

CURRICULUM VITAE



PROFESSIONAL LIFE TRAJECTORY

Sergio Rossi

2023

INDEX

1. Personal Data and affiliations...**page 2**
2. Numbers...**page 3**
3. Academic relevance, professional commitment of the candidate; coherence and consistency of the candidate's academic professional life...**page 4**
 - a. Who I wanted to be?...**page 4**
 - b. Studying Marine Biology...**page 5**
 - c. The first approach to real science: epiphytes of seagrasses and seaweeds...**page 5**
 - d. Trophic ecology of benthic suspension feeders: a PhD...**page 6**
 - e. Starting a network: collaborations during the PhD...**page 10**
 - f. Applying the theoretical tools : precious corals...**page 12**
 - g. Remotely Operated Vehicle: pioneering the use of an essential tool...**page 16**
 - h. The use of biomarkers. Stable isotopes, fatty acids and biochemical balance...**page 19**
 - i. Humboldt Current and the CENSOR project...**page 21**
 - j. Antarctica: understanding a very different ecosystem...**page 22**
 - k. The Marine Animal Forests...**page 25**
 - l. Closing the trophic circle of suspension feeders: photobiology...**page 30**
 - m. Blue Carbon, restoration and the future of the oceans...**page 32**
 - n. Third generation biofuels: a peculiar adventure with a final meaning...**page 34**
 - o. Brazil, ecosystem services and mangroves...**page 36**
 - p. The marginal reefs of Ceará...**page 38**
 - q. Citizen Science, dissemination and education...**page 41**
 - r. Who I am?...**page 42**
 - s. Awards and accreditations...**page 44**
4. Graduation and post-graduation (including Post Doc, PhD and Master) advisement and direction...**page 44**
5. Social impact actions...**page 51**
6. Academic leading capacity and/or research group coordination...**page 60**
7. University management functions or in science policy...**page 68**
8. National and International project participation...**page 76**
- Additional Information...**page 80**

1. PERSONAL DATA AND AFFILIATIONS

BASIC PERSONAL INFORMATION

Family name, First name: Rossi, Sergio

Date of birth: 19 September 1969

Nationality: Italian

e-mail: sergio.rossi@unisalento.it
sergiorossiheras@gmail.com

EDUCATION

2002 Doctor of Philosophy (Ph.D.) in Marine Ecology, University of Barcelona/ Barcelona, Spain

1993 B.Sc., University of Barcelona/ Barcelona, Spain

CURRENT POSITION(S)

2016-Present [Associate Professor](#) (Zoology & Marine Ecology) - Università del Salento – ITALY

2018-Present [Permanent Professor](#) (Marine Biology and Ecology) –Programa de Pós-Graduação em Ciências Marinhas Tropicais -Universidade Federal do Ceará (UFC) / Labomar-BRAZIL

2022-Present [Scientific Director](#) at Underwater Gardens International - SPAIN

PREVIOUS POSITIONS

June 1996- Oct 2002, Ph.D. research at Institut Ciències del Mar (CSIC) & Ecology Department (UB), SPAIN

Nov 2001-Feb 2004, Postdoctoral Researcher at Institut Ciències del Mar (CSIC), SPAIN

March 2004-March 2005, Scientific Manager at Praesentis, Inc & Argo Maris, inc (ROV), SPAIN

April 2005-Nov 2006, Postdoctoral Researcher at Institut Ciències del Mar (CSIC), SPAIN

Memorial SERGIO ROSSI

Dec. 2006-Aug.2007, Postdoctoral Researcher at Observatoire Oceanologique de Banyuls-sur -Mer (CNRS), France

Sep 2007-April 2008, Postdoctoral Researcher at Institut de Ciència i Tecnologia Ambientals-UAB, SPAIN

May 2008-June2013, Associate Researcher at Institut de Ciència i Tecnologia Ambientals-UAB, SPAIN

July 2013-July 2015, Associate Researcher (Marie Curie-IOF) at Universidad Nacional Autónoma de México-UNAM, MEXICO

August 2015-November 2016-Associate Researcher at Institut de Ciència i Tecnologia Ambientals UAB, SPAIN

February 2020-February 2021-Visiting Professor at Labomar UFC. BRAZIL

LANGUAGES

Spanish	(mother language)
Catalan	(high)
Italian	(high)
English	(high)
Portuguese	(medium)
French	(medium)

LINKS

ORCID: [0000-0003-4402-3418](https://orcid.org/0000-0003-4402-3418)

URL [Google Scholar](#)

2. NUMBERS

I have now more than 160 scientific publications (published, in press or submitted). I'm the first author in the 27% of these publications, last author in 19% and second author in 23% (total, 69% as first, second or last author respect the total published works). This means a deep commitment as a **driver** of the ideas and contributor in the manuscript performance and writing. I publish at least one paper as a first author almost every year since 2000. More than 75% of my scientific publications are in the **1st quartile of the specific branch of knowledge**.

In the last decade (2012-2022), I have a mean of **10** publications/year. My **H factor is 36** (SCOPUS) and my i10 index is above 120 (Google Scholar); my Citations in SCOPUS are 3428 and in Google Scholar (which include PhD thesis, technical reports, book chapters, etc.) the number of citations is 6032 ([April 2023](#)).

3. **A&B, ACADEMIC RELEVANCE, PROFESSIONAL COMMITMENT OF THE CANDIDATE; COHERENCE AND CONSISTENCY OF THE CANDIDATE'S ACADEMIC PROFESSIONAL LIFE**

I am a research scientist specializing in **marine natural resources and biological oceanography**. My primary focus is on global change indicators of stress in coastal benthic populations, marine invertebrate distribution, ecology and physiology, benthic-pelagic coupling processes and marine wildlife conservation and restoration. I have been working in **environmental sciences** both as a professor and researcher, committed with different subjects related with conservartion, management and restoration of coastal areas.

A. Who I wanted to be?

When I was very young, a child, I loved exploring nature. In the mountains, I dreamed to be an explorer and naturalist; in the coast, I wanted to be in the Jacques Cousteau team diving in the blue. I remember with special melancholy those Sunday afternoons when we were in front of the television, towards the end of the 1970s, watching the chapters of the *Underwater World of Jacques Cousteau*. From the lack of decent programming in Spain (and with no margin for zapping, except with the famous UHF), this and similar programs took the lead. We were hypnotized by jumping salmon, coral forests or the harsh conditions of

Antarctica that a fragile *Calypso* had to weather, all intoned in the first person by the French Commander, with added voiceover, explaining the adventures of his team around the world. Cousteau, although it sounds like a cliché, introduced us to the sea, as Felix Rodríguez de la Fuente did with Iberian fauna, Carl Sagan with the principles of astronomy, David Attenborough with the various ecosystems of the planet and Gerald Durrell with the patient vision of the accomplished naturalist. In those times, I wanted to be a naturalist, more specifically a marine biologist. I made long swims snorkeling, observing creatures that I didn't understand. I started writing my own books, explaining things to myself with the

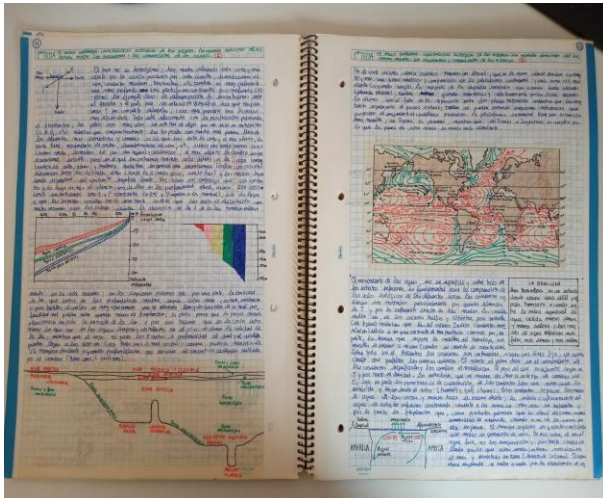
help of the photos and drawings that I found in magazines or old books. Growing up, I started to gather information in a more systematic way, reading books and starting



Sergio Rossi in the field (11 years old)

making underwater pictures to recognize the species. And I decided to make Biology in the Universitat de Barcelona.

B. Studying Marine Biology



Note book of Marine Biology, 1991

I made Biology in 5 years (1988-1993). I chose the Fundamental branch of knowledge, specializing in Marine Biology, Oceanography and Limnology. I made two extra-curricular subjects (Invertebrate and Vertebrate Zoology) not accounted in the official expedient but necessary for my academic performance. The Post-Graduate (Doctorate) studies were focused in Marine Sciences, especially those subjects in which the Benthos had a primary role.

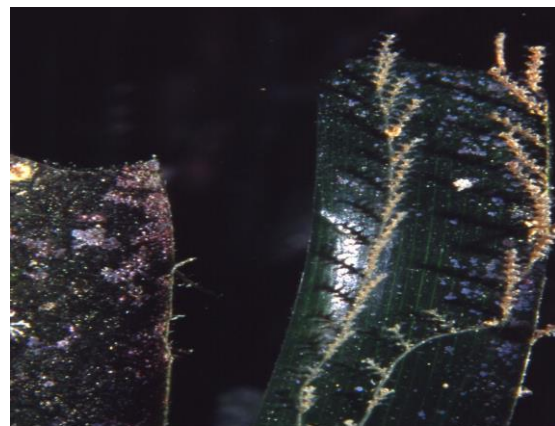
During those years, I had the opportunity to make field practices in Ecology, Invertebrate Zoology, Limnology and

Marine Biology. Very profitable and well organized, I have to say.

I started my PhD in June 1996, with a Grant of the Science and Education Ministry of Spain (FPI).

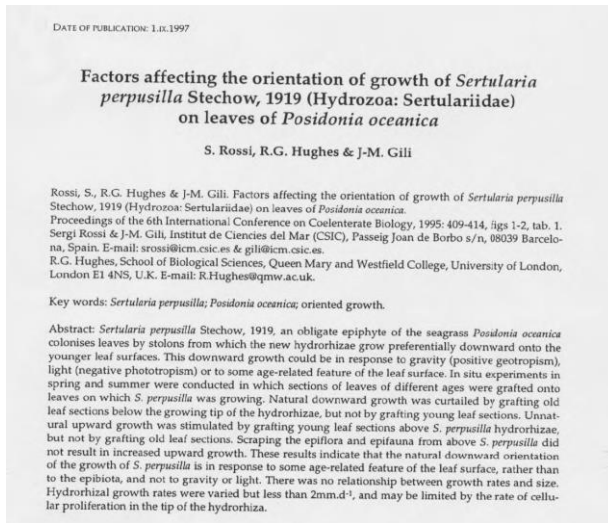
C. The first approach to real science: epiphytes of seagrasses and seaweeds

My first experience with science in which I was the full protagonist of an experiment was held between 1993 and 1994. I made a rather simple experiment in which we had to prove that a specific hydrozoan (Cnidarian) of the *Posidonia oceanica* leaf, *Sertularia perpusilla*, grew preferentially to the youngest part of the substrate (Rossi et al 1997). As the substrate grew up, the hydroids grew toward the base, to the youngest part of the leaf. Such strategy was specific of this species and was considered one of the particular behaviors of these epiphytes (there are hundreds of species in the seagrass leaves). The important point to highlight was that I got the idea from my supervisor, Josep-Maria Gili, but everything depended on me to be successful: the experimental planning, the replicability of the experiment, the observation of the



Sertularia perpusilla in *Posidonia oceanica*

hydrozoans under the binocular microscope and the data treatment. It was a very useful and exciting experience that started to forge my professional character.



After that work, at the beginning of my PhD (June 1996), I made my second experimental trial in which all the responsibility to succeed was in my hands. I worked as a visiting PhD student at the Millport Marine Biology Station (Scotland, Great Britain), in order to learn new methodologies related with population structure and distribution of hydrozoans. In this case, I studied the distribution of thecate and athecate hydrozoans in *Ascophyllum nodosum*, a macroalgae exposed to the intertidal regime (Rossi et al 2000). I filled the freedom to choose my

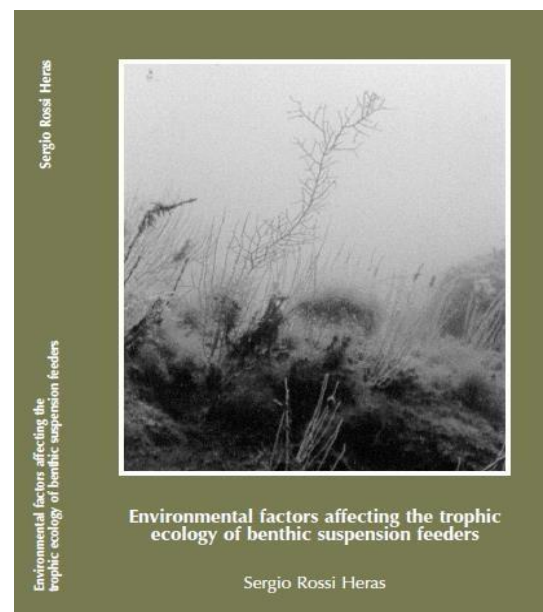
own way to make the approach, as I did with *Sertularia perpusilla*.

CITE: Rossi S, Hughes RG, Gili JM (1997) Factors affecting the orientation of growth of *Sertularia perpusilla* Stechow (Hydrozoa:Sertulariidae) on leaves of *Posidonia oceanica* (L.) Delille. In: Proceeding of the 5th International Conference on Coelenterate Biology (H.Den Hartog, ed.) University of Amsterdam, CL. Pp 409-414

Rossi S, Gili JM, Hughes RG (2000) The effects of exposure to wave action on the distribution and morphology of the epiphytic hydrozoans *Clava multicornis* and *Dynamena pumila*. *Scientia Marina* 64: 135-140

D. Trophic ecology of benthic suspension feeders: a PhD

I began my line of research within the framework of the PB94-0014-CO2-01 and METROMED (1996-2000) projects in the ICM- CSIC (Spain). The overall subject was the evaluation of environmental factors affecting the trophic ecology of benthic passive suspension feeders in the Mediterranean sea. The first thing was looking at seasonal cycles to evaluate the food availability. I learned making a temporal series and relate physical parameters with near bottom fluctuations (Rossi and Gili 2005), but I also understood that taking water samples do not integrate the food availability over time. With sediment traps I was able to compare places more than 40 km apart and with different environmental conditions (Rossi et al 2003) in which the main benthic suspension feeder species (*Leptogorgia sarmentosa*) was compared (see below).



Food availability for these organisms is the key to understand its distribution, but was an overlooked parameter in the overall equation. However, I could also understand another thing that was not clear at that moment: Short time cycles (hours of difference) had a crucial importance in evaluating the changes over time in seston availability (Rossi and Gili 2007). So, we made two different approaches in spring between two different times, calculating the available food for suspension feeding organisms and how it may change in only few hours. This accountability is not developed in the energetic models and makes the difference when you want to make carbon and nitrogen budgets. The difference between both spring times (early and late spring) showed to me that the generalization of annual cycles to make a calculation of the energy budget may change and be, in a certain sense, not complete (Rossi and Gili 2007). My first review, about the importance of near bottom seston, was made some years after the PhD thesis defense (Rossi and Gili 2009). I made an extensive literature review highlighting the importance of the near bottom seston importance, explaining the differences between systems such as Antarctica, the Mediterranean or an upwelling area like the Humboldt Current.

The second part of the PhD focused on the response of benthic organisms to abiotic and biotic factors. First of all, I made an annual cycle looking to the expansion of the polyps of six species (Rossi 2002). From all the factors analysed (water currents, seston composition, temperature, etc.) which were the most important to understand the activity of these organisms? Apparently, due to the strong seasonality in the Mediterranean Sea, the water column stratification and the lack of currents were responsible for an aestivation period: the six passive suspension feeders had a lower activity (polyp expansion) in summer. However, because this pattern (the activity) was sensible to changes in the water column and these changes were sometimes unpredictable, the seasonal cycle was not conclusive. I understood that, if I wanted to learn about the activity and the consequences for the energy budget of these organisms, I had to understand the cause-effect: which are the factors that, in general, stimulate the activity of passive suspension feeders? For the energetic budget this path is essential, to account for the real time spent capturing preys. Without such calculation is very difficult to know which is the real energy input. I made a complex study (Rossi et al 2019), divided in two parts (PhD thesis and Post Doc in France) to have a full comprehension of the phenomena. In this paper, we demonstrate that current speed and especially the presence of chemical signals and zooplankton stimulate the opening of the polyps with the precious coral *Corallium rubrum*, explaining the behavior of these benthic suspension feeders in general. The finding was new, nobody mixed high frequency (each six hours with SCUBA diving) field observations with a laboratory experimental design (flume with different temperature, current and seston conditions), a very rare protocol: other groups follow one or the other (high frequency controlled experiment vs high frequency field observations) way to understand the ecology of marine organisms.



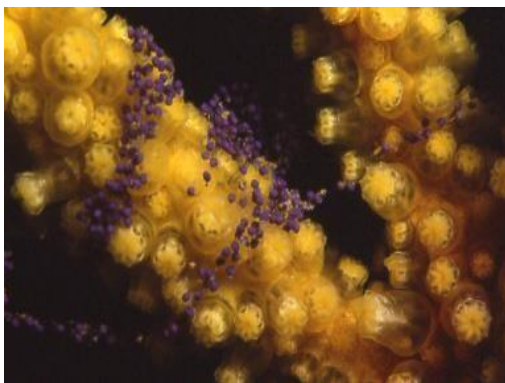
Close chambers for suspensión feeders

Next step was understanding energy input of passive benthic suspension feeders affected by such environmental and biological factors. I studied the diet and prey capture rates of a selected organism (*Leptogorgia sarmentosa*) as a case study. The combination of the fine fraction (the alive and dead organic matter that cannot be accounted with a binocular microscope, Ribes et al 2003), and the prey capture (those organisms that can be observed and quantified with a binocular microscope, Rossi et al 2004) let me make calculations of the carbon input of the species. Is important to account for the fine

fraction in benthic suspension feeders, the fraction that is not accountable with the gut contents, to have a complete set of carbon values throughout a year cycle.

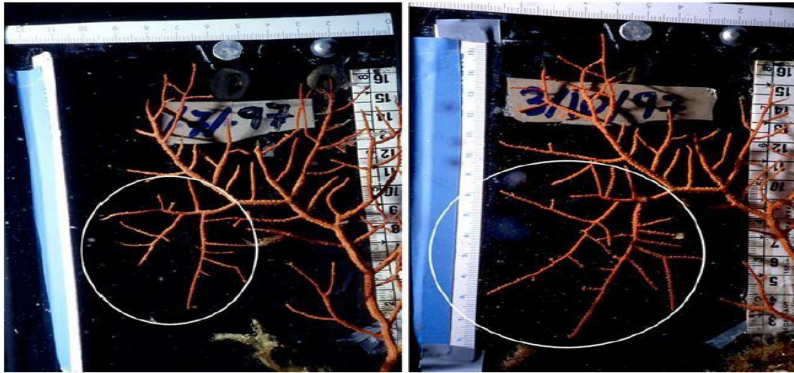
The novelty of the approach was the use *in situ* of these methods, making experiments with close circuit plexiglass chambers that emulate the natural (light and temperature, also quantifying the respiration) conditions with the available seston of the study area. To make an energy input approach of these organisms, you must make a realistic set of observations coupling the available seston (zooplankton, phytoplankton, bacterioplankton and detritus) with the real ingesta. To have such numbers, we also made an *in situ* experimental set of digestion (Rossi et al. 2004) with three different temperatures that emulated the seasonal cycle of the Mediterranean sea.

The work was, again, long and very hard, but our research group was leading this kind of approach. From these approaches I learned one important thing: if we want to understand and quantify ecological processes, if we want to have good data for trophic models (and all kind of models...) we have to rely in very accurate data, fulfilling as much as we can all the gaps. All this work was recently culminated with a paper (with data of my PhD thesis in which I demonstrated the importance of the food pulses in the energy input of passive suspension feeders if you want to understand the overall carbon budget



(Rossi and Rizzo 2021). The food pulses are, in natural conditions, those moments in which there is a substantial energy input that may be as high as an entire week of feeding. If you don't detect such "pulse", is difficult making a realistic carbon budget. Furthermore, the activity of the passive suspension feeders couple with such feeding pulses: currents and food availability sometimes synergically act, being the perfect moment to capture for these metazoans. Again, the approach was new and barely considered in the scientific literature.

How about the energy outputs (apart of respiration)? On the one side, you have



the reproduction and growth. Octocoral reproduction is another essential tool that you have manage to understand to the autoecology of the species. I observed the gonadal development and the C output of two different species (mixotrophic, Ribes et al 2007; and

heterotrophic, Rossi and Gili 2009). This made me understand the importance of the quantification of the different outputs of the species to quantify impacts. In fact, in my PhD thesis, I compared the feeding, reproduction and biochemical balance in two populations, one in Southern France and the other in the Northern Spain (Rossi 2002). I could demonstrate that the population of the Southern France was vanishing (40% or mortality instead of the 4% in Northern Spain), due to the nutritional condition that was much lower. Growth is another essential tool that has to be quantified for the population fitness (Rossi et al. 2011). Through a photographic sampling made each three months during two and a half years, I could demonstrate the carbon loss of the population of Southern France: whilst in the Northern Spain the population looked healthy and grew, the other population had a dramatic tissue (branch) loss. This was due to the different content of lipids (available seston) in the Southern France (Rossi et al. 2003), probably because of the intensive bottom trawling in the area in deeper zones, making the sediment reworked and more refractory.

Indeed, having the perfect tool to quantify the population health status came with the application of the biochemical balance (Rossi et al. 2006). The results of this study showed that protein, carbohydrate, and lipid levels may provide a record of episodes in the ecological cycle bearing on the trophic aspects of the target species. The results indicated that information on seasonal biochemical levels may explain benthopelagic coupling processes, provided factors such as natural diet, feeding rates, reproduction, and growth are well understood. Lipids and carbohydrates clearly showed a drop in the summer time, in coincidence with the spawning of the species and the summer aestivation process. But we found a more interesting thing: a second trophic crisis in autumn, where the seston was abundant, but the quality of such seston was really low (Rossi et al. 2003). The biochemical data suggest summer and autumn trophic constraints for the suspension feeder: the lowest lipid and carbohydrate levels were found in this time of the year throughout the three year sampling period (Rossi et al. 2006). Protein, carbohydrate, and lipid tissue concentration values considered here reflect high or low seston availability at the community level. This autumn scarcity of food inputs has otherwise been overlooked because the apparent abundance of the seston masks its poor quality as a food source, and was found in many other organisms (see below). It is combining methods that you may understand the autecology of the benthic suspension feeders, being the application to other species essential to detect potential winners and losers in front of human impacts (Rizzo et al. 2021).

Memorial SERGIO ROSSI

particulate organic matter at two north-western Mediterranean sites: a seasonal comparison. *Estuarine, Coastal and Shelf Science* 58: 423-434

Rossi S, Gili JM (2005) Composition and temporal variation of the near-bottom seston in a Mediterranean coastal area. *Estuarine, Coastal and Shelf Science* 65: 385-395

Rossi S, Gili JM. (2007) Short-time-scale variability of near bottom seston composition during spring in a warm temperate sea. *Hydrobiologia* 557: 373-388

Rossi S, Gili JM (2009) Near bottom phytoplankton and seston: importance in the pelagic-benthic coupling processes. In: Marine Phytoplankton (William T. Kersey and Samuel P. Munger, eds.). ISBN: 978-1-60741-087-4; Nova Science Publishers Inc, New York, pp 45-85

Rossi S, Rizzo L, Duchêne JC (2019) Polyp expansion of passive suspension feeders: a red coral case study. *Peer J* DOI 10.7717/peerj.7076

Ribes M, Coma R, **Rossi S** (2003) Natural feeding of the temperate asymbiotic octocoral gorgonian *Leptogorgia sarmentosa* (Cnidaria: Octocorallia). *Marine Ecology Progress Series* 254: 141-150.

Rossi S, Ribes M, Coma R, Gili JM (2004) Temporal variability in zooplankton prey capture rate of the soft bottom passive suspension feeder *Leptogorgia sarmentosa* (Cnidaria: Octocorallia), a case study. *Marine Biology* 144: 89-99

Rossi S, Rizzo L (2021) The importance of food pulses in benthic-pelagic coupling processes of passive suspension feeders. *Water* 13, 997. <https://doi.org/10.3390/w13070997>

Ribes M, Coma R, **Rossi S**, Micheli M (2007) The cycle of gonadal development of *Eunicella singularis* (Cnidaria: Octocorallia): trends on sexual reproduction in Mediterranean gorgonians. *Invertebrate Biology* 126: 307-317

Rossi S, Gili JM (2009) Reproductive features and gonadal development cycle of the soft bottom-gravel gorgonian *Leptogorgia sarmentosa* (Esper 1791) in the NW Mediterranean sea. *Invertebrate Reproduction and Development* 53: 175-190

Rossi S, Gili JM, Garrofé X (2011) Net negative growth detected in a population of *Leptogorgia sarmentosa*: quantifying the biomass loss in a benthic soft bottom-gravel gorgonian. *Marine Biology* 158:1631-1643

Rossi S, Gili JM, Coma R, Linares C, Gori A, Vert N (2006) Temporal variation in protein, carbohydrate, and lipid concentrations in *Paramuricea clavata* (Anthozoa, Octocorallia): evidence for summer–autumn feeding constraints. *Marine Biology* 149: 643-651

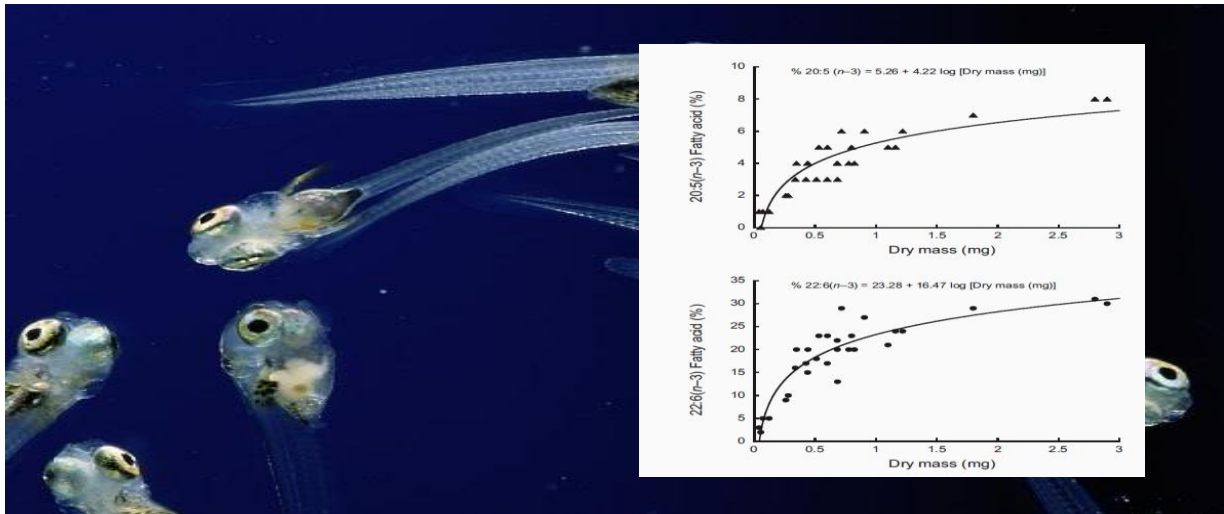
Rizzo L, Fiorillo I, **Rossi S** (2021) Seasonal trends in the activity rhythms and nutritional status of *Alcyonium acaule* (Octocorallia, Alcyonacea). *Peer J* DOI 10.7717/peerj.12032

E. Starting a network: collaborations during the PhD

During my PhD, I immediately started to build up my network: from the beginning, my curiosity and my hunger of new knowledge brought me to expand my frontiers outside the Doctorate “box”. I visited the Bodega Bay Marine Laboratory, EEUU, twice, in order to implement molecular biology techniques related with HSP 70 & 90 (stress proteins) to my biomarker approach. For the first time, I applied this method to quantify (in terms of invested carbon) the spatial competition between sessile organisms (Rossi and Snyder 2001). This novel approach was unique, as it was the application of the proteins and the biochemical balance to detect the food stress in a Mediterranean gorgonian, *Paramuricea clavata* (Rossi et al. 2006). I demonstrated the relationship with starvation periods, showing that the expression of HSP70 and 90 was related with carbohydrate and lipid depletion during the year. We also made an approach with *Anthopleura elegantissima* in the intertidal (Snyder and Rossi 2004), relating for the first time the

Memorial SERGIO ROSSI

potential expression and the energy investment with the potential effects of climate change in this stressful area.



Other scientific perspectives came during my PhD. The first was immediate, as I learned the colorimetric methods to study the fish larvae energy storage properties (Sabates et al. 2003). Much more new for me was the application of fatty acids and pigments as biomarkers to understand the diet of the Mediterranean anchovy larvae (*Engraulis engrasicolus*) (Rossi et al 2006). This work demonstrated that developing larvae selectively accumulated essential fatty polyunsaturated fatty acids that help to the brain, nervous system, eye and pigment development. We also demonstrated that an additional food resource for the anchovy that is complementary to a zooplankton diet, but probably of protozoan origin (i.e. microzooplankton) was present (and not detectable through the gut contents). Interestingly, this was my first work in which I used this gas chromatography method, which I will use in several works with other organisms (see below).

Finally, in this PhD period we also demonstrated, though a set of different techniques, that hydrozoans could digest and assimilate phytoplankton (Gili et al. 2008). Among the prey captured by these species there are phytoplankton cells but it is not known whether they are digested and assimilated. These data show that the hydrozoan feed on phytoplankton, which can satisfy almost 100% of their energy demand when this type of food is sufficiently abundant. The experiment was crucial to understand that, in the global energy budget, phytoplankton can be assimilated and thus incorporated to the tissue of cnidarians.

My PhD lasted for 5 ½ years, but was very profitable in terms of acquired knowhow and published papers.

CITE: Rossi S, Snyder MJ (2001) Competition for space among sessile marine invertebrates: changes in HSP70 expression in two Pacific cnidarians. *Biological Bulletin*. 201: 385-393.

Snyder MJ, **Rossi S** (2004) Stress protein (HSP 70 family) expression in intertidal benthic organisms: the example of *Anthopleura elegantissima* (Cnidaria: Anthozoa). *Scientia Marina* 68 (Suppl.1): 155-162

Rossi S, Snyder MJ, Gili JM (2006) Protein-carbohydrate-lipid levels and HSP70-HSP90 (stress protein) expression over an annual cycle of a benthic suspension feeder: useful tools to detect feeding constraints in a benthic suspension feeder. *Helgoland Marine Research* 60: 7-17

Memorial SERGIO ROSSI

Sabatés A, **Rossi S**, Reyes E (2003) Lipid content in the early life stages of three mesopelagic fishes. *Journal of Fish Biology* 63: 881-891

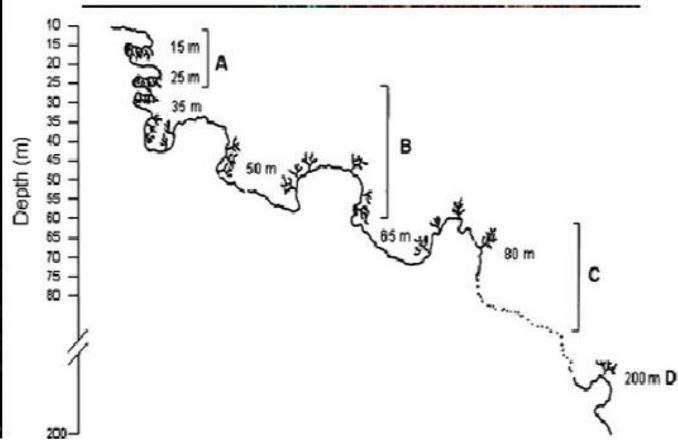
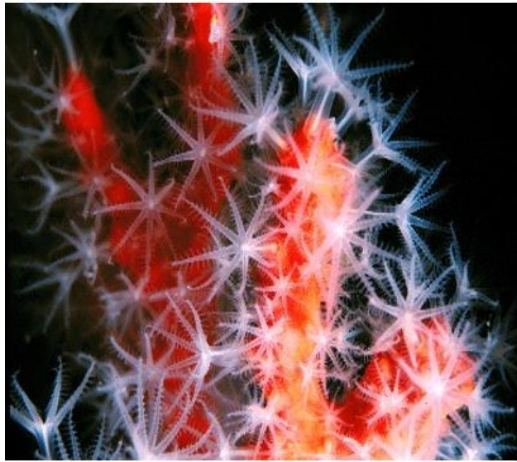
Rossi S, Sabatés A, Latasa M, Reyes E (2006) Lipid biomarkers and trophic linkages between phytoplankton, zooplankton and anchovy (*Engraulis encrasicolus*) larvae in the NW Mediterranean. *Journal of Plankton Research* 28: 551-562

Gili JM, Duró A, García-Valero J, Gasol JM, **Rossi S** (2008) Herbivorism in small carnivores: benthic hydroids as an example. *Journal of the Marine Biological Association UK* 88: 1541-1546

F. Applying the theoretical tools to solve problems : precious corals

After completing my PhD Thesis in the beginning of 2002, I was familiar enough with the biological and ecological variables to apply their analysis as a tool for the management and conservation of a benthic species that is commercially exploited in the Mediterranean sea: the red coral (*Corallium rubrum*). I had the opportunity to conceptualize, write and present my first project as PI. The project (PCC 30103) was commissioned by the regional fishery authorities (Departamento de Pesca de la Generalitat), and studied various aspects of red coral ecology, such as: reproduction (Tsounis et al. 2006a), feeding (Tsounis et al. 2006b), distribution and population structure (Tsounis et al. 2006c), recruitment (Bramanti et al. 2007) and physiology (Rossi & Tsounis 2007). Georgios Tsounis was my first PhD advising experience, defending his work in 2005 in the University of Bremen. I could use all the tools applied to understand the autoecology of *Leptogorgia sarmentosa* and other passive benthic suspension feeders to a fishery program. The data proved their high potential as tools to manage this renewable resource: the project was a solid base for the future regulation of this precious coral not only in Catalonia, but also in the rest of the Mediterranean Sea. All the developed work was developed in shallow (<15-30m) and deep (30-60 m) populations, being truly pioneers in the comparison of these depths that now we consider "shallow and mesophotic". All the work done by different research groups used to be at shallow depths, but we needed to understand the processes in a depth gradient to help managing the renewable resource.

Within the same project, we managed to study the distribution and population structure in the deep banks (>60 meters depth) through the utilization of Remotely Operated Vehicles (ROVs) (Rossi et al. 2008), which allowed us, with the above-mentioned variables, to produce a comprehensive fisheries model of this species (Tsounis et al. 2007). This ROV survey was the first time ever in which deep populations demography of a benthic organism was calculated with video-recordings. I introduce this methodology that will be essential in my career, extending our vision of the functioning of the benthic habitats (see below).



Modelling red coral (*Corallium rubrum*) growth in response to temperature and nutrition (2016 By Sergio Rossi) and *Corallium rubrum* population structure and distribution scheme from shallow to deeper patches in the Cap de Creus area (Rossi et al., 2008)

Furthermore, this was the beginning of a very close collaboration with the red coral team at the Università di Pisa (Italy), through the joint projects of CNR-CSIC. The culmination of the efforts was the invitation to participate at two different PreciousCoral Workshops (Hong-Kong and Naples, 2009) where we could defend our position: the actual model of precious coral harvesting all over the world was wrong, we had to apply a new “forest” perspective where the ecosystem management was considered, instead of the “boom and burst” mining method that was applied (Tsounis et al. 2009, 2010a). We made an extensive review which is highly cited, describing the species, the problem and the potential solutions for the precious coral harvesting all over the world (Tsounis et al. 2010). For me, this was the demonstration that “theoretical” science could be easily transformed in “applied” science.

However, we could also demonstrate another thing that was also essential not only for precious corals, but also for the mesophotic habitats: shallow and deep populations were not well connected (Costantini et al 2011). I had the idea during the project. Sampled at 60 meters depth up to 15-20 meters depth, *Corallium rubrum* was horizontally connected, but not vertically linked. This limits the genetic flux and has important consequences for red coral conservation and management. The same model was applied to another gorgonian, *Eunicella singularis* (Costantini et al 2016), showing that the shallow populations, more exposed to climate change impacts, may not be fuelled by the mesophotic patches that lie below. All the previous works were essential to understand the mesophotic habitats, being our literature an example of shallow-deep ecological processes comparison a pioneering step toward a more comprehensive framework (Turner et al 2019).

Conservation needs also proactive solutions. This is why we decided to explore a recruitment methodology with marble tiles (Bramanti et al. 2007) that was enhanced with electric currents (Benedetti et al. 2011). These tiles were placed next to the red coral patches, where, after a short swim, larvae settled. The marble tile can thus be transported to areas in which red coral was absent due to overharvesting or poaching, restoring pristine populations. During three years, we made a follow-up of the tiles

(Santangelo et al. 2012) in three different areas of the Mediterranean sea, and we understood that not all the areas had the same potential of recovery. The ten-fold lower recruitment in one place respect the other two, as well as the likely high early mortality found, could depend on other local factors, such as interspecific competition or predation. We suggested that the high density of carnivorous and herbivorous fishes in this small protected area, may have a direct impact on coral settlers.

We understood that we needed more information about the larval behavior and the recruitment in natural conditions to refine the conservation plans. We made an experiment in which we demonstrate that, in *Corallium rubrum*, the larval motility behavior, combined with the extended Pelagic Larval Duration, confers on this anthozoan larvae an unsuspectedly high dispersive potential in open waters (Martinez-Quintana et al. 2015). Interestingly, when compared two different populations in different areas with different protection laws, notwithstanding similar growth and fecundity, the two populations showed different densities and size/age structures suggesting local factors, together with different fishing pressures, have to be taken into account in the management plans for this species. (Bramanti et al. 2014). All these findings may be also used in other contexts, in other habitats, to describe the potential maintenance and recovery of benthic suspension feeders population health status.

In 2009-2010, I had the opportunity to make an experiment emulating the ocean acidification conditions for *Corallium rubrum* (Bramanti et al. 2013). Within the framework of the MedSEA European project, we could demonstrate that in some decades, even those populations that live in deep waters and will not be so heavily affected by sea warming will be impacted by the loss of calcium carbonate precipitation. Total organic matter was significantly higher under low pH conditions, but no significant differences were detected between treatments regarding total carbohydrate, lipid, protein and fatty acid composition. However, the lower variability found among samples maintained in acidified conditions relative to controls, suggests a possible effect of pH decrease on the metabolism of the colonies. Our results show, for the first time, evidence of detrimental ocean acidification effects on this valuable and endangered coral species.

All this work reinforced the idea that precious corals in general have to be managed in a different way (Tsounis et al. 2013). This article argues that limited resources and insufficient interdisciplinarity limit the research needed to improve management guidelines, while a lack of human and financial resources hinder local management and efficient enforcement. In particular, illegal fishing is out of control and threatens the future of the industry. Furthermore, there is no consensus on the concept of sustainability of coral fisheries. The most alarming recent development is an increasing pressure by the industry to be permitted to harvest deep populations using remote operated vehicles, which will risk depletion of the last stocks left that have not been overharvested. Considering the historical evolution of the red coral as a case study (Rossi 2019), we have to be cautious: the “vermilion forest” has disappeared, and we

Memorial SERGIO ROSSI
would probably never see this splendor again.



