

Javier Lloret, PhD.

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Education

Ph.D.	University of Murcia, Spain Ecology Advisor: Dr. Arnaldo Marin Dissertation: <i>"The role of coastal lagoon benthic communities in the processing of nutrients and overall ecosystem's resistance to eutrophication"</i>	2012
M.S.	University of Murcia, Spain Ecology and Hydrology	2004
B.S.	University of Cadiz, Spain Marine Sciences	1999

Professional Positions

Research Scientist Ecosystems Center, Marine Biological Laboratory–University of Chicago, Woods Hole, MA	2018-present
Postdoctoral Scientist Ecosystems Center, Marine Biological Laboratory–University of Chicago, Woods Hole, MA PI: Ivan Valiela, Ph.D.	2014-2018
Postdoctoral Scientist Department of Ecology and Hydrology, University of Murcia, Murcia, Spain PI: Arnaldo Marin, Ph.D.	2012-2014
Research Assistant-Graduate Student Department of Ecology and Hydrology, University of Murcia, Murcia, Spain PI: Arnaldo Marin, Ph.D.	2005-2011

Publications

Peer-Reviewed Articles (*indicates undergraduate/postbaccalaureate student co-author)

- (Under review) Chenoweth, K., Valiela, I., **Lloret, J.**, Hanacek, D., Elmstrom, E. Chlorophyll *a* concentration in estuaries of Waquoit Bay, Cape Cod: Control by nitrogen supply, hydrodynamic mixing, temperature, irradiance, and food web effects. *Estuarine, Coastal and Shelf Science*.
- (34) Valiela, I., **Lloret, J.**, Chenoweth, K., *Wang, Y. 2024. An example of accelerated changes in current and future ecosystem trajectories: Unexpected rapid transitions in salt marsh vegetation forced by sea level rise. *Environmental Challenges*, 14: 100842.
- (33) *Carden, L., **Lloret, J.**, Kidwell, S.M. 2023. Dead molluscan shells as archives of nitrogen isotopic evidence from wastewater to estuaries. *Marine Pollution Bulletin*, 189: 114752.
- (32) Valiela, I., Chenoweth, K., **Lloret, J.**, Teal, J., Howes, B., Goehring-Toner, D. 2023. Salt marsh vegetation change during a half-century of experimental nutrient addition and climate-driven controls in Great Sippewissett Marsh. *Science of the Total Environment*, 867: 161546.
- (31) **Lloret, J.**, *Valva, C., Valiela, I., Rheuban, J., Jakuba, R., Hanacek, D., Chenoweth, K., Elmstrom, E. 2022. Decadal trajectories of land-sea couplings: Nitrogen loads and interception in New England watersheds, discharges to estuaries, and water quality effects. *Estuarine, Coastal and Shelf Science*, 277: 108057.
- (30) Dukes, E., Castner, E., Leech, A.M., Galloway, J.N., **Lloret, J.**, *Messenger, S., Zheng, A., Baumgarn, S., Yoder, J., Royal, E., Wiestma, D. 2021. Introducing the nitrogen footprint in SIMAP: a review of improvements in nitrogen footprint methodology for institutions. *Sustainability and Climate Change*, 14: 415-423.
- (29) **Lloret, J.**, Pedrosa-Pamies, R., *Vandal, N., *Rorty, R., *Ritchie, M., *McGuire, C., Chenoweth, K., Valiela, I. 2021. Salt marsh sediments act as sinks for microplastics and reveal effects of current and historical land use changes. *Environmental Advances*, 4: 100060.
- (28) *Messenger, S., **Lloret, J.**, Galloway, J.N., Giblin, A. 2021. Identifying and assessing effectiveness of alternative low-effort nitrogen footprint reductions in small research institutions. *Environmental Research Letters*, 16: 035014.
- (27) Valiela, I., **Lloret, J.**, Chenoweth, K., Elmstrom, E., Hanacek, D. 2021. Control of N concentrations in Cape Cod estuaries by nitrogen loads, season, and down-estuary transit: Assessment by conventional and effect-size statistics. *Estuaries and Coasts*, 1-16.
- (26) Valiela, I., Juman, R., Asmath, H., **Lloret, J.**, Hanacek, D., Elmstrom, E., Chenoweth, K., Brookshire, E. N. J. 2020. Water quality, nutrients, and stable isotopic signatures of particulates and vegetation in a mangrove ecosystem exposed to past anthropogenic perturbations. *Regional Studies in Marine Science*, 35: 101208.
- (25) Valiela, I., Liu, D., **Lloret, J.**, Chenoweth, K., Hanacek, D. 2018. Stable isotopic evidence of nitrogen sources and C4 metabolism driving the world's largest macroalgal green tides in the Yellow Sea. *Scientific Reports*, 8: 17437.
- (24) Valiela, I., **Lloret, J.**, *Bowyer, T., Miner, S., Remsen, D., Elmstrom, E., Cogswell, C., Thieler, E.R. 2018. Transient coastal landscapes: Rising sea level threatens salt marshes. *Science of the Total Environment*, 640-641: 1148-1156.

