



Gioele Capillo

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● NATIONAL SCIENTIFIC QUALIFICATION

03/02/2022 – CURRENT

National Scientific qualification as associate Professor in the Italian higher education system for the disciplinary field of 05/B1 - Zoology and anthropology.

● WORK EXPERIENCE

18/11/2019 – CURRENT – Messina, Italy

YOUNG RESEARCHER (RTDA), S.S.D. BIO/05 ZOOLOGY – UNIVERSITY OF MESSINA, VETERINARY SCIENCES

Messina, Italy

26/02/2021 – CURRENT – Messina, Italy

IRBIM ASSOCIATE – INSTITUTE FOR BIOLOGICAL RESOURCES AND MARINE BIOTECHNOLOGY - IRBIM – CNR

Collaboration assignment to the Institute for Biological Resources and Marine Biotechnology, to collaborate in the scientific activities of the project. The aim of the activity is the analysis of biological samples (fish), Antarctic water and sediment, bacteriological isolation and analysis of samples.

Project "PNRA18_00041 - B2-SBAM" Scientific Coordinator: Dr Monique Mancuso.

01/2019 – CURRENT – Messina, Italy

UNIVERSITY TEACHING – UNIVERSITY OF MESSINA

Teaching assignment Zoogeography and Biodiversity of Aquatic Organisms (S.S.D. BIO/05)

6 CFU, teaching course of the Degree Course in Biology and Ecology of the Coastal Marine Environment, of the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences of the University of Messina (ME), Italy. Academic Year 2021/2022

Teaching assignment Zoology (S.S.D. BIO/05)

8 CFU, teaching course of the Degree Course in Biological Sciences, of the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences of the University of Messina (ME), Italy. Academic Year 2020/2021(Class A/K) and 2021/2022 (Classes A/E-O/Z)

Teaching assignment Zoology (S.S.D. BIO/05)

5 CFU, teaching course of the Degree Course in Gastronomic Sciences. Department of Biomedical Sciences, Dentistry and Morphological and Functional Images, Messina (ME), Italy. Academic Year 2020/2021e and 2021/2022

Teaching assignment Zoology module (S.S.D. BIO/05)

3 CFU, course: Propedeutic Anatomy of the Master of Science in Veterinary Medicine of the Department of Veterinary Sciences, University of Messina, (ME), Italy. Academic Year 2019/2020, 2020/2021 and 2021/2022
09/10/2018-current date

06/2019 – CURRENT – Messina, Italy

TEACHING ACTIVITIES PHD COURSE – UNIVERSITY OF MESSINA

Teaching assignment at the 36th and 37th Cycles of the PhD Course in "Applied Biology and Experimental Medicine", of the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences of the University of Messina. Course title: "USE OF ANIMAL MODELS IN MODERN SCIENTIFIC RESEARCH: A ZOOLOGICAL VISION" SSD: ZOOLOGY_BIO/ 05_1CFU_6hours. 2020/2021-2021/2022

11/2019 – CURRENT – Messina, Italy

PHD SUPERVISOR – UNIVERSITY OF MESSINA

Supervisor of the following PhD Students: La Rosa Roberta, Carnevale Alex, Di Fresco Dario, D'Iglio Claudio, Luca Pagano, of the PhD course in Applied Biology and Experimental Medicine