Red coral harvested in the shallow waters off the Sicily coast, in the XVIII century. from Giovanni Tescione 1973). Rossi,2019

CITE: Tsounis G, Rossi S, Aranguren M, Gili JM, Arntz W. (2006a) Effects of spatial variability and colony size on the reproductive output and gonadal development cycle of the Mediterranean red coral (*Corallium rubrum* L.). *Marine Biology* 148: 513-527

Tsounis G, **Rossi S**, Laudien J, Bramanti L, Fernández N, Gili JM, Arntz W (2006b). Diet and seasonal prey capture rate in the Mediterranean red coral (*Corallium rubrum* L.). *Marine Biology* 149: 313-325

Tsounis G, **Rossi S**, Gili JM, Arntz W (2006c). Population structure of an exploited benthic cnidarian: the red coral case study. *Marine Biology* 149:1059-1070

Bramanti L, **Rossi S**, Tsounis G, Gili JM, Santangelo G (2007). Settlement and early survival of red coral on artificial substrates in different geographic areas: some clues for demography and restoration. *Hydrobiologia* 580: 219-224

Memorial SERGIO ROSSI

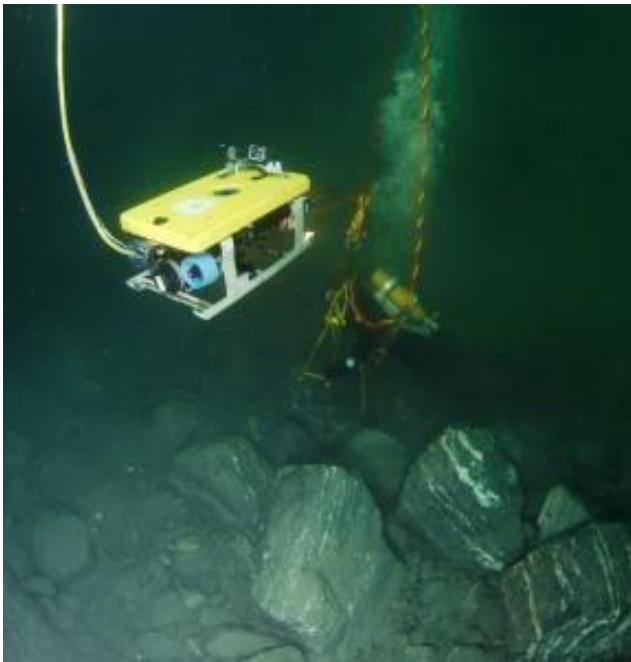
- Rossi S**, Tsounis G (2007) Temporal and spatial variation in protein, carbohydrate, and lipid levels in *Corallium rubrum* (anthozoa, octocorallia). *Marine Biology* 152: 429-439
- Tsounis G, **Rossi S**, Gili JM, Arntz W (2007) Red coral fishery at the Costa Brava (NW Mediterranean): case study for an over harvested precious coral. *Ecosystems* 10: 975-986
- Rossi S**, Tsounis G, Orejas C, Padrón T, Gili JM, Bramanti L, Teixidó N, Gutt J (2008). Survey of deep-dwelling red coral (*Corallium rubrum*) populations at Cap de Creus (NW Mediterranean). *Marine Biology* 154: 533-545
- Tsounis G, **Rossi S**, Gili JM (2009) Fishery management of the Mediterranean red coral: a call for a paradigm shift. In: Bruckner AW and Roberts GG (ed.). Proceedings of the First International Workshop on Corallium Science, Management and Trade. NOAA Technical Memorandum NMFS-OPR-43 and CRCP-8, Silver Spring, MD. Pp 123-143
- Tsounis G, **Rossi S**, Gili JM (2010a) Identifying population decline in *Corallium rubrum* by using historical information. In: Proceedings of the International Workshop on Red Coral Science, Management, and Trade: Lessons from the Mediterranean. Napoli, September 23 - 26, 2009 E Bussolletti, D Cottingham, A Bruckner, G Roberts, pp 33-39
- Tsounis G, **Rossi S**, Grigg R, Santangelo G, Bramanti L, Gili JM (2010b) The exploitation and conservation of precious corals. *Oceanography & Marine Biology: An Annual Review* 48: 161-212
- Costantini F, **Rossi S**, Pintus E, Cerrano C, Gili JM, Abbiati M (2011) Declining fine-scale genetic variability in *Corallium rubrum* population along a depth gradient. *Coral Reefs* 30: 991-1003
- Costantini F, Gori A, López-González P, Bramanti L, **Rossi S**, Gili JM, Abbiati M (2016) Limited genetic connectivity between gorgonian morphotypes along a depth gradient. *Plos One* DOI:10.1371/journal.pone.0160678
- Turner JA, Andradi-Brown DA, Gori A, Bongaerts P, Burdett H, Ferrier-Pagès C, Voolstra CR, Bridge T, Costantini F, Gress E, Laverick J, Loya Y, Goodbody-Gringley G, **Rossi S**, Taylor ML, Viladrich N, Voss J, Weinstein DK, Williams J, Woodall LC, Eyal G (2019) Twenty-Four Key Questions for Mesophotic Ecosystem Research and Conservation. In: Mesophotic Coral Ecosystems; Yossi L, Puglise KA., Bridge TCL (Eds.), Springer. Pp 989-1003. ISBN 978-3-319-92735-0
- Benedetti A, Bramanti L, Tsounis G, Faimali M, Pavanello G, **Rossi S**, Gili JM, Santangelo G (2011) Applying cathodically polarised substrata to the restoration of a high value coral. *Biofouling* 27: 799-809
- Santangelo G, Bramanti L, **Rossi S**, Tsounis G, Vielmini I, Lott C, Gili JM (2012) Patterns of variation in recruitment and post-recruitment processes of the Mediterranean precious gorgonian coral *Corallium rubrum*. *Journal of Experimental Marine Biology and Ecology* 411:7-13
- Martinez-Quintana A, Bramanti L, Villadrich N, **Rossi S**, Guizien K (2015) Quantification of larval traits driving connectivity: the case of *Corallium rubrum* (L.1758). *Marine Biology* 162: 309-318
- Bramanti L, Vielmini I, **Rossi S**, Tsounis G, Iannelli M, Cattaneo-Vietti R, Priori C, Santangelo G (2014) Demographic parameters of two populations of red coral (*Corallium rubrum* L. 1758) in the North Western Mediterranean. *Marine Biology* 161: 1015-1026
- Bramanti L, Movilla J, Guron M, Calvo E, Gori A, Dominguez-Carrio C, Grinyo J, Lopez-Sanz A, Martinez-Quintana A, Pelejero C, Ziveri P, **Rossi S** (2013) Detrimental effects of Ocean Acidification on the economically important Mediterranean red coral (*Corallium rubrum*). *Global Change Biology* 19: 1897-1908
- Tsounis G, **Rossi S**, Bramanti L, Santangelo G (2013) Management hurdles in the sustainable harvesting plans of *Corallium rubrum*. *Marine Policy* 39: 361-364
- Rossi S** (2019) Historical ecology, understanding the actual panorama using past scenarios. *Biologia Marina Mediterranea* 26 (1): 203-211

G. Remotely Operated Vehicle: pioneering the use of an essential tool

During the two cruises of the Red Coral project (2002 and 2003) I understood two important things: 1) below 30 meters (maximum safe SCUBA diving work zone with

Memorial SERGIO ROSSI

compressed air and safe) there was a huge community to be explored and quantified, and 2) the ROV was the tool to make a huge quantity of different approaches, including demography, biodiversity, habitat and species health status, etc. I needed to better understand how to use a tool which allows an extensive sampling design, a metapopulation proxy in which I could observe and sample different parameters at a larger scale. This is the reason of my incorporation to two different private ROV enterprises (Praesentis, s.l. y Argo Maris, 2004). During that period I could participate in projects (BENTHIC EYE, PETRI and INTERREG) in which I actively participated in the design and construction of ROVs, as well as a driver of Phantom IV-ROV and a Trigger Fish ROV (2004 and 2006), making sea to coast transects (cartography and biocenosis of Cap de Creus).



As previously stated, in 2008 I published a paper (Rossi et al 2008) that, for the first time, use the **Remote Operated Vehicle** (ROV) to calculate a suspension feeder demography (the precious red coral, *Corallium rubrum*) and potential importance in the carbon cycles. This work was greatly improved with later works in which we implemented land forest ecology to describe the distribution and quantify the population structure, patchiness and demography of different species (Gori et al. 2011a, b, Ambroso et al 2013), a series of pioneering studies that were followed by other research teams and projects. Whilst I consolidated my profile as a trophic ecologist before 2010 (e.g. seston quality, food intake, reproduction,

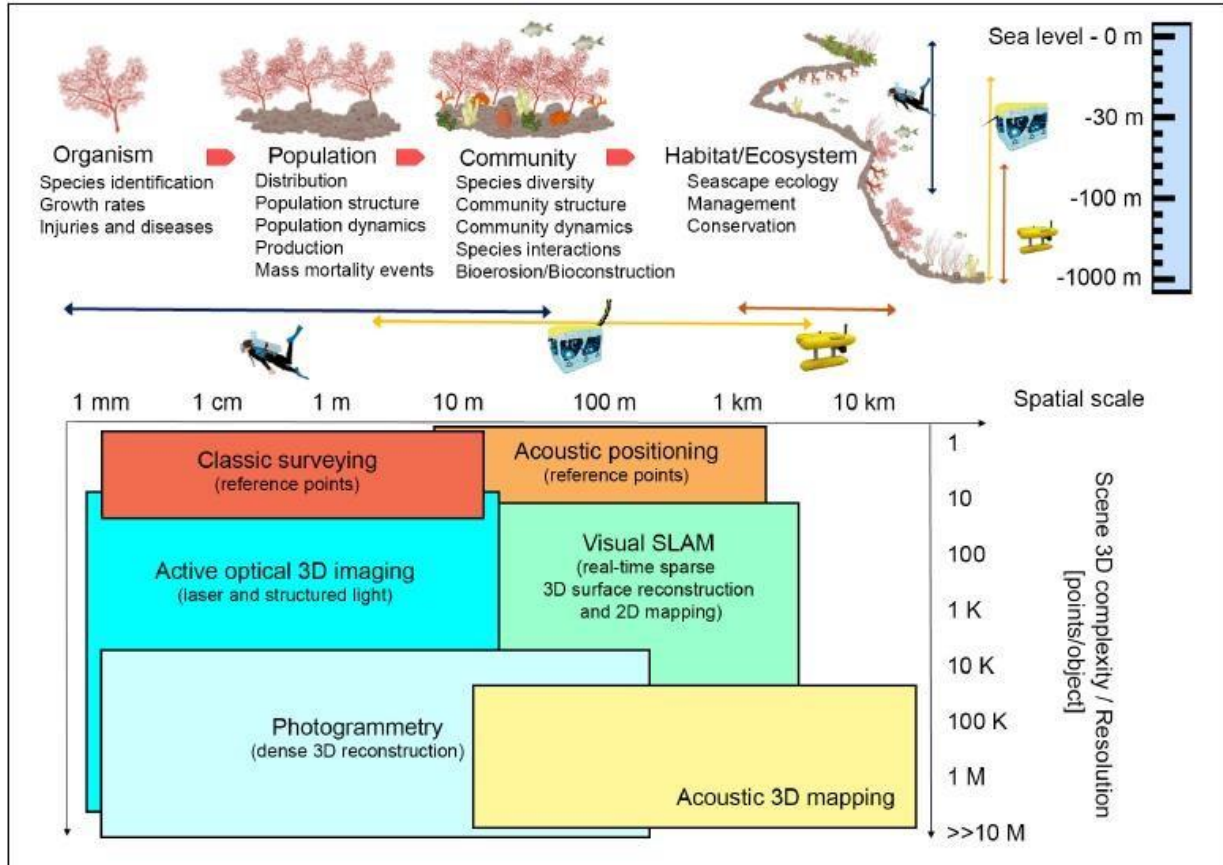
growth and energy storage), I started to understand that I had to make a step beyond and make an approach completely different looking out of the box in which I was in some way constrained. Once I had this ROV approach, I could make a large scale quantification of the benthic systems at the level of community (Sarda et al 2012), having an exceptional tool that of underwater mapping.

When we make an approach on benthic communities, we are really constrained by the extension of our SCUBA dive work. In 2004, when I made the Cap de Creus (NW Spain) transects, I thought: can we apply this ROV video image recording to make, for example, biomass extrapolations at large scale or make benthic-pelagic coupling calculations outside of the “typical” square meter that we have in the SCUBA diving works? Two PhD thesis (Andrea Gori and Martina Coppari) were focused specifically to answer such questions. Imagine that you have reliable numbers of feeding of a sponge, for example. If you have the numbers of clearance rate (mgCarbon ingested by gCarbon of the sponge per hour or day and per meter square), can we extrapolate the result with a realistic approach per hectare? We started with an ascidian (Coppari et al 2014) and two sponges (a mixotrophic and an heterotrophic species, Coppari et al 2016). We were, again, pioneering crossing experimental information with a seacape approach:

Memorial SERGIO ROSSI

now we can make realistic numbers of Carbon captured taking into account the population structure at different depths and in different areas. We applied terrestrial forest ecology to benthic communities.

The different approaches have been recognized, and the possibilities to explore the ocean floor from the biological point of view simply exploded (Rossi et al. 2021).



Ecological key aspects of marine animal forests and different technological approaches that can be applied at different spatial scales, depth, and 3D complexity of investigated area (Rossi et al. 2021).

The possibilities that underwater robotics and data processing give us will shape the future of our seascape understanding and quantification. For me, with the above mentioned ROV approach, a world of possibilities came out, including the exploration of the role of the Marine Animal Forests as Blue Carbon immobilizers (see below).

CITE: Gori A, **Rossi S**, Berganzo-González E, Pretus JL, Dale MRT, Gili JM (2011a) Spatial distribution, abundance and relationship with environmental variables of the gorgonians *Eunicella singularis*, *Paramuricea clavata* and *Leptogorgia sarmentosa* (Cape of Creus, Northwestern Mediterranean Sea). *Marine Biology* 158: 143- 158

Gori A, **Rossi S**, Linares C, Berganzo E, Orejas C, Dale MRT, Gili JM (2011b) Size and spatial structure in deep vs shallow populations of the Mediterranean gorgonian *Eunicella singularis* (Cap de Creus, Northwestern Mediterranean Sea). *Marine Biology* 158: 1721-1732

Sardà R, **Rossi S**, Martí X, Gili JM (2012) Marine Benthic cartography of the NE Catalan Coast (Mediterranean Sea). *Scientia Marina* 76(1): 159-171

Ambroso S, Gori A, Dominguez C, Gili JM, Berganzo E, Teixidor N, Greenacre M, **Rossi S** (2013) Spatial distribution

Memorial SERGIO ROSSI

patterns of the soft corals *Alcyonium acaule* and *Alcyonium palmatum* in coastal bottoms (Cap de Creus, northwestern Mediterranean Sea). *Marine Biology* 160:3059–3070

Coppari M, Gori A, **Rossi S** (2014) Size, spatial and bathymetrical distribution of the Mediterranean ascidian *Halocynthia papillosa* in a large coastal area of the Northwestern Mediterranean Sea: benthic-pelagic coupling implications. *Marine Biology* 161: 2079-2095

Coppari M, Gori A, Viladrich N, Saponari L, Grinyó J, Olariaga A, **Rossi S** (2016) The role of sponges in the benthic-pelagic coupling process in warm temperate coastal bottoms. *Journal of Experimental Marine Biology and Ecology* 477: 57-68

Rossi P, Ponti M, Righi S, Castagnetti C, Simonini R, Mancini F, Agrafiotis P, Bassani L, Bruno F, Cerrano C, Cignoni P, Corsini M, Drap P, Dubbini M, Garrabou J, Gori A, Gracias N, Ledoux J-B, Linares C, Mantas TP, Menna F, Nocerino E, Palma M, Pavoni G, Ridolfi A, **Rossi S**, Skarlatos D, Treibitz T, Turicchia E, Yuval M and Capra A (2021) Needs and Gaps in Optical Underwater Technologies and Methods for the Investigation of Marine Animal Forest 3D Structural Complexity. *Frontiers in Marine Science* 8:591292. doi: 10.3389/fmars.2021.591292

H. The use of biomarkers: Reproduction, Stable isotopes, fatty acids and the biochemical balance

My interest in the application of new methods to study the health status of the benthic ecosystems and quantify the trophic relationships that may partly explain such health status increased at the end of the Red Coral project in 2003. My career deepened in the use of different tools to understand not only the life cycle of benthic suspension feeders, but also their capability to withstand with different perturbations. I explored different biomarkers, applying the use to different species and situations.

First thing was use the reproduction comparing the same passive suspension feeder species of different areas to understand the environmental parameters involved in the spawning (Gori et al 2007), quantifying the gonadal output and thus the capability of the species to maintain the populations. Exploring the reproductive cycles of other cnidarian species helped in the complex comparison at the community level, and made me understand that unexplored factors as light (Fiorillo et al. 2013) or a parasiticlike as epibiont (Quintanilla et al. 2013). Such comparisons are essential to have a wider view of the system, the potential winners and losers in a changing environment, and a clear picture of how species develop different strategies to find their ecological niche. The same approach was used with a mixotrophic species, *Eunicella singularis*, but in this case using morphology and genetics to understand changes in a depth gradient (Gori et al. 2012a). Similar methodologies may be also applied to describe invasive species reproductive cycles, such as the one made on upside-down medusa *Cassiopea andromeda* (Mammone et al. 2023).

The use of several biomarkers at the same time proved to be really good to assess impacts or compare different populations. For example, we observed that those gorgonians impacted by artisanal fisheries (long lines or trammel nets that made tissue abrasion) has an impact on the total reproductive output and the lipid storage capability (Tsounis et al. 2012). This is because there are few polyps to feed all the colony. Interestingly, when compared two different non-impacted populations of the same species but along a depth gradient, a similar results was obtained (Gori et al. 2012b), why? In this case, the habitat gave the cue: *Eunicella singularis*, the studied species, is mixotrophic in the surface (20 meter depth), but fully heterotrophic in deep waters (60 meters depth). The isotopic composition (d15N and d13C) of the shallow colonies was

Memorial SERGIO ROSSI

similar to values observed for passive suspension feeders with symbiotic algae, whereas the deep colonies exhibited values similar to those of aposymbiotic passive suspension feeders that primarily feed on microzooplankton and particulate organic matter. These results highlight the importance of considering the depth-related variability among populations in order to achieve a better understanding of the ecology of sessile benthic suspension feeders.

The biomarkers were very useful, we could understand the trophic ecology of different species and their position in the trophic chain. For example, the application of such trophic markers in submarine canyons (Rossi et al. 2008) consisted in following the trophic links within a pelagic trophic chain dominated by a siphonophore (*Nanomia cara*), showing connections and disconnections by using trophic markers (fatty acids). Another example was the use of fatty acids with a rare and widely ignored taxon: pycnogonids (Soler-Membrives et al. 2011). My expertise in the management of these biomarkers increased, as well as an appropriate and sometimes new interpretation depending on the habitats chosen.

Viladrich et al (2016) demonstrated the importance of the Marine Protected Areas in the nutritional condition of two fishes, how the trophic markers were richer in the MPA respect a non-protected area and how an omnivorous and carnivorous species of commercial interest may be impacted by a great storm in which their food is not any longer available as it was previous to the perturbation. The same set of biomarkers was applied in Milisenda et al. (2018) for the widely distributed medusa *Pelagia noctiluca*. The combination of Stable Isotope and Fatty Acid analyses highlighted the importance of microzooplankton as prey. Specific FA biomarkers showed that the diet of *P. noctiluca* changed seasonally depending on the availability of living plankton or suspended detritus. We also used Stable Isotopes to understand the nutrient pollution gradient in Caribbean waters (Mexico and Cuba), highlighting the importance of comparing the same species in different conditions (González de Zayas et al. 2020), and also to describe, for the first time, the Angola deep water communities highlighting the importance of sponges in the trophic fluxes (Vinha et al. in press).

During this years I understood the importance of approaching the problem with different tools. If you look carefully, many of my pares have this polyhedric approach, in which I apply different methods for the same purpose. The power of such strategy is really good, allowing to understand problems like the microplastic impact on the benthic biota much more easily than making a single approach (Soares et al 2020; Fraissinet et al. 2021; Fraissinet et al. 2023, Martines et al. 2023; Fraissinet et al. submitted).

CITE: Gori A, Linares C, **Rossi S**, Coma R, Gili JM (2007) Spatial variability in reproductive cycles of the gorgonians *Paramuricea clavata* and *Eunicella singularis* in the Western Mediterranean. *Marine Biology* 151: 1571-1584

Fiorillo I, **Rossi S**, Gili JM, Alvà V, López-González PJ (2013) Seasonal cycle of sexual reproduction of the Mediterranean soft coral *Alcyonium acaule* (Anthozoa, Octocorallia). *Marine Biology* 160:719–728

Quintanilla E, Gili JM, López-González PJ, Tsounis G, Madurell T, Fiorillo I, **Rossi S** (2013) Sexual reproductive cycle of the epibiotic soft coral, *Alcyonium coralloides* (Octocorallia, Alcyonacea), growing on the Mediterranean gorgonian *Paramuricea clavata*. *Aquatic Biology* 18: 113-124

Gori A, Bramanti L, Lopez-Gonzalez P, Thoma J, Gili JM, Griny J, Uceira V, France S, **Rossi S** (2012a) Characterization of the zooxanthellate and azooxanthellate morphotypes of the Mediterranean gorgonian *Eunicella singularis*. *Marine Biology* 159: 1485-1496

Memorial SERGIO ROSSI

Mammone M, Bosch-Belmar M, Milisenda G, Castriota L, **Rossi S**, Piraino S (2023) Reproductive cycle and gonadal output of the alien Jellyfish *Cassiopea andromeda* in the Mediterranean Sea. *Plos* 18(2): e0281787. <https://doi.org/10.1371/journal.pone.0281787>

Tsounis G, Martínez L, Bramanti L, Viladrich N, Martínez A, Gili JM, **Rossi S** (2012) Effects of human impact on the reproductive effort and allocation of energy reserves in the Mediterranean octocoral *Paramuricea clavata*. *Marine Ecology Progress Series* 449: 161-172

Gori A, Viladrich N, Gili JM, Kotta M, Cucio C, Magni L, **Rossi S** (2012b) Reproductive cycle and trophic ecology in deep versus shallow populations of the Mediterranean gorgonian *Eunicella singularis*. *Coral Reefs* 31: 823-837

Rossi S, Youngbluth M, Jacoby C, Pagès F, Garrofé X (2008) Fatty acid composition and trophic links among seston, crustacean zooplankton and the siphonophore *Nanomia cara* in Georges Basin and Oceanographer Canyon (NW Atlantic). *Scientia Marina* 72(2): 403-416

Soler-Membrives A, **Rossi S**, Munilla T (2011) Feeding ecology of *Ammothella longipes* (Arthropoda: Pycnogonida) in the Mediterranean Sea: A fatty acid biomarker approach. *Estuarine, Coastal and Shelf Science* 92: 588-597

Viladrich N, **Rossi S**, López A, Orejas C (2016) Nutritional condition of two coastal rocky fishes and the potential role of a marine protected area. *Marine Ecology, an evolutionary perspective* 37: 46-63

Milisenda G, **Rossi S**, Fuentes V, Tilves U, Boero F, Viladrich N, Piraino S (2018) Seasonal variability of diet and trophic level of the gelatinous predator *Pelagia noctiluca* (Scyphozoa). *Scientific Reports* DOI:10.1038/s41598-018-30474-x

González-De Zayas R, **Rossi S**, Hernández-Fernández L, Soto-Jiménez M, Soares M, Merino-Ibarra M, Castillo-Sandoval FS (2020) Stable isotopes to assess pollution impacts on coastal and marine ecosystems of the Caribbean Region. *Regional Studies in Marine Science* doi.org/10.1016/j.rsma.2020.101413

Vinha B, **Rossi S**, Gori A, Hanz U, Pennetta A, De Benedetto GE, Mienis F, Huvenne VAI, Hebbeln D, Wienberg C, Tischack J, Freiwald A, Piraino S, Orejas C (in press) Trophic ecology of Angolan cold-water coral reefs (SE Atlantic) based on stable isotope analyses. *Scientific Reports*

Soares M, Matos E, Lucas C, Rizzo L, Allcock L, **Rossi S** (2020) Microplastics in Corals: An emergent threat. *Marine Pollution Bulletin* doi.org/10.1016/j.marpolbul.2020.111810

Fraissinet S, Pennetta A, **Rossi S**, De Benedetto GE, Malitesta C (2021) Optimization of a new multi-reagent procedure for quantitative mussel digestion in microplastic analysis. *Marine Pollution Bulletin* doi.org/10.1016/j.marpolbul.2021.112931

Martines A, Furfaro G, Solca M, Muzzi M, Di Giulio A, **Rossi S** (2023) An analysis of microplastics ingested by the Mediterranean detritivore *Holothuria tubulosa* (Echinodermata: Holothuroidea) sheds light on patterns of contaminant distribution in different marine areas. *Water* 15, 1597. <https://doi.org/10.3390/w15081597>

Fraissinet S, Arduini D, Vidal O, De Benedetto GE, Malitesta C, Giangrande A, **Rossi S** (2023) Particle uptake by filter-feeding macrofoulers from the Mar Grande of Taranto: potential as microplastic pollution bioremediators. *Marine Pollution Bulletin* 188: 114613

Fraissinet S, Pennetta A, Tardio N, **Rossi S**, De Benedetto GE, Malitesta C (submitted) A new method for fast and easy digestion of benthic filter-feeder organisms (*Sabella spallanzanii*, Polychaeta and *Paraleucilla magna*, Porifera) for microplastic determination and quantification. *Marine Environmental Research*

I. Humboldt current and the CENSOR project

The opportunity to apply this set of methods came also with a new EU funded project (CENSOR) that focused on fisheries and renewable resources. This project studies the influence of the “El Niño” phenomenon in the water column and benthic ecosystems, trying to identify the parameters that are affecting the distribution, abundance and health

Memorial SERGIO ROSSI

status of Chilean and Peruvian decapod-, bivalve-, sea urchin- and ascidian- species with economical value. My role in the project assisting with my experience to the understanding of how the food quality of the water column may impact the benthic organisms (seston and sediment trap analysis), as well as begin to explore the quantification of the energy and matter transfer (Rossi and Fiorillo 2010, Rossi et al. 2012). We also used the glycerol dialkyl glycerol tetraethers (GDGTs) in a wide comparison to make a paleoecological and paleoclimatological reconstruction (Fietz et al 2012). Our findings from this large-scale data set suggest that a common mixed source for both GDGT types is actually commonplace in lacustrine and marine settings.

More important: above all, I had the opportunity to study a system that was unknown for me (Rossi and Soares 2017). The repercussions of such approach are clear: the opportunity to study and publish about a completely different system forces you to exit your “comfort sphere” of working, giving an opportunity to your preparation and imagination to think in a different way.

CITE: Rossi S, Fiorillo I (2010) Biochemical features of a *Protoceratium reticulatum* red tide in Chipana Bay (Northern Chile) in summer conditions. *Scientia Marina* 74(4): 633-642

Rossi S, Isla E, Fietz S, Martínez-García A, Sañé E, Teixidó N (2012) Temporal variation of seston biomarkers within the Humboldt Current System off northern Chile (21°S): first simultaneous records on fatty acids, n-alkanes and GDGTs. *Advances in Oceanography and Limnology* 3: 17-40

Fietz S, Huguet C, Bendle J, Escala M, Herfort L, Ingalls A, Martínez-García A, McClymont E, Peck V, Prahil F, **Rossi S**, Rueda G, Sanson A, Sparrow MA, Zonneveld K, Rosell-Melé A (2012) Co-variation of crenarchaeol and branched GDGTs in globally-distributed marine and freshwater sedimentary archives. *Global Planetary Change* 92- 93: 275–285

Rossi S, Soares M (2017) Effects of El Niño on the coastal ecosystems and their related services—observations on contrasted geographic areas. *Mercator* .doi.org/10.4215/rm2017.e16030

J. Antarctica: understanding a very different ecosystem

One of the most interesting and profitable experiences with other environments and habitats was my work in Antarctica. I got the opportunity to develop different approaches with the above-mentioned tools in three different Antarctic Cruises [German Polarstern vessel, ANT XVII/3 (2000), ANT XXI/2 (2003-04), ANT XXVII/3 (2011)]. First of all, we could describe for the first time a comparison of the actual benthic communities compared with those in the Cretaceous (Gili et al. 2006a). We explored this hypothesis by revisiting the paleoecological history of Antarctic marine benthic communities and exploring the abiotic and biotic factors involved in their evolution, including changes in oceanic circulation and production, plankton communities, the development of

glaciation, restricted sedimentation, isolation, life histories, and the lack of large predators.

We were there to study benthic-pelagic coupling processes and why the distribution of benthic suspension feeders in the Antarctic continental platform followed certain patterns.



In this sense, one example that demonstrates effective multidisciplinary cohesion in my work is Gili et al. (2006b) in which, again, I had a prominent role both in the conceptualization and the sampling design. In this manuscript, “classical” and “new” complementary approaches were used (vertical gelatinous zooplankton fisheries, ROV transects, gastrovascular contents, electronic microscopy, total and fatty acid analysis) to give a wide and complete vision of a newly found trophic chain.

Next step was study the available seston for suspension feeding organisms like gorgonians, sponges, bryozoans, etc. We studied the quality of the sedimented organic matter in two different seasons (autumn and late-spring-summer) (Isla et al. 2006, 2011). We remarked the existence of sediments with a high nutritional value persistent several weeks after the spring–summer pulse of fresh organic matter. We also highlighted the high potential availability of these sediments (due to its grain size) for the benthic communities inhabiting this high-latitude continental shelf. Interestingly, our results suggested that the benthic community exploits the fresh organic matter accumulated after the summer throughout the Antarctic dark months leaving the sediment almost exhausted of lipids and with higher carbohydrate contents, presumably of refractory nature, at the onset of the seasonal phytoplankton bloom of the following year. But, in the spring blooms, how fast the productivity sinks to the bottom? Is of high quality the exported

carbon? This question was answered in Rossi et al. (2013), where the trophic markers

Memorial SERGIO ROSSI

showed evidence of a sink of available organic matter rich in quality and quantity, especially in terms of polyunsaturated fatty acids, for benthic organisms from surface layers to bottom layers in only a few days. Again, I demonstrated the importance of studying short-time cycles in order to detect organic matter availability for benthic biota in view of the pulse-like dynamics of primary production in Antarctic waters. In general, a widespread distribution of seabed sediment with high nutritive quality and grain sizes suitable for the anatomic structures of benthic suspension feeders is present in the studied areas (Gili et al. 2009). The potential impacts of climate change on the surface productivity will affect benthic suspension feeding communities, and the above mentioned tools will be essential to understand carbon flux and availability in this and other areas of the world.

Benthic suspension feeders and detritivores on Antarctic shelves feed on small-sized particles in contrast to species from other latitudes that mainly ingest zooplankton but, how can we detect its trophic position and the potential spatial differences? We compared the biochemical balance (protein-carbohydrate-lipids) and C-N Stable Isotopes of seven gorgonian species to answer this question (Elias-Piera et al. 2013). A large proportion of the gorgonian's diet seems to be based on sedimented and resuspended material, which supports the hypothesis that some suspension feeders deal successfully with the Antarctic winter by consuming phytoplankton sedimented in the 'green carpets' (accumulation of phytodetritus in the sediment). Our results contributed to a better understanding of the trophic ecology of benthic Antarctic gorgonians and their strategies for coping with autumn conditions in this polar environment, and also opened the door for other approaches even in deep Antarctic waters (Rossi and Elias-Piera 2018). At 1500 meters depth, the origin of the food is the same as in shallower areas, but the strategies to invest the energy inputs in these deep-sea organisms in polar environments may be quite different. The biomarkers were also used to study the seasonal trophic strategy of an Antarctic soft coral (Servetto et al. 2017). In this case, a next to a fjord population in the Antarctic Peninsula was sampled throughout a year. Again, resuspension events may be an important source of energy for these passive suspension feeders, reducing the seasonality of food depletion periods in winter; this information is crucial in a fast changing environment, where all the communities are changing due to the effects of climate change.

With the same biomarkers, we could observe different trophic behaviors and constraints. And these biochemical tools were also used to demonstrate the potential ice scouring effect on the available food of these suspension feeders (Gerdes et al. 2008): sediments below iceberg keels became over consolidated, ploughed out in frontform berms aside the scour and proportions of fine sediments were put into suspension and rapidly dispersed by bottom currents, impoverishing the quantity of available seston.

In this polar experience, I had also the opportunity to apply previous experience to find cues for the trophic ecology of benthic hydrozoans (Orejas et al. 2013) or relate the distribution of epifauna to the complexity of the substrate (Elias-Piera et al. 2020), as well as explore with biomarkers the trophic ecology of a relevant amphipod species (Ahn et al. 2021). My role has been consolidated through the time and I'm recognized as a member of the polar science research group of Spain and Portugal (Xavier et al. 2011).

Memorial SERGIO ROSSI

CITE: Gili JM, Palanques P, Isla E, Arntz WE, Clarke A, Orejas C, Teixidó N, **Rossi S**, López-González PJ (2006a) A unique assemblage of epibenthic sessile suspension feeders with archaic features in the high-Antarctic. *Deep- sea Research Part II* 53: 1029-1052

Gili JM, **Rossi S**, Pagès F, Orejas C, Teixidó N, López-González PJ, Arntz WE (2006b) A new link between the pelagic and benthic systems in the Antarctic shelves. *Marine Ecology Progress Series* 322: 43-49

Isla E, **Rossi S**, Palanques A, Gili JM, Gerdes D, Arntz (2006) Biochemical composition of the sediment from the Eastern Weddell Sea High nutritive value in a high benthic-biomass environment. *Journal of Marine Systems* 60: 255-267

Isla E, Gerdes D, **Rossi S**, Fiorillo I, Sañe E, Gili JM, Arntz W. (2011) Biochemical characteristics of surface sediments on the eastern Weddell Sea continental shelf, Antarctica: is there any evidence of seasonal patterns? *Polar Biology* 34:1125-1133

Rossi S, Isla E, Martínez-García A, Moraleda N, Gili JM, Rosell-Melé A, Arntz W, Gerdes D (2013) Transfer of seston lipids during a flagellate bloom from the surface to the benthic community in the Weddell Sea. *Scientia Marina* 77: 397-407

Gili JM, Orejas C, Isla E, **Rossi S**, Arntz WE (2009) Seasonality on the high Antarctic benthic shelf communities?. In: Antarctic Climate Change and the Environment (J. Turner, P. Convey, G. di Prisco, P. Mayewski, D. Hodgson, E. Fahrbach, B. Bindschadler, eds.). ACCE Report, Cambridge University Press, Cambridge. Pp 276-278

Elias-Piera F, **Rossi S**, Gili JM, Orejas C (2013) Trophic ecology of seven Antarctic gorgonians. *Marine Ecology Progress Series* 477: 93-106

Servetto N, **Rossi S**, Fuentes V, Alurralde G, Lager C, Sahade R (2017) Seasonal trophic ecology of the dominant Antarctic coral *Malacobelemnion daytoni* (Octocorallia, Pennatulacea, Kophobelemnidae). *Marine Environmental Research* 130: 264-274

Rossi S, Elias-Piera F (2018) Trophic ecology of three echinoderms in the deep waters of the Weddell Sea (Antarctica). *Marine Ecology Progress Series* 596: 143-153

Gerdes D, Isla E, Knust R, Mintenbeck K, **Rossi S** (2008) Response of benthic communities to disturbance: the artificial disturbance experiment BENDEX on the eastern Weddell Sea Shelf, Antarctica. *Polar Biology* 31:1469- 1480

Orejas C, **Rossi S**, Peralba A, Reise M, García E, Gili JM (2013) Feeding ecology and trophic impact of the hydroid *Obelia dichotoma* in Kongsfjord (Spitzbergen, Norway). *Polar Biology* 36: 61-72

Elias-Piera F, **Rossi S**, Petti MAV, Campos LS, Valério-Berardo MT, Corbisier TN (2020) Fauna associated with morphologically distinct macroalgae from Admiralty Bay, King George Island (Antarctica). *Polar Biology* doi.org/10.1007/s00300-020-02726-y

Ahn I-Y, Elias-Piera F, Ha S-Y, **Rossi S**, Kim DU (2021) Seasonal dietary shifts of the gammarid amphipod *Gondogeneia antarctica* in a rapidly warming fjord of the West Antarctic Peninsula. *Journal of Marine Science and Engineering* doi: 10.3390/jmse9121447

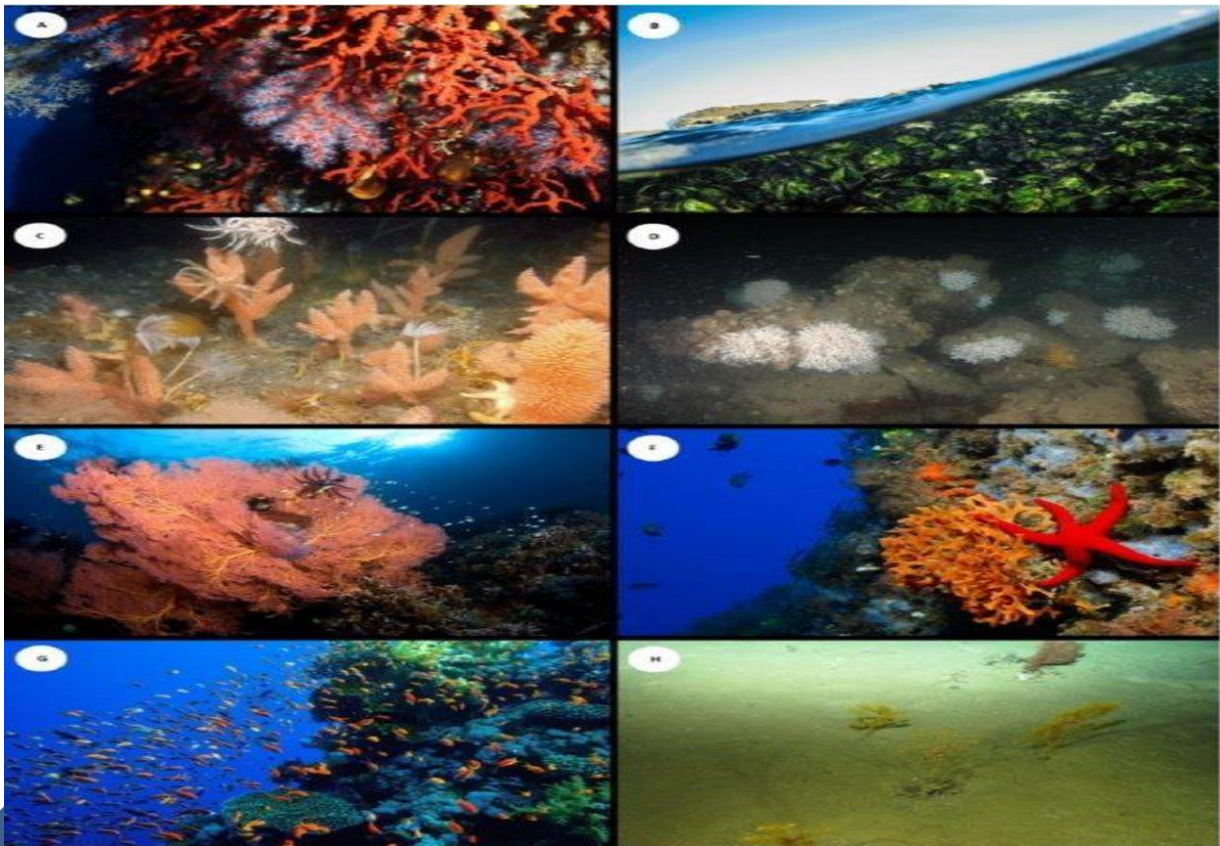
Xavier JC, Barbosa A, Agusti S, Alonso-Sáez L, Alvito P, Ameneiro J, Avila C, Baeta A, Canário A, Carmona R, Catry P, Ceia F, Clark M S, Cristobo F J, Cruz B, Duarte C M, Figuerola B, Gili JM, Gonçalves A, Gordillo FJ L, Granadeiro JP, Guerreiro M, Isla E, Jiménez C, López-González P J, Lourenço S, Marques J C, Moreira E, Mota A M, Nogueira

M, Núñez-Pons L, Orejas C, Paiva V H, Palanques A, Pearson G A, Pedrós-Alió C, Peña Cantero A L, Power D M, Ramos JA, **Rossi S**, Seco J, Sañe E, Serrão E A, Taboada S, Tavares S, Teixidó N, Vaqué D, Vázquez E, Vieira R, Viñegla B (2013) Polar marine biology science in Portugal and Spain: Recent advances and future perspectives. *Journal of Sea Research* 83: 9-29

K. The Marine Animal Forests

I was the person who invented (Rossi et al. 2012) and consolidated the concept of **Marine Animal Forest** (MAF, Rossi 2013, Gili et al. 2014, Rossi 2017). Soft and hard corals, sponges, bryozoans and other benthic suspension feeders which are considered eco-engineering species, make up what is known as the animal forests, which are present in shallow and deep waters all over the planet. Marine animal forests are threatened by direct (bottom trawling, coastal management, aquaculture, etc.) and indirect (ocean warming, ocean acidification and sea level rise) stressors. The real consequences of this over-simplification of the animal forest due to the destruction of these complex, long-lived structures and the potential solutions for a sustainable management is under debate, and has been the focus of my research during the last 11 years.

