

Curriculum Vitae et Studiorum

Roberto Danovaro

Personal Information

Languages: Italian (mother language), English (fluent), French (fluent), Spanish (good).

Bio-sketch

Roberto Danovaro è un biologo, professore di ecologia presso l'Università Politecnica delle Marche. È stato Presidente della Stazione Zoologica Anton Dohrn, Istituto Nazionale di Biologia Ecologia e Biotecnologie Marine, Presidente della Società Italiana di Ecologia e della Società Italiana di Limnologia e Oceanografia. È membro dell'Accademia Europea delle Scienze e della EU Academy of Sciences. Membro del Consiglio Scientifico di OneHealthon. Autore di circa 500 pubblicazioni e diversi libri scientifici e divulgativi. Specializzato nella ricerca sulla biologia degli organismi marini ha condotto spedizioni in tutti gli oceani. Svolge ricerche con un approccio interdisciplinare ad alto contenuto tecnologico per comprendere il la relazione tra salute umana e salute dell'ambiente, sul funzionamento egli organismi e i loro meccanismi di adattamento. La sua ricerca è volta a comprendere i meccanismi di adattamento delle forme di vita più semplici e complesse alle condizioni estreme. Ha vinto numerosi premi internazionali, tra cui l'ENI Award per la Protezione dell'Ambiente, il BMC Biology Prize (Londra), la Medaglia d'Oro dell'Istituto Oceanografico di Monaco (Parigi) ed è stato indicato da ExpertScape come il più influente scienziato in "Oceans and Seas" nel decennio 2010-2020.

SHORT CV ENG

Roberto Danovaro is a Biologist, Full Professor of Ecology at the Polytechnic University of Marche. Past-President of the Stazione Zoologica Anton Dohrn (National Institute of Marine Biology Ecology and Biotechnology) by the Ministry of University and Research (2013-2022). Former Director of the Department of Marine Sciences (2004 to 2010), Director of the Department of Life and Environmental Sciences (2011 to 2014) at the Polytechnic University of Marche. Pro-Rector (Delegated to the Research) at the Polytechnic University of Marche (2010-2013). President of the Scientific Council of WWF Italy, Steering Board Member of OECD (Fostering Innovation in Ocean Economy). Member of the Scientific Council of several research institutions and panels (IUCN, UNEP, EU), and coordinator of several EU and international projects. President of the Italian Society of Ecology (2011-2013), and of the Italian Society of Limnology and Oceanography (2008-2011). President of the European Federation of Scientific Technological Societies (2008-2012). Member of the Academia Europaea (European Science Academy) and of the EU Academy of Sciences. Editor in Chief of Marine Ecology: an evolutionary approach (Wiley) and Chemistry and Ecology (Taylor and Francis). RD received the World Prize BMC Biology (London, 2010), the Award of French Society of Oceanography (2011), and the ENI Award "Protection of the Environment" (2013). Recognised by Expertscape as the top World Scientist in the Category "Ocean and Seas" and "Marine Biology" in the decade 2010-2020.

Educational steps and Main Achievements

Education

1993 - PhD in Marine Environmental Sciences at the Department of Biology University of Pisa (joint PhD activity at the University of Ghent, Belgium)

1988 - Master Degree in Biology, University of Genoa

Teaching and Educational responsibilities

2001-present – Full Professor of Ecology

2004-present – Professor of the Doctorate (PhD course - *Marine Biology and Ecology*)

2013-present – Coordinator of the *International Master Degree in Marine Biology* (FUNIBER)

2005-2012 – Coordinator of the Degree and Professor of *Environmental Ethics*

2005-2012 – Professor of *Fundamentals of Ecology and Analysis of Ecological Systems*

2005-present Professor - Doctorate PhD School “Marine Biology and Ecology” – Polytechnic Univ. of Marche.

