

# Research Digest

Issue no. 17

(October - December 2025)



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**Photo caption:** A view of Anvers Island, Antarctica from the bow of *ARSV Laurence M. Gould* in Gerlache Strait. Palmer Station, one of the three permanent U.S. research stations in Antarctica, is located on Anvers Island and has hosted many researchers and graduate students from VIMS' zooplankton ecology lab.

**Photo credit:** Maya Thomas

### **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/](http://www.vims.edu/about/directory/search/).

This quarter's issue contains thirty-five peer-reviewed articles, thirteen of which have Batten School and graduate students as either the lead- or a co-author, which is a testament to the productivity of and contributions by our students.

Mark W. Luckenbach, Associate Dean



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

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Title Benthic macrofaunal carbon fluxes and environmental drivers of spatial variability in a large coastal-plain estuary

Author(s) Ajayi S., Najjar R., **Rivest E.**, Woodland R., **Friedrichs M.A.M.**, **St-Laurent P.**, Davis S.

Journal Biogeosciences, 22(23): pg. 7769-7795 (2025)

Link <https://doi.org/10.5194/bg-22-7769-2025>

Summary While the importance of carbon cycling in estuaries is increasingly recognized, the role of benthic macrofauna remains poorly quantified. We demonstrate that benthic macrofauna play a substantial, spatially structured role in estuarine carbon cycling. Incorporating their contributions into estuarine biogeochemical models will improve predictions of ecosystem responses to anthropogenic change.

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Title Biogeochemical drivers of location-specific nitrogen cycling processes in salt marshes

Author(s) **Czapla K.M.\***, **Anderson I.C.**, **Song B.**

Journal Journal of Geophysical Research: Biogeosciences, 130(10): e2025JG008782 (2025)

Link <https://doi.org/10.1029/2025JG008782>

Summary This paper reports that denitrification and dissimilatory nitrate reduction to ammonium (DNRA) activities in salt marshes are controlled by sulfide, organic carbon, and nitrogen availability. Due to these controlling factors, some salt marshes may be more efficient for denitrification than DNRA. Marsh fertilization increased denitrification rates while DNRA rates increased with higher sulfide.

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Title Investigating  $^{210}\text{Pb}$  boundary scavenging on a high-energy, river-dominated margin

Author(s) **Flynn E.R.\***, **Kuehl S.A.**, **Harris C.K.**, Baronas J.J., Tipper E.T.

Journal Estuarine, Coastal and Shelf Science, 326: art. no 109552 (2025)

Link <https://doi.org/10.1016/j.ecss.2025.109552>

Summary This work has global implications regarding the scavenging of trace metals and particle reactive pollutants in large river systems. This work demonstrates landward flow of open ocean water off larger rivers and quantifies the landward transport and fate of marine organic matter and remineralization in coastal waters.

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## Biogeochemistry (cont.)

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Title Current methods overestimate coastal blue carbon potential

Author(s) Peck E.K., **Wittingham S.S.\***, Smith A.J., Guilderson T.P., Woodruff J.D., **Kirwan M.L.**

Journal Limnology and Oceanography Letters, 11(1): e70077 (2025)

Link <https://doi.org/10.1002/lol2.70077>

Summary This paper analyzes data from 23,302 layers of salt marsh sediment and hypothesizes that traditional metrics of quantifying marsh carbon sequestration overestimate the accumulation of "blue carbon." Specifically, those methods include dissolved and mineral-associated organic matter that is 36% higher in near-surface sediments than those at depth, suggesting that much of it is lost through time.

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Title Dissolved organic matter composition differs across water types in Mid-Atlantic and Great Lakes coastal regions

Author(s) Roebuck J.A., Jr., Myers-Pigg A.N., Regier P., Ward N.D., Cooper M.J., Kemner K.M., Marcarelli A.M., Minor E.C., Philben M., **Song B.**, Vargas R., Zheng J.

Journal PLOS Water, 4(11): e0000465 (2025)

Link <https://doi.org/10.1371/journal.pwat.0000465>

Summary Dissolved organic matter (DOM) in coastal waters influences water quality and biogeochemical cycles, yet its transformation in lower rivers and estuaries is not well understood. Using community-collected samples, this study found DOM varies more by water type than region, with consistent molecular patterns and links to water quality across coastal environments.

