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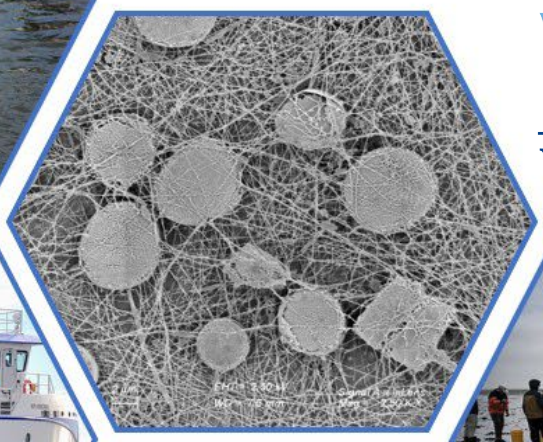
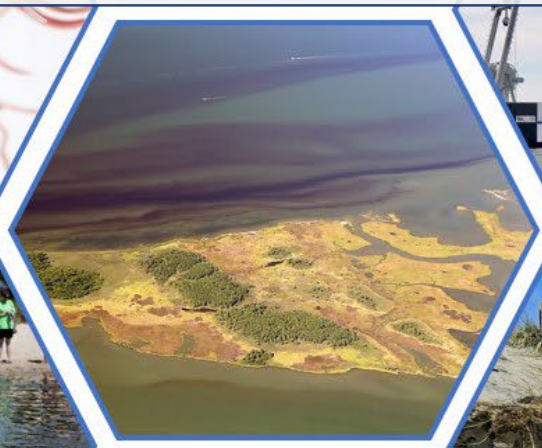





Research Digest

Issue No. 5 (October - December 2022)







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Message from the Associate Dean of Research and Advisory Services

In addition to peer reviewed publications, this issue of the VIMS Research Digest includes, and subsequent issues will also include, annual survey reports, white papers, and technical reports authored by VIMS researchers or co-authored by VIMS and W&M graduate students. The inclusion of "gray literature", like the inclusion of peer reviewed publications, is intended to inform external VIMS partners of relevant and timely research that informs advisory services, support and inform conservation and restoration activities in marine systems and contribute to the body of knowledge in the field of marine science.

Annual survey reports, white papers, and technical reports authored by VIMS researchers can be found in William & Mary (W&M) ScholarWorks. W&M ScholarWorks is an open access repository and online publishing platform administered by W&M Libraries. It provides global access to the work of W&M faculty, staff, and students. In addition to survey reports, white papers, and technical reports, the repository contains a wide range of materials including, but not limited to, unpublished scholarly work, final grant reports, data sets, and much more. Links to reports in ScholarWorks are provided throughout the VIMS Research Digest and access to the database is open and free of charge.
We hope the Research Digest continues to be a useful source of information and a conduit to the breadth of research conducted at VIMS.

Mark W. Luckenbach, Associate Dean

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

Title	*Vibrio vulnificus* and *Vibrio parahaemolyticus* in oysters under low tidal range conditions: Is seawater analysis useful for risk assessment?
Authors	**Audemard C.**, Ben-Horin T., **Kator H.I.**, **Reece K.S.**
Journal	Foods, 11, art. no. 4065
Link	https://doi.org/10.3390/foods11244065
Summary	Human-pathogenic Vibrio bacteria are acquired by oysters through filtering seawater, however, the relationships between levels of these bacteria in measured in oysters and overlying waters are inconsistent across regions. Within the lower Chesapeake Bay region, we found that concentration of these bacteria in oysters responded positively to their seawater concentrations and we hypothesize that such seawater-oyster coupling can be observed in regions of low tidal range.