I thought this description (Marine Animal Forest), remembering the land forests, would be an easy to retain concept. But I also thought we needed to import several concepts from the ecology of terrestrial forests to the sea forests. After 9 years from the first official description, the [IUCN](#) and many other institutions (e.g. AICHI 2018 and IPCC 2020 panels) adopted this holistic approach (Stark et al. 2020) and Springer-Nature considered my story relevant enough to be explained in the [2020 world ocean day](#). Prior to 2010, I understood that having a holistic view was necessary to touch different communities and ecosystems all over the world. I started gathering the different approaches needed to

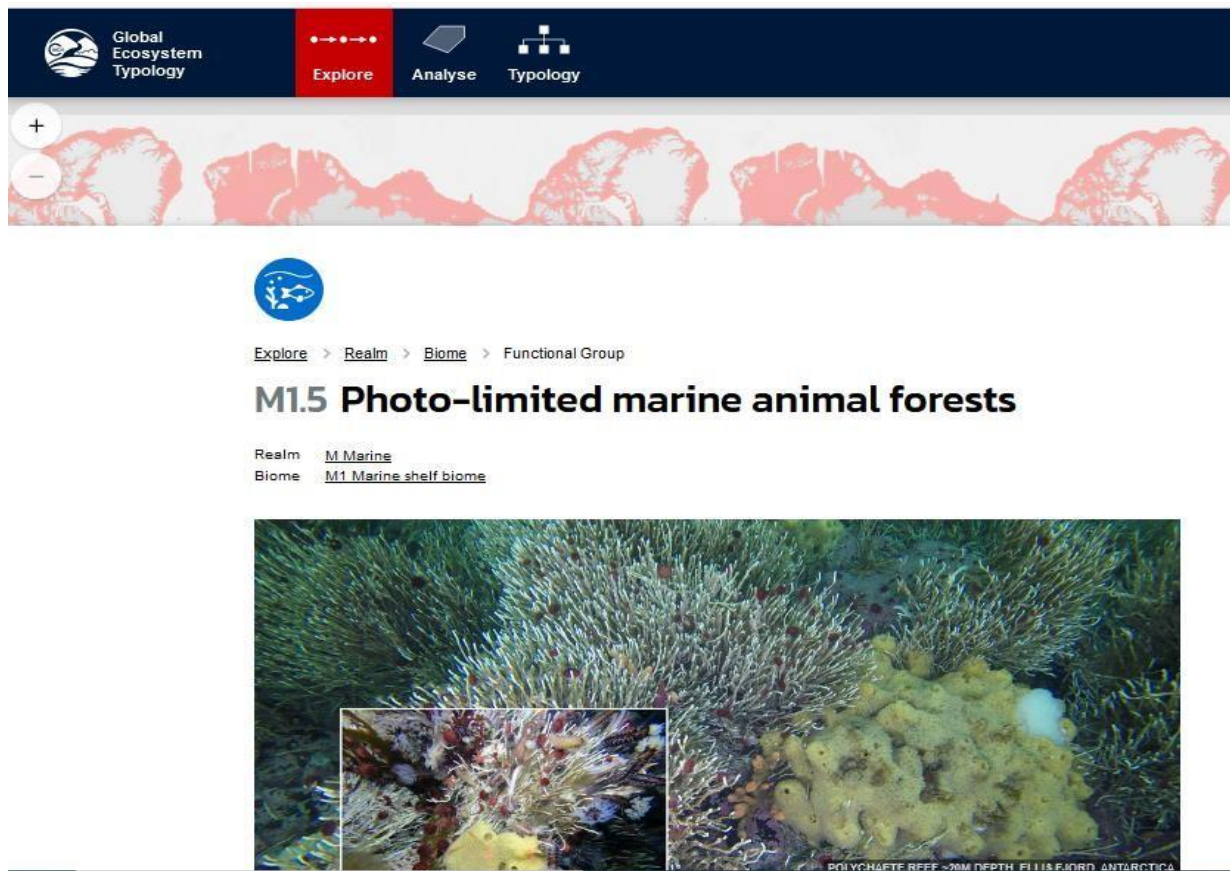


Different types of marine animal forest. Rossi and Rizzo (2020)

Memorial SERGIO ROSSI

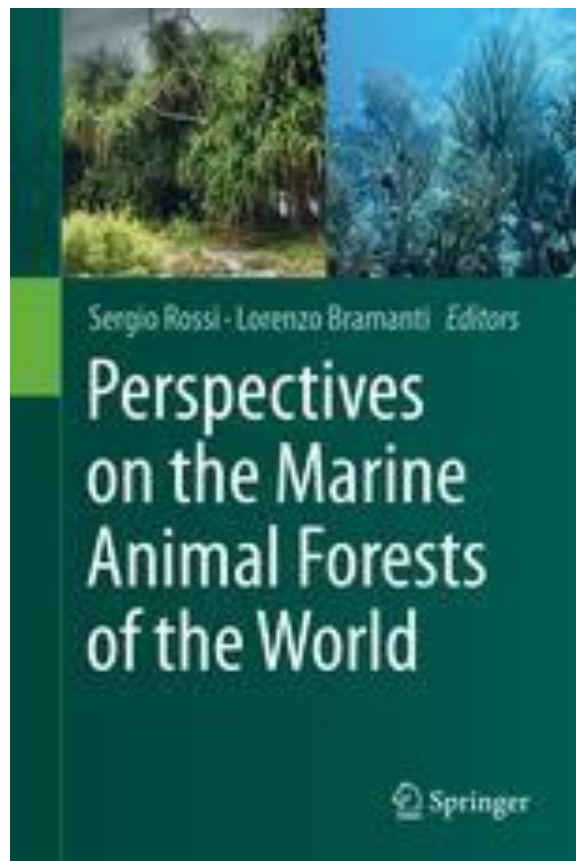
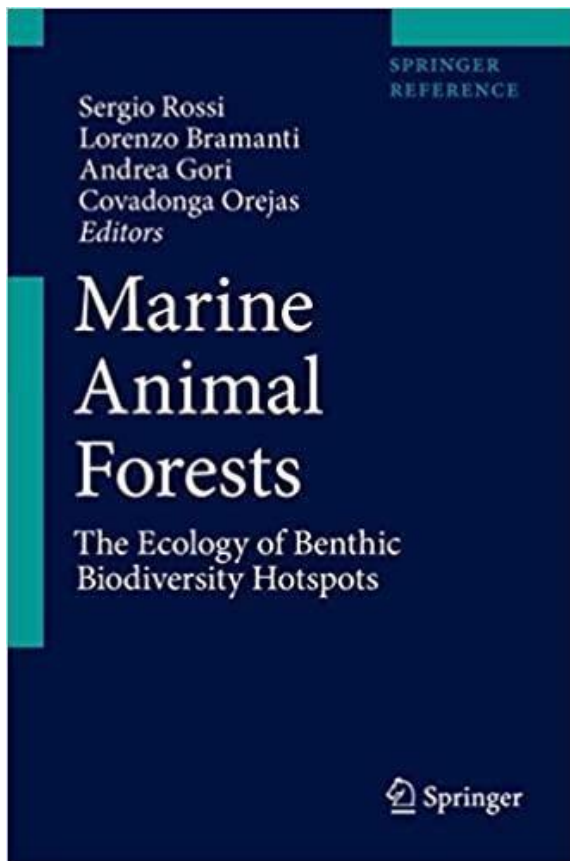
reach such target. I understood that I also needed to understand which will be the MAFs future and how we can make an ambitious plan for recovering these ecosystem engineer species.

To highlight the importance of the MAFs all over the world I was the **editor in chief** of the Springer Major Reference Book “[Marine Animal Forests: the ecology of benthic biodiversity hotspots](#)”. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany, a 48 chapter book with the Animal Forest concepts and future challenges.



<https://global-ecosystems.org/explore/groups/M1.5>

I'm also editor in chief of another Springer Book about the MAFs “[Perspectives on the Marine Animal Forests of the world](#)”. Rossi S, Bramanti L [EDITORS]. Springer, Germany (2020), the last volume of the Marine Animal Forests of the world. Both books, my previous network and the attraction by such concept brought me the opportunity to consolidate a very large and effective network that now will work together in the COST Action 20102 Marine Animal Forests of the World (see below). The complete successful projection of such a concept came from a letter in Science published with part of my network (Rossi et al. 2022) and an updated review of the description (Orejas et al. 2022).



To bring some light to the multilateral problem, we first need to understand how the changing energy fluxes will impact the future seascape. In a fast changing planet, where the productivity of the oceans will be deeply transformed, how benthic-pelagic coupling processes will be affected? Climate change is already transforming the seascapes of our oceans by changing the energy availability and the metabolic rates of the organisms (Rossi et al 2019a). Such climatic transformation could modify the resistance or resilience of MAFs, potentially making them more sensitive to impacts from anthropic activities (i.e. fisheries and coastal management), and vice versa, direct impacts may amplify climate change constraints in MAFs. But, how the available food constraints the health status and the reproduction potential of suspension feeding organisms? We demonstrated (Gori et al 2013) that starvation induces a significant decrease in the gonadal volume produced by the Mediterranean asymbiotic gorgonian *Paramuricea clavata*, with a differential effect on male and female colonies. The results confirmed a direct link between food availability and both reproductive output and biochemical composition in this organism, and underscore the potentially important role of food availability in explaining the spatial variability in the reproduction and energy storage of suspension feeders. Bearing this in mind, the next question was: depending on the species, which are the effects on the next generations in natural conditions? First, two different species that exhibited different life history strategies, investing more or less energy in reproduction, being more or less sensitive to the quantity and the quality of the available food (Viladrich et al. 2016). We thus introduced the concept of “mother care” in benthic suspension feeders: not all the species invest the same quantity of energy accumulated in their offspring (Viladrich et al 2017, Viladrich et al. 2022). For example, two internal brooders with different trophic strategies (heterotrophic and

Memorial SERGIO ROSSI

mixotrophic) have significant differences in front of food constraints. The heterotrophic species seems to be more sensitive, whilst the mixotrophic species is less sensitive to stress conditions caused by starvation or thermal stress. This gives essential cues to understand which may be the “winners or losers” in changing environmental conditions like water stratification, seston depletion or warming waters (Rossi et al. 2019b).

Good data give good models. The data acquisition during so many years gave us the opportunity to make a model of a passive suspension feeder in front of changing temperature and food conditions (Galli et al. 2016). The model follows a bioenergetic approach and is calibrated vs available experimental observations. Model results highlight that larger colonies are more sensitive to high temperature and actual limits of the ecological niche also depend on food availability, hydrodynamic condition and coral morphology. Interestingly, food availability has the same weight as the temperature as a main constraint for the growth of the suspension feeder colonies. All these concepts were gathered in a single chapter (Rossi et al. 2017b), where food constraints were highlighted as a real problem for the MAFs. From the oligotrophic coral reefs to the highly seasonal productive Antarctic ecosystems, suspension feeders (the main eco-engineers of the animal forest) have evolved feeding strategies depending on the environmental constraints, which shape their survivorship and partly explain their high biodiversity. The study of suspension feeders distribution has to take into account not only substrate and environmental parameters (light, temperature, salinity, currents, etc.) but also primary productivity, seston resuspension, lateral transport, and seasonal fluctuations of phyto- and zooplankton abundance (Johnson et al. 2023). Also, the potential impoverishment of the available food (expressed as available seston) due to bottom trawling is incorporated in the energy input equation, demonstrating that indirect and direct impacts on the trophic ecology are essential to understand the future seascape (Bilan et al. submitted). The use of old and new tools combined together will be a key factor to improve our knowledge not only on benthic-pelagic coupling processes but also of the role played by these organisms in biogeochemical cycles and as carbon immobilizers (see below, Denis et al. in preparation).

I insisted in these points to understand for example Mediterranean gorgonian distribution (Ponti et al. 2019) or how climate change will shape the benthic communities in this sea in a near future (Balzan et al. 2020). In this latter report (which obtained the prestigious North-South European prize, see below), I had a relevant role explaining how the future seascape will be shaped by different stressors and deep transformations due to climate change. In fact, our changing planet needs a holistic view to understand how species are invading spaces, like the cnidarians in front of the so-called “tropicalization” of the Mediterranean sea (Gravili and Rossi 2021).

The **culmination of this work is reflected in a COST Action project** (MAF WORLD, CA20102) that gathers one of the most variate (and numerous) people from all over the world making a common effort in a strong network seeking to spread the voice about the fragility of these habitats (Rossi et al. 2022).

CITE:

Rossi S, Bramanti L, Broglio E, Gili JM (2012) Trophic impact of long-lived species indicated by population dynamics in a short-lived hydrozoan, *Eudendrium racemosum*. *Marine Ecology Progress Series* 467: 97-111

Memorial SERGIO ROSSI

Rossi S (2013) The destruction of the 'animal forests' in the oceans: Towards an over-simplification of the benthic ecosystems. *Ocean & Coastal Management* 84: 77-85

Gili JM, Sardà R, Madurell T, **Rossi S** (2014) Zoobenthos. In: The Mediterranean Sea: Its History and Present Challenges. Fauna. Goffredo S & Dubinsky Z (Eds.). Springer, Germany ISBN 978-94-007-6703-4, Chapter 12, pp 213-236

Rossi S, Bramanti L, Gori A, Orejas C (2017) An Overview of the Animal Forests of the World. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany. 1-28

Stark JS, Gregr EJ, **S Rossi**, Porter SN, Altieri, Keith DA. (2020). *M1.5 Photo-limited marine animal forests*. In: Keith, D.A., Ferrer-Paris, J.R., Nicholson, E. and Kingsford, R.T. (eds.) (2020). The IUCN Global Ecosystem Typology 2.0:

Descriptive profiles for biomes and ecosystem functional groups. Gland, Switzerland: IUCN. DOI:[10.2305/IUCN.CH.2020.13.en](https://doi.org/10.2305/IUCN.CH.2020.13.en)

Rossi S, Isla E, Bosch-Belmar M, Galli G, Gori A, Gristina M, Ingrosso GM, Milisenda G, Orejas C, Piraino S, Rizzo L, Schubert N, Soares M, Solidoro C, Thurstan R, Viladrich N, Willis T, Ziveri C (2019a) Changes of energy fluxes in the marine animal forest of the Anthropocene: factors shaping the future seascape. *ICES Journal of Marine Sciences* 76: 2008-2019 doi:10.1093/icesjms/fsz147

Gori A, Linares C, Viladrich N, Clavero A, Orejas C, Fiorillo I, Ambroso S, Gili JM, **Rossi S** (2013) The effects of starvation on the gonadal development and biochemical composition of the Mediterranean gorgonian *Paramuricea clavata*. *Journal of Experimental Marine Biology and Ecology* 444: 38-45

Viladrich N, Bramanti L, Tsounis G, Chocarro B, Martínez-Quintana A, Ambroso S, Madurell T, **Rossi S** (2016) Variation in lipid and free fatty acid content during spawning in two temperate octocorals with different reproductive strategies: surface versus internal brooder. *Coral Reefs* 35: 1033-1045

Viladrich N, Bramanti L, Tsounis G, Martínez-Quintana A, Ferrier-Pagès C, Isla E, **Rossi S** (2017) Variation of lipid and free fatty acid contents during larval release in two temperate octocorals according to their trophic strategy. *Marine Ecology Progress Series* 573: 117-128

Viladrich N, Bramanti L, Tsounis G, Coppari M, López-Carrió C, Pruski A, **Rossi S** (2022) Consequences of energy mobilization on larval success of Mediterranean octocoral species. *Mediterranean Marine Science*, 115–124. <https://doi.org/10.12681/mms.27151>

Rossi S, Gravili C, Milisenda G, Bosch-Belmar M, De Vito D, Piraino S (2019b) Effects of global warming on reproduction and potential dispersal of Mediterranean cnidarians. *The European Zoological Journal* 86: 255-271

Johnson R, Langer G, **Rossi S**, Probert I, Mammone M, Ziveri P (2022) Nutritional response of a coccolithophore to changing pH and temperature. *Limnology and Oceanography* 67, 2309–2324 DOI: 10.1002/lno.12204

Bilan M, Gori A, Grinyò J, Biel-Cabanelas M, Puigcerver-Segarra X, Santin-Muriel A, Piraino S, **Rossi S**, Puig P (submitted) Vulnerability of six cold-water corals to sediment resuspension from bottom trawling fishing. *Marine Pollution Bulletin*

Denis V, Ferrier-Pagès C, Schubert N, Coppari M, Baker DM, Camp E, Gori A, Grottoli A, Houlbrèque F, Maier S, Mancinelli G, Martinez S, Ozdilek SY, Radice V, Ribes M, Richter C, Viladrich N, **Rossi S** (in preparation). On The Importance of Heterotrophy in Marine Animal Forests

Galli G, Bramanti L, Priori C, **Rossi S**, Santangelo G, Tsounis G, Solidoro C (2016) Modelling red coral (*Corallium rubrum*) growth in response to temperature and nutrition. *Ecological Modeling* 337: 137-148

Rossi S, Coppari M, Viladrich N (2017) Benthic-Pelagic Coupling: New Perspectives in the Animal Forests. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany 855-886

Ponti M, Turicchia E, Costantini F, Gori A, Bramanti L, di Camillo CG, Linares C, **Rossi S**, Abbiati M, Garrabou J, Cerrano C (2019) Mediterranean gorgonian forests: distribution patterns and ecological roles. *RAC-SPA Conference paper*. Pp 7-14

Balzan MV, Hassoun AER, Aroua N, Baldy V, Bou Dagher M, Branquinho C, Dutay J-C, El Bour M, Médail F, Mojtahid M, Morán-Ordóñez A, Roggero PP, **Rossi S**, Schatz B, Vogiatzakis IN, Zaimes GN, Ziveri P (2020) Ecosystems. In: Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First

Memorial SERGIO ROSSI

Mediterranean Assessment Report [Cramer W, Guiot J, Marini K (eds.)] Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 151pp

Gravili C, **Rossi S**, (2021) Who's next? Non-indigenous cnidarian and ctenophoran species approaching to the Italian waters. *Water* 13, 1062. <https://doi.org/10.3390/w13081062>

Rossi S, Bramanti L, Horta P, Allcock L, Carreiro-Silva M, Coppari M, Denis V, Hadjioannou L, Isla E, Jimenez C, Johnson M, Mohn C, Orejas C, Ramšak A, Reimer J, Rinkevich B, Rizzo L, Salomidi M, Samaai T, Schubert N, Soares M, Thurstan RH, Vassallo P, Ziveri P, Zorrilla-Pujana J (2022) Protecting global marine animal forests. *Science* VOL 376 ISSUE 6596 929 DOI 10.1126/science.abq7583

Orejas C, Carreiro-Silva M, Mohn C, Reimer JD, Samaai T, Allcock AL, **Rossi S** (2022) Marine Animal Forests of the World: Definition and Characteristics. *RIO* 8: e96274

L. Closing the trophic circle of suspension feeders: photobiology

I had a challenge. I got an extensive experience in the heterotrophic inputs of benthic suspension feeders but, what about the mixotrophic organisms? Which are the cues to understand the future seascape from the photobiological point of view? Most of the photobiological approaches and the analysis of the predicted global changes impact on species fitness in coral reefs have been done on hexacorals. **Octocorals, in this complex panorama, have been largely neglected.** It was therefore urgent to incorporate octocorals to the powerful photobiological approach, and to expand this approach to the entire life-history, as most experiments are short term and focus on a single life-history stage, ignoring processes such as acclimation, selection and carry-over between successive and different life-history stages. It was thus necessary to draw conclusions or predictions on the near-future consequences for coral reefs, incorporating the possible impact of the global and local threats on octocorals, besides the information already achieved and continuously generated for hexacorals. I chose Mexico (Puerto Morelos, Cancun) to make the learning of the different methods to be successful in my approach through a Marie Curie International Outgoing Fellowship action in the Universidad nacional Autónoma de México.

During my two years stage, I could learn the methods and make significant contributions to the field. I first characterized and compared the photophysiological features of nine Caribbean octocoral species with different colony morphologies (sea fan, plumes, whips and rods) and related key morphological features with their respective symbiont photobiology. Colony features (branch shape and thickness), as well as micromorphological features (polyp size, density), were found to be significantly

correlated with symbiont performance (Rossi et al. 2018). This information represented an important step towards a better understanding of octocoral physiology and its relationship to host morphology, and might also explain to some extent species distribution and susceptibility to environmental stress. I understood the importance of different macro, meso and micro parameters of the colonies to understand the photosynthetic performance. Secondly, I made, for the first time, a direct seasonal comparison of heterotrophic and autotrophic inputs in two different Caribbean gorgonians (Rossi et al 2020). A basic knowledge about the trophic ecology of these organisms and their seasonal and species-specific variability is still scarce, though this might play a key role in determining their importance in benthic–pelagic coupling processes and, consequently, their role in carbon cycles. The seasonal patterns differed

Memorial SERGIO ROSSI

between species, a feature that is most likely related to the different reproduction periods of the octocorals, their morphology and the patch density. Altogether, the information gathered served for a better understanding of the trophic ecology of mixotrophic octocorals and the seasonal variability of the nutritional modes that will define their potential impact in the carbon cycle and benthic–pelagic coupling processes of coral reefs.

During the data processing, we were able to make a first approach in which we analyzed the symbiotic and aposymbiotic nature of octocorals all over the world (Schubert et al. 2017). We learned that in symbiotic species, the energetic contribution from *Symbiodinium* to the host might increase their resistance and/or recovery from stressful conditions, but the presence of these algal endosymbionts also limits octocoral distribution to the photic zone, where light is available. During the past few decades, octocorals have gained dominance in some tropical areas where scleractinian corals have declined due to climate change and local perturbations, increasing the need for research related to this understudied group. The study of their photobiology was thus an essential step for my strategy of understanding how trophic ecology will affect dominant of certain species all over the planet.

I continued applying such photobiological tools to understand the trophic ecology of benthic suspension feeders. My last work with an invasive medusa (*Cassiopea andromeda*, also present in Barzil, see below) (Mammone et al. 2021) suggested that the photosynthetic plasticity, combined with *Cassiopea* eurythermal tolerance and mixotrophic behavior, will be a potentially successful invader in the scenario of a warming Mediterranean Sea. I close the circle, having a complete toolkit to understand energetic inputs (heterotrophy and autotrophy) and outputs (respiration, reproduction, growth, metabolism) of benthic suspension feeders: an essential knowhow to reach two targets, understanding how the future seascape of MAF will be performed and how we can manage the situation to make an adequate restoration plan with these organisms.

CITE: Rossi S, Schubert N, Brown D, Soares M, Grosso V, Rangel-Huerta E, Maldonado E (2018) Linking host morphology and symbiont performance in octocorals. *Scientific Reports* DOI:10.1038/s41598-018-31262-3

Rossi S, Schubert N, Soares M, Brown D, Gómez-Posada A (2020) Trophic ecology of two Caribbean octocorals: autotrophic and heterotrophic seasonal trends. *Coral Reefs* 39: 433–449

Schubert N, Brown D, **Rossi S** (2017) Symbiotic versus asymbiotic octocorals: physiological and ecological implications. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany. Pp 887-918

Mammone M, Ferrier-Pagés C, Lavorano S, Rizzo L, Piraino S, **Rossi S** (2021). High photosynthetic plasticity may reinforce invasiveness of upside-down zooxanthellate jellyfish in Mediterranean coastal waters. *Plos One* 16(3): e0248814

M. MAF Blue Carbon, restoration and the future of the oceans

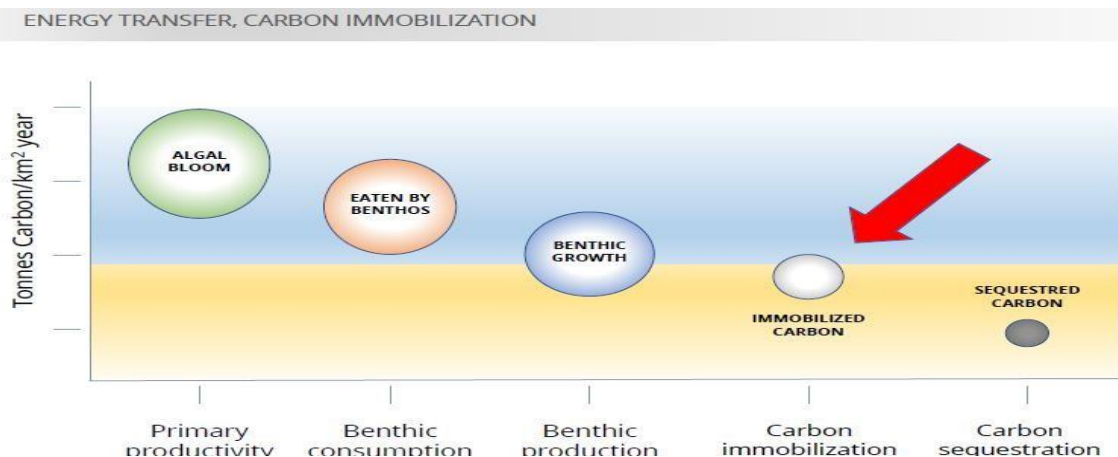
In 2004-2005 the idea of the MAFs as carbon immobilizers came to my mind after the first advised PhD (Georgios Tsounis) and a ROV cruise coordinated by myself in the NE Spain. After this PhD advisement, I started to think how to reach the target of quantifying MAF Blue Carbon contribution. As previously mentioned, I started the coordination of two different PhD thesis, [Andrea Gori](#) and [Martina Coppari](#), in which I could consolidate

Memorial SERGIO ROSSI

the concept of MAF and the role of benthic suspension feeders as carbon immobilizers. Part of this carbon will be immobilized but, how make a large- scale model to have the whole picture? I understood that we needed to go in depth with the water column available food for benthic suspension feeders to understand how much carbon will be captured by heterotrophic and mixotrophic suspension feeders and how this carbon will be transformed in different outputs, a work that I previously made with several species (see above). Many colleagues were more and more interested in this MAF approach, the concept and the methods used to understand the trophic ecology, distribution, carbon immobilization and biodiversity related to these ecosystem engineering species: the network drastically increased and the concept was embraced and published in many papers out of my group (you can see literature all over the world citing the concept).

Three different interconnected targets are now pursued worldwide: 1) Calculate, for the first time ever, the Blue Carbon contribution of the MAFs all over the world; 2) Modelling how the future seascape in which MAFs are dominant will be shaped by climate change impacts on productivity and carbon immobilization; 3) Optimize shallow and deep restoration plans of the MAF with new technologies, enhancing the role as carbon immobilizers and creating a protocol to help the climate change mitigation with a world-wide application (Rossi and Rizzo 2020).

The successful approach allowed me to make the quantitative question: how much carbon is immobilized by MAFs worldwide (Coppari et al. 2019)? And how will the seascape based on MAFs all over the world change due to the transformation of energy flow (i.e. changes in thermal conditions or in water column productivity that affects autotrophy and heterotrophy) (Rossi and Rizzo 2020)? In the period 2017-2020 I understood that I had all the tools, I explored all the ways to achieve such target (Bracho-Villavicencio et al Submitted a,b), but there was still one question to address: how can we fix it? How can we make a real restoration program to enhance the ecosystem engineering role of these organisms? I started my collaboration with Prof. Baruch Rinkevich (one of the most prominent experts in MAF restoration all over the world,

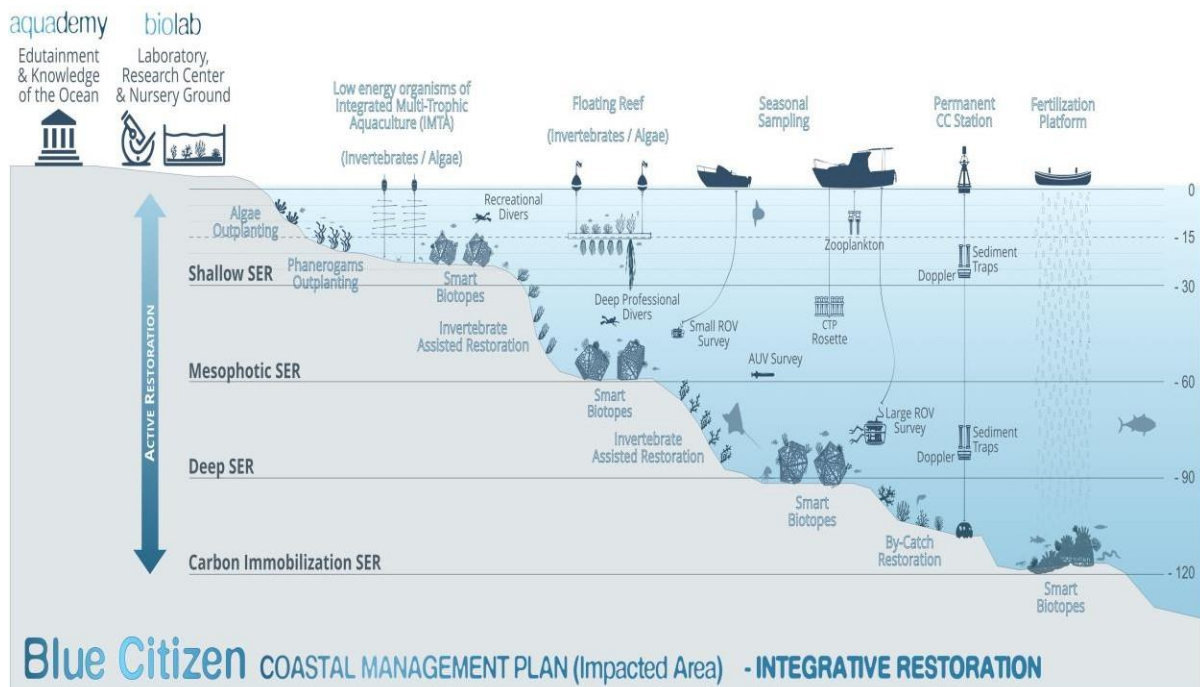


MAFs will benefit from a stimulus of organic matter production. Increasing the primary productivity or the detritus will speed up the carbon immobilization by suspension feeding organisms in the continental shelf

Arias-González et al. 2022) and the private enterprise [Underwater Gardens International](#) (UGI, a visionary company that mix last methods on restoration with citizen engagement

Memorial SERGIO ROSSI

and awareness) to offer a solution of carbon immobilization and biodiversity regeneration through active restoration. I'm the scientific director of the UGI company, being a new door for mixing academia know-how with the needs of a modern society, in which the citizens need applied solutions to tackle global change impacts.



This articulated marine restoration plan uses the knowhow that we learned during the last 30 years and a new approach in which the citizen is the focus of the action and the key factor of the business plan. From shallow (15-30 m) to deeper areas (60-120 m), methods are applied to restore the coastal zone considering the environmental and habitat features.

The new concepts about carbon stock, future perspectives, and restoration of the ocean MAFs are ready to be used, and I'm now coordinating an Horizon Europe project to prove it (OCEAN CITIZEN). This combination of different disciplines brought me to have the ideas that combine very different approaches in a single experience. Is the case of the deep restoration in which we will stimulate the seston capture rates of different species, making the carbon immobilization faster and potentially providing a natural tool to mitigate climate change (Rossi and Rizzo 2020, Giangrande et al.2021). This has been possible not only because I developed a theoretical framework (Mallo et al. 2019, Zelli et al. 2020), but also because I leaded many cruise and coastal campaigns in different parts of the world (Chile, Antarctica, Mediterranean, Brazil, Mexico, etc.), gathering the needed knowhow about multiple areas of the planet. Is time to have a much more precise and holistic view of what is in the ocean's floors in terms of habitat

composition, complexity and biomass stocks, but is also time to give a chance to the oceans in helping in the climate change mitigation plans applying brave new restoration and conservation approaches that may change our vision of the seas. I could make a specific paper in which I calculated for the first the minimum quantity of carbon sequestered in a particular subtropical area when this gardening concept is applied in shallow area (Tenerife, Rossi 2022).

Coppari M, Zanella C, **Rossi S** (2019) The importance of gorgonians in the blue carbon budget. *Scientific Reports* doi.org/10.1038/s41598-019-49797-4

Arias-Gonzalez JE, Baums IB, Banaszak AT, Prada C, **Rossi S**, Hernandez-Delgado EA, Rinkevich B (2022) Editorial: Coral Reef Restoration in a Changing World: Science-Based Solutions. *Frontiers in Marine Science* 9:919603. doi: 10.3389/fmars.2022.919603

Rossi S, Rizzo L (2020) Marine animal forests as C immobilizers or why we should preserve these three-dimensional alive structures. In: Perspectives on the marine animal forests of the world, Sergio Rossi and Lorenzo Bramanti (Ed.). Springer-Nature. Pp: 333-399, doi.org/10.1007/978-3-030-57054-5_12

Bracho-Villavicencio C, Mathew-Cascon H, **Rossi S** (submitted a) Artificial reefs around the world: A review of the state of their art and meta-analysis of their effectiveness in restoring marine ecosystems. *Restoration Ecology*

Bracho-Villavicencio C, Marques EV, Nobre LRF, Silveira RM, Vasconcelos V, Soares M, **Rossi S**, Matthews-Cascon H (submitted) Recifes Artificiais: Perspectivas contrastantes no Atlântico Sudoeste. *Archivos do Ciências do Mar*

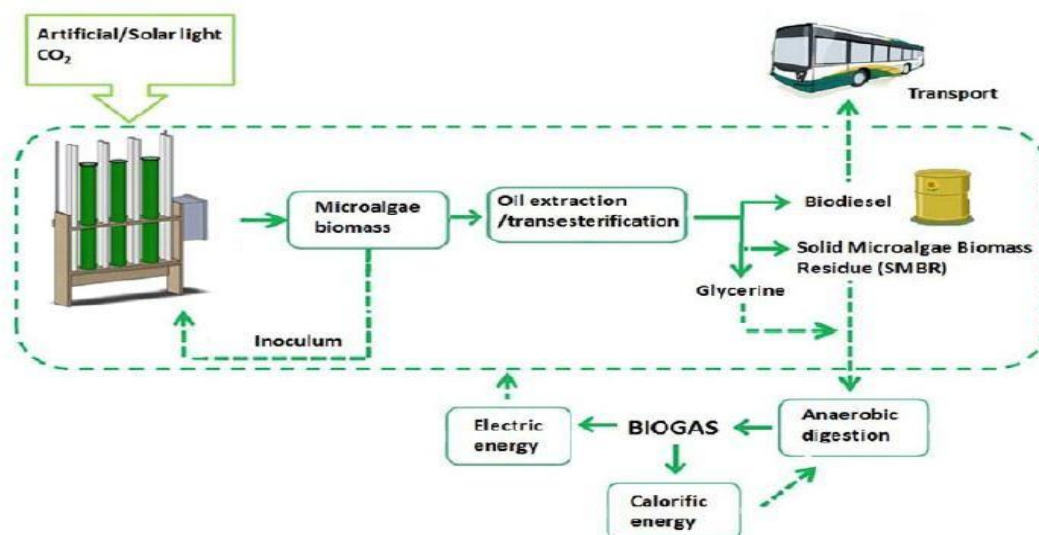
Giangrande A, Gravina DF, **Rossi S**, Longo C, Pierri D (2021) Aquaculture and restoration: perspectives from the Mediterranean Sea experiences. *Water* 13, 991. doi.org/10.3390/w13070991

Mallo M, Patrizia P, Reyes P, **Rossi S** (2019) Historical record of *Corallium rubrum* and its changing carbon sequestration capacity: a meta-analysis from the North Western Mediterranean. *Plos One* doi.org/10.1371/journal.pone.0223802

Zelli E, Quere G, Lago N, Di Franco G, Costantini F, **Rossi S**, Bramanti L (2020) Settlement response of Mediterranean gorgonians larvae to different Crustose Coralline Algae species. *Journal of Experimental Marine Biology and Ecology* doi.org/10.1016/j.jembe.2020.151427

Rossi S (2022) How carbon immobilization from restored marine forests may help climate change mitigation plans? *Archivos do Ciências do Mar* 55 (Especial Labomar 60 anos): 202 - 218

N. Third generation biofuels: a peculiar adventure with a final target



We must think “out of the box” if we want to be successful in our future energy management. Several studies shown that there are possibilities in the application of marine microalgae as an alternative for biofuel production. The production of oil or gas from microalgae is far from entirely replacing global energy needs, but it can guarantee self-sufficiency, especially in remote areas or in small villages where there will be more difficulties to provide fossil fuels in the near future (Merlo et al. 2021). Coastal tropical and subtropical areas are the most valuable for producing oil from marine microalgae. The first step is understand how to select the adequate microalgae (Fuentes-Grünwald et al. 2009), improve the lipid productivity (Fuentes-Grünwald et al. 2011) and optimize its production in outdoor conditions (Fuentes-Grünwald et al. 2012). Once you have all this information, you have to quantify the Life Cycle Assessment (LCA) to understand the flaws of your biofuel cultures (Sevigné-Itoiz et al. 2012), which makes you understand the next step to complement biodiesel with biogas production (Santos-Ballardo et al. 2015a). This complement may be essential to make a profitable culture. We also tested different materials (plastic bags vs methacrylate, Santos-Ballardo et al. 2016a) and rapid and effective tests to know when you have to harvest (Santos-Ballardo et al. 2015b). In the overall, I could have a clear picture of the real possibilities of marine microalgae biofuels as an energy alternative (Santos-Ballardo et al. 2016b,c; Merlo et al. 2021).

To me, the target was much more ambitious than optimizing a microalgae monoculture. My knowledge on benthic suspension feeders and this applied alternative energy tools brought me to the conclusion that we can mix both approaches to help in the tropical coral reef collapse with assisted evolution protocols. We have to mix models and needs. In this context, the evolution in the laboratory of cultured *Symbiodinium* (the main dinoflagellate responsible for the photosynthetic transfer of organic matter to the coral) under high temperature and pCO₂ selection, followed by inoculation in coral hosts with evolved algal cultures may work (Merlo et al. 2021). The *Symbiodinium* (microalgae) biomass required for inoculation in corals may come from outdoor bioreactors that will continuously produce biofuel under optimized conditions. A slight change in N or temperature conditions can increase the productivity of an already lipidic microalgae (approximately 38% of dry mass). These marine microalgal cultivations can bring a huge amount of biofuel, that can be used to satisfy both, the large-scale reintroduction of microalgae to bleached *scleractinians* with selected microalgae adapted to high temperatures and local biodiesel needs. This ongoing idea may be another key to help MAFs to survive in a rapid changing world.

CITE: Fuentes-Grünwald C, Garcés E, **Rossi S**, Camp J (2009) Use of the dinoflagellate *Karlodinium veneficum* as a sustainable source of biodiesel production. *Journal of Industrial Microbiology and Biotechnology* 36:1215-1224

Fuentes-Grünwald C, Garcés E, Alacid E, Sampedro N, **Rossi S**, Camp J (2011) Improvement of lipid production in the marine strains *Alexandrium minutum* and *Heterosigma akashiwo* by utilizing abiotic parameters. *Journal of Industrial Microbiology and Biotechnology* 39: 207-216

Fuentes-Grünwald C, Alacid E, Garcés E, **Rossi S**, Camp J (2012) Biomass and lipid production of dinoflagellates and raphidophytes in indoor and outdoor photobioreactors. *Marine Biotechnology* 15: 37-47

Sevigné-Itoiz E, Fuentes-Grünwald C, Gasol CM, Garcés E, Alacid E, **Rossi S**, Rieradevall J (2012) Energetic balance and environmental impact analysis of microalgal production for biodiesel generation in a photobioreactor pilot plant. *Biomass and Bioenergy* 39: 324-335

Memorial SERGIO ROSSI

Santos-Ballardo DU, Font X, Sánchez A, Barrena R, **Rossi S**, Valdez-Ortiz A (2015a) Valorization of biodiesel production wastes: Anaerobic digestion of residual *Tetraselmis suecica* biomass and co-digestion with glycerol. *Waste Management and Research* 33: 250-257

Santos-Ballardo DU, Rendón-Unceta MC, **Rossi S**, Vázquez-Gómez R, Reyes-Moreno C, Valdez-Ortiz A (2016a) Effects of outdoor cultures on the growth and lipid production of *Phaeodactylum tricornutum* using closed photobioreactors. *World Journal of Microbiology and Biotechnology* 32:128 doi:10.1007/s11274-016-2089-1

Santos-Ballardo DU, **Rossi S**, Hernández V, Vázquez-Gómez R, Rendón-Unceta MC, Caro-Corrales J, Valdez-Ortiz A (2015b) A simple spectrophotometric method for biomass measurement of important microalgae species in aquaculture. *Aquaculture* 448: 87-92

Santos-Ballardo DU, **Rossi S**, Reyes-Moreno C, Milán-Carrillo J, Valdez-Ortiz A (2016b) Microalgae potential as a biogas source: current status, restraints and future trends. *Reviews in Environmental Science and Bio/Technology* 15: 243-264

Santos-Ballardo DU, **Rossi S**, Valdez-Ortiz A (2016c) Energía verde a partir de microalgas: Biogás como estrategia para una biorefinería sustentable. Editorial Académica Española, 173 pp. ISBN: 978-3-659-70090-3

Merlo S, Gabarrell X, Pedroso A, **Rossi S** (2021) Marine microalgae contribution to sustainable development. *Water* doi.org/10.3390/w13101373

O. Brazil, ecosystem services and mangroves

In October 2012 I made my first trip to Brazil as Visiting Researcher. I got a grant from the Universitat Autònoma de Barcelona to develop an ecosystem services program in the mangrove ecosystem with the Departamento de Geografia of the Universidade Federal do Ceará (Prof. Jeovah Meireles). Together, we coordinated the PhD of Luciana Queiroz. Again, I needed to understand how one of the more temperate habitats of the Earth (mangroves) worked, and, there is something better than a visit? I was amazed as well as concerned. I understood that there was a huge problem and a big chance to help in ameliorating the situation for the local people working in new concepts about the mangrove ecosystem.

We started with a long-time series approach through satellite image (Queiroz et al 2013a) in which we proposed an integral model of management for the appropriate use of mangroves in Brazil and other systems with analogous problems. The vertiginous growth of the shrimp industry has been accompanied by a profound transformation of natural resources, causing the degradation of the mangrove ecosystem. The local populations were impacted by such aquaculture expansion, as well as by other factors like the wind farms near the shoreline (Queiroz et al. 2013b). Make a proper evaluation of the ecosystem services out of the ecological and economic ones was a priority. In Queiroz et al. (2017) we gave tools to mangrove conservation management and policy, exploring the sociocultural valuation of the ecosystem services of mangroves through a case study in Ceará, an area highly impacted by shrimp aquaculture. We quantitatively demonstrated that local people have a symbolic relationship with the mangrove forest, which goes beyond the material approach normally used to evaluate ecosystem services. Such findings suggest that the socio-cultural dimension of mangrove services needs to be considered by policy-makers as an indispensable criterion for confronting the key challenges in coastal ecosystems conservation.

Another point had to be clarified: which is the economic role of the fishermen and harvesters in local populations? Nobody properly quantifies the incomes of these local people (Queiroz et al. 2020). The importance of food security and sovereignty is frequently mentioned in the context of small-scale fishing but has seldom been articulated as an explicit objective. The work identified a knowledge gap concerning the profits generated by artisanal exploitation, which are not recorded in official statistics. We concluded that the artisanal fishing carried out by coastal communities is not only economically viable but competes directly with industrial monocultures in terms of monetary income and workers' leisure time. All this information, together with previous literature, gave us the opportunity to participate in a monographic Springer- Nature book about mangroves in Brazil (Queiroz et al. 2022) in which we focused on the economic, cultural, and social structures of the coastal towns and villages of the intertropical zone of northern and north Eastern Brazil. The importance to understand ecosystem services beyond the economy is highlighted in the chapter, as well as the importance to properly quantify the role of the local people activities such as harvesting, fishing, etc. The chapter emphasizes the incompatibility of industrial exploitation (e.g. aquaculture or intensive crop cultivation) and the health status and functioning of this ecosystem, essential to preserve and regulate ecological and socio- cultural processes promoting the quality of life of fishing communities in northeastern Brazil. All this work has been made thanks to the collaboration of 13 Spanish students that came from the Universitat Autònoma de Barcelona between the years 2010 and 2014 (see the advised student's Graduation reports listed below).

This different vision of my own work was essential to shift from the more theoretical to the more practical application of my scientific profile. In fact, we used these socio-economic tools to explore other possibilities, like the projection in a near future of climate change in the Mediterranean Sea and how people perceives such changes (Rodrigues et al. 2015; Mallo-Costa et al. in press). This was the first non-market valuation study of a typical Mediterranean habitat, the Coralligenous, which is characterized by high biodiversity, geomorphologic complexity and iconic species like gorgonians. Choice probabilities for the selection of different dive experiences indicate the highest rejection rates for the combined sea warming and acidification scenarios: the people was willing to pay to preserve the habitat. In general, such approach is timeless, as the perception



Memorial SERGIO ROSSI

of the people about the changes that we are witnessing help in the conservation and management plans (Mallo-Costa et al submitted a,b). The perception of the local people is so important that can be an essential tool to make underwater mapping, contrasting its descriptions of different potential habitats with ROV images and geomorphological approaches (Pinheiro et al. 2023).