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| Title     | The climate change crisis: A call for action by past Presidents of the American Fisheries Society   |
| Author(s) | Bonar S.A., Coutant C.C., Essig R., <b>Fabrizio M.C.</b> , Fisher W.L., Hughes R.M., Hubert W.A., Kohler C.C., McMullin S.L., Moffitt C.M., Murphy B.R., Regier H.A.                    |
| Journal   | Fisheries, 50(11): pg. 506-511 (2025)   |
| Link      | <a href="https://doi.org/10.1093/fshmag/vuaf074">https://doi.org/10.1093/fshmag/vuaf074</a>   |
| Summary   | In this article, we briefly review the evidence for climate-change effects on fishes and aquatic ecosystems and provide guidelines for individuals to safeguard against further losses. |

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| Title     | Effects of multiple stressors on embryos and emerging larvae of the American lobster   |
| Author(s) | <b>Jellison B.M.</b> , <b>Sisti A.R.*</b> , <b>Shields J.D.</b> , <b>Thomas B.</b> , Swezey B., <b>Rivest E.B.</b>   |
| Journal   | Marine Ecology Progress Series, 770: 45-61 (2025)  |
| Link      | <a href="https://doi.org/10.3354/meps14939">https://doi.org/10.3354/meps14939</a>  |
| Summary   | We investigated the long-term, interactive impacts of ocean acidification and ocean warming on the development and physiology of brooded lobster embryos. The physiology of American lobster embryos appears to be robust to ocean acidification conditions but sensitive to warming, particularly for metabolic traits. We also found that warming induced a reduction in the size of freshly hatched larvae. |

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| Title     | Regional ocean biogeochemical modeling challenges for predicting the effectiveness of marine carbon dioxide removal  |
| Author(s) | Ward N.D., Hinson K.E., Pagès R., Cross J.N., <b>Friedrichs M.A.M.</b> , Hauri C., MacCready P., Subban C.V., Xiong J., <b>St-Laurent P.</b> , Yang Z.   |
| Journal   | Frontiers in Climate, 7: art. no. 1640617 (2025)   |
| Link      | <a href="https://doi.org/10.3389/fclim.2025.1640617">https://doi.org/10.3389/fclim.2025.1640617</a>  |
| Summary   | The paper outlines key limitations in current ocean biogeochemical models for marine CO <sub>2</sub> removal (mCDR) and proposes targeted process improvements (e.g., carbon cycling, alkalinity, ecosystem responses). It emphasizes the importance of using distinct ocean regions as testbeds and presents a roadmap to adapt models for robust mCDR evaluation and deployment. |

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| Title     | Refining the evolutionary model of a barrier island (Castle Neck, Massachusetts): A complex interaction with tidal inlet processes   |
| Author(s) | Isla M.F., FitzGerald D.M., Dougherty A.J., Buynevich I.V., <b>Hein C.J.</b> , Black S.  |
| Journal   | Earth Surface Processes and Landforms, 50(15): e70225 (2025)   |
| Link      | <a href="https://doi.org/10.1002/esp.70225">https://doi.org/10.1002/esp.70225</a>  |
| Summary   | This paper tells the story of the formation, migration, stabilization, and growth of Castle Neck, a barrier island in the Merrimack Embayment of northeastern Massachusetts. Major findings include that the island's evolution varies alongshore due to interactions of waves and tides with glacial landforms and shifting inlets, showing that island development depends not just on internal sediments but also on regional features and environmental changes. |

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|           |   |
|-----------|---|
| Title     | Drivers of elevation change in a retreating coastal forest  |
| Author(s) | <b>Messerschmidt T.C.*</b> , Gedan K.B., <b>Kirwan M.L.</b>   |
| Journal   | Estuaries and Coasts, 49(1): 27 (2025)  |
| Link      | <a href="https://doi.org/10.1007/s12237-025-01624-y">https://doi.org/10.1007/s12237-025-01624-y</a>   |
| Summary   | The elevation of retreating coastal forests was largely stable, though the transition zone (ghost forest, some trees, and marsh) accreted at rates similar to adjacent native high marsh. |

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Title Novel and rare fish species in Chesapeake Bay from 2008–2024 bottom trawl records

Author(s) **DeMotte A.N., Buchanan J.R.**

Journal Northeastern Naturalist, 32(2): N23-N32 (2025)

Link <https://doi.org/10.1656/045.032.0214>

Summary We report the novel and rare presence of 5 marine fish species in the Chesapeake Bay system: *Ctenogobius shufeldti* (American Freshwater Goby), *Ancylopsetta quadrocellata* (Ocellated Flounder), *Pholis gunnellus* (Rock Gunnel), *Lactophrys trigonus* (Buffalo Trunkfish), and *Echeneis neucratoides* (Whitefin Sharksucker). These individuals were captured by the Virginia Institute of Marine Science Juvenile Finfish Trawl Survey between 2008 and 2024.

