing CO2 outgassing and dramatically increasing carbon exports to the mainstem Chesapeake Bay.

Title	Wetland soil characteristics influence the kinetics of dissolved organic carbon sorption
Author(s)	Morrissette H.K., Neale P.J., Megonigal J.P., Maria Tzortziou, **Canuel E.A.**, Pinsonneault A.J., Hood R.R.
Journal	Wetlands, 44(6):81
Link	https://doi.org/10.1007/s13157-024-01835-2
Summary	Sorption processes at the soil-water interface have been observed to be rapid and dominant pathways of dissolved organic carbon (DOC) exchange. However, kinetics data for sorption in any ecosystem are sparse, and specifically non-existent for temperate tidal marshes. In this study, sorption rate kinetics experiments were conducted to constrain new formulations of a sediment flux model coded to include explicit sorption between soil organic carbon and DOC pools.

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Climate Change

(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Next steps for assessing ocean iron fertilization for marine carbon dioxide removal
Author(s)	Buesseler K.O., Bianchi D., Chai F., Cullen J.T., Estapa M., Hawco N., John S., McGillicuddy, Jr. D.J., Morris P.J., Nawaz S., Nishioka J., Pham A., Ramakrishna K., Siegel D.A., Smith S.R., **Steinberg D.**, Turk-Kubo K.A., Twining B.S., Webb R.M., Wells M., White A., Xiu P., Yoon J.-E.
Journal	Frontiers in Climate, 6:1430957 (2024)
Link	https://doi.org/10.3389/fclim.2024.1430957
Summary	There are many potential approaches to marine carbon dioxide removal (mCDR), one of which is ocean iron fertilization (OIF). We present the activities needed to assess OIF from a scientific and technological perspective, and additionally, how it might be responsibly studied and potentially deployed.

Title	Response of hypoxia to future climate change is sensitive to methodological assumptions
Author(s)	**Hinson K.E.***, **Friedrichs M.A.M.**, Najjar R.G., Bian Z., Herrmann M., **St-Laurent P.**
Journal	Scientific Reports, 14: 17544 (2024)
Link	https://doi.org/10.1038/s41598-024-68329-3
Summary	This study uses multiple methodological approaches to apply future climate change scenarios to a linked terrestrial–estuarine model, with the goal of quantifying future projections of estuarine hypoxia in Chesapeake Bay. Results highlight the importance of considering model memory, climate variability, and method choice when developing future hypoxia projections.

Title	Characterizing climatic socio-environmental tipping points in coastal communities: A conceptual framework for research and practice
Author(s)	Shortridge J.E., Bukvic A., **Mitchell M.**, Goldstein J., Allen T.
Journal	Earth's Future 12(7): e2023EF004123 (2024)
Link	https://doi.org/10.1029/2023EF004123
Summary	The concept of climate tipping points in socio-environmental systems is increasingly being used to describe nonlinear climate change impacts and encourage social transformations in response to climate change. However, the processes that lead to these tipping points and their impacts are highly complex and deeply uncertain.

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Fish & Fisheries

(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Long-term dynamics of larval and early juvenile spot (*Leiostomus xanthurus*) off the U.S. East Coast: relating ocean origins, estuarine ingress, and changing environmental conditions.
Author(s)	Allen D.M., Govoni J.J., Able K.W., Buckel J.A., Hale E.A., **Hilton E.J.**, Kellison G.T., Targett T.E., Taylor J.C., Walsh H.J.
Journal	Fishery Bulletin, 122(4): 162-185 (2024)
Link	https://doi.org/10.7755/FB.122.4.3
Summary	Drawing from larval fish collections of Spot (*Leiostomus xanthurus*) along the U.S. East Coast, this study documented shifts in spawning (including north of Cape Hatteras), and correlation between water temperature and the timing and size of Spot ingress into estuaries over time.

Title	*Akarotaxis gouldae*, a new species of Antarctic dragonfish (Notothenioidei: Bathydraconidae) from the western Antarctic Peninsula
Author(s)	**Corso A.D.***, Desvignes T., **McDowell J.R.**, Cheng C.-H.C., **Biesack E.E.**, **Steinberg D.K.**, **Hilton E.J.**
Journal	*Zootaxa*, 5501(2): 265-290 (2024)
Link	https://doi.org/10.11646/zootaxa.5501.2.3
Summary	Bathydraconidae (Notothenioidei) are endemic to the Southern Ocean. We identified an undescribed species of this genus, herein named *Akarotaxis gouldae* **sp. nov**. (Banded Dragonfish). All currently known specimens have been collected from a restricted coastal section of the western Antarctic Peninsula, making them vulnerable as bycatch in the Antarctic krill fishery.

