VIMS | William & Mary
Virginia Institute of Marine Science

Research Digest

Issue no. 17

(October - December 2025)

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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/.

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

Topics In This Issue

(click topic heading below to jump to desired section)

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 students.

Biogeochemistry

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

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.

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.

Title	Investigating ^{210}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.)*

Title	Current methods overestimate coastal blue carbon potential
Author(s)	Peck E.K., **Wittyngham 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.

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., **Fabrizio M.C.**, 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	https://doi.org/10.1093/fshmag/vuaf074
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.

Title	Effects of multiple stressors on embryos and emerging larvae of the American lobster
Author(s)	**Jellison B.M.**, **Sisti A.R.***, **Shields J.D.**, **Thomas B.**, Sweezey B., **Rivest E.B**.
Journal	Marine Ecology Progress Series, 770: 45-61 (2025)
Link	https://doi.org/10.3354/meps14939
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.

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., **Friedrichs M.A.M.**, Hauri C., MacCready P., Subban C.V., Xiong J., **St-Laurent P.**, Yang Z.
Journal	Frontiers in Climate, 7: art. no. 1640617 (2025)
Link	https://doi.org/10.3389/fclim.2025.1640617
Summary	The paper outlines key limitations in current ocean biogeochemical models for marine CO_2 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., **Hein C.J**., Black S.
Journal	Earth Surface Processes and Landforms, 50(15): e70225 (2025)
Link	https://doi.org/10.1002/esp.70225
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.

Title	Drivers of elevation change in a retreating coastal forest
Author(s)	**Messerschmidt T.C.***, Gedan K.B., **Kirwan M.L.**
Journal	Estuaries and Coasts, 49(1): 27 (2025)
Link	https://doi.org/10.1007/s12237-025-01624-y
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.

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.

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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See DeMotte A.N., Buchanan J.R. (2025)