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Title Climate change threatens stability conferred by asynchronous coastwide recruitment of Atlantic striped bass, *Morone saxatilis*

Author(s) **Dixon R.L.\***, **Fabrizio M.C.**, **Mazzini P.L.F.**, **Latour R.J.**

Journal Fisheries Research, 293: art. no. 107629 (2025)

Link <https://doi.org/10.1016/j.fishres.2025.107629>

Summary In this study, we investigated synchrony in recruitment among intrapopulation components of the Atlantic coast striped bass population with the goal of understanding changes in productivity and informing future management efforts. We also considered biotic and abiotic factors hypothesized to impact year-class strength and production in this species.

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Title Virulence evolution of a salmonid virus following a host jump

Author(s) **Loeher M.M.\***, Kurath G., Kennedy D.A., Salzer J.E., Batts W.N., Breyta R.B., **Wargo A.R.**

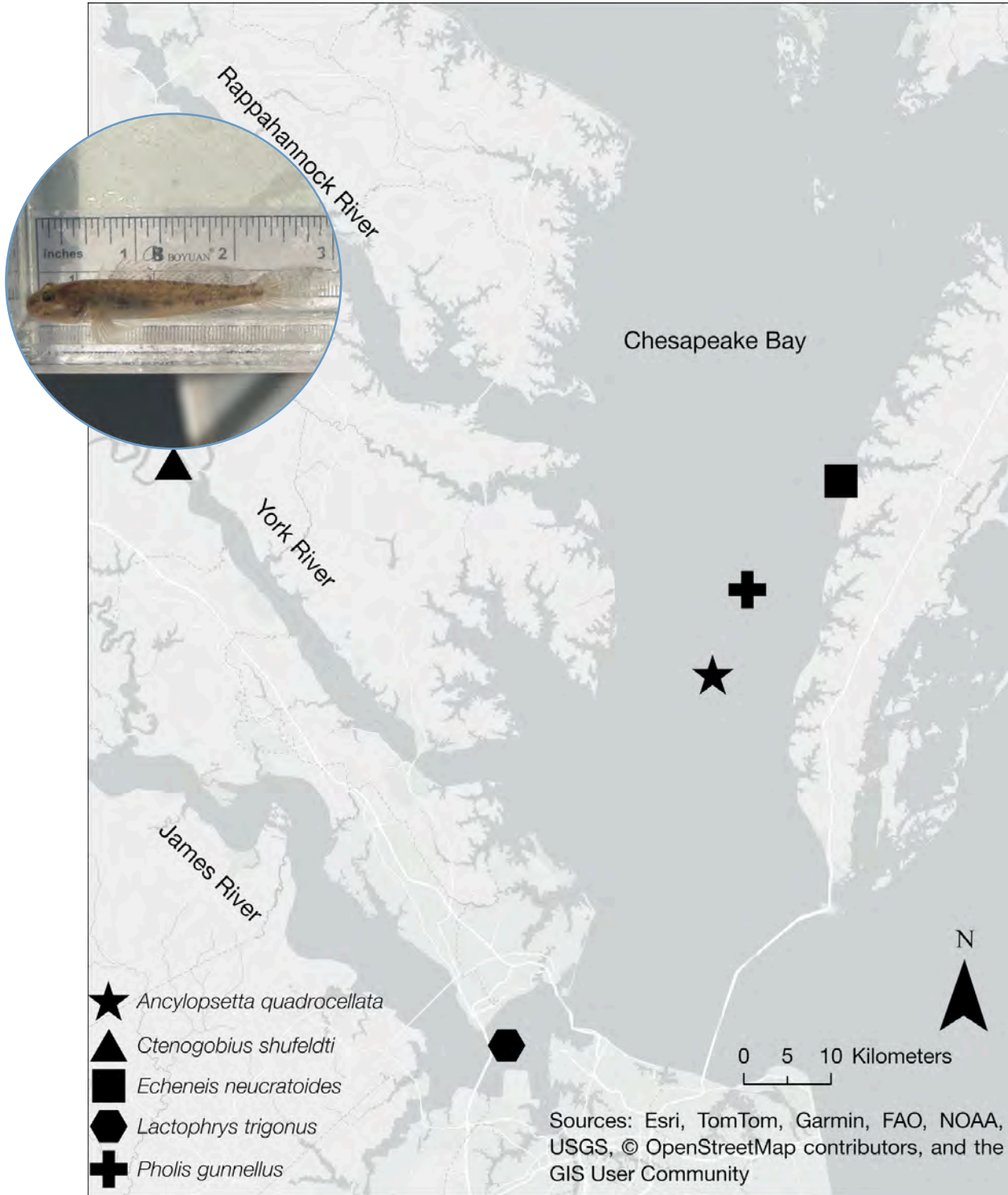
Journal PLOS Pathogens, 21(12): e1013806 (2025)