Title	Effect of ploidy level on accumulation and depuration of *Vibrio parahaemolyticus* in Pacific oyster *Crassostrea gigas*
Authors	Sorée M., Le Meleder A., Maurouard E., Lozach S., Papin M., Stavrakakis C., **Audemard C.**, Heath D.H., Dégremont L.
Journal	Aquaculture, 563, art. no. 738992
Link	https://doi.org/10.1016/j.aquaculture.2022.738992
Summary	We assessed the impact of *Crassostrea gigas* oyster ploidy on contamination with indigenous *Vibrio parahaemolyticus* (Vp) in an oyster farm, and on the accumulation and depuration of Vp in laboratory experiments. Overall, our study suggests that Vp levels in *C. gigas* are not influenced by oyster ploidy.

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Title	Annual Report - 2021 Data collection and analysis in support of single and multispecies stock assessments in Chesapeake Bay: The Chesapeake Bay Multispecies Monitoring and Assessment Program
Authors	**Bonzek, C.F.**, **Gartland, J.***, **Gauthier, D.J.**, **Latour, R.J.**
Database	ScholarWorks, Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/k7xj-e205
Summary	ChesMMAP is the only Chesapeake Bay-wide survey of the region's fishery resources. The survey targets late-juvenile-to-adult fishes and quantifies abundance, size-age and other biological characteristics including ecological interactions estimated by gut contents analyses.

Title	Test and Implement Commercial Grade Biodegradable Hinges on Dungeness Crab Traps (VA, WA, AK)
Authors	**Center for Coastal Resources Management**
Database	ScholarWorks, Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/48EB-3Q50
Summary	Recreational Dungeness crab fishers in Alaska and Washington state tested commercially produced biodegradable hinges (biohinges) on traps as a solution to minimize the adverse impacts of derelict traps. In general fishers in both States felt the biohinge a worthwhile concept; potentially as a redundancy feature to existing rot cord requirements.

Title	Extent of Suitable Habitats for Juvenile Striped Bass: Dynamics and Implications for Recruitment in Chesapeake Bay
Authors	**Dixon, R.L.***, **Fabrizio, M.C.**, **Tuckey, T.D.**, **Bever, A.J.**
Database	ScholarWorks, Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/v87b-6b43
Summary	The annual production of striped bass in estuarine nursery areas is critical to support recreational and commercial fisheries. This research seeks to quantify and map habitats used by juvenile striped bass and understand how the extent of high-quality habitats may affect abundance of this species in Chesapeake Bay.

Title	Editorial: Habitat and distribution models of marine and estuarine species: Advances for a sustainable future
Authors	**Fabrizio M.C.**, Henderson M.J., Rose K., Petitgas P.
Journal	Frontiers in Marine Science, 9, art. no. 1050548
Link	https://doi.org/10.3389/fmars.2022.1050548
Summary	Fabrizio et al. provides a synthesis of 14 papers published in a special issue of Frontiers in Marine Science concerning habitat and species distribution models for a wide array of marine and estuarine species.

Title	Beautiful swimmers attack at low tide
Authors	**Johnson D.S.**
Journal	Ecology, 103, art. no. e3787
Link	https://doi.org/10.1002/ecy.3787
Summary	We know that blue crabs feed in salt marshes at high tide. I discovered that some blue crabs stay in the marsh at low tide to continue feeding. They do this by digging small feeding pits and ambushing fiddler crabs and purple marsh crabs. This research shows how valuable salt marshes can be to this vital fishery.

Title	Using Forward and Backward Particle Tracking Approaches to Analyze Impacts of a Water Intake on Ichthyoplankton Mortality in the Appomattox River
Authors	**Qin Q.**, **Shen J.**, **Tuckey T.D.**, **Cai X.**, **Xiong J.**
Journal	Journal of Marine Science and Engineering, 10, art. no. 1299
Link	https://doi.org/10.3390/jmse10091299
Summary	We investigated the ecological impact of a water municipal intake on the mortality of ichthyoplankton (fish eggs and larvae) and how the intake impact varies with spawning locations, flow conditions, and vertical velocity of ichthyoplankton, using a particle tracking model with a fine-resolution grid (<1 m) near the intake.