09/2014 – CURRENT

DISSEMINATION ACTIVITIES

- Participation as Speaker at the Sixth Workshop of the Metropolitan Agenda for Sustainable Development of the Metropolitan City of Messina "The state of health of the Strait of Messina and the lakes of Cape Peloro" 07/02/2022
- Participation in the Sea Project in SHELL (<https://www.unime.it/it/international/evidenza/%E2%80%9Csea-shell-night%E2%80%9D-sea-science-health-environment-literature-law-economy>). The University of Messina presented the project Sea in SHELL at the Call Horizon 2020 for the European Researcher's Night. The project was not funded but obtained the dignity of "Associated event" and was held in Messina on 24 September 2021. The project "Sea in SHELL", aimed to show the general public all the research activities related to the sea carried out at the University. Contribution as rapporteur and co-rapporteur of 4 contents.
- Organizer of the Workshop "Plastic, threat to underwater life" for the Sustainability Day of the University of Messina, 30/09/2020 and 08/10/2021
- Speaker at the European Day of the Sea 2018 Villa Pace "Museale" (Messina, Italy), with a speech entitled "The Depths of the Strait, between Biodiversity and Plastics" 18/05/2018
- TV interview for MEDITERRANEO - La pêche en méditerranée (France-3 Broadcaster) on the subject Swordfish quotas. 17/07/2017
- Speaker at the European Day of the Sea, with a speech entitled "The lakes of Peloro: nature and territory", Cape Peloro Horcynus Orca, 20/05/2017
- Speaker in the meeting organized by Legambiente on the environmental issue related to the environmentally friendly exploitation of Lake Ganzirri (Messina). Project title: "Lake Ganzirri" Current status and future prospects 20/06/2015

06/2020 – CURRENT – Messina, Italy

INSTITUTIONAL ASSIGNMENTS – UNIVERSITY OF MESSINA

Component of the following commission for:

- revise a grant proposal in the NZ8 (Evolutionary and environmental biology) panel of the "National Marine Fisheries Research Institute" (National Science Centre, Poland) on Contamination by plastics in the benthic aquatic environment in the South Baltic Sea. 09-2021
- the contract for the realization of: COMPETITION OF IDEAS FOR THE RE-QUALIFICATION OF THE "CAPO PELORO" AREA FALLING IN THE NATURA 2000 ZPS ITA030042 SITE. CIG: 87923214D1. 11-2021
- the conferral of n. 1 assignment of professional work performance (coordinator underwater activity) within the project BIOBLU -"Robotic bioremediation for coastal debris in blue flag beach and in a maritime protected area" - Program INTERREG V-A Italy - Malta 2014-2020 Department of Biomorf; UniMe. 05/2021
- the awarding of No. 1 Scholarship for post-graduate research activities for graduates in Biology and Ecology of the Coastal Marine Environment, of the Project "PO FEAMP 2.56 entitled FISH PATH NET" on the theme "Study of the mechanisms of action of algal extracts with antibiofilm activity" Department ChiBioFarAm, UniMe. 05/2021

- the awarding of No. 1 Scholarship for post-graduate research activities for graduates in Biology and Ecology of the Coastal Marine Environment, of the Project "PO FEAMP 2.56 entitled FISH PATH NET" on the theme "Microplastics in aquatic organisms" Department ChiBioFarAm, UniMe. 05/2021
- the awarding of No. 1 Scholarship for post-graduate research activities for graduates in Biology and Ecology of the Coastal Marine Environment, of the Project "PO FEAMP 2.56 entitled FISH PATH NET" on the theme "Evaluation of antibacterial and antibiofilm activity of algal extracts". ChiBioFarAm Department, UniMe. 05/2021
- Research and the Third Departmental Mission (AQ-RDTM), SciVet Department, UniMe. 05/2021
- the examination for admission to the School of Specialization in "Breeding, hygiene, pathology of aquatic species and control of derived products", for the a.a. 2020/2021, of the SciVet Department, UniMe. 02/2021
- the public selection for the award of No. 1 Scholarship for post-graduate research activities for graduates in Foreign Languages and Literature (LM39) of the Project "PO FEAMP 2.56 entitled FISH PATH NET". ChiBioFarAm Department, UniMe. 01/2021
- the conferral of n. 1 Scholarship for activities of "Analysis of costs related to project supplies and related reporting" and "marketing analysis", Project "PO FEAMP 2.56 entitled FISH PATH NET". ChiBioFarAm Department, UniMe. 01/2021
- admission to the Bachelor of Science in Veterinary Medicine. 09/2020
- the awarding of No. 1 (a) Scholarship for post-graduate research activities of the Project "PO FEAMP 2.56 entitled FISH PATH NET" on the theme "Emerging pests in mariculture". Dept. ChiBioFarAm, UniMe. 07/2020