Link <https://doi.org/10.1371/journal.ppat.1013806>

Summary The study provides empirical evidence of evolution of increased virulence in infectious hematopoietic necrosis virus (IHNV) following a host jump from wild sockeye salmon (*Oncorhynchus nerka*) to rainbow trout (*O. mykiss*) aquaculture, using an archive of 16 viral field isolates collected across five decades.

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**Photo caption:** *Ctenogobius shufeldti* (American freshwater goby) collected in the York River in 2023. **Photo credit:** Anna DeMotte.

**Photo caption:** A map of the study area, showing locations of new species records for Chesapeake Bay. **Photo credit:** Jack Buchanan.

## Fish & Fisheries *(cont.)*

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|           |   |
|-----------|---|
| Title     | Recovery of Delaware Bay horseshoe crabs following harvest reductions   |
| Author(s) | Sweka J.A., Anstead K.A., Smith D.R., Barry L., Zimmerman J., Doctor S., Weedon C., <b>Gartland J.</b> , Jiao Y., Ferretti F., Hallerman E.M.   |
| Journal   | Marine and Coastal Fisheries, 17(5): vtaf040 (2025)   |
| Link      | <a href="https://doi.org/10.1093/mcfafs/vtaf040">https://doi.org/10.1093/mcfafs/vtaf040</a>   |
| Summary   | Horseshoe crabs are key to Delaware Bay, supporting migratory shorebirds like red knots. Overharvest in the 1990s coincided with reductions in both populations. Bayesian models applied to survey data showed that crab abundance declined, stabilized, then recovered to near 1990 levels, suggesting that crab harvest restrictions have been effective. |

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Title Encouraging living shorelines in the United States- A review of state definitions and policies

Author(s) **Mason P.A.**, **Bilkovic D.M.**, **Guthrie A.G.\***, **Nunez K.**, Jones S., Boyd C.

Journal Marine Policy, 185: art. no. 106973 (2025)

Link <https://doi.org/10.1016/j.marpol.2025.106973>

Summary This paper evaluates how state definitions and policies shape living shoreline implementation in the United States. While most states encourage nature-based shoreline stabilization, policy approaches vary widely. Regulatory requirements and streamlined permitting increase adoption, but inconsistent definitions, limited tracking, and fragmented governance constrain assessment of policy effectiveness and broader implementation outcomes.

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Title Implications of waterfowl impoundments as a response to sea-level driven saltwater intrusion

Author(s) **Molino G.D.\***, **Kirwan M.L.**

Journal Journal of Environmental Management, 394: art. no. 127567 (2025)

Link <https://doi.org/10.1016/j.jenvman.2025.127567>

Summary We used deep-learning to map 1684 waterfowl impoundments across the Chesapeake Bay, mostly in marsh migration corridors impacted by saltwater intrusion. Impoundment construction has increased since 2000, especially in Maryland, likely due to federal-state conservation programs.

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Title Removing invasive stream macrofauna shifts nontarget invertebrate mesofauna through facilitation

Author(s) Whitt J., **Patrick C.J.**, Lisi P., McIntyre P.B., Blum M.J., Hogan J.D.

Journal Ecosphere, 16(12): e70489 (2025)

Link <https://doi.org/10.1002/ecs2.70489>

Summary Targeted removal of invasive fish and crustaceans in Hawaiian streams reduced non-native caddisflies and increased native midges, revealing trophic linkages among invaders. Results demonstrate that invasive species can facilitate one another, and that strategic removal can disrupt these interactions, benefiting native communities and improving the effectiveness of aquatic invasive species management.