Title	Examination into a Vessel Effect for a Multi-Vessel Industry-Based Sea Scallop Dredge Survey
Authors	**Roman S.**, **Rudders D.B.**
Journal	Journal of Shellfish Research, 41, pp. 173-187
Link	https://doi.org/10.2983/035.041.0202
Summary	We tested to see if the use of different commercial scallop vessels used during resource assessment surveys impacted survey results. No effect of using different vessels was found.

Title	A Cooperative High Precision Dredge Survey to Assess the Mid-Atlantic Sea Scallop Resource Area in 2019 and 2020: Final Report
Authors	**Roman, S.A.**, **Rudders, D.A.**
Database	ScholarWorks, Marine Resource Report No. 2022-1. Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/e2ar-7x16
Summary	We summarized results from resource assessment surveys of the Mid-Atlantic sea scallop resource conducted in 2019 and 2020.

Title	Spatial differences in estuarine utilization by seasonally resident species in Mid-Atlantic Bight, USA
Authors	**Schonfeld A.J.***, **Gartland J.***, **Latour R.J.**
Journal	Fisheries Oceanography, 31, pp. 615-628
Link	https://doi.org/10.1111/fog.12611
Summary	Significant decreases in relative habitat usage of Chesapeake Bay compared to the coastal ocean was found for several seasonally-resident species, but such declines were not seen in Delaware Bay relative usage. North Atlantic Oscillation and spring water temperature were significant drivers of exchange, respectively, indicating spatial differences in impacts of climate change.

Title	Evaluating recruitment of American eel, *Anguilla rostrata*, in the Potomac River (Spring 2022)
Authors	**Tuckey, T.D., Fabrizio, M.C.**
Database	ScholarWorks, Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/D629?K774
Summary	This report summarizes the 2022 monitoring effort of glass-stage American eel in support of an Atlantic States Marine Fisheries Commission mandate. We observed the highest level of recruitment of glass eels since monitoring began in 2000 at the site on the Potomac River.

Title	Making sense of multivariate community responses in global change experiments
Authors	Avolio M.L., Komatsu K.J., Koerner S.E., Grman E., Isbell F., **Johnson D.S.**, Wilcox K.R., Alatalo J.M., Baldwin A.H., Beierkuhnlein C., Britton A.J., Foster B.L., Harmens H., Kern C.C., Li W., McLaren J.R., Reich P.B., Souza L., Yu Q., Zhang Y.
Journal	Ecosphere, 13, art. no. e4249
Link	https://doi.org/10.1002/ecs2.4249
Summary	Here we show that by combing two common multivariate methods - rank-abundance curves and dissimilarity metrics - researchers can better determine the effect of global-change experiments (e.g., nutrients, temperature).

Title	Applied sensory physiology and behavior
Authors	Horodysky A.Z., Schweitzer C.C., **Brill R.W.**
Journal	Fish Physiology, 39, pp. 33-90
Link	https://doi.org/10.1016/bs.fp.2022.04.002
Summary	This chapter summarizes the biotic and abiotic stimuli available to fishes, elucidates how fish sensory systems transduce relevant cues from the environment into actionable information, and demonstrates how sensory knowledge has been, and can be, used to address applied issues in fisheries management.

Title	Low-head dam removal increases functional diversity of stream fish assemblages
Authors	Jones A.C., Meiners S.J., Effert-Fanta E., Thomas T., **Smith S.C.F.**, Colombo R.E.
Journal	River Research and Applications, 39, pp. 3-20
Link	https://doi.org/10.1002/rra.4063
Summary	A comparison of two Illinois rivers before and after dam removal yielded changes in fish community structure and habitat quality. After dam removal there was a pronounced shift towards natural habitat diversity, improved water quality, and increased functional diversity of the fish assemblage.

Title	Effects of Altered Stock Assessment Frequency on the Management of a Large Coastal Shark
Authors	Peterson C.D., Wilberg M.J., Cortés E., Courtney D.L., **Latour R.J.**
Journal	Marine and Coastal Fisheries, 14, art. no. e10221
Link	https://doi.org/10.1002/mcf2.10221
Summary	Stock assessments are particularly resource-intensive processes. Demand for assessments typically exceeds capacity, stimulating interest in reducing stock assessment frequency for suitable species. Species with slow population growth rates like coastal sharks in the USA, have been identified as appropriate candidates for long-interim assessment periods. We conducted a management strategy evaluation to assess the impact of stock assessment frequency for the sandbar shark and found it could reasonably be reduced in the future to once every 10 or more years without compromising management success.