RESEARCH METRICS

SCOPUS

Paper: 63

Citations: 1254

H-Index: 19

GOOGLE SCHOLAR

Paper: 74

Citations: 1428

H-Index: 21

EDUCATION AND TRAINING

12/04/2022 – 19/04/2022

INTERNATIONAL RESEARCH ACTIVITY – Faculty of Biosciences and Aquaculture, Nord University, Norway

Target of the research: deepen the phylogenetic correlations of trachipteridae family members, based on molecular evolution studies on the *Zu cristatus* genome sequenced.

05/10/2015 – 30/09/2018 – Messina, Italy

PHD IN "APPLIED BIOLOGY AND EXPERIMENTAL MEDICINE", CURRICULUM "BIOLOGICAL AND ENVIRONMENTAL SCIENCES" – University of Messina Department of Chemical, Biological, Pharmaceutical and Environmental Sciences

PhD in Applied Biology and Experimental Medicine, Curriculum: Biological and Environmental Sciences XXXI cycle.

The topic dealt with in the PhD was Integrated Multi-Trophic Aquaculture (IMTA) with particular attention to in-shore mariculture plants. The paper of the PhD project entitled "Sustainable aquaculture: IMTA tests with *Gracilaria gracilis* (Stackhouse) Steentoft, L.M. Irvine & Farnham", with its different objectives has been elaborated in three different scientific papers published in international journals and the various activities presented during the years of research at different national and international congresses. In parallel with these themes, the study of morphological, cytochemical, histochemical and immunohistochemical characteristics of morphofunctional adaptations and of the immune system of different aquatic organisms was pursued.

01/11/2016 – 01/03/2017 – Oviedo, Spain

INTERNATIONAL RESEARCH ACTIVITY – Universidad de Oviedo

Training internship at the laboratory of the Group "SINPOS" of the "Departamento de Morfología y Biología Celular de la Universidad de Oviedo" carried out during the participation in the project Research & Mobility entitled: "Effects of N-acylethanolamines and Polyphenols Association in the Control of Neuroinflammation after Traumatic Central Nervous System Injuries." The project also carried out activities to assess the impact of heavy metal pollution on aquatic ecosystems using zebrafish (*Danio rerio*) as an experimental model.

16/02/2012 – 09/10/2013 – Messina, Italy

MASTER DEGREE IN "BIOLOGY AND ECOLOGY OF MARINE COASTAL ENVIRONMENT" – University of Messina

Vote 110/110 and academic praise

Final elaboration: "Study of optical and confocal microscopy on *Chauliodus sloani* photophores"

30/08/2012 – 19/10/2012 – Bodø, Norway

INTERNATIONAL RESEARCH ACTIVITY – Faculty of Biosciences and Aquaculture, Nord University

Molecular biology techniques applied to the extraction of DNA from tissues, PCR, Real Time PCR and electrophoretic analysis of amplicons; use of different software for analysis of nucleotide sequences aimed at the design of Primers. Research target: study of hyperpolarizing channel proteins in pacemaker cells of *Gadus morhua*. Paper published: Capillo, G., Lauriano, E.R., Icardo, J.M., Siryappagouder, P., Kuciel, M., Karapanagiotis, S., Zaccone, G., Fernandes, J.M.O., 2021. Structural Identification of the Pacemaker Cells and Expression of Hyperpolarization-Activated Cyclic Nucleotide-Gated (HCN) Channels in the Heart of the Wild Atlantic Cod, *Gadus morhua* (Linnaeus, 1758). *Int. J. Mol. Sci.* 22, 7539. <https://doi.org/10.3390/ijms22147539>

07/10/2008 – 31/01/2012 – Messina, Italy

BACHELOR DEGREE IN "MARINE BIOLOGY AND ECOLOGY" – University of Messina

Vote 110/110.

