Martina Dal Bello, PhD

I am a microbial ecologist and I explore how the environment structures microbial communities.

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Ecology and Evolutionary Biology Department
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New Haven, CT 06511

Microbial Sciences Institute
840 West Campus Drive, ABC 257B
West Haven, CT 06516

Academic appointments

Assistant Professor, Dept. of Ecology and Evolutionary Biology, Yale University, New Haven, CT	07/2024 – present
Member, Yale Quantitative Biology Institute, New Haven, CT	12/2025 – present
Member, Yale Microbial Sciences Institute, West Haven, CT	07/2024 – present
Visiting Professor, École Normale Supérieure, Paris, France	06/2025
Research Scientist, Yale University, Ecology and Evolutionary Biology, New Haven, CT	01/2024 – 06/2024
Research Scientist, Massachusetts Institute of Technology, Physics, Gore Lab, Cambridge, MA	10/2021 – 06/2024
Postdoctoral Associate, Massachusetts Institute of Technology, Physics, Gore Lab, Cambridge, MA	10/2016 – 09/2021
Postdoctoral Fellow, Università di Pisa, Department of Biology, Pisa, Italy	05/2014 – 08/2016

Education

Ph.D. Biology, Università di Pisa, Pisa, Italy (Advisor: Prof. Lisandro Benedetti-Cecchi)	2014
M.Sc. Marine Biology, Università di Pisa, Pisa, Italy	2010
B.Sc. Environmental Sciences, Università degli Studi di Genova, Genova, Italy	2008

Funding

Co-PI, *Yale Hutchinson Collaborative Grant*	$471,000	2026–2028
Lead PI, *Human Frontier Science Program Research Grant*	$1,200,000	2025–2028
Awardee, *Yale Endowed Postdoctoral Fellowship Biological Sciences*	$68,000	2025

Awards and Honors

Yale University nominee, Packard Fellowship for Science and Engineering	2026
Finalist, Swiss National Science Foundation Starting Grant	2022
Best talk, Stochastic Models and Experiments in Ecology and Biology	2021
Best talk, ISME Unity in Diversity Symposium	2020
Marie Skłodowska-Curie Actions Seal of Excellence for MSCA Global Individual Fellowship	2018
PhD Fellowship (3 years) Università di Pisa – Regione Toscana	2011

Publications

** Equal contribution; † Corresponding author*

Preprints (4)

Dunn, C.W.†, Ahuja, N., Destanović, D., Mańko, M.K., **Dal Bello, M.**, & Church, S.H. (2026). Organisms associated with siphonophores revealed by short-read whole-genome sequencing. *In revision.* bioRxiv: 2026.10.29.762746

Dal Bello, M.*†, Liu, Y.*, Goyal, A., & Gore, J.† (2026). Nutrient availability shapes the diversity and structure of microbial communities. *In revision.* bioRxiv: 2026.04.14.718562

Shoemaker, W.R., **Dal Bello, M.**, & Grilli, J. (2026). Leveraging rDNA and rRNA dynamics to investigate the link between ecology and physiology in a freshwater microbial community. *Under review.* bioRxiv: 2026.02.24.707719

Mazzarisi, O., Droghetti, R., Barton, S., Carmichael, H., Ciandrini, L., Cosentino Lagomarsino, M., **Dal Bello, M.**, Fant, L., Ghedini, G., Grilli, J., Yvon-Durocher, G., & Reuman, D.C. (2025). Universal sublinear population growth density dependence unrelated to resource limitation. *In revision.* bioRxiv: 2025.12.30.697033

Peer-reviewed (24)