- (23) Martin, R.M., Wigand, C., Elmstrom, E., **Lloret, J.**, Valiela, I. 2018. Long-term nutrient addition increases respiration and nitrous oxide emissions in a New England salt marsh. *Ecology and Evolution*, 2018: 1-9.
- (22) Valiela, I., Elmstrom, E., **Lloret, J.**, Stone, T., Camilli, L. 2018. Tropical land-sea couplings: Role of watershed deforestation, mangrove estuary processing, and marine inputs on N fluxes in coastal Pacific Panama. *Science of the Total Environment*, 630: 126-140.
- (21) Valiela, I., *Owens, C., Elmstrom, E., **Lloret, J.** 2016. Eutrophication of Cape Cod estuaries: Effect of decadal changes in global-driven atmospheric and local-scale wastewater nutrient loads. *Marine Pollution Bulletin*, 110: 309-315.
- (20) **Lloret, J.**, Valiela, I. 2016. Unprecedented decrease in deposition of nitrogen oxides over North America: The relative effects of emission controls and prevailing air-mass trajectories. *Biogeochemistry*, 129: 165-180.
- (19) Lillebø, A.I., Somma, F., Noren, K., Gonçalves, J., Alves, F., Ballarin, E., Bentes, L., Bielecka, M., Chubarenko, B., Heise, S., Khokhlov, V., Klaoudatos, D., **Lloret, J.**, Margonski, P., Marin, A., Matczak, M., Oen, A., Palmieri, M., Przedzimirska, J., Różyński, G., Sousa, A., Sousa, L., Tuchkovenko, Y., Zaucha, J. 2016. Assessment of Marine Ecosystem Services indicators: experiences and lessons learned from 14 European case studies. *Integrated Environmental Assessment and Management*, 12: 726-734
- (18) Moulton, O.M., Altabet, M.A., Beman, J.M., Deegan, L.A., **Lloret, J.**, Lyons, M.K., Nelson, J.A., Pfister, C.A. 2016. Microbial associations with macrobiota in coastal ecosystems: patterns and implications for nitrogen cycling. *Frontiers in Ecology and the Environment*, 14(4): 200-208.
- (17) Dolbeth, M., Stålnacke, P., Lopes-Alves, F., Sousa, L.P., Gooch, G., Khokhlov, V., Tuchkovenko, Y., **Lloret, J.**, Bielecka, M., Rozynski, G., Soares, J.A., Baggett, S., Margonski, P., Chubarenko, B.V., Lillebø, A.I. 2016. An integrated Pan-European perspective on coastal Lagoons management through a mosaic-DPSIR approach. *Scientific Reports*, 6: 19400.
- (16) Celdran, D., **Lloret, J.**, Verduin, J., van Keulen, M., Marin, A. 2015. Linking seed photosynthesis and evolution of the Australian and Mediterranean seagrass genus *Posidonia*. *PLoS ONE*, 10 (6): e0130015.
- (15) **Lloret, J.**, Marín, A. 2011. The contribution of benthic macrofauna to the nutrient filter in coastal lagoons. *Marine Pollution Bulletin*, 62: 2732-2740.
- (14) Morillo-Velarde, P.S., **Lloret, J.**, Marín, A., Sánchez-Vázquez, F.J. 2011. Effects of cadmium on locomotor activity rhythms on the amphipod *Gammarus aequicauda*. *Archives of Environmental Contamination and Toxicology*, 60: 444-451.
- (13) Cesar, A., Marín, A., Marín-Guirao, L., Vita, R., **Lloret, J.**, Del Valls, T.A. 2009. Integrative ecotoxicological assessment of sediment in Portmán Bay (southeast Spain). *Ecotoxicology and Environmental Safety*, 72: 1832-1841.
- (12) **Lloret, J.**, Marín, A. 2009. The role of benthic macrophytes and their associated macroinvertebrate community in coastal lagoon resistance to eutrophication. *Marine Pollution Bulletin*, 58: 1827-1834.
- (11) **Lloret, J.**, Marín, A., Marín-Guirao, L. 2008. Is coastal lagoon eutrophication likely to be aggravated by global climate change? *Estuarine, Coastal and Shelf Science*, 78: 403-412.
- (10) Marín-Guirao, L., **Lloret, J.**, Marín, A. 2008. Carbon and nitrogen stable isotopes and metal concentration in food webs from a mining-impacted coastal lagoon. *Science of the Total Environment*, 393: 118-130.

