

MAURO CELUSSI'S CURRICULUM VITAE

EDUCATION

- Ph. D. Ph.D. in Polar Sciences at the University of Siena (Italy) defended on May 6th 2009. Thesis title: "PROKARYOTES IN THE ROSS SEA: PATTERNS OF DIVERSITY AND ACTIVITY IN SEAWATER AND SEA-ICE".
- M.Sc. M.Sc. in NATURAL SCIENCES; CONSERVATION OF NATURE AND ITS RESOURCES. University of Trieste (Italy); July 14th 2004 (110 / 110 cum laude). Thesis title: "ON THE ROLE OF PICOPLANKTONIC CYANOBACTERIA IN THE GULF OF TRIESTE"

WORK EXPERIENCE

- April 2010 - now
Researcher at the Biological Oceanography Department (now Oceanography Division – via Piccard, 54; 34151 Trieste) of OGS (Istituto Nazionale di Oceanografia e Geofisica Sperimentale). Permanent position since December 26, 2016. Head of the Microbial Ecology Lab since 2021.
- August 2008 – March 2010
Post-doc position in Microbial Ecology at the Department of Biological Oceanography (BIO – via Piccard, 54; 34010 Trieste, Italy) of the National Institute of Oceanography and Experimental Geophysics (OGS) in the framework of the project "Definition of food and energy requirements of *Mytilus galloprovincialis*".
- March 2006 – July 2008
Post graduate fellowship in Marine Ecology "Microbial Ecology" at the Department of Biological Oceanography (BIO – via Piccard, 54; 34010 Trieste, Italy) of the National Institute of Oceanography and Experimental Geophysics (OGS) within the framework of the INTERREG "ECOMADR" project.
- March 2005 - December 2005
Graduate fellowship ENAIP Friuli Venezia Giulia financed by Friuli Venezia Giulia Region, European Social Found and the Italian Ministry for Work and Social Politics, carried out at the MARINE BIOLOGY LABORATORY IN TRIESTE. Researches on marine microbial ecology, with project named "Coastal waters monitoring techniques".
- July 2003 - July 2004
12-month-stage for carrying out the experimental activities reported in the M.Sc. thesis, at the MARINE BIOLOGY LABORATORY IN TRIESTE (July 2003 – July 2004)

COORDINATION OF RESEARCH PROJECTS

- Principal Investigator of the project **ARTA** (Antimicrobial Resistance: routes of Transport in the gulf of Amvrakikos) funded in the framework of the RePHIL programme by the Hellenic Centre for Marine Research (HCMR) and the National Technical University of Athens (NTUA). 2021-2022. 5 ship-time days + 3.3k€.
- Responsible for OGS of the Activity 3.3 (Enhance and expand monitoring capabilities of biological properties) in the project **SHAREMED** (Sharing and enhancing capabilities to address environmental threats in Mediterranean sea) funded in the framework of the Interreg Mediterranean Programme. 2020-2022. Budget = 45k€
- Leader of WP3 (Harmonization of the knowledges, project areas modelling and mapping, activities planning) and of Activity 5.4 (Innovative Analytical Methods/Devices_Survey of emerging pathogens) in the project **AdSWIM** (Managed use of treated urban wastewater for the quality of the Adriatic Sea) funded in the framework of the Interreg V-A Italy-Croatia CBC Programme. 2019-2021. Budget = 222.6k€
- Principal Investigator of the project **MOMA** (Microbial Organic Matter processing in the presence of Ag ions and nanoparticles) funded by AQUACOSM – H2020-INFRIA-Project No 731065 - Transnational Access. 2019. 33 person/days at the CretaCosmos facility, Heraklion, Greece.
- Principal Investigator of the project **PRIAMO** (PRokaryotes Interactions with Antarctic phytodetritus: a Micro- to macroscale voyage from the surface to the deep Ocean) funded by the Italian Ministry of Education, University and Research in the framework of the Italian Antarctic Research Program. 2016-2018. Budget = 97.4k€
- Principal Investigator of the project **DEEPROSSS** (DEEP ROSS Sea ecosystem functioning: new insights on the role of ventilation on microbial metabolism and diversity) funded by the Italian Ministry of Education, University and Research in the framework of the Italian Antarctic Research Program. 2013-2016. Budget = 88k€