24. Omer, R.M.Y., Mazzarisi, O., **Dal Bello, M.**, & Grilli, J. (2026). Evolutionary learning of microbial populations in partially predictable environments. *PRX Life*. doi: 10.1103/rqj5-pqvt
23. Huisman, J.S., **Dal Bello, M.**, & Gore, J. (2026). Predictable shifts in microbial species composition lead to community-wide robustness to environmental stress. *Nature Microbiology*, 11(8), 2310–2320. doi: 10.1038/s41564-026-02422-3
22. **Dal Bello, M.** (2026). From death comes diversity. *Nature Ecology & Evolution*, 10(3), 401–402. doi: 10.1038/s41559-025-02972-5
21. **Dal Bello, M.**, & Abreu, C.I. (2024). Temperature structuring of microbial communities on a global scale. *Current Opinion in Microbiology*, 82, 102558. doi: 10.1016/j.mib.2024.102558
20. Madirolas, G., Al-Asmar, A., Gaouar, L., Marie-Louise, L., Garza-Enríquez, A., Rodríguez-Rada, V., Khona, M., **Dal Bello, M.**, Ratzke, C., Gore, J., & Pérez-Escudero, A. (2023). *Caenorhabditis elegans* foraging patterns follow a simple rule of thumb. *Communications Biology*, 6(1), 841. doi: 10.1038/s42003-023-05220-3
19. Abreu, C.I.*, **Dal Bello, M.***, Bunse, C., Pinhassi, J., & Gore, J. (2023). Warmer temperatures favor slower-growing bacteria in natural marine communities. *Science Advances*, 9(19), eade8352. doi: 10.1126/sciadv.ade8352
18. **Dal Bello, M.**, Lee, H., Goyal, A., & Gore, J. (2021). Resource-diversity relationships in bacterial communities reflect the network structure of microbial metabolism. *Nature Ecology & Evolution*, 5(10), 1424–1434. doi: 10.1038/s41559-021-01535-8
17. **Dal Bello, M.**, Pérez-Escudero, A., Schroeder, F.C., & Gore, J. (2021). Inversion of pheromone preference optimizes foraging in *Caenorhabditis elegans*. *eLife*, 10, e58144. doi: 10.7554/eLife.58144
16. Bertsimas, D., Lukin, G., Mingardi, L., … **Dal Bello, M.**, et al. (2020). COVID-19 mortality risk assessment: An international multi-center study. *PLoS ONE*, 15(12), e0243262. doi: 10.1371/journal.pone.0243262
15. Maggi, E., Bongiorni, L., Fontanini, D., Capocchi, A., **Dal Bello, M.**, Giacomelli, A., & Benedetti-Cecchi, L. (2020). Artificial light at night erases positive interactions across trophic levels. *Functional Ecology*, 34(3), 694–706. doi: 10.1111/1365-2435.13485
14. Rodríguez-Amor, D., & **Dal Bello, M.** (2019). Bottom-up approaches to synthetic cooperation in microbial communities. *Life*, 9(1), 22. doi: 10.3390/life9010022
13. **Dal Bello, M.**, Rindi, L., & Benedetti-Cecchi, L. (2019). Temporal clustering of extreme climate events drives a regime shift in rocky intertidal biofilms. *Ecology*, 100(2), e02578. doi: 10.1002/ecy.2578
12. Benedetti-Cecchi, L., Bulleri, F., **Dal Bello, M.**, Maggi, E., Ravaglioli, C., & Rindi, L. (2018). Hybrid datasets: Integrating observations with experiments in the era of macroecology and big data. *Ecology*, 99(12), 2654–2666. doi: 10.1002/ecy.2504
11. Rindi, L., **Dal Bello, M.**, & Benedetti-Cecchi, L. (2018). Experimental evidence of spatial signatures of approaching regime shifts in macroalgal canopies. *Ecology*, 99(8), 1709–1715. doi: 10.1002/ecy.2391
10. Bulleri, F., Cucco, A., **Dal Bello, M.**, Maggi, E., Ravaglioli, C., & Benedetti-Cecchi, L. (2018). The role of wave-exposure and human impacts in regulating the distribution of alternative habitats on NW Mediterranean rocky reefs. *Estuarine, Coastal and Shelf Science*, 201, 114–122. doi: 10.1016/j.ecss.2016.02.013
9. Maggi, E., Rindi, L., **Dal Bello, M.**, Fontanini, D., Capocchi, A., Bongiorni, L., & Benedetti-Cecchi, L. (2017). Spatio-temporal variability in Mediterranean rocky shore microphytobenthos. *Marine Ecology Progress Series*, 575, 17–29. doi: 10.3354/meps12216
8. Rindi, L., **Dal Bello, M.**, Dai, L., Gore, J., & Benedetti-Cecchi, L. (2017). Direct observation of increasing recovery length before collapse of a marine benthic ecosystem. *Nature Ecology & Evolution*, 1(6), 0153. doi: 10.1038/s41559-017-0153