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## Management & Policy *(cont.)*

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Title Evaluating ecological and socio-economic system dimensions to improve fisheries management in the Bohai Sea, China

Author(s) Yin J., Wo J., Li Y., **Sun M.**, Eurich J.G., Kleisner K.M., Jud S.B., Tang Y., Su S., Ao Y., Chen Y.

Journal Reviews in Fish Biology and Fisheries, 36(1): 11 (2025)

Link <https://doi.org/10.1007/s11160-025-10006-3>

Summary This paper applies a social–ecological systems framework to evaluate fisheries management in the Bohai Sea, China. It highlights challenges from fragmented governance, habitat degradation, and limited integration of ecological and socio-economic factors, and proposes six priority actions to improve sustainability, including climate-ready management, habitat protection, better data integration, and stronger enforcement.

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Title Future-oriented coastal protection: The utility of living shorelines under changing climatic conditions

Author(s) DiPetto G.R., **Bilkovic D.M.**, Sloey T.M., Yando E.S., Walters E.L.

Journal Nature-Based Solutions, 8: art. no. 100285 (2025)

Link <https://doi.org/10.1016/j.nbsj.2025.100285>

Summary This paper reviews current understanding of coastal ecosystems and living shoreline responses to climate change, including storm intensification, sea-level rise, altered seawater properties, and shifting biotic interactions. Sustained effectiveness depends on improved understanding of living shoreline function, forward-looking designs, coordinated planning, and integration of maintenance and adaptive interventions.

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Title Trophic transfer of lipid-derived energy through Adélie and gentoo penguins near Palmer Station along the west Antarctic Peninsula

Author(s) Bent S.M., Cimino M.A., Connors E.J., **Thomas M.I.\***, Miller C.A., Fredricks H.F., Van Mooy B.A.S.

Journal Polar Biology, 48(4): 110 (2025)

Link <https://doi.org/10.1007/s00300-025-03430-5>

Summary Lipid analyses of Adélie and gentoo penguins in the West Antarctic Peninsula show that energy transfer from adults to chicks is mainly derived from krill, but gentoos supplement their diets with fish lipids. Differences in prey composition highlight climate-driven shifts in trophic dynamics and help explain contrasting penguin population trends.

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Title Pelagic sargassum species and the sargassum nudibranch *Scyllaea pelagica* Linné, 1758 recorded from the coastal bays of Virginia

Author(s) **Noonan J.M., Ross P.G., Fate S.M., Smith E.G., Krueger-Hadfield S.A.**

Journal Northeastern Naturalist, 32(3): N63-N69 (2025)

Link <https://doi.org/10.1656/045.032.0312>

Summary We found pelagic Sargassum morphotypes, along with the associated nudibranch in the coastal bays of the Eastern Shore of Virginia. These observations contribute to our understanding of the biology and ecology of free-living macroalgae.

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Title Valuation of blue carbon and ecological co-benefits in temperate seagrass meadows in the Atlantic Virginia Coast Reserve

Author(s) Kerns K., White M., Camacho M., McGlathery K., **Patrick C.**

Journal Ecosystem Services, 76: art no. 101779 (2025)

Link <https://doi.org/10.1016/j.ecoser.2025.101779>

Summary Seagrass restoration in Virginia's coastal lagoons delivers substantial societal value through carbon and nitrogen sequestration, fisheries support, and erosion control. Estimated at \$30.4M over 30 years (\$224 ha<sup>-1</sup> yr<sup>-1</sup>), benefits are dominated by carbon storage and remain high under varied economic assumptions, underscoring restoration as a powerful nature-based climate solution.

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See Bent S.M.,et al. (2025)

**Photo caption:** Adult Adélie penguins on their way to feed on krill after switching roles with their partner. One partner sits on the egg while the other goes out to feed. Photo taken 11/30/2021 on Adelaide Island, Antarctica. **Photo credit:** Maya Thomas.



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Title NAAC (v1.0): A seamless two-decade cross-scale simulation from the North American Atlantic Coast to tidal wetlands using the 3D unstructured-grid model SCHISM (v5.11.0)

Author(s) Cai X., Qin Q., Cui L., Yang X., **Zhang Y.J.**, **Shen J.**

Journal Geoscientific Model Development, 18(20): pg. 7435-7449 (2025)

Link <https://doi.org/10.5194/gmd-18-7435-2025>

Summary We present a 3D unstructured-grid model that covers the Gulf of Maine to the South-Atlantic Bight, over a period of 2 decades. The model focuses on the salinity simulations and, for the first time, extends a regional continental scale ocean model to the tidal wetlands to include the compound flooding process.