PUBLICATIONS

- Banchi E, Manna V, Fonti V, Fabbro C, **Celussi M** (2022) "Improving environmental monitoring of Vibrionaceae in coastal ecosystems through 16S rRNA gene amplicon sequencing" *Environmental Science and Pollution Research* **29** 67466-67482.
- Scheidemann L, Pontiller B, Manna V, Cisternas-Novoa C, **Celussi M**, Tsiola A, Pitta P, Magiopoulos I, Engel A (2022) "Dynamics and enzymatic degradation of exopolymer particles under increasing concentrations of silver ions and nanoparticles during a marine mesocosm experiment" *Frontiers in Marine Science* **9** 955488.
- Rees AP, Faraggiana E, Tait K, **Celussi M**, Dafnomilli E, Manna V, Manning AJ, Živanović S (2022) "The presence of silver nanoparticles reduces demand for dissolved phosphorus to the benefit of biological nitrogen fixation in the coastal eastern Mediterranean Sea". *Frontiers in Marine Science* **9** 907269
- Ingrosso G, Giani M, Kralj M, Comici C, Rivaro P, Budillon G, Castagno P, Zoccarato L, **Celussi M** (2022) "Physical and biological controls on anthropogenic CO₂ sink of the Ross Sea" *Frontiers in Marine Science* **9** 954059.
- Fanelli M, Girolametti F, Truzzi C, Illuminati S, Ajdini B, Susmel S, **Celussi M**, Šangulin J, Annibaldi A (2022) "Impact of depuration plants on nutrient levels in the North Adriatic Sea" *Water* **14** 1930.
- Manna V, Zoccarato L, Banchi E, Arnosti C, Grossart H-P, **Celussi M** (2022) "Linking lifestyle and foraging strategies of marine bacteria: selfish behaviour of particle-attached bacteria in the Northern Adriatic Sea" *Environmental Microbiology Reports* **14** 549-558.
- Girolametti F, Fanelli M, Ajdini B, Truzzi C, Illuminati S, Susmel S, **Celussi M**, Šangulin J, Annibaldi A (2022) "Dissolved Potentially Toxic Elements (PTEs) in relation to depuration plants outflows in Adriatic coastal waters: a two-years monitoring survey". *Water* **14** 569
- Banchi E, Del Negro P, **Celussi M***, Malfatti F* (***equal contribution**) (2021) "Sediment features and human activities structure the top centimeter microbial communities of the Venice Lagoon" *Frontiers in Marine Science* **8** 762292.
- Fonti V, Di Cesare A, Šangulin J, Del Negro P, **Celussi M** (2021) "Antibiotic resistance genes and potentially pathogenic bacteria in the central Adriatic Sea: are they connected to urban wastewater inputs?" *Water* **13** 3335.
- Turk V, Malkin S, **Celussi M**, Tinta T, Cram J, Malfatti F, Chen F (2021) "Ecological role of microbes: current knowledge and future prospects" in Malone T, Malej A, Faganeli J (eds) *Coastal ecosystems in transition: a comparative analysis of the Northern Adriatic and Chesapeake Bay*, Geophysical Monographs 256, John Wiley & Sons, pp. 130-145.
- Manna V, De Vittor C, Giani M, Del Negro P, **Celussi M** (2021) "Long-term patterns and drivers of microbial organic matter utilization in the northernmost basin of the Mediterranean Sea" *Marine Environmental Research*. **164** 105245.
- Manna V, Malfatti F, Banchi E, Cerino F, De Pascale F, Franzo A, Schiavon R, Vezzi A, Del Negro P, **Celussi M** (2020) "Prokaryotic response to phytodetritus-derived organic material in epi- and mesopelagic Antarctic waters". *Frontiers in Microbiology* **11** 1242.
- Quero GM*, **Celussi M*** (***equal contribution**), Relitti F, Kovačević V, Del Negro P, Luna GM (2020) "Inorganic and organic carbon uptake processes and their connection to microbial diversity in meso- and bathypelagic Arctic waters (Eastern Fram Strait)". *Microbial Ecology* **79** 823-839.
- **Celussi M**, Zoccarato L, Bernardi Aubry F, Bastianini M, Casotti R, Balestra C, Giani M, Del Negro P (2019) "Links between microbial processing of organic matter and the thermohaline and productivity features of a temperate river-influenced Mediterranean coastal area". *Estuarine Coastal and Shelf Science* **228** 106378
- Manna V, Fabbro C, Cerino F, Bazzaro M, Del Negro P, **Celussi M** (2019) "Effect of an extreme cold event on the metabolism of planktonic microbes in the northernmost basin of the Mediterranean Sea" *Estuarine Coastal and Shelf Science* **225** 106252.
- Manna V, Del Negro P, **Celussi M** (2019) "Modulation of hydrolytic profiles of cell-bound and cell-free exoenzymes in Antarctic marine bacterial isolates" *Advances in Oceanography and Limnology* **10** 8240