High level teaching experience in several international courses including:

- UNESCO,
- Venice International University,
- Open University PhD courses,

2011-2014 Dean (act.) of Faculty of Science at the Polytechnic University of Marche

2007-2012 Founder and Coordinator of the Master Degree in *Marine Biology and Ecology* (UNIVPM)

2007-2012 Co-Founder and Coordinator of the Master Degree in *Environmental Sustainability* (UNIVPM)

2009-2012 Coordinator of the *Master Degree in Marine Biology and Ecology* (UNIVPM)

Positions and Responsibilities

2023: **Scientific Director** preparatory events on the Oceans - *Expo 2030 Roma* Bid Committee

2022: President “*Patto per il Mare con la Terra*” – Foundation Slow Food International

2021-Present: Member of the **Committee - Environmental Impact Assessment** (EIA) – Strategic Environmental Assessment (VAS) Ministry Environment.

2013-2022: **President of the Stazione Zoologica Anton Dohrn**, National Institute of Marine Biology Ecology and Biotechnologies, of the Ministry of University and Research, Naples, Italy

2011-2014: **Director Dept Life & Environmental Sciences** - Polytechnic University of Marche.

2010-2013: **Pro-rector** (Delegated to Research) at the Polytechnic University of Marche.

2004-2010: **Director of the Department of Marine Sciences** - Polytechnic University of Marche.

2001-Present: Full Professor, Marine Biology and Ecology, Polytechnic University of Marche, Italy

1998-2001 Associate Professor, Department of Biology, University of Bari, Italy

1994-1998 Assistant Professor (*Ricercatore* - University of Ancona), Italy.

Scientific Commissions and Councils

2023: Member of the **Scientific Council of OneHealthon** (Fondazione One Health)

2023: Member of the **Scientific Council of the ASVISv Alleanza Italiana per lo Sviluppo Sostenibile**

2019- present Member of the Scientific Council of “**Slow Food** International”

2018- present Member International Scientific Committee of the **Holy Shroud** (*Sacra Sindone*, Turin)

2017 - present Member of the Steering Board **OECD: Fostering innovation in Ocean Economy**

2016 – present member of the “**National Observatory for Biodiversity**” (National observatory for the *Biodiversity strategy*) coordinator Task “**Marine ecosystem restoration**”.

2016- present Member of the **Scientific Commission ENI Awards** - FEEM

2014-present Member of the **Faculty of 1000 Biology**

- 2014-present President of the Scientific Council of the **WWF** Italy
- 2013-present Member of the Scientific Committee of **ENI**
- 2011-2013 Member of the Scientific Council of the **Stazione Zoologica** “Anton Dohrn”
- 2006-2014 Member of the Scientific Council of the WWF Italy
- 2010-2012 Member of the Scientific Board of the *Reef check Italy*
- 2008-2010 Member of the *Forum of oceans & Islands beyond national jurisdiction*.
- 2005-2010 Member of the Scientific Council of the *Census of Marine Life* (CoML)
- 2006-2008 Member and coordinator of the “*Task force Deep Sea*” of the *CIESM International commission for exploration of the Mediterranean*.
- 2007-2009 Member of the Scientific Council of the *Istituto Nazionale di Oceanografia e di Geofisica Sperimentale* – INOGS (Trieste).
- 2005-2010 Member of the Scientific Council of the CoNISMa (Consorzio Interuniversitario Scienze del Mare, Roma).
- 2005-2008 Member of the SCOR WG 126 on The Role of Viruses in Marine Ecosystems

Seminal Activity (Plenary Invited Speaker)

RD has been invited as plenary speaker by a several International Scientific Institutions and top-level events (here reported is a selection): COP26 UK-Italy; Royal Society of London (UK); College de France (Paris); National Oceanographic Centre (UK); CIESM: Monaco and Barcelona, France; ISME conference (Montreal), EUROCEANS, AGU (America Geophysical Union, S. Francisco), Marine Biology Society of Latin America (Cuba); Association for Sustainable Development (AVISV), University of Southampton, UK, Manado University (Indonesia), Oregon University (USA).