7. **Dal Bello, M.**, Rindi, L., & Benedetti-Cecchi, L. (2017). Legacy effects and memory loss: How contingencies moderate the response of rocky intertidal biofilms to present and past extreme events. *Global Change Biology*, 23(8), 3259–3268. doi: 10.1111/gcb.13656
6. Puente, A., Guinda, X., Juanes, J.A., … **Dal Bello, M.**, et al. (2017). The role of physical variables in biodiversity patterns of intertidal macroalgae along European coasts. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 549–560. doi: 10.1017/S0025315416001673
5. **Dal Bello, M.**, Leclerc, J.-C., Benedetti-Cecchi, L., et al. (2017). Consistent patterns of spatial variability between NE Atlantic and Mediterranean rocky shores. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 539–547. doi: 10.1017/S0025315416001491
4. Kotta, J., Orav-Kotta, H., Jänes, H., … **Dal Bello, M.**, et al. (2017). Essence of the patterns of cover and richness of intertidal hard bottom communities: A pan-European study. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 525–538. doi: 10.1017/S0025315416001351
3. Hummel, H., Van Avesaath, P., Wijnhoven, S., … **Dal Bello, M.**, et al. (2017). Geographic patterns of biodiversity in European coastal marine benthos. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 507–523. doi: 10.1017/S0025315416001119
2. Sanz-Lázaro, C., Rindi, L., Maggi, E., **Dal Bello, M.**, & Benedetti-Cecchi, L. (2015). Effects of grazer diversity on marine microphytobenthic biofilm: a 'tug of war' between complementarity and competition. *Marine Ecology Progress Series*, 540, 145–155. doi: 10.3354/meps11507
1. **Dal Bello, M.**, Maggi, E., Rindi, L., Capocchi, A., Fontanini, D., Sanz-Lázaro, C., & Benedetti-Cecchi, L. (2015). Multifractal spatial distribution of epilithic microphytobenthos on a Mediterranean rocky shore. *Oikos*, 124(4), 477–485. doi: 10.1111/oik.01503

Invited Talks and Seminars (41)

41. EEB Seminar Series, University of California Irvine, Irvine, CA, US	Planned for 2027
40. BISC seminar, University of Southern California Dornsife, Los Angeles, CA, US	Planned for 2027
39. Plant and Microbial Biology Seminar, University of Minnesota, Minneapolis, MN, US	Planned for 2027
38. GRC Unifying Ecology Across Scales, Easton, MA, US (**Keynote**)	2026
37. International Congress on Biological Physics, Genova, Italy	2026
36. Yale Institute for Biospheric Studies Seminar Series, New Haven, CT, US	2026
35. Unil. Fundamental Microbiology Departmental Seminar, Lausanne, Switzerland	2026
34. Microbial Communities: Energetics & Dynamics Across Space and Time, NITMB, Chicago, IL, US	2025
33. Biophysics Seminar, École Normale Supérieure, Paris, France	2025
32. UConn Ecology & Evolutionary Biology Departmental Seminar, Storrs, CT, US	2025
31. Microbial Science Institute "SMAL Talk" series, Yale University, West Haven, CT, US	2025
30. Physics of Life, along the Northeast corridor, CUNY, New York City, NY, US	2025
29. Ecology & Evolutionary Biology Seminar, University of Michigan, Ann Arbor, MI, US	2025
28. GRC Stochastic Physics in Biology, Ventura, CA, US (**Keynote**)	2025
27. ASM CT Valley Branch Meeting, Quinnipiac University, North Haven, CT, US	2024
26. Microbial Science Institute Retreat, Yale University, New Haven, CT, US	2024
25. Theory of Living Matter Seminar of the University of Cambridge, Virtual	2024
24. Microscale Ocean Biophysics Seminar, Virtual	2024
23. Ecological dynamics of microbial communities: new approaches, NITMB, Chicago, IL, US	2024
22. Population Dynamics Virtual Seminars, Friedrich Schiller University Jena	2024
21. Reimagining Ocean Ecology Workshop, Venice, Italy	2024
20. Advanced School on Quantitative Principles in Microbial Physiology, ICTP, Trieste, Italy	2023
19. Marine and Coastal Science Department Seminar, Rutgers University, NJ, US	2023
18. Boston University Systems Biology Seminar, Boston University, MA, US	2023
17. American Physical Society (APS) Meeting, Las Vegas, US	2023
16. Ecology and Evolutionary Biology Department Seminar, Yale University, CT, US	2023
15. Ecology & Evolution Department Seminar, The University of Chicago, IL, US	2023
14. Environmental Systems Science Department Colloquium, ETH Zürich, Switzerland	2023