CITE: Queiroz L, **Rossi S**, Meireles J, Coelho J (2013a) Shrimp aquaculture in the state of Ceará during the period 1970-2012: Trends of the privatization of mangrove forest in Brazil. *Ocean and Coastal Management* 73: 54-62

Queiroz L, Meireles J, **Rossi S** (2013b) Serviços ecossistêmicos costeiros e comunidades tradicionais. *Revista da ANPEGE* 8(10): 153-167

Queiroz L, **Rossi S**, Calvet-Mir L, Ruiz-Mallén I, Betroz S, Prat J, Meireles AJA (2017) Neglected ecosystem services: highlighting the socio-cultural perception of mangroves in decision-making processes. *Ecosystem services* 26: 137-145

Queiroz L, **Rossi S**, Mercader AT, Serra-Pompei C, Vide-Pifarré D, Carrasco-Domínguez J, Monrabà J, Carol MJ, Burriel MC, Briansó-Martínez M, Meireles AJA (2020) The economic and social framework of artisanal fishing in the state of Ceará, Brazil. *GeoSaberes* 11: 180-198

Queiroz L, **Rossi S**, Meireles AJA (2022) Socio-cultural valuation of mangroves: subsidies for public policies towards the conservation of Brazilian coastal wetlands. In: *Brazilian Mangroves and Salt Marshes*; Vol. 8. Springer-Nature. ISBN 978-3-031-13485-2

Rodrigues L, van den Berg J, Loureiro M, Nunes P, **Rossi S** (2015) The Cost of Mediterranean Sea Warming and Acidification: A Choice Experiment among Scuba Divers at Medes Islands, Spain. *Environmental and Resource Economics* 63: 289-311

Mallo-Costa M, Ziveri P, **Rossi S**, Reyes-García V (2022) Local and tourist perceptions of coastal marine habitats in Cap de Creus (NE Spain). *Regional Environmental Change* 22:73 doi.org/10.1007/s10113-022-01924-00

Mallo-Costa M, Ziveri P, **Rossi S**, Reyes-García V (submitted) Coastal marine habitats deteriorate in Cap de Creus Marine Protected Area (NE Spain) as perceived by their users. *Regional Environmental Change*

Mallo-Costa M, Reyes-García V, Ziveri P, **Rossi S** (submitted) Temporal shifts of *Posidonia oceanica* and *Corallium rubrum* in Cap de Creus (NE Spain): an assessment by recreational scuba divers. *Frontiers in Marine Science*

Pinheiro L, Ximenes-Neto AR, Bezerra-Filho FA, Pinto C, Pinheiro LS, Pessoa P, Lima-Filho R, Silva R, Morais J, Gorayeb, A, Bramanti L, **Rossi, S** (2023) Seascape ethnomapping on the Inner continental shelf of the Brazilian Semiarid Coast. *Water* 15, 798. <https://doi.org/10.3390/w15040798>

P. The marginal reefs of Ceará

In 2012, in my visit to the Departamento de Geografia of the UFC, I had the opportunity to make a seminar in Labomar. Once finished, a very young professor, Marcelo Soares, came and showed me some preliminary results of his own research. Since then, we have had a very profitable roadmap. In 2015, prof. Soares came as Post Doc with me in the ICTA-UAB (Spain), and I started to “dive” in the new ecosystem framework. I was interested to understand the marginal reefs and the different species distribution, processes and threats of this area, in shallow but also in deeper (mesophotic) zones.

The first developed work was in the intertidal zone (Brizon-Portugal et al. 2016). We analyzed multiple anthropogenic pressures were integrated using the relative environmental pressure index (REPI) and related to benthic community structure across an intertidal gradient in five sandstone reefs in the coast of Ceara. This work was essential (together with other observations and reports) for the enforcement of the Coast

laws respect the human use of beaches in this area. Concurrently, we worked in one of the first papers describing the sandstone tropical reefs (Soares et al. 2016) or the role of droughts on copepod distribution, abundance and biodiversity in coastal mangrove environments (Campos et al 2022). The results provided a baseline assessment for a poorly known ecosystem with turbid-water benthic communities and higher sea-surface temperatures near the Earth's equator, being a pillar for future works and projects about marginal reefs in Brazil.

Understanding a new set of ecosystems means also understand its potential threats or ecosystem processes (Soares et al. 2018; Garcia et al. 2021; Soares et al. 2020a; Sissini et al. 2020; Horta et al. 2023). The participation in these two last Science notes was crucial for me, as I consolidated my collaboration with the Labomar-UFC groups as well as reinforce other collaborations with Brazilian research teams like the Prof. Paulo Horta (UFSC). In the second book of the Marine Animal Forest I was invited to participate in one of the Chapter books (Soares et al 2020b), where we described the marginal reefs ecosystem with a critical point of view respect the actual literature. We argue that the resistance and refugia potential of MRs will be lower than expected because they are under severe anthropogenic pressure and are ecologically distinct ecosystems from the shallow- water coral reefs under optimal conditions. We also described the huge coral assemblage that goes from the northern to the southern part of Brazil, being comparable in length to the Belize tropical reef barrier (Carneiro et al. 2022).

Working together, we could make three more manuscripts that were essential to tighten the professional relationship of our research teams. The first talked about conservation and the Mesophotic Coral Ecosystems (MEC, Soares et al. 2020c), a vision that both we have from our experience in different areas of the world. The unique biodiversity of MCEs includes depth-adapted specialist species and new species, most of which are threatened or important fishery resources. MCEs also provide refuge against human stressors, valuable ecosystem services, and ecological connectivity. We argued that establishing MCEs as a global conservation priority requires the designation of national, international, transnational, public, and private policies. Concurrently, in the second paper (Soares et al. 2021a), we also highlighted threats and the way to make a proper conservation of the marginal reefs. Local and regional (e.g., pollution and fisheries) and large-scale pressures (e.g., global warming and marine heatwaves) act simultaneously on the health of these reefs, which intensifies negative species-specific impacts. Also specific climatic factors such as winds of rain may be essential to understand impacts such as the bleaching phenomenon in these marginal reefs (Costa-Lucas et al 2023, Costa-Lucas in press). We outlined the occurrence of pressures that have been important factors responsible for the reduction in species richness and reef fish biomass, changing geo-ecological functions, altered reef composition and dominant morpho-functional groups, as well as phase shifts. In this paper, we argued that it is essential to alleviate the main local and regional human impacts and to adopt resilient-based management strategies at local and global scales to protect the low- functional redundancy and higher endemism of these unique marginal coral reefs. Both papers were angular stones to present the PELD project that prof. Soares leads. In this project (see below), the Università del Salento and Universidade Federal do Ceará act together to make a long-term monitoring program, explained in the third paper (Soares et al

2021b).

We are now also working together with the invasive jellyfish species *Cassiopea andromeda* (Thè et al. 2020, 2021, submitted), understanding the distribution, natural cycle and trophic ecology using combined tools from the two research groups. We investigated if *Cassiopea andromeda* grows larger (umbrella size) and if their populations are more stable in shrimp farms. The population is stable during both seasons in the shrimp farm, but unstable in the mangroves, as jellyfish are absent during rainy season: environments such as aquaculture facilities may facilitate the invasion process. All this work in progress will expand during the next years with already ongoing projects and future proposals we are now preparing or are in process of submission.

CITE: Brizon-Portugal A, Lopes-Carvalho F, Carneiro P, **Rossi S**, Oliveira-Soares M (2016) Increased anthropogenic environmental pressure decreases species richness in tropical intertidal sandstone reefs. *Marine Environmental Research* 120: 44-54

Soares M, **Rossi S**, Santos Martins FA, Macêdo Carneiro PB (2016) The forgotten reefs: Benthic assemblage coverage on a sandstone tropical reef (South-western Atlantic). *Journal of the Marine Biological Association of the United Kingdom* 97: 1585-1592

Campos CC, Barroso HS, Belmonte G, **Rossi S**, Soares MO, Garcia TM (2022) Copepod assemblages at the base of mangrove food webs during a severe drought. *Water* 14:3648

Soares M, Coelho Campos C, Oliveira Santos NM, Sousa Barroso H, Targino Mota EM, Becerra de Menezes MO, **Rossi S**, Martins Garcia T (2018) Marine bioinvasions: differences in tropical plankton communities between inside and outside a port. *Journal of Sea Research* 134: 42-48

Garcia T, Campos C, Costa GAS, Santos NMO, Belmonte G, **Rossi S**, Soares MO (2021) Plankton net mesh size influences the resultant diversity and abundance estimates in tropical oligotrophic ecosystems. *Estuarine, Coastal and Shelf Science* doi.org/10.1016/j.ecss.2020.107083

Soares M, Teixeira CEP, Bezerra LEA, **Rossi S**, Tavares T, Cavalcante RM (2020) Oil spill response: Government coordination. *Science* 367 (6474): 155

Sissini MN, Berchez F, Hall-Spencer J, Ghilardi-Lopes N, Carvalho VF, Schubert N, Koerich G, Diaz-Pulido G, Silva J, Serrão E, Assis J, Santos R, Floeter SR, Rörig L, Barufi JB, Bernardino AF, Francini-Filho R, Turra A, Hofmann LC, Aguirre J, Le Gall L, Peña V, Nash MC, **Rossi S**, Soares M, Pereira-Filho G, Tâmega F, Horta PA (2020) Brazilian Rhodolith Beds – world heritage under threat. *Science* 367 (6474): 156

Soares M, Cruz ICS, Santos A, Lopez-Tavares TC, Menezes N, Diniz-Lopes B, Thé J, Gurgel AL, **Rossi S** (2020b) Marginal reefs in the Anthropocene: they are not Noah's Ark In: Perspectives on the marine animal forests of the world, Sergio Rossi and Lorenzo Bramanti (Ed.). Springer-Nature. doi.org/10.1007/978-3-030-57054-5_4

Carneiro PBM, Ximenes-Neto A, Jucá-Queiroz B, Teixeira CEP, Feitosa CV, Barroso CX, Faria VV, Matthews-Cascon H, Morais JO, Freitas JEP, Santander-Neto J, Thé JA, Monteiro LHU, Pinheiro LS, Braga MDA, Cordeiro RTS, **Rossi S**, Bejarano S, Salani S, Garcia TM, Lotufo TMC, Smith TB, Faria VV, Soares MO (2022) One vast South American reef system: connecting the Eastern Brazilian and the Amazon reefs. *Scientific Reports* 12:17359

Soares M, Thé de Araujo J, Cavalcante-Ferreira SM, Almeida-Santos B, Boavida J, Costantini F, **Rossi S** (2020c) Why do mesophotic coral ecosystems have to be protected?. *Science of the Total Environment* doi.org/10.1016/j.scitotenv.2020.138456

Soares M, **Rossi S**, Rebouças-Gurgel ALA, Costa-Lucas C, Lopes-Tavares TC, Feitosa CV, Pereira PHC, Papa de Kikuchi RK, Leão ZML, Silva-Cruz IG, Alvarez-Filip L (2021a) Marginal reefs under pressure (South Atlantic, Brazil). *Ocean and Coastal Management* doi.org/10.1016/j.ocecoaman.2021.105692

Lucas CC, Teixeira CEP, Braga MDA, Júnior FC, Paiva SV, Gurgel AL, **Rossi S**, Soares MO (2023). Heatwaves and a decrease in turbidity drive coral bleaching in Atlantic marginal equatorial reefs. *Frontiers in Marine Science* 10:1061488. doi: 10.3389/fmars.2023.1061488

Memorial SERGIO ROSSI

Lucas CC, Lima IC, Garcia TM, Tavares TC, Macedo PBC, Teixeira CEP, Bejarano S, **Rossi S**, Soares MO (in press) Turbidity buffers coral bleaching under extreme wind and rainfall conditions. *Marine Environmental Research*

Soares MO, Campos CC, Carneiro PBM, Barroso HS, Marins RV, Teixeira CEP, Menezes MOB, Pinheiro LS, Viana MB, Feitosa CV, Botero J, Bezerra LEA, Rocha-Barreira C, Matthews-Cascon H, Matos F, Gorayeb A, Cavalcante M, Moro MF, **Rossi S**, Belmonte G, Melo VMM, Rosado AS, Ramires G, Tavares TCL, Garcia TM (2021b) The Brazilian semi-arid coast in times of global environmental changes. *Perspectives in Ecology & Conservation* doi.org/10.1016/j.pecon.2021.06.001

Thé J, Barroso HS, Mammone M, Viana M, Melo CSV, Batista CS Melo, Mies M, Banha T, Morandini AC, **Rossi S**, Soares MO (2020) Aquaculture facilities promote populational stability throughout seasons and increase medusae size for the invasive jellyfish *Cassiopea andromeda*. *Marine Environmental Research* <https://doi.org/10.1016/j.marenvres.2020.10516>

Thé J, Gamero-Mora E, Chagas da Silva MV, Morandini AC, **Rossi S**, Soares M (2021) Non-indigenous upside-down jellyfish *Cassiopea andromeda* in shrimp farms (Brazil). *Aquaculture*. [10.1016/j.aquaculture.2020.735999](https://doi.org/10.1016/j.aquaculture.2020.735999)

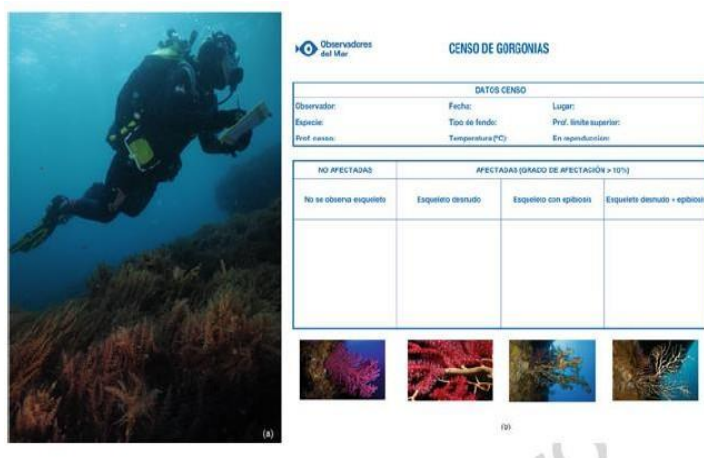
Thé J, Mammone M, Piraino S, Benedetto G, Pennetta A, Garcia TM, Mies M, Soares M, **Rossi S** (submitted). *Cassiopea andromeda* (Cnidaria; Scyphozoa): biomarkers to understand its trophic status and metabolic performance in two contrasted habitats. *Water*

Horta PA, Sissini M, Mueller CM, Soares FMM, Pagliosa P, Rörig L, Bonomi-Barufi J, Berchez F, Cunha LC, Kerr R, **Rossi S**, Soares M; Rodrigues-Filho JL, Pinheiro HT, Henning L; Espindola MA, Oliveira NF, Fonseca AL (2023) Brazil fosters fossil fuel exploitation despite climate crises and the environmental vulnerabilities. *Marine Policy* 148: 105423 <https://doi.org/10.1016/j.marpol.2022.105423>

Q. Citizen Science, dissemination and education

Last, but not least, is my role in the science of environmental education and dissemination of science. As you will see below, my obsession with scientific outreach brought many products such as books, papers, seminars, round tables, blog writing or participation in TV and Radio programs. However, I was also interested in the “formal” part of this important aspect, long time neglected by the scientific research groups.

My first approach with citizen science was with the precious coral *Corallium rubrum*. We used a simple approach to locate the cnidarian in the Italian coast that can be easily extrapolated to other organisms (Bramanti et al. 2011). The observation of the species and its health status was crucial for conservation purposes. I could also participate in a cold-water coral monographic book (Springer-Nature) talking about the role of citizen science and education to ease the conservation message and tasks (Rossi and Orejas 2019).



However, one of my milestones came from the PhD advisement of Juanita Zorrilla- Pujana. She worked in environmental education and how to transit properly the message of conservation and management to optimize the processes involved in such tasks. I was especially interested in such processes, as the lack of communication and dissemination of the scientific

results may result in a weak management and conservation program in Marine Protected Areas (Zorrilla-Pujana and Rossi 2014). Environmental Education (EE) visibility and action plans are still poorly developed and structured as a clear element in management procedures.

The creation of the route is proposed as a participatory research with different stakeholders in order to respond to the specific conservation needs and goals for a National Parks System. This step will help us to advance toward sustainable management in marine and coastal protected areas elsewhere, taking into account not only the biological but also the social-cultural prism. Going further, we understood that a new perspective for the management effectiveness of protected areas needs the inclusion of social data for decision-making processes (Zorrilla-Pujana and Rossi 2016). We developed, from an institutional bottom-up perspective, a proposal for a set of EE indicators that is easy to use by practitioners to measure the response of the EE program in relation to the conservation objectives of protected areas management plans. We expected that this new approach for EE evaluation will hopefully be adopted in the update of management plans, as an innovative tool that contributes to the effectiveness assessment of protected areas, integrating a more social and participative focus.

CITE: Bramanti L, Vielmini I, **Rossi S**, Stolfa S, Santangelo G (2011) Approaching recreational scuba divers to emblematic species conservation: the case of red coral (*Corallium rubrum*). *Journal for Nature Conservation* 19: 312-318

Rossi S, Orejas C (2019) Approaching CWC to the society: novel ways to transfer knowledge. C. In: Orejas, C. Jiménez (eds.), *Mediterranean Cold-Water Corals: Past, Present and Future*, Coral Reefs of the World 9. Springer-Nature, Germany. doi.org/10.1007/978-3-319-91608-8_39

Zorrilla-Pujana J, **Rossi S** (2014) Integrating environmental education in marine protected areas management in Colombia. *Ocean and Coastal Management* 93: 67-75

Zorrilla-Pujana J, **Rossi S** (2016) Environmental Education indicators system for protected areas management. *Ecological Indicators* 67: 146-155

R. Who I am?

This has been a resume of my professional trajectory, based on my publications. My present lines of research related with **Marine Biodiversity** and **Global Change** can be synthesized as: 1) Studying the role of **environmental and biological factors** of the water column on the distribution, nutritional condition and survival of benthic organisms to increase the knowledge and tools for coastal management. 2) Studying the **physiology** and **trophic ecology** of benthic organisms in warm-temperate, tropical, polar and upwelling systems (feeding, reproduction, photobiology, physiology, growth, biochemical balance, energy storage and use, stable isotopes, etc.) in front of global change. 3) **Underwater mapping and distribution** of benthic suspension feeders through remote and deep diving techniques (Remotely Operated Vehicle- ROV), as a tool for the exploration beyond scuba dive limits (30-40 meters), pioneering the study of the mesophotic zone and also in crossing experimental information with seascape methods to understand the role of benthic suspension feeders as **Blue Carbon**. 4) **Conservation research** on marine biodiversity in marine protected areas and population recovery and resilience, centered mainly on octocorals, but also in other species of economic importance; optimizing **restoration** tools, giving a new perspective of the regeneration of biodiversity hotspots. 5) Marine **ecosystem services** and

Memorial SERGIO ROSSI

environmental education, studying aspects of natural ecosystem and resource management, including the vision of the animal forest as blue carbon and source of biodiversity, but also citizen science using tools or ecological economic & anthropological approaches. All these branches of knowledge are mainly centered in the **Marine Animal Forest** in different areas of the planet.

This different vision of my own work was essential to shift from the more theoretical to the more practical application of my scientific profile. I continue to apply such knowhow and ideas in different PhD thesis programs about Integrated Multitrophic Aquaculture, Bioremediation, Restoration and Climate Change perception and Management in which I am the advisor, following different ongoing projects.

In fact, the educational-training profile also helped me (see below). I have had many Post Doc, PhD, Master and Graduate students. Interestingly, they are from different places (mainly Spain, Italy and Brazil, but also Chile, Mexico or Colombia), where I also have an extensive teaching experience. Such privilege gave me the opportunity to play in different systems, with different functioning characteristics and different social environments. Working in such conditions made me more flexible and open minded. To complete the integration of my lines of research in the different educational and scientific atmospheres I always continued to be committed with the PhD and master programs of the different universities. For example, in this very moment I'm the advisor of other 7 PhD students (1 Spanish, 3 Brazilian and 3 Italian) with different theoretical and applied topics.

I have also to underline that, far beyond the line posed by the academic formation, I decided long ago to make a deep commitment with the scientific outreach. I have been working as a scientific journalist for different newspapers and magazines, I wrote and published essays, novels and kids' books to communicate what the marine science in general and the MAF was to the general public at all levels (see below).

In terms of lab and field capabilities, I'm familiar with: respiration and photobiology physiological experiments, feeding experiments (in-situ and ex-situ chambers) and diet seasonal monitoring (gut contents), water column analysis (temperature, salinity, currents, irradiance, chlorophyll, organic matter, C/N, lipid-protein-carbohydrate, zooplankton, etc.), sediment trap deployment and analysis (gross sedimentation rates, organic matter, lipids, etc.), activity rhythms (flume experiments and in situ data collection-treatment), cnidarian reproduction (seasonal cycles, gonadal output, reproductive effort, larval biology and biochemistry), photo (linear and photogrammetry) and ring octocoral growth, spectrophotometry, fluorometry, gas chromatography (fatty acids and neutral lipids), IRMS-stable isotopes, Remotely Operated Vehicle (driving, image analysis and statistical approach), benthic cartography (GIS approach), benthos monitoring (fish and echinoderm counting, sessile organism cover and health status, etc.), phytoplankton growth optimization for biodiesel yields in outdoor conditions, citizen science and ecosystem service methodologies (free listing, focus groups, economic valuation, etc.).

I will continue this path, looking for practical solutions based on the extensive knowledge gathered during more than two decades, always collaborating and sharing ideas and proposals with diverse research groups, public entities and stakeholders.

S- Awards, accreditations and professional advising

I have the accreditation of Associate professor recognized in Spain and in Italy. In Italy, I have two specific accreditations: Zoology and Ecology.

2008. Accreditation at the Catalan Scientific Quality Agency (AQU) for Associate Professor

2017. Abilitazione (accreditation) Fascia II Zoologia (BIO05) & Ecologia (BIO07), Italy

I have had two specific prizes. The first is the merit after my Ramòn y Cajal Contract (a Spanish prestigious tenure track), awarded with 120.000€ for projects, personnel and material. Only 25% of the Researchers that year were awarded with this prize in 2012.

2012. Scientific excellence award Ramón y Cajal (Scientific Area 8), I3 accreditation

In 2020, after more than three years working as an expert in the MedECC report (equivalent to the IPCC but for the Mediterranean, see below), we were awarded with the North-South Prize. I was in charge of the Marine Ecology program.

2020. North-South Prize 2020 of the Council of Europe to the Network of Mediterranean Experts on Climate and Environmental Change (MedECC).

4. C-GRADUATION AND POST-GRADUATION (INCLUDING POST DOC, PHD AND MASTER) ADVISEMENT AND DIRECTION

A- Graduate and master students

One of my commitments, from the beginning, was to teach and advise young people that were making their Bachelor or Master thesis. In the very beginning of my own PhD thesis I had the opportunity to guide many people that worked on the analysis that I needed to progress in my own work. I have been the co-advisor of many students from Spain, Italy, Poland and Germany (see below). The students used to come from Universitat de Barcelona or Universitat Autònoma de Barcelona (Spain), but other Universities were also engaged in the training program.

After that, in my first Post-Doctorate contract in the ICM-CSIC, I could continue the training program with more students that helped me in the analysis of images (videos and pictures), reproduction, feeding and biochemistry of the precious coral *Corallium rubrum*. I could understand how important it is to adapt your needs to their needs. Every single person is a universe and if you want to have good results you have to spend time and efforts to advise.

Once in the ICTA-UAB (from 2007 to 2016), I had the opportunity to advise graduate and master students from the University and abroad. I had the experience and the flexibility to adapt, in a certain way, my needs to their needs due to the fact that I was

developing many different subjects. The functioning of the university was also different, and the opportunity that I had to teach was crucial to attract new students.

In Italy (2016-now), things changed in a very positive way. I have had many students (graduate and master) linked to different projects. Many of these students had the opportunity to travel out of Italy, linked to my contacts in Italy, Spain or France (Erasmus programs). In The Universidade Federal do Ceará I have had one student working on the mangrove ecosystem.

Master Thesis Advisement

Sofia Esposito "Characterization and spectroscopy of microplastics present in the stomach and intestine of *Nephrops norvegicus* and *Palinurus elephas* sampled between Otranto and Capo di Leuca (Ionian Sea, Puglia, Italy)" Academic year 2021-2022, UniSalento

Ludovica de Vincenzis "Short time cycle: *Leptogorgia sarmentosa* role in benthic-pelagic coupling" Academic year 2021-2022, Unisalento

Roberta Lacorte "Recruitment analysis of benthic organisms on artificial substrates of two different materials in the North Sea" Academic year 2021-2022, UniSalento

Daniel de Luca "Fatty acids analysis on the clonal ant *Platythyrea punctata*" Academic year 2021-2022, Uni Salento

Chiara Intermite "Future heat waves in the Mediterranean Sea: expected impacts and potential responses of some sessile benthic animal species" Academic year 2020- 2021, Uni Salento

Andrea Toso "Population dynamics, trophic ecology and reproduction of the invasive scavenger polychaete *Hermodice carunculata* (Annelida, Amphinomidae) present off the Salento shores (Ionian Sea, Santa Caterina, Puglia, Italy)" Academic year 2020-2021, Uni Salento

Martina Cargagni "Health status indicators of deep water corals through ROV methods" Academic year 2020-2021, Uni Salento

Alessandra Martines "Presence of microplastics in *Holothuria tubulosa* (Holothuroidea, Echinodermata) from the Apulia Region" Academic year 2020-2021, Uni Salento

Nicoletta Tardio "Digestion protocol applied on marine biorimediator benthic animals to collect plastic debris: a case of study" Academic year 2020-2021, Uni Salent

Jorge Thé de Araújo "[Ecologia populacional da medusa exótica *Cassiopea andromeda* em fazendas de camarão e manguezais](#)" Academic year 2019-2020, Universidade Federal do Ceará

Giovanni Giallongo "Long-term mitochondrial COI haplotype diversity in the eastern Mediterranean Sea populations of the invasive medusa *Rhopilema nomadica*" Academic year 2019-2020, Uni Salento

Serena Fasiello "Growth rate of *Tetraselmis chuii* cultured in different concentrations of n and p: effects on the biomass productivity and compounds" Academic year 2018-2019, Uni Salento

Sydney Baxter "Deep-sea ROV video analysis used to characterize Vulnerable Marine Ecosystems at Gazul Mud Volcano (NE Atlantic)" Academic year 2018-2019, Uni Salento

Nicola Lago "Settlement dynamics and recruitment responses of Mediterranean gorgonians larvae to different crustose coralline algae species" Academic year 2018-2019, Uni Salento

Sara Fumarola "First qualitative and quantitative description of a massive bail-out event in the mesophotic black coral *Antipathella subpinnata* (Ellis and Solander 1786)" Academic year 2018-2019, Uni Salento

Simone Merlo "Microalgae contribution to sustainable development" Academic year 2018-2019, Universitat Autònoma de Barcelona

Elisa Quarta "Detriti microplastici nel mar mediterraneo: incidenza e distribuzione lungo la costa catalana settentrionale " Academic year 2017-2018, Uni Salento

Sara Vaccargiu "Impatto delle microplastiche in sospensivori bentonici" Academic year 2017-2018, Università di Pisa

Roberto Buonomo " SCUBA diver management strategies to reduce human impact on sessile biota " Academic year 2012-2013, Universitat Autònoma de Barcelona

Eezin Ong " Effects of ocean acidification and warming on the survivorship, growth and physiology of *Cotylorhiza tuberculata*" Academic year 2012-2013, Universitat Autònoma de Barcelona

Blanca Chocarro " "Mother care" en gorgonias: diferencias entre una especie simbiote y otra aposimbiote " Academic year 2012-2013, Universitat de Barcelona

Maricel Guron " The Effects of Ocean Acidification on the Commercial Precious Mediterranean Red Coral (*Corallium rubrum*, L. 1758) ", Academic year 2011-2012, Universitat Autònoma de Barcelona

Alfredo Matiz " Neutral lipids and GDGTs in a highly productive upwelling system: Identification of terrestrial and aquatic biomarkers in the Humboldt Current " Academic year 2009-2010, Universitat Autònoma de Barcelona

Mireia Farrés Rodríguez " Acoplamiento bento-pelágico en el mar de Weddell (Antártida) analizado a través de marcadores tróficos " Academic year 2008-2009, Universitat Autònoma de Barcelona

Ida Fiorillo "Estudios sobre bioquímica de seston e invertebrados " Academic year 2004-2005, Università degli Studi di Napoli Federico II

Andrea Gori " Estudio demográfico y reproductor de gorgonias " Academic year 2004-2005, Università de Roma III

Graduate Thesis Advisement

Martina Linciano "The Mediterranean coralligenous: biodiversity and ecological value of a fragile biocenosis" Academic year 2021-2022, Uni Salento

Chiara Marcucci "Dynamics of marine pollution from plastics and microplastics: effects on invertebrates" Academic year 2020-2021, Uni Salento

Simona Teresa de Vito " Protected area of Torre Guaceto and Safeguarding of Caretta Caretta specimens " Academic year 2020-2021, Uni Salento

Veronica Carola Orlando "Microplastics, an invisible threat: dispersion and effects on fishes" Academic year 2020-2021, Uni Salento

Stefania Filograna "Lockdown effects on the leisure fisheries of the MPA of Porto Cesareo" Academic year 2020-2021, Uni Salento

Gianluca Benvenga "An example of a bioconstructive species in the Mediterranean Sea: *Oculina Patagonica*" Academic year 2019.-2020, Uni Salento

Alice di Bello "Alien species and tropicalization of the Mediterranean Sea: the case of the jellyfish *Cassiopea Andromeda*" Academic year 2019-2020, Uni Salento

Stefano Padovani "Studio sulla distribuzione delle specie aliene nel mar mediterraneo: una collaborazione tra aree marine protette e pescatori" Academic year 2018-2019, Uni Salento

Luigino Però "Vulnerability and conservation of the mesophotic on the Adriatic coast" Academic year 2018-2019, Uni Salento

Eleanora Franco "Effetti metabolici delle microplastiche in *Mytilus galloprovincialis*" Academic year 2018-2019

Sofia Esposito " Marine animals forest as carbon sink, an update of the available data " Academic year 2018-2019, Uni Salento

Roberto Massaro "Ecosystem services in Mediterranean protected areas". Academic year 2018-2019 , Uni Salento

Blanca del Arco "Ciclos reproductivos de las gorgonias *Plexaurella nutans* y *Pterogorgia anceps*" Academic year 2016-2017, Universitat de Barcelona

Mar Belmonte "Avaluació de la distribució i l'abundància de *Posidonia oceanica* al litoral català" Academic year 2016-2017, Universitat de Barcelona

Heisler Absalón Yam Poot "Aspectos fotobiológicos de dos especies de gorgonias caribeñas: *Pterogorgia anceps* y *Plexaurella nutans*" Academic year 2013-2014, Instituto Tecnológico de Mérida

Camila Serra-Pompei " Estudio de la degradación ambiental de los manglares por la industria camaronera " Academic year 2012-2013, Universitat Autònoma de Barcelona

Julia Monraba, David Pifarré " Análisis de la Dimensión Social en la Relación de la Comunidad de Cumbe con el Manglar y los impactos de la Industria Camaronera " Academic year 2012-2013, Universitat Autònoma de Barcelona

María Brianso, Josep Domínguez " Estudio económico sobre la pesca artesanal y análisis de sus diferencias con la acuicultura del camarón " Academic year 2012-2013, Universitat Autònoma de Barcelona

Martí Burriel " L'altra cara del progrés " Academic year 2012-2013, Universitat Autònoma de Barcelona

Carla Pla, Laia Monton, Mariona Morera " La incorporación de los servicios ambientales en la planificación de las políticas y gestión ambiental de los aerogeneradores en Ceará, Brasil " Academic year 2011-2012

Julia Muntané, Julia Prat, Sara García, Aida Tapia " Combining tolos to monitor sessile hard bottom suspension feeders: the red coral (*Corallium rubrum*) case study " Academic year 2011-2012

Mireia Farrés Rodríguez " Estudio de la dieta de suspensívoros bentónico y de su reproducción " Academic year 2007-2009, Universitat Autònoma de Barcelona

Julian Metzner " Estudio de tasas de filtración y alimentación en bivalvos ", Academic year 2002-2003, University of Bremen

Laura Vera Cabanillas " Evaluación del stock de coral rojo en el Mediterráneo " Academic year 2002-2003, Universidad Autónoma de Barcelona

Maria Aranguren "Balance bioquímico y reproducción en *Corallium rubrum* " Academic year 2002-2003, Universitat de Barcelona

Áurea Peralba " Estudio del zooplancton y tasas de captura de hidrozooos del Ártico " Academic year 2002-2003, Universidad Autónoma de Barcelona

Tirma Padrón " Estudio sobre la distribución de *Corallium rubrum* en la costa catalana", Academic year 2002-2003, Universidad de Tenerife

Ana Romero " Contenidos estomacales de *Eunicella singularis* ", Academic year 2001-2002, Universidad de Barcelona

B- Doctorate Students

At the moment, I have directed or co-directed 12 PhD thesis from 2005 to 2022. In the meanwhile, I'm de director or co-director of another 6.

My first PhD (**Georgios Tsounis**) started in the framework of the Red Coral project, gathering information about its distribution, feeding, reproduction and health status in the Catalan Coast. With all the data, he could make a model to understand the limits of the harvesting of this cnidarian.

Memorial SERGIO ROSSI

Following the Marine Animal Forest concept and the exploration of the benthic suspension feeder distribution, trophic ecology and the understanding of their life cycles, I was the main director of the PhD thesis of Andrea Gori, Francyne Elias-Piera, Martina Coppari and Núria Viladrich, involved in different projects.

Claudio Fuentes-Grünewald and David Santos-Ballardo were involved in the study of marine microalgae as feedstock for biofuels (biodiesel and biogas), whilst **Luciana de Souza Queiroz** (UFC) opened my possibilities in Brazil to work with ecosystem services and the mangrove habitat.

Juanita Zorrilla-Pujana was the person who made an in depth view of the communication and environmental education performance, with a PhD thesis based on scientific outreach and the problems related with the transmission of information.

Miki Mallo (presented in March 2022) followed the traces of Dr. Queiroz with perception of ecosystem services. In Italy, I started to co-direct three different PhD thesis, about invasive species ecology and physiological performance (Marta Mammone) and microplastic impacts on benthic suspension feeders (Silvia Fraissinet). In the meanwhile, I also started to be co-director of three PhD thesis in the **Universidade Federal do Ceará** (Doutorado em Ciencias Marinhas Tropicais), based on the mixotrophic strategies of marginal coral reef organisms (Caroline Costa-Lucas), the trophic web and fluxes in an estuarine mangrove area (Jadson Lima), the importance of trophic constraints in marginal reefs (Eliana Matos) and the potential application of a restoration program in the State of Ceará (Carolina Bracho).

PhD Thesis Advisement

Georgios Tsounis “Demography, Reproductive Biology and Trophic Ecology of *Corallium rubrum* (L.) at the Costa Brava (NW Mediterranean): Ecological Data for Management”, presented in April 2005. University of Bremen.

Andrea Gori “The Ecology of deep sublittoral populations of Mediterranean Gorgonians”, presented in September 2011. Universitat de Barcelona.

Claudio Fuentes-Grünewald “Dinoflagellates and Raphidophytes Microalgal Groups as Feedstock for Biodiesel”, presented in September 2011. Universitat Autònoma de Barcelona.

Luciana de Souza Queiroz “Industrial shrimp aquaculture and mangrove ecosystems: A multidimensional analysis of a socio-environmental conflict in Brazil”, presented in December 2014. Universitat Autònoma de Barcelona-Universidade Federal do Ceará.

Francyne Elias-Piera “Biomarkers for the benthic-pelagic coupling in Antarctica: spatial and temporal comparisons in the Weddell Sea”, presented in December 2014. Universitat Autònoma de Barcelona.

Núria Viladrich “Larval fitness as a key factor in the population dynamics of gorgonians”, presented in July 2015. Universitat Autònoma de Barcelona.

Martina Coppari “The importance of benthic suspension feeders in the biogeochemical

Memorial SERGIO ROSSI

cycles: active and passive suspension feeders in a coralligenous community", presented in July 2015. Universitat Autònoma de Barcelona.

Juanita Zorrilla-Pujana "Education for Natural Protected Areas: the Colombia case study", presented in January 2016. Universitat Autònoma de Barcelona.

David Ulises Santos-Ballardo "Micro-algal culture by-products: biogas and secondary metabolites", presented in February 2016. Universidad Politécnica de Sinaloa.

Miguel Mallo "Mediterranean coastal marine biodiversity under climate change: Local knowledge, perceptions and value", presented in March 2022. Universitat Autònoma de Barcelona.

Caroline Costa Lucas "Bleaching and trophic ecology of corals on marginal reefs (Equatorial Southwestern Atlantic)", presented August 2022

Marta Mammone. "Some aspects of the ecology of the invasive species *Cassiopea andromeda* in two contrasted areas: South of Italy and NE Brazil", presented September 2022

Silvia Fraissinet "Analytical characterization of micro and nanoplastics in different marine matrices", Started November 2019

Meri Bilan "Assessment of bottom trawling resuspension impacts on deep sea corals", Started November 2019

Carolina Bracho "New methods for marine restoration: the Symbiotic Artificial Reef structures" Started February 2020

Jacopo Borghese "Carbon and nitrogen flux and trophic relationships, among cultured species in a Mediterranean integrated multi-trophic aquaculture (IMTA)", Started

September 2020

Daniele Arduini "Exploitation of marine biomass as by-product of an innovative IMTA system", Started November 2020

Eliana Matos "Octocoral responses to global warming, organic pollution and microplastics in marginal reef environments " Started January 2021

C- Post-Doctorate advisement

I have had five Post-Docs involved in different programs. The first two (Georgios Tsounis and Lorenzo Bramanti) were involved in the Marine Animal Forest framework, specifically in the coral gardening and in the understanding of the potential direct and indirect impacts on passive suspension feeder organisms. Both are now senior researchers and professional colleagues (see the links).

Nadine Schubert worked with me in another Marine Animal Forest project, in which we studied the photobiology of Caribbean octocorals. We worked together especially in the laboratory, making light chamber experiments with different species and seasons.

Memorial SERGIO ROSSI

Marcelo de Oliveira Soares was my Post-Doc in the ICTA-UAB. We worked together in two different fronts: 1) Making the analysis of the Caribbean samples gathered during my stage in Cancún (stable isotopes, biochemistry, fatty acids, etc.), and 2) Exploring his data about marginal reefs.

Finally, Luciana de Souza Queiroz had a Post-Doc advisement o the role of artisanal fisheries in the Brazilian and Catalan coasts, contrasting both systems at the level of perception of the ecosystem carrying capacity and transformation due to climatechange.

Post Docs

Georgios Tsounis. Project BENTOLARV, January-December 2010. Ministerio de Educación y Ciencia grant (co-advised with Prof. Josep-María Gili, ICM-CSIC)

Lorenzo Bramanti. Project Marie Curie IIF CORAL GARDENS, January 2009-December 2010. Marie-Curie grant (co-advised with Prof. Josep-María Gili, ICM-CSIC)

Nadine Shubert. Project IOF Marie Curie ANIMAL FOREST HEALTH (Mexico), January 2014-June 2015. Sub-Contracted from the Marie Curie project (EU)

Marcelo Oliveira. Project “*Tecnologia e Metodologia Inovadoras em Diagnóstico de Ecossistemas Marinhos: subsídios para a gestão ambiental*”, August 2015-July 2016 Contract PROGRAMA CIÊNCIAS SEM FRONTEIRAS, CNPq (Brasil)

Luciana de Souza Queiroz. Project “Cambio climático y soberanía alimentaria: una aproximación a través de la pesca artesanal”, October 2016-September 2017 PROGRAMA CIÊNCIAS SEM FRONTEIRAS, CNPq (Brazil) (co-advised with Prof. Marta Ferrer, Univesitat de Vic)

5- D-SOCIAL IMPACT ACTIONS

Outreach of your work is essential in science. Nowadays it has been demonstrated that we need to contact the society in as many ways as we can to make them understand the importance of science to help solving problems. Is this why I have also to underline that, far beyond the line posed by the academic formation, I decided long ago to make a deep commitment with the scientific outreach.

A- Outreach papers and book publication

First of all, I have been working as a scientific journalist for different newspapers and magazines. **El País, Público, La Vanguardia, Muy Interesante, Geo, American Scientific (Spanish version)**...more than 120 scientific outreach papers (see the list of publications in the ANNEX). I was interested in spreading the word from the beginning, and I know that some of my publications were indeed considered in socio-political debates (precious corals, coastal habitat conservation, impacts of climate change, stressors from industrial fisheries, etc.).