Editorial Activity

- Editor in Chief of the International Journal: **Marine Ecology** (Wiley)
- Editor in Chief of the international journal **Chemistry and Ecology** (Taylor & Francis, London)
- Founder and Past- Editor of the international journal **Advances in Oceanography and Limnology**.
- Honorary member of the Board of Research and Reports in Biodiversity Studies.

RD collaborates as member of the evaluation board or reviewer for >50 international journals including: *Nature*, *Nature Reviews Microbiology*, *Nature Ecology and Evolution*, *Science*, *Science Advances*, *Current Biology*, *Proceedings National Academy of Sciences (PNAS)*.

Experiences in Governmental Bodies, Academia, and Research Institutions

International bodies and institutions

- 2022 – Member the steering committee of the **Partnership Sustainable Blue Economy**.
- 2020 – Member (Italian representative) of the **Joint Program Initiative Healthy and Productive Oceans and Seas** (JPI Oceans)
- 2019 – present **Member of the European Marine Board** (*European think tank in marine science policy*)
- 2017 – 2022 Member of the **Steering Board of OECD - Programme Fostering Innovation in Ocean Economy**
- 2014 – Present Member of the **European Implementation Board EU Research Infrastructure ERIC- EMBRC** (European Marine Biology Resource Centre - seat Paris, Seat Italian Node: Naples)
- 2010-2013 – Management of the **Board of the International Network LICO** (*Life in a Changing Ocean*, Montreal, Canada)
- 2008-2012 – President of the **European Federation of Marine Science and Technology Societies** (Headquarter in Paris)
- 2005-2010 Member of the **Management Board of the International Census of Marine Life** (EuroCoML) [more than 80 nations engaged in a 10-year scientific initiative].

National Research Institutions

- 2022 – present Nominated President of the “**Pact with the Sea for the Earth**” by Slow Food International.
- 2018 - 2022 Re-nominated **President of the Stazione Zoologica**, Anton Dohrn, Naples, Italy
- 2016 - 2018 **President of Dohrn Foundation**, Naples, Italy
- 2013 – present Member of the **Council of Presidents of Public Research Institutions** (ConPER)
- 2013 - 2017 **President of the Stazione Zoologica**, Anton Dohrn, Naples, Italy
- 2013 - present Member of the **Administration Council** (Board of Directors) of **WWF**
- 2010-2013 **Pro-Rector of Polytechnic University of Marche** (delegated to Research).
- 2011-2014 **CEO of Academic Spin Off** and Startup companies (founder of 2 Startups)
- 2011-2014 **Director** of the Dept. Life Environmental Sciences (Polytechnic University of Marche)
- 2011-2014 **Member of the Senate** of the Polytechnic University of Marche
- 2011-2014 **Dean of the Faculty** of Science at the Polytechnic University of Marche (ff).
- 2011-2013 **President of the Italian Society of Ecology** (StE)
- 2008-2011 **President-elect** of the *Italian Society of Ecology* (StE)
- 2008-2011 **President of the Italian Association of Oceanography and Limnology** (AIOL).
- 2008-2009 **Member of the Administration Council of ICRAM** (Institute for Research Applied to the Sea) of the Ministry of Environment (Nominated by the Minister of MIUR)
- 2005-2011 **Director of the Department of Marine Sciences** (Polytechnic University of Marche)
- 2004-2010 **President of the Italian Chapter of EEIU** (Eco-Ethic International Union).

Scientometric/Bibliometric data and Scientific records

Here below a list of the main **scientific indicators of performance**:

- H (Hirsch) index - **100**
- **>37,000** citations
- **Ca 4000** citations per year

- a. **Top Cited Scientist** (*Public Library of Science* - doi.org/10.1371/journal.pbio.3000384)
- b. **Top Ten Italian Scientist** in the Area **Natural & Environmental Sciences**
https://www.topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Natural_Environmental_Sciences.htm
- c. **Top Scientist of the Faculty of 1000 Biology** for the number of papers recommended in Ecology/Environmental Science among Italian Scientists (**n=8 ranked as exceptional**)
- d. **Top cited Scholar scientist** in “Deep-sea Biology”:
https://scholar.google.com/citations?view_op=search_authors&hl=en&mauthors=label:deep_sea_biology
- e. **Top Cited Scientist** in the field of “Marine Biodiversity” (Scholar Citations):

