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Research Activity

Studies on coastal and marine ecology/biology, with a focus on field, laboratory and mesocosm experimentation.

Management and conservation of ecosystems – with a focus on marine (seagrasses, macroalgal beds) and dune ecosystems and on predicting changes on their functions and associated services due to multiple stressors and global change.

Innovative solutions for preserving the resilience of coastal ecosystems (nature-based solutions) to the effects of global change and restoring degraded habitats.

Responses of coastal systems (particularly beach-dune systems and seagrass meadows) to emerging contaminants such as marine litter, non-bio and biodegradable plastics, micro- and nanoparticles, pharmaceuticals and solar filters.

Marine biotechnology: valorization of vegetal biomasses and use in the field of environmental restoration and as a possible source of bioactive compounds.

Scientific Publications

1. De Leo, M., Ciccone, L., Menicagli, V., Balestri, E., Braca, A., Nieri, P., Testai, L. (2025). *Cymodocea nodosa*, a promising seagrass of nutraceutical interest: Overview of phytochemical constituents and potential therapeutic uses. *Nutrients*, 17, 1236. <https://doi.org/10.3390/nu17071236> IF: 4.8
2. Menicagli, V., Balestri, E., Bernardini, G., Barsotti, F., Fulignati, S., Raspolli Galletti, A.M., Lardicci, C. (2025). Moving wrack from beaches to sand dunes: A sustainable beach-dune management practice? *J. Env. Manag.*, 380, 125162. <https://doi.org/10.1016/j.jenvman.2025.125162> IF: 8.0
3. Fulignati, S., Raspolli Galletti, A.M., Barsotti, F., Menicagli, V., Balestri, E., Lardicci, C., Mattonai, M., Nardella, F., Antonetti, C. (2025). Sustainable exploitation of *Posidonia oceanica* balls through

- an integrated biorefinery approach. ACS Sustainable Chemistry and Engineering. <https://doi.org/10.1021/acssuschemeng.4c05508>
4. Menicagli, V., Ruffini Castiglione, M., Cioni, E., Spanò, C., Balestri, E., De Leo, M., Bottega, S., Sorce, C., Lardicci, C. (2024). Stress responses of the seagrass *Cymodocea nodosa* to environmentally relevant concentrations of pharmaceutical ibuprofen: Ecological implications. J. Hazard. Mat., 476, 135188. <https://doi.org/10.1016/j.jhazmat.2024.135188>
 5. Menicagli, V., Balestri, E., Bernardini, G., Barsotti, F., Fulignati S., Raspolli Galletti, AM., Lardicci, C. (2024). Beach-cast seagrass wrack: A natural marine resource improving the establishment of dune plant communities under a changing climate. Mar. Pollut. Bull., 201, 116270. <https://doi.org/10.1016/j.marpolbul.2024.116270>
 6. Menicagli, V., Balestri, E., Corti, S., Arena, B., Protano, G., Corsi, I., Lardicci, C. (2023). Effects of TiO₂ ultraviolet filter and sunscreens on coastal dune plant performance and competitive interactions. Chemosphere, 343, 140236. <https://doi.org/10.1016/j.chemosphere.2023.140236>
 7. Menicagli, V., Balestri, E., Giommoni, F., Vannini, C., Lardicci, C. (2023). Plastic litter changes the rhizosphere bacterial community of coastal dune plants. Science of the Total Environment, 880, 163293. <https://doi.org/10.1016/j.scitotenv.2023.163293> IF: 10.753
 8. Menicagli, V., Balestri, E., Fulignati, S., Raspolli Galletti A.M., Lardicci, C. (2023). Plastic litter in coastal dunes: Degradation behavior and impact on native and non-native invasive plants. Environmental Pollution 316, 120738. <https://doi.org/10.1016/j.envpol.2022.120738> IF: 9.988
 9. Carducci, A., Federigi, I., Balestri, E., Lardicci, C., Castelli, A., Maltagliati, F., Zhao, H., Menicagli, V., Valente, R., De battisti, D., Verani, M. (2022). Virus contamination and infectivity in beach environment: Focus on sand and stranded material. Marine Pollution Bulletin 185,114342. <https://doi.org/10.1016/j.marpolbul.2022.114342> IF: 7.001
 10. Federigi, I., Balestri, E., Castelli, A., De Battisti, D., Maltagliati, F., Menicagli, V., Verani, M., Lardicci, C., Carducci, A. (2022). Beach pollution from marine litter: Analysis with the DPSIR framework (driver, pressure, state, impact, response) in Tuscany, Italy. Ecological Indicators 143, 109395. <https://doi.org/10.1016/j.ecolind.2022.109395> IF: 6.263
 11. Menicagli, V., Balestri, E., Biale, G., Corti, A., La Nasa, J., Modugno, F., Castelvetro, V., Lardicci, C. (2022). Leached degradation products from beached microplastics: A potential threat to coastal dune plants. Chemosphere, 303, 135287. <https://doi.org/10.1016/j.chemosphere.2022.135287> IF: 8.943
 12. Menicagli, V., Ruffini Castiglione, M., Balestri, E., Giorgetti, L., Bottega, S., Sorce, C., Spanò, C., Lardicci, C. (2022). Early evidence of the impacts of microplastics and nanoplastic pollution on the growth and physiology of the seagrass *Cymodocea nodosa*. Science of the Total Environment, 838,