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Title Bathymetric mesh simplification for efficient two-dimensional barotropic tide modelling in New York Harbor

Author(s) Dyer N., Mani S., Moghimi S., De Florian L., **Zhang Y.J.**

Journal Ocean Dynamics, 75(12): 99 (2025)

Link <https://doi.org/10.1007/s10236-025-01740-0>

Summary Accurate and timely predictions from operational forecast systems are crucial for disaster response planning. Mesh simplification is used to reduce the number of elements while preserving desired model characteristics. We demonstrated that this technique can reduce the mesh size by 26.81%, resulting in a 26.38% speed improvement.

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Title Water quality impacts during Hurricane Irene (2011) in a large coastal-plain estuary

Author(s) **St-Laurent P.**

Journal Estuarine, Coastal and Shelf Science, 329: art. no.109632 (2025)

Link <https://doi.org/10.1016/j.ecss.2025.109632>

Summary Exchanges of CO<sub>2</sub> and O<sub>2</sub> between the Chesapeake Bay and the atmosphere during Hurricane Irene were simulated to better understand the relative contribution of large stochastic events in carbon budgets. Although Irene's air/sea fluxes were found to be unprecedented, storms with fluxes only ~75% of Irene's air/sea fluxes still occur regularly (every 2-10 years).

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## Modeling *(cont.)*

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|           |   |
|-----------|---|
| Title     | Distribution and fate of microplastics from the Chesapeake Bay to the Mid-Atlantic Bight: A Lagrangian particle tracking approach   |
| Author(s) | <b>Teixeira J.A.*</b> , <b>Mazzini P.L.F.</b> , Cai X., <b>Colombo M.</b> , Qin Q., <b>Seeley M.E.</b> , <b>Zhang Y.J.</b>  |
| Journal   | Continental Shelf Research, 297: art. no. 105627 (2025)   |
| Link      | <a href="https://doi.org/10.1016/j.csr.2025.105627">https://doi.org/10.1016/j.csr.2025.105627</a>   |
| Summary   | This study uses a 3D hydrodynamic model and Lagrangian particle tracking to simulate microplastic transport from Chesapeake Bay to the Mid-Atlantic Bight. It evaluates the role of biofouling, showing how it strongly influences dispersion, residence time, and sinking behavior of microplastics. |

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Title Interaction of bay outflow and wind-driven upwelling in chlorophyll patterns in the Gulf of the Farallones

Author(s) Cooper C.N., Edwards C.A., Largier J.L., **Mazzini P.L.F.**

Journal Deep-Sea Research Part II: Topical Studies in Oceanography, 224: art. no. 105558 (2025)

Link <https://doi.org/10.1016/j.dsr2.2025.105558>

Summary A 25-year satellite record shows elevated chlorophyll-a near the Golden Gate, influenced by the San Francisco Bay plume. Plume waters enhance chlorophyll year-round but not during peak upwelling. Wind and currents shape spatial patterns, with bay outflow dominating nearshore variability, while broader Gulf patterns are driven mainly by upwelling and relaxation.

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Title Topographic forcing of submesoscale instability in the Antarctic Circumpolar Current

Author(s) **Ferris L., Gong D.**, Klinck J.

Journal Frontiers in Marine Science, 12: 1612637 (2025)

Link <https://doi.org/10.3389/fmars.2025.1612637>

Summary Subpolar frontal zones have energetic storms and strong seasonal cycles. Using a Drake Passage & Scotia Sea hindcast, this study shows topographic shear along ACC fronts drives subsurface symmetric and centrifugal instabilities. These instabilities represent a mechanism for persistent mixing near continental margins and seamounts.

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Title Sensitivity analysis of a coastal ocean forecast model to nearshore bathymetric variability

Author(s) Khazaei B., Moghimi S., Mani S., Myers E., **Zhang Y.J.**, Liu Y.