- (9) Marín, A., Montoya, S., Vita, R., Marín-Guirao, L., **Lloret, J.**, Aguado, F. 2007. Utility of sea urchin embryo-larval bioassays for assessing the environmental impact of marine fishcage farming. *Aquaculture*, 271: 286-297.
- (8) Marín-Guirao, L., **Lloret, J.**, Marín, A., García, G., García-Fernández, A.J. 2007. Pulse-discharges of mining wastes into a coastal lagoon: Water chemistry and toxicity. *Chemistry and Ecology*, 23(3): 217-231.
- (7) Casado-Martínez, M.C., Fernández, N., **Lloret, J.**, Marín, A., Martínez-Gómez, C., Riba, I., Saco-Álvarez, L., DelValls, T.A. 2006. Interlaboratory assessment of marine bioassays to evaluate the environmental quality of coastal sediments in Spain. III. Bioassay using embryos of the sea urchin *Paracentrotus lividus*. *Ciencias Marinas*, 32(12): 139-147.
- (6) Velasco, J., **Lloret, J.**, Millán, A., Marín, A., Barahona, J., Abellán, P., Sánchez-Fernández, D. 2006. Nutrients and particulate inputs to Mar Menor lagoon from an intensive agricultural watershed. *Water, Air and Soil Pollution*, 176: 37-56.
- (5) **Lloret, J.**, Marín, A., Marín-Guirao, L., Carreño, M.F. 2006. An alternative approach for managing Scuba diving in small Marine Protected Areas. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 16: 579-591.
- (4) **Lloret, J.**, Marín, A., Marín-Guirao, L., Velasco, J. 2005. Changes in macrophytes distribution in a hypersaline lagoon associated to the development of intensively irrigated agriculture. *Ocean & Coastal Management*, 48: 828-842.
- (3) Marín-Guirao, L., Marín, A., **Lloret, J.**, Martínez-López, E., García-Fernández, A.J. 2005. Effects of mining wastes on a seagrass ecosystem: metal accumulation, bioavailability, seagrass dynamics and associated community structure. *Marine Environmental Research*, 60: 317-337.
- (2) Marín-Guirao, L., Cesar, A., Marín, A., **Lloret, J.**, Vita, R. 2005. Establishing the ecological status of soft-bottom mining-impacted coastal water bodies in the scope of the Water Framework Directive. *Marine Pollution Bulletin*, 50: 374-387.
- (1) Ramos, M., Marín, A., Vita, R., Marín-Guirao, L., Cesar, A., **Lloret, J.** 2003. Evolution of benthic communities in El Hornillo Bay (Águilas, Murcia) (southeast Spain) after cessation of floating-cage seabream *Sparus auratus* (L., 1758) and seabass *Dicentrarchus labrax* (L., 1758) culture. *Boletín del Instituto Español de Oceanografía*, 19 (1-4): 379-389.

Book Chapters

- (9) Valiela, I., **Lloret, J.**, Chenoweth, K. Climate Change Effects on Salt Marshes. In: Kennish, M., Paerl, H., Crosswell, J. (Eds.). 2023. *Climate Change and Estuaries*. Taylor and Francis Publications, London, New York, and Boca Raton.
- (8) Marín, A., **Lloret, J.**, Velasco, J., Bello, C. The physio-geographical background and ecology of Mar Menor. In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
- (7) **Lloret, J.**, Marín, A., Velasco, J., Bello, C. The management story of Mar Menor. In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
- (6) Bielecka, M., Tuchkovenko, Y., **Lloret, J.**, Lillebø, A.I., Dias, J.M., Robakiewicz, M., Zalewski, M., Krysanova, V., Chubarenko, B., Stålnacke, P. The challenges to improve integrated catchment and lagoon modelling in the context of climate change. In: Lillebø, A.I., Stålnacke, P., Gooch,

- G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
- (5) Hesse, C., Bielecka, M., Stefanova, A., Robakiewicz, M., Staroszczyk, R., Zalewski, M., Khokhlov, V., Tuchkovenko, Y., **Lloret, J.**, Lencart e Silva, J., Dias, J.M., Lillebø, A.I., Chubarenko, B., Krysanova, V. Impacts of potential climate change on lagoons and their catchments. In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
 - (4) Bielecka, M., Robakiewicz, M., Zalewski, M., Khokhlov, V., Tuchkovenko, Y., **Lloret, J.**, Lencart e Silva, J., Dias, J.M., Lillebø, A.I., Chubarenko, B., Staroszczyk, R. Lagoons impact integrated scenarios. In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
 - (3) Marín, A., **Lloret, J.**, Velasco, J., Bello, C. Lillebø, A.I., Sousa, A.I., Soares, A.M.V.M., Tuchkovenko, Y., Tuchkovenko, O., Warzocha, J., Kornijow, R., Gromisz, S., Drgas, A., Szymanek, L., Margonski, P. Lagoons response using key bio-indicators and implications on ecological status (WFD). In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
 - (2) Lillebø, A.I., Spray, C., Alves, F.L., Stålnacke, P., Gooch, G.D., Soares, J.A., Sousa, L.P., Sousa, A.I., Khokhlov, V., Tuchkovenko, Y., Marín, A., **Lloret, J.**, Bello, C., Bielecka, M., Rozynski, G., Margonski, P., Chubarenko, B. European coastal lagoons: an integrated vision for ecosystem services, environmental SWOT analysis and human well-being. In: Lillebø, A.I., Stålnacke, P., Gooch, G.D. (Eds.). 2015. *Coastal lagoons in Europe. Integrated water resource strategies*. IWA Publishing, London.
 - (1) Marín, A., Millán, A., Velasco, J., **Lloret, J.**, Marín-Guirao, L. Interacciones tierra-mar en la laguna costera del Mar Menor. In: Cabezas, F., Martínez, A. (Eds.). 2009. *El Mar Menor. Estado actual del conocimiento científico*. Instituto Euromediterráneo del Agua.

