

## Paola Rumolo

Institute of Marine Sciences of the National Research Council (CNR-ISMAR)  
Napoli - Italy



### Current position

Researcher at the ISMAR-CNR of Naples - Italy

### Research Interests

- Marine nutrients, nitrogen and carbon cycles
- Physical and biological controls on marine biological productivity
- Use of stable isotope ( $\delta^{15}\text{N}$  e  $\delta^{13}\text{C}$ ) of organic matter in different kind of matrices (e.g., particulate organic matter, phytoplankton/zooplankton and fish, marine sediment) to improve the understanding of trophic web structure and trophodynamics of marine ecosystems and to investigate nitrogen and carbon biogeochemical cycles in the Mediterranean Sea.
- Use of trace metal analysis of biogenic carbonates shells of benthic foraminifera focused to environmental studies.

### ACADEMIC QUALIFICATIONS

- *Pb.D* in Geochemistry and Geobiology Science. Title: “*New geochemical methodologies to record effects of antropogenic impact on coastal marine areas*” by the University “Carlo Bo” of Urbino, Italy
- Laurea Degree (MSc) in Marine Environmental Sciences. “*Osservazioni sulla distribuzione dei cetacei in corrispondenza del canyon sottomarino di Cuma (Mar Tirreno – Campania)*” Parthenope Univ., Naples, Italy.

### Research and Work Experience

From 16 November 2012 – present: **Researcher** at the ISMAR- CNR of Naples, Italy

July 2011 - September 2011 - **Postdoctoral research**. Experimental work on the mechanisms controlling inorganic and organic Nitrogen (N) and Phosphorus (P) ratio in surface Mediterranean Sea fluxes and isotopic analysis of fish, particulate organic matter (POM) and sediment.

October 2010 - April 2011 - **Postdoctoral research**. Experimental work on the mechanisms controlling inorganic and organic Nitrogen (N) and Phosphorus (P) ratio in Mediterranean Sea and isotopic analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) of fish, particulate organic matter (POM) and sediment.

April 2010 – October 2010 - **Postdoctoral research.** Isotopic analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) of fish, particulate organic matter (POM) and sediment.

April 2009 – April 2010 – **Postdoctoral research.** Isotopic analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) of sediment. Trace metal analysis of biogenic carbonates and hydrocarbon determination

September 2009 – December 2009 - **Visiting Student, “Short –Term Mobility Program 2009”** Institution of ICM- CSIC of Barcelona (Spain) Biological Science “*Application of Stable Isotope Techniques to the analysis of marine trophic webs*”. Supervisor: Dott. Joan Cartes.

2004-2008 **Doctoral research.** Experimental work on new geochemical methodologies to record effects of antropogenic impact on coastal marine areas. Isotopic analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) of sediment in harbor of Naples. Trace metal analysis of biogenic carbonates (foraminifera) and hydrocarbon determination

### **Expertise in analytical chemistry**

- Stable isotope analyses (N and C) in EA-IRMS of organic matter
- Elemental Analyzer (EA)
- HPLC (High Pressure Liquid Chromatography) for pigments determination in marine sediment
- AutoAnalyzer (Seal Analytical) for nutrients determination
- Preparation of samples: sediments, biota by Accelerated Solvent Extraction, Microwave oven.
- Preparation of samples: liquid-liquid extraction for seawater trace metals analysis in ICP-AES and ICP-MS
- Preparation of samples and Analysis in FT-IR of hydrocarbon ( $\text{C}>12$ )

### **RESEARCH EXPERIENCE: list of projects, duration of the participation/involvement and role**

**PNRR** National Biodiversity Future Centre (NBFC). From September 2022 to August 2025. Personal Role: Co-Responsible SubTask 4.5.4

**FEAMP** (2019-2022) "Innovazione, sviluppo e sostenibilità nel settore della pesca e dell'acquacoltura per la Regione Campania" -ISSPA (D.D. n. 367 del 28/11/2019 Regione Campania). Personal Role: Participant

**MedSudMed** (2000-current). Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily – FAO. Personal Role: Participant

**MEDIAS** (2000-current). Mediterranean International Acoustic Survey. Personal Role: Participant on “stable isotope analysis and trophic ecology”

**PNRA** (National Research Antarctic Program). Call 2013: Title of the project: Adaptations of a top predator in the Antarctic: population genetic structure and trophic niche of the Weddell seals in Terra Nova Bay. Personal Role: Principal investigator for trophic ecology determination

**PNRA** (National Research Antarctic Program). Call 2010: Title of the project: Genetic variation and trophic niche of the Weddell seal (*Leptonychotes weddellii*) of Terra Nova Bay: a pilot project to tweak the protocols for the analysis of genetic data (molecular scatology) and stable isotopes. PROGDEF09\_181. Personal Role: Participant