PUBLICATIONS (2)

- Malfatti F, Lee C, Tinta T, Pendergraft M, **Celussi M**, Zhou Y, Sultana C, Rotter A, Axson J, Collins D, Santander M, Anides Morales A, Aluwihare L, Riemer N, Grassian V, Azam F, Prather K (2019) "Detection of active microbial enzymes in nascent aerosol: implication for atmospheric chemistry and climate" *Environmental Science and Technology Letters* **6** 171-177
- Franzo A, **Celussi M**, Bazzaro M, Relitti F, Del Negro P (2019) "Microbial processing of sedimentary organic matter at a shallow LTER site in the northern Adriatic Sea: a 8-year case study". *Nature Conservation* **34** 397-415.
- Rivaro P, Ardini F, Grotti M, Aulicino G, Cotroneo Y, Fusco G, Mangoni O, Bolinesi, F, Saggiomo M, **Celussi M** (2019) "Mesoscale variability of iron speciation in a coastal Ross Sea area (Antarctica) during summer 2014". *Chemistry and Ecology* **35** 1-19
- **Celussi M**, Quero GM, Zoccarato L, Franzo A, Corinaldesi C, Rastelli E, Lo Martire M, Galand PE, Ghiglione J-F, Chiggiato J, Coluccelli A, Russo A, Pallavicini A, Fonda Umani S, Del Negro P, Luna GM (2018) Planktonic prokaryote and protist communities in a submarine canyon system in the Ligurian Sea (NW Mediterranean). *Progress in Oceanography* **168** 210-221.
- Del Negro P*, **Celussi M* (*equal contribution)**, De Vittor C, Fonda Umani S (2018) "Rapid acclimation of microbes to changing substrate pools in epipelagic waters of an Antarctic polynya during austral summer 2003". *Polar Biology* **41** 1-10
- **Celussi M**, Malfatti F, Ziveri P, Giani M, Del Negro P (2017) Uptake-release dynamics of the inorganic and organic carbon pool mediated by planktonic prokaryotes in the deep Mediterranean Sea. *Environmental Microbiology* **19** 1163-1175.
- Gazeau F, Sallon A, Pitta P, Tsiola A, Maugendre L, Giani M, **Celussi M**, Pedrotti ML, Marro S, Guieu C (2017) "Limited impact of ocean acidification on phytoplankton community structure and carbon export in an oligotrophic environment: results from two short-term mesocosm studies in the Mediterranean Sea. *Estuarine Coastal and Shelf Science* **186** 72-88
- **Celussi M**, Malfatti F, Franzo A, Gazeau F, Giannakourou A, Pitta P, Tsiola A, Del Negro P (2017) Ocean acidification effect on prokaryotic metabolism tested in two diverse trophic regimes in the Mediterranean Sea. *Estuarine Coastal and Shelf Science* **186** 125-138
- Zoccarato L, Pallavicini A, Cerino F, Fonda Umani S, **Celussi M** (2016) "Water mass dynamics shape Ross Sea protist communities in meso- and bathypelagic layers". *Progress in Oceanography* **149** 16-26.
- Zoccarato L, **Celussi M**, Pallavicini A, Fonda Umani S (2016) "*Aurelia aurita* ephyrae reshape a coastal microbial community". *Frontiers in Microbiology* **7** 749.
- Franzo A, Karuza A, **Celussi M**, Fornasaro D, Beran A, Di Poi E, Del Negro P (2015) Foam production as a side effect of an off-shore Liquefied Natural Gas terminal: how do plankton deal with it? *Environmental Science and Pollution Research* **22** 8763-8772.
- **Celussi M**, Fabbro C, Bastianini M, Urbani R, Del Negro P (2015) "Polysaccharide degradation and utilisation during a spring phytoplankton bloom in the northwestern Adriatic Sea" *Hydrobiologia* **757** 209-222.
- **Celussi M**, Gallina AA, Ras J, Giani M, Del Negro P (2015) "Effect of sunlight on prokaryotic organic carbon uptake and dynamics of pigments relevant to photoheterotrophy in the Adriatic Sea" *Aquatic Microbial Ecology* **74** 235-249.
- **Celussi M**, Del Negro P (2012) "Microbial degradation at a shallow coastal site: long-term spectra and rates of exoenzymatic activities in the NE Adriatic Sea" *Estuarine Coastal and Shelf Science* **115** 75-86.
- Cibic T, Franzo A, **Celussi M**, Fabbro C, Del Negro P (2012) "Benthic ecosystem functioning in hydrocarbon and heavy-metal contaminated sediments of an Adriatic lagoon" *Marine Ecology Progress Series* **458** 69-87.
- Fabbro C, **Celussi M**, Russell H, Del Negro P (2012) "Phenotypic and genetic diversity of coexisting *Listonella anguillarum*, *Vibrio harveyi* and *Vibrio chagassi* recovered from skin haemorrhages of diseased sand smelt, *Atherina boyeri*, in the Gulf of Trieste (NE Adriatic Sea)". *Letters in Applied Microbiology* **54** 153-159.
- Karuza A, **Celussi M**, Cibic T, Del Negro P, De Vittor C (2012) "Virio plankton and bacterioplankton in a shallow CO₂-dominated hydrothermal vent (Panarea Island, Tyrrhenian Sea)" *Estuarine Coastal and Shelf Science* **97** 10-18.

