

CV Eugenio Rastelli



Born in Modena (Italy)
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Current Position:
Researcher (Ricercatore III° livello)

Affiliation:
Ecosustainable Marine Biotechnology Department, Stazione Zoologica Anton Dohrn, Fano Marine Center, Fano (Italy)

Education/Training/Experience

Institute and Location	Degree / Function	Year	Field of Study
Polytechnic University of Marche, Ancona, Italy	Master (Laurea)	2008-2010	Marine Biology and Ecology
Polytechnic University of Marche, Ancona, Italy	Ph.D.	2010-2013	Marine Biology and Ecology
Polytechnic University of Marche, Ancona, Italy	Postdoc	2013-2014	Marine Microbial and Molecular Ecology
Stazione Zoologica Anton Dohrn, Napoli, Italy	Postdoc	2014-2017	Marine Ecosystem Monitoring/Environmental Sustainability/Microbial Ecology
Stazione Zoologica Anton Dohrn, Napoli, Italy	Researcher	2017-present	Marine microbial and molecular Ecology, bioremediation
Polytechnic University of Marche, Ancona, Italy	Adjunct Professor	2017-present	Applied Ecotechnology

Appointments and awards

2020-present. Member of the Steering Committee of the Marine Biology Master Course (Polytechnic University of Marche)

2013-present. Peer Reviewer for: *Science of the Total Environment; Environmental Microbiology and Environmental Microbiology Reports; Scientific Reports; Frontiers in Marine Science; International Journal of Greenhouse Gas Control; Biology; Plos One; Chemistry and Ecology; Viruses; Hydrobiologia; Geosciences; Journal of Coastal Research; International journal of Environmental Research and Public Health; Applied Sciences; Journal of Fungi; Microorganisms; Frontiers in Microbiology; Atmospheric Chemistry and Physics; Symmetry; Microbial Ecology; Microbiology Research; Landmark; Chemosphere; Microbiology Spectrum; Marine Ecology; Water; International Journal of Molecular Sciences; Diversity; Ecohydrology & Hydrobiology; Life; Toxics; Marine Pollution Bulletin; Journal of marine science and engineering; Micorbiome; Journal of Environmental Management.*

2018-2021. Peer reviewer for project proposals for NSF (National Science Foundation) and for the National Research and Development Agency (ANID) of the Ministry of Science, Technology, Knowledge and Innovation of Chile.

2018-2021. Upgrade assessor for three SZN-Open University PhD students

2013. Member of the organizing committee for the SIeE 2013 Congress (Italian Society of Ecology): Ecology for a sustainable Blue and Green Growth.

2011. Grant by The Gordon & Betty Moore Foundation (USA) for participation in the 6th Aquatic Virus Workshop organized at NIOZ (Royal Netherlands Institute for Sea Research), for the poster entitled “*Assessing the selective impact of viruses on Bacteria and Archaea in aquatic sediments*”.

2011. Grant for participation in the AIOL workshop (Italian Association in Limnology and Oceanography) for the presentation entitled “*Viral ecology in deep-sea Sediments*”.

2011-2012. Invited Speaker at the “JAMSTEC Biogeos Seminar” cycles (Japan) for two presentations, entitled: “*The Izu-Ogasawara trench, a hot spot of viral activity*” (2011), and “*Viruses, major players in the functioning of deep-sea benthic ecosystem*” (2012).

2010. Grant by the European Science Foundation (ESF) for participation in the ESF Research Conference “*Marine Biotechnology: Future Challenges*”.

2010. Selected student for the ASM International Mentorship Program (*American Society for Microbiology*), ref. Prof. M. Suzuki (Director UPMC CNRS, Laboratoire de Biodiversité et Biotechnologie Microbiennes, Université Pierre et Marie Curie, France)

Other

2008-present: Contribution to the organization and implementation of >30 oceanographic campaigns and scientific expeditions in the Pacific Ocean, Atlantic Ocean, Antarctica, North Sea, Mediterranean Sea, Red Sea, for a total of more than 250 days of field research activity.

>20 contributions to national and international congresses and >100 contributions to scientific reports.

Participation in international projects: LIFE SEDREMED, LIFE eLIFE, MARINE HAZARD, DEVOTES, ECO2, HERMES, HERMIONE, MAP, SUGAR, S&T MED, MIDAS, MERCES.