**RITMARE** (2012-2016). Sub-action: “Studio delle fluttuazioni della biomassa di piccoli pelagici nelle acque del Tirreno” S2-WP1-A3 Potenziamento delle campagne scientifiche di acquisizione di informazioni indipendenti dalla pesca sulle risorse. Personal Role: Participant

**BIOMARE** (2007-2009). Identification of Biomarkers of the anthropogenic impact on Marine communities: an Ecosystemic approach. Funded by Spanish Ministry of Science and Technology, CTM2006-13508-CO2-02/MAR. ICM-CSIC Barcelona (Spain). Personal Role: Participant on “stable isotope analysis and trophic ecology”

**ANTROMARE** (2010-2013). Effects of natural variability and anthropogenic impact on diversity and bathyal trophic webs of the deep-sea Mediterranean). Funded by Spanish Ministry of Science and Technology, CTM2009-12214-C02-01/MAICM-CSIC Barcelona (Spain). Personal Role: Participant for WP2 “stable isotope analysis and trophic ecology”

**EUROCEANS** (2005-2009). European network of excellence for Ocean Ecosystem Analysis. Sixth Framework Program. Ref. 511106 Personal Role: Participant

**VECTOR** (2006-2008). Vulnerabilità delle Coste e degli ecosistemi marini italiani ai cambiamenti climatici e loro ruolo nei cicli del carbonio mediterraneo. Ministero dell’Istruzione, dell’Università e della Ricerca; Ministero dell’Economia e delle Finanze; Ministero dell’Ambiente e della tutela del Territorio; Ministero delle Politiche Agricole e Forestali con Fondo Integrativo Speciale per la Ricerca (FISR). Personal Role: Participant

**BIOMARE3** (2007-2009). Identification of Biomarkers of the anthropogenic impact on Marine communities: an Ecosystemic approach. Ministerio de Ciencia y Tecnología Plan Nacional I+D+I (Spain). Personal Role: Participant

**IDEA** (2003-2004). Influence of oceanographic structure and dynamics on Demersal populations in waters of the Balearic Islands. Ministerio de Ciencia y Tecnología Plan Nacional I+D+I (Spain). Personal Role: Participant

### Field Work-Cruises

- 12 August 2015- RV Dalla Porta of the CNR Institute. **Medias** (Mediterranean International Acoustic Survey)
- 21 July 2014 - RV Dalla Porta of the CNR Institute. **Medias** (Mediterranean International Acoustic Survey)
- From 16/06/2014 to 25/06/2014 Dalla Porta of the CNR Institute. **RITMARE**
- From 16 July 2013 to 25 July 2010 - R/V URANIA of the CNR Institute “**MEDSUDMED-13**”
- From 24 November 2011 to 28 November 2011 -R/V URANIA of the CNR Institute “**SICSIA**” National Project in the East of Mediterranean Sea
- From 15 July 2010 to 31 July 2010 - R/V URANIA of the CNR Institute “**MEDSUDMED-10**” Regional Mediterranean Project involving Italy, Malta, Libya and Tunisia
- From 18 May 2010 to 25 May 2010 R/V URANIA of the CNR Institute “**AEOLIAN2010**” European Project
- From 23 July 2009 to 29 July 2009 - R/V URANIA of the CNR Institute “Tirreno09” National Project
- From 15 July 2008 to 31 July 2008 - R/V URANIA of the CNR Institute MEDSUDMED-08

- Regional Mediterranean Project involving Italy, Malta, Libya and Tunisia
- From 30 June 2007 to 06 July 2007 - B/O GARCIA DEL CID of the ICM-CSIC (Institut de Ciències del Mar, Barcelona) “BIOMARE3” European Project
  - From 14 April 2007 to 17 April 2007 - R/V UNIVERSITATIS “VECTOR”. European project 14/11/2006 -120/11/2006
  - From 14 November 2006 to 20 November 2006 - R/V UNIVERSITATIS. “VECTOR”. European project
  - From 8 September 2006 to 27 September 2006 - R/V URANIA of the CNR Institute. EMED-BIOOPT06 European project

## **MEMBERS OF EDITORIAL BOARDS**

Member of the editorial boards of Journal of Marine Science and Engineering;  
<https://www.mdpi.com/journal/jmse>

Guest Editor of Special Issue "*Marine Fisheries Management*" in Journal of Marine Science and Engineering