Title	Spatiotemporal variation in habitat suitability within a major producing area for age-0 Atlantic striped bass, *Morone saxatilis*
Author(s)	**Dixon R.L.***, **Fabrizio M.C.**, **Tuckey T.D.**, Bever A.J.
Journal	Estuaries and Coasts 47(8): 2473-2492 (2024)
Link	https://doi.org/10.1007/s12237-024-01408-w
Summary	Our study quantifies the extent of habitats used by juvenile (age-0) striped bass throughout shallow, nearshore areas in Chesapeake Bay from 1996-2017 through the development of habitat suitability models. Variation in nursery quality through space and across time can impact the production of juvenile fishes that support adult populations.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Assessing small pelagic fish trends in space and time using piscivore stomach contents
Author(s)	Gaichas S.K., **Gartland J.**, Smith B.E., Wood A.D., Ng E.L., Celestino M., Drew K., Tyrell A.S., Thorson J.T.
Journal	Journal of Fisheries and Aquatic Sciences 81(8): 990-1012 (2024)
Link	https://doi.org/10.1139/cjfas-2023-0093
Summary	Given that prey species are often poorly sampled by fisheries surveys, this study used spatiotemporal models applied to predator stomach content data to quantify trends in prey abundance. This "forage index" was incorporated into and improved the bluefish stock assessment, thereby advancing ecosystem-based fisheries management in the Northeast US.

Title	The use of artificial illumination to reduce Pacific halibut (*Hippoglossus stenolepis*) bycatch for a high-rise bottom trawl in the U.S. West Coast groundfish fishery
Author(s)	**Jackson D.N.**, Lomeli M.J. M., Yochum N., **Rudders D.B.**
Journal	Fisheries Research, 278: 107114 (2024)
Link	https://doi.org/10.1016/j.fishres.2024.107114
Summary	This study conducted catch comparison and catch ratio analyses to determine if catches of Pacific halibut and three commercially important groundfishes (e.g., petrale sole [*Eopsetta jordani*], Dover sole [*Microstomus pacificus*], and sablefish [*Anoplopoma fimbria*]) differ between illuminated and non-illuminated tows for a high-rise bottom trawl.

Title	Physiologically-informed predictions of climate warming effects on native and non-native populations of blue catfish
Author(s)	**Nepal V.**, **Dillon M.***, **Fabrizio M.C.**, **Tuckey T.D.**
Journal	Journal of Thermal Biology 124:103951 (2024)
Link	https://doi.org/10.1016/j.jtherbio.2024.103951
Summary	Non-native populations of blue catfish in the Chesapeake Bay region can survive temperatures as high as 38ºC for 5 days, suggesting that acute or chronic marine heat waves will not limit this species. However, the body condition of fish declines at temperatures above 32ºC.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Bioenergetic strategies contributing to the invasion success of blue catfish
Author(s)	**Nepal V.**, **Fabrizio M.C.**, Lavaud R., van der Meer J.
Journal	Ecological Modelling, 496: 110830 (2024)
Link	https://doi.org/10.1016/j.ecolmodel.2024.110830
Summary	We used a novel bioenergetics framework to disentangle the eco-physiological mechanisms that enabled blue catfish to become a successful invasive species in Chesapeake Bay. By applying Dynamic Energy Budget theory, the paper provides new insights into the species' metabolic adaptations, including low maintenance costs and high energy reserves, which contribute to its ecological success. This was the first published Dynamic Energy Budget model for an invasive fish species.

Title	Tracing Atlantic sea scallops using Radio Frequency Identification (RFID) technology
Author(s)	**Shoup W.***, **Rudders D.**, Peros J.
Journal	Journal of Extension 62(3): 10 (2024)
Link	https://open.clemson.edu/joe/vol62/iss3/10
Summary	Radio Frequency Identification (RFID) represents a technology that has the potential to enhance many aspects of the Atlantic sea scallop fishery. Driven by fishery management and market forces, fishery product traceability benefits fisheries managers, consumers, and fishermen. To demonstrate the capabilities of RFID technology, a solution is proposed that would help establish a clear Chain of Custody (CoC) and better document the scallop supply chain.