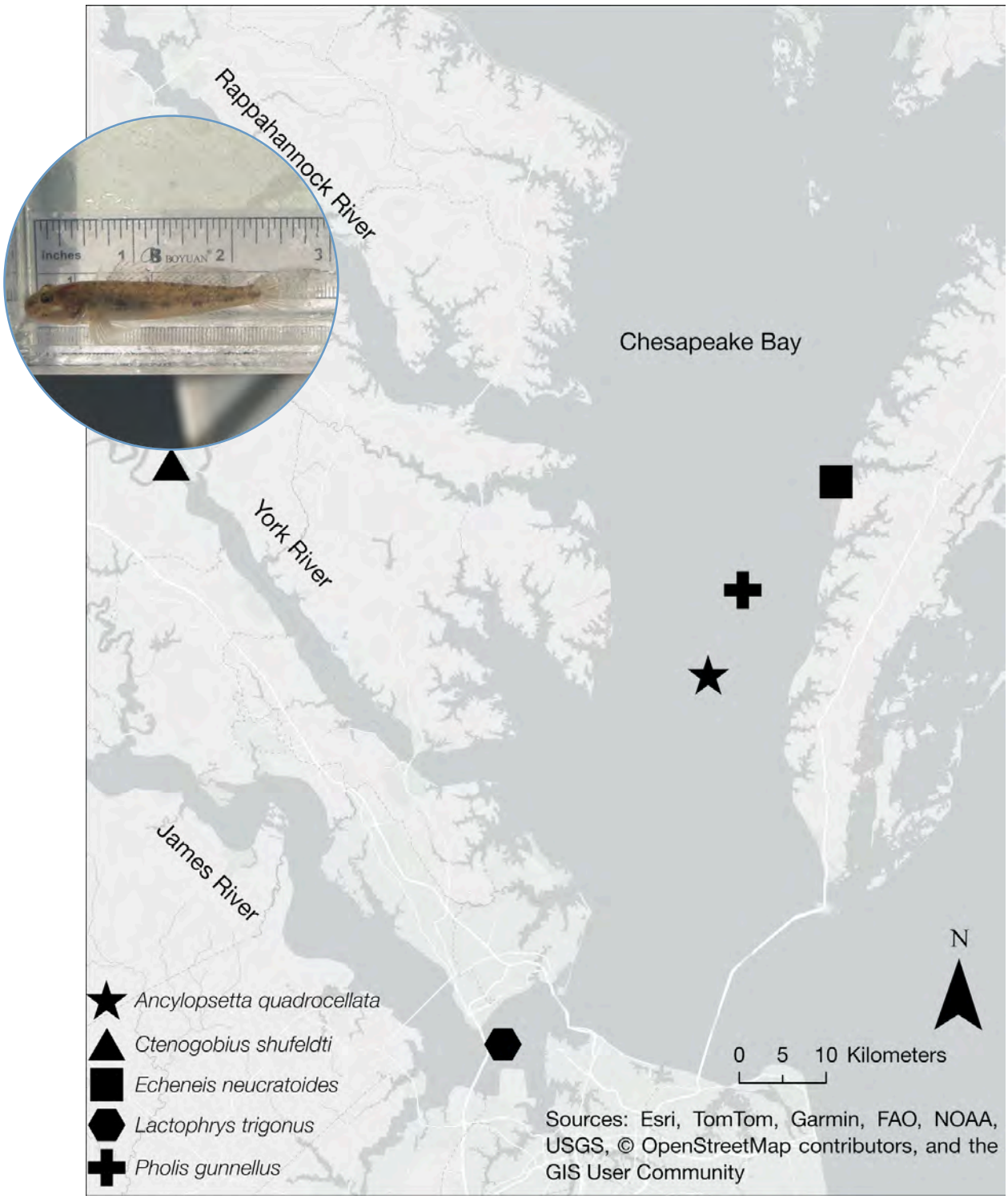

Photo caption: *Ctenogobius shufeldti* (American freshwater goby) collected in the York River in 2023. **Photo credit**: Anna DeMotte.

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

Fish & Fisheries *(cont.)*

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., **Gartland J.**, Jiao Y., Ferretti F., Hallerman E.M.
Journal	Marine and Coastal Fisheries, 17(5): vtaf040 (2025)
Link	https://doi.org/10.1093/mcfafs/vtaf040
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.

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.

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.)*

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.

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.

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.

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^{-1} yr^{-1}), 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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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.

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.

Title	Bathymetric mesh simplification for efficient two-dimensional barotropic tide modelling in New York Harbor
Author(s)	Dyer N., Mani S., Moghimi S., De Floriani 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.

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_2 and O_2 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.)*

Title	Distribution and fate of microplastics from the Chesapeake Bay to the Mid-Atlantic Bight: A Lagrangian particle tracking approach
Author(s)	**Teixeira J.A.***, **Mazzini P.L.F.**, Cai X., **Colombo M.**, Qin Q., **Seeley M.E**., **Zhang Y.J.**
Journal	Continental Shelf Research, 297: art. no. 105627 (2025)
Link	https://doi.org/10.1016/j.csr.2025.105627
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.

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.

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)