Honors and Awards

International awards

1. **Award Gold Trident** (2022) International Academy of Underwater Sciences and Techniques
2. **Award Expertscape** top world scientist in the “Oceans and Seas for the decade 2010-2020”

3. Nominated Member of the **Academy of Sciences (Academia Aeuropa)** – 2022
4. Invited Member of the **International advisory board** - Lorand Eotvos Research Network
5. **Award Top Cited Italian Scientists – Public Library of Science** - August 2019
6. **Award top 10 New Species discovered** - 2018 - *New York University* (ESF top ten)
7. Invited Member of the **EU Academy of Sciences** – 2018
8. Member of the **High-Level Group of Scientific Advisors** of the European Commission, Directorate-General for Research and Innovation - 2017.
9. **Award ENI (FEEM) “Protection of the Environment”** conferred by the President Giorgio Napolitano - 2013.
10. **Award: Faculty of 1000 Biology**: nominated Member of the Faculty (Section Ecology 2013)
11. **Award Médaille de la Société Océanographique de France** - 2010 *Institute Oceanographique de Paris* (conferred in Paris by the Prince of Monaco in 2011).
12. **Award: Biology Prize** – Top Biologist - BioMedCentral, 2010 (London, June, 2011).
13. **Award: Leading Author of one of the Top 20 papers published in Nature in 2008** (with cover of the issue of Nature).
14. **Nominated President of the European Federation of Marine Science and Technology Societies** (seat Paris, 2008-2012).

Membership in Academies of Sciences

Since 2023 Member of the **International Academy of Underwater Sciences and Techniques**

Since 2022 Member Academy of Europe - European Academy of Science (**Academia Europaea**) Area **Organismic and Evolutionary Biology** https://www.ae-info.org/ae/Member/Danovaro_Roberto

Since 2018 Full Member of the **EU - Academy of Sciences (EUAS)**

Publications on Top Journals

List of top journals on which the research of RD has been published articles on the topic of Environmental Sciences, Ecology, Biodiversity and Evolutionary biology on several top journals, including:

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|---|--------------------------------------|
| - <i>Nature</i> (with cover in 2008) | - <i>Science</i> |
| - <i>Nature communications</i> | - <i>Nature protocols</i> |
| - <i>Nature Ecology & Evolution</i> | - <i>Nature Microbiology Reviews</i> |
| - <i>Science Advances</i> | - <i>ISME Journal (Nature)</i> |
| - <i>Proceeding National Academy of Science USA</i> | - <i>Plos Biology</i> |
| - <i>Trends in Ecology and Evolution</i> (cover 2017) | - <i>Current Biology</i> |
| - <i>Ecology Letters</i> | - <i>Biological Reviews</i> |

Research Interests

RD is an Ecologist oriented to inter- and multidisciplinary approaches, data analysis, experimental – field science. His approach to problem solving is based on the establishment of teamwork and interactions with different technologies, evaluation and exploitation of available knowledge and analysis of complex systems. Multidisciplinary studies linking different disciplines, such as *Evolutionary Biology, Ecology, Environmental Sciences, Socio-Economic implication, OneHealth with a link to technological development*.

Topic: *Biology of Extreme ecosystems*

RD discovered the first metazoan species evolved to live their entire life cycle entirely in anoxic conditions.