Teaching Experience

Lecturer	Semester in Environmental Sciences, Marine Biological Laboratory	2018-present
	• Developed and led three of the Semester's core courses: - <i>Secondary Production and Ecological Efficiency</i> - <i>Use of Stable Isotopes in Ecosystem Studies</i> - <i>Terrestrial Inputs to Marine Ecosystems</i> • Lectured, led field work and data collection, supervised three teaching assistants, oversaw group projects, graded writing assignments, and wrote and graded mid-term and final exams • Faculty testimonial video available at: https://youtu.be/3xDVPILGHtQ	

Lecturer	Logan Science Journalism Program, Marine Biological Laboratory • Developed and co-taught an intensive, hands-on research experience for science journalists • Lectured, led field work and data collection, and oversaw group projects	2018-present
Lecturer	High School Science Discovery Program, Marine Biological Laboratory • Developed and co-taught an intensive, hands-on research experience for high school students • Lectured, led field work and data collection	Winter 2019
Invited Lecturer	Universidad Internacional del Mar, Sant Antoni de Portmany, Spain • Lectured at the summer course: - <i>Ecological Modeling as a Tool for Evaluating Climate Change Impacts on Coastal Ecosystems</i>	Summer 2013
Invited Lecturer and course facilitator	Universidad Internacional del Mar, Sant Antoni de Portmany, Spain • Lectured at the summer course: - <i>Marine Ecology: Management and Conservation of the Mediterranean Coasts</i> • Led field work on identification of main coastal submerged habitats in the SW Mediterranean	Summer 2010

Mentoring

2023. Olivia Grobmyer. University of Chicago. Jeff Metcalf Summer for Undergraduate Research Fellow. Project: Nitrogen loads to Edgartown Great Pond: Using stable isotopes to identify nitrogen sources and quantify the role of wetlands in pollution mitigation.

Kristin Lewis. Howard University. NSF-REU Program “Biological Discovery in Woods Hole”. Project: Microplastic contamination in estuarine mollusks: Effects of urbanization and feeding types.

Marina Benson. Brown University. Voss Undergraduate Research Fellow. Project: Edgartown Great Pond is turning green! The ecological impacts of wastewater pollution on coastal estuaries.

Yuyang Wang. Mount Holyoke College. Maxwell-Hanrahan Summer Research Intern. Project: Recent acceleration of sea level rise and invasion of *Phragmites australis* are rapidly changing the mosaic of salt marsh vegetation in Great Sippewissett Marsh.

Ellen Warmerdam. Oberlin College. Semester in Environmental Science final project: Impact of *Phragmites australis* invasion on carbon and nitrogen storage in salt marsh sediments.

Anna Watson. University of Chicago. Semester in Environmental Science final project: The effect of urbanization on the concentration and lability of organic nitrogen inputs to Waquoit Bay.