Participation in national projects: PON-PRIMA (PI for 6-y postdoc grants) PNRR-Spoke 2 Biotechnologie (PI for SZN of the sub-task “MICROBIOREM”), BIOBLUTECH (PI for SZN), ENI-1 DICS, PNRA-GIAVA, PRIN-GLIDE, ABBaCo, RITMARE, PNRA-BEDROSE, PNRA P-ROSE, EXPLODIVE-FIRB, OBAMA, mo.bio.mar.cal-ISPRA, EARTHCRUISERS-SZN, INPUT-SZN.

Ongoing collaborations with JAMSTEC (www.jamstec.go.jp/e/about/equipment/ships/), Japan.

Students' Supervision

2011-present. Co-supervisor of 15 Bachelor and Master students, 2 PhD students, and 3 postdocs, At the SZN-Fano Marine Center and at the laboratories of the Polytechnic University of Marche,

Department of Life and Environmental Sciences (Microbial & Molecular Ecology Laboratory, and the Marine Biology and Ecology Laboratory)

Peer-reviewed Publications (ISI)

2013- present. Author of n.45 ISI publications and n.5 non-ISI peer reviewed publications (google scholar, h-index 23; Total citations: 3744; Total Impact Factor: 231.3)

- Dell'Anno, F., van Zyl, L. J., Trindade, M., Buschi, E., Cannavacciuolo, A., Pepi, M., ... & **Rastelli, E.** (2023). Microbiome enrichment from contaminated marine sediments unveils novel bacterial strains for petroleum hydrocarbon and heavy metal bioremediation. *Environmental Pollution*, 317, 120772.
- Arcadi, E., Buschi, E., **Rastelli, E.**, Tangherlini, M., De Luca, P., Esposito, V., ... & Danovaro, R. (2023). Novel insights on the Bacterial and Archaeal diversity of the Panarea shallow-Water Hydrothermal vent field. *Microorganisms*, 11(10), 2464.
- Corinaldesi, C., Bianchelli, S., Candela, M., Dell'Anno, A., Gambi, C., **Rastelli, E.**, Stefano Varrella, Danovaro, R. (2023). Microbiome-assisted restoration of degraded marine habitats: a new nature-based solution?. *Frontiers in Marine Science*.
- Munari, C., Borja, A., Corinaldesi, C., **Rastelli, E.**, Lo Martire, M., Pitacco, V., & Mistri, M. (2022). First Application of the AMBI Index to the Macrobenthic Soft-Bottom Community of Terra Nova Bay (Ross Sea, Southern Ocean). *Water*, 14(19), 2994.
- Dell'Anno, F., **Rastelli, E.**, Buschi, E., Barone, G., Beolchini, F., & Dell'Anno, A. (2022). Fungi can be more effective than bacteria for the bioremediation of marine sediments highly contaminated with heavy metals. *Microorganisms*, 10(5), 993.
- Arcadi, E., **Rastelli, E.**, Tangherlini, M., Rizzo, C., Mancuso, M., Sanfilippo, M., ... & Romeo, T. (2022). Shallow-Water Hydrothermal Vents as Natural Accelerators of Bacterial Antibiotic Resistance in Marine Coastal Areas. *Microorganisms*, 10(2), 479.
- Corinaldesi, C., Bianchelli, S., **Rastelli, E.**, Varrella, S., Canensi, S., Gambi, C., ... & Dell'Anno, A. (2022). The paradox of an unpolluted coastal site facing a chronically contaminated industrial area. *Frontiers in Marine Science*, 8, 813887.
- Barone, G., Corinaldesi, C., **Rastelli, E.**, Tangherlini, M., Varrella, S., Danovaro, R., & Dell'Anno, A. (2022). Local Environmental Conditions Promote High Turnover Diversity of Benthic Deep-Sea Fungi in the Ross Sea (Antarctica). *Journal of Fungi*, 8(1), 65.
- Nomaki, H., **Rastelli, E.**, Ogawa, N. O., Matsui, Y., Tsuchiya, M., Manea, E., ... & Amaro, T. (2021). In situ experimental evidences for responses of abyssal benthic biota to shifts in phytodetritus compositions linked to global climate change. *Global Change Biology*, 27(23), 6139-6155.
- Dell'Anno, F., **Rastelli, E.**, Sansone, C., Brunet, C., Ianora, A., & Dell'Anno, A. (2021). Bacteria, fungi and microalgae for the bioremediation of marine sediments contaminated by petroleum hydrocarbons in the omics era. *Microorganisms*, 9(8), 1695.
- Nomaki, H., **Rastelli, E.**, Alves, A., Suga, H., Ramos, S., Kitahashi, T., ... & Amaro, T. (2021). Abyssal fauna, benthic microbes, and organic matter quality across a range of trophic conditions in the western Pacific ocean. *Progress in Oceanography*, 195, 102591.
- Varrella, S., Barone, G., Tangherlini, M., **Rastelli, E.**, Dell'Anno, A., & Corinaldesi, C. (2021). Diversity, ecological role and biotechnological potential of antarctic marine fungi. *Journal of Fungi*, 7(5), 391.
- Dell'Anno, F., **Rastelli, E.**, Tangherlini, M., Corinaldesi, C., Sansone, C., Brunet, C., ... & Dell'Anno, A. (2021). Highly contaminated marine sediments can host rare bacterial taxa potentially useful for bioremediation. *Frontiers in Microbiology*, 12, 584850.
- Dell'Anno, A., Beolchini, F., Corinaldesi, C., Amato, A., Becci, A., **Rastelli, E.**, ... & Danovaro, R. (2020). Assessing the efficiency and eco-sustainability of bioremediation strategies for the