Thesis: "Morphological and histochemical study of *Scyliorhinus canicula* spiral valve". Paper published: E.R. Lauriano, S. Pergolizzi, M. Aragona, G. Montalbano, M.C. Guerrero, R. Crupi, C. Faggio, G. Capillo, Intestinal immunity of dogfish *Scyliorhinus canicula* spiral valve: A histochemical, immunohistochemical and confocal study, *Fish and Shellfish Immunology*. 87 (2019) 490-498. doi:10.1016/j.fsi.2019.01.049.

● LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
SPANISH	B2	B2	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● DIGITAL SKILLS

GoogleChrome | macOS | Ability to work with several operatin systems including Windows and Mac OSX | Photo Video Editing | Statistical | Microsoft Office, Microsoft Word, Microsoft Excel, Outlook, Facebook, Google

● PUBLICATIONS

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S. Famulari, S. Savoca, G. Panarello, C. Iaria, N. Spanò, **G. Capillo**, New record of a female violet blanket octopus (*Tremoctopus violaceus*, delle Chiaje, 1830) in the Strait of Messina, southern Italy. *International Journal of Environmental Studies*, 2022. In press

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Alesci A., Pergolizzi S., **Capillo G.**, Lo Cascio P., Lauriano E.R.
Rodlet cells in kidney of goldfish (*Carassius auratus*, Linnaeus 1758): A light and confocal microscopy study. (2022) *Acta Histochemica*, 124 (3), DOI: 10.1016/j.acthis.2022.151876

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Zaccone G., **Capillo G.**, Fernandes J.M.O., Kiron V., Lauriano E.R., Alesci A., Lo Cascio P., Guerrera M.C., Kuciel M., Zuwala K., Icardo J.M., Ishimatsu A., Murata R., Amagai T., Germanà A., Aragona M.
Expression of the Antimicrobial Peptide Piscidin 1 and Neuropeptides in Fish Gill and Skin: A Potential Participation in Neuro-Immune Interaction. (2022) *Marine Drugs*, 20 (2), DOI: 10.3390/md20020145

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Alesci A., Pergolizzi S., Lo Cascio P., **Capillo G.***, Lauriano E.R.
Localization of vasoactive intestinal peptide and toll-like receptor 2 immunoreactive cells in endostyle of urochordate *Styela plicata* (Lesueur, 1823).(2022) *Microscopy Research and Technique*. DOI: 10.1002/jemt.24119

Maina J.N., Icardo J.M., Zaccone G., Aragona M., Lauriano E.R., Alesci A., Albano M., Guerrera M.C., Germana A., Fernandes J.M.O., Kiron V., **Capillo G.** Immunohistochemical and ultrastructural study of the immune cell system and epithelial surfaces of the respiratory organs in the bimodally breathing African sharptooth catfish (*Clarias gariepinus* Burchell, 1822). (2022) *Anatomical Record*. DOI: 10.1002/ar.24896

Sanfilippo, M., Albano, M., Manganaro, A., **Capillo, G.**, Spanò, N., Savoca, S. Spatiotemporal Organic Carbon Distribution in the Capo Peloro Lagoon (Sicily, Italy) in Relation to Environmentally Sustainable Approaches, (2022) *Water (Switzerland)*, 14 (1), art. no. 108. DOI: 10.3390/w14010108

D'iglio, C., Natale, S., Albano, M., Savoca, S., Famulari, S., Gervasi, C., Lanteri, G., Panarello, G., Spanò, N., **Capillo, G.** Otolith Analyses Highlight Morpho-Functional Differences of Three Species of Mullet (Mugilidae) from Transitional Water (2022) *Sustainability (Switzerland)*, 14 (1), art. no. 398. DOI: 10.3390/su14010398