- 2022. Jake Ackerman.** Rhodes College. Semester in Environmental Science final project: Bioaccumulation of microplastics along a gradient of urbanization and potential effects on ribbed mussel respiration and feeding rates.
- Mackenzie “Kenzie” Allinson.** Grinnell College. Semester in Environmental Science final project: Tracing groundwater contamination in Little Sippewissett Marsh using nutrient analysis of groundwater and stable N-isotope analysis in biomass.
- A Jordan.** Colorado College. Semester in Environmental Science final project: Little Pond sediment cores: A primary productivity peer through time.
- Marina Benson.** Brown University. Brown-MBL LINK Summer Intern. Project: Effects of eutrophication on local estuaries revealed by the analysis of food webs and stable isotopes.
- Reece Ciampitti.** Boston University. NSF-REU Program “Biological Discovery in Woods Hole”. Project: Effects of 50-year long experimental nitrogen additions on salt marsh vegetation and platform elevation.
- 2021. Lilja Carden.** University of Chicago. Semester in Environmental Science final project: Historical effects of nitrogen eutrophication on mollusk communities.
- Dianna Gagnon.** Wheaton College. Semester in Environmental Science final project: Determining whether or not property value is indicative of nitrogen runoff from fertilizer application.
- Karen Robles.** Brown University. NSF-REU Program “Biological Discovery in Woods Hole”. Project: Combined effects of nutrient enrichment and sea level rise on salt marsh vegetation.
- 2019. Lauren Johnson.** Trinity University. Semester in Environmental Science final project: Effects of excess nutrients on the carbon metabolism of the macroalga *Ulva*. ***Awarded MBL Associates Prize for Excellence.**
- Cody Pham.** Pomona College. Semester in Environmental Science final project: Habitat selection in birds across fragmented landscapes.
- Sarah Messenger.** Trinity College. Project: Estimating the Marine Biological Laboratory carbon and nitrogen footprints.
- Claire Bekker.** Brown University. Brown-MBL LINK Summer Intern. Project: Eutrophication and sea level rise in Great Sippewissett Marsh: Effects on elevation of marsh platform.
- Samantha Valentine.** Brown University. Brown-MBL LINK Summer Intern. Project: Eutrophication and sea level rise in Great Sippewissett Marsh: Effects on vegetation cover and species dominance.
- Nicole Vandal.** Amherst College. NSF-REU Program “Biological Discovery in Woods Hole”. Project: Microplastics everywhere: The history of microplastic accumulation in Cape Cod salt marsh sediments.
- Ruby Rorty.** University of Chicago. Jeff Metcalf Summer for Undergraduate Research Fellow. Project: Microplastics everywhere: Watershed urbanization affects microplastic abundance in salt marsh sediments.
- 2018. Boya “Twiggy” Cui.** Dickinson College. Semester in Environmental Science final project: Algal carbon stable isotopes as indicators of coastal eutrophication.

- Grace Gavazzi.** Kenyon College. Semester in Environmental Science final project: High nitrogen content in *Spartina alterniflora* as a feeding cue for invertebrates in New England salt marshes.
- Ali McGarigal.** Colorado College. Semester in Environmental Science final project: A marsh against tide: The impact of nitrogen enrichment on salt marsh platform elevation in the Great Sippewissett Marsh.
- Paige Torres.** Brown University. Brown-MBL LINK Summer Intern. Project: Stable isotope signatures of macrophytes as indicators of N loads and sources, and photosynthetic pathways in estuaries of Waquoit Bay, MA.
- Claire Valva.** University of Chicago. Jeff Metcalf Summer for Undergraduate Research Fellow. Project: Nitrogen load regime change: Changes in atmospheric deposition drive trajectory of nitrogen loads in Buzzards Bay estuaries.
- 2017. Sharanya Sarathy.** Brown University. Brown-MBL LINK Summer Intern. Project: Eutrophication of Waquoit Bay estuaries: Effects of land-derived nitrogen loading on the assemblages of macroalgal taxa.
- Claire Valva.** University of Chicago. Jeff Metcalf Summer for Undergraduate Research Fellow. Project: Effects of different land-derived nitrogen loads to Cape Cod estuarine systems.
- 2016. Clara Maynard.** Brown University. Brown-MBL LINK Summer Intern. Project: Spatial-temporal responses of estuarine phytoplankton to changes in nitrogen loads from watersheds.
- Lindsay Levine.** Brown University. Brown-MBL LINK Summer Intern. Project: Atmospheric conditions driving *Zostera marina* recovery: Changes in climatic patterns, atmospheric nitrogen deposition, and wastewater nitrogen loads.
- Tynan Bowyer.** University of Chicago. Jeff Metcalf Summer for Undergraduate Research Fellow. Project: Decadal shifts in the vegetation structure Great Sippewissett Marsh in response to sea level rise.
- 2015. Sarah Skelton.** Brown University. Brown-MBL LINK Summer Intern. Project: The impact of nitrogen loading in Waquoit Bay, MA on estuarine food webs constructed by stable isotope analysis.
- 2011. Marta Alonso.** University of Murcia. M.S. Student. Project: Ecotoxicological characterization of the Segura River water and sediments using amphipod toxicity bioassays.

Funding

- 2021-2024. Great Pond Foundation, Edgartown, MA.** Laying the foundation for island coastal pond restoration. Amount: \$227,500. PI: Javier Lloret.
- 2021-2022. Hermann Foundation Inc.** The problem with Falmouth's water: Supporting undergraduate research and civic partnerships at the MBL. Amount: \$100,000. PI: Ken Foreman, Co-PI: Javier Lloret.
- 2020-2023. National Science Foundation, Directorate for Biological Sciences.** OPUS:CRS: Synthesis of decadal changes in controls, trajectories, & tipping points in vegetation cover, spatial structure, and marsh platform elevation in Great Sippewissett salt marsh. Amount: \$253,316. PI: Ivan Valiela, Co-PI: Javier Lloret.