- reclamation of highly contaminated marine sediments. *Marine Environmental Research*, 162, 105101.
- Tangherlini, M., Corinaldesi, C., **Rastelli, E.**, Musco, L., Armiento, G., Danovaro, R., & Dell'Anno, A. (2020). Chemical contamination can promote turnover diversity of benthic prokaryotic assemblages: The case study of the Bagnoli-Coroglio bay (southern Tyrrhenian Sea). *Marine environmental research*, 160, 105040.
- Bianchelli, S., Nizzoli, D., Bartoli, M., Viaroli, P., **Rastelli, E.**, & Pusceddu, A. (2020). Sedimentary Organic Matter, Prokaryotes, and Meiofauna Across a River-Lagoon-Sea Gradient. *Diversity*, 12(5), 189.
- Sfriso, A. A., Tomio, Y., Rosso, B., Gambaro, A., Sfriso, A., Corami, F., ... & Munari, C. (2020). Microplastic accumulation in benthic invertebrates in Terra Nova Bay (Ross Sea, Antarctica). *Environment International*, 137, 105587.
- Rastelli, E.**, Petani, B., Corinaldesi, C., Dell'Anno, A., Martire, M. L., Cerrano, C., & Danovaro, R. (2020). A high biodiversity mitigates the impact of ocean acidification on hard-bottom ecosystems. *Scientific reports*, 10(1), 1-13.
- Hiraoka, S., Hirai, M., Matsui, Y., Makabe, A., Minegishi, H., Tsuda, M., ... & Tasumi, E. (2020). Microbial community and geochemical analyses of trans-trench sediments for understanding the roles of hadal environments. *The ISME journal*, 14(3), 740-756.
- Amaro, T., Danovaro, R., Matsui, Y., **Rastelli, E.**, Wolff, G. A., & Nomaki, H. (2019). Possible links between holothurian lipid compositions and differences in organic matter (OM) supply at the western Pacific abyssal plains. *Deep-Sea Research Part I- Oceanographic Research Papers*, 152, 103085.
- Barone, G., Varrella, S., Tangherlini, M., **Rastelli, E.**, Dell'Anno, A., Danovaro, R., & Corinaldesi, C. (2019). Marine fungi: Biotechnological perspectives from deep-hypersaline anoxic basins. *Diversity*, 11(7), 113.
- Rastelli, E.**, Corinaldesi, C., Dell'Anno, A., Tangherlini, M., Lo Martire, M., Nishizawa, M., ... & Roberto, D. (2019). Drivers of bacterial α - and β -diversity and functioning in subsurface hadal sediments. *Frontiers in Microbiology*, 10, 2609.
- Manea, E., Corinaldesi, C., Dell'Anno, A., **Rastelli, E.**, Tangherlini, M., Nunoura, T., ... & Roberto, D. (2019). Viral infections boost prokaryotic biomass production and organic C cycling in hadal trench sediments. *Frontiers in microbiology*, 10, 1952.
- Corinaldesi, C., Tangherlini, M., **Rastelli, E.**, Buschi, E., Martire, M. L., Danovaro, R., & Dell'Anno, A. (2019). High diversity of benthic bacterial and archaeal assemblages in deep-Mediterranean canyons and adjacent slopes. *Progress in Oceanography*, 171, 154-161.
- Corinaldesi, C., **Rastelli, E.**, Canensi, S., Tangherlini, M., Danovaro, R., & Dell'Anno, A. (2019). High rates of viral lysis stimulate prokaryotic turnover and C recycling in bathypelagic waters of a Ligurian canyon (Mediterranean Sea). *Progress in Oceanography*, 171, 70-75.
- Celussi, M., Quero, G. M., Zoccarato, L., Franzo, A., Corinaldesi, C., **Rastelli, E.**, ... & Coluccelli, A. (2018). Planktonic prokaryote and protist communities in a submarine canyon system in the Ligurian Sea (NW Mediterranean). *Progress in Oceanography*, 168, 210-221.
- Barone, G., **Rastelli, E.**, Corinaldesi, C., Tangherlini, M., Danovaro, R., & Dell'Anno, A. (2018). Benthic deep-sea fungi in submarine canyons of the Mediterranean Sea. *Progress in Oceanography*, 168, 57-64.
- Rastelli, E.**, Corinaldesi, C., Canals, M., Danovaro, R., & Dell'Anno, A. (2018). Rapid response of benthic deep-sea microbes (viruses and prokaryotes) to an intense dense shelf water cascading event in a submarine canyon of the NW Mediterranean Sea. *Progress in Oceanography*, 168, 35-42.
- Carugati, L., Gatto, B., **Rastelli, E.**, Martire, M. L., Coral, C., Greco, S., & Danovaro, R. (2018). Impact of mangrove forests degradation on biodiversity and ecosystem functioning. *Scientific Reports*, 8(1), 13298.