Title	Effects of unregulated international fishing on recovery potential of the sandbar shark within the southeastern United States
Authors	Peterson C.D., Wilberg M.J., Cortés E., Courtney D.L., **Latour R.J.**
Journal	Canadian Journal of Fisheries and Aquatic Sciences, 79, pp. 1497-1513
Link	https://doi.org/10.1139/cjfas-2021-0345
Summary	Coastal sharks are challenging to manage in the United States due to their slow life history, limited data availability, history of overexploitation, and competing stakeholder interests. Furthermore, species like the sandbar shark are subjected to international exploitation unmanaged by the US. We conducted a management strategy evaluation on the sandbar shark to test the performance of various control rules that could be used to set harvest limits. We found that the presence of unregulated removals (the combined Mexican and US recreational fishery - MexRec) had the potential to significantly influence the success of the various management procedures tested. Notably, if MexRec catches continue to increase with total stock abundance following historical trends, the rate of MexRec removals will be too large to allow the sandbar shark to recover.

Title	Skeletal ontogeny of the Plainfin Midshipman, *Porichthys notatus* (Percomorphacea: Batrachoidiformes)
Authors	**Vaz D.F.B**.*, **Hilton E.J.**
Journal	Journal of Anatomy, 242, pp. 447-494
Link	https://doi.org/10.1111/joa.13794
Summary	This article describes the development of the cartilages and bones in the skeleton of the Plainfin Midshipman, *Porichthys notatus*, a member of the toadfish family, Batrachoididae, found along Pacific coast of North America. The development of the skeleton of this species is used as a model to better understand the peculiar anatomy of the toadfishes generally, and to better understand the evolutionary history of the skeletal novelties that are specific to these fishes.

Chapter Title	Applied sensory physiology and behavior
Authors	Horodysky, A. Z., Schweitzer, C. C., **Brill, R. W.**
Book	Conservation Physiology for the Anthropocene – A Systems Approach, 39A, pp. 33-90
ISBN	9780128242674
Summary	Since the Industrial Revolution, the cuescape of stimuli available to fishes is changing at a pace faster than the evolution of sensory systems. This chapter summarizes the biotic and abiotic stimuli available to fishes, elucidates how fish sensory systems transduce relevant cues from the environment into actionable information, and demonstrates how sensory knowledge has been and can be used to address applied issues in fisheries management.

Chapter Title	Origin and diversity of early teleostean fishes
Authors	**Hilton, E.J.**
Book	Coastal Fishes of the Western Indian Ocean, 2, pp. 1-17
Link	https://www.saiab.ac.za/uploads/files/1._wiof_volume_2_text.pdf
Summary	With more than 27 000 species, teleostean fishes constitute well over half of all extant vertebrate diversity. In this chapter, I review the taxonomic groups of fishes at or near the base of teleostean evolution, their diversity, and their geologic and ecological context.

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Title	Increasing use of natural and nature-based features to build resilience to storm-driven flooding, Final Report
Authors	**Center for Coastal Resources Management**
Database	ScholarWorks, Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/GPAS-KV09
Summary	This analysis enabled the development of a ranking scheme for existing NNBFs based on provision of flood benefits, water quality and potential FEMA National Flood Insurance Program Community Rating System credits. The inundation pathways were used to identify coastal buildings lacking NNBF services which are highlighted for NNBF project implementation.

Title	Virginia Game Fish Tagging Program: A Nontraditional Data Source for Fisheries Management
Authors	**Musick S.**, Gillingham L., Perkinson M., Teears T.
Journal	Fisheries, 47, pp. 478-481
Link	https://doi.org/10.1002/fsh.10799
Summary	Since 1995, the Virginia Game Fish Tagging Program (VGFTP) has collected data for marine fishes in cooperation with skilled volunteers. More than 380,000 fishes were tagged, and the resulting data provide insight into fish movement and site fidelity patterns of species in the Chesapeake Bay and Atlantic coastal waters.