Memorial SERGIO ROSSI

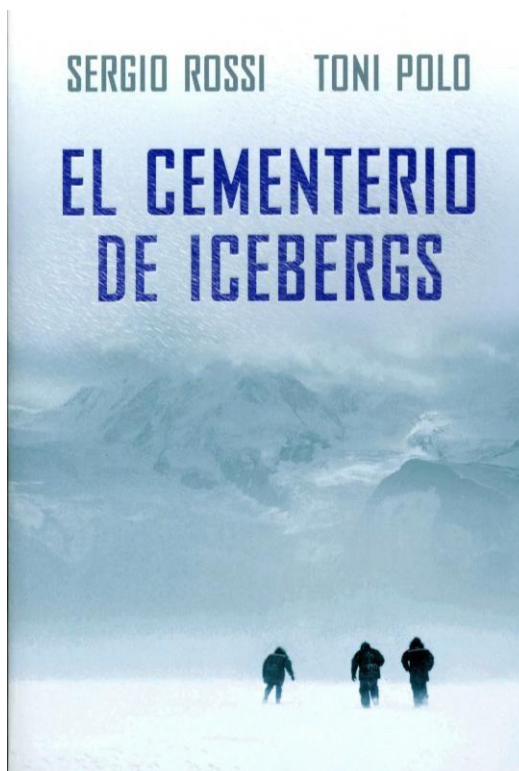
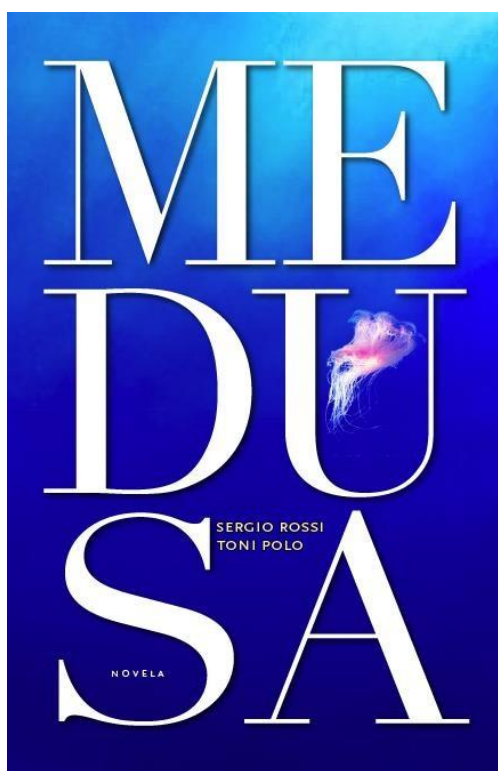
I was also an active collaborator as a blogger in two different webpages

Ocean Curiosity & Commitement (<http://www.jotdown.es/category/blogs/oceancyc/>)

Fundación Aquae (<https://www.fundacionaquae.org/autor/sergio-rossi/>)

Indeed, what opened the doors for the general public was the publication of different kind of books. First of all, I wrote novels in which I exposed (sometimes with my colleague and friend Toni Polo, sometimes alone). Novels about overfishing (Medusa), about miners and the Antarctic treaty (The Iceberg Cemetery), climate change and assurance collapse (Sea Eclipse) or the problem with precious corals (The evil coral). I even wrote a science-fiction/fantasy novel about a group of scientists in an impossible ecosystem framework (The Fjords of Bjlaen).

Rossi S, Polo T (2007) Medusa. Plaza & Janés, España. 302 pp Italian version (2008): Medusa, Sperling & Kupfer.



Rossi S, Polo T (2010) El cementerio de icebergs. Plaza & Janés, España. 364 pp

Memorial SERGIO ROSSI

Rossi S (2016) Los fiordos de Bjlaën. Amazon Publishing books.

Rossi S (2017) El coral del diablo. Amazon Publishing books. ISBN-13: 978-1520353760



Rossi S, Polo T (2018) Eclipse de mar. Amazon Publishing group. ISBN-13: 978-198312930



The experience with the novels gave me the opportunity to make books for kids. In these books, a 5 kids team saved the world from different environmental impacts. This was

Memorial SERGIO ROSSI

one of my favorite experience as a writer and communicator, as I could have the opportunity to spread the message to the future generations which were, even long time ago, aware of the problems that menace our planet.

Polo T, **Rossi S** (2011) El equipo Krakatek y los vagabundos del hielo. Ediciones B. 201 pp and Polo T, **Rossi S** (2011) El equipo Krakatek y el pez de oro. Ediciones B. 200 pp



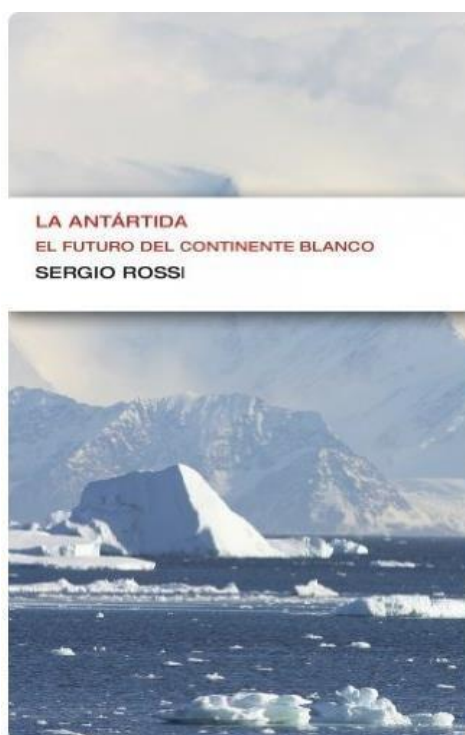
Critical essays have been also part of my outreach routine. I began with a general book (Aether) bringing a wide vision of natural processes, followed by books regarding the oceans and the Antarctic continent.

These two last books were so successful that Springer-Nature was interested to buy the rights and make the translation. In fact, Springer-Nature elected me as a key figure for the awareness of the problems in the world oceans and in the white continent. The last adventure is writing a book about SDG14 United Nations targets for Springer-Nature (will be published in 2022).

Rossi S (2011) Planeta azul: un universo en extinción. Editorial Debate. 432 pp

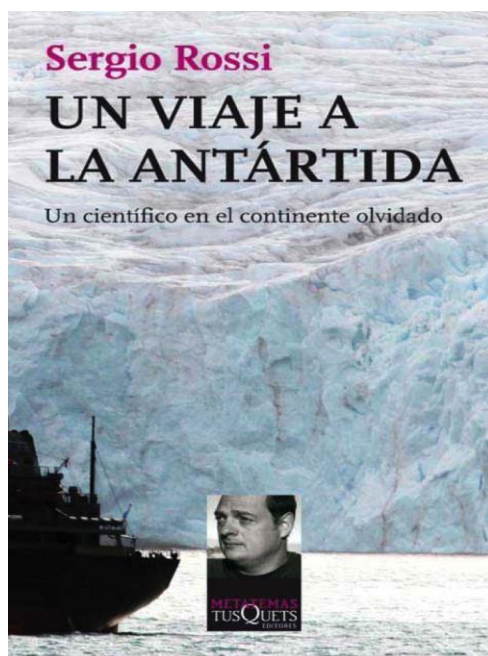
Rossi S (2012) La Antártida: El futuro del continente blanco. Editorial ENDEBATE.

Memorial SERGIO ROSSI

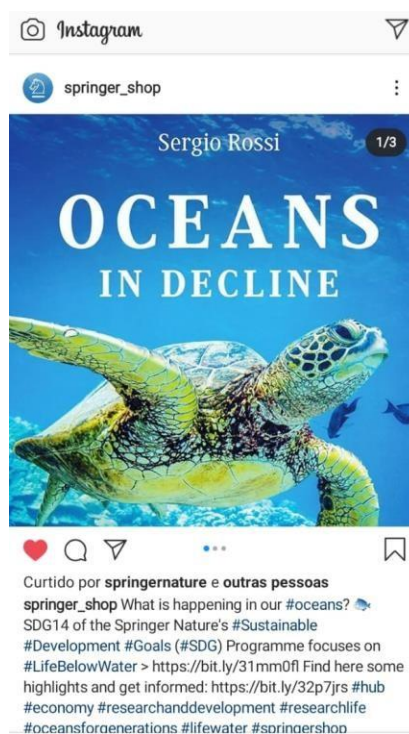
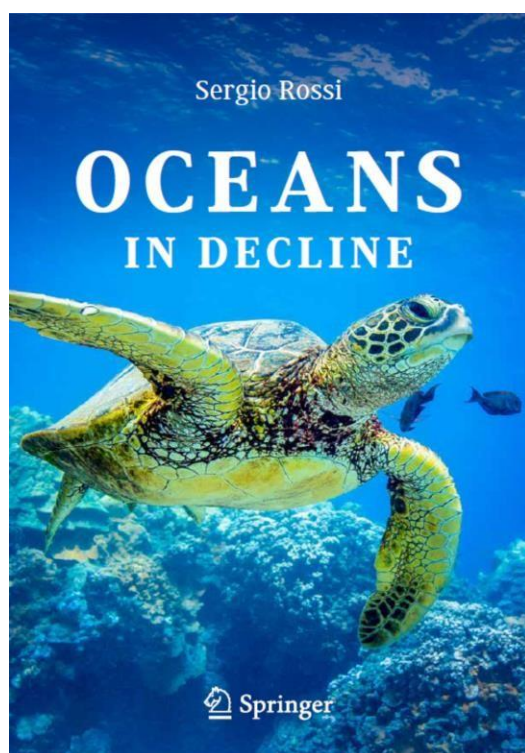


Rossi S (2013) Un viaje a la Antártida: un científico en el continente olvidado. Editorial Tusquets, sello Metatemas. 268 pp

Memorial SERGIO ROSSI

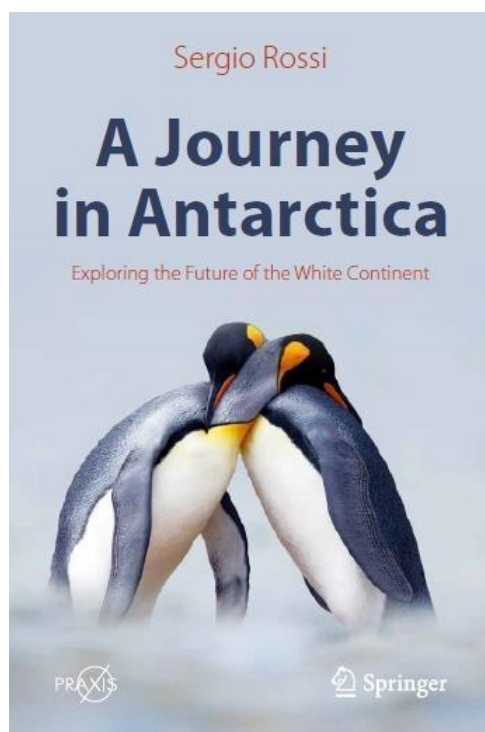


Rossi S (2019) Oceans in decline. Copernicus Books, Springer-Nature, Switzerland. 352 pp. ISBN 978-3-030-02513-7



Rossi S (2022) A Journey in Antarctica: Exploring the Future of the White Continent. Popular Science. Springer-Nature, Switzerland. ISBN 978-3-030-89491-7

Memorial SERGIO ROSSI

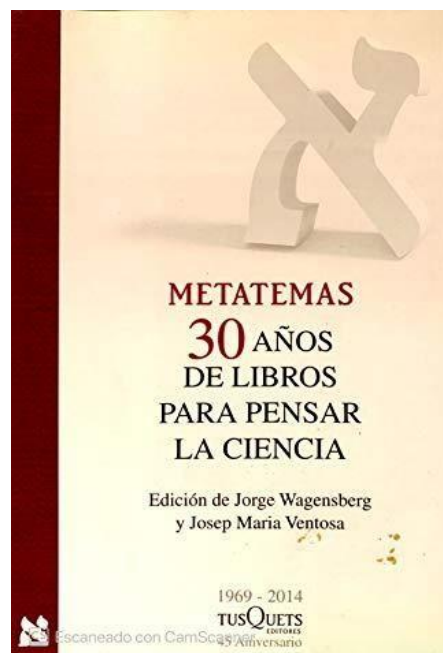


Canela A, **Rossi S**, Margarit M (2007) Aether, la esencia de los cuatro elementos. Editorial Mediterrania.



Rossi S (2013) Estuarios y deltas. In: El agua y la vida. Editores Martí Boada y Roser Maneja. Editorial LUDWERG

Rossi S (2014) 30 años de la colección Metatemas (invited author). Opúsculo Sergio Rossi. Editor: Jorge Wasenberg. Editorial Tusquets, sello Metatemas.



B- Invited scientific outreach presentations

Once you have made the books and published several papers as a scientific journalist, you have the opportunity of be involved in different round tables, seminars and public talks. I have given more than 40 scientific outreach talks about Science, the Oceans, Antarctica, and the Marine Animal Forest. Here I selected some for a broad audience. The other presentations are shown in the ANNEX.

Conference at the [Centre de Cultura Contemporània de Barcelona](#) (CCCB) "The wondering of exploration", 10 December 2014 (SPAIN)

Invited guest in the [HAY Festival](#) in Xalapa (México, 2-5 October 2014) and Medellín & Cartagena de Indias (Colombia, 28 January-1 February 2015) talking about Antarctica "A trip to Antarctica: scientists in the forgotten continent" (MEXICO & COLOMBIA)

Conference at the UNESCO meeting ([La Rete delle Riserve della BiosferaMediterranea. Verso una cooperazione strategica con la regione Adriatica.](#)), with the talk "*La rivoluzione azzurra: recuperando l'equilibrio smarrito*" 19 April 2017, Venice (ITALY)

Conference at COSMOACCIÓN "[Descubre](#)" with the talk "Descubre el valor y la salud de los océanos", 24 October 2019, Barcelona (SPAIN)

On-line conference [Live-Labomar](#) “The oceans and the Blue Carbon” of the Universidade Federal do Ceará (BRAZIL)

On-line conference [Ecoando Sustentabilidade](#) “O biocombustível pode salvar recifes de corais?” of the Universidade Federal de Santa Catarina (BRAZIL)

Many times I had the opportunity to participate in radio programs or in television debates or interviews. I also had the chance to be interviewed in journals and magazines. In the ANNEX I show some key examples in which I was interviewed or my books were noticed.

C- Scientific congresses and workshops

Your impact has also to be quantified in terms of scientific interventions in workshops, congresses, or seminars. Spreading the word will be useful not only for your senior colleagues, but also for young people that participate in these events. All these interventions were essential to enlarge and consolidate my network (see below). I selected some of these participations in which I have been an invited speaker. The complete list is in the ANNEX.

XIV SIEBM, Barcelona (Spain) 2006 “Deep-population survey of *Corallium rubrum* with Remotely Operated Vehicle methods: distribution and demography of an overexploited species”, **Rossi S**, Tsounis G, Padrón T, Gili, Núria JM, Teixidó N, Orejas C, Gutt J

Ist International Workshop on Corallium: Science, Management and Trade, Hong Kong (China). March 2009. “Red coral fishery management: a call for a paradigm shift” **Rossi S**, Tsounis G, Gili JM

IInd International Workshop on Corallium: Lessons from the Mediterranean, Naples (Italy). September 2009. “The deep transformation of the Mediterranean red forest: the Catalan coast case study” **Rossi S**, Tsounis G, Gili JM

Universidad Nacional Autónoma de México, Puerto Morelos (México) May 2013. “Ecosystem based management: the red coral case study” **Rossi S**

University of Los Andes, Bogotá (Colombia) January 2015. “The forgotten continent: Antarctica” **Rossi S**

Universidade Federal do Oeste do Pará, Santarém (Brasil) November 2015. “The animal forest as carbon sinks: a neglected ecosystem service” **Rossi S**

Universidade Federal de Santa Catarina, Florianópolis (Brasil) December 2015. Seminar in the Geoscience Department in the framework of the Ocean Journeys “The animal forests ecosystem services” **Rossi S**

52^o European Marine Biology Symposium, 25-29 September 2017. Invited talk “Beyond scuba limit: the challenge of the coastal animal forests of the mesophotic” Piran (Slovenia) **Rossi S**, Coppari M, Viladrich N, Gori A

Euromarine general assembly meeting, Cádiz (Spain) 29-31 January 2019. The marine animal forests of the world: challenges, frontiers and the role of science in its management and conservation (ANFORE)” **Rossi S**

Laboratório de Geologia e Geomorfologia Costeira e Oceânica (LGCO) da Universidade Estadual do Ceará (UECE). “**Ciência e sociedade: o que as ciências do mar podem fazer por você?**” February 19th 2019, Rossi,S.

Ecoando Sustentabilidade, Universidade Federal de Santa Catarina (Brazil) "[CAN WE SAVE THE CORAL REEFS WITH THE HELP OF BIOFUELS?](#)" June 27th, 2020

AIR Center-Networking on Friday- "[MARINE FORESTS AND THEIR ROLE IN THE OCEANS](#)" September 11th, 2020, **Rossi,S**.

4^a Seminário do programa de Pós-graduação em Ciências Marinhas Tropicais do Instituto de Ciências do Mar, Labomar/UFC and 4^a Semana do Mar ."[Crear oasis en el océano: nuevas perspectivas en restauración marina](#)". Closed Lecture. September, 18th 2020. Rossi,S.

AIR Center- ATLANTIC SUMMIT, **6th High-Level Industry-Science-Government Dialogue on Atlantic Interactions**. Session "Coastal Observation" with the talk "[BUILDING UP “OASIS” IN THE OCEANS: NEW PERSPECTIVES IN MARINE RESTORATION](#)" From min 50 to min 60. October 8th, 2020. Speakers: Bornman T (South Africa), Folorunsho R (Nigeria), Vitorino P (Portugal), Estefen S.(Brazil),**Rossi S** (Italy)

III FORTALEZA Austral Spring School "[Large-scale deep-sea restoration: gardening the marine animal forest to immobilize Blue Carbon](#)" October 15th, 2020. From 1hour: 03 min to 1hour:50 min. **Rossi,S**.

[I Simposio de Meioambiente e Energia](#) (UECE, USP, EMBRAPA e FIEC). “**La produccion de Biodisel a partir de Microalgas**” November 26th 2020. Online-Event (restrict access). **Rossi,S**.

Invited speaker at the [Universidad Politécnica de Sinaloa](#) “Contribución de las Microalgas Marinas para un Desarrollo Sustentable” 12 July 2021. Rossi, S.

Ecoando Sustentabilidade, Universidade Federal de Santa Catarina (Brazil), "[Peixes Conyaminado por metais: Causas, consequências e ações](#)". (Round table). September 3th, 2021. **Rossi,S** (Unisalento,IT), Bianchini, A. (FURG), Horta, P (UFSC-Brazil), Pereira, N(environmental activist), Pagliosa,P. (UFSC-Brazil).

IV Fortaleza's Austral Spring School/ 2º Floripa Spring Eco-School in Sustainability
["Florestas marinhas em um mundo pós-pandêmico \(Desafios para conservação e restauração- Open Lecture\)"](#) and ["Introduction to the Marine Animal Forests \(MAF\) of the world"](#), September, 13th, 2021. **Rossi, S.**

6- E-ACADEMIC LEADING CAPACITY AND/OR RESEARCH GROUP COORDINATION

As previously told, I build up the idea of the **Marine Animal Forest** from a series of video transects made in the Mediterranean Sea in 2004. The idea grew up slowly at the beginning, but the aim to understand the importance of these three-dimensional alive structures all over the oceans as biodiversity hotspots, blue carbon promoters and fishery grounds let me amplify and consolidate a huge network now operative as a COST Action (COST 20102). I'm the leader of what can be described a Marine Animal Forest group, a network of scientists all over the world that have a common target: study, promote, protect and restore the marine animal forests, from the shallow to the deep, from the tropical to the polar ones.

To consolidate a network, you have to visit other laboratories. I have always been a very collaborative person, looking for new perspectives and opportunities. I made short and long stages, very profitable in different foreign institutions. Each stage can be identified with one (or more) SCI journal paper(s).

Period	Institution (city, country)	Position
Sep. 1996	Marine Station of Millport (Isle of Cumbrae, UK)	Visiting PhD
Nov. 1996	Laboratoire Arago (Banyuls, FR)	Visiting PhD
Dec. 1997	University of La Reunion (La Reunion, FR)	Visiting PhD
Sep.-Oct. 1998	Bodega Marine Laboratory (Bodega Bay, US)	Visiting PhD
Sep.-Oct. 1999	Bodega Marine Laboratory (Bodega Bay, US)	Visiting PhD
Sep. 2004	Università di Pisa (Pisa, Italy)	Post Doc
May-June 2005	Università di Pisa (Pisa, Italy)	Post Doc
Jan.-Feb. 2006	Universidad de Antofagasta (Antofagasta, Chile)	Post Doc
Feb. 2007	Universidad Arturo Prat (Iquique, Chile)	Post Doc
Dec. 2006- July 2007	Laboratoire Arago (Banyuls, FR)	Post Doc

Memorial SERGIO ROSSI

Nov. 2012	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Researcher
Jul 2013-Jul 2015	Universidad Nacional Autónoma de México (PM Mex)	Visiting Researcher
Nov. 2015	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Professor
Dec. 2015	Università del Salento (Lecce, Italy)	Visiting professor
June & Sept 2016; May 2017	Monaco Scientific Center (Monaco)	Visiting Researcher
June-July 2017	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Professor
Oct 2018	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Professor
July-Sept 2019	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Professor
Feb 2020-Feb 2021	Universidad Federal do Ceará (Fortaleza, BR)	Visiting-Professor
Sept 2021	Univ Federal de Santa Caterina (Florianópolis, BR)	Visiting Professor

In particular, I have been collaborating with Labomar (UFC) during the last 9 years thanks to different grants and networking projects specified below:

2012. Becas para la movilidad de profesores a países BRIC-UAB: Brasil (Universidad Federal do Ceará) (PI Sergio Rossi)

2015. Cooperación Internacional del CAPES para la Escuela de Altos Estudios de Brasil, para impartir el curso "The marine coastal systems in front of global change ". EDITAL No 04/2015 (PI Jeovah Meireles de Andrade)

2016. Cooperación Internacional del CAPES para la Escuela de Altos Estudios de Brasil, para impartir el curso "Gestão dos ecossistemas costeiros frente as mudanças globais: teoria e prática desde a interdisciplinaridade. ". EDITAL No 04/2016 (PI Jeovah Meireles de Andrade)

2018. Cooperación Internacional del FUNDECAPES/Estado de Ceará para la Escuela de Altos Estudios de Brasil, para impartir el curso "Gestão dos ecossistemas costeiros frente as mudanças globais: teoria e prática desde a interdisciplinaridade. ". EDITAL No 03/2017 (PI Jeovah Meireles de Andrade)

2018. XXXV Financiament del Fons de Solidaritat de la UAB "Coastal marine habitats and food supply: transdisciplinary approach to understand how climate and local changes would affect artisanal fisheries in the NE coast of Brazil (Cearà state)". (PI Sergio Rossi)

Memorial SERGIO ROSSI

2020-2021. Visiting Professor Labomar-UFC. EDITAL No 191/2018 SELEÇÃO PARA PROFESSOR VISITANTE. Programa de Pós-graduação em Ciências Marinhas Tropicais.

2021. Visiting Professor CAPES-Universidade Federal de Santa Catarina. Modalidade de Bolsa: Professor Visitante no Brasil – PVB. Edital nº 10/2020/PROPG

As previously explained, these visits to the Brazilian let me deepen my understanding on this tropical and subtropical system, strengthening the ties with several researchers and letting me collaborate in different projects.

In any case, my idea of leadership goes through a concept (the Marine Animal Forest) that makes you relevant in a certain field of work, so the people can recognize you as the person who is, in some way, the key stone of such branch of knowledge. To consolidate the Marine Animal Forest leadership, I got two specific networking projects (with more than 500 K€ of funding):

2018. Euromarine Work Group “The marine animal forests of the world: challenges, frontiers and the role of science in its management and Conservation ANFORE” (2017 Call, WG3) (PI Sergio Rossi)

2021. COST Action: Marine Animal Forests of the World-MAF WORLD (CA 20102). (PI Sergio Rossi)

All the congresses and workshops, the foreign stages (visiting researcher or professor) and the networking projects let me have a multidisciplinary team all over the planet. The persons and the research groups have been collaborating or are in tight relationship now with me in different scientific frontiers.

<u>Person/s</u>	<u>Institution (city, country)</u>	<u>Topic</u>
Josep-María Gili	ICM-CSIC (Barcelona, Spain)	Benthic-pelagic coupling, suspension feeders, continental platform conservation
Esther Garcés, Jordi Camp	ICM-CSIC (Barcelona, Spain)	Algal cultures, third generation biodiesel bioreactors
Enrique Isla	ICM-CSIC (Barcelona, Spain)	Physical oceanography, Antarctic and Mediterranean sedimentary processes
Anna Sabatés	ICM-CSIC (Barcelona, Spain)	Fish larvae biology and

Memorial SERGIO ROSSI

		ecology
Josep-María Gasol, Carles Pedrós-Alió	ICM-CSIC (Barcelona, Spain)	Microbial ecology, physiology and diversity
Veronica Fuentes	ICM-CSIC (Barcelona, Spain)	Gelatinous zooplankton distribution, biology and ecology
Giuseppe Munda	ICTA-UAB (Barcelona, Spain)	Economical Ecology, multicriteria analysis
Patrizia Ziveri	ICTA-UAB (Barcelona, Spain)	Ocean acidification, paleoclimatology
Victoria Reyes, Esteve Corbera, Laura Calvet-Mir	ICTA-UAB (Barcelona, Spain)	Botanical anthropology, social questionnaires
Jordi García-Orellana	ICTA-UAB (Barcelona, Spain)	Radionuclide analysis
Mario Giampietro, Jesús Ramos	ICTA-UAB (Barcelona, Spain)	Energy sustainability, biodiesel models
Joan Rieradevall, Carles M Gasol	ICTA-UAB (Barcelona, Spain)	ACV models, energetic optimization models for biodiesel
Jeroen van den Berg, Louis Rodrigues	ICTA-UAB (Barcelona, Spain)	Climate change impacts in economy and society
Graham Mortyn	ICTA-UAB (Barcelona, Spain)	Mg/Ca ratio, relationship with temperature and acidification
Carme Huguet	Universidad de los Andes (Bogotá, Colombia)	GDGTs, alkenones, pigments in sediments and water column
Dieter Gerdes, Rainer Knust, Katia Mintenbek	AWI (Bremerhaven, Germany)	Antarctic benthic communities, ice scouring effects, Antarctic fish physiology
Julian Gutt	AWI (Bremerhaven, Germany)	Antarctic macro epibenthic community distribution, ROV specialist
Armin Rose	AWI (Bremerhaven, Germany)	Antarctic meiofauna, nematods

Memorial SERGIO ROSSI

Covadonga Orejas	IEO (Mallorca, Spain)	Deep sea corals biology and ecology
Mikel Latasa	IEO (Gijón, Spain)	Phytoplankton distribution, production and physiology
Antoine Grémare	UMR-CNRS (Arcachone, France)	Ecology and biogeochemistry of soft bottom communities
Jean-Claude Duchene	UMR-CNRS (Arcachone, France)	Activity rhythms in active and passive suspension feeders
Rafael Sardà	CEAB-CSIC (Blanes, Spain)	Soft bottom distribution, biology and ecology, polychaete taxonomy
Iosune Uriz	CEAB-CSIC (Blanes, Spain)	Sponge biology and ecology
Susanne Fietz	Stellenbosch University (Stellenbosh, South Africa)	Biogeochemistry, GDGTs, and pigments in sediments and water column
Giovanni Santangelo	Dipartimento di Biologia, Università di Pisa (Pisa, Italy)	Reproduction and management of red coral
Lorenzo Bramanti	CNRS-LECOB-Banyuls-sur-Mer (France)	Demographic models of long lived species, precious corals conservation
Georgios Tsounis, Peter Edmunds	California State University Northridge (California, US)	Gorgonian population fitness, red coral biology and ecology, marine ecosystem engineers
Jeovah Mireies	Universidade Federal do Ceará (Cearà, Brasil)	Mangrove ecology, shrimp farm environmental impact, environmental racism
Marcelo de Oliveira Soares, Luis Ernesto Bezerra, Lidriana Pinheiro	Instituto de Ciencias do Mar-UFC (Fortaleza, Brazil)	Marginal coral reef ecology, biogeography, coastal dynamics
Angel Valdez Ortiz	Universidad Autónoma de Sinaloa (Sinaloa, México)	Biodiesel, algal by-products, proteomics
Federica Costantini, Marco Abbiati	University of Bologna (Bologna, Italy)	Gorgonian genetics and population connectivity
Pablo López-González	Universidad de Sevilla (Sevilla, Spain)	Cnidarians reproduction,

Memorial SERGIO ROSSI

		gorgonian taxonomy
Josep Lloret	Universitat de Girona (Girona, Spain)	Ecology of coastal fishes, population fitness, artisanal fisheries
Cosimo Solidoro, Donata Canu	Istituto Nazionale di Oceanografia e Geofisica Sperimentale (Trieste, Italy)	Marine Ecology and physiological models
Mark RT Dale	University of Northern British Columbia (Prince George, Canada)	Landscape ecology and statistic ROV treatments
Ernest Chang, Mark J Snyder	Bodega Marine Laboratory (California, US)	HSP expression in cnidarians
Marsh J Youngbluth	Harbor Branch Oceanographic Institution (Florida, US)	Submarine canyon pelagic fauna distribution and trophic ecology
Rober G Hughes	Queen Mary and Westfield College, Univesity of London (London, UK)	Hydrozoan biology and ecology
Anna Soler-Membrives, Tomás Munilla	Universitat Autònoma de Barcelona (Barcelona, Spain)	Pycnogonid taxonomy, biology and ecology
Genuario Belmonte, Adriana Giangrande, Stefano Piraino	Università del Salento (Lecce, Italy)	Biology and ecology of jellyfish, zooplankton and polychaetes
Americo Montiel	Universidad de Magallanes (Punta Arenas, Chile)	Polychaete biology and ecology, hard bottom cold seas fauna
Maria del Carmen Rendón Unceta	Universidad de Cádiz (Cádiz, Spain)	Microalgae culture, biodiesel experiments
Marcelo E Oliva	Universidad de Antofagasta (Antofagasta, Chile)	Parasitology
Chester Sands	British Antarctic Survey (Cambridge, United Kingdom)	Antarctic taxonomy and benthic ecology
Katel Guizien, Jean-Michelle Amouroux, François Charles	Observatoire Oceanologique de Banyuls-CNRS (Banyuls, France)	Larval dispersal models and behaviour, metapopulation, sediment trap analysis
David Ulises Santos Ballardo	Universidad Politécnica de	Biofuel, optimización de

Memorial SERGIO ROSSI

	Sinaloa (México)	procesos energéticos
Lorenzo Alvarez Filip	Universidad Nacional Autónoma de México (México)	Coral Reef health status, three dimensional alive structures and complexity
Christine Ferrier-Pagés	Centre Scientifique de Monaco (Monaco)	Physiology of corals and gorgonians
Ruth Thurstan	University of Exeter (United Kingdom)	Historical Ecology
Lucia Rizzo	Stazione Zoologica di Napoli (Italy)	Trophic ecology, benthic-pelagic coupling and dispersal strategies
Ricardo Aguilar	OCEANA (Spain)	ROV, Image analysis, biogeography, impacts
Paulo Horta	Universidade Federal de Santa Catarina (Brazil)	Ecophysiology, botanics, applied ecology
Tito Lotufo	Universidade Estadual de Sao Paulo (Brazil)	Biogeography, metagenomics
Carlos Jimènez	Enalia Physalis (Cyprus)	Cold water corals, biogeography, conservation
James Reimer	Ryuku University (Japan)	Coral reef conservation and restoration measures
Nadine Schubert, Ester Serrao	CCMAR-University of Algarve (Portugal)	Macroalgae physiology and ecology
Toufiek Samaai	University of Cape Town (South Africa)	Biogeography, conservation, ROV
John Pandolfi	University of Queensland, Brisbane (Australia)	Coral reef conservation, historical ecology, modelization
Miquel Canals	Universitat de Barcelona (Spain)	Marine geology, sediment transport, submarine canyons
Andrea Ramsak	Piran Center of Marine Research (Slovenia)	Genetics, metabarcoding, biogeography
Andrea Gori, Cristina Linares, Nùria Viladrich	Universitat de Barcelona (Spain)	Deep water corals, restoration, continental platform impacts
Louise Allcock, Mark Johnson,	National University Ireland-	Deep water corals, marine

Memorial SERGIO ROSSI

Martin White	Galway (Ireland)	zoology, physical oceanography
Tyler Smith	University of the Virgin Islands (United States)	Mesophotic coral reefs
Nadeem Nazurally	University of Mauritius (Mauritius)	Coral reef restoration
Marco Milazzo	Università di Palermo (Italy)	Vermetid Reefs, coastal impacts
Massimo Ponti	Università di Bologna (Italy)	Octocoral ecology, biogeography
Paolo Montagna	Università di Torino (Italy)	Coral datation, climate change proxies
Silvia Kipson	University of Duvrovnik (Croatia)	Octocoral ecology and distribution, taxonomy
Rafael Coma, Marta Ribes	ICM & CEAB-CSIC (Spain)	Trophic ecology of benthic suspension feeders
Gercende Curtoise de Vicoise, Francisco Otero, Ricardo Haroun	Universidad de las Palmas de Gran Canaria (Spain)	Integrated Multitrophic Aquaculture, marine ecology and conservation
Charlotte Havermans	Alfred Wegener Institute (Germany)	eDNA, metabarcoding, population dynamics
Maria Salomidi	Hellenic Center of Marine Research (Greece)	Underwater mapping, biogeography and biodiversity

With the [COST action \(CA20102\)](#) I have already more than 220 collaborators ready to spread the voice about the Marine Animal Forest conservation, management and restoration challenges. All over the world, 36 countries (for the moment) will join the action during the next four years.



7- F- UNIVERSITY MANAGEMENT FUNCTIONS OR IN SCIENCE POLICY

During my whole professional career, I have had a deep compromise with teaching and administrative functions in all the workplaces where I had activities.

A- Lectures

My devotion for teaching is well known, having the opportunity to be enrolled in four different universities with different programs: Universitat de Barcelona, Universitat Autònoma de Barcelona, Universidade Federal de Cearà and Università del Salento. I started with modest classes focused on the benthos ecology, increasing the number of hours once I have changed from the Institut de Ciències del Mar-CSIC to the Institut de ciència i Tecnologia Ambientals-UAB. In fact, I would like to stress that one of the reasons to change from a research institute to a research university like the UAB was the possibility to teach.

Benthos Ecology (Universitat de Barcelona-UB, 2002-2007)

Ocean Climate Change (Universitat Autònoma de Barcelona-UAB, 2008-2010)

Past, Present and Future Ocean Global Change (UAB, 2008-2012)

Marine Protected Areas Management (UAB, 2008-2013)

An overview of Marine Anthropogenic Impacts (Universidade Federal do Ceará-Brazil-

Memorial SERGIO ROSSI

UFC, 2012)

The marine coastal systems in front of global change (UFC-Brazil, 2015-2020)

Functional ecology of cnidarians (Università del Salento-Italy, 2015-2016)

Applied Zoology for Conservation and Management (Uni Salento-Italy, 2017-Now)

Marine Biodiversity and Ecosystem Function (Uni Salento-Italy, 2019-Now)

Marine Animal Forests of the World (UFC & UFSC-Brazil, 2020-2021)

Marine Biology (Uni Salento-Italy, 2020-Now)

Experimental Design and Methodologies for Marine Biology (Uni Salento-Italy, 2020-Now)

Due to my expertise in organizing topics about the ocean's impacts and restoration/conservation plans applied in coastal areas and my extensive network, I could organize two different online events gathering experts from different countries (Spain, Italy, Mexico, France, Brazil, Portugal). The first was in October 2020, the III Fortaleza's Austral Spring School with the general title "[Conservation, Management and Blue Growth in the Decade of Oceans](#)"; I coordinated it from the Universidade Federal do Ceará-Labomar, having more than 470 attendants and almost 20.000 visualizations.

The second one (September 2021), coordinated between the UFC and the Universidade Federal de Santa Catarina, was more specialized, centered in the marine forests. This was the IV Fortaleza Austral Spring School & II Floripa Spring International Eco-School in Sustainability, with the general title "[Marine Forests: sustainability drivers and threats](#)". In this case, we had more than 1.500 visualizations. Both events were incredibly successful and will be the template used for many COST MAF-WORLD activities.

B- Expert and scientific Advisor

Probably, one of the most interesting activities that I have done during these last six years (from 2015 up to now) is being the **Scientific Director** of the Marine forest restoration plan executed by the private company [Underwater Gardens International](#) (active restoration-education programs in the Mediterranean, Atlantic and Tropicalesas). This activity give me the opportunity to make an ambitious plan of restoration, beginning in the Canary Islands (Tenerife) in which private investors will promote, together with local, regional and national funding a program dedicated to the leisure, awareness and educations of the citizens to restore and monitor extensive coastal areas. I put my [expertise](#) and network to the service of a new idea connecting the

Memorial SERGIO ROSSI

need for an active regeneration of the oceans with the blue growth.

I also participated, as an expert in marine impacts and conservation programs in different contexts when required by the coordinators:

Expert advisor in the FAO-CITES of 26-30 March 2007 (Rome)

Invited researcher in South Korea by the regional government of the Taean County to assess the impacts of the Hebei Spirit oil spill (December 2007)

Expert advisor in the [IPBES 2018](#), contribution to the Aichi Target 10 (Coastal zones, coral reefs and mangroves)

Expert advisor in the annual QS Global Academic Survey 2021 (World University ranking)

Expert advisor [MedECC](#) (2017-2020). [Leading author](#) of the Ecology program and the Coastal and Marine Ecosystems of the Climate and Environmental Change in the Mediterranean Basin –Current Situation and Risks for the Future PANEL (First Mediterranean Assessment Report). This is a program similar to the IPCC, but centered in the Mediterranean Sea. The publication is listed below.

Recently I got a “bolsa de colaboración” from the FUNCAP (September 2021-August 2022, renewable six months). I will be collaborating with the Programa Cientista Chefe with the following objectives:

- Data treatment and publication in A1&A2 journals
- Internationalization and networking
- Support in existing actions of the *Cientista Chefe* program
- Set of new complementary Blue Growth proposals for the State of Ceará
- Scientific outreach and education

This contract is especially important, demonstrates my interest for the challenges and needs of the State of Ceará in the future and gives me the opportunity to maintain my tight relationship with the UFC.

C- Member of PhD and Master tribunals

I have been member of 12 PhDs tribunals (Universitat de Barcelona, Universitat Autònoma de Barcelona, Università del Salento, Universidade Federal do Ceará, Università di Cagliari, Università de Sfax)

Ester Garcia Solsona- Universitat Autònoma de Barcelona, Facultat de Ciències Institut de Ciència i Tecnologia Ambientals (ICTA)- PhD program: Environmental

Sciences, option in Analysis of the Natural Environment-PhD (2009) **“Submarine Groundwater Discharge in coastal Mediterranean areas by using radium isotopes: The Venice Lagoon, Minorca and Castelló”** Under the supervision of Prof. Pere Masquè-Barri

Saioa Elordui- Zapatarietxe- Universitat Autònoma de Barcelona, Facultat de Ciències Institut de Ciència i Tecnologia Ambientals (ICTA)- PhD program: Environmental Sciences, option in Analysis of the Natural Environment-PhD (2009) **“Hydrocarbons in the open ocean waters near the Galician Bank after the deep sea spill from the Prestige wrecks”** Under the supervision of Dr. Antoni Rosell-Melè

Elisabeth Verdeny-Colominas- Universitat Autònoma de Barcelona-Programa Doctorat Física- PhD (2009) **“²³⁴Th and ²¹⁰Po as tracers for particle export in the surface ocean”** Under the supervision of Pere Masqué-Barri

Angela Maria Oviedo Sabogal- Universitat Autònoma de Barcelona- PhD Programme in Environmental Science and Technology- PhD 2015 **“Efectes de la limitació per fòsfor i l'acidificació oceànica en cocolitòfors del mar mediterrani”** Under the supervision of Patrizia Ziveri

Jordi Grinyó Andreu- Universitat Politècnica de Catalunya- Programa de Doctorat de Ciències del Mar- PhD 2016 **“Ecological study of benthic communities in the continental shelf and upper slope in the Menorca Channel (North Western Mediterranean Sea)”** Under the supervision of Dr. Andrea Gori

Priscila Carvalho Holanda- Universidade Federal do Ceará-instituto de ciências do mar – LABOMAR programa de pós-graduação em ciências marinhas tropicais- PhD 2016 **“O papel dos aquários públicos no antropoceno: uma avaliação da “estratégia global dos aquários para conservação e sustentabilidade””** Under the supervision of Prof. Dr. Manuel Antonio de Andrade Furtado Neto

Sonia Chaabane-Univ Sfax- L'École Nationale d'Ingénieurs de Sfax- Doctorat EnGénie de l'Environnement et de l'Aménagement « **Exploration de la géochimie du corail rouge Méditerranéen Corallium rubrum pour les reconstitutions paléocéanographiques** » Under the supervision of Dr. Patrizia Ziveri.

Alessandro Cau- Università degli Studi di Cagliari-Dottorato di ricerca Biologia e Biochimica dell'Uomo e dell'Ambiente-PhD 2015 **“ Deep coral forests from the island of Sardinia”** Under the supervision of Dr. Emanuele Sanna

Pedro Bastos de Macêdo Carneiro- Universidade Federal do Ceará-instituto de ciências do mar – LABOMAR programa de pós-graduação em ciências marinhas tropicais- PhD 2017 **“Escalas espaciais e biodiversidade de organismos bentônicos no atlântico sudoeste”** Under the supervision of Prof. Tito Monteiro la Cruz Lotufo

Anaid Rosas-Navarro- Universitat Autònoma de Barcelona- PhD Programme in Environmental Science and Technology- PhD 2019 " **Impact of Ocean Warming and Acidification on Coccolithophore Ecology and Calcification in the North Pacific**" Under the supervision of Dr. Patrizia Ziveri

Laia d'Armengol Catà- Universitat Autònoma de Barcelona- PhD Programme in Environmental Science and Technology- PhD 2019 " **Unravelling the performance of co-managed small-scale fisheries. A case study in La Encrucijada Biosphere Reserve, Mexico**" Under the supervision of Dr. Esteve Corbera

Chloé Pupier - Monaco Scientific Centre – Doctorat de la Université de la Sorbonne- PhD (2020) " **Ecophysiology of soft corals: nutrition and responses to global climate change**" Under the supervision of Dr. Christine Ferrier-Pagès

I have also participated in master student and graduate student final work tribunals (2007-2016), being a member of the doctorate program in Environmental Science of the UAB (2008-2012), and Environmental Science master program of the UAB (2008-2011).

D- Project evaluator

I have been evaluator of regional and national projects, personal curricula and excellence groups in the ANEP (Spanish National Research Agency) 2006–Present..