- Amaro, T., Bertocci, I., Queiros, A.M., **Rastelli, E.**, Borgersen G., Brkljacic M., Nunes, J. Sorensen K., Danovaro, R., Widdicombe, S. (2018). Effects of sub-seabed CO₂ leakage: Short- and medium-term responses of benthic macrofaunal assemblages. *Marine Pollution Bulletin* 128, 519-526. doi: 10.1016/j.marpolbul.2018.01.068
- Danovaro, R., Corinaldesi, C., Dell'Anno, A., **Rastelli, E.** (2017). Potential impact of global climate change on benthic deep-sea microbes. *FEMS Microbiology Letters* fnx214.
- Rastelli, E.**, Corinaldesi, C., Dell'Anno, A., Lo Martire, M., Greco, S., Facchini, M.C., O'Dowd, C., Ceburnis, D., Danovaro, R. (2017). Transfer of labile organic matter and microbes from the ocean surface to the marine aerosol: an experimental approach. *Scientific Reports* 7, 11475. doi: 10.1038/s41598-017-10563-z
- Ripple, W. J., Wolf, C., Newsome, T. M., Galetti, M., Alamgir, M., Crist, E., ... & 15,364 Scientist **Signatories** from 184 Countries. (2017). World scientists' warning to humanity: a second notice. *BioScience*, 67(12), 1026-1028.
- Rastelli E.**, Corinaldesi C., Dell'Anno A., Tangherlini, M., Martorelli, E., Ingrassia, M., Lo Martire, M., Chiocci F.L., Danovaro, R. (2017). High potential for temperate viruses to drive carbon cycling in chemoautotrophy-dominated shallow-water hydrothermal vents. *Environmental Microbiology* [Epub ahead of print] doi:10.1111/1462-2920.13890
- Munari, C., Infantini, V., Scoconi, M., **Rastelli, E.**, Corinaldesi, C., Mistri, M. (2017). Microplastics in the sediments of Terra Nova Bay (Ross Sea, Antarctica). *Marine Pollution Bulletin* 122, 161-165. doi: 10.1016/j.marpolbul.2017.06.039
- Danovaro, R., Carugati L., Berzano, M., Cahill, A.E., Carvalho, S., Chenuil, A., Corinaldesi, C., Cristina, S., David, R., Dell'Anno, A., Dzhenbekova, N., Garcès, E., Gasol, J.M., Goela, P., Féral, J.P., Ferrera, I., Forster, R.M., Kurekin, A.A., **Rastelli, E.**, Marinova, V., Miller, P.I., Moncheva, S., Newton, A., Pearman, J.K., Pitois, S., Reñé, A., Rodríguez-Ezpeleta, N., Saggiomo, V., Simis, S.G.H, Stefanova, K., Wilson, C., Lo Martire, M., Greco, S., Cochrane, S., Borja A. (2016). Implementing and innovating marine monitoring approaches for assessing marine environmental status. *Frontiers in Marine Science* 3:213. doi: 10.3389/fmars.2016.00213
- Rastelli E.**, Dell'Anno A., Corinaldesi C., Middelboe, M., Noble, R.T., Danovaro, R. (2016). Quantification of viral and prokaryotic production rates in benthic ecosystems: A methods comparison. *Frontiers in Microbiology* 7:1501. doi: 10.3389/fmicb.2016.01501
- Hannachi, A., Elarbaoui, S., Khazri, A., Sellami, B., **Rastelli, E.**, D'Agostino, F., Beyrem, H., Mahmoudi, E., Corinaldesi, C., Danovaro, R. (2016). Impact of the biocide Irgarol on meiofauna and prokaryotes from the sediments of the Bizerte lagoon—an experimental study. *Environmental Science and Pollution Research* 23: 7712-7721. doi:10.1007/s11356-015-5936-y
- Danovaro, R., Dell'Anno, A., Corinaldesi, C., **Rastelli, E.**, Cavicchioli, R., Krupovic, M., Noble, R.T., Nunoura, T., Prangishvili, D. (2016). Virus-mediated archaeal hecatomb in the deep seafloor. *Science Advances* 2016c;2:e1600492. doi: 10.1126/sciadv.1600492
- Rastelli E.**, Corinaldesi C., Petani B., Dell'Anno, A., Ciglenc̆ki, I., Danovaro, R. (2016). Enhanced viral activity and dark CO₂ fixation rates under oxygen depletion: the case study of the marine Lake Rogoznica. *Environmental Microbiology* 18:4511-4522. doi: 10.1111/1462-2920.13484
- Rastelli E.**, Corinaldesi C., Dell'Anno A., Greco, S., Lo Martire, M., Carugati, L., Queirós, A.M., Widdicombe, S., Danovaro, R. (2016). CO₂ leakage from carbon dioxide capture and storage (CCS) systems affects organic matter cycling in surface marine sediments. *Marine Environmental Research* 122:158-168. doi: 10.1016/j.marenvres.2016.10.007
- Rastelli E.**, Corinaldesi C., Dell'Anno A., Amaro, T., Queirós, A.M., Widdicombe, S., Danovaro, R. (2015). Impact of CO₂ leakage from sub-seabed carbon dioxide capture and storage (CCS) reservoirs on benthic virus–prokaryote interactions and functions. *Frontiers in Microbiology* 6:935. doi: 10.3389/fmicb.2015.00935