D'iglio, C., Albano, M., Tiralongo, F., Famulari, S., Rinelli, P., Savoca, S., Spanò, N., **Capillo, G.** Biological and ecological aspects of the blackmouth catshark (*Galeus melastomus* Rafinesque, 1810) in the southern Tyrrhenian Sea (2021) *Journal of Marine Science and Engineering*, 9 (9), art. no. 967. DOI: 10.3390/jmse9090967

D'Iglio, C., Albano, M., Famulari, S., Savoca, S., Panarello, G., Di Paola, D., Perdichizzi, A., Rinelli, P., Lanteri, G., Spanò, N., **Capillo, G.** Intra- and interspecific variability among congeneric *Pagellus* otoliths (2021) *Scientific Reports*, 11 (1), art. no. 16315. DOI: 10.1038/s41598-021-95814-w

Lauriano E.R., **Capillo G. ***, Icardo J.M., Fernandes J.M.O., Kiron V., Kuciel M., Zuwala K., Guerrera M.C., Aragona M., Germana' A. and Zaccone G., 2021. Neuroepithelial cells (NECs) and mucous cells express a variety of neurotransmitters and neurotransmitter receptors in the gill and respiratory air-sac of the catfish *Heteropneustes fossilis* (Siluriformes, Heteropneustidae): a possible role in local immune defence. *Zoology*, 1- 148, art. no. 125958. DOI: 10.1016/j.zool.2021.125958

54- Spanò, N., Di Paola, D., Albano, M., Manganaro, A., Sanfilippo, M., D'Iglio, C., **Capillo G.**, Savoca, S.*, 2021. Growth performance and bioremediation potential of *Gracilaria gracilis* (Steentoft, L.M.Irvine & Farnham, 1995). *International Journal of Environmental Studies*. 1- International Journal of Environmental Studies. DOI: 10.1080/00207233.2021.1954775

Capillo, G., Lauriano, E.R., Icardo, J.M., Siriyappagouder, P., Kuciel, M., Karapanagiotis, S., Zaccone, G., Fernandes, J.M.O., 2021. Structural Identification of the Pacemaker Cells and Expression of Hyperpolarization-Activated Cyclic Nucleotide-Gated (HCN) Channels in the Heart of the Wild Atlantic Cod, *Gadus morhua* (Linnaeus, 1758). *Int. J. Mol. Sci.* 22, 7539. <https://doi.org/10.3390/ijms22147539>

Savoca, S., Matanović, K., D'Angelo, G., Vetri, V., Anselmo, S., Bottari, T., Mancuso, M., Kužir, S., Spanò, N., **Capillo, G.**, Di Paola, D., Valić, D., Gjurčević, E. Ingestion of plastic and non-plastic microfibers by farmed gilthead sea bream (*Sparus aurata*) and common carp (*Cyprinus carpio*) at different life stages. *Science of the Total Environment*, 782, (2021). 10.1016/j.scitotenv.2021.146851

Albano, M., Panarello, G., Di Paola, D., Capparucci, F., Crupi, R., Gugliandolo, E., Spanò, N., **Capillo, G.**, Savoca, S. The influence of polystyrene microspheres abundance on development and feeding behavior of *Artemia salina* (Linnaeus, 1758) *Applied Sciences (Switzerland)*, 11 (8), (2021). 10.3390/app11083352

D'iglio, C., Savoca, S., Rinelli, P., Spanò, N., **Capillo, G.** Diet of the deep-sea shark *Galeus melastomus rafinesque*, 1810, in the Mediterranean Sea: What we know and what we should know *Sustainability (Switzerland)*, 13 (7), (2021) 10.3390/su13073962

Capillo, G., Zacccone, G., Cupello, C., Fernandes, J.M.O., Viswanath, K., Kuciel, M., Zuwala, K., Guerrera, M.C., Aragona, M., Icardo, J.M., Lauriano, E.R. Expression of acetylcholine, its contribution to regulation of immune function and O2 sensing and phylogenetic interpretations of the African butterfly fish *Pantodon buchholzi* (Osteoglossiformes, Pantodontidae) *Fish and Shellfish Immunology*, 111, pp. 189-200. (2021) 10.1016/j.fsi.2021.02.006