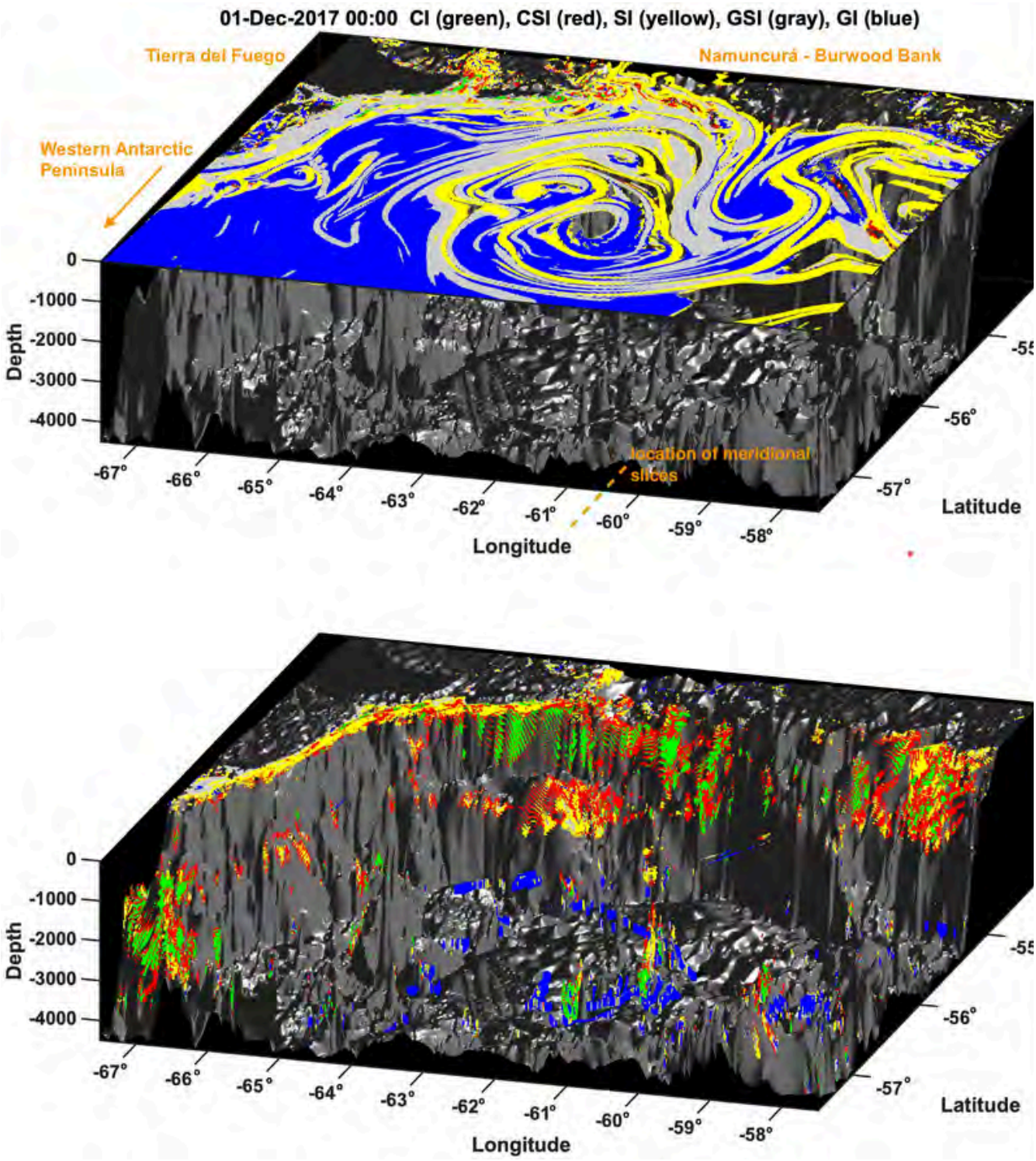

Photo caption: Topographic shear along Antarctic Circumpolar Current (ACC) fronts drives subsurface symmetric and centrifugal instabilities in the (a) upper 100 m and (b) lower 100–4500 m of a ROMS model including gravitational (blue), gravitational-symmetric (gray), centrifugal (green), centrifugal-symmetric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

Physical Oceanography *(cont.)*

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.

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.

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.

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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Additional Topics

(VIMS authors in bold, asterisk indicates VIMS student)

Topic	**Phycology**, **Genomics**
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., **Krueger-Hadfield S.A.**, Guillemin M.-L., Valero M., Coelho S.M.
Journal	Genome Biology, 26(1): 341 (2025)
Link	https://doi.org/10.1186/s13059-025-03797-y
Summary	We document the sex determination system in four species of the red macroalga *Gracilaria*.

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