PUBLICATIONS (3)

- Gallina AA, **Celussi M**, Del Negro P (2011) "Large scale distribution and production of bacterioplankton in the Adriatic Sea" *Journal of Sea Research* **66** 1-8.
- **Celussi M**, Cataletto B, Bussani A, Del Negro P (2011) "Assemblages' structure and activity of bacterioplankton in Northern Adriatic Sea surface waters: a tree-year case study" *FEMS Microbiology Ecology* **75** 77-88.
- Larato C*, **Celussi M* (*equal contribution)**, Virgilio D, Karuza A, Falconi C, De Vittor C, Del Negro P, Fonda Umani S (2010) "Production and utilization of organic matter in different P-availability conditions: a mesocosm experiment in the Northern Adriatic Sea" *Journal of Experimental Marine Biology and Ecology* **391** 131-142.
- **Celussi M**, Bergamasco A, Cataletto B, Fonda Umani S, Del Negro P (2010) "Water masses bacterial community structure and microbial activities in the Ross Sea (Antarctica)" *Antarctic Science* **22** 361-370.
- **Celussi M**, Cataletto B, Fonda Umani S, Del Negro P (2009) "Depth profiles of bacterioplankton assemblages and their activities in the Ross Sea" *Deep-Sea Research I*, **56** 2193-2205.
- **Celussi M**, Pugnetti A, Del Negro P (2009) "Structural dynamics of bacterioplankton assemblages in the Lagoon of Venice" *Estuarine, Coastal and Shelf Science*, **84** 154-160.
- **Celussi M**, Paoli A, Crevatin E, Bergamasco A, Margiotta F, Saggiomo V, Fonda Umani S, Del Negro P (2009) "Short-term under-ice variability of prokaryotic plankton communities in coastal Antarctic waters (Cape Hallet, Ross Sea)" *Estuarine, Coastal and Shelf Science*, **81** 491-500.
- Del Negro P, **Celussi M**, Crevatin E, Paoli A, Bernardi-Abry F, Pugnetti A (2008) "Spatial and temporal prokaryotic variability in the northern Adriatic Sea" *Marine Ecology*, **29** 375-386.
- Pugnetti A, Bazzoni AM, Beran A, Bernardi-Aubry F, Camatti E, **Celussi M**, Coppola J, Crevatin E, Del Negro P, Paoli A (2008) "Changes in biomass structure of the plankton communities and trophic status in a highly dynamic ecosystem (Gulf of Venice, Northern Adriatic Sea)" *Marine Ecology*, **29** 367-374.
- **Celussi M**, Balestra C, Fabbro C, Crevatin E, Cataletto B, Fonda Umani S, Del Negro P (2008) "Organic matter degradative potential of *Halomonas glaciei* isolated from frazil ice in the Ross Sea (Antarctica)" *FEMS Microbiology Ecology*, **65** 504-512.
- Paoli A, **Celussi M**, Del Negro P, Fonda Umani S, Talarico L (2008) "Ecological advantages from light adaptation and heterotrophic-like behavior in *Synechococcus* harvested from the Gulf of Trieste (Northern Adriatic Sea)" *FEMS Microbiology Ecology*, **64** 219-229.
- **Celussi M**, Paoli A, Bernardi-Aubry F, Bastianini M, Del Negro P (2008) "Diel microbial variations at a coastal Northern Adriatic station affected by Po River outflows" *Estuarine, Coastal and Shelf Science*, **76** 36-44.
- **Celussi M**, Cataletto B (2007) "Annual dynamics of bacterioplankton assemblages in the Gulf of Trieste (Northern Adriatic Sea)" *Gene*, **406** 113-123.
- Paoli A, **Celussi M**, Valeri A, Larato C, Bussani A, Fonda Umani S, Vadrucci M, Mazziotti C, Del Negro P (2007) "Picocyanobacteria in Adriatic transitional environments" *Estuarine, Coastal and Shelf Science*, **75** 13-20.