Fazio, F., Saoca, C., **Capillo, G.**, Iaria, C., Panzera, M., Piccione, G., Spanò, N. Intra-variability of some biochemical parameters and serum electrolytes in rainbow trout (Walbaum, 1792) bred using a flow-through system *Heliyon*, 7 (2), (2021). 10.1016/j.heliyon.2021.e06361

2021
Albano, M., Panarello, G., Di Paola, D., D'Angelo, G., Granata, A., Savoca, S., **Capillo, G.** The mauve stinger *Pelagia noctiluca* (Cnidaria, Scyphozoa) plastics contamination, the Strait of Messina case, *International Journal of Environmental Studies*. (2021) doi.org/10.1080/00207233.2021.1893489

De Leo, F., Marchetta, A., **Capillo, G.**, Germanà, A., Primerano, P., Schiavo, S. Lo, Urzi, C.,. Surface active ionic liquids based coatings as subaerial anti-biofilms for stone built cultural heritage. *Coatings*. (2021) <https://doi.org/10.3390/coatings11010026>

J. Icardo, **G. Capillo**, E.R. Lauriano, M. Kuciel, M. Aragona, M.C. Guerrera, G. Zacccone, The gas bladder of *Pantodon buchholzi*. Structure and relationships with the vertebrae, *Journal of Morphology*. 281 (2020): 1588–1597 <https://doi.org/10.1002/jmor.21271>

A. Alesci, E. Rita, M. Aragona, **G. Capillo***, S. Pergolizzi, Acta Histochemica Marking vertebrates langerhans cells , from fish to mammals, Acta Histochemica. 122 (2020) 151622. doi:10.1016/j.acthis.2020.151622.

S. Pergolizzi, A. Marino, **G. Capillo***, M. Aragona, P. Marconi, E.R. Lauriano, Expression of Langerin/CD 207 and α -smooth muscle actin in ex vivo rabbit corneal keratitis model, Tissue and Cell. 66 (2020). doi:10.1016/j.tice.2020.101384.

E.R. Lauriano, S. Pergolizzi, P. Lo Cascio, M. Kuciel, N. Zizzo, M.C. Guerrera, M. Aragona, **G. Capillo***, Expression of Langerin/CD207 in airways, lung and associated lymph nodes of a stranded striped dolphin (*Stenella coeruleoalba*), Acta Histochemica. 122 (2020). doi:10.1016/j.acthis.2019.151471.

G. Zaccone, C. Cupello, **G. Capillo***, M. Kuciel, A.L.R. Nascimento, A. Gopesh, G.P. Germanà, N. Spanò, M.C. Guerrera, M. Aragona, R. Crupi, J.M. Icardo, E.R. Lauriano, Expression of Acetylcholine- and G protein coupled Muscarinic receptor in the Neuroepithelial cells (NECs) of the obligated air-breathing fish, *Arapaima gigas* (Arapaimatidae: Teleostei), Zoology. (2020). doi:10.1016/j.zool.2020.125755.

J.J. Róžański, **G. Capillo**, E.R. Lauriano, M. Aragona, M. Kuciel, G. Zaccone, K.D. Żuwała, Ultrastructural and immunocytochemical studies on the olfactory receptor neurons in the *Ichthyosaura alpestris*, Acta Zoologica. (2020). doi:10.1111/azo.12351.

S. Pergolizzi, V. D'Angelo, M. Aragona, P. Dugo, F. Cacciola, **G. Capillo**, G. Dugo, E.R. Lauriano, Evaluation of antioxidant and anti-inflammatory activity of green coffee beans methanolic extract in rat skin, Natural Product Research. 34 (2020) 1535–1541. doi:10.1080/14786419.2018.1523161.