- 2019-2020. Institute of Marine Affairs, Port of Spain, Trinidad and Tobago.** A first analysis of microplastic particle abundance and blue carbon profiles in Caroni Swamp, Trinidad. Amount: \$3,000. PIs: Ivan Valiela, Javier Lloret, and Rut Pedrosa-Pamies.
- 2018-2019. United States Geological Survey, National Institutes for Water Resources.** Forest land cover as a tool in water quality management: Developing a valuable addition to the Cape Cod Commission's 208 Technologies Matrix. Amount: \$173,012. PI: I. Valiela (J. Lloret status: Co-PI-Postdoctoral Scientist).
- 2016-2018. United States Environmental Protection Agency, Southeast New England Program for Coastal Watershed Restoration.** Assessing climate effects on watershed and stormwater nitrogen loading and vulnerabilities in meeting TMDLs in Buzzards Bay and Cape Cod. Amount: \$402,461. PI: I. Valiela (J. Lloret status: Postdoctoral Scientist).
- 2016-2018. National Oceanic and Atmospheric Administration, WHOI-Woods Hole Sea Grant.** Is the recent decreased atmospheric nitrogen deposition improving water and vegetation quality in Waquoit Bay, MA? Amount: \$201,729. PIs: I. Valiela and J. Lloret.
- 2015-2018. Northeast Climate Adaptation Science Center, University of Massachusetts, Amherst, MA.** Postdoctoral Fellowship (Salary award).
- 2014-2017. The Ecosystems Center, Marine Biological Laboratory.** Rosenthal Postdoctoral Fellowship (Salary award).
- 2014-2016. Cape Cod Water Protection Collaborative.** Nitrogen loads to Cape Cod estuaries: Effects of reduced atmospheric nitrate concentrations. PI: I. Valiela (J. Lloret status: Postdoctoral Scientist).
- 2011-2014. European Commission-7th Framework Programme.** Integrated water resources and coastal zone management in European lagoons in the context of climate change. Amount: €2,545,660 (€311,200 Sub-award). PIs: A.I. Lillebø and P. Stålnacke; Sub-award PI: Arnaldo Marin (J. Lloret status: Sub-award Postdoctoral Scientist).
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Recent Invited Talks and Presentations

- February 2024.** Waves of change: Exploring the interplay of climate and nutrient dynamics in the coastal zone — St. Mary's College of Maryland Marine Science Seminars. St. Mary's City, MD.
- December 2021.** Using stable isotopes to identify sources and effects of nitrogen pollution. Great Pond Foundation — Island Ponds Community Workshop. Edgartown, MA.
- March 2021.** Microplastics in the salt marshes of Waquoit Bay: A story of urbanization and plastic waste. Waquoit Bay National Estuarine Research Reserve Webinar Series — Research at the Reserve. Falmouth, MA.
- December 2020.** Human impacts on the global nitrogen cycle and nitrogen in the coastal zone: The good, the bad and the ugly. Ecosystems Center and Semester in Environmental Science Webinars — Lunch & Learn: Environmental Issues and Challenges in the 21st Century. Woods Hole, MA.
- October 2019.** The uncertain future of New England salt marshes: Understanding and quantifying the impacts of sea level rise. Massachusetts Institute of Technology Knight Fellows visit to the Marine Biological Laboratory. Woods Hole, MA.
- July 2018.** Panellist at the panel discussion "Adapting to a Climate-Changed World" for the visit of H.S.H. Prince Albert II of Monaco to the Marine Biological Laboratory. Woods Hole, MA.

November 2017. The uncertain future of coastal ecosystems: Working towards a more predictive ecology in a rapidly changing world. Marine Biological Laboratory 2017-2018 Informal Scientist Meeting. Woods Hole, MA

October 2017. Tracking nitrogen sources to the Caroni Swamp: Analysis of stable isotopes in mangrove leaves and suspended particulate materials. 2017 Institute of Marine Affairs Seminars. Port of Spain, Trinidad and Tobago.

April 2016. Reductions in atmospheric oxidized nitrogen deposition over North America: The relative role of emission controls and climatic patterns. The Ecosystems Center 2016 Seminar Series. Woods Hole, MA.

September 2015. Multidecadal trends in atmospheric deposition of reactive nitrogen forms over North America and Europe: Implications for marine, freshwater and terrestrial ecosystems. 3rd Annual Northeast Climate Science Center Fellows Retreat. Suring, WI.

November 2014. The impact of intensively irrigated agriculture on coastal lagoons in the context of climate change. Brown-Marine Biological Laboratory Retreat and Symposium. Providence, RI.

August 2014. The role of marine vegetation as a filter for coastal nutrients. Coastal Nitrogen Synthesis Charette. Woods Hole, MA.

June 2014. The impact of global change on shallow estuarine ecosystems. The Ecosystems Center Special Seminar. Woods Hole, MA.