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Marine & Estuarine Ecology

(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Small pelagic fish: new frontiers in ecological research
Author(s)	Peck M.A., Catalán I.A., Garrido S., Rykaczewski R.R. **McDowell J.R.**, Hazen E.L., Kaplan I.C.
Journal	Marine Ecology Progress Series 741:1-6 (2024)
Link	https://doi.org/10.3354/meps14648
Summary	Populations of small pelagic fish (SPF) support some of the largest marine fisheries globally and are critical for trophic transfer in large marine ecosystems and food security. This symposium was an important milestone for a global working group and sowed the seeds for continued, globally coordinated research efforts on the role of SPF in complex socioecological systems.

Title	Nitrogen cycling in widgeongrass and eelgrass beds in the lower Chesapeake Bay.
Author(s)	**French, E.***, Smyth, A.R., Reynolds, L.K., **Moore, K.A.**
Journal	Nitrogen (Switzerland), 5(2): pg. 315-328 (2024)
Link	https://doi.org/10.3390/nitrogen5020021
Summary	This study found that seagrass biomass, sediment organic matter, and NH_4+ fluxes were significantly higher in eelgrass beds than in widgeongrass beds. Eelgrass was also net denitrifying during both seasons, while widgeongrass was only net denitrifying in the summer. Despite differences in the spring, the seagrass beds had a similar rate of N_2 production in the summer, and both had higher denitrification rates than unvegetated sediments.

Title	Microbiome signature of different stages of hypoxia event in Wonmun Bay
Author(s)	Park Y., Song B., Cha J., An S.
Journal	Marine Environmental Research 202: 106673 (2024)
Link	https://doi.org/10.1016/j.marenvres.2024.106673
Summary	Microbial community responses to hypoxia were analyzed in Wonmun Bay, South Korea, across depths. Seasonal shifts influenced microbial composition, with sulfur- and nitrogen-cycling microbes dominating during hypoxia. Freshwater discharge shaped early communities, pre-conditioning hypoxia. Our findings highlight microbial dynamics and biogeochemical interactions during hypoxic events in eutrophic coastal ecosystems.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Reviewing theory, design, and analysis of tethering experiments to enhance our understanding of predation
Author(s)	Rhoades O.K., **Patrick C.J.**, Ogburn M.B.
Journal	Marine Biology, 171: art no. 194 (2024)
Link	https://doi.org/10.1007/s00227-024-04503-5
Summary	This article describes the predation process as a series of probabilities and then connects this framework to a common method for evaluating predation in marine systems, tethering prey items. We find that tethering experiments are valuable tools for understanding consumption rates but inference can be enhanced through a suite of complementary measurements and design features.

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Title	Development of a total variation diminishing (TVD) sea ice transport scheme and its application in an ocean (SCHISM v5.11) and sea ice (Icepack v1.3.4) coupled model on unstructured grids
Author(s)	Wang Q., Zhang Y., Chai F., **Zhang Y.J.**, Zampieri L.
Journal	Geoscientific Model Development 17(18): 7067-7081 (2024)
Link	https://doi.org/10.5194/gmd-17-7067-2024
Summary	As the demand for increased resolution and complexity in unstructured sea ice models is growing, higher demands are also placed on the sea ice transport scheme. In this study, we couple the Semi-implicit Cross-scale Hydroscience Integrated System Model (SCHISM, v5.11) with Icepack (v1.3.4), the column physics package of the Los Alamos sea ice model (CICE), a key step is to implement a total variation diminishing (TVD) transport scheme for the multi-class sea ice module in the coupled model.

Title	Debunking common myths in coastal circulation modeling
Author(s)	**Zhang Y.J.**, Anderson J., Park K., *et al.*
Journal	Ocean Modelling, 190: 102401 (2024)
Link	https://doi.org/10.1016/j.ocemod.2024.102401
Summary	Through qualitative and quantitative model assessments, we demonstrate the fundamental role played by bathymetry/topography as embedded in digital elevation models (DEMs) in making the results defensible, which is unfortunately glossed over in many modeling studies. We present some best practice procedures for defensive and trustworthy numerical modeling.