Other agencies asked me to evaluate in different moments. Some examples are shown here:

FONCYT Proyectos de Investigación Científica y Tecnológica Plan Argentina Innovadora 2020 - Jóvenes. "Biodiesel a partir de algas: Cultivo, extracción y producción sustentables" Argentina (2013)

CNPq NATIONAL INSTITUTES OF S&T PROGRAM- Apoio a Projetos de Pesquisa - CHAMADA PÚBLICA MCTI/CNPQ/CAPES/FAPS Nº 16/2014 - PROGRAMA INCT "Observatório das Dinâmicas Socioambientais (ODISSEIA)" (2014) Brazil.

National Science Center (NSC) "FUND - Filter Feeders UNDER change" (2017) Poland.

Binational Science Foundation (BSF) "Testing the invasive potential of tropical ascidians in the Caribbean and Red Seas" United States-Israel (2018)

Universidad de Costa Rica FONDO DE APOYO A REDES TEMÁTICAS – 2018-Costa Rica (2018)

I have been recently contacted to be part of the evaluation committee of the Agence National de la recherche (France) for the "An Ocean Solutions" programs, that started in November 2021 and ended in February 2022.

E- Committees and administrative tasks

The tasks that I have been doing in the different universities in which I have been working are listed below

2019-Present Member of the Post-Graduation Studies of the Universidade Federal do Ceará/BRAZIL

2016–Present Quality Commission for the studies for Environmental Sciences, DiSTeBA, Un Salento/ITALY

2008–2016 Graduate Student Advisor committee, UAB / ICTA / SPAIN

2009–2011 Member of the Doctorate in Environmental Sciences Committee, UAB / ICTA / SPAIN

2009–2012 Member of the Master in Environmental Sciences Committee, UAB / ICTA / SPAIN

2008–2010 Organizer of the Internal Seminars of the ICTA, UAB / ICTA / SPAIN

F- Expert evaluator as a referee in scientific journals

From 2003 up to now, I have been reviewer of more than 50 scientific journals. I have a mean of 12 reviews per year from 2011, rejecting almost the same number due to time constraints.

Marine Biology - Canadian Journal of Fisheries - Canadian Journal of Zoology - Polar Biology - Scientia Marina - Journal of Plankton Research - Journal of the Marine Biological Association of the United Kingdom - New Zealand Journal of Marine and Freshwater Research - Aquatic Ecology - Journal of Experimental Marine Biology and Ecology - Chemistry and Ecology - Fisheries Research - Biological Conservation - Marine Ecology Progress Series - Marine Environmental Research - Marine Biodiversity Records - Chinese Journal of Oceanology and Limnology – Pakistan Journal of Zoology - Progress in Oceanography - Estuarine, Coastal and Shelf Science – Coral Reefs – Lipids- Journal of Marine Systems – Marine Ecology an evolutionary perspective – Hydrobiologia – Plos ONE- Aquaculture Environment Interactions – Invertebrate Reproduction – Algal Research – International Journal of Biodiversity and Conservation – Diseases of aquatic organisms - Journal of Marine Science and Engineering – Ocean and Coastal Management – Aquatic Conservation: marine and freshwater ecosystems – Microbial Ecology - Egyptian Journal of Aquatic Research – Ecological Indicators – Current Biology – Mercator – Frontiers in Marine Biology – Biology Letters – Frontiers in Zoology – Peer J – The European Zoological Journal – Journal of Microbiological Methods - Society & Natural Resources – Marine Pollution Bulletin – Marine Geology - Science of the Total Environment – FACIES – Archivos do Ciencias do Mar – Frontiers

I have been, between 2019-2021, Guest Editor of Frontier in Marine Science, in two specific Special Issues: [“EU Project TASCAR - A Springboard for Accelerating the Valorisation of Mesophotic Coral Ecosystems”](#) and [“Coral Reef Restoration in a Changing World: Science-based Solutions”](#).

Recently (March 2022), I have been the editor in chief of the Special Volume (60 years of Labomar) of Archivos de Ciencias do Mar «[Conservation, management and Blue Growth in the decade of the Oceans](#)»; 26 papers from different parts of the world dedicated to the UN decade of the Oceans.

8- G-NATIONAL AND INTERNATIONAL PROJECT PARTICIPATION

I participated in more than 40 National (Spanish or Italian) and International Research Projects (in the 6th and 7th, Horizon 2020 framework EU program projects: METRO-MED, EUROGEL, HERMES, CENSOR, MedSeA, Blue Islands, REMEDIA, i-Plastics), 3 Technological projects and 8 Scientific Outreach Projects and Collaborative Projects. The complete list is in the ANNEX.

I leaded (or I'm leading) 9 different projects in which I could execute different subjects. The leaded projects are all related with Marine Forests, from the most theoretical ones to those in which there is a more applied focus.

In almost all the projects in which I have been a collaborator I managed a specific budget previously negotiated with the Principal Investigator (PI). The total budget managed during these last 20 years has been, approximately (excluding PhD and Post-Doc contracts) 7.000.000 €.

With the different projects, with different people, I could make the work that shaped my professional career but, above all, most of them helped to consolidate the path toward the Marine Animal Forest concept and the involved network.

Projects as PI (Funding: 17.520.000 €)

2001-2003, Monitoring of red coral *Corallium rubrum* populations in the Catalan Coast. Regional Projects with EU funding (PCC: 30103)

2003-2004, Trophic ecology of *Corallium rubrum* (Anthozoa-Octocorallia). Cooperation Project CSIC/CNR 2003T0013

2008-2009, Trophic biomarker analysis in a high productivity zone, the Humboldt current. CTM2008-02002-E

2010-2013, Larval fitness as a key factor in the population dynamics of gorgonians BENTOLARV. CTM2009-10007 (Subprograma MAR) project

Memorial SERGIO ROSSI

2013-2016, Multiple stressor effects in the photobiology of Caribbean symbiotic octocorals and its repercussion in the population fitness and reproductive output. Marie Curie IOF European Project Contract number 327845 FP7-PEOPLE-2012-IOF

2016-2018, Socio-Economic and Ecologic participative Scenarios for an adaptation to Environmental Global Change: the artisanal fisheries of Costa Brava (NW Mediterranean sea) case study. DARP-FEMP ARP/353/2016

2018, Euromarine Work Group “The marine animal forests of the world: challenges, frontiers and the role of science in its management and Conservation ANFORE” (2017 Call, WG3)

2020-2023, Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) Program “Dispersion and impacts of micro- and nano-plastics in the tropical and temperate oceans: from regional land-ocean interface to the open ocean-i-Plastic” (Co-PI-ITALY; PI Patrizia Ziveri)

2021-2025. COST Action: Marine Animal Forests of the World-MAF WORLD (CA 20102).

2022-2026. Tenerife Coastal and Offshore Regeneration program with Underwater Gardens International. Project supported by the Ocean Decade of the UNESCO (endorsement June 2022). (Scientific Director Sergio Rossi).

2023-2026 OCEAN CITIZEN “Marine forest coastal restoration: an underwater gardening socio-ecological plan” (Horizon Europe-Horizon-MISS-2021-OCEAN-02-01 European Blue Parks/2023-2026)

Selected Projects as partner (Funding managed by Sergio Rossi: 696.000€)

2001-2003, Mediterranean gorgonians: risks evaluation of a valuable natural patrimony. MEDGORG, CICYT (REN2000-0633-C03-01/MAR) (PI. JM Gili)

2003-2006, A multidisciplinary approach to the benthic-pelagic coupling processes in the Weddell Sea FILANT (Un proyecto EASIZ) (REN2003-04236) (PI F Pagès)

2003-2007, European gelatinous zooplankton: mechanisms of jellyfish bloom formation and their ecological and socio-economical effects (European Project EUROGEL) (F Pagès, Spanish partner)

2004-2008, CENSOR: Climate variability and El Niño Southern Oscillation: Implications for natural coastal Resources and management. Specific Targeted Research Project (INCO-2002-A2.2) Marzo 2004- Abril 2008. Contrato N° 511071. UE, VI Programa Marco (E Isla, Spanish partner).

2005-2010, HERMES: Hotspot Ecosystem Research on the Margins of European Seas. Contrato N° 511234-2 . Specific Targeted Research Project, Octubre 2004- Septiembre 2008. UE, VI Framework Program (JM Gili, Spanish partner).

Memorial SERGIO ROSSI

2005-2006, Recruitment, growth and mortality of red coral (*Corallium rubrum* L 1758). CSIC/CNR 2004T0040 PI Josep-María Gili)

2006-2009, Climate change in Antarctica: a benthic-pelagic coupling approach in the Weddell Sea (CLIMANT). POL 2006-06399/CGL, MEC (PI Enrique Isla)

2007-2010, Una aproximación interdisciplinar al manejo y la conservación marina: experiencias divergentes como base de estrategias globales. Proyecto MAPUCHE, Fundación BBVA, BIOCON 07/104 (PI Covadonga Orejas)

2011-2014, Mediterranean Sea Acidification under changing Climate (MedSeA, agreement 265103). (PI Patrizia Ziveri)

2016-2019, Seasonal variation of waste as effect of tourism BLUE ISLANDS (INTERREG MED. Ref N° 20161127) (PI Alkis Stavridis)

2017-2020, Planktonic calcifying organisms in a high-CO₂ Mediterranean Sea (CALMED) (CTM2016-79547-R) (PI Patrizia Ziveri)

2018-2020, Promozione del BuONo Stato ambientale marino e della pEscA sostenibile lungo la fascia costiera tra Otranto e Capo di Leuca - BON-SEA. (PO FEAMP 2014/2020) (PI Massimo Zuccaro)

2018-2022, REmediation of Marine Enviroment and Development of Innovative Aquaculture: exploitaiton of edible/not edible biomass-REMEDIA Life (LIFE env/it/000343) (PI Adriana Giangrande)

2021-2023, PELD Costa Semiárida – Como as mudanças ambientais afetam os sistemas socioecológicos costeiros? (PELD N° 21/2020 Programa: Programa de Pesquisa Ecológica de Longa Duração – PELD, BRAZIL) (PI Marcelo de Oliveira Soares)

2021-2024, MoSSH: Monitoraggio di siti, specie e habitat, natura 2000 in Puglia (PUGLIA FER-FSE2014-2020) (PI Genuario Belmonte)

In these projects, I could participate or lead field work both in scientific cruises and SCUBA diving campaigns.

Oceanographic Cruises

Period	Ship	Cruise	Position
March-May 2000	Polarstern	ANT XVII/3	PhD
Sep.-Oct. 2002	García del Cid	RED CORAL-1	Coordinator
September 2003	Bon Geni	RED CORAL-2	Coordinator

Memorial SERGIO ROSSI

Dec 2003-Feb 2004	Polarstern	ANT XXI/2	Invited Sci
Oct.-Nov. 2004	Bon Geni	INTERREG-R	Coordinator
Nov. 2009	Lluerna	RED CORAL-3	Coordinator
Feb-Apr. 2011	Polarstern	ANT XXVII/3	MAF Coordinator

ADDITIONAL INFORMATION

Full list of scientific publications

1. **Rossi S**, Hughes RG, Gili JM (1997) Factors affecting the orientation of growth of *Sertularia perpusilla* Stechow (Hydrozoa:Sertulariidae) on leaves of *Posidonia oceanica* (L.) Delille. *In*: Proceeding of the 5th International Conference on Coelenterate Biology (H. Den Hartog, ed.) University of Amsterdam, CL. Pp 409-414
2. **Rossi S**, Gili JM, Hughes RG (2000) The effects of exposure to wave action on the distribution and morphology of the epiphytic hydrozoans *Clava multicornis* and *Dynamena pumila*. *Scientia Marina* 64: 135-140
3. Gili JM, Coma R, Ribes M, **Rossi S** (2000) Mediterranean benthic suspension feeder communities within a world-wide approach. *In*: Dynamics of matter transfer and biogeochemical cycles: their modelling in coastal systems of the Mediterranean Sea: Final Scientific Report. Vol. 2, pp. 189-226
4. Snyder MJ, **Rossi S** (2000) Alterations in stress proteins correlate with space competition in sessile marine invertebrates. *American Zoologist* 40 (6): 1215-1216
5. Gili JM, Alfonso I, Gasol JM, Isla E, López-González P, Orejas C, Pedrós-Alió C, **Rossi S**, Sabater F, Pagès F, Piraino S, Teixidó N, Gerdes D, Arntz WE (2001) Pelagobenthic coupling and the role of benthic suspension feeders. *Ber. Polarforsch. Meeresforsch.* 402: 10-56.
6. **Rossi S**, Snyder MJ (2001) Competition for space among sessile marine invertebrates: changes in HSP70 expression in two Pacific cnidarians. *Biological Bulletin*. 201: 385-393.
7. Ribes M, Coma R, **Rossi S** (2003) Natural feeding of the temperate asymbiotic octocoral gorgonian *Leptogorgia sarmentosa* (Cnidaria: Octocorallia). *Marine Ecology Progress Series* 254: 141-150.
8. **Rossi S**, Grémare A, Gili JM, Amouroux JM, Jordana E, Vétion G (2003) Biochemical characteristics of settling particulate organic matter at two north-western Mediterranean sites: a seasonal comparison. *Estuarine, Coastal and Shelf Science* 58: 423-434.
9. Sabatés A, **Rossi S**, Reyes E (2003) Lipid content in the early life stages of three mesopelagic fishes. *Journal of Fish Biology* 63: 881-891.
10. **Rossi S**, Ribes M, Coma R, Gili JM (2004) Temporal variability in zooplankton

Memorial SERGIO ROSSI

prey capture rate of the soft bottom passive suspension feeder *Leptogorgia sarmentosa* (Cnidaria: Octocorallia), a case study. *Marine Biology* 144: 89-99

11. Snyder MJ, **Rossi S** (2004) Stress protein (HSP 70 family) expression in intertidal benthic organisms: the example of *Anthopleura elegantissima* (Cnidaria: Anthozoa). *Scientia Marina* 68 (Supl.1): 155-162
12. Gerdes D, Gili JM, Isla E, Lavaleye M, Michels J, Pasternak A, Rodríguez y Baena A, **Rossi S**, Vendrell B, Brey T (2005) Multidisciplinary spring bloom study. *Ber. Polarforsch. Meeresforsch.* 503: 36-37.
13. Gili JM, Isla E, Rodríguez E, Rodríguez y Baena A, **Rossi S**, Teixidó N, Vendrell B, Verdes D, Arntz W (2005) Benthic-pelagic coupling under polar spring conditions. *Ber. Polarforsch. Meeresforsch.* 503: 43-60.
14. **Rossi S**, Gili JM (2005) Composition and temporal variation of the near-bottom seston in a Mediterranean coastal area. *Estuarine, Coastal and Shelf Science* 65: 385-395
15. Tsounis G, **Rossi S**, Aranguren M, Gili JM, Arntz W. (2006) Effects of spatial variability and colony size on the reproductive output and gonadal development cycle of the Mediterranean red coral (*Corallium rubrum* L.). *Marine Biology* 148: 513-527
16. **Rossi S**, Snyder MJ, Gili JM (2006) Protein-carbohydrate-lipid levels and HSP70-HSP90 (stress protein) expression over an annual cycle of a benthic suspension feeder: useful tools to detect feeding constraints in a benthic suspension feeder. *Helgoland Marine Research* 60: 7-17
17. Gili JM, **Rossi S**, Pagès F, Orejas C, Teixidó N, López-González PJ, Arntz WE (2006) A new link between the pelagic and benthic systems in the Antarctic shelves. *Marine Ecology Progress Series* 322: 43-49
18. Tsounis G, **Rossi S**, Laudien J, Bramanti L, Fernández N, Gili JM, Arntz W (2006). Diet and seasonal prey capture rate in the Mediterranean red coral (*Corallium rubrum* L.). *Marine Biology* 149: 313-325
19. **Rossi S**, Gili JM, Coma R, Linares C, Gori A, Vert N (2006) Temporal variation in protein, carbohydrate, and lipid concentrations in *Paramuricea clavata* (Anthozoa, Octocorallia): evidence for summer–autumn feeding constraints. *Marine Biology* 149: 643-651
20. **Rossi S**, Sabatés A, Latasa M, Reyes E (2006) Lipid biomarkers and trophic linkages between phytoplankton, zooplankton and anchovy (*Engraulis encrasicolus*) larvae in the NW Mediterranean. *Journal of Plankton Research* 28: 551-562
21. Gili JM, Palanques P, Isla E, Arntz WE, Clarke A, Orejas C, Teixidó N, **Rossi S**,

- López-González PJ (2006) A unique assemblage of epibenthic sessile suspension feeders with archaic features in the high-Antarctic. *Deep-sea Research Part II* 53: 1029-1052
22. Isla E, **Rossi S**, Palanques A, Gili JM, Gerdes D, Arntz (2006) Biochemical composition of the sediment from the Eastern Weddell Sea High nutritive value in a high benthic-biomass environment. *Journal of Marine Systems* 60: 255-267
23. Tsounis G, **Rossi S**, Gili JM, Arntz W (2006). Population structure of an exploited benthic cnidarian: the red coral case study. *Marine Biology* 149:1059-1070
24. Bramanti L, **Rossi S**, Tsounis G, Gili JM, Santangelo G (2007). Settlement and early survival of red coral on artificial substrates in different geographic areas: some clues for demography and restoration. *Hydrobiologia* 580: 219-224
25. Santangelo G, Bramanti L, **Rossi S**, Tsounis G, Gili JM, Jannelli M (2007) Recruitment and survival of the red coral *Corallium rubrum* in protected and notprotected areas: some clues for conservation. “La gestione delle attività subacquee nelle AMP” pp 166-169
26. **Rossi S**, Gili JM. (2007) Short-time-scale variability of near bottom seston composition during spring in a warm temperate sea. *Hydrobiologia* 557: 373-388
27. Gori A, Linares C, **Rossi S**, Coma R, Gili JM (2007) Spatial variability in reproductive cycles of the gorgonians *Paramuricea clavata* and *Eunicella singularis* in the Western Mediterranean. *Marine Biology* 151: 1571-1584
28. Ribes M, Coma R, **Rossi S**, Micheli M (2007) The cycle of gonadal development of *Eunicella singularis* (Cnidaria: Octocorallia): trends on sexual reproduction in Mediterranean gorgonians. *Invertebrate Biology* 126: 307-317
29. **Rossi S**, Tsounis G (2007) Temporal and spatial variation in protein, carbohydrate, and lipid levels in *Corallium rubrum* (anthozoa, octocorallia). *Marine Biology* 152: 429-439
30. Tsounis G, **Rossi S**, Gili JM, Arntz W (2007) Red coral fishery at the Costa Brava (NW Mediterranean): case study for an over harvested precious coral. *Ecosystems* 10: 975-986
31. **Rossi S**, Youngbluth M, Jacoby C, Pagès F, Garrofé X (2008) Fatty acid composition and trophic links among seston, crustacean zooplankton and the siphonophore *Nanomia cara* in Georges Basin and Oceanographer Canyon (NW Atlantic). *Scientia Marina* 72(2): 403-416
32. **Rossi S**, Tsounis G, Orejas C, Padrón T, Gili JM, Bramanti L Teixidó N, Gutt J (2008). Survey of deep-dwelling red coral (*Corallium rubrum*) populations at Cap de Creus (NW Mediterranean). *Marine Biology* 154: 533-545

33. Gerdes D, Isla E, Knust R, Mintenbeck K, **Rossi S** (2008) Response of benthic communities to disturbance: the artificial disturbance experiment BENDEX on the eastern Weddell Sea Shelf, Antarctica. *Polar Biology* 31:1469-1480
34. Gili JM, Duró A, García-Valero J, Gasol JM, **Rossi S** (2008) Herbivorism in small carnivores: benthic hydroids as an example. *Journal of the Marine Biological Association UK* 88: 1541-1546
35. Gori A, Olariaga A, Orejas C, **Rossi S**, Quesada S, Valentin A, Bosch I, Turró J, Mestre M, Sanz JL, Teixidó J, Gili JM (2009) Bleeper-EVO: an easy-to-handle ROV for benthic study. *Oceanography* 22:71
36. Fuentes-Grünewald C, Garcés E, **Rossi S**, Camp J (2009) Use of the dinoflagellate *Karlodinium veneficum* as a sustainable source of biodiesel production. *Journal of Industrial Microbiology and Biothechnology* 36:1215-1224
37. Tsounis G, **Rossi S**, Gili JM (2009) Fishery management of the Mediterranean red coral: a call for a paradigm shift. In: Bruckner AW and Roberts GG (ed.). Proceedings of the First International Workshop on Corallium Science, Management and Trade. NOAA Technical Memorandum NMFS-OPR-43 and CRCP-8, Silver Spring, MD. Pp 123-143.
38. Gili JM, Orejas C, Isla E, **Rossi S**, Arntz WE (2009) Seasonality on the high Antarctic benthic shelf communities?. In: Antarctic Climate Change and the Environment (J. Turner, P. Convey, G. di Prisco, P. Mayewski, D. Hodgson, E. Fahrbach, B. Bindschadler, eds.). ACCE Report, Cambridge University Press, Cambridge. Pp 276-278.
39. **Rossi S**, Gili JM (2009) Near bottom phytoplankton and seston: importance in the pelagic-benthic coupling processes. In: Marine Phytoplankton (William T. Kersey and Samuel P. Munger, eds.). ISBN: 978-1-60741-087-4; Nova Science Publishers Inc, New York, pp 45-85
40. **Rossi S**, Gili JM (2009) Reproductive features and gonadal development cycle of the soft bottom-gravel gorgonian *Leptogorgia sarmentosa* (Esper 1791) in the NW Mediterranean sea. *Invertebrate Reproduction and Development* 53: 175-190
41. Tsounis G, **Rossi S**, Grigg R, Santangelo G, Bramanti L, Gili JM (2010) The exploitation and conservation of precious corals. *Oceanography & Marine Biology: An Annual Review* 48: 161-212
42. **Rossi S**, Fiorillo I (2010) Biochemical features of a *Protoceratium reticulatum* red tide in Chipana Bay (Northern Chile) in summer conditions. *Scientia Marina* 74(4): 633-642
43. Vielmini I, Bramanti L, Tsounis G, **Rossi S**, Gili JM, Cattaneo-Vietti R,

Santangelo G (2010) Determination of *Corallium rubrum* population age structure. In: Proceedings of the International Workshop on Red Coral Science, Management, and Trade: Lessons from the Mediterranean. Napoli, September 23 - 26, 2009 E Bussoletti, D Cottingham, A Bruckner, G Roberts, pp 179-182

44. Tsounis G, **Rossi S**, Gili JM (2010) Identifying population decline in *Corallium rubrum* by using historical information. In: Proceedings of the International Workshop on Red Coral Science, Management, and Trade: Lessons from the Mediterranean. Napoli, September 23 - 26, 2009 E Bussoletti, D Cottingham, A Bruckner, G Roberts, pp 33-39

45. Gori A, **Rossi S**, Berganzo-González E, Pretus JL, Dale MRT, Gili JM (2011) Spatial distribution, abundance and relationship with environmental variables of the gorgonians *Eunicella singularis*, *Paramuricea clavata* and *Leptogorgia sarmentosa* (Cape of Creus, Northwestern Mediterranean Sea). *Marine Biology* 158: 143-158

46. Isla E, Gerdes D, **Rossi S**, Fiorillo I, Sañe E, Gili JM, Arntz W. (2011) Biochemical characteristics of surface sediments on the eastern Weddell Sea continental shelf, Antarctica: is there any evidence of seasonal patterns? *Polar Biology* 34:1125-1133

47. Soler-Membrives A, **Rossi S**, Munilla T (2011) Feeding ecology of *Ammothella longipes* (Arthropoda: Pycnogonida) in the Mediterranean Sea: A fatty acid biomarker approach. *Estuarine, Coastal and Shelf Science* 92: 588-597

48. **Rossi S**, Gili JM, Garrofé X (2011) Net negative growth detected in a population of *Leptogorgia sarmentosa*: quantifying the biomass loss in a benthic soft bottom-gravel gorgonian. *Marine Biology* 158:1631-1643

49. Gori A, **Rossi S**, Linares C, Berganzo E, Orejas C, Dale MRT, Gili JM (2011) Size and spatial structure in deep vs shallow populations of the Mediterranean gorgonian *Eunicella singularis* (Cap de Creus, Northwestern Mediterranean Sea). *Marine Biology* 158: 1721-1732

50. Costantini F, **Rossi S**, Pintus E, Cerrano C, Gili JM, Abbiati M (2011) Declining fine-scale genetic variability in *Corallium rubrum* population along a depth gradient. *Coral Reefs* 30: 991-1003

51. Bramanti L, Vielmini I, **Rossi S**, Stolfi S, Santangelo G (2011) Approaching recreational scuba divers to emblematic species conservation: the case of red coral (*Corallium rubrum*). *Journal for Nature Conservation* 19: 312-318

52. Fuentes-Grünewald C, Garcés E, Alacid E, Sampedro N, **Rossi S**, Camp J (2011) Improvement of lipid production in the marine strains *Alexandrium minutum* and *Heterosigma akashiwo* by utilizing abiotic parameters. *Journal of Industrial Microbiology and Biothechnology* 39: 207-216

53. Benedetti A, Bramanti L, Tsounis G, Faimali M, Pavanello G, **Rossi S**, Gili JM, Santangelo G (2011) Applying cathodically polarised substrata to the restoration of a high value coral. *Biofouling* 27: 799-809
54. Sardà R, **Rossi S**, Martí X, Gili JM (2012) Marine Benthic cartography of the NE Catalan Coast (Mediterranean Sea). *Scientia Marina* 76(1): 159-171
55. Santangelo G, Bramanti L, **Rossi S**, Tsounis G, Vielmini I, Lott C, Gili JM (2012) Patterns of variation in recruitment and post-recruitment processes of the Mediterranean precious gorgonian coral *Corallium rubrum*. *Journal of Experimental Marine Biology and Ecology* 411:7-13
56. Tsounis G, Martínez L, Bramanti L, Viladrich N, Martínez A, Gili JM, **Rossi S** (2012) Effects of human impact on the reproductive effort and allocation of energy reserves in the Mediterranean octocoral *Paramuricea clavata*. *Marine Ecology Progress Series* 449: 161-172
57. Sevigné-Itoiz E, Fuentes-Grünwald C, Gasol CM, Garcés E, Alacid E, **Rossi S**, Rieradevall J (2012) Energetic balance and environmental impact analysis of microalgal production for biodiesel generation in a photobioreactor pilot plant. *Biomass and Bioenergy* 39: 324-335
58. **Rossi S**, Isla E, Fietz S, Martínez-García A, Sañé E, Teixidò N (2012) Temporal variation of seston biomarkers within the Humboldt Current System off northern Chile (21°S): first simultaneous records on fatty acids, n-alkanes and GDGTs. *Advances in Oceanography and Limnology* 3: 17-40
59. Gori A, Viladrich N, Gili JM, Kotta M, Cucio C, Magni L, **Rossi S** (2012) Reproductive cycle and trophic ecology in deep versus shallow populations of the Mediterranean gorgonian *Eunicella singularis*. *Coral Reefs* 31: 823-837
60. Gori A, Bramanti L, Lopez-Gonzalez P, Thoma J, Gili JM, Griny J, Uceira V, France S, **Rossi S** (2012) Characterization of the zooxanthellate and azooxanthellate morphotypes of the Mediterranean gorgonian *Eunicella singularis*. *Marine Biology* 159: 1485-1496
61. Fietz S, Huguet C, Bendle J, Escala M, Herfort L, Ingalls A, Martínez-García A, McClymont E, Peck V, Prahl F, **Rossi S**, Rueda G, Sanson A, Sparrow MA, Zonneveld K, Rosell-Melé A (2012) Co-variation of crenarchaeol and branched GDGTs in globally-distributed marine and freshwater sedimentary archives. *Global Planetary Change* 92-93: 275–285
62. Fuentes-Grünwald C, Alacid E, Garcés E, **Rossi S**, Camp J (2012) Biomass and lipid production of dinoflagellates and raphidophytes in indoor and outdoor photobioreactors. *Marine Biotechnology* 15: 37-47
63. **Rossi S**, Bramanti L, Broglio E, Gili JM (2012) Trophic impact of long-lived

species indicated by population dynamics in a short-lived hydrozoan, *Eudendrium racemosum*. *Marine Ecology Progress Series* 467: 97-111.

64. **Rossi S** (2013) The destruction of the 'animal forests' in the oceans: Towards an over-simplification of the benthic ecosystems. *Ocean & Coastal Management* 84: 77-85

65. Orejas C, **Rossi S**, Peralba A, Reise M, García E, Gili JM (2013) Feeding ecology and trophic impact of the hydroid *Obelia dichotoma* in Kongsfjord (Spitzbergen, Norway). *Polar Biology* 36: 61-72

66. Elias-Piera F, **Rossi S**, Gili JM, Orejas C (2013) Trophic ecology of seven Antarctic gorgonians. *Marine Ecology Progress Series* 477: 93-106

67. Fiorillo I, **Rossi S**, Gili JM, Alvà V, López-González PJ (2013) Seasonal cycle of sexual reproduction of the Mediterranean soft coral *Alcyonium acaule* (Anthozoa, Octocorallia). *Marine Biology* 160:719–728

68. Gori A, Linares C, Viladrich N, Clavero A, Orejas C, Fiorillo I, Ambroso S, Gili JM, **Rossi S** (2013) The effects of starvation on the gonadal development and biochemical composition of the Mediterranean gorgonian *Paramuricea clavata*. *Journal of Experimental Marine Biology and Ecology* 444: 38-45

69. Tsounis G, **Rossi S**, Bramanti L, Santangelo G (2013) Management hurdles in the sustainable harvesting plans of *Corallium rubrum*. *Marine Policy* 39: 361-364

70. Quintanilla E, Gili JM, López-González PJ, Tsounis G, Madurell T, Fiorillo I, **Rossi S** (2013) Sexual reproductive cycle of the epibiotic soft coral, *Alcyonium coralloides* (Octocorallia, Alcyonacea), growing on the Mediterranean gorgonian *Paramuricea clavata*. *Aquatic Biology* 18: 113-124

71. Bramanti L, Movilla J, Guron M, Calvo E, Gori A, Dominguez-Carrio C, Grinyo J, Lopez-Sanz A, Martinez-Quintana A, Pelejero C, Ziveri P, **Rossi S** (2013) Detrimental effects of Ocean Acidification on the economically important Mediterranean red coral (*Corallium rubrum*). *Global Change Biology* 19: 1897-1908

72. Queiroz L, **Rossi S**, Meireles J, Coelho J (2013) Shrimp aquaculture in the state of Ceará during the period 1970-2012: Trends of the privatization of mangrove forest in Brazil. *Ocean and Coastal Management* 73: 54-62

73. Xavier JC, Barbosa A, Agusti S, Alonso-Sáez L, Alvito P, Ameneiro J, Avila C, Baeta A, Canário A, Carmona R, Catry P, Ceia F, Clark M S, Cristobo F J, Cruz B, Duarte C M, Figuerola B, Gili JM, Gonçalves A, Gordillo FJ L, Granadeiro JP, Guerreiro M, Isla E, Jiménez C, López-González P J, Lourenço S, Marques J C, Moreira E, Mota A M, Nogueira M, Núñez-Pons L, Orejas C, Paiva V H, Palanques A, Pearson G A, Pedrós-Alió C, Peña Cantero A L, Power D M, Ramos JA, **Rossi S**,

Seco J, Sañe E, Serrão E A, Taboada S, Tavares S, Teixidó N, Vaqué D, Vázquez E, Vieira R, Viñegla B (2013) Polar marine biology science in Portugal and Spain: Recent advances and future perspectives. *Journal of Sea Research* 83: 9-29

74. **Rossi S**, Isla E, Martínez-García A, Moraleda N, Gili JM, Rosell-Melé A, Arntz W, Gerdes D (2013) Transfer of seston lipids during a flagellate bloom from the surface to the benthic community in the Weddell Sea. *Scientia Marina* 77: 397-407

75. Queiroz L, Meireles J, **Rossi S** (2013) Serviços ecossistêmicos costeiros e comunidades tradicionais. *Revista da ANPEGE* 8(10): 153-167

76. Ambroso S, Gori A, Dominguez C, Gili JM, Berganzo E, Teixidor N, Greenacre M, **Rossi S** (2013) Spatial distribution patterns of the soft corals *Alcyonium acaule* and *Alcyonium palmatum* in coastal bottoms (Cap de Creus, northwestern Mediterranean Sea). *Marine Biology* 160:3059–3070

77. Gili JM, Sardà R, Madurell T, **Rossi S** (2014) Zoobenthos. In: The Mediterranean Sea: Its History and Present Challenges. Fauna. Goffredo S & Dubinsky Z (Eds.). Springer, Germany ISBN 978-94-007-6703-4, Chapter 12, pp 213- 236

78. Bramanti L, Vielmini I, **Rossi S**, Tsounis G, Iannelli M, Cattaneo-Vietti R, Priori C, Santangelo G (2014) Demographic parameters of two populations of red coral (*Corallium rubrum* L. 1758) in the North Western Mediterranean. *Marine Biology* 161: 1015-1026

79. Zorrilla-Pujana J, **Rossi S** (2014) Integrating environmental education in marine protected areas management in Colombia. *Ocean and Coastal Management* 93: 67-75

80. Coppari M, Gori A, **Rossi S** (2014) Size, spatial and bathymetrical distribution of the Mediterranean ascidian *Halocynthia papillosa* in a large coastal area of the Northwestern Mediterranean Sea: benthic-pelagic coupling implications. *Marine Biology* 161: 2079-2095

81. Santos-Ballardo DU, **Rossi S**, Hernández V, Vázquez-Gómez R, Rendón-Unceta MC, Caro-Corrales J, Valdez-Ortiz A (2015) A simple spectrophotometric method for biomass measurement of important microalgae species in aquaculture. *Aquaculture* 448: 87-92

82. Martínez-Quintana A, Bramanti L, Villadrich N, **Rossi S**, Guizien K (2015) Quantification of larval traits driving connectivity: the case of *Corallium rubrum* (L.1758). *Marine Biology* 162: 309-318

83. Santos-Ballardo DU, Font X, Sánchez A, Barrena R, **Rossi S**, Valdez-Ortiz A (2015) Valorization of biodiesel production wastes: Anaerobic digestion of residual *Tetraselmis suecica* biomass and co-digestion with glycerol. *Waste Management and Research* 33: 250-257

84. Rodrigues L, van den Berg J, Loureiro M, Nunes P, **Rossi S** (2015) The Cost of Mediterranean Sea Warming and Acidification: A Choice Experiment among Scuba Divers at Medes Islands, Spain. *Environmental and Resource Economics* 63: 289-311
85. Viladrich N, **Rossi S**, López A, Orejas C (2016) Nutritional condition of two coastal rocky fishes and the potential role of a marine protected area. *Marine Ecology, an evolutionary perspective* 37: 46-63
86. Coppari M, Gori A, Viladrich N, Saponari L, Grinyó J, Olariaga A, **Rossi S** (2016) The role of sponges in the benthic-pelagic coupling process in warm temperate coastal bottoms. *Journal of Experimental Marine Biology and Ecology* 477: 57-68
87. Santos-Ballardo DU, **Rossi S**, Valdez-Ortiz A (2016) Energía verde a partir de microalgas: Biogás como estrategia para una biorefinería sustentable. Editorial Académica Española, 173 pp. ISBN: 978-3-659-70090-3
88. Santos-Ballardo DU, **Rossi S**, Reyes-Moreno C, Milán-Carrillo J Valdez-Ortiz A (2016) Microalgae potential as a biogas source: current status, restraints and future trends. *Reviews in Environmental Science and Bio/Technology* 15: 243-264
89. Viladrich N, Bramanti L, Tsounis G, Chocarro B, Martínez-Quintana A, Ambroso S, Madurell T, **Rossi S** (2016) Variation in lipid and free fatty acid content during spawning in two temperate octocorals with different reproductive strategies: surface versus internal brooder. *Coral Reefs* 35: 1033-1045
90. Zorrilla-Pujana J, **Rossi S** (2016) Environmental Education indicators system for protected areas management. *Ecological Indicators* 67: 146-155
91. Santos-Ballardo DU, Rendón-Unceta MC, **Rossi S**, Vázquez-Gómez R, Reyes-Moreno C, Valdez-Ortiz A (2016) Effects of outdoor cultures on the growth and lipid production of *Phaeodactylum tricornutum* using closed photobioreactors. *World Journal of Microbiology and Biotechnology* 32:128 doi:10.1007/s11274-016-2089-1
92. Galli G, Bramanti L, Priori C, **Rossi S**, Santangelo G, Tsounis G, Solidoro C (2016) Modelling red coral (*Corallium rubrum*) growth in response to temperature and nutrition. *Ecological Modeling* 337: 137-148
93. Brizon-Portugal A, Lopes-Carvalho F, Carneiro P, **Rossi S**, Oliveira-Soares M (2016) Increased anthropogenic environmental pressure decreases species richness in tropical intertidal sandstone reefs. *Marine Environmental Research* 120: 44-54
94. Costantini F, Gori A, López-González P, Bramanti L, **Rossi S**, Gili JM, Abbiati M (2016) Limited genetic connectivity between gorgonian morphotypes along a depth gradient. *Plos One* DOI:10.1371/journal.pone.0160678
95. Soares M, **Rossi S**, Santos Martins FA, Macêdo Carneiro PB (2017) The forgotten reefs: Benthic assemblage coverage on a sandstone tropical reef (South-

western Atlantic). *Journal of the Marine Biological Association of the United Kingdom* 97: 1585-1592

96. **Rossi S**, Coppari M, Viladrich N (2017) Benthic-Pelagic Coupling: New Perspectives in the Animal Forests. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany 855-886

97. **Rossi S**, Bramanti L, Gori A, Orejas C (2017) An Overview of the Animal Forests of the World. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany. 1-28

98. Schubert N, Brown D, **Rossi S** (2017) Symbiotic versus asymbiotic octocorals: physiological and ecological implications. In: Marine Animal Forests: the ecology of benthic biodiversity hotspots. Rossi S, Bramanti L, Gori A, Orejas C [EDITORS]. Springer, Germany. Pp 887-918

99. Viladrich N, Bramanti L, Tsounis G, Martínez-Quintana A, Ferrier-Pagés C, Isla E, **Rossi S** (2017) Variation of lipid and free fatty acid contents during larval release in two temperate octocorals according to their trophic strategy. *Marine Ecology Progress Series* 573: 117-128

100. Queiroz L, **Rossi S**, Calvet-Mir L, Ruíz-Mallén I, Betroz S, Prat J, Meireles AJA (2017) Neglected ecosystem services: highlighting the socio-cultural perception of mangroves in decision-making processes. *Ecosystem services* 26: 137-145

101. Servetto N, **Rossi S**, Fuentes V, Alurralde G, Lagger C, Sahade R (2017) Seasonal trophic ecology of the dominant Antarctic coral *Malacobelemnion daytoni* (Octocorallia, Pennatulacea, Kophobelemnidae). *Marine Environmental Research* 130: 264-274

102. **Rossi S**, Soares M (2017) Effects of El Niño on the coastal ecosystems and their related services—observations on contrasted geographic areas. *Mercator* doi.org/10.4215/rm2017.e16030

103. Soares M, Coelho Campos C, Oliveira Santos NM, Sousa Barroso H, Targino Mota EM, Becerra de Meneses MO, **Rossi S**, Martins Garcia T (2018) Marine bioinvasions: differences in tropical plankton communities between inside and outside a port. *Journal of Sea Research* 134: 42-48

104. **Rossi S**, Elias-Piera F (2018) Trophic ecology of three echinoderms in the deep waters of the Weddell Sea (Antarctica). *Marine Ecology Progress Series* 596: 143-153

105. Milisenda G, **Rossi S**, Fuentes V, Tilves U, Boero F, Viladrich N, Piraino S (2018) Seasonal variability of diet and trophic level of the gelatinous predator *Pelagia noctiluca* (Scyphozoa). *Scientific Reports* DOI:10.1038/s41598-018-30474-x

106. **Rossi S**, Schubert N, Brown D, Soares M, Grosso V, Rangel-Huerta E, Maldonado E (2018) Linking host morphology and symbiont performance in octocorals. *Scientific Reports* DOI:10.1038/s41598-018-31262-3
107. Turner JA, Andradi-Brown DA, Gori A, Bongaerts P, Burdett H, Ferrier-Pagès C, Voolstra CR, Bridge T, Costantini F, Gress E, Laverick J, Loya Y, Goodbody-Gringley G, **Rossi S**, Taylor ML, Viladrich N, Voss J, Weinstein DK, Williams J, Woodall LC, Eyal G (2019) Twenty-Four Key Questions for Mesophotic Ecosystem Research and Conservation. In: Mesophotic Coral Ecosystems; Yossi L, Puglise KA., Bridge TCL (Eds.), Springer. Pp 989-1003. ISBN 978-3-319-92735-0
108. **Rossi S**, Orejas C (2019) Approaching CWC to the society: novel ways to transfer knowledge. C. In: Orejas, C. Jiménez (eds.), *Mediterranean Cold-Water Corals: Past, Present and Future*, Coral Reefs of the World 9. Springer-Nature, Germany. doi.org/10.1007/978-3-319-91608-8_39
109. Ponti M, Turicchia E, Costantini F, Gori A, Bramanti L, di Camillo CG, Linares C, **Rossi S**, Abbiati M, Garrabou J, Cerrano C (2019) Mediterranean gorgonian forests: distribution patterns and ecological roles. *RAC-SPA Conference paper*. Pp 7-14
110. **Rossi S**, Rizzo L, Duchêne JC (2019) Polyp expansion of passive suspension feeders: a red coral case study. *Peer J* DOI 10.7717/peerj.7076
111. **Rossi S**, Gravili C, Milisenda G, Bosch-Belmar M, De Vito D, Piraino S (2019) Effects of global warming on reproduction and potential dispersal of Mediterranean cnidarians. *The European Zoological Journal* 86: 255-271
112. **Rossi S**, Isla E, Bosch-Belmar M, Galli G, Gori A, Gristina M, Ingrosso GM, Milisenda G, Orejas C, Piraino S, Rizzo L, Schubert N, Soares M, Solidoro C, Thurstan R, Viladrich N, Willis T, Ziveri C (2019) Changes of energy fluxes in the marine animal forest of the Anthropocene: factors shaping the future seascape. *ICES Journal of Marine Sciences* 76: 2008-2019 doi:10.1093/icesjms/fsz147
113. Coppari M, Zanella C, **Rossi S** (2019) The importance of gorgonians in the blue carbon budget. *Scientific Reports* doi.org/10.1038/s41598-019-49797-4
114. Mallo M, Patrizia P, Reyes P, **Rossi S** (2019) Historical record of *Corallium rubrum* and its changing carbon sequestration capacity: a meta-analysis from the North Western Mediterranean. *Plos One* doi.org/10.1371/journal.pone.0223802
115. Ripple WJ et al. & 11262 Scientists (2019) World Scientists' Warning of a Climate Emergency. *Bioscience* biz088 <https://doi.org/10.1093/biosci/biz088>
116. **Rossi S** (2019) Historical ecology, understanding the actual panorama using past scenarios. *Biologia Marina Mediterranea* 26 (1): 203-211