EXTENDED ABSTRACTS / OPINION PAPERS

- 1) Susmel S, Baldrighi E, Krzelj M, Bilic J, Marini M, Annibaldi A, Scognamiglio V, Celussi M (2022) Editorial - The impact of treated urban wastewater and flood discharge on the quality of the bathing water. *Water*, 14: 2552.
- 2) Susmel S, Girolametti F, Fonti V, Figueredo F, Scognamiglio V, Antonacci A, Manna V, Bilić J, Soljan V, DeBortoli N, Martin T, Mion M, Kekez T, Andricevic R, Ben Aissa S, Celussi M*, Annibaldi A* (*equal contribution) (2022). The Interreg project AdSWiM: managed use of treated wastewater for the quality of the Adriatic Sea. *Water*, 14: 2460.
- 3) Cappelletto M, Santoleri R, Evangelista L, Galgani F, Garcés E, Giorgetti A, Fava F, Herut B, Hilmi K, Kholeif S, Lorito S, Sammari C, Lianos MC, Celussi M, D'alelio D, Francocci F, Giorgi G, Canu D, Organelli E, Pomaro A, Sannino G, Segou M, Simoncelli S, Babeyko A, Barbanti A, Chang-Seng D, Cardin V, Casotti R, Drago A, Asmi SE, Eparkhina D, Fichaut M, Hema T, Procaccini G, Santoro F, Scoullous M, Solidoro C, Trincardi F, Tunesi L, Umgieser G, Zingone A, Ballerini T, Chaffai A, Coppini G, Gruber S, Knezevic J, Leone G, Penca J, Pinardi N, Petihakis G, Rio M-H, Said M, Siokouros Z, Srour A, Snoussi M, Tintoré J, Vassilopoulou V, Zavatarelli M (2021). The Mediterranean Sea we want. *Ocean and Coastal Research*, 69: e21031
- 4) Beaubien SE, De Vittor C, Viezzoli D, Annunziatellis A, Bigi S, Celussi M, Colella S, ... Pacciaroni M (2014) Use of the Panarea natural test laboratory for offshore CO2 leakage monitoring and impact studies. 4th EAGE CO2 Geological Storage Workshop 2014: Demonstrating Storage Integrity and Building Confidence in CCS, pp. 146-150.
- 5) Franzo A, Celussi M, Cibic T, Del Negro P, De Vittor C (2011) Effects of CO2 induced pH decrease on shallow benthic microbial communities. EAGE/SEG Summer Research Workshop 2011: Towards a Full Integration from Geosciences to Reservoir Simulation.
- 6) Balestra C, Celussi M, Bastianini M, Casotti R (2011) Polyunsaturated aldehydes effect on microbial community composition and dynamics in the northern Adriatic Sea. *Cytometry Part A* 79A: 1036-1037.
- 7) Balestra C, Casotti R, Alonso-Saéz L, Celussi M, Bastianini M, Gasol JM, Ianora A (2010) The effect of polyunsaturated aldehydes on marine phytoplankton and bacteria. *Cytometry Part A* 77A: 155.
- 8) Eloe E, Celussi M, Croal L, Gifford S, Gomez-Consarnau L, Liu Y, Paerl R, Böttjer D (2009). C-MORE/Agouon Institute young investigators perspective on the future of microbial oceanography. *Environmental Microbiology Reports* 1 5-8.
- 9) De Vittor C, Del Negro P, Paoli A, Falconi C, Celussi M, Cataletto B ... Lombardi S (2008) Field experiment to evaluate impacts of pH decrease on marine microbial assemblage. CO2 Geological Storage Workshop