Title	Nature-based coastal defense: Developing the knowledge needed for wider implementation of living shorelines
Authors	Morris R.L., **Bilkovic D.M.**, Walles B., Strain E.M.A.
Journal	Ecological Engineering, 185, art. no. 106798
Link	https://doi.org/10.1016/j.ecoleng.2022.106798
Summary	This paper summarizes the state of the science and barriers to the broad implementation of living shorelines. This work serves to frame and introduce a special issue with research aiming to fill knowledge gaps that affect the ability to practically design and implement nature-based methods for coastal protection at scale to create a shift from management approaches that cause shoreline degradation to those that maintain the natural ecological functions and services into the future.

Chapter Title	Roles of Women in Satoumi
Authors	**Mizuta, D. D.,** Vlachopoulou, E. I.
Journal	Satoumi Science
Link	https://doi.org/10.1007/978-981-16-7491-4
Summary	The small-scale fisheries and aquaculture sectors have been traditionally perceived as a male-dominated environment; yet, women play a multitude of essential roles not only to support and maintain the industry but also to rejuvenate it through innovation. This essay examines the diverse roles of women in the process of satoumi co-creation in Japan, by exploring women-led examples of creating linkages between the community and the coastal environment. The role of women in promoting fair and equitable collaborations of diverse actors in satoumi co-creation processes will be discussed through a lens of challenges and opportunities for participatory processes.

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Title	Ecological Monitoring Program at VIMS ESL: Annual report 2021
Authors	**Ross, P.G.**, **Snyder, R.A.**
Journal	VIMS Eastern Shore Laboratory Technical Report No. 9. Virginia Institute of Marine Science, William & Mary.
Link	https://doi.org/10.25773/evhr-a810
Summary	An Ecological Monitoring Program has been established at the VIMS Eastern Shore Laboratory for the coastal environment near the lab in Wachapreague, VA. This annual report summarizes basic data related to several monitoring components including multiple aspects of water quality, various biological community structures, and mapping saltmarshes and mudflats/macroalgae.

Title	A size-based stock assessment model for invasive blue catfish in a Chesapeake Bay sub-estuary during 2001–2016
Authors	Hilling C.D., Jiao Y., **Fabrizio M.C.**, Angermeier P.L., Bunch A.J., **Orth D.J**.
Journal	Fisheries Management and Ecology, 30, pp. 70-88
Link	https://doi.org/10.1111/fme.12601
Summary	Hilling et al. describes the first attempt to estimate population size for the invasive blue catfish population in freshwater and tidal regions of the James River.

Chapter Title	Effect of climate change on regeneration of seagrasses from seeds
Authors	Kendrick, G. A., **Orth, R. J.**, Sinclair, E. A., Statton, J.
Book Title	Plant Regeneration from seeds: A Global Warming Perspective, pp. 275-284
Link	https://doi.org/10.1016/B978-0-12-823731-1.00011-1
Summary	This chapter reviews our knowledge and predictions about the effects of climate change on regeneration of seagrasses from seeds

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Title	Shear Turbulence in the High-Wind Southern Ocean Using Direct Measurements
Authors	**Ferris L.***, **Gong D.**, Clayson C.A., Merrifield S., Shroyer E.L., Smith M., Laurent L.S.
Journal	Journal of Physical Oceanography, 52, pp. 2325-2341
Link	https://doi.org/10.1175/JPO-D-21-0015.1
Summary	Oceanographers use boundary layer scalings (BLS) to estimate turbulence caused by wind. We compared turbulence measured by a robot to turbulence estimated from wind speed to assess performance of BLS in stormy places. We found estimates are 10 times too small or large in different parts of the surface ocean.