117. Queiroz L, **Rossi S**, Mercader AT, Serra-Pompei C, Vide-Pifarré D, Carrasco-Domínguez J, Monrabà J, Carol MJ, Burriel MC, Briansó-Martínez M, Meireles AJA (2020) The economic and social framework of artisanal fishing in the state of Ceará, Brazil. *GeoSaber* 11: 180-198
118. **Rossi S**, Schubert N, Soares M, Brown D, Gómez-Posada A (2020) Trophic ecology of two Caribbean octocorals: autotrophic and heterotrophic seasonal trends. *Coral Reefs* 39: 433–449
119. Zelli E, Quere G, Lago N, Di Franco G, Costantini F, **Rossi S**, Bramanti L (2020) Settlement response of Mediterranean gorgonians larvae to different Crustose Coralline Algae species. *Journal of Experimental Marine Biology and Ecology* doi.org/10.1016/j.jembe.2020.151427
120. Sissini MN, Berchez F, Hall-Spencer J, Ghilardi-Lopes N, Carvalho VF, Schubert N, Koerich G, Diaz-Pulido G, Silva J, Serrão E, Assis J, Santos R, Floeter SR, Rörig L, Barufi JB, Bernardino AF, Francini-Filho R, Turra A, Hofmann LC, Aguirre J, Le Gall L, Peña V, Nash MC, **Rossi S**, Soares M, Pereira-Filho G, Tâmega F, Horta PA (2020) Brazilian Rhodolith Beds – world heritage under threat. *Science* 367 (6474): 156
121. Soares M, Teixeira CEP, Bezerra LEA, **Rossi S**, Tavares T, Cavalcante RM (2020) Oil spill response: Government coordination. *Science* 367 (6474): 155
122. Soares M, Thé de Araujo J, Cavalcante-Ferreira SM, Almeida-Santos B, Boavida J, Costantini F, **Rossi S** (2020) Why do mesophotic coral ecosystems have to be protected?. *Science of the Total Environment* doi.org/10.1016/j.scitotenv.2020.138456
123. Elias-Piera F, **Rossi S**, Petti MAV, Campos LS, Valério-Berardo MT, Corbisier TN (2020) Fauna associated with morphologically distinct macroalgae from Admiralty Bay, King George Island (Antarctica). *Polar Biology* doi.org/10.1007/s00300-020-02726-y
124. González-De Zayas R, **Rossi S**, Hernández-Fernández L, Soto-Jiménez M, Soares M, Merino-Ibarra M, Castillo-Sandoval FS (2020) Stable isotopes to assess pollution impacts on coastal and marine ecosystems of the Caribbean Region. *Regional Studies in Marine Science* doi.org/10.1016/j.rsma.2020.101413
125. Balzan MV, Hassoun AER, Aroua N, Baldy V, Bou Dagher M, Branquinho C, Dutay J-C, El Bour M, Médail F, Mojtahid M, Morán-Ordóñez A, Roggero PP, **Rossi S**, Schatz B, Vogiatzakis IN, Zaimes GN, Ziveri P (2020) Ecosystems. In: Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report [Cramer W, Guiot J, Marini K (eds.)] Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 151pp

126. Thé J, Barroso HS, Mammone M, Viana M, Melo CSV, Batista CS Melo, Mies M, Banha T, Morandini AC, **Rossi S**, Soares MO (2020) Aquaculture facilities promote populational stability throughout seasons and increase medusae size for the invasive jellyfish *Cassiopea andromeda*. *Marine Environmental Research* <https://doi.org/10.1016/j.marenvres.2020.10516>
127. Soares M, Matos E, Lucas C, Rizzo L, Allcock L, **Rossi S** (2020) Microplastics in Corals: An emergent threat. *Marine Pollution Bulletin* doi.org/10.1016/j.marpolbul.2020.111810
128. **Rossi S**, Rizzo L (2020) Marine animal forests as C immobilizers or why we should preserve these three-dimensional alive structures. In: Perspectives on the marine animal forests of the world, Sergio Rossi and Lorenzo Bramanti (Ed.). Springer-Nature. Pp: 333-399, doi.org/10.1007/978-3-030-57054-5_12
129. Soares M, Cruz ICS, Santos A, Lopez-Tavares TC, Menezes N, Diniz-Lopes B, Thé J, Gurgel AL, **Rossi S** (2020) Marginal reefs in the Anthropocene: they are not Noah's Ark In: Perspectives on the marine animal forests of the world, Sergio Rossi and Lorenzo Bramanti (Ed.). Springer-Nature. doi.org/10.1007/978-3-030-57054-5_4
130. Stark JS, Gregr EJ, **S Rossi**, Porter SN, Altieri, Keith DA. (2020). *M1.5 Photo-limited marine animal forests*. In: Keith, D.A., Ferrer-Paris, J.R., Nicholson, E. and Kingsford, R.T. (eds.) (2020). The IUCN Global Ecosystem Typology 2.0: Descriptive profiles for biomes and ecosystem functional groups. Gland, Switzerland: IUCN. DOI:[10.2305/IUCN.CH.2020.13.en](https://doi.org/10.2305/IUCN.CH.2020.13.en)
131. Garcia T, Campos C, Costa GAS, Santos NMO, Belmonte G, **Rossi S**, Soares MO (2021) Plankton net mesh size influences the resultant diversity and abundance estimates in tropical oligotrophic ecosystems. *Estuarine, Coastal and Shelf Science* doi.org/10.1016/j.ecss.2020.107083
132. Thé J, Gamero-Mora E, Chagas da Silva MV, Morandini AC, **Rossi S**, Soares M (2021) Non-indigenous upside-down jellyfish *Cassiopea andromeda* in shrimp farms (Brazil). *Aquaculture*. [10.1016/j.aquaculture.2020.735999](https://doi.org/10.1016/j.aquaculture.2020.735999)
133. Rossi P, Ponti M, Righi S, Castagnetti C, Simonini R, Mancini F, Agrafiotis P, Bassani L, Bruno F, Cerrano C, Cignoni P, Corsini M, Drap P, Dubbini M, Garrabou J, Gori A, Gracias N, Ledoux J-B, Linares C, Mantas TP, Menna F, Nocerino E, Palma M, Pavoni G, Ridolfi A, **Rossi S**, Skarlatos D, Treibitz T, Turicchia E, Yuval M and Capra A (2021) Needs and Gaps in Optical Underwater Technologies and Methods for the Investigation of Marine Animal Forest 3D Structural Complexity. *Frontiers in Marine Science* 8:591292. doi: 10.3389/fmars.2021.591292
134. Mammone M, Ferrier-Pagés C, Lavorano S, Rizzo L, Piraino S, **Rossi S** (2021). High photosynthetic plasticity may reinforce invasiveness of upside-down zooxanthellate jellyfish in Mediterranean coastal waters. *Plos One* 16(3): e0248814

Memorial SERGIO ROSSI

135. Soares M, **Rossi S**, Rebouças-Gurgel ALA, Costa-Lucas C, Lopes-Tavares TC, Feitosa CV, Pereira PHC, Papa de Kikuchi RK, Leão ZML, Silva-Cruz IG, Alvarez-Filip L (2021) Marginal reefs under pressure (South Atlantic, Brazil). *Ocean and Coastal Management* doi.org/10.1016/j.ocecoaman.2021.105692

136. Giangrande A, Gravina DF, **Rossi S**, Longo C, Pierri D (2021) Aquaculture and restoration: perspectives from the Mediterranean Sea experiences. *Water* 13, 991. doi.org/10.3390/w13070991

137. **Rossi S**, Rizzo L (2021) The importance of food pulses in benthic-pelagic coupling processes of passive suspension feeders. *Water* 13, 997. <https://doi.org/10.3390/w13070997>

138. Gravili C, **Rossi S** (2021) Who's next? Non-indigenous cnidarian and ctenophoran species approaching to the Italian waters. *Water* 13, 1062. <https://doi.org/10.3390/w13081062>

139. Merlo S, Gabarrell X, Pedroso A, **Rossi S** (2021) Marine microalgae contribution to sustainable development. *Water* doi.org/10.3390/w13101373

140. Soares MO, Campos CC, Carneiro PBM, Barroso HS, Marins RV, Teixeira CEP, Menezes MOB, Pinheiro LS, Viana MB, Feitosa CV, Botero J, Bezerra LEA, Rocha-Barreira C, Matthews-Cascon H, Matos F, Gorayeb A, Cavalcante M, Moro MF, **Rossi S**, Belmonte G, Melo VMM, Rosado AS, Ramires G, Tavares TCL, Garcia TM (2021) The Brazilian semi-arid coast in times of global environmental changes. *Perspectives in Ecology & Conservation* doi.org/10.1016/j.pecon.2021.06.001

141. Fraissinet S, Pennetta A, **Rossi S**, De Benedetto GE, Malitesta C (2021) Optimization of a new multi-reagent procedure for quantitative mussel digestion in microplastic analysis. *Marine Pollution Bulletin* doi.org/10.1016/j.marpolbul.2021.112931

142. Rizzo L, Fiorillo I, **Rossi S** (2021) Seasonal trends in the activity rhythms and nutritional status of *Alcyonium acaule* (Octocorallia, Alcyonacea). *Peer J* DOI 10.7717/peerj.12032

143. Ahn I-Y, Elias-Piera F, Ha S-Y, **Rossi S**, Kim DU (2021) Seasonal dietary shifts of the gammarid amphipod *Gondogeneia antarctica* in a rapidly warming fjord of the West Antarctic Peninsula. *Journal of Marine Science and Engineering* doi: 10.3390/jmse9121447

144. Viladrich N, Bramanti L, Tsounis G, Coppari M, López-Carrió C, Pruski A, **Rossi S** (2022) Consequences of energy mobilization on larval success of Mediterranean octocoral species. *Mediterranean Marine Science*, 115–124. <https://doi.org/10.12681/mms.27151>

145. **Rossi S** (2022) How carbon immobilization from restored marine forests may help climate change mitigation plans? *Archivos do Ciencias do Mar* 55 (Especial Labomar 60 anos): 202 - 218

146. Queiroz L, **Rossi S**, Meireles AJA (2022) Socio-cultural valuation of mangroves: subsidies for public policies towards the conservation of Brazilian coastal wetlands. In: *Brazilian Mangroves and Salt Marshes*; Vol. 8. Springer-Nature. ISBN 978-3-031-13485-2
147. Mallo-Costa M, Ziveri P, **Rossi S**, Reyes-García V (2022) Local and tourist perceptions of coastal marine habitats in Cap de Creus (NE Spain). *Regional Environmental Change* 22:73 doi.org/10.1007/s10113-022-01924-0
148. Arias-Gonzalez JE, Baums IB, Banaszak AT, Prada C, **Rossi S**, Hernandez-Delgado EA, Rinkevich B (2022) Editorial: Coral Reef Restoration in a Changing World: Science-Based Solutions. *Frontiers in Marine Science* 9:919603. doi: 10.3389/fmars.2022.919603
149. **Rossi S**, Bramanti L, Horta P, Allcock L, Carreiro-Silva M, Coppari M, Denis V, Hadjioannou L, Isla E, Jimenez C, Johnson M, Mohn C, Orejas C, Ramšak A, Reimer J, Rinkevich B, Rizzo L, Salomidi M, Samaai T, Schubert N, Soares M, Thurstan RH, Vassallo P, Ziveri P, Zorrilla-Pujana J (2022) Protecting global marine animal forests. *Science* VOL 376 ISSUE 6596 929 DOI 10.1126/science.abq7583
150. Johnson R, Langer G, **Rossi S**, Probert I, Mammone M, Ziveri P (2022) Nutritional response of a coccolithophore to changing pH and temperature. *Limnology and Oceanography* 67, 2309–2324 DOI: 10.1002/lno.12204
151. Carneiro PBM, Ximenes-Neto A, Jucá-Queiroz B, Teixeira CEP, Feitosa CV, Barroso CX, Faria VV, Matthews-Cascon H, Morais JO, Freitas JEP, Santander-Neto J, Thé JA, Monteiro LHU, Pinheiro LS, Braga MDA, Cordeiro RTS, **Rossi S**, Bejarano S, Salani S, Garcia TM, Lotufo TMC, Smith TB, Faria VV, Soares MO (2022) One vast South American reef system: connecting the Eastern Brazilian and the Amazon reefs. *Scientific Reports* 12:17359
152. Campos CC, Barroso HS, Belmonte G, **Rossi S**, Soares MO, Garcia TM (2022) Copepod assemblages at the base of mangrove food webs during a severe drought. *Water* 14:3648
153. Orejas C, Carreiro-Silva M, Mohn C, Reimer JD, Samaai T, Allcock AL, **Rossi S** (2022) Marine Animal Forests of the World: Definition and Characteristics. *RIO* 8: e96274
154. Horta PA, Sissini M, Mueller CM, Soares FMM, Pagliosa P, Rörig L, Bonomi-Barufi J, Berchez F, Cunha LC, Kerr R, **Rossi S**, Soares M; Rodrigues-Filho JL, Pinheiro HT, Henning L; Espindola MA, Oliveira NF, Fonseca AL (2023) Brazil fosters fossil fuel exploitation despite climate crises and the environmental vulnerabilities. *Marine Policy* 148: 105423 <https://doi.org/10.1016/j.marpol.2022.105423>
155. Fraissinet S, Arduini D, Vidal O, De Benedetto GE, Malitesta C, Giangrande A, **Rossi S** (2023) Particle uptake by filter-feeding macrofoulers from the Mar Grande of Taranto: potential as microplastic pollution bioremediators. *Marine Pollution Bulletin*

156. Lucas CC, Teixeira CEP, Braga MDA, Júnior FC, Paiva SV, Gurgel AL, **Rossi S**, Soares MO (2023). Heatwaves and a decrease in turbidity drive coral bleaching in Atlantic marginal equatorial reefs. *Frontiers in Marine Science* 10:1061488. doi: 10.3389/fmars.2023.1061488
157. Mammone M, Bosch-Belmar M, Milisenda G, Castriota L, **Rossi S**, Piraino S (2023) Reproductive cycle and gonadal output of the alien Jellyfish *Cassiopea andromeda* in the Mediterranean Sea. *Plos* 18(2): e0281787. <https://doi.org/10.1371/journal.pone.0281787>
158. Pinheiro L, Ximenes-Neto AR, Bezerra-Filho FA, Pinto C, Pinheiro LS, Pessoa P, Lima-Filho R, Silva R, Morais J, Gorayeb, A, Bramanti L, **Rossi, S** (2023) Seascape ethnomapping on the Inner continental shelf of the Brazilian Semiarid Coast. *Water* 15, 798. <https://doi.org/10.3390/w15040798>
159. Martines A, Furfaro G, Solca M, Muzzi M, Di Giulio A, **Rossi S** (2023) An analysis of microplastics ingested by the Mediterranean detritivore *Holothuria tubulosa* (Echinodermata: Holothuroidea) sheds light on patterns of contaminant distribution in different marine areas. . *Water* 15, 1597. <https://doi.org/10.3390/w15081597>
160. Vinha B, **Rossi S**, Gori A, Hanz U, Pennetta A, De Benedetto GE, Mienis F, Huvenne VAI , Hebbeln D, Wienberg C, Tischack J, Freiwald A, Piraino S, Orejas C (submitted) Trophic ecology of Angolan cold-water coral reefs (SE Atlantic) based on stable isotope analyses. *Scientific Reports*
161. Bracho-Villavicencio C, Mathew-Cascon H, **Rossi S** (submitted) Artificial reefs around the world: A review of the state of their art and meta-analysis of their effectiveness in restoring marine ecosystems. *Restoration Ecology*
162. Fraissinet S, Pennetta A, Tardio N , **Rossi S**, De Benedetto GE, Malitesta C (submitted) A new method for fast and easy digestion of benthic filter-feeder organisms (*Sabella spallanzanii*, Polychaeta and *Paraleucilla magna*, Porifera) for microplastic determination and quantification. *Marine Environmental Research*
163. Bracho-Villavicencio C, Marques EV, Nobre LRF, Silveira RM, Vasconcelos V, Soares M, **Rossi S**, Matthews-Cascon H (submitted) Recifes Artificiais: Perspectivas contrastantes no Atlântico Sudoeste. *Archivos do Ciencias do Mar*
164. Thé J, Mammone M, Piraino S, Benedetto G , Pennetta A, Garcia TM, Mies M, Soares M, **Rossi S** (in preparation). Trophic status and nutritional condition of *Cassiopea andromeda* (Scyphozoa) in two coastal habitats: a multiple biomarker comparison.
165. Lucas CC, Lima IC, Garcia TM, Tavares TC, Macedo PBC, Teixeira CEP, Bejarano S, **Rossi S**, Soares MO (submitted) Turbidity buffers coral bleaching under extreme wind and rainfall conditions. *Marine Environmental Research*

Memorial SERGIO ROSSI

166. Bilan M, Gori A, Grinyò J, Biel-Cabanelas M, Puigcerver-Segarra X, Santin-Muriel A, Piraino S, **Rossi S**, Puig P (submitted) Vulnerability of six cold-water corals to sediment resuspension from bottom trawling fishing. *Marine Pollution Bulletin*

167. Mallo-Costa M, Ziveri P, **Rossi S**, Reyes-García V (submitted) Coastal marine habitats deterioration. Perception of Cap de Creus Marine Protected Area (NE Spain) users. *Regional Environmental Change*

168. Mallo-Costa M, Reyes-Garcia V, Ziveri P, **Rossi S** (submitted) Temporal shifts of *Posidonia oceanica* and *Corallium rubrum* in Cap de Creus (NE Spain): an assessment by recreational scuba divers. *Society and Natural Resources*

169. Matos E, Garcia T, Soares M, **Rossi S** (in preparation) What is missing to understand the potential resilience of octocorals in tropical seas?

170. Alorda-Kleinglass A et al (in preparation) Ecosystem services derived from SGD: a perspective from traditional and academic knowledge in Mediterranean societies.

171. Denis V, Ferrier-Pagès C, Schubert N, Coppari M, Baker DM, Camp E, Gori A, Grottoli A, Houlbrèque F, Maier S, Mancinelli G, Martinez S, Ozdilek SY, Radice V, Ribes M, Richter C, Viladrich N, **Rossi S** (in preparation). On The Importance of Heterotrophy in Marine Animal Forests.

Full list of Scientific Outreach papers

Marine

1. Wisniowska Z, **Rossi S** (1998) "Les Illes Medes" Nurkowanie, 2 (28): 8-10 (Texto y fotos)

2. Gili JM, **Rossi S** (1999) "Una relación singular" Investigación y Ciencia, Abril 1999, 271: 42-43 (Texto y fotos)

3. Gili JM, **Rossi S** (2000) "La vida en el límite" Investigación y Ciencia, Abril 2000, 283:42-43 (Texto).

4. Gili JM, **Rossi S** (2000) "El sotobosque marino" Investigación y Ciencia, Mayo 2000, 284: 42-43 (Texto y fotos).

5. Gili JM, **Rossi S** (2000) "Cohabitación" Investigación y Ciencia, Junio 2000, 285:42-43 (Texto y fotos).

6. Gili JM, **Rossi S** (2000) "Al compás de las estaciones" Investigación y Ciencia, Agosto 2000, 287: 40-41 (Texto).

7. Llobet I (2000) "El Planeta Viu" ESO 1er Ciclo. Editorial Mc Graw Hill. (Fotos).

Memorial SERGIO ROSSI

8. Gili JM, Coma R, **Rossi S** (2001) "Instrumentación sumergida" Investigación y Ciencia, Julio 2001, 298: 36-37 (Texto)
9. **Rossi S** (2001) "Epibiosis" Investigación y Ciencia, Septiembre 2001, 300: 38-39 (Texto y fotos).
10. **Rossi S** (2001) "Marea alta, marea baja" Investigación y Ciencia, Octubre 2001, 301: 42-43 (Texto y fotos)
11. **Rossi S**, Gili JM (2001) "Habitantes de la pradera" Investigación y Ciencia, Diciembre 2001, 303: 36-37 (Texto y fotos)
12. **Rossi S** (2002) "Camuflarse o exhibirse?" Investigación y Ciencia, Febrero 2002, 305: 38-39 (Texto y fotos)
13. **Rossi S** (2002) "Contrastes humanos en una reserva natural marina" Más que Deporte, 3: 26 (Texto y fotos)
14. Gili JM, **Rossi S**, Pagès F, Teixidó N, Orejas C, López P (2002) "Una cadena trófica inesperada" Investigación y Ciencia, Marzo 2002, 306: 36-37 (Texto)
15. **Rossi S** (2002) "Imágenes submarinas desde los confines del planeta" Más que Deporte, 4: 30 (Texto y fotos)
16. **Rossi S** (2002) "Puertos y puertos" Más que Deporte, 4: 46-48 (Texto y fotos)
17. **Rossi S**, Vert N (2002) "Bajo las piedras" Investigación y Ciencia, Junio 2002, 309: 44-45 (Texto y fotos)
18. **Rossi S** (2002) "Algunas consideraciones sobre la regeneración de playas" Más que Municipios, 1: 8-10 (Texto y fotos)
19. **Rossi S** (2002) "Tormentas de levante" Investigación y Ciencia, Octubre 2002, 313: 36-37 (Texto y fotos)
20. **Rossi S** (2002) "Plancton gelatinoso" Investigación y Ciencia, Noviembre 2002, 314:36-37 (Texto y fotos)
21. **Rossi S** (2002) "Los colores del mar" Más que Deporte, 6: 5-9 (Texto y fotos)
22. **Rossi S** (2002) "Surf y windsurf: el contacto con el mar" Más que Deporte, 6: 24 (Texto)
23. **Rossi S**, Vert N (2002) "Plataformes de supervivència: epífits de rizomes i fulles" l'Atzavara, Desembre 2002, 10: 41-46 (Texto y fotos)
24. **Rossi S** (2003) Historia de una larva. Investigación y Ciencia, Febrero 2003, 317: 38-39 (Texto y fotos)

Memorial SERGIO ROSSI

25. Gili JM, **Rossi S**, Teixidó N, Gutt J (2003) Cómo estamos dejando el fondo del mar. *Investigación y Ciencia*, Marzo 2003, 318: 38-39 (Texto)
26. Gili JM, Vert N, Linares C, **Rossi S**, Fortuño JM (2003) Coincidencia estructural. *Investigación y Ciencia*, Junio 2003, 321: 38-39 (Texto)
27. **Rossi S** (2003) Hidrozoos. *Investigación y Ciencia*, Julio 2003, 322: 42-43 (Texto y fotos)
28. **Rossi S**, Gili JM, Tsounis G (2003) La extracción abusiva impide que el coral rojo se recupere. *Quercus*, Septiembre 2003, 211: 14-19 (Texto y fotos)
29. **Rossi S** (2003) Proteínas de stress térmico y algo más. *Investigación y Ciencia*, Diciembre 2003, 327: 38-39 (Texto y fotos)
30. Gili JM, **Rossi S** (2004) Estudio y seguimiento del estado de las poblaciones de Coral Rojo *Corallium rubrum* en el litoral catalán. In: *Nuove Frontiere per il Corallo Rosso, Atti del Convegno Internazionale, Volume IV*. Fondazione Banco di Sardegna, Alghero. Pp 35-70. (Texto y Fotos)
31. **Rossi S** (2004) Revelador estudio de los fondos marinos de las aguas subantárticas. *Quercus*, Abril 2004, 218: 60-61 (Texto y fotos)
32. **Rossi S** (2004) Liberación púrpura. *Quercus*, Junio 2004, 220: 36 (Texto y fotos)
33. **Rossi S** (2004) El Mediterráneo tiene problemas de fondo. *GEO*, Agosto 2004, 211: 16-17 (Texto y fotos)
34. **Rossi S** (2004) Peces y omega-3. *Investigación y Ciencia*, Agosto 2004, 335: 42-43 (Texto y fotos)
35. **Rossi S** (2004) El aumento global de las medusas y otros integrantes del plancton gelatinoso. *Quercus*, Agosto 2004, 222: 28-35 (Texto y fotos)
36. **Rossi S**, Canela A (2004) Una tormenta en los bajos fondos. *GEO*, Octubre 2004, 213: 12 (Texto)
37. **Rossi S** (2004) Sobreviure a l'hivern a les profunditats antàrtiques. *Omnis Cellula*, Octubre 2004, 6: 22-23 (Texto)
38. Gili JM, Palanques A, Orejas C, Isla E, Teixidó N, **Rossi S**, López-González P (2004) Les comunitats bentòniques antàrtiques: el resultat d'una llarga història. *L'Atzavara* 12: 1-9 (Texto)
39. **Rossi S** (2004) Un explorador a nuestro lado. *Inmersión*, Diciembre 2004, 60: 50-56 (Texto y fotos)
40. **Rossi S**, Bramanti L, Tsounis G, Gili JM (2005). Recuperación de stocks de coral rojo. *Investigación y Ciencia*, Enero 2005, 340: 40-41 (Texto y fotos)

Memorial SERGIO ROSSI

41. **Rossi S** (2005) ¿Escasez de alimentos en Navidad? Quercus, Enero 2005, 227: 36 (Texto y fotos)
42. **Rossi S** (2005) Viaje al mar de Weddell: tras la frontera más agreste. Inmersión, Febrero 2005, 62: 58-65 (Texto y fotos)
43. **Rossi S** (2005) Competir por el espacio: la guerra invisible. Inmersión, Febrero 2005, 62: 22-28 (Texto y fotos)
44. **Rossi S** (2005) Relictos del Cretácico en los fondos antárticos. Quercus, Febrero 2005, 228: 45 (Texto y fotos)
45. **Rossi S** (2005) Buscando piso desesperadamente. Quercus, Marzo 2005, 229: 38-39 (Texto y fotos)
46. **Rossi S** (2005) Alarma ante la nueva regulación relativa al coral rojo en Cataluña. Quercus, Abril 2005, 230: 66-67 (Texto)
47. **Rossi S** (2005) Videobatimetría submarina: Cómo es el paisaje bajo la cota cero. Inmersión, Abril 2005, 64: 60-66 (Texto y fotos)
48. **Rossi S**, Casal J (2005) Barras de Mataró, la exuberancia a la vuelta de la esquina. Inmersión, Mayo 2005, 65: 36-43 (Texto y fotos)
49. **Rossi S** (2005) Primavera en el fondo del mar. Quercus, Mayo 2005, 231: 32-33 (Texto y fotos)
50. **Rossi S** (2005) La danza del mero. Quercus, Junio 2005, 232: 40-41 (Texto y fotos)
51. **Rossi S** (2005) Alerta roja: nuestro coral bajo amenaza. Inmersión, Julio 2005, 67: 54-60 (Texto y fotos)
52. **Rossi S** (2005) Chequeo al Mare Nostrum. GEO, Septiembre 2005, 224: 10 (Texto y fotos)
53. **Rossi S** (2005) Reproducción asexual en el mar. Quercus, Septiembre 2005, 235: 37 (Texto y fotos)
54. **Rossi S** (2005) Otoño bajo el mar. Inmersión, Octubre 2005, 70: 54-61 (Texto y fotos)
55. **Rossi S** (2005) Plancton gelatinoso: los fantasmas del mar. Inmersión, Noviembre 2005, 71: 20-26 (Texto y fotos)
56. **Rossi S** (2005) ¿Una especie, un ecosistema? Investigación y Ciencia, Noviembre 2005, 250: 38-39 (Texto y fotos)

Memorial SERGIO ROSSI

57. **Rossi S** (2005) Mares de hoy, mares de antaño. Quercus, Diciembre 2005, 238: 10-15 (Texto y fotos)
58. **Rossi S** (2005) La despensa antártica se queda sin alimentos. GEO, Diciembre 2005, 227: 14 (Texto y fotos)
59. Fiorillo I, **Rossi S** (2006) Registro de un océano productivo. Investigación y Ciencia, Agosto 2006, 359: 36-37 (Texto y fotos)
60. **Rossi S**, Canela A (2006) Los bosques del mar. Muy Interesante, Septiembre 2006, 304: 108-114 (Texto y fotos)
61. **Rossi S** (2006) I fantasmi del Mare. Infoitaliaspagna Septiembre-Octubre 2006: 17-18 (Texto y fotos).
62. **Rossi S** (2007) *Posidonia oceanica*: las encinas del mar. Inmersión, Enero 2007, 85: 62-69 (Texto y Fotos)
63. **Rossi S** (2007) Fragmentos de un mundo que se resquebraja. GEO, Marzo 2007, 242: 12 (Texto y Fotos)
64. Polo T, **Rossi S** (2007) Investigación bajo el hielo. El País SEMANAL, 25 Marzo 2007, 1591: 19-22 (Texto y Fotos)
65. Polo T, **Rossi S** (2007) La invasión transparente. El País TIERRA, Junio 2007, 3: 4-6 (Texto y Fotos)
66. Polo T, **Rossi S** (2007) Las medusas que resbalan. El País REVISTA DE VERANO. Nº 10994, 18 Julio 2007: 46 (Texto y Fotos)
67. **Rossi S** (2007) El mar reacciona. Fusión, Julio 2007, 166: 25-27 (Texto)
68. **Rossi S** (2007). Imatges submarines d'un parc natural: la campanya oceanogràfica del Parc del Cid amb Robot submarí. En: Actes de les primeres i segones jornades del medi natural de Cap de Creus. Generalitat de Catalunya, dep de Medi Ambient i Habitatge. P 60 (Texto)
69. **Rossi S** (2007) El bosque animal. Inmersión, Octubre 2007, 94: 20-27 (Texto)
70. **Rossi S** (2007) El bosque herido bajo las aguas. El País TIERRA, Noviembre 2007, 8: 21 (Texto y Fotos)
71. **Rossi S** (2008) ¡Algo se deshace! El País TIERRA, Enero 2008, 10: 14-15 (Texto y Fotos)
72. **Rossi S** (2008) Los vagabundos del hielo. Inmersión, Febrero 2008, 98: 52-57 (Texto y Fotos)

Memorial SERGIO ROSSI

73. **Rossi S** (2008) Los delfines ganan al ejército de Estados Unidos. Público, 11 Febrero 2008, nº 137:37 (Texto)
74. **Rossi S** (2008) La fiebre del oro rojo. Público, 19 Febrero 2008, nº 145:39 (Texto y Fotos)
75. **Rossi S**, Fiorillo I (2008) Efectos de El Niño en los ecosistemas costeros. Quercus, Marzo 2008, 265: 38-44 (Texto y fotos)
76. **Rossi S** (2008) Ácido en el océano. Público, 5 Marzo 2008, nº 160:38-39 (Texto y Fotos)
77. **Rossi S** (2008) Plásticos a la deriva. Público, 25 Marzo 2008, nº 179:39 (Texto)
78. **Rossi S**, Gili JM (2008) Corall: l'or vermell de les nostres costes. PescaMar-DARP 5: 112.12.
79. **Rossi S** (2008) Los cambios de la gran reserva azul. El País TIERRA, Abril 2008, 13: 16-18 (Texto)
80. **Rossi S** (2008) Donde el suelo está congelado. El País TIERRA, Abril 2008, ESPECIAL H₂O: 7 (Texto)
81. **Rossi S** (2008) La expansión de las algas tóxicas. Público, 26 Mayo 2008, nº 241:36 (Texto)
82. **Rossi S** (2008) Vida conservada bajo cero. Público, 3 Junio 2008, nº 249:41 (Texto)
83. **Rossi S** (2008) Enjambres de medusas al acecho. El País, Sociedad 22 Julio 2008, nº11361: 28 (Texto)
84. **Rossi S** (2008) El trópico está en el Mediterráneo. Público, 20 Agosto 2008, nº327:38-39 (Texto y fotos)
85. **Rossi S** (2008) La extinción acecha a la vaquita de mar. Público, 9 Septiembre 2008, nº342:32 (Texto)
86. **Rossi S** (2008) Entendiendo los efectos ecológicos de "El Niño". Inmersión, Octubre 2008, 106: 62-71 (Texto y Fotos)
87. **Rossi S** (2008) Las esponjas acuden al rescate. Público, 13 Octubre 2008, nº381:36 (Texto y Fotos)
88. **Rossi S** (2008) El veloz 'sprint' de la ballena piloto. Público, 18 Octubre 2008, nº386: 38 (Texto)
89. **Rossi S** (2008) La foca monje caribeña, oficialmente desaparecida. Público, 19 Octubre 2008, nº387: 37 (Texto)

Memorial SERGIO ROSSI

90. **Rossi S** (2008) Japón caza 4700 ballenas para un artículo científico. Público, 28 Octubre 2008, nº396: 34 (Texto)
91. **Rossi S** (2009) El deshielo del Ártico libera mercurio al océano. Público, 10 Enero 2009, nº468: 35 (Texto)
92. **Rossi S** (2009) Las algas microscópicas, en peligro. Público, 14 Febrero 2009, nº503:31 (Texto y Foto)
93. **Rossi S** (2009) Las áreas marinas favorecen las pesquerías. Público, 28 Febrero 2009, nº517:35 (Texto y Foto)
94. **Rossi S** (2009) Oro rosso. Svbaqua, Enero-Febrero 2009, 122-129 (Texto y Fotos)
95. **Rossi S** (2009) Mares ácidos. Quercus, Marzo 2009, 277: 28-34 (Texto y Fotos)
96. **Rossi S** (2009) Mareas rojas por la “siembra” de hierro. Público, 28 Marzo 2009, nº545:33 (Texto)
97. **Rossi S** (2009) Los 4x4 y quads afectan al ecosistema de las playas. Público, 16 Abril 2009, nº563:35 (Texto)
98. **Rossi S** (2009) La invasión silenciosa de las medusas. Público, 4 Mayo 2009, nº581:28-29 (Texto y Fotos)
99. **Rossi S** (2009) Los estudios del cambio climático ignoran el mar. Público, 11 Mayo 2009, nº588:31 (Texto)
100. **Rossi S** (2009) El KGB falseó datos de la caza de ballenas. Público, 17 Junio 2009, nº625:39 (Texto)
101. **Rossi S** (2009) SOS por el oro rojo. Público, 10 Noviembre 2009, nº771:35 (Texto)
102. **Rossi S** (2009) Una medusa invasora llega a la costa española. Público, 14 Noviembre 2009, nº775:33 (Texto)
103. Tsounis G, **Rossi S** (2010) La transformació de les poblacions de corall vermell. En: Historia Natural dels Països Catalans: suplement Fauna i Flora. Ramón Folch (ed.). Enciclopèdia Catalana, pp: 180-181
104. **Rossi S** (2012) Senyals olfactivs al mar. Atzavara 21: 87-94 (Texto y fotos)
105. **Rossi S** (2013) Estuarios y deltas. En: *El agua en el mundo*. Lunwerg editores, Planeta. Pp 74-81.

Other subjects

1. **Rossi S** (2001) "Alta montaña: un ecosistema frágil" Más que Deporte, 2: 4-5(Textoy fotos)
2. **Rossi S** (2002) "Icebergs" Investigación y Ciencia, Enero 2002, 304: 40-41 (Texto y fotos)
3. **Rossi S** (2002) "Biodiversidad urbana" Más que Deporte, 3: 20-21 (Texto y fotos)
4. **Rossi S** (2002) "De lenteja a placa: la formación de la banquisa" Investigación y Ciencia, Abril 2002, 307: 38-39 (Texto y fotos)
5. **Rossi S** (2002) "Un paseo por el bosque" Más que Deporte, 4: 22-23 (Texto y fotos)
6. **Rossi S** (2002) "Xerofitismo" Investigación y Ciencia, Mayo 2002, 308: 40-41 (Texto y fotos)
7. **Rossi S** (2002) "La fuerza del viento" Más que Municipios, 1: 4 (Texto y fotos)
8. **Rossi S** (2002) "Reciclaje: deberes ciudadanos y obligaciones municipales" Más que Municipios, 1: 12 (Texto y fotos)
9. **Rossi S** (2002) "El bosque urbano" Más que Municipios, 1: 16 (Texto y fotos)
10. **Rossi S** (2002) "Hace mucho, mucho tiempo..." Más que Deporte, 5: 8 (Texto)
11. **Rossi S** (2002) "Volar en condiciones extremas" Más que deporte, 5: 12 (Texto y fotos)
12. **Rossi S** (2002) "El sotobosque caducifolio" Investigación y Ciencia, Septiembre 2002, 312: 36-37 (Texto y fotos)
13. Gili JM, **Rossi S** (2003) La vida en los polos: el pingüino emperador. Investigación y Ciencia, Septiembre 2003, 324: 38-39 (Texto)
14. **Rossi S** (2004) Bleeper Sport, un explorador submarino a su alcance. Náutica, Mayo 2004, 180: 30-34 (Texto y Fotos)
15. **Rossi S**, Canela A (2004) Glaciares en extinción. Magazine (La Vanguardia), 2 Mayo 2004: 52-57 (Texto)
16. **Rossi S**, Canela A (2004) Plantas con personalidad. Muy Interesante, Noviembre 2004, 282: 76-84. (Texto)
17. **Rossi S**, Canela A (2005) Hielo, el cristal de la vida. Muy Interesante, Enero 2005, 284: 10-16. (Texto y Fotos)

18. **Rossi S**, Canela A (2005) Nubes, el lenguaje del cielo. *Muy Interesante*, Mayo 2005, 288: 180-188. (Texto)
19. **Rossi S**, Polo T (2007) El corredor de Noé. *El País*, 31 Julio 2007, 11007:36 (Texto)
20. **Rossi S** (2008) *Fast science*. Público, artículo de opinión, 14 Enero 2008, nº 109: 12 (Texto)
21. **Rossi S** (2008) Argentina y Chile, a la caza del castor. Público, 19 Septiembre 2008, nº 357: 36 (Texto)
22. **Rossi S** (2008) Entrevista a Joseph Tainter. Público, 13 Octubre 2008, nº381:34 (Texto)
23. **Rossi S** (2008) Detectives del clima. Público, 24 Octubre 2008, nº392:34 (Texto)
24. **Rossi S** (2008) El valor real de un ecosistema. Público, 4 Noviembre 2008, nº403:39 (Texto)
25. **Rossi S** (2008) El declive de las grandes migraciones. Público, 17 Noviembre 2008, nº416:32-33 (Texto)
26. **Rossi S** (2009) La migración de África no fue por el Nilo. Público, 12 Enero 2009, nº470: 33 (Texto)
27. **Rossi S** (2009) ¿De verdad necesitamos dormir?. Público, 13 Enero 2009, nº471: 34 (Texto)
28. **Rossi S** (2009) ¿Cómo romper la resistencia de las bacterias? Público, 3 Marzo 2009, nº520: 37 (Texto)
29. **Rossi S** (2009) Malawi quiere exportar su 'milagro verde'. Público, 26 Marzo 2009, nº543: 35 (Texto)
30. **Rossi S** (2009) El cambio climático amenaza los monumentos del sur de Europa. Público, 19 Julio 2009, (Texto)
31. **Rossi S** (2009) Las ratas esquilman Canarias y Baleares. Público, 19 agosto 2009 (texto)
32. **Rossi S** (2009) El 90% del carbón disponible se podría agotar en 60 años. Público, 19 Octubre 2009 (Texto).

Complete list of Congresses and Workshops

- 1 Congreso INTECOL, Florencia (Italia). 19-25 Julio 1998. Presentación Oral de "Life cycles of benthic cnidarians regulated by trophic constraints", ComaR, Ribes M, **Rossi S** & Gili JM.
- 2 Workshop de la Hydrozoan Society realizado en Bodega Bay, California (EEUU). 19 septiembre- 3 Octubre 1998. Presentación oral de los trabajos "Strategies of epiphytic hydrozoans against hydrodynamism: the case of *Dynamena pumila* and *Clava multicornis*" **Rossi S**, Gili JM & Hughes R, y "Trophic ecology of *Eudendrium racemosum* in the north West Mediterranean" **Rossi S** & Gili JM.
- 3 Congreso ASLO Copenhagen (Dinamarca). 5-9 Junio 2000. Presentación del Poster "Optimal patch structure as a key mechanism of trophic impact and life history pattern in a benthic suspension feeder", **Rossi S**, Gili JM & Broglio E.
- 4 Congreso 36 EMBS Menorca (España). 17-23 Septiembre 2001. Presentación de los Posters "Regulation of stress protein (HSP 70 family) expression in intertidal benthic organisms: the example of *Anthopleura elegantissima* (Cnidaria: Anthozoa)", Snyder MJ & **Rossi S**; "Trophic crisis in Christmas time?" **Rossi S**, Gili JM & Snyder MJ.
- 5 Congreso 36 EMBS Menorca (España). 17-23 Septiembre 2001. Participación en la presentación oral "Short and long term effect of resuspension events in the benthic communities in the Gulf of Lions" de Grémare A.
- 6 Congreso Larval Fish Conference 2002, Bergen (Noruega). 22-26 Julio 2002. Presentación del Poster "Fatty acid composition as a tool to understand the trophic ecology of anchovy larvae in the NW Mediterranean", **Rossi S**, Sabatés A & Reyes E.
- 7 Simposium Nuove Frontiere per il Corallo Rosso, Alghero (Italia). 15-17 Noviembre 2002. Presentación oral de "Studio sullo stato delle popolazioni del Corallo Rosso *Corallium rubrum* nella costa Catalana", **Rossi S** & Gili JM.
- 8 Congreso Nacional de Medio Ambiente VI, Madrid (España). 25-29 Noviembre 2002. Presentación oral de "Acoplamiento de los ciclos biológicos a la variabilidad medioambiental en ecosistemas costeros", **Rossi S** & Gili JM.
- 9 Workshop de la Hydrozoan Society, Geelbeck, Cape Town (Sudáfrica). 8-17 Enero 2003. Presentación oral del trabajo "Hydroids: gourmets or ...fast-food eaters? A latitudinal overview" Covadonga O, Gili JM & **Rossi S**.
- 10 Congreso 7th International Conference on Coelenterate Biology, Kansas (EEUU). 6-11 Julio 2003. Presentación oral "The role of benthic communities in global marine food webs: revisiting an approach from the perspective of the multidisciplinary

study of cnidarian benthic suspension feeders" Gili JM, **Rossi S**, Orejas C, López-González P & Arntz W.