13. EcoEncontros Seminar Series, IB-USP, São Paulo, Brazil 2022
12. AtlantECO meeting, Sesimbra, Portugal 2022
11. Eawag (ETH), Dübendorf, Switzerland 2022
10. University of Padova, Padova, Italy 2022
9. Huddle Eco-evolutionary Dynamics of Microbial Communities Across Scales, ICTP, Trieste, Italy 2022
8. The Ecology and Evolution of Microbial Communities, KITP, UCSB, Santa Barbara, CA, US 2021
7. Workshop on Limits to Diversity Assembly, ICTP, Trieste, Virtual 2020
6. EESB Talks Seminar Series, Virtual 2020
5. Finch Therapeutics Internal Seminar Series, Finch Therapeutics, Somerville, MA, US 2020
4. Marine Science Center Seminar Series, Northeastern University, MSC, Nahant, MA, US 2020
3. Physics of Living Systems Short Talks Seminar Series, MIT, Cambridge, MA, US 2018
2. Biology Seminar Series, WHOI, Woods Hole, MA, US 2018
1. Environmental Science Seminar Series at Parsons Lab, MIT, Cambridge, MA, US 2018

Contributed Talks at Conferences (17)

17. American Physical Society (APS) Meeting, Anaheim, CA, US 2025
16. Ecological Society of America (ESA) Meeting, Long Beach, CA, US 2024
15. American Physical Society (APS) Meeting, Minneapolis, MN, US 2024
14. MEEHubs, Boston, MA, US 2024
13. PriME Annual Meeting, Virtual 2021
12. Stochastic Models and Experiments in Ecology and Biology, Venice and virtual 2021
11. ISME #UnityInDiversity Symposium, Virtual 2020
10. MIT Biophysics Retreat, Falmouth, MA, US 2019
9. 12th International Temperate Reef Symposium (ITRS), Hong Kong, China 2019
8. XVIII Congresso Società Italiana di Ecologia (SItE), Cagliari, Italy 2018
7. 6th Annual Winter q-bio Meeting, Maui, HI, US (**Keynote**) 2018
6. Ecological Society of America (ESA) Annual Meeting, Portland, OR, US 2017
5. 11th International Temperate Reef Symposium (ITRS), Pisa, Italy 2016
4. 50th European Marine Biology Symposium (EMBS), Helgoland, Germany 2015
3. Aquatic Biodiversity and Ecosystems (ABEC), Liverpool, UK 2015
2. XIII Congresso Società Italiana di Ecologia (SItE), Ancona, Italy 2013
1. XII Congresso Società Italiana di Ecologia (SItE), Alessandria, Italy 2012