Title	Wave-induced mean currents and setup over barred and steep sandy beaches
Authors	Martins K., Bertin X., Mengual B., Pezerat M., Lavaud L., Guérin T., **Zhang Y.J.**
Journal	Ocean Modelling, 179, art. no. 102110
Link	https://doi.org/10.1016/j.ocemod.2022.102110
Summary	Wind-generated surface waves breaking in the nearshore cause an increase in mean water levels, (‘wave setup’), which can represent a significant fraction of storm surges developing both along open coasts and over sheltered areas. We use a 3D model to simulate the wave runup and turbulence in the complex surf zone.

Title	Seasonal controls on nearshore dissolved oxygen variability and hypoxia in a coastal embayment
Authors	Walter R.K., Huie S.A., Abraham J.C.P., Pasulka A., Davis K.A., Connolly T.P., **Mazzini P.L.F.**, Robbins I.
Journal	Estuarine, Coastal and Shelf Science, 278, art. no. 108123
Link	https://doi.org/10.1016/j.ecss.2022.108123
Summary	Oceanographic surveys were conducted to understand seasonal controls on dissolved oxygen (DO) in a coastal upwelling embayment. Observations revealed a shift in the strength and magnitude of physical versus biological processes driving nearshore DO dynamics. The high spatiotemporal variability of DO in upwelling bays means that they are likely to be at the forefront of ecosystem impacts of and adaptations to climate change.

Title	The spatio-temporal distribution and transport of suspended sediment in Laizhou Bay: Insights from hydrological and sedimentological investigations
Authors	Xie B., Bao R., **Yin D.**, Zhu L., Hu R., Cai W., Liu T., Lin C., Lu P.
Journal	Frontiers in Earth Science, 10, art. no. 994258
Link	https://doi.org/10.3389/feart.2022.994258
Summary	This research studied the spatial and temporal distribution of suspended sediment, as well as the controlling factors behind it, in LaiZhou Bay, China.

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Title	Quantifying Seasonal Particulate Organic Carbon Concentrations and Export Potential in the Southwestern Ross Sea Using Autonomous Gliders
Authors	**Meyer M.G.**, Jones R.M., **Smith W.O.**
Journal	Journal of Geophysical Research: Oceans, 127, art. no. e2022JC018798
Link	https://doi.org/10.1029/2022JC018798
Summary	Using data from an autonomous vehicle in the Ross Sea, the carbon budget for the upper 250 m of the water column was created. Three phases were observed, corresponding the rapid increases in particles, a constant level, and declining levels. A simple model was constructed to show that vertical flux was low during the period of observations, and remineralization in the upper 150 m was extensive.

Title	Feeding ecology and microbiome of the pteropod *Limacina helicina antarctica*
Authors	**Thibodeau P.S.***, **Song B.**, Moreno C.M., **Steinberg D.K.**
Journal	Aquatic Microbial Ecology, 88, pp. 19-24
Link	https://doi.org/10.3354/ame01981
Summary	Pteropods are abundant zooplankton in the Southern Ocean but little is known about their feeding ecology or microbiome. We investigated the gut contents of *Limacina helicina antarctica* with high throughput sequencing.

Title	Storm-induced coastward expansion of *Margalefidinium polykrikoides* bloom in Chesapeake Bay
Authors	**Xiong J.**, **Shen J.**, Wang Q.
Journal	Marine Pollution Bulletin, 184, art. no. 114187
Link	https://doi.org/10.1016/j.marpolbul.2022.114187
Summary	The causes of the expansion of harmful algal bloom (HAB) to the coast in 2020 after a storm passed Chesapeake were investigated by a particle-tracking HAB model. The persistent southerly winds favored the delivery of bloom inside the bay to the coast. Storm-induced upwelling iterating with algal diel vertical migrations formed a transport barrier enabling HAB in the coast.