## **PUBLICATIONS IN PEER- REVIEWED JOURNALS**

1. **2023** Barra Marco, Guglielmo Letterio, Bonanno Angelo, Mangoni Olga, Rivaro Paola, **Rumolo Paola**, Falco Pierpaolo, Basilone Gualtiero, Fontana Ignazio, Ferreri Rosalia, Giacalone Giovanni, Aronica Salvatore, Minutoli Roberta, Memmola Francesco, Granata Antonia, Genovese Simona. Vertical structure characterization of acoustically detected zooplankton aggregation: a case study from the Ross Sea. *Frontiers in Marine Science*. Vol.10 <https://www.frontiersin.org/journals/marinascience/articles/10.3389/fmars.2023.1304493>. DOI: 10.3389/fmars.2023.1304493
2. **2023** Basilone G., Rosalia Ferreri, Salvatore Aronica, Angelo Bonanno, Simona Genovese, **Paola Rumolo**, Pierluigi Carbonara and Marco Barra. Growth variability in Atlantic horse mackerel *Trachurus trachurus* (Linneus, 1758) across the central Mediterranean Sea: contrasting latitudinal gradient and different ecosystems. *Front. Mar. Sci.*, 22 May 2023 *Sec. Marine Fisheries, Aquaculture and Living Resources*. Volume 10 – 2023 <https://doi.org/10.3389/fmars.2023.1161552>
3. **2023 Rumolo Paola**. Editorial *Marine Fisheries Management*. *J. Mar. Sci. Eng.* 2023,11, 1377. <https://doi.org/10.3390/jmse11071377>
4. **2021** Ferreri R., Marco Barra, Antonella Gargano, Salvatore Aronica, Angelo Bonanno, Simona Genovese, **Paola Rumolo**, Gualtiero Basilone New evaluation of postovulatory follicle degeneration at high-temperature regimes refines criteria for the identification of spawning cohorts in the european anchovy (*Engraulis encrasicolus*) *Animals* (Basel). 2021 Feb 18;11(2):529. doi: 10.3390/ani11020529. PMID: 33670673; PMCID: PMC7922735
5. **2020 Rumolo P**, Bonanno A, Genovese S, Romeo T, Mazzola S, Basilone G, Gherardi S, Battaglia P, Andaloro F, Barra M. Growth-related trophic changes of *Thunnus thynnus* as evidenced by stable nitrogen isotopic values in the first dorsal spine. *Sci Rep.* 2020 Jun 18;10(1):9899. doi: 10.1038/s41598-020-66566-w.
6. **2020 Rumolo, P.**; Zappes, I. A.; Fabiani, A.; Barra, M.; Rakaj, A.; Palozzi, R.; Allegrucci, G. The diet of Weddell seals (*Leptonychotes weddellii*) in Terra Nova Bay using stable isotope analysis. *European Zoological Journal*. doi 10.1080/24750263.2020.1720832
7. **2020** Basilone, Gualtiero; Ferreri, Rosalia; Barra, Marco; Bonanno, Angelo; Pulizzi, Maurizio; Gargano, Antonella; Fontana, Ignazio; Giacalone, Giovanni; **Rumolo, Paola**; Mazzola,