Leadership and Outreach experience

Instructor, Yale Pathways to Science Summer Scholar Program 2025
LEAPS Fellow, Leadership and Professional Strategies and Skills Training, MIT 2021
Kaufman Teaching Certificate Program (KTCP) Fellow, MIT 2020
Scientific advisor, Crowdfight, non-profit facilitating scientific collaboration 2020–2024
Board member, MIT POWER, Postdoctoral Association of Women Engaged in Research 2020–2024
Board member, MITaly, Italian Association at MIT 2018–2024
Representative Post-doc Association, Università di Pisa, Dept. of Biology 2015–2016
Founding member, Successione Ecologica – outreach & citizen science initiatives 2013–2016

Teaching

Yale University

Instructor, EEB 7712 *Foundations of Ecology* (Graduate Seminar) Spring 2026
Primary Instructor, EEB 3340 *Microbial Ecology* (Yale College, 26 lectures, 12 enrolled) Fall 2025
Primary Instructor, E&EB 724 *Soft Skills Development* (Graduate Seminar, 13 lectures, 15 enrolled) Spring 2025
Primary Instructor, E&EB 340 *Microbial Ecology* (Yale College, 26 lectures, 8 enrolled) Fall 2024
Instructor, E&EB 501 *Advanced Topics in Ecology and Evolutionary Biology* (1 lecture) 2023–present

Other Institutions

Instructor & teaching facilitator, *LEAdership and Professional Strategies and Skills Training* (8.396, 8.3897)	2022
Instructor, Training Program in *Quantitative Biology and Ecology* (20h), Serrapilheira/ICTP-SAIFR	2022
Instructor, QBio Summer Research Course *Microbial Interactions* (20h), KITP, UCSB	2021
Teaching Assistant, *Ecology and Biodiversity of Rocky Shores*, master's in marine biology, Università di Pisa	2016
Teaching Assistant, *Marine Biology and Ecology*, master's in marine biology, Università di Pisa	2011–2015
Teaching Assistant, *Ecology*, bachelor's in biology, Università di Pisa	2011–2015

Service

To the Profession

SOC Coordinator, *Coarse Graining Microbial Ecology*, KITP, UCSB, Santa Barbara, CA	2026
Member, *ASM* Applied and Environmental Microbiology Meeting Program Committee	2025–present
LOC Member, *Alma Dal Co School on Collective Behavior*, Venice, Italy	2025
Poster judge, GRC Stochastic Physics in Biology	2025
Member, *Economic Principles in Cell Physiology* (EPCP) Forum Committee	2024–present
Session chair, *APS March Meeting*, Minneapolis, MN	2024
SOC Member, *Microbial community ecology: bridging models & observations*, MPI Evol Biology, Plön, DE	2023
SOC Coordinator, *Evolutionary and Ecological Systems Biology (EESB) Talks*, Virtual	2020–2021
LOC Member, *11th International Temperate Reefs Symposium (ITRS)*, Pisa, Italy	2016
SOC Member, *11th International Temperate Reefs Symposium (ITRS)*, Pisa, Italy	2016

***Ad hoc* reviewer**, NSF Physics Of Living Systems Cluster	2024
***Ad hoc* reviewer**, Swiss National Science Foundation (SNSF)	2025
***Ad hoc* reviewer**, NSF Population and Community Ecology Cluster	2024
***Ad hoc* reviewer**, Kansas NSF EPSCoR	2022

Member, American Society of Microbiology	2025–present
Member, Ecological Society of America	2023–present
Member, American Physical Society	2022–present

To the University

Coordinator, MSI seminar series	2026–2027
Coordinator, EEB seminar series	2025–2026
Member, EEB Graduate Program Review Committee	2025–present
Member, EEB Graduate Student Admissions Committee	2025
Faculty advisor, Microbial Sciences Institute Retreat	2025
Member, Joint Yale Committee for the Marshall and Rhodes Scholarships	2025
Member, Microbial Sciences Institute Faculty Search Committee	2024–present
Fellow, Pierson College	2024–present
Poster Judge, Microbial Sciences Institute Retreat	2024
Poster Judge, EEB Graduate Student Symposium	2024
Talk Judge, EEB Graduate Student Symposium	2024
Participant, Visiting Days for Prospective EEB Graduate Students	2023–present