1. J Aguzzi, MM Flexas, S Flögel, C Lo Iacono, M Tangherlini, C Costa, ... **Danovaro R.** (2020) Exo-ocean exploration with deep-sea sensor and platform technologies. *Astrobiology* 20 (7), 897-915
2. **Danovaro, R.** et al. (2017) An ecosystem-based deep-ocean strategy. *Science*, 355 (6324), pp. 452-454. [Presented at the UN conference in New York in 2018.](#)
3. **Danovaro R,** M Canals, M Tangherlini, A Dell'Anno, C Gambi, G Lastras, ...(2017) A submarine volcanic eruption leads to a novel microbial habitat. *Nature ecology & evolution* 1 (6), 0144
4. Danovaro R, Fanelli E, Aguzzi J, D Billett, L Carugati, C Cinzia, ... (2020) Ecological variables for developing a global deep-ocean monitoring and conservation strategy. *Nature Ecology & Evolution* 4 (2), 181-192
5. KL Howell, A Hilário, AL Allcock, D Bailey, M Baker, MR Clark, A Colaço, .. **Danovaro R.** (2021) A decade to study deep-sea life. *Nature Ecology & Evolution* 5 (3), 265-267
6. M Di Bella, F Pirajno, G Sabatino, S Quartieri, R Barbieri, ... **Danovaro R.** (2021) Rolling Ironstones from Earth and Mars: Terrestrial Hydrothermal Ooids as a Potential Analogue of Martian Spherules. *Minerals* 2021, 11, 460
7. **Danovaro R,** Corinaldesi C, Dell'Anno A., Gambi C., Pusceddu A., Tangherlini M (2020) Metazoan life in anoxic marine sediments. Life in Extreme Environments: Insights in Biological Capability. *Cambridge University Press*
8. Aguzzi J, N Iveša, M Gelli, C Costa, A Gavrilovic, N Cukrov, M Cukrov, ... **Danovaro R.** (2020) Ecological video monitoring of Marine Protected Areas by underwater cabled surveillance cameras. *Marine Policy* 119, 104052
9. **Danovaro R,** A Dell'Anno, A Pusceddu, C Gambi, I Heiner (2010) The first metazoa living in permanently anoxic conditions. *BMC biology* 8, 1-10. [Article Awarded of the World BMC Biology Prize in 2011 – London](#)
10. Pacton, M, Wacey, D, Corinaldesi, C, Tangherlini, M, Kilburn, MR, Gorin, GE, **Danovaro, R** (2014) Viruses as new agents of organomineralization in the geological record. *Nature Communications* 5, 1–9

Topic *Environmental Sciences:*

Impact of global change on biodiversity and marine ecosystems. Role of marine organisms in mitigating the impacts of global changes. Functional analysis of ecosystems and Ocean health. Multidisciplinary research on deep-sea ecosystems.

1. Barbier, E.B., ... **Danovaro R. et al.** (2014) Protect the deep sea. *Nature*, 50R5 (7484), 475-477. [This paper was a starter of the strategy of the Marine restoration agenda in EU.](#)
2. Levin LA, Alfaro-Lucas JM, Colaço A, Cordes EE, Craik N, **Danovaro R.** (2023) Deep-sea consequences of ocean-based climate intervention. *Science*, in press. [Article warning on the impacts of ocean-based climate interventions proposed during the COP 27 in Egypt on the deep sea.](#)
3. Pusceddu, A., Bianchelli, S., Martín, J., Puig, P., Palanques, A., Masqué, P., **Danovaro, R.** Chronic and intensive bottom trawling impairs deep-sea biodiversity and ecosystem functioning (2014) *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 111, 8861-66. [Contribution to EU policy for the ban of deep-sea fisheries.](#)
4. **Danovaro R,** et al. (2016) Virus-mediated archaeal hecatomb in the deep seafloor. *Science advances* 2 (10), e1600492. [Article describing the evolution of the microbiological response to climate change in deep-sea ecosystems](#)
5. Dell'Anno, A., Corinaldesi, C., **Danovaro, R.** (2015) Virus decomposition provides an important contribution to benthic deep-sea ecosystem functioning. *Proceedings of the National Academy of Sciences of the United States of America PNAS*, 112 (16), pp. E2014-E2019. [Article providing evidence of the role of viruses in global biogeochemical cycles through their biomass decomposition](#)