- Salvatore; Genovese, Simona; McBride, Richard; Aronica, Salvatore Spawning ecology of the European anchovy (*Engraulis encrasicolus*) in the Strait of Sicily: Linking variations of zooplankton prey, fish density, growth, and reproduction in an upwelling system Progress in Oceanography Volume 184, Article number: 102330, DOI: 10.1016/j.pcean.2020.102330
8. **2020** Basilone, Gualtiero; Barra, Marco; Ferreri, Rosalia; Mangano, Salvatore; Pulizzi, Maurizio; Giacalone, Giovanni; Fontana, Ignazio; Aronica, Salvatore; Gargano, Antonella; **Rumolo, Paola**; Genovese, Simona; Bonanno, Angelo First annulus formation in the European anchovy; a two-stage approach for robust validation Scientific Reports Volume 10, Issue 1, Article number 1079; DOI: 10.1038/s41598-020-58174-5
  9. **2019** Di Donato, V., Insinga, D.D., Iorio, M., Molisso, F., **Rumolo, P.**, Cardines, C., Passaro, S. The palaeoclimatic and palaeoceanographic history of the Gulf of Taranto (Mediterranean Sea) in the last 15 ky. Global and Planetary Change 172: 278-297. DOI <https://doi.org/10.1016/j.gloplacha.2018.10.014>
  10. **2019** Manno, C., **Rumolo, P.**, Barra, M., d'Albero, S., Basilone, G., Genovese, S., Mazzola, S., Bonanno, A. Condition of pteropod shells near a volcanic CO<sub>2</sub> vent region. Marine Environmental Research. 143: 39-48. DOI 10.1016/j.marenvres.2018.11.003.
  11. **2019** Rumolo Annalisa; Forstenpointner, Gerhard; **Rumolo, Paola**; Jung, Reinhard Palaeodiet reconstruction inferred by stable isotopes analysis of faunal and human remains at Bronze Age Punta di Zambrone (Calabria, Italy) International Journal of Osteoarchaeology 30, 90–98 (2020). <https://doi.org/10.1002/oa.2836>
  12. **2018** **Rumolo, P.**, Fanelli, E., Barra, M., Basilone, G., Genovese, S., Gherardi S., Ferreri R., Mazzola S., Bonanno, A. Trophic relationships between anchovy (*Engraulis encrasicolus*) and zooplankton in the Strait of Sicily (Central Mediterranean Sea): a stable isotope approach. Hydrobiologia. 821, Issue 1: 41-56 2017
  13. **2018** S. Como, A. Floris, A. Pais, **P. Rumolo**, S. Saba, M. Sprovieri, P. Magni. Assessing the impact of the Asian mussel *Arcuatula senhousia* in the recently invaded Oristano Lagoon-Gulf system (W Sardinia, Italy). Estuarine, Coastal and Shelf Science 201: 123-13. IF=2.413 (SJR Quartile: Q1)
  14. **2018** Fanelli, E., **Rumolo, P.**, Barra, M., Basilone, G., Genovese, S., Bonanno, A. Mesoscale variability in the trophic ecology of the European hake *Merluccius merluccius* in the Strait of Sicily. Hydrobiologia. 821, Issue 1: 57-72.
  15. **2018** Bonanno, A., Barra, M., Mifsud, R., Basilone, G., Genovese, S., Di Bitetto, M., Aronica, S., Giacalone, G., Fontana, I., Mangano, S., Ferreri, R., Pulizzi, M., **Rumolo, P.**, Gargano, A., Buscaino, G., Calandrino, P., Di Maria, A., Mazzola, S. Space utilization by key species of the pelagic fish community in an upwelling ecosystem of the Mediterranean Sea. Hydrobiologia. 821, Issue 1: 173:190.
  16. **2017** **Rumolo, P.**; Carannante, Mariamichela; Gherardi, Serena; Tamburrino, Stella; Vallefuoco, Mattia; Migliaccio, Renata; D'Argenzio, Carla; Barra, Marco. Measuring stable carbon and nitrogen isotopes in *Mytilus galloprovincialis* to elucidate the sources of organic matter in three different nearshore marine environments. Journal of Coastal Research. Vol. 33 (5). 1172–1181
  17. **2017** **Rumolo, Paola**; Basilone, Gualtiero; Fanelli, Emanuela; Barra, Marco; Monica Calabrò; Genovese, Simona; Gherardi, Serena; Ferreri, Rosalia; Mazzola, Salvatore; Bonanno, Angelo. Linking spatial distribution and feeding behavior of Atlantic horse mackerel (*Trachurus trachurus*) in the Strait of Sicily (Central Mediterranean Sea). Journal of Sea Research 121 (2017) 47–58.
  18. **2017** Catanese, Gaetano; Catanese, Gaetano; Watteaux, Romain; Montes, Iratxe; Barra, Marco; **Rumolo, Paola**; Borme, Diego; Nardelli, Bruno Buongiorno; Botte, Vincenzo; Mazzocchi, Maria Grazia; Genovese, Simona; Di Capua, Iole; Iriondo, Mikel; Estonba, Andone; Ruggeri, Paolo; Ruggeri, Paolo; Tirelli, Valentina; Caputo-Barucchi, Vincenzo; Basilone, Gualtiero; Bonanno, Angelo; Iudicone, Daniele; Procaccini, Gabriele. Insights on the drivers of genetic divergence in the European anchovy. Scientific Reports. Volume 7, Issue 1. DOI:10.1038/s41598-017-03926-z.