- Caruso, G., La Ferla, R., Azzaro, M., Zoppini, A., Marino, G., Petochi, T., Corinaldesi, C., Leonardia, M., Zaccone, R., Fonda Umari, S., Caroppo, C., Monticelli, L., Azzaro, F., Decembrini, F., Maimone, G., Cavallo, R.A., Stabili, L., Todorova, N.H., Karamfilov, V.K., **Rastelli, E.**, Cappello, S., Acquaviva, M.I., Narracci, M., De Angelis, R., Del Negro, P., Latini, M., Danovaro R. (2015). Microbial assemblages for environmental quality assessment: Knowledge, gaps and usefulness in the European Marine Strategy Framework Directive. *Critical Reviews in Microbiology* 42: 883-904. doi:10.3109/1040841X.2015.1087380
- Danovaro, R., Corinaldesi, C., **Rastelli, E.**, Dell'Anno, A. (2015). Towards a better quantitative assessment of the relevance of deep-sea viruses, Bacteria and Archaea in the functioning of the ocean seafloor. *Aquatic Microbial Ecology* 75: 81-90. doi: 10.3354/ame01747 (IF 2015: 2.109; 2022: **I**)
- Luna, G. M., Corinaldesi, C., **Rastelli, E.**, Danovaro, R. (2013). Patterns and drivers of bacterial α - and β -diversity across vertical profiles from surface to subsurface sediments. *Environmental microbiology reports* 5: 731-739. doi: 10.1111/1758-2229.12075