156514. <http://dx.doi.org/10.1016/j.scitotenv.2022.156514> IF: 10.753

13. Menicagli, V., De Battisti, D., Balestri, E., Federigi, I., Maltagliati, F., Verani, M., Castelli, A., Carducci, A., Lardicci, C. (2022). Impact of storms and proximity to entry points on marine litter and wrack accumulation along Mediterranean beaches: Management implications. *Science of the Total Environment*, 824, 153914. <http://dx.doi.org/10.1016/j.scitotenv.2022.153914> IF: 10.753
14. Balestri, E., Vallerini, F., Menicagli, V., Lardicci, C. (2022). Harnessing spatial nutrient distribution and facilitative intraspecific interactions in soft eco-engineering projects to enhance coastal dune restoration. *Ecological Engineering*, 174, 106445. ISSN: 0925-8574. <https://doi.org/10.1016/j.ecoleng.2021.106445> IF: 4.379
15. Balestri, E., Menicagli, V., Lardicci, C. (2021). Managing biotic interactions during early seagrass life stages to improve seed-based restoration. *Journal of Applied Ecology*, 58, 2453-2462. ISSN: 0021-8901 <https://doi.org/10.1111/1365-2664.13980> IF: 6.865
16. Vannini, C., Rossi, A., Vallerini, F., Menicagli, V., Seggiani, M., Cinelli, P., Lardicci, C., Balestri, E. (2021). Microbial communities of polyhydroxyalkanoate (PHA)-based biodegradable composites plastisphere and of surrounding environmental matrix: a comparison between marine (seabed) and coastal sediments (dune sand) over a long-time scale. *Science of the Total Environment*, 764, 142814. ISSN: 0048-9697 <https://doi.org/10.1016/j.scitotenv.2020.142814> IF: 10.753
17. De Battisti, D., Balestri, E., Pardi G., Menicagli, V., Lardicci, C. (2021). Substrate type influences the structure of epiphyte communities and the growth of *Posidonia oceanica* seedlings. *Frontiers in Plant Science*, 12660658. ISSN: 1664-462X <https://doi.org/10.3389/fpls.2021.660658> IF: 6.627
18. Menicagli, V., Balestri, E., Vallerini, F., De Battisti, D., Lardicci, C. (2021). Plastics and sedimentation foster the spread of a non-native macroalga in seagrass meadows. *Science of the Total Environment*, 757, 143812. ISSN: 0048-9697 <https://doi.org/10.1016/j.scitotenv.2020.143812> IF: 10.753
19. Menicagli, V., Balestri, E., Vallerini, F., Castelli, A., Lardicci, C. (2020). Combined effect of plastic litter and increased atmospheric nitrogen deposition on vegetative propagules of dune plants: A further threat to coastal ecosystems. *Environmental Pollution*, 266, 115281. ISSN: 0269-7491 <https://doi.org/10.1016/j.envpol.2020.115281> IF: 8.071
20. Balestri, E., Menicagli, V., Ligorini, V., Fulignati, S., Raspolli Galletti, A.M., Lardicci, C. (2020). Reply to “Letter to Editor regarding the article “Evaluation of the phytotoxicity of conventional and biodegradable plastic bags using seed germination tests” by Balestri et al. (2019) published on *Ecological Indicators* 102 (2019): 569–580”. *Ecological Indicators*, 110, 105876. ISSN: 1470-160X <https://doi.org/10.1016/j.ecolind.2019.105876> IF: 4.958

21. Balestri, E., Vallerini, F., Seggiani, M., Cinelli, P., Menicagli, V., Vannini, C., Lardicci, C. (2019). Use of bio-containers from seagrass wrack with nursery planting to improve the eco-sustainability of coastal habitat restoration. *Journal of Environmental Management*, 251, 109604. ISSN: 1470-160X <https://doi.org/10.1016/j.jenvman.2019.109604> IF: 5.647
22. Menicagli, V., Balestri, E., Lardicci, C. (2019). Exposure of coastal dune vegetation to plastic bag leachates: A neglected impact of plastic litter. *Science of the Total Environment*, 683, 737-748. ISSN: 0048-9697 <https://doi.org/10.1016/j.scitotenv.2019.05.245> IF: 6.551
23. Menicagli, V., Balestri, E., Vallerini, F., Castelli, A., Lardicci, C. (2019). Adverse effects of non-biodegradable and compostable plastic bags on the establishment of coastal dune vegetation: First experimental evidence. *Environmental Pollution*, 252, 188-195. ISSN: 0269-7491 <https://doi.org/10.1016/j.envpol.2019.05.108> IF: 6.793
24. Balestri, E., Menicagli, V., Ligorini, V., Fulignati, S., Raspolli Galletti, A.M., Lardicci, C. (2019). Phytotoxicity assessment of conventional and biodegradable plastic bags using seed germination test. *Ecological Indicators*, 102, 569-580. ISSN: 1470-160X <https://doi.org/10.1016/j.ecolind.2019.03.005> IF: 4.229
25. Balestri, E., Vallerini, F., Menicagli, V., Barnaba, S., Lardicci, C. (2018). Biotic resistance and vegetative propagule pressure co-regulate the invasion success of a marine clonal macrophyte. *Scientific Reports*, 8(1), 16621. ISSN: 2045-2322 <https://doi.org/10.1038/s41598-018-35015-0> IF: 4.011