19. **2017** Papiol, Vanesa; Fanelli, Emanuela; Cartes, Joan E.; **Rumolo, Paola**; López-Pérez, Cristina. A multi-tissue approach to assess the effects of lipid extraction on the isotopic composition of deep-sea fauna. *Journal of Experimental Marine Biology and Ecology*; Volume 497, 230-242.
20. **2017** Ferraro L., Giordano L., Bonomo S., Cascella A., Di Martino G., Innangi S., Gherardi S., Tamburrino S., Alberico I., Budillon F., Di Fiore V., Punzo M., Tarallo D., Anzalone E., Capodanno M., Cavuoto G., Evangelista L., Ferraro R., Iavarone M., Iengo A., Lirer F., Marsella E., Migliaccio R., Molisso F., Pelosi N., **Rumolo P.**, Di Vettimo P.S., Tonielli R., Vallefucio M., "Integrated monitoring of a marine-coastal area: The Volturno River mouth (central Tyrrhenian Sea). *Quaderni di Geofisica*. Volume 146, October 2017, Pages 1-67
21. **2017** Basilone, Gualtiero; Mangano, Salvatore; Pulizzi, Maurizio; Fontana, Ignazio; Giacalone, Giovanni; Ferreri, Rosalia; Gargano, Antonella; Aronica, Salvatore; Barra, Marco; Genovese, Simona; **Rumolo, Paola**; Mazzola, Salvatore; Bonanno, Angelo. European anchovy (*Engraulis encrasicolus*) age structure and growth rate in two contrasted areas of the Mediterranean Sea: The paradox of faster growth in oligotrophic seas. *Mediterranean Marine Science*. DOI: <http://dx.doi.org/10.12681/mms.2059>.
22. **2016 Rumolo P.**, A. Bonanno, M. Barra, E. Fanelli, M. Calabrò, S. Genovese, R. Ferreri, S. Mazzola, G. Basilone Spatial variations in feeding habits and trophic levels of two small pelagic fish species in the central Mediterranean Sea. *Marine Environmental Research* 115: 65-77.
23. **2016** S. Como, A. Pais, **P. Rumolo**, S. Saba, M. Sprovieri, P. Magni (2016). Effects of an invasive mussel, *Arcuatula senhousia*, on local benthic consumers: a laboratory <sup>13</sup>C-labeling study. *Marine Biology* 163:140. DOI 10.1007/s00227-016-2912-0. IF:2.375
24. **2016** A. Bonanno, M. Barra, G. Basilone, S. Genovese, **P. Rumolo**, S. Goncharov, S. Popov, B. Buongiorno Nardelli, D. Iudicone, G. Procaccini, S. Aronica, B. Patti, G. Giacalone, R. Ferreri, I. Fontana, G. Tranchida, S. Mangano, M. Pulizzi, A. Gargano, A. Di Maria and S. Mazzola. Environmental processes driving anchovy and sardine distribution in a highly variable environment: the role of the coastal structure and riverine input. *Fisheries Oceanography* 25:5, 471–490. DOI: 10.1111/fog.12166
25. **2015 Rumolo P.**, Cartes J. E., Fanelli E., Papiol V., Bonanno A., Mirto S., Gherardi S. and Sprovieri M. Seasonal variations in the source of sea bottom organic matter off Catalonia coasts (western Mediterranean): links with hydrography and biological response. *Journal Oceanography*. DOI 10.1007/s10872-015-0291-7
26. **2015** Bonanno A., Zgozi S., Basilone G., Hamza M., Barra M., Genovese S., **Rumolo P.**, Nfate A., Elsker M., Goncharov S., Popov S., Mifsud R., Bahri T., Giacalone G., Fontana I., Buongiorno Nardelli B., Aronica S., Ceriola L., Patti B., Ferreri R., Colella S., Volpe G., Mazzola S. Acoustically detected pelagic fish community in relation to environmental conditions observed in the Central Mediterranean Sea: a comparison of Libyan and Sicilian-Maltese coastal areas. *Hydrobiologia*. DOI 10.1007/s10750-015-2234-0
27. **2015** Como, S., A. Floris, A. Pais, **P. Rumolo**, S. Saba, M. Sprovieri, P. Magni (2015). Assessing the impact of the Asian mussel *Arcuatula senhousia* in the recently invaded Oristano Lagoon-Gulf system (W Sardinia, Italy), *Estuarine, Coastal and Shelf Science*. <http://dx.doi.org/10.1016/j.ecss.2015.11.024>
28. **2014** Salvatore Passaro, Simona Genovese, Marco Sacchi, Marco Barra, **Paola Rumolo**, Stella Tamburrino, Salvatore Mazzola, Gualtiero Basilone, Francesco Placenti, Salvatore Aronica, Angelo Bonanno. First hydroacoustic evidence of marine, active fluid vents in the Naples Bay continental shelf (Southern Italy). *Journal of Volcanology and Geothermal Research* 285, 29-35.
29. **2014** Cartes J.E., E. Fanelli, K. Kaporis, Y.K. Bayhan, A. Ligas, C. López-Pérez, M. Murenu, V. Papiol, **P. Rumolo**, G. Scarcella Spatial variability in the trophic ecology and biology of the deep-sea shrimp *Aristaeomorpha foliacea* in the Mediterranean Sea. *Deep Sea Research Part I: Oceanographic Research Papers* 87, 1-13