September 2014. A comparison of the ecological quality status of four European lagoons. LAGOONS International Conference: Between the River and the Sea. Dundee, Scotland.

In the news

National and International

Scientific American/WBUR. February 13, 2024. *Cape Cod Faces a Rising 'Yellow Tide'*—A short documentary on the issue of nutrient pollution from septic systems on Cape Cod estuaries, featuring my research on the topic. Link: <https://www.scientificamerican.com/video/cape-cod-faces-a-rising-yellow-tide/>.

National Science Foundation News. May 3, 2023. *Most of world's salt marshes likely to be underwater by 2100*—This article featured in the National Science Foundation News page describes the major findings of one of our articles on salt marsh loss that resulted from our NSF-OPUS grant (Lloret Co-PI).

USA Today. March 31, 2022. *A new threat emerges for US lakes and rivers. Your lawn or toilet may be partly to blame*—The article includes my views on the topic of nitrogen pollution and eelgrass loss in estuaries across the nation, and some of my opinions about possible management options. Link: <https://www.usatoday.com/story/news/2022/03/31/runaway-pollution-climate-change-threaten-u-s-lakes-and-rivers/7172227001/?gnt-cfr=1>

Reuters. October 26, 2021. *Capitulation? Spain's land buyout plan in shrinking Ebro Delta irks locals*—The article includes some of my comments and opinions on the topic of sea level rise and the uncertain future of coastal ecosystems, particularly deltaic environments such as the Ebro Delta in Spain. Link: <https://www.reuters.com/business/cop/capitulation-spains-land-buyout-plan-shrinking-ebro-delta-irks-locals-2021-10-26/>

Popular Science. June 10, 2021. *Salt marshes keep score on humanity's plastic problem*—The article covers the story of our paper on the accumulation of microplastics in Cape Cod and the role of salt marshes as sinks for these particles published in 2021. Link: <https://www.popsci.com/science/salt-marshes-world-plastic-problem/>

Phys.org, ScienceMag, ScienceDaily, and Newsbeezer. June 4, 2021. *Salt marshes trap microplastics in their sediments, creating record of human plastic use*—The various articles also focus on our 2021 paper on the accumulation of microplastics in the salt marshes of Cape Cod. Links: <https://phys.org/news/2021-06-salt-marshes-microplastics-sediments-human.html>
<https://scienmag.com/salt-marshes-trap-microplastics-in-their-sediments-creating-record-of-human-plastic-use/>
<https://www.sciencedaily.com/releases/2021/06/210604122508.htm>
<https://newsbeezer.com/singapore/salt-marshes-trap-microplastics-in-their-sediments-and-keep-records-of-human-plastic-consumption/>

Phys.org, ScienceMag, EurekAlert!, and ScienceDaily. April 12, 2021. *Bottom-up is the way forward for nitrogen reduction at institutions*—The article(s) discusses the findings from one of my papers on the calculation of MBL's institutional nitrogen footprint and strategies to reduce it. Links: <https://phys.org/news/2021-04-bottom-up-nitrogen-reduction.html>
<https://scienmag.com/bottom-up-is-the-way-forward-for-nitrogen-reduction-at-institutions/>
https://www.eurekalert.org/pub_releases/2021-04/mbi-bit041221.php
<https://www.sciencedaily.com/releases/2021/04/210412142717.htm>

EuroNews. March 25, 2013. *Lagoons under the microscope*—The article outlines the major goals of the European LAGOONS project, in which I participated as a postdoctoral scientist between 2012 and 2014. The project team was composed of more than 50 scientists from nine different institutions in eight European countries. Link: <https://www.euronews.com/2013/03/25/lagoons-under-the-microscope>

ScienceDaily. July 31, 2008. *Ecological status of Spain's Mar Menor lagoon will deteriorate as waters warm, researchers predict*—The article features results of models I developed to forecast the future ecological status of a coastal lagoon in SE Spain, and how more frequent heat waves could lead to its collapse. Link: <https://www.sciencedaily.com/releases/2008/07/080729075115.htm>

Local

WCAI Local NPR for the Cape, Coast & Islands. June 18, 2021. *Microplastics Infiltrate Region's Salt Marshes*—The interview discusses the threat of microplastics in salt marshes and the highlights the conclusions of our study published in 2021. Link: <https://www.capeandislands.org/local-news/2021-06-18/study-microplastics-infiltrate-regions-salt-marshes>

Cape Cod Times. August 10, 2019. *Tackling microplastic pollution in Waquoit Bay*—The article features the field and lab work for my project studying microplastics in estuaries and salt marshes of Cape Cod, and includes two of my 2019 summer interns, Ruby Rorty and Nicole Vandal. Link: <https://www.capecodtimes.com/news/20190810/tackling-microplastic-pollution-in-waquoit-bay>