- 10) Del Negro P, Paoli A, Celussi M, ... Fonda Umani S (2007). Picoplanktonic cyanobacteria in different Adriatic brackish environments. *Transitional Waters Bulletin* 3: 13-16.
- 11) Celussi M, Paoli A, Gerin R, Vinzi E (2006). Controllo sullo sviluppo dei cianobatteri planctonici: uno sguardo alla qualità della luce. *Biologia Marina Mediterranea* 13:951-53.
- 12) Frisenda P, Celussi M, Paoli A, Talarico L (2006). Approccio metodologico allo studio di popolamenti picocianobatterici del Golfo di Trieste (Alto Adriatico). *Biologia Marina Mediterranea* 13(1): 971-974.
- 13) Paoli A, Celussi M, Del Negro P (2005). Attività fosfatasica di *Synechococcus*, isolato nel Golfo di Trieste. *Informatore Botanico Italiano* 37(1b): 590-591.

FIELD WORK:

- 10 Oceanographic cruises in the Adriatic Sea, 1 of which as Chief Scientist (50 days in total, 5 as Chief Scientist)
- 1 Oceanographic cruise in the Mediterranean Sea (Transmediterranean survey, 15 days)
- 1 Oceanographic cruise in the Tyrrhenian Sea (7 days)
- 1 Oceanographic cruise in the Ligurian Sea (6 days)
- 1 Oceanographic cruise in the Pacific Ocean (12 days)
- 3 Oceanographic cruises in the Southern Ocean (85 days in total)
- 1 Oceanographic cruise in the Barents Sea (North Atlantic, 12 days)
- 1 Oceanographic cruise in the Ionian Sea (5 days)
- 2 large mesocosm experiments in the NW Mediterranean Sea (45 days in total) and 1 in the Cretan Sea (10 days)
- 32 1-day field sampling in the Adriatic Sea

COURSES AND TRAINING

9th-13th November 2015 Organization of the 6th International Course in Microbial Ecology "Exploring microbial community functioning in aquatic ecosystems", held in Trieste (Italy)

5th-8th May 2009 taking part in the course "Microbial Ecology Laboratory: from theory to practice" organised by the Italian Society of Ecology, held in Pallanza (Italy).

9th-23rd July 2008: guest researcher at the Stazione Zoologica "A. Dohrn" (Naples, Italy) for a training on microautoradiography combined with CARD-FISH.

9th-20th June 2008: taking part in the course "Growing and isolating marine microbes; cultured and uncultured" organised by MARBEF, held in Kalmar (Sweden).

12th-14th March 2008: taking part in the course "FISH" organised by MARBEF, held in Banyuls-sur-Mer (France).

25th June-3rd August 2007 taking part in the course "Microbial Oceanography: from genomes to biomes" sponsored by the Agouon Institute, University of Hawaii at Manoa, the School of Ocean and Earth Science and Technology (SOEST), the National Science Foundation (NSF) and the Centre for Microbial Oceanography: Research and Education (C-MORE), held in Honolulu, Hawaii (USA).