Journal Journal of Hydrologic Engineering, 31(1): art. no. 04025047 (2025)

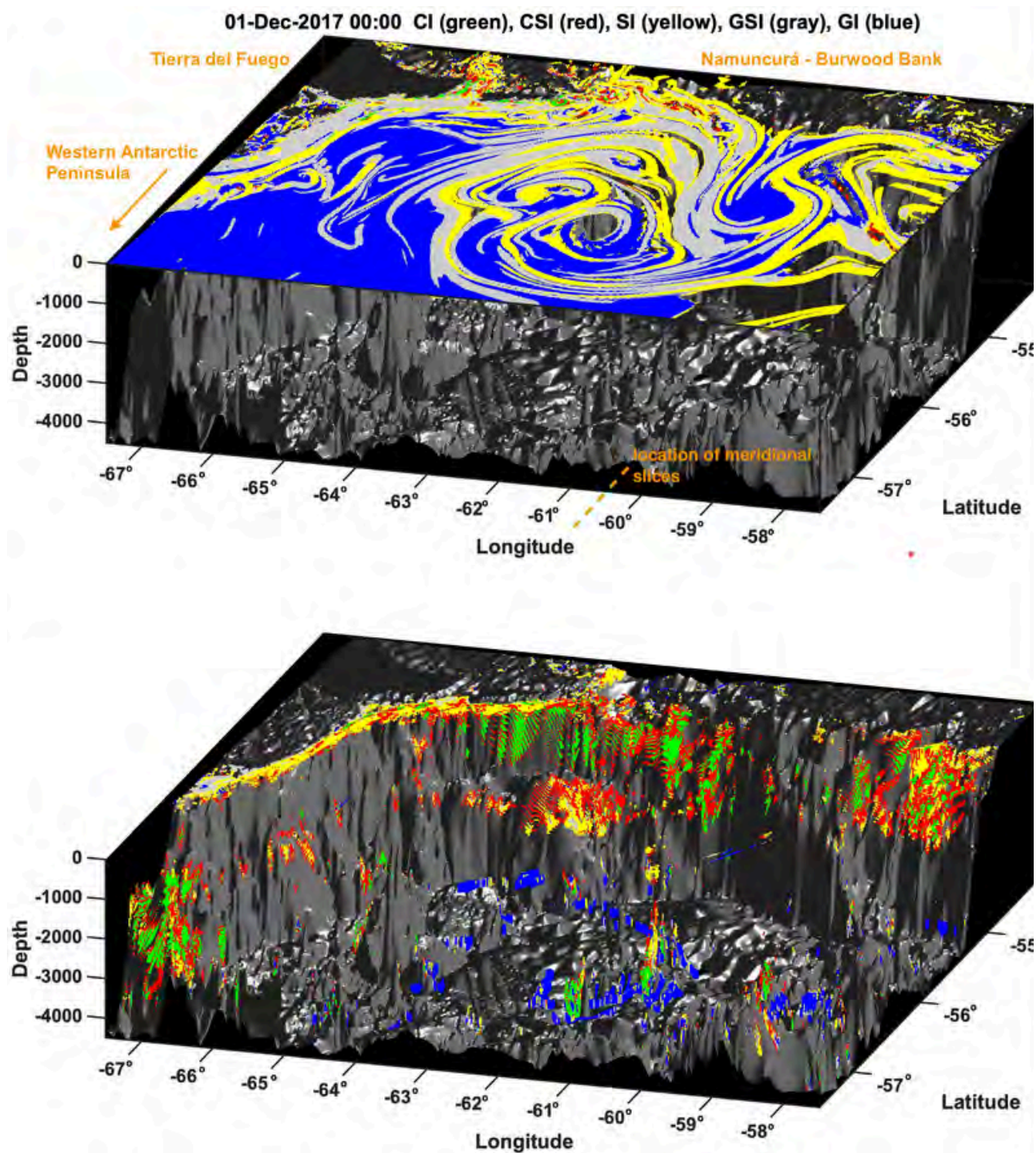
Link <https://doi.org/10.1061/JHYEFF.HEENG-6624>

Summary The study focuses on the impact of nearshore bathymetric variability on coastal ocean forecasting models. The research highlights the importance of considering bathymetric variations in coastal ocean models to improve forecasting accuracy and reliability.

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See Ferris et al. (2025)



**Photo caption:** Topographic shear along Antarctic Circumpolar Current (ACC) fronts drives subsurface symmetric and centrifugal instabilities in the (a) upper 100 m and (b) lower 100–4500 m of a ROMS model including gravitational (blue), gravitational-symmetric (gray), centrifugal (green), centrifugal-symmetric (red), and symmetric (yellow) instability. **Photo credit:** Lar Ferris.