Title	A Mollicutes Metagenome-Assembled Genome from the Gut of the Pteropod *Limacina rangii*
Authors	Pimentel Z.T., **Thibodeau P.S.**, **Song B.**, Zhang Y.
Journal	Microbiology Resource Announcements, 11, art. no. e75222
Link	https://doi.org/10.1128/mra.00752-22
Summary	Pteropod (pelagic snail) guts collected from the Western Antarctic Peninsula were sequenced to produce a Metagenome-Assembled Genome for a pervasive bacteria increasingly identified in mollusk guts called Mollicutes.

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Title	Climate-driven decoupling of wetland and upland biomass trends on the mid-Atlantic coast
Authors	**Chen Y.**, **Kirwan M.L.**
Journal	Nature Geoscience, 15, pp. 913-918
Link	https://doi.org/10.1038/s41561-022-01041-x
Summary	Sea-level rise threatens coastal carbon pools, but responses of the broader coastal landscape to interacting facets of climate change remain poorly understood. Here we show that carbon loss from coastal wetlands in the US mid-Atlantic due to sea-level rise is actually offset by warming-driven greening of adjacent upland forests.

Title	Hidden levees: Small-scale flood defense on rural coasts
Authors	**Hall E.A.***, **Molino G.D*.**, **Messerschmidt T.C.***, **Kirwan M.L.**
Journal	Anthropocene, 40, art. no. 100350
Link	https://doi.org/10.1016/j.ancene.2022.100350
Summary	Private landowners in the Chesapeake Bay region have been using small-scale earthen levees to protect their property from inundation for centuries. However, there are no records of these features nor any assessment on their effectiveness. Our results suggest that historically, these features may have impeded marsh migration, but the impacts of abandoned levees on the landscape today are less clear.

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Title	Biological responses of the predatory blue crab and its hard clam prey to ocean acidification and low salinity
Authors	**Longmire K.S.***, **Seitz R.D.**, **Seebo M.S.**, **Brill R.W.**, **Lipcius R.N.**
Journal	Marine Ecology Progress Series, 701, pp. 67-81
Link	https://doi.org/10.3354/meps14198
Summary	We assessed ocean acidification and low salinity on young hard clams and blue crabs to determine individual impacts and predator-prey interactions under projected climate change. Both stressors affected clams more severely than crabs, but their predator-prey interaction was inconclusive. Understanding how multiple stressors impact populations is necessary for future management.

Title	A Global Review of Catch Efficiencies of Towed Fishing Gears Targeting Scallops
Authors	Delargy, A.J., Blackadder, L., Bloor, I., McMinn, C., **Rudders, D.B.**, Szostek, C.L., Dobby, H., Kangas, M., Stewart, B.D., Williams, J.R. and Stokesbury, K.D.
Journal	Reviews in Fisheries Science and Aquaculture
Link	https://doi.org/10.1080/23308249.2022.2139170
Summary	Fisheries resources are often viewed through the lens of data obtained via the sampling gear used. Scallop species worldwide are sampled with a variety of fishing gear and understanding the fraction of the population captured is critical to translating observations into information used to manage these resources. This article synthesizes and discusses estimates of catch efficiency of towed gears used to target scallops, the methods for estimating catch efficiency and the factors that influence these estimates.

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Title	Demographic and Trophic Analysis of Adult Grass Shrimp (*Palaemonetes pugio*) from Living Shoreline and Natural Tidal Marshes in the Chesapeake Bay
Authors	Levine A.J., Turrietta E.M., **Bilkovic D.M.**, Chambers R.M.
Journal	Northeastern Naturalist, 29, pp. 207-228
Link	https://doi.org/10.1656/045.029.0204
Summary	With extensive and ongoing human development in coastal areas, effective shoreline-protection strategies against erosion and rising sea level that also provide natural ecosystem services will become increasingly important. This study comparatively evaluates Daggerblade grass shrimp population demographics and diets from 13 pairs of living shoreline and natural marsh sites in the southwestern portion of the Chesapeake Bay. Population demographics and general diets of grass shrimp did not differ drastically between site types, suggesting that living shorelines exhibit comparable ecological functions to natural marsh habitats. Similar habitat support and adequate diversity of food resources for these shrimp populations are provided in both living shoreline and reference marsh sites.