30. **2014** Bonanno A., Giannoulaki M., Barra M., Basilone G., Machias A., Genovese S., Goncharov S., Popov S., **Rumolo P.**, Di Bitetto M., Aronica S., Patti B., Fontana I., Giacalone G., Ferreri R., Buscaino G., Somarakis S., Pirounaki, M., Tsoukali S., Mazzola S. Habitat selection response of small pelagic fish in different environments. Two examples from the oligotrophic Mediterranean Sea. *PLoS ONE* 9(7): e101498. doi: 10.1371/journal.pone.0101498.
31. **2013** Oliveri, Elvira; Sprovieri, Mario; Manta, Daniela Salvagio; Giaramita, Luigi; La Cono, Violetta; Lirer, Fabrizio; **Rumolo, Paola**; Sabatino, Nadia; Tranchida, Giorgio; Vallefucio, Mattia; Yakimov, Michael M; Mazzola, Salvatore Sediment geochemistry of the Thetis hypersaline anoxic basin (eastern Mediterranean Sea). *Sedimentary Geology*, 296: 72-85.
32. **2013** Placenti, F., Schroeder, K., Bonanno, A., Zgozi, S., Sprovieri, M., Borghini, M., **Rumolo, P.**, Cerrati, G., Bonomo, S., Genovese, S., Basilone, G., Haddoud, D.A., Patti, B., El Turki, A., Hamza, M., Mazzola, S. Water masses and nutrient distribution in the Gulf of Syrte and between Sicily and Libya. *Journal of Marine Systems*. Volume 121-122, 36-46
33. **2013** Fanelli, E, Papiol Vanesa, Cartes Joan Enric, **Rumolo P.**, López-Pérez, C. Trophic webs of deep-sea megafauna on mainland and insular slopes of the NW Mediterranean: a comparison by stable isotope analysis. *Marine Ecology Progress Series*, 490: 199-221. DOI: 10.3354/meps10430
34. **2013** V. Papiol, J.E. Cartes, E. Fanelli, **P. Rumolo**. Food web structure and seasonality of slope megafauna in the NW Mediterranean elucidated by stable isotopes: relationship with available food sources. *Journal of Sea Research*. Volume 77, March 2013, 53-69
35. **2012** S. Bonomo, A. Incarbona, E. Malinverno, F. Placenti; A. Bonanno; E. Di Stefano; B. Patti, M. Sprovieri, P. Ziveri, S. Genovese, **P. Rumolo**, S. Mazzola, S. Zgozi. Living Coccolithophores from the Gulf of Sirte (Southern Mediterranean Sea). *Marine Micropaleontology*. Volume 58, Issue 6, 487-503.
36. **2012** F. Budillon, M. R. Senatore, D. Insinga, M. Iorio, C. Lubritto, M. Roca, **P. Rumolo**. Late Holocene sedimentary changes in shallow water settings: the case of the Sele river offshore in the Salerno Bay (south-4 eastern Tyrrhenian Sea, Italy). *Rend. Fis. Acc. Lincei* DOI 10.1007/s12210-012-0164-6.
37. **2011** E. Fanelli, J.E. Cartes, F. Badalamenti, G. D'Anna, C. Pipitone, E. Azzurro, **P. Rumolo**, M. Sprovieri. Meso-scale variability of coastal suprabenthic communities in the southern Tyrrhenian Sea (western Mediterranean). *Estuarine, Coastal and Shelf Science* 91: 351-360. DOI: 10.1016/j.ecss.2010.10.026
38. **2011** E. Fanelli, V. Papiol, J.E. Cartes, **P. Rumolo**, C. Brunet, M. Sprovieri, Food web structure of the epibenthic and infaunal invertebrates on the Catalan slope (NW Mediterranean): Evidence from  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  analysis. *Deep-Sea Research I*: 58 98–109. DOI: 10.1016/j.dsr.2010.12.005
39. **2011** **P. Rumolo**, M. Barra, S. Gherardi, E. Marsella and M. Sprovieri - Stable isotopes and C/N ratios in marine sediments as a tool for discriminating anthropogenic impact. *Journal of Environmental Monitoring*, 2011, 13, 3399-3408.
40. **2010** Fanelli E., Cartes J.E., Papiol V., **Rumolo P.**, Sprovieri M. Effects of preservation on the  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  signatures of deep sea macrofauna. *Journal of Experimental Marine Biology and Ecology* 395, 93–97
41. **2009** **Rumolo P.**, Salvagio Manta D., Sprovieri M., Coccioni R., Ferraro L. and Marsella E. - Heavy metals in benthic foraminifera from the highly polluted sediments of the Naples harbour (Southern Tyrrhenian Sea, Italy). *Science of the Total Environment* 407: 5795–5802.
42. **2009** Fanelli E., Cartes J.E., **Rumolo P.**, Sprovieri M. - Food web structure and trophodynamics of mesopelagic-suprabenthic deep sea macrofauna of the Algerian basin (Western Mediterranean) based on stable isotopes of carbon and nitrogen. *Deep Sea Research I* (56): 1504–1520. DOI: 10.1016/j.dsr.2009.04.004
43. **2009** Ferraro L., Sammartino S., Feo M. L., **Rumolo P.**, Salvagio Manta D., Marsella E., Sprovieri M. Utility of benthic foraminifera for biomonitoring of contamination in marine

- sediments: a case study from the Naples harbour (Southern Italy)". *Journal of Environmental Monitoring*, 11, 1226 – 1235.
44. **2009** Sarà G., De Pirro M., Sprovieri M., **Rumolo P.**, Halldórsson HP., Svavarsson J. Carbon and nitrogen stable isotopic inventory of the most abundant demersal fish captured by benthic gears in southwestern iceland (North Atlantic) *Helgoland Marine Research* 63:309–315
  45. **2009** E. Fanelli, J.E. Cartes, F. Badalamenti, **P. Rumolo**, M. Sprovieri. Trophodynamics of suprabenthic fauna on coastal muddy bottoms of the southern Tyrrhenian Sea (western Mediterranean). *Journal of sea Research*; Vol.61(3): 174-187.
  46. **2009** D. Casu, G. Ceccherelli, N. Sechi, **P. Rumolo**, G. Sarà - *Caulerpa racemosa* var. *cylindracea* as a potential source of organic matter for benthic consumers: evidence from a stable isotope analysis. *Aquatic Ecology*, 43:1023–1029.
  47. **2008** Sarà G., Romano C., Pirro M., Halldórson P.H., Sprovieri M., Rumolo P., Mazzola A. - Role of peat organic matter on isotopic composition of most abundant benthic organisms in intertidal habitats of SW Iceland. *Marine Biology*, 154(1): 191–198.
  48. **2007** G. Sarà, M. De Pirro, C. Romano, **P. Rumolo**, M. Sprovieri, A- Sources of organic matter for intertidal consumers on Ascophyllum-shores (SW Iceland): a multi-stable isotope approach. *Helgoland Marine Research* 61(4): 297-302.