Title	Internal tides reverse tidal currents around southern Taiwan
Author(s)	**Yu H.-C.**, **Zhang Y.J.**, Jan S., Yu J.C.S., Chu C.-H., Terng C.-T., Chiu C.-M.
Journal	Journal of Geophysical Research: Oceans 129(8): e2024JC020897 (2024)
Link	https://doi.org/10.1029/2024JC020897
Summary	Observed tidal current in southern Taiwan, especially near Kaohsiung area are opposite to the prediction from most tidal models that suggest the flood currents are directed northwestward in southern Taiwan. In this study, we develop a 3D model and conduct sensitivity tests to reveal the exact cause of this unusual flow feature: the internal tides propagated from Luzon strait.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Nutritional condition drives spatial variation in physiology of Antarctic lipid-storing copepods
Author(s)	Berger, C.A., **Steinberg, D.K.**, Tarrant, A.M.
Journal	Ecology and Evolution, 14: e70210 (2024)
Link	https://doi.org/10.1002/ece3.70210
Summary	Lipid-rich copepods form an essential link between primary producers and higher trophic levels in polar oceans. Transcriptomics and other physiological metrics were used to understand how condition of two species of copepods vary across environmental gradients along the West Antarctic Peninsula.

Title	Microbial community composition predicts bacterial production across ocean ecosystems
Author(s)	Connors E., Dutta A., Trinh R., Erazo N., Dasarathy S., Ducklow H., Weissman J.L., Yeh Y.-C., Schofield O., **Steinberg D.K.**, Fuhrman J., Bowman J.S.
Journal	The ISME Journal, 18(1): wrae158 (2024)
Link	https://doi.org/10.1093/ismejo/wrae158
Summary	There is a strong link between microbial community composition and microbial ecosystem function in a coastal Antarctic plankton community.

Title	Changing source waters on the Northeast U.S. continental shelf: Variation in nutrient supply and phytoplankton biomass
Author(s)	Friedland K.D., Fratantoni P., Silver A., Brady D.C., Gangopadhyay A., Large S.I., Morse R.E., Townsend D.W., **Friedrichs M.A.M.**, Melrose D.C.
Journal	Continental Shelf Research, 281: 105319 (2024)
Link	https://doi.org/10.1016/j.csr.2024.105319
Summary	The Northeast US Continental Shelf has seen significant phytoplankton chlorophyll variability over the past 25 years, primarily due to changes in nutrient supply via deep channels rather than river discharge or warm-core rings. Chlorophyll was positively correlated with the advection of Labrador Slope Water, likely leading to enhanced fishery production.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Ecological investigations of giant *Phaeocystis* colonies in Viet Nam: I. Cell abundance and elemental composition
Author(s)	Meng R., **Smith W.O.**, Cao R., Doan-Nhu H., Nguyen-Ngoc L., Wang J.
Journal	Journal of Phycology, 60(4): 968-979 (2024)
Link	https://doi.org/10.1111/jpy.13479
Summary	This study described the unusual characteristics of a clone of the alga *Phaeocystis globosa* found off the coast of Viet Nam. The relationship between colony size and cell numbers is quantified, and the appearance of photosynthetic pigments documented.

Title	Ecological investigations of giant *Phaeocystis* colonies in Viet Nam: II. Photosynthesis-irradiance characteristics and nitrogen uptake
Author(s)	Meng R., **Smith W.O.**, Cao R., Doan-Nhu H., Nguyen-Ngoc L.
Journal	Journal of Phycology, 60(5): 1273-1284 (2024)
Link	https://doi.org/10.1111/jpy.13501
Summary	This study describes the uptake of carbon under specific irradiance conditions, as well as the incorporation of nitrate and ammonium. Maximum photosynthetic rates suggest the alga was acclimated to low intensities, despite the surface irradiances measured. Nitrate was the preferred nitrogen source.

Title	Antarctic pelagic ecosystems on a warming planet
Author(s)	Schofield O., Cimino M., Doney S., Friedlaender A., Meredith M., Moffat C., Stammerjohn S., Van Mooy B., **Steinberg D.K.**
Journal	Trends in Ecology & Evolution, 39(12): 1141-1153 (2024)
Link	https://doi.org/10.1016/j.tree.2024.08.007
Summary	Polar pelagic marine ecosystems are vulnerable to climate change because of the intertwining of sea/continental ice dynamics, physics, biogeochemistry, and food-web structure. This review examines how climate-induced changes ripple through the plankton, shifting the magnitude of primary production and its community composition, altering the abundance of krill and other prey essential for marine mammals and seabirds.