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Title	Evaluation of the Safety and Efficacy of Hand Sanitizer Products Marketed to Children Available during the COVID-19 Pandemic
Authors	Gloekler L.E., de Gandiaga E.J., Binczewski N.R., Steimel K.G., Massarsky A., Kozal J., Vincent M., Zisook R., **LaGuardia M.J.**, Dotson S., Gaffney S.
Journal	International Journal of Environmental Research and Public Health, 19, art. no. 14424
Link	https://doi.org/10.3390/ijerph192114424
Summary	To meet supply demands for Alcohol-based hand sanitizers (ABHSs) after the SARS-CoV-2 outbreak, U.S. FDA relaxed regulations regarding impurity limits. To address current gaps in exposure, ABHSs marketed to children were examined. A quarter of the products tested had impurities exceeding interim limits for benzene, acetaldehyde and acetal.

Chapter Title	Analytical chemistry of microplastics: instrumentation, sampling and methods.
Authors	**Hale, R.C., Seeley, M.E.*, King, A.E.*,** Yu, L.H.
Book Title	Microplastic in the Environment: Pattern and Process, pp. 17-67
Link	https://doi.org/10.1007/978-3-030-78627-4
Summary	Approaches for the collection and analysis of plastic contamination are rapidly evolving. Analysis of limited polymer types, particle sizes, or shapes of will underestimate concentrations. This review describes state of the art methods to assess levels in diverse environmental media.

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Title	Seasonal and tidal controls of the quantity and quality of dissolved organic matter at the marsh creek-estuarine interface
Authors	**Knobloch A.L.J.***, Neale P.J., Tzortziou M., **Canuel E.A.**
Journal	Estuarine, Coastal and Shelf Science, 278, art. no. 108124
Link	https://doi.org/10.1016/j.ecss.2022.108124
Summary	This study investigated temporal changes in the sources of colored dissolved organic matter (CDOM) in a marsh-estuarine system by measuring CDOM absorbance and fluorescence. Samples were typically dominated by terrestrial inputs, especially during periods of high runoff and high marsh productivity. Aquatic CDOM increased during periods of phytoplankton blooms.

Title	Clarifying water clarity: A call to use metrics best suited to corresponding research and management goals in aquatic ecosystems
Authors	**Turner J.S.***, **Fall K.A.***, **Friedrichs C.T.**
Journal	Limnology and Oceanography Letters, vol. 8, iss. 3, pg. 388-397
Link	https://doi.org/10.1002/lol2.10301
Summary	Water clarity can be measured multiple ways, depending on the research or management goal. For example, using Secchi depth can under- or overestimate the underwater light available for submerged aquatic vegetation. Intentional choice of the metric best suited to the question yields the most useful results.

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Title	Composition of organic matter in soils from tidal marshes around the Chesapeake Bay, USA, as revealed by lipid biomarkers and stable carbon and nitrogen isotopes
Authors	**Pondell C.R.**, **Canuel E.A.**
Journal	Estuarine, Coastal and Shelf Science, 277, art. no. 108068
Link	https://doi.org/10.1016/j.ecss.2022.108068
Summary	This study used organic matter to estimate the relative abundance of estuarine phytoplankton and marsh plants in coastal marsh soils. Lipid biomarkers and stable isotopes indicated that marsh plants contribute more to soils than estuarine phytoplankton, suggesting that long-term carbon sequestration in coastal marshes is controlled by the marsh plants.

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Title	Soldier's beliefs in abstinence before and after the implementation of a novel army nicotine-free policy
Authors	Lang A.E., Yakhkind A., **Schonfeld A.J.***, Leone F.T.
Journal	European Journal of Preventive Cardiology, 29, pp. e353-e354
Link	https://doi.org/10.1093/eurjpc/zwac084
Summary	An implementation of a nicotine-free policy for trainee soldiers that included more resources for them to utilize compared to other policies, resulted in an increase in the soldiers' expectation to remain nicotine-free following the tobacco ban.

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