### Articles in Book

1. 2011 P. Rumolo, D. Salvagio Manta, M. Sprovieri, R. Coccioni, L. Ferraro, L. Giordano, E. Marsella. Evaluation of Heavy Metal Contents in Benthic Foraminifera to Record Effects of Anthropogenic Impact on Coastal Marine Areas. *Roma, November 2011 - ISSN 2239-5172 Volume DTA/06-2011* p. 1183
2. 2011 L. Ferraro, M. Sprovieri, D. Salvagio Manta, E. Marsella, S. Sammartino, P. Rumolo The Response of Benthic Foraminifera to Pollution: an Example from the Naples Harbour (Southern Italy) *Roma, November 2011 - ISSN 2239-5172 Volume DTA/06-2011* p.633
3. 2011 F. Placenti, M. Sprovieri, A. Bonanno, P. Rumolo, S. Bonomo, G. Cerrati, S. Genovese, S. Zgozi, G.M. Zuppi. Chemical-Physical Dynamics in the Sicily Channel (Central Mediterranean sea). *Roma, November 2011 - ISSN 2239-5172 Volume DTA/06-2011* p.1445

### Poster and contributions to Conferences

7-12 Aprile 2019 **EGU2019** Angelo Bonanno, Marco Barra, Simona Genovese, Gualtiero Basilone, Teresa Romeo, Pietro Battaglia, Franco Andaloro (2), and Paola Rumolo\* Growth-related trophic changes of *Thunnus thynnus* as evidenced by stable carbon and nitrogen isotopic values in the first dorsal spine. Vienna (Austria). Abstract and PICO presentation

12-16 settembre 2016. **41th CIESM Congress**. Fanelli E., Rumolo P., Barra M., Basilone G., Genovese S., Bonanno A. Trophic ecology of the Mediterranean hake *Merluccius merluccius* in the Sicily strait. Kiel (Germania). Poster

Settembre 2014. **International Council for the Exploration of the Sea (ICES)**. Paola Rumolo, Gualtiero Basilone, Marco Barra, Emanuela Fanelli, Monica Calabrò, Simona Genovese, Serena Gherardi, Biagio De Luca, Angelo Bonanno. Variation in feeding ecology of small pelagic fish (*Trachurus trachurus*, *Sardina pilchardus* and *Engraulis encrasicolus*) in the western basin and in the central Mediterranean Sea using stable isotope analysis. Poster



19-21 giugno 2013 **Congresso AIQUA 2013** Carbone V., Di Donato V., Ferranti L., Insinga D., Iorio M., Passaro S., Rumolo P., 2013. Studio multidisciplinare di dati di carotaggi su alti strutturali della dorsale di Amendolara (Golfo di Taranto): risultati preliminari. “L’ambiente Marino Costiero del Mediterraneo oggi e nel recente passato geologico. Conoscere per comprendere” - Napoli. Miscellanea INGV, 19. ISSN 2039-6651. Poster

22-27 Settembre, 2013. **10th Applied Isotope Geochemistry Conference (AIG-10)**. Rumolo P. Gualtiero Basilone, Marco Barra, Emanuela Fanelli, Monica Calabrò, Simona Genovese, Serena Gherardi, Biagio De Luca, Angelo Bonanno “Geographical variation in feeding ecology of *Trachurus trachurus* in the western basin and in the Central Mediterranean Sea using stable isotope analysis”. Budapest (Ungheria). Abstract and Poster. Central European Geology, Vol. 56/2–3, pp. 1–280 (2013) DOI: 10.1556/CEuGeol.56.2013.2–3.1. pag. 167

22-27 Settembre, 2013. **10th Applied Isotope Geochemistry Conference (AIG-10)**. Rumolo Paola, Angelo Bonanno, Salem Zgozi, Marco Barra, Simona Genovese, Del Core Marianna, Serena Gherardi, Biagio De Luca, Gualtiero Basilone. Isotopic composition ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) of suspended particulate organic matter in Central Mediterranean Sea along a transect from Sicily (Italy) to Misurata (Libya) and in the Gulf of Syrte (Libya). Budapest (Ungheria). Abstract and Poster. Central European Geology, Vol. 56/2–3, pp. 1–280 (2013) DOI: 10.1556/CEuGeol.56.2013.2–3.1. pag.168