## Physical Oceanography *(cont.)*

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Title Marine heatwave co-occurrence between estuarine and coastal systems

Author(s) **Nardi R.U.\***, **Mazzini P.L.F.**, Walter R.K.

Journal Geophysical Research Letters, 52(24): e2025GL119147 (2025)

Link <https://doi.org/10.1029/2025GL119147>

Summary Marine heatwaves in estuaries and coastal waters co-occur only 21% of the time, despite 49% co-occurrence within estuaries. Analysis of 20+ years of data from 54 estuarine and 13 coastal stations reveals synchronous atmospheric forcing drives co-occurrence, which peaks in fall and declines exponentially with distance.

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Title A bias correction method for total water level prediction at continental scale

Author(s) **Yoo H.**, **Yu H.**, **Zhang Y.J.**, **Wu W.**, **Ye F.**, Moghimi S., Seroka G., Yang Z., Myers E.

Journal Ocean Modelling, 199: art. no. 102642 (2025)

Link <https://doi.org/10.1016/j.ocemod.2025.102642>

Summary Here we present a simple yet effective bias correction method for NOAA's STOFS-3D (Three-Dimensional Surge and Tide Operational Forecast System) forecasting system. The method seeks to dynamically correct the model bias, calculated from the results from the previous 2 days, by compensating with an adjusted non-tidal elevation boundary condition. The adjustment is spatially uniform but varies over each forecast cycle.

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Title Seasonal modulation of the spring-neap response of Yangtze Estuary turbidity maximum: Movement, amplitude, and phase lag via remote sensing

Author(s) Feng J., Yu Q., Cao S., **Du Z.\***, Lin H., Wang Y.P., Wang Y.

Journal Estuarine, Coastal and Shelf Science, 328: art. no. 109624 (2025)

Link <https://doi.org/10.1016/j.ecss.2025.109624>

Summary This study combines a novel phase-folding analysis method with sparse satellite data to extract spring-neap characteristics of the Yangtze River's estuarine turbidity maximum.

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Title Spatio-temporal heterogeneity of the estuarine turbidity maximum retreat in the Changjiang River estuary under reduced sediment supply

Author(s) Feng J., Yu Q., Cao S., Zhang S., Ni T., **Du Z.\***, Lin H., Wang Y., Wang Y.P.

Journal Geo-Marine Letters, 45(4): 40 (2025)

Link <https://doi.org/10.1007/s00367-025-00828-2>

Summary The Yangtze River's ETM shows a significant, non-linear landward retreat (2011–2021) under declining sediment supply. Retreat varies spatially and temporally, influenced by seasonal cycles and tides, with spring identified as the key period for systemic change and step-wise shifts dominating long-term trends.

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Title Importance of estuary–ocean exchange on hypoxia in mid-lower Chesapeake Bay

Author(s) Wang Z., **Zhang Y.J.**, **Shen J.**, Testa J.M., Cerco C., Linker L., Tian R., Wu W.

Journal Estuaries and Coasts, 49(1): 19 (2025)

Link <https://doi.org/10.1007/s12237-025-01622-0>

Summary Summer hypoxia in Chesapeake Bay is often underestimated. This study shows that ocean-derived dissolved organic carbon (DOC), transported into the Bay, enhances microbial respiration and lowers dissolved oxygen. A high-resolution 3D model confirms this estuary–ocean linkage, improving simulations and highlighting uncertainties in DOC sources and reactivity.

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| <b>Topic</b> | <b>Phycology, Genomics</b>   |
| Title        | Structural and evolutionary features of red algal UV sex chromosomes   |
| Author(s)    | Lipinska A.P., Cossard G., Epperlein P., Woertwein T., Molinier C., Godfroy O., Carli S., Ayres-Ostrock L., Lavaut E., Marchi F., Mauger S., Destombe C., Oliveira M.C., Plastino E.M., <b>Krueger-Hadfield S.A.</b> , Guillemin M.-L., Valero M., Coelho S.M. |
| Journal      | Genome Biology, 26(1): 341 (2025)  |
| Link         | <a href="https://doi.org/10.1186/s13059-025-03797-y">https://doi.org/10.1186/s13059-025-03797-y</a>  |
| Summary      | We document the sex determination system in four species of the red macroalga <i>Gracilaria</i> .  |

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