The Falmouth Enterprise. April 28, 2017. *Thanks to the EPA and the Clean Air Act*—This opinion piece describes the remarkable reductions in atmospheric nitrogen deposition across North America, as highlighted in one of my papers published in 2016. Link: https://www.cape-news.net/falmouth/columns/thanks-to-the-epa-and-the-clean-air-act/article_23cbae1b-a329-5e52-be0c-ecebda9395a7.html

La Verdad. January 26, 2017. *The study that "nailed" the collapse of the Mar Menor coastal lagoon*—The article (in Spanish) details the story of how one of my papers, published in 2008,

accurately predicted the ecological collapse of a coastal lagoon a decade before it happened. Link: <http://lospiesenlatierra.laverdad.es/blog/4065-el-estudio-que-clavo-el-shock-del-mar-menor.html>

La Opinion, Murcia. April 27, 2007. *University of Murcia researchers predict that the Mar Menor will become "a dead pond"*—The article discusses my contribution to the I National Meeting on Global Change (Madrid, Spain) in which I described how climate change could lead to the collapse of a coastal lagoon. Link: <https://www.laopiniondemurcia.es/comunidad/2007/04/27/investigadores-umu-vaticinan-mar-menor-33073762.html>

Service and Other Professional Activities

Institution/Department level

2024. Member of the Ecosystems Center's "Vision" Committee in charge of developing and producing a vision statement for our department and generating related documentation.

2022. Member of the Search Committee for a Postdoctoral Scientist at the Ecosystems Center.

2021-present. Member of the Marine Biological Laboratory Sustainability Committee.

2021-2022. Member of the MBL-Ecosystems Center Pod in URGE: Unlearning Racism in Geoscience. Link: <https://urgeosceience.org/pods/mbl-ecosystems-center/>

2020. Co-Editor of the 2018-2019 Ecosystems Center Annual Report. Link: <https://www.mbl.edu/sites/default/files/2022-01/2018-2019-Annual-Report-reduced.pdf>

2018. Member of the planning committee for the 2018 SUCCESS (Shaping and Understanding Career Choices in Education, Science and Self) Workshops, Marine Biological Laboratory, Woods Hole, MA.

2014-2015. Co-organizer of the Ecosystems Center Spring Seminar Series, Marine Biological Laboratory, Woods Hole, MA.

Other Professional Activities

2023. Served on the Coastal and Estuarine Research Federation (CERF) 2023 Cronin Award Committee.

2022. Stakeholder/Partner representative at the NOAA 312 Evaluation of the Waquoit Bay NERR program.

2021-present. Member of the Sustainability Indicator Management & Analysis Platform Nitrogen Working Group. Link: <https://unhsimap.org/cmap/resources/NitrogenWorkingGroup>.

2018-present. Member of the Advisory Committee for the State of the Waters: Cape Cod Project of the Association to Preserve Cape Cod.

2018-2020. Member of the Institutional Nitrogen Footprint Tool Network. Link: <http://www.n-print.org/NFTNetwork>

2017. Participant in the December 2017 US EPA Southeast New England Program Steering Committee Meeting, EPA's New England Headquarters, Boston, MA.

Journal review service

2006-present: *Ambio* (Springer); *Aquaculture Research* (Wiley); *Aquatic Biology* (Inter-Research); *Aquatic Conservation: Marine and Freshwater Ecosystems* (Wiley); *Atmospheric Chemistry and Physics* (Copernicus Publications); *Biogeochemistry* (Springer); *Cell Biology and Toxicology*

(Springer); *Communications Earth & Environment* (Nature Publishing Group); *Ecological Indicators* (Elsevier); *Ecosystems* (Springer); *Environment International* (Elsevier); *Environmental Monitoring and Assessment* (Springer); *Environmental Research Letters* (IOPscience); *Estuaries and Coasts* (Springer); *Estuarine Coastal and Shelf Science* (Elsevier); *Frontiers in Marine Science* (Frontiers); *Frontiers in Plant Science* (Frontiers); *International Aquatic Research* (Springer); *Italian Journal of Zoology* (Taylor & Francis); *Journal of Ecology* (Wiley); *Journal of Geophysical Research: Biogeosciences* (Wiley); *Limnology and Oceanography* (ASLO-Wiley); *Marine Biology Research* (Taylor & Francis); *Marine Ecology Progress Series* (Inter-Research); *Marine Pollution Bulletin* (Elsevier); *Nature Communications* (Nature Publishing Group); *Northeastern Naturalist* (Eagle Hill Institute); *PeerJ* (PeerJ Publishing); *Regional Environmental Change* (Springer); *Science of the Total Environment* (Elsevier); *Wetlands Ecology and Management* (Springer); *Water, Air & Soil Pollution* (Springer).

Ad-hoc reviewer for: Sea Grant (NOAA): Texas (2021), Rhode Island (2023).

Memberships

2021-present. MBL Society. Woods Hole, Massachusetts, US.

2020-present. Coastal and Estuarine Research Federation. Seattle, Washington, US.