27-29 Settembre 2011. **Workshop on acidification in aquatic environments**: “What can marine science learn from limnological studies of acid rain?” P. Rumolo, M. Barra, M. Del Core, L. Prevedello, S. Gherardi and M. Vallefucio. Tools to provide possible response to ocean acidification. INSTITUTE OF MARINE RESEARCH” in Tromsø, Norway. Abstract and Poster

10-14 Aprile 2010. **39th CIESM**, Venezia, Fanelli E., Cartes JE, Papiol. V. Maynou F., Rumolo P., Sprovieri M. “Food web structure of deep-sea communities in the Balearic basin: evidence from  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  analysis”.

1-3 Settembre 2008. **XVIII SITE** Parma. Fanelli E., Cartes JE, Papiol V., Rumolo P., Sprovieri M. “Food web structure of bathyal communities of the Catalan Sea (Western Mediterranean) based on stable isotopes of carbon and nitrogen.” Poster

9-11 Settembre 2009 **VII Forum Italiano di Scienze della Terra** - Rimini (IT). Geoitalia 2009. - Rumolo P., Salvagio Manta D., Sprovieri M., Coccioni R., Ferraro L. and Marsella E. - Heavy metals in benthic foraminifera from the highly polluted sediments of the Naples harbour (Southern Tyrrhenian Sea, Italy). Lavoro accettato come presentazione orale

6-9 Maggio 2007 **I° Forum IAMC**. Giardini Naxos (Sicilia- IT) - P. Rumolo & D. Salvagio. Foraminiferi bentonici come potenziali bioindicatori di metalli pesanti in aree marine fortemente antropizzate. – Poster

May 28-June 1, 2007 **4th International Zooplankton Symposium** “Human and climate forcing of zooplankton populations”, Hiroshima, Japan - Mazzocchi M.G., Rumolo P., Ciaschi B., Di Capua I. and M. Sprovieri. Long-term and seasonal variability of abundance and stable N isotope signature in coastal copepods. Abstract 3559

17-20 Settembre 2007. **XVII Congresso AIOL**. Ancona. Fanelli E., Cartes J.E, Rumolo P., Sprovieri M. – Trophodynamics of bathyal Benthic Boundary Layer community off the Archipelago of Cabrera (Western Mediterranean). Abstract

September 2006. **41° European Marine Biology Symposium**, Cork (Ireland). Sarà, G., Corsolini, S. Buffa, G., Schiavone, A., Borghesi, N., Rumolo, P., Focardi, S. (2006). The biomagnification of POP's through a demersal food web in Icelandic waters. Poster.

3-7 luglio, 2006. **Congresso AIOL**. Castel dell'Ovo, Napoli (Italy). P. Rumolo, M. Sprovieri, M. Feo, R. Coccioni ed E. Marsella.- Traccianti Isotopici ( $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ) di inquinamento antropico: risultati di uno studio di dettaglio dei sedimenti del Porto di Napoli.- Abstract e Poster

## **OTHER RELEVANT INFORMATION**

2012 Reviewer for international project "Croatian Science Foundation"

2011-2016-2018 International training for researchers of the *Institut National des Sciences et Technologies de la Mer* (INSTM, Tunisia) on application of stable isotopes in marine ecosystems. FAO contracts

2015: Supervisor for *PhD* student (candidate: Dr. Monica Calabro) at Ca Foscari University of Venezia -Italy Dottorato in Scienze Ambientali - XXVII ciclo

<http://dspace.unive.it/bitstream/handle/10579/6550/955954-1171743.pdf?sequence=2>

2022-2023 Tutor for master student (candidate Silvana Mazzamauro) in Biologia. Università degli Studi di Napoli Federico II. Title: "Valutazione dei livelli di idrocarburi policiclici aromatici (IPA) nelle triglie (*Mullus barbatus*): rischio cancerogeno associato all'ingestione".

2014-2015 Tutor for master student (candidate Sergio D'Albero) in BIOLOGIA MARINA. Università di Bologna (*Alma mater studiorum*) Anno Accademico 2014/2015. Title: "Effetti delle emissioni naturali gassose sugli pteropodi: uno studio pilota nel Golfo di Napoli".

2013-2014 Tutor for master student (candidate Mariamichela Carannante) in Biologia delle Produzioni Marine. Università degli Studi di Napoli Federico II. Title: "Studio dei microinquinanti organici ed inorganici e di isotopi stabili in aree marine costiere con differente impatto antropico attraverso il bioindicatore *Mytilus galloprovincialis*".

2012-2020 Member of the Board of Examiners for Temporal Researcher Positions and Temporal Research contracts for Researcher and Technologist at the CNR

Reviewer for more than 20 journals in the field of marine biology and ecology, biogeochemistry, water research, food webs.

Languages: English, Spanish and Italian (native language)