Additional peer-reviewed (non-ISI) publications

- Danovaro R, **Rastelli E.**, Corinaldesi C, Dell'Anno A. (2017). Marine archaea and archaeal viruses under global change. *F1000Res* 6:1241. doi: 10.12688/f1000research.11404.1
- Danovaro, R., Corinaldesi, C., **Rastelli, E.**, Dell'Anno, A. (2016). Impacts and effects of ocean warming on microorganisms. In *Explaining ocean warming: causes, scale, effects and consequences*. Laffoley, D, and Baxter, JM. Eds. Full report. Gland, Switzerland: IUCN (International Union for Conservation of Nature). pp. 57-74. ISBN: 978-2-8317-1806-4
- Queirós, A M., Norling, K, Amaro, T, Nunes, J, Cummings, D, Yakushev, E, Sorensen, K, Harris, C, Woodward, M, Danovaro, R, **Rastelli, E.**, Alve, E, De Vittor, C, Karuza, A, Cibic, T, Monti, M, Ingrosso, G, Fornasaro, D, Beaubien, S E, Guilini, K, Vanreusel, A, Molari, M, Boetius, A, Ramette, A, Wenzhöfer, F, de Beer, D, Weber, M, Grünke, S, Bigalke, N and Widdicombe, S (2014) Potential impact of CCS leakage on marine communities. Open Access. ECO2 Deliverable, D4.1. Plymouth Marine Laboratory, 86 pp. DOI 10.3289/ECO2_D4.1.
- Danovaro, R., **Rastelli, E.**, Corinaldesi, C., Dell'Anno, A. (2014). Deep-sea microbes and their role in the ocean interior. In: *The Significance and Management of Natural Carbon Stores in the Open Ocean*. Laffoley D, Baxter JM, Thevenon F and Oliver J, Eds, Gland, Switzerland: IUCN (International Union for Conservation of Nature) 2014 pp. 103-115. ISBN: 978-208317-1692-3
- Danovaro, R., **Rastelli, E.**, Corinaldesi, C., Dell'Anno, A. (2014). Deep-sea chemosynthetic carbon production. In: *Laffoley D, Baxter JM, Thevenon F and Oliver J, Eds. The Significance and Management of Natural Carbon Stores in the Open Ocean*. Gland, Switzerland: IUCN (International Union for Conservation of Nature); 2014 pp. 93-102. ISBN: 978-208317-1692-3

Editorial Assignments

- Guest Editor, Special Issue: “Role of Microbes in the Remediation of Harmful Pollutants in Contaminated Ecosystems”. Journal: *microorganisms*, MDPI, 2023. LINK: (https://www2.mdpi.com/journal/microorganisms/special_issues/JRD325E0AV)
- Guest Editor, Special Issue: “Physiology & Biotechnology of Marine fungi”. Journal: *Frontiers in Fungal Biology*, 2023. LINK: (<https://www.frontiersin.org/research-topics/49015/physiology-biotechnology-of-marine-fungi>)

Press and outreach

Online press releases, news & highlights on my research

Link:https://napoli.repubblica.it/cronaca/2022/10/03/news/bagnoli_parte_esperimento_ue_su_tecnica_biorisanamento_mare-368423102/

Link:https://www.repubblica.it/green-and-blue/2023/06/08/news/inquinamento_mari_superbatteri_napoli-403560889/

Link:<http://www.the-scientist.com/?articles.view/articleNo/47235/title/Deep-Sea-Viruses-Destroy-Archaea/>

Link:<https://www.sciencenews.org/article/ocean-archaea-more-vulnerable-deep-sea-viruses-bacteria>

Link:http://napoli.repubblica.it/cronaca/2016/10/13/news/piccoli_e_potenti_gli_archea_la_foresta_amazzonica_del_mare_combattono_l_acidificazione_degli_oceani-149674604/

Link:https://www.ansa.it/canale_scienza_tecnica/notizie/terra_poli/2020/02/23/la-biodiversita-combatte-lacidificazione-degli-oceani-87329ab0-c225-4b3e-8c44-492bc7c72230.html

LINK:<https://www.altoadige.it/scienza-e-tecnica/la-biodiversita-combatte-l-acidificazione-degli-oceani-1.2270283>