6. **Danovaro R**, L Bongiorno, C Corinaldesi, D Giovannelli, E Damiani, (2008) Sunscreens cause coral bleaching by promoting viral infections. *Environmental health perspectives* 116 (4), 441-447. [Article that opened a new research field and led to the adoption of the Hawaii bill for the ban of sunscreen to prevent the bleaching of coral reefs](#)
7. **Danovaro R**, C Gambi, A Dell'Anno, C Corinaldesi, S Frascetti (2008) Exponential decline of deep-sea ecosystem functioning linked to benthic biodiversity loss. *Current Biology* 18 (1), 1-8. [Document features by the EU Environmental Policies and used in several policy meetings to recommend the preservation of marine biodiversity.](#)
8. **Danovaro R**, PVR Snelgrove, P Tyler (2014) Challenging the paradigms of deep-sea ecology. *Trends in ecology & evolution* 29 (8), 465-475. [Article providing the background and perspectives of marine research on deep-sea ecosystems.](#)

Topic Marine Ecology and Biology:

RD investigated the adaptation and evolution of marine organisms to the extreme conditions of the deep sea and other extreme environments (Volcanoes, hydrothermal vents, etc,) and ecosystem evolution and shifts in changing environmental conditions.

1. **Danovaro, R.** et al. (2008) Major viral impact on the functioning of benthic deep-sea ecosystems (2008) *Nature*, 454,1084-1087. [Cover of Nature and highlight of the 20 top articles of Nature in 2008.](#)
2. Dell'Anno, A., **Danovaro, R.** Extracellular DNA plays a key role in deep-sea ecosystem functioning (2005) *Science*, 309 (5744), p. 2179. [This manuscript set up the bases for the development of the Environmental DNA approach.](#)
3. **Danovaro R.**, et al. (2017) A submarine volcanic eruption leads to a novel microbial habitat. *Nature Ecology & Evolution* [Feature Article with request of Blog from Nature describing the evolution of the first microbes that possibly populated the primordial ocean.](#) [Article awarded of the Top 10 species discovered in 2018.](#)
4. **Danovaro R**, et al. (2016) Macroecological drivers of archaea and bacteria in benthic deep-sea ecosystems. *Science Advances* 2 (4), e1500961. [It describes the evolution and prevalence of Archaea in an increasingly warming ocean due to global changes.](#)
5. KL Howell, A Hilário, AL Allcock, D Bailey, M Baker, MR Clark, A Colaço, **Danovaro R.** (2021) A decade to study deep-sea life. *Nature Ecology & Evolution* 5 (3), 265-267. [Article featured for the launch of the UN decade on Ocean Science for Sustainable development.](#)
6. **Danovaro R.** et al., (2019) Ecological variables for developing a global deep-ocean monitoring and conservation strategy. *Nature Ecology & Evolution* [Article featured in Faculty Opinions](#)
7. Cavicchioli R, **Danovaro R.**, et al. (2019) Scientists' warning to humanity: microorganisms and climate change. *Nature Microbiology Reviews* [Global warning for the impact of climate change on microbes and their functions.](#)
8. **Danovaro R**, C Corinaldesi, A Dell'Anno, JA Fuhrman, JJ Middelburg, (2011) Marine viruses and global climate change. *FEMS microbiology reviews* 35 (6), 993-1034 [Article received the ENI Award Protection of the Environment.](#)
9. Mora C, CL Wei, A Rollo, T Amaro, AR Baco, D Billett, L Bopp, Q Chen, **Danovaro R.** (2013) Biotic and human vulnerability to projected changes in ocean biogeochemistry over the 21st century. *PLoS biology* 11 (10), e1001682. [Modeling the impact of climate change on marine organisms and habitats.](#)
10. **Danovaro R**, A Dell'Anno, M Fabiano, A Pusceddu, A Tselepidis (2011) Deep-sea ecosystem response to climate changes: the eastern Mediterranean case study. *Trends in Ecology & Evolution* 16 (9), 505-510. [Describes for the first time the adaptive response of deep marine organisms to climate change.](#)