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Shellfish & Crustaceans

(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Development and validation of a 66K SNP array for the hard clam (*Mercenaria mercenaria*)
Author(s)	Grouzdev D., Farhat S., Guo X., Espinosa E.P., **Reece K.**, **McDowell J.R.**, Yang H., Rivara G., Reitsma J., Clemetson A., Tanguy A., Allam B.
Journal	BMC Genomics 25(1):847 (2024)
Link	https://doi.org/10.1186/s12864-024-10756-7
Summary	The hard clam (*Mercenaria mercenaria*) supports a significant shellfish industry. The transition from wild harvest to aquaculture has enhanced production but exacerbated challenges, including disease outbreaks. We developed and validated a 66K SNP array designed to advance genetic studies and improve breeding programs in the hard clam.

Title	Evaluation of the Chesapeake Bay blue crab sanctuary through habitat suitability
Author(s)	**Ralph G.M.**, **Gartland J.**, **Latour R.J.**
Journal	Marine Ecology Progress Series, 739: pg. 111-128 (2024)
Link	https://doi.org/10.3354/meps14621
Summary	Despite multiple management actions, blue crab abundances remain highly variable prompting an evaluation of the blue crab spawning sanctuary using long term survey data. Habitat suitability models revealed the sanctuary's protection of significant suitable habitat, especially in low abundance years, underscoring its importance for mature female crabs.

Title	Brood-grooming behavior of American lobsters *Homarus americanus* in conditions of ocean warming and acidification
Author(s)	**Sisti A.R.***, Jellison B., **Shields J.D.**, **Rivest E.B.**
Journal	Marine Ecology Progress Series 744: pg. 83-99 (2024)
Link	https://doi.org/10.3354/meps14667
Summary	Brood grooming behavior did not appear to differ among lobsters held under different conditions of temperature or ocean acidification. Reproduction of American lobsters appears resilient to future conditions of ocean acidification and warming based on their ability to maintain brood grooming behaviors and brood mortality levels.

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(*VIMS authors in **bold**, asterisk indicates VIMS student*)

Title	Flow-dependent color patches in a Great Plains river
Author(s)	**Bruns N.E.**, Gardner J.R., Doyle M.
Journal	Journal of Geophysical Research: Biogeosciences 129(7): e2023JG007867 (2024)
Link	https://doi.org/10.1029/2023JG007867
Summary	Satellite-derived river color profiles reveal surprising flow-dependent patchiness in a large Great Plains river. Above a threshold, the river was uniformly yellow. Below, it appeared greener, with distinct green patches. In-situ data suggest these patches were biologically driven, caused by increased phytoplankton accumulation upstream of run-of-river dams.

Title	Fish kill lessons and data needs: a spatiotemporal analysis of citizen fish kill reports in coastal SW Florida
Author(s)	Fernandez-Figueroa E.G., **Mapes S.A.***, Rogers S.R.
Journal	Marine Ecology Progress Series 742: pg. 21-33 (2024)
Link	https://doi.org/10.3354/meps14627
Summary	Fish kill events in coastal SW Florida are frequent but poorly documented. This study analyzed 2010-2022 Fish Kill Hotline reports, red tide-related manatee deaths, and surveys to identify patterns. Reports tracked location and duration but lacked species data. Findings suggest improved citizen resources for fish identification and enumeration are needed.

Title	Physical and biological controls on short-term variations in dissolved oxygen in shallow waters of a large temperate estuary
Author(s)	Testa J.M., Liu W., Boynton W.R., Breitburg D., **Friedrichs C.**, Li M., **Parrish D.***, Trice T.M., Brady D.C.
Journal	Estuaries and Coasts 47(6): 1456-1474 (2024)
Link	https://doi.org/10.1007/s12237-024-01372-5
Summary	High-frequency observations in shallow areas of Chesapeake Bay reveal how daily, light-driven oxygen variations are strongly influenced by wind, temperature, chlorophyll, and turbidity. These new insights can help inform updated water quality models to support the management of estuaries in the face of climate change and nutrient reduction efforts.

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