Reviewer for

PNAS, Nature Ecology and Evolution, Nature Communications, Nature Methods, eLife, Evolution, Ecology Letters, ISME Communications, ISME, The American Naturalist, OIKOS, Cell Systems, PRX Life, Microbial Ecology, Scientific Reports, Current Opinion in Microbiology, iScience, Marine Ecology Progress Series, Methods in Ecology and Evolution, Marine Biology, Journal of Experimental Marine Biology and Ecology, PLOS ONE, Journal of Phycology, mSystems, Journal of Sea Research, MDPI Microorganisms, MDPI International Journal of Environmental Research and Public Health, Ecosphere, mBio, BMC Microbiology

Mentoring and scientific advising

Trainees

Zahraa Al-Tameemi, Postdoctoral Associate (HFSP)	07/2026 – present
Jacob Holt, Hutchinson Postdoctoral Associate	09/2026 – present
Jojo Prentice, PhD Student, EEB (NSF GRFP Fellow)	09/2025 – present
Abheepsa Nanda, PhD Student, EEB (Gruber Science Fellow)	09/2026 – present
Aabi Whyte-Spence, Undergraduate	08/2025 – present
Alex Durt, Undergraduate	01/2026 – present
Robert Long, PEB summer student	Summer 2026
Alika Kawana Ting, Post-bac researcher	09/2025 – 06/2026
Farah Abdul-Rahman (PhD 2021), Biosciences Postdoctoral Fellow 2025	12/2024 – 02/2026
Cecilia Webber, EEB rotation student	Spring 2025

Student Thesis Committees

Joash Chu (BBS, Turner Lab)
Alison Robey (EEB, Vasseur Lab)
Sarah Gottfredson Morgan (MCDB, Musser and Yan Labs)
Misha Kummel (EEB, Vasseur Lab)
Karthik Srinivasan (BME, Dixit Lab)
Freddy Gonzalez (EEB, Turner Lab)
Giorgio Visco (Università di Padova, Physics, LIPh Group)
Abigail Skwara (EEB, Vasseur Lab)
Amichai Baichman-Kass (Hebrew University of Jerusalem, Friedman Group)
Jaime González-Hernández (MPATH, Goodman Lab)

Before Yale

Graduate advisees

Tomas Lio Grudny, Rotating Graduate Student (with Jeff Gore), MIT	2023
Aarshi Jain, Rotating Graduate Student (with Jeff Gore), MIT	2023
Shreyansh Umale, Graduate Student (with Jeff Gore), MIT	2022
Nicholas Nolan, Rotating Graduate Student (with Jeff Gore), MIT	2021
Ariel O'Neil, Rotating Graduate Student (with Jeff Gore), MIT	2018

Undergraduate advisees

Abheepsa Nanda, Undergraduate summer Intern (with Jeff Gore), MIT	2022
Mikail Khona, Undergraduate summer Intern (with Jeff Gore), MIT	2017
Letizia Borelli, Master Student Thesis Project (with Lisandro Benedetti-Cecchi), Università di Pisa	2015
Luca Bertolacci, Bachelor Student Intern (with Lisandro Benedetti-Cecchi), Università di Pisa	2015
Selene Rabusca, Bachelor Student Intern (with Lisandro Benedetti-Cecchi), Università di Pisa	2013
Letizia Borelli, Bachelor Student Thesis Project (with Lisandro Benedetti-Cecchi), Università di Pisa	2012

Press Coverage

How an influx of salt may affect microbial ecosystems – MIT News	2026
Dal Bello receives HFSP award for international collaboration – Yale West Campus News	2025
Meet three new FAS faculty members – YaleNews	2024
Microbiologists retreat and reconnect across "microbial world" – Yale West Campus News	2024
NSF-Simons NITMB sparks innovative collaboration at "Ecological Dynamics" workshop – NITMB	2024
Worms learn to optimize foraging by switching their response to social cues – eLife Press Pack	2021
How just one data point could predict the collapse of an entire ecosystem – Science News	2017