4th-15th June 2007: taking part in the course "Plankton bloom dynamics - An integrative approach using molecular and genomic tools" organized by MARBEF and Marine Genomics Europe, held in Barcelona (Spain).

REVIEWER for the journals *Polar Biology*, *Aquatic Microbial Ecology*, *FEMS Microbiology Ecology*, *Microbial Ecology*, *Biogeosciences*, *Progress in Oceanography*, *Hydrobiologia*, *Oceanologia*, *Biogeochemistry*, *Mediterranean Marine Science*, *Frontiers in Marine Science*, *Frontiers in Microbiology*, *Deep Sea Research II*, *Science of the Total Environment*, *Marine Chemistry*, *AIMS Microbiology*, *Ecological Indicators*, *Journal of Marine Systems*, *Diversity*, *Communications Biology*.

EDITORIAL ACTIVITY

2021-ongoing: Review Editor for the journal *Frontiers in Marine Science*, sections *Marine Biogeochemistry* and *Aquatic Microbiology*.

2021-2022: Guest Editor for the Special Issue "The Impact of Treated Urban Wastewaters and Flood Discharge on the Quality of the Bathing Water" in the journal *Water*.

PROJECT EVALUATOR for the AWIPEV Arctic Research Base program, for the naval infrastructure system of the Italian Research Council (CNR) and for the PhD program of the Stazione Zoologica A. Dohrn (Naples, Italy).

**INSTITUTIONAL
ROLES AND
MEMBERSHIP OF
SCIENTIFIC
BOARDS**

- Head of the Microbial Ecology group in OGS
- Holder of the Italian habilitation (Abilitazione Scientifica Nazionale, National Scientific Qualification) for Associate Professor positions in 'Ecology'. Exp April 2027.
- Member of the doctoral school board in Earth and Ocean Science of the University of Palermo (Italy). 2020-2023
- Member of the Presidency Council of the Italian Society of Oceanology and Limnology since 2020.
- Member of the scientific board in the XXV and XXVI conferences of the Italian Association of Oceanology and Limnology (2021-2022)
- Member of the General Assembly of the Italian node of EMBRC-ERIC since 2016
- Evaluator in Examining Boards for the following positions: (1) Ph.D. candidate, University of Palermo; (4) post-doctorate fellows, OGS and Area Science Park; (1) researcher, OGS; (2) technologist, OGS; (1) laboratory technician, OGS

Tutor of three post-doctorate fellows: Elisa Banchi, 1/3/20-ongoing; Vincenzo Manna, 1/1/21 – ongoing; Viviana Fonti, 15/1/20-31/7/22.

Tutor of students for the following thesis:

- "Marine microbes and organic matter: the interplay driving the oceans' biogeochemical engine" Dr. V. Manna, Ph.D. in Environment and Life, Università degli Studi di Trieste. 23/4/21.
- "Marine communities of bacteria and protists, their biodiversity and interactions" Dr. L. Zoccarato, Ph.D. in Environmental biology, Università degli Studi di Trieste. 22/3/16
- "Abbondanze picoplanctoniche in due distinte masse d'acqua caratterizzanti il mare di Barents Occidentale (Picoplankton abundance in two different water masses in the western Barents Sea)" Dott. N. Lucchini, B.Sc. in Sciences and Technologies for the Environment and Nature, Università degli Studi di Trieste. 25/9/15
- "Dinamiche a mesoscala di pico- e nanoplankton nel Mare di Ross meridionale (Mesoscale dynamics of pico- and nanoplankton in the southern Ross Sea)" Dott. E. Behrens, B.Sc. in Sciences and Technologies for the Environment and Nature, Università degli Studi di Trieste. 25/9/15
- "Biomasse fotoautotrofe nell'area di prodelta del fiume Po: determinazione della concentrazione di clorofilla *a* lungo la colonna d'acqua e nei sedimenti superficiali (Photoautotrophic biomass in the Po river prodelta area: determination of chlorophyll *a* concentration in the water column and surface sediment)". Dott. N. Žic, B.Sc. in Biological Science and Technology. 13/3/15
- "Dinamiche a mesoscala di pico- e nano plankton al largo di Baia Terra Nova (Mare di Ross, Antartide) (Mesoscale dynamics of pico- and nanoplankton offshore Terra Nova Bay – Ross Sea, Antarctica)". Dott. I. Vascotto. B.Sc. in Sciences and Technologies for the Environment and Nature, Università degli Studi di Trieste. 27/2/15
- "Planktonic prokaryotes and nanoplankters' dynamics in a temperate coastal system (Gulf of Trieste, NE Adriatic Sea)". Dott. M. Borin Dolfin, M.Sc. in Environmental Biology, Università degli Studi di Trieste. 6/10/12.
- "Diminuzione del pH in acqua di mare: effetto sui processi di produzione e respirazione (Seawater pH decrease: effect on production and respiration processes)" Dott. W. Dellisanti. B.Sc. in Biology, Università degli studi di Trieste. 14/10/2010
- "Diminuzione del pH in acqua di mare: effetto sul popolamento picoplanctonico (Seawater pH decrease: effect on picoplankton)" Dott. S. Zunino. B.Sc. in Biology, Università degli studi di Trieste. 14/10/2010.
- "Large-scale distribution and production of bacterioplankton in the Adriatic Sea". Dott. A. A. Gallina, M.Sc. in Marine Biology, Università degli Studi di Trieste. 17/07/2009.
- "Variabilità spazio-temporale delle comunità batteriche nel Nord Adriatico (Spatial and temporal variability of bacterial assemblages in the Northern Adriatic Sea)". Dott. S. Volpato, M.Sc. in Marine Biology, Università degli Studi di Trieste. 15/12/2007.
- "Funzionamento del circuito microbico nel ghiaccio marino antartico di nuova formazione: ruolo degli esoenzimi batterici (Microbial loop functioning within newly formed Antarctic sea ice: role of bacterial exoenzymes)". Dott. C. Balestra, M.Sc. in Biology, Università degli Studi di Trieste. 15/07/2005.

- Practical-theoretical lectures in the framework of the course "Marine Microbiology", M. Sc. School in Marine Biology, University of Padua, Italy
- Lecture "The Ocean around Antarctica: ecosystems in the climate engine" held for the Ph.D. School in Science and Management of Climate Change, Università Ca' Foscari Venice, Italy
- Lecture "Prokaryotes in the Ross Sea: chemical/physical oceanographic aspect" held for the Ph.D. School in Environmental Science, University of Nova Gorica, Slovenia
- Practical-theoretical lectures in the framework of the course "Marine Ecology", M. Sc. School in Environmental Biology, University of Trieste, Italy
- Practical-theoretical lectures for high school students

**SYNTHETIC DESCRIPTION OF THE
RESEARCH ACTIVITY**

Research activity in Marine Microbial Ecology.

Research activity focuses on the synecological and physiological study of planktonic bacteria and archaea in the North Adriatic coastal and paralic systems, in particular on the role played by these organisms in organic matter production, utilization and degradation.

Studies on the ecophysiology of Antarctic bacterial strains isolated in the Ross Sea, aimed to evaluate the role of such prokaryotes on organic matter degradation/utilization and carbon dioxide production have been performed.

Subsequently, researches have focussed on the qualitative composition of bacterioplankton communities through molecular biology analytical methods. Several studies have been carried out in order to depict spatial and temporal variability of prokaryotic communities in different environments (from the Southern Ocean, through the Mediterranean to the Arctic Ocean) and their link to degradation and production processes in pelagic and benthic systems.

More recently researches are focussing on the effect of increased CO₂ in the marine environment on diversity and functionality of planktonic and benthic microbial assemblages.

Lately, investigations on deep-sea prokaryotic metabolism (heterotrophic production, dissolved inorganic carbon fixation, respiration) have been carried out in the Mediterranean Sea, in the Ross Sea and in the Barents Sea.

In the last years, the research activity has been implemented with studies on the presence of non-conventional human pathogens and antibiotic resistant bacteria in coastal temperate areas.

25TH NOVEMBER 2022