11 Simposio 2nd International Symposium on Deep Sea Corals, Erlangen (Germany). 9-12 Septiembre 2003. Presentación del Poster "The deep coral banks in the Mediterranean submarine canyons: an unexplored nursery habitat for commercial species" Orejas C, Gili JM, **Rossi S** & López-González PJ.

12 1st Electronic congress (sin emplazamiento) 24-30 Abril 2004 "Marine Research Infrastructure: the need for better information and co-ordination" **Rossi S**, forum "New technologies"

13 39th EMBS, Genova (Italia). 21-24 Julio 2004. Presentación del Poster "Recruitment and early survival of red coral on settlement plates: some clues for demography and restoration" Santangelo G, Bramanti L, **Rossi S**, Tsounis G, Gili JM.

14 XXVIII SCAR, Bremen (Germany) 25-31 Julio 2004. Presentación oral "A new Antarctic food chain?" Gili J-M, Arntz W-E, **Rossi S**, Pagès F, Orejas C, Teixidó N, Vert N, López-González P-J y presentación del poster "Biochemical composition of marine sediment from the eastern Weddell Sea shelf (Antarctica): high nutritive value in a high latitude environment" Isla E, **Rossi S**, Palanque A, Gerdes D, Gili J-M, Arntz W

15 EASIZ, Korcula (Croatia) 27 Septiembre-1 Octubre 2004. Presentación oral "The High Antarctic benthos: - a relic of Cretaceous communities?" Gili JM, Palanques P, Isla E, Arntz WE, Clarke A, Orejas C, Teixidó N, **Rossi S**, López-González PJ

16 Congreso "BIODIVERSITY: Science and Government (UNESCO)" París (Francia) 24-28 Enero 2005. "The overexploited red coral: issues for conservation and management of a high valuable Mediterranean species" Santangelo G, Garrabou J, Iannelli M, **Rossi S**, Bramanti L, Borriello M, Gili JM.

17 Workshop "Le attività subacquee nelle Aree Marine Protette e gli impatti sull'ambiente: esperienze mediterranee a confronto", Roma (Italia) 18-20 Febrero 2005. Presentación oral "Recruitment and survival of red coral in protected and not protected areas: some clues for conservation" Santangelo G, Bramanti L, **Rossi S**, Tsounis G, Gili JM.

18 Congreso ASLO, Santiago de Compostela (España). 19-24 Junio 2005. Presentación oral "Fatty acid composition in different trophic groups as an indicator of food intake by the siphonophore *Nanomia cara* in deep-water canyons south of Georges Bank (NW Atlantic)", **Rossi S**, Youngbluth M, Pagés F, Garrofé X.

19 CENSOR Midterm Congress, Concepción (Chile). 4-8 Septiembre 2006. Presentación Oral "Benthic response to food availability in El Niño affected up-welling systems: The organism biochemical composition as a "memory" tool in shallow coastal areas", Fiorillo I, **Rossi S**, Pacheco A, Villegas M, Gili JM y el Poster "Natural feeding

of the bivalve *Mesodesma donacium* in the shallow coastal area of Mejillones, north of Chile”, Fiorillo I, Laudien J, **Rossi S**.

20 XIV SIEBM, Barcelona (España). 12-15 Septiembre 2006.; Presentación Oral “Comunidades bentónicas en el cañón del Cap de Creus (Noroeste Mediterráneo): presencia de comunidades densas del coral blanco *Madrepora oculata*” Orejas C, Gili JM, Puig P, **Rossi S**, Gori A, Pablo J López-González, N. Teixidó; Presentación Oral “Spatial variability in reproductive cycle of the gorgonians *Paramuricea clavata* and *Eunicella singularis* (Anthozoa, Octocorallia) in the Western Mediterranean Sea”, Gori A, Linares C, **Rossi S**, Coma R and Gili JM, y el Poster “Mortalidad parcial y crecimiento en una población de *Leptogorgia sarmentosa* de la costa mediterránea”, **Rossi S**, Garrofé X, Gili JM.

21 ISRS European Meeting, Bremen (Alemania). 19-22 Septiembre 2006. Presentación Oral “Population Structure, Reproductive Biology, and Trophic Ecology of Red Coral (*Corallium rubrum*, L.): Case study of an over harvested precious coral”, Tsounis G, **Rossi S**, Gili JM, Arntz WE, y Presentación Oral “Benthic communities in the Cap de Creus Canyon (Northwestern Mediterranean): the dense alive coral banks of *Madrepora oculata* in cap de Creus Canyon”, Orejas C, Gili JM, Puig P, **Rossi S**, Gori A

22 Congreso Polar Español, Granada (España). 18-20 Septiembre 2006. Poster “Ciencia para todos en la Antártida: Un proyecto de divulgación científica basado en las expediciones antárticas en el marco programa EASIZ-SCAR”, J-M. Gili, E. Broglio, P.J. López, N. Vert, C. Orejas, N. Teixidó, E. Isla, **S Rossi**, B. Vendrell, J.M. Gasol y Presentación Oral “Una visión integrada de las comunidades bentónicas marinas de la alta Antártida: diez años de estudios en el marco del Programa EASIZ en el Mar de Weddell”, J.M. Gili, C. Orejas, M. Zabala, V. Alvá, P.J. López, J.D. Ros, P. Filipe, N. Teixidó, **S. Rossi**, I. Alfonso, F. Sabater, E. Rodríguez, E. Isla, J.M. Gasol, F. Pagès, C. Pedros, N. Vert, M. Conradi, C. Mejina, B. Vendrell, E. Broglio, P. Homs.

23 Workshop de la Hydrozoan Society, Plymouth, (Gran Bretaña). 17-30 Junio 2007. Presentación oral “Ice or not ice, this is the question: feeding behaviour of *Obelia dichotoma* in the Kongsfjord, Spitzbergen (Norway)” Orejas C, Peralba A, Lippert H, **Rossi S**, Gili JM; Presentación oral “High herbivorism in small carnivores: the benthic hydroids as example” Gili JM, Duró A, Valero JG, Gasol JM, **Rossi S**; y Presentación oral (como KEY NOTE) “Biochemical markers: useful tools to understand trophic relationships and population fitness in marine ecology” **Rossi S**.

24 Congreso AIOL-SItE, Ancona (Italia). 17-20 Septiembre 2007. Presentación oral “Il corallo rosso: variabilità del reclutamento, dell’accrescimento e della successione ecologica in tre aree geografiche differenti”. Bramanti L, Lott C, **Rossi S**, Tsounis G, Vielmini I, Razionalw I, Filosi E, Santangelo G.

25 Simposium II Monitoraggio Costiero Mediterraneo, Napoli (Italia). 4-6 Junio 2008. Poster “Indagine delle comunità bentoniche lungo la costa della penisola del

Sinis utilizzando il ROV Bleeper EVO” Gori A, de Lucia GA, Camedda A, Massaro G, Coppa S, **Rossi S**, Gili JM.

26 6th Biennial Workshop-Advances in energy studies, Graz (Austria). 29 Junio-2 Julio 2008. Presentación oral “Biodiesel from dinoflagellates: a new step in biofuel production” Fuentes-Grünewald C, Garcés E, **Rossi S**, Camp J.

27 VI Convegno Nazionale per le Scienze del Mare, Lecce (Italia). 4-8 Novembre 2008. Presentación oral “Struttura riproduttiva di tre popolazioni di corallo rosso (*Corallium rubrum*) del Mediterraneo Nord Occidentale” Vielmini I, Bramanti L, Tsounis G, **Rossi S**, Iannelli M, Gili JM, Cattaneo – Vietti R, Santangelo G.

28 Congreso ASLO, Nice (Francia). 25-30 Enero 2009. Presentación oral “Red coral (*Corallium rubrum*) activity: endogenous rhythms *versus* external signals” **Rossi S**, Duchêne JC, Grémare A, Desmalades M, Gili JM y el poster “Interactions between jellyfish and fish larvae in NW Mediterranean sea: a biomarkers study” Tilves U, Atienza D, Fuentes V, Gili JM, Olariaga A, **Rossi S**.

29 II Congreso Nacional de Biodiversidad, Santa Susanna (España). 10-13 Febrero 2009. Presentación oral “Precious corals: the red coral case study” **Rossi S**, Tsounis G, Gili JM.

30 1st International Workshop on Corallium: Science, Management and Trade, Hong Kong (China). 16-19 Marzo 2009. Presentación oral (INVITED SPEAKER) “Red coral fishery management: a call for a paradigm shift” Tsounis G, **Rossi S**, Gili JM.

31 X Reunión Ibérica sobre Fitoplancton Tóxico y Biotoxinas, Lisboa (Portugal). 12-15 Mayo 2009. Presentación oral “Inducción a la acumulación de triacilgliceridos en *Heterosigma akashiwo* (Rafidofícea), mediante variación de temperatura, aireación y concentración de nitrógeno inorgánico” Fuentes-Grünewald C, Garcés E, Sampedro N, **Rossi S**, Del Río L, Camp J.

32 IInd European Congress of Conservation Biology, Praga (Chekia). 1-5 Septiembre 2009. Presentación oral “The red coral case study: the declive of animal forests in the Mediterranean sea” **Rossi S**, Tsounis G.

33 44th European Marine Biology Symposium, Liverpool (Great Britain). 7-11 Septiembre 2009. Presentación oral “Spatial distribution patterns in the gorgonians *Eunicella singularis*, *Paramuricea clavata* and *Leptogorgia sarmentosa* (Cape of Creus, Northwestern Mediterranean Sea)” Gori A, **Rossi S**, Berganzo-González E, Pretus JL, Dale MRT, Gili JM; Poster “Environmental and biological features affecting different benthic populations: the *Leptogorgia sarmentosa* (Cnidaria: Octocorallia) case study” **Rossi S**, Gili JM, Grémare A; Poster “Aggregation patterns in the Mediterranean gorgonian *Eunicella singularis*” Gori A, **Rossi S**, Bergazo E, Dale MRT, Gili JM.

34 IInd International Workshop on Corallium: Lessons from the Mediterranean,

Naples (Italy). 23-26 Septiembre 2009. Presentación oral “*Corallium rubrum* age structure determination” Vielmini I, Bramanti L, Tsounis G, **Rossi S**, Gili JM, Cattaneo-Vietti R, Santangelo G.

35 International Meeting on Marine Resources, Peniche (Portugal). 16-18 Noviembre 2009. Poster “Evaluation of MPAs role in increasing the reproductive potential: the case of the sea urchins *Paracentrotus lividus* and *Arbacia lixula* in the Cap de Creus MPA (NW Mediterranean)” López-Sanz A, Grinyó J, Canepa A, **Rossi S**, Orejas C; Poster “The MAPUCHE project: an interdisciplinary approach to marine management and conservation: divergent experiences as a basis for global strategies” Orejas C, Fernández M, Canepa A, Castilla JC, Gelcich S, Grinyó J, Isbert W, Linares C, López-Sanz A, Lloret J, Pérez E, Recasens L, **Rossi S**, Sabatés A, Sacanell M, Vendrell B, Zabala M.

36 7th Asia-Pacific Conference on Algal Biothechnology, New Delhi (India). 1-4 Diciembre 2009. Presentación Oral “Use of dinoflagellates as a biorefinery for interested biomolecules” Fuentes-Grünwald C, Garcés E, del Río L, Sampedro N, **Rossi S**, Camp J.

37 XXI Rassegna del Mare, Alghero (Italia). 6-9 Mayo 2010. Presentación oral “A demographic approach to conservation and management of the precious Mediterranean red coral (*Corallium rubrum*): insights into the demographic structure of two different populations” Santangelo G, Vielmini I, Bramanti L, Tsounis G, **Rossi S**, Iannelli M, Gili JM, Cattaneo – Vietti R.

38 XVI SIEBM, Alicante (España). 6-10 Septiembre 2010. “Study of fish assemblages in the photophilic algae and *Posidonia oceanica* communities of the natural park of Cap de Creus with different protection levels” Canepa A, **Rossi S**, Orejas C, López A.

39 Transversal workshop on red coral (GFCM), Alghero (Italia). 16-17 Septiembre 2010. Presentación oral “New insight into *Corallium rubrum* fishery management: An application oriented synthesis of recent data” Tsounis G, **Rossi S**, Grigg R, Gili JM.

40 American Geophysical Union, Fall Meeting, San Francisco (US). Diciembre 2010. Poster “Multiyear Survey of the Distribution and Fate of Biomarkers in the Atlantic Arctic Ocean” Fietz S, Rosell-Melé A, Rueda G, Martínez Garcia A, Hambach B, Viladrich N, **Rossi S**, Ziveri P

41 International Polar Year Oslo Science. Oslo (Noruega), Junio 2010. Presentación oral “Biological response to environmental variability in the Fram Strait (Arctic Ocean)” [Fietz S](#), [Rosell Melé A](#), [Hambach B](#), [Mortyn G](#), [Rossi S](#), [Rueda G](#), Ziveri P.

42 VIII Symposium on Polar Studies. Mallorca (España) Septiembre 2011. Presentación oral “Biomarkers for organic matter input and in situ production in the

Arctic and the Southern Ocean: distribution in the water column and export towards the seafloor" Fietz S, Rosell-Melé A, Rueda G, Martínez Garcia A, Hambach B, Viladrich N, **Rossi S**, Martín Goula M, Ziveri P, Sze Ho L, Lamy F, Budeus G.

43 World Conference of Marine Biodiversity. Aberdeen (UK) September 2011. Presentación oral "Unexpected marine biodiversity hotspots in the Western Mediterranean" Gili JM, Grinyó J, Dominguez C, Madurell T, López P, Zabala M, Sardá R, Lozoya JP, Purroy A, Gori A, Orejas C, Díaz D, Lo Iacono C, Requena S, Viladrich N, **Rossi S**, Martínez A, Bramanti L, Tsounis G, Isla E

44 XXXII SCAR and Open Science Conference. Portland (Oregon, US) July 2012. Presentación oral "Trophic ecology of seven Antarctic gorgonians through stable isotope and biochemical analysis" Elias-Piera F, **Rossi S**, Gili JM, Orejas C; Presentación Oral "Differences of phytal fauna of five algae species in King George Island, Antarctica: the importance of the substrate in diversity and abundance of vagile and sessile organisms" Elias-Piera F, **Rossi S**, Valério-Berardo MT, Corbisier TN.

45 3rd International Symposium on the Ocean in a High CO₂ World. Monterrey (California, US) 24-27 September 2012. Presentación oral "The effects of ocean acidification on the precious Mediterranean red coral" Bramanti L, Gouron M, Movilla J, Gori A, Martínez A, Dominguez C, Grinyó J, Lopez A, Pelejero C, Calvo E, Ziveri P, **Rossi S**.

46 XVII SIEBM. San Sebastián (España) 11-14 Septiembre 2012. Presentación oral "Population dynamics of short lived species can validate the trophic impact of long-lived species: the hydrozoan case study" **Rossi S**, Bramanti L, Broglio E, Gili JM; Presentación oral "Mother care in gorgonians: the *Paramuricea clavata* and *Eunicella singularis* case study" Viladrich N, Bramanti L, Tsounis G, Martinez A, Isla E, **Rossi S**; Poster "Fitness of two Mediterranean coastal rocky fishes: the role of Marine Protected Areas and stochastic autumn heavy storms" Viladrich N, **Rossi S**, López A, Orejas C; Poster "Una nueva aproximación a la gestión de la biodiversidad del Mediterráneo: conectividad entre hábitats de la plataforma continental" Gili JM, Dominguez-Carrió C, Grinyó, Madurell T, Gori A, Purroy Albet A, Ambroso S, Tsounis G, **Rossi S**, Orejas C, Requena Moreno S, Isla E, López-González P; Poster "Pautas de distribución espacial de dos especies coexistentes de corales blandos, *Alcyonium acaule* y *Alcyonium palmatum*, en el Mediterráneo noroccidental" Ambroso S, Gori A, Dominguez-Carrió C, Teixidó N, **Rossi S**, Gili JM; Poster "Ciclo de reproducción y gametogenesis del coral blando epibionte *Alcyonium coralloides* (Octocorallia, Alcyonacea)" Quintanilla H, Gili JM, López-González P, Tsounis G, Madurell T, Fiorillo I, **Rossi S**.

47 3rd International Workshop "Research in Shallow Marine and Fresh Water Systems", Bremen (Germany) 14-15 Febrero 2013. Presentación oral "Human Impact on Gorgonian Corals" Tsounis G, Martinez L, Bramanti L, Viladrich N, Gili JM, Martinez A, Atsalaki A, Kotta M, **Rossi S**

48 4th Jellyfish Bloom Symposium, Tokyo (Japan) 3-7 June 2013. Poster “Are fatty acids a good indicator of the *Pelagia noctiluca* diet?” Fuentes V, Tilves U, Milisenda G, Sabates A, **Rossi S**

49 XXXIII SCAR. Barcelona (Spain) July 2013. Presentación oral “Trophic Ecology of *Anthomastus bathyproctus* in summer and autumn in the Antarctic Peninsula” Elias-Piera F, **Rossi S**, Orejas C; Poster “Available food variation in a spring bloom in the Weddell Sea: transfer of seston lipids from the surface to the benthic community” **Rossi S**, Isla E, Martínez-García A, Moraleda N, Gili JM, Rosell-Melé A, Arntz WE, Gerdes D.

50 Society for Experimental Biology meeting (SEB). Manchester (England) July 2014. Presentación oral “Size, spatial and bathymetrical distribution of the ascidian *Halocynthia papillosa* in Mediterranean coastal bottoms: benthic-pelagic coupling implications” Coppari M, Gori A, **Rossi S**.

51 Encuentros de Jóvenes Investigadores-CONACYT (EJI). Mazatlán (México) 25-26 Septiembre 2014. Presentación oral “DIGESTIÓN ANAEROBICA DE SUBPRODUCTOS DEL PROCESO DE OBTENCIÓN DE BIODIESEL A PARTIR DE MICROALGAS MARINAS” Santos-Ballardo DU, **S Rossi**, X Font, A Sánchez, R. Barrena, A. Valdez-Ortiz; Presentación oral “CRECIMIENTO Y PRODUCCION DE ACEITE EN LA MICROALGA *Phaeodactylum tricornutum* EN CONDICIONES INDOOR Y OUTDOOR” Santos-Ballardo DU, **S Rossi**, V Hernández, R. Vázquez- Gómez, MC Rendón-Unceta, A Valdez-Ortiz; Póster “MODELO ESPECTOFOTOMÉTRICO PARA LA MEDICIÓN DEL CRECIMIENTO CELULAR DE 4 ESPECIES DE MICROALGAS MARINAS” Santos-Ballardo DU, **S Rossi**, V Hernández, R Vázquez-Gómez, MC Rendón-Unceta, A. Valdez-Ortiz.

52 Breaking the Surface 2014, Biograd na Moru (Croacia) 5-12 October 2014 “Quantitative video analysis for benthic surfaces” Gori A, Dominguez-Carrió C, Grinyó J, Orejas C, Ambroso S, Coppari M, **Rossi S**, Gili JM. Invited lecture

53 VI congress of the Italian Society for Evolutionary Biology, Bologna (Italy) 31 August-3 September 2015. Presentación oral "Genetic connectivity along depth gradient and implications for phenotypic plasticity in a gorgonian species" Federica F, Gori A, Lopez-González P, Bramanti L, **Rossi S**, Gili JM, Abbiati M

54 13th International Coral Reef Symposium, Hawaii (USA) 19-24 June 2016. Presentación oral “Energetic resource allocation for reproduction in two Mediterranean gorgonians with different reproductive strategies: surface versus internal brooders” Viladrich N, Bramanti L, Tsounis G, Martínez-Quintana A, Coppari M, Dominguez-Carrió C, Ambroso S, **Rossi S**

55 2nd International Marine Conservation Congress, St. John, Terranova (Canada) 30 July-4 August 2016. Presentación oral “The animal forests as carbon sinks: an overlooked ecosystem service” Coppari M, Gori A, **Rossi S**.

56 XXXIV SCAR, Kuala Lumpur (Malaysia) 22-26 August 2016. Presentación poster “Food availability and energy storage in Antarctic benthic communities:

integration of processes through the trophic markers in the Weddell sea” **Rossi S**, Elias-Piera F, Isla E, Gerdes D y presentación oral “Benthic-pelagic coupling trophic guilds in the Larsen area (Antarctic Peninsula): integrative tools to detect potential climate change shifts” Elias-Piera F, Isla E, Gutt J, **Rossi S**

57 78° Congresso Unione Zoologica Italiana, Torino (Italia) 18-22 Septiembre 2017. Poster “Effects of global warming on the reproductive strategies of cnidarians: the mediterranean case study” Milisenda G, Gravili C, **Rossi S**, Piraino S

58 52° European Marine Biology Symposium, Piran (Slovenia) 25-29 Septiembre. Invited talk “BEYOND SCUBA LIMIT: THE CHALLENGE OF THE COASTAL ANIMAL FORESTS OF THE MESOPHOTIC” **Rossi S**, Coppari M, Viladrich N, Gori A ; presentación oral “Octocoral symbiosis: Exploring the relationship between host morphological traits and symbiont photosynthesis” **Rossi S**, Schubert N, Brown D, Soares M, Iglesias-Prieto R

59 European Coral Reef Symposium 2017, Oxford (Great Britain) 13-15 Diciembre. Presentación Oral “Some aspects of the trophic ecology of two Caribbean octocorals: autotrophic and heterotrophic seasonal trends” **Rossi S**, Schubert N, Brown D, Gómez-Posadas A; Presentación Oral “Morphological plasticity of the gorgonian *Eunicella singularis* as a response to population density and environmental conditions” Baena P, Viladrich N, Carlos Dominguez-Carrió C, Coppari M , Bramanti L , **Rossi S** ; Presentación Oral “Ecology of Mediterranean gorgonians in mesophotic ecosystems” Gori A, Viladrich N, Grinyó J, Bo M, Costantini F, Bramanti L, Linares C, Niubò M, Coppari M, Ambroso S, Priori C, Benedetti MC, Santangelo G, Ferrier-Pagès C, Cerrano C, Bavestrello G, Garrabou J, Gili JM, **Rossi S**, Bongaerts P

60. XXXV SCAR, Davos (Switzerland) 15-27 June 2018. “Winter to summer trophic shift of *Gondogeneia antarctica* in an Antarctic fjord” Poster, Elias-Piera F, Ahn I-Y, HaS-Y, **Rossi S**

61 79° Congresso Unione Zoologica Italiana, Lecce (Italia) 25-28 Septiembre 2018. Poster “Polyp expansion in passive suspension feeders: the red coral case study” **Rossi S**, Rizzo L, Duchene JC, Grémare A, Gili JM

Congresos

62- European Coral Reef Symposium 2017, Oxford (Great Britain) 13-15 Diciembre. Presentación Oral “Some aspects of the trophic ecology of two Caribbean octocorals: autotrophic and heterotrophic seasonal trends” **Rossi S**, Schubert N, Brown D, Gómez-Posadas A; Presentación Oral “Morphological plasticity of the gorgonian *Eunicella singularis* as a response to population density and environmental conditions” Baena P, Viladrich N, Carlos Dominguez-Carrió C, Coppari M , Bramanti L , **Rossi S** ; Presentación Oral “Ecology of Mediterranean gorgonians in mesophotic ecosystems” Gori A, Viladrich N, Grinyó J, Bo M, Costantini F, Bramanti L, Linares C, Niubò M, Coppari M, Ambroso S, Priori C, Benedetti MC, Santangelo G, Ferrier-Pagès C, Cerrano C, Bavestrello G, Garrabou J, Gili JM, **Rossi S**, Bongaerts P

Memorial SERGIO ROSSI

63 Reefs for the Future, Cayo Largo, Florida (US) 11-14 December 2018. Making marine restoration the tool for people sensitization and leisure: The experience of Underwater Gardens International. Poster, **Sergio Rossi**, Marc García-Durán Huet, Cristòbal Garrigosa, Puri Canals

64 Euromarine general assembly meeting, Cádiz (Spain) 29-31 January 2019. "The marine animal forests of the world: challenges, frontiers and the role of science in its management and conservation (ANFORE)" **Rossi S**, Invited talk

65 50 SIBM, Livorno (Italia) 10-14 Junio 2019. "Historical ecology, understanding the present panorama using past scenarios" **Rossi S**, Invited Talk

NO CONGRESSES IN 2020 AND 2021 DUE TO THE COVID-19 (only invited talks, telematically).

Other scientific outreach activities

Participación en la WEB "Divulgació Científica de l'Equip Espanyol a la Antàrtida a través de la Xarxa d' Internet" de la Generalitat de Catalunya, Departament de Ensenyament 2000

Setmana de la Ciència, participación en la charla "Los fondos de la Antàrtida", Gili JM & **Rossi S**, 14 Noviembre 2002.

Participación en la WEB "Un projecte innovador de divulgació científica: la recerca a l'Antàrtida com exemple. ACES Generalitat de Catalunya 2003." de la Generalitat de Catalunya, Departament de Ensenyament.

Jornades del Medi Natural del Cap de Creus, charla "Imatges submarines d'un parc Natural: la campanya oceanogràfica del García del Cid amb Robot Submarí", **Rossi S**, 12-13 Julio 2003.

Fira Viu la Ciència Contemporània. Presentación del Stand "Apassionem-nos amb l'Antàrtida", Broglio E, **Rossi S**, Teixidó N, Vendrell B, Gili JM, 6-7 Mayo 2004.

Presentación del documental "Deep Blue" en el Centre de Biodiversitat de Andorra, 22-23 Mayo 2006.

Exposición "Zoom submarino", Museo de Historia Natural de Barcelona. (Textos y fotos) 14 Junio 2006-30 Enero 2007.

Presentación de la conferencia "Coral (*Corallium rubrum*): el oro rojo del Mediterráneo" en la el 29 Marzo 2007

Memorial SERGIO ROSSI

Presentación de la charla “El bosque animal” en la Scuola Elementare di Barcellona en el seno de la Setmana de la Ciència (26-30 Marzo 2007; 30 Marzo-3 Abril 2009)

Prólogo del libro “Llaunet i el Mar”, 2007, Editorial Mediterrània

Presentación de la conferencia “Transformación de los sistemas marinos: tomando la iniciativa” en el marco del ciclo Cambio Climático, consecuencias y perspectivas futuras de la Semana Europea de la Ciencia en la UAB, 13 Noviembre 2007

EuroScience Open Forum (ESOF2008), Barcelona 18-22 Julio 2008. Participación en el Stand “International Polar Year: Dazzling Science and Powerful Messages” coordinado por Jose Manuel Abad

Presentación de la conferencia “Vint-i-quatre hores d’investigació al vaixell oceanogràfic Polerstern al mar de Weddell” en el marco de la XL Universitat Catalana d’Estiu, 15-25 Agosto 2008

Participante de la mesa redonda en el “I Encuentro de Científicos y Tecnólogos en Navarra” 28 Octubre 2008.

Participante de la mesa redonda en el “Ciència als pols. Quatre llibres viscuts” en el Centre Arts de Santa Mònica, 21 Abril 2010.

Presentación de la conferencia “Algo se mueve en el hielo: efectos del calentamiento en los extremos polares de la Tierra” en el Club Faro de Vigo, 19 Mayo 2010.

Presentación del seminario “Señales olfativas en el mar: desde los corales a los peces” en el marco del ciclo de conferencias “Estratègies de comunicació i defensa dela natura” del Museu de Mataró, 25 Mayo 2011.

Presentación de la conferencia “Polos aparte: ¿Por qué ha de importarnos lo que pasa en el Ártico y Antártico?” en el Can Massarella, San Boi, 25 Octubre 2012.

Invitado al HAY Festival en Xalapa (México), 2 al 5 Octubre del 2014. La conferencia se dio el 4 de Octubre con el título “Un viaje a la Antártida: un científico en el continente olvidado”.

Presentaciones en Jornadas de la Ciencia de la escuela Maristas de Barcelona, invitado especial con las charlas “24 hores a l’Antàrtida. Un científic al continent oblidat” para 3º de ESO y “L’energia que vé del mar: oportunitats pel segle XXI” para 2º de bachillerato, 24 Nov 2014

Invitado por el Centre de Cultura Contemporània de Barcelona (CCCB) en el marco de la temàtica “Elogio de la Aventura”, con la charla “Elogio de la Aventura: Exploración y Descubrimiento”, 10 Diciembre 2014

Invitado al HAY Festival en Medellín y Cartagena de Indias (Colombia), 28 de Enero al

Memorial SERGIO ROSSI

2 de febrero del 2015. Las conferencias tuvieron como título “Un viaje a la Antártida: un científico en el continente olvidado”

Presentación de la charla “Ecosistemi marini e conservazione del mare” en la Scuola Italiana di Barcellona, 10 Marzo 2016.

Presentación de la charla “Oceani in trasformazione” en el Istituto Italiano di Cultura, 18 Abril 2016

Presentación de la charla “Un viaggio in Antartide” a través del Museo de Biologia Marina de Porto Cesareo, Lecce, “Prof a la Torre”, 19 Julio 2018.

Presentación de la charla “Corallo rosso (*Corallium rubrum* L.): l'oro rosso del Mediterraneo” en el seno de “L'era del corallo rosso), Sezione Marina di San Cataldo, Cinelab del Cineporto di Lecce, 10 Mayo 2019.

Presentación de la charla “Corallo rosso (*Corallium rubrum* L.): l'oro rosso del Mediterraneo” a través del Museo de Biologia Marina de Porto Cesareo, Lecce, “Prof a la Torre”, 4 Julio 2019.

Clase (6 horas) “Sustainable fisheries and protection of the marine environment”, en el programa Sustainable development of coastal communities (CIHEAM, Bari), 88 Settembre 2019 (Tricase Porto).

Presentación de la charla “Descubre los secretos y el valor de los océanos”, en el programa COSMOACCIÓN, 24 Octubre 2019

Presentación de la charla “Finalmente, gli Oceani?” Seminari dell'Università del Salento per il Liceo Scientifico (Banzi), 19 Novembre 2019.

Presentación de la charla “Un giorno nell'Antartide”, en el programa MERRY GREEN CHRISTMAS, Comune di Lecce, 23 Novembre 2019.

COMPLETE LIST OF PROJECTS

Participación en Proyectos de Investigación

1. 1995-1998. Evaluación de los factores ambientales y biológicos que controlan la ecología trófica de los suspensívoros bentónicos. DGICYT 1995-1998, PB94-0014-C02-01. (I.P. Josep María Gili)
2. 1996-1999. Dynamics of matter transfer and biogeochemical cycles: modelling in coastal systems of the Mediterranean Sea. MAST-III-ELOISE European Union

METRO MED Project.. (I.P. Josep-María Gili)

3. 2000. Un estudio multidisciplinar sobre el papel de las comunidades bentónicas en los ecosistemas antárticos (Un Programa EASIZ). CICYT (ANT99-1608-E)(I.P. Josep-María Gili)
4. 2001-2003. Gorgonias mediterráneas ibéricas: evaluación de riesgos para un valioso patrimonio natural amenazado. MEDGORG, CICYT (REN2000-0633-C03-01/MAR)(I.P. Josep-María Gili)
5. 2001. Estudio del potencial trófico de los sedimentos y columna de agua para las comunidades bentónicas marinas del sector oriental del mar de Weddell y del estrecho de Bransfield (Antarctica) (Un proyecto EASIZ) (REN2000-3096-E/ANT)(I.P. Josep-María Gili)
6. 2001-2003. Estudio y seguimiento del estado de las poblaciones de coral rojo *Corallium rubrum* en el litoral catalán. Convenio con la Generalitat de Catalunya (PCC: 30103) (I.P. Sergio Rossi)
7. 2002-2005. Evaluación de la transferencia de materia y energía entre plancton y bentos: aproximación a nivel de comunidad mediante un circuito de flujo experimental. CICYT (REN2002-01631) (I.P. Marta Ribes)
8. 2003. El macrobentos com a indicador de canvis mediambientals: creació d'una base de dades i realització d'experiències de transplantament a la Costa Catalana. CTD. INTERREG entre la Generalitat de Catalunya y la Región Languedoc Roussillon. Ajuts per a accions de cooperació i mobilitat amb institucions, regions i consorcis interregionals signataris d'acords de col.laboració amb Catalunya, dentro del III Pla de recerca de Catalunya. Centre Oceanologique de Banyuls-sur-Mer (Antoine Grémare) y CEAB (Rafael Sardá) y ICM-CMIMA (Josep-Maria Gili)
9. 2003-2004. Ecología trófica y dinámica de poblaciones del coral rojo (Anthozoa-Octocorallia). PROYECTO COOPERACIÓN CSIC/CNR 2003T0013 (I.P. Dr. JM Gili)
10. 2003-2004. Pirineus Mediterrànis: La muntanya que uneix. INTERREG entre la Generalitat de Catalunya y la Región Languedoc Roussillon. Participació del CSIC-CNRS (I.P. Rafael Sardá [CEAB] i JM Gili [ICM])
11. 2003-2006. Un estudio multidisciplinar sobre los procesos de acoplamiento plancton bentos en el mar de Weddell FILANT (Un proyecto EASIZ) (REN2003-04236) (I.P. Francesc Pagès)
12. 2003-2007. European gelatinous zooplankton: mechanisms of jellyfish bloom formation and their ecological and socio-economical effects (European Project EUROGEL) (Francesc Pagès, partner español)
13. 2004-2008. CENSOR: Climate variability and El Niño Southern Oscillation:

Implications for natural coastal Resources and management. Specific Targeted Research Project (INCO-2002-A2.2) Marzo 2004- Abril 2008. Contrato N° 511071. UE, VI Programa Marco (E. Isla, partner español).

14. 2005-2010. HERMES: Hotspot Ecosystem Research on the Margins of European Seas. Contrato N° 511234-2 . Specific Targeted Research Project, Octubre 2004- Septiembre 2008. UE, VI Programa Marco (J.M. Gili, partner español).

15. 2005-2006. Reclutamiento, crecimiento y mortalidad del coral rojo (*Corallium rubrum* L 1758). PROYECTO COOPERACIÓN CSIC/CNR 2004T0040 (I.P. Josep-María Gili)

16. 2005-2008. Estudio multidisciplinar de las comunidades bentónicas dominadas por suspensívoros del margen de la plataforma continental mediterránea (DEEPCORAL). CTM2005-07756-C02-01/MAR, MEC (I.P. J.M. Gili)

17. 2006-2009. Cambio climático en la Antártida: una aproximación desde el acoplamiento pelágico-béntico a los extremos del mar de Weddell (CLIMANT). POL 2006-06399/CGL, MEC (I.P. Enrique Isla)

18. 2007-2009. Inducción del reclutamiento y conservación del Coral Rojo (*Corallium rubrum* L. 1758). Acción Integrada HI2007-0238 (I.P. Josep-María Gili)

19. 2007-2010. Una aproximación interdisciplinar al manejo y la conservación marina: experiencias divergentes como base de estrategias globales. Proyecto MAPUCHE, Fundación BBVA, BIOCON 07/104 (I.P. Covadonga Orejas)

20. 2008-2009. Análisis de biomarcadores tróficos en una zona de alta productividad del sistema de Humboldt. Acción Complementaria CTM2008-02002-E (I.P. J.M. Gili)

21. 2010-2013. Viabilidad larvaria como factor clave en la dinámica de las poblaciones de suspensívoros bentónicos BENTOLARV CTM2009-10007 (Subprograma MAR) (I.P. S. Rossi)

22. 2011-2014. Mediterranean Sea Acidification under changing Climate (MedSeA, agreement 265103). (I.P. Patrizia Ziveri)

23. 2011-2014. Effects of Climate change in Polar Shallow benthic Ecosystems (ECLIPSE, Fundación Total-Fina). (I.P. Veronica Fuentes)

24. 2013-2016. Multiple stressor effects in the photobiology of Caribbean symbiotic octocorals and its repercussion in the population fitness and reproductive output (ANIMAL FOREST HEALTH, contrato número 327845 de la UE, International Outgoing Fellowship-Marie Curie Actions) (I.P. Sergio Rossi)

25. 2016-2019. Seasonal variation of waste as effect of tourism BLUE ISLANDS

Memorial SERGIO ROSSI

(INTERREG MED. Ref N° 20161127) (I.P. Alkis Stavridis) 2,755,320.41 €

26. 2017-2020. Planktonic calcifying organisms in a high-CO2 Mediterranean Sea (CALMED) (CTM2016-79547-R) (I.P. Patrizia Ziveri)

27. 2017. Escenaris socio-econòmics i ecològics participatius per a una adaptació al Canvi Ambiental Global (CAG) (DARP-FEMP ARP/353/2016) (I.P. Sergio Rossi)

28. 2018-2020 Promozione del BuONo Stato ambientale marino e della pEscA sostenibile lungo la fascia costiera tra Otranto e Capo di Leuca - BON-SEA. (PO FEAMP 2014/2020) (I.P. Massimo Zuccaro) 292.500€

29. 2019-2022 COastal Management and MOnitoring Network for tackling marine litter in Mediterranean sea – COMMON (ENI-CBCMED) (I.P. Massimo Zuccaro)

30. 2020-2023, Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) Program “Dispersion and impacts of micro- and nano-plastics in the tropical and temperate oceans: from regional land-ocean interface to the open ocean-i-Plastic” (Co-PI-ITALY)

31. 2018-2022, REmediation of Marine Enviroment and Development of Innovative Aquaculture: exploitaiton of edible/not edible biomass-REMEDIA Life(LIFE env/it/000343) (PI Adriana Giangrande)

32. 2021-2023, PELD Semiarid coast – How climate and global change affect the socio-ecological Systems? (PELD N° 21/2020 Programa: Programa de Pesquisa Ecológica de Longa Duração – PELD, BRAZIL) (PI Marcelo de Oliveira Soares)

33. 2021-2025, Marine Animal Forest of the world-MAF-WORLD (COST ACTION) CA20102

Participación en Proyectos Tecnológicos

1. Marzo 2004-Septiembre 2004. Construcción de un circuito cerrado de televisión portátil mediante umbilical (BENTHIC EYE-SBQ NEMO) Praesentis (I.P. Sergio Rossi)

2. Mayo 2004-Noviembre 2004. Punt Bleeper. Construcción y ejecución de una plataforma de telepresencia submarina. Praesentis. (I.Ps Jordi Teixidó, Sergio Rossi)

3. 2005-2007. Desarrollo de un vehículo submarino que permita acoplar a las imágenes variables ambientales y fisicoquímicas a la misma escala de observación. Programa Nacional para la transferencia de resultados científicos y técnicos – MEC (PETRI-95-0865.OP) (I.P. Josep-María Gili)

Participación en Proyectos de Divulgación y Cooperación Científica

1. Ene 2000- Dic 2000. Programa pilot de divulgació de l'investigació Antàrtica a temps real., CIRIT (2000ACES 00025)(I.P. J.M. Gili)
2. 2003. Un projecte innovador de divulgació científica: la recerca a l'Antàrtida com exemple. (2003ACES 00049) (I.P. JM Gili)
3. Dic 2003-Dic 2004. La Investigación científica online: Un proyecto innovador de divulgación Científica basada en proyectos de investigación en la Antártida. (DIF2003-10209-E) (I.P. J.M. Gili)
4. 2005. La investigación oceanográfica al alcance de todos. 664487C1/CCT001-04-00241. MEC (I.P. J.M. Gili)
5. 2012. Becas para la movilidad de profesores a países BRIC-UAB: Brasil (Universidade Federal do Ceará) (I.P. Sergio Rossi)
6. 2015. Cooperación Internacional del CAPES para la Escuela de Altos Estudos de Brasil, para impartir el curso "The marine coastal systems in front of global change ". EDITAL No 04/2015 (I.Ps Jeovah Meireles de Andrade & Sergio Rossi)
7. 2016. Cooperación Internacional del CAPES para la Escuela de Altos Estudos de Brasil, para impartir el curso "Gestão dos ecossistemas costeiros frente as mudanças globais: teoria e prática desde a interdisciplinaridade. ". EDITAL No 04/2016 (I.Ps Jeovah Meireles de Andrade & Sergio Rossi)
8. 2016-2019. Ocean governance for sustainability - challenges, options and the role of science COST- OCEANGOV (OC-2015-2-20171). (I.P. Anna-Katharina Hornidge)
9. 2018. Euromarine Work Group "The marine animal forests of the world: challenges, frontiers and the role of science in its management and Conservation ANFORE" (2017 Call, WG3) (I.P. Sergio Rossi)
10. 2018. Cooperación Internacional del FUNDECAPES/Estado de Ceará para la Escuela de Altos Estudos de Brasil, para impartir el curso "Gestão dos ecossistemas costeiros frente as mudanças globais: teoria e prática desde a interdisciplinaridade. ". EDITAL No 03/2017 (I.Ps Jeovah Meireles de Andrade & Sergio Rossi)
11. 2018. XXXV Financiament del Fons de Solidaritat de la UAB "Coastal marine habitats and food supply: transdisciplinary approach to understand how climate and local changes would affect artisanal fisheries in the NE coast of Brazil (Cearà state)".