J. Dymek, G. Rosenqwert, M. Kuciel, E.R. Lauriano, **G. Capillo**, G. Zaccone, K. Żuwała, Micro- and macro-morphology of the olfactory organ of *Syngnathus typhle* (Syngnathidae, Actinopterygii), Acta Zoologica. (2020). doi:10.1111/azo.12328.

E.R. Lauriano, M.C. Guerrera, R. Laurà, **G. Capillo**, S. Pergolizzi, M. Aragona, F. Abbate, A. Germanà, Effect of light on the calretinin and calbindin expression in skin club cells of adult zebrafish, Histochemistry and Cell Biology. (2020). doi:10.1007/s00418-020-01883-9.

F. Fazio, C. D'Iglio, **G. Capillo**, C. Saoca, k. Peycheva, G. Piccione, & L. Makedonski. Environmental Investigations and Tissue Bioaccumulation of Heavy Metals in Grey Mullet from the Black Sea (Bulgaria) and the Ionian Sea (Italy). *Animals*, 10(10) (2020), 1739. <https://doi.org/10.3390/ani10101739>

A. Spinelli, **G. Capillo**, C. Faggio, D. Vitale, N. Spanò, Returning of *Hippocampus hippocampus* (Linnaeus, 1758) (Syngnathidae) in the Faro Lake-oriented Natural Reserve of Capo Peloro, Italy, *Natural Product Research*. 34 (2020) 595–598. doi:10.1080/14786419.2018.1490909.

A. Stara, M. Pagano, **G. Capillo**, J. Fabrello, M. Sandova, I. Vazzana, E. Zuskova, J. Velisek, V. Matozzo, C. Faggio, Assessing the effects of neonicotinoid insecticide on the bivalve mollusc *Mytilus galloprovincialis*, *Science of the Total Environment*. 700 (2020). doi:10.1016/j.scitotenv.2019.134914.

S. Savoca, T. Bottari, E. Fazio, M. Bonsignore, M. Mancuso, G.M. Luna, T. Romeo, L. D'Urso, **G. Capillo***, G. Panarello, F. Neri, N. Spanò, Plastics occurrence in juveniles of *Engraulis encrasicolus* and *Sardina pilchardus* in the Southern Tyrrhenian Sea, *Science of the Total Environment*. 718 (2020). doi:10.1016/j.scitotenv.2020.137457.

S. Savoca, G. Grifó, G. Panarello, M. Albano, S. Giacobbe, **G. Capillo**, N. Spanó, G. Consolo, Modelling prey-predator interactions in Messina beachrock pools, *Ecological Modelling*. 434 (2020) 109206. doi:https://doi.org/10.1016/j.ecolmodel.2020.109206.

G. Capillo, S. Savoca, G. Panarello, M. Mancuso, C. Branca, V. Romano, G. D'Angelo, T. Bottari, N. Spanò, Quali-quantitative analysis of plastics and synthetic microfibers found in demersal species from Southern Tyrrhenian Sea (Central Mediterranean), *Marine Pollution Bulletin*. 150 (2020). doi:10.1016/j.marpolbul.2019.110596.

A. Stara, M. Pagano, G. Capillo, J. Fabrello, M. Sandova, M. Albano, E. Zuskova, J. Velisek, V. Matozzo, C. Faggio, Acute effects of neonicotinoid insecticides on *Mytilus galloprovincialis*: A case study with the active compound thiacloprid and the commercial formulation calypso 480 SC, *Ecotoxicology and Environmental Safety*. 203 (2020). doi:10.1016/j.ecoenv.2020.110980.

E.R. Lauriano, S. Pergolizzi, M. Aragona, G. Montalbano, M.C. Guerrero, R. Crupi, C. Faggio, **G. Capillo**, Intestinal immunity of dogfish *Scyliorhinus canicula* spiral valve: A histochemical, immunohistochemical and confocal study, *Fish and Shellfish Immunology*. 87 (2019) 490–498. doi:10.1016/j.fsi.2019.01.049.

E.R. Lauriano, S. Pergolizzi, M. Aragona, N. Spanò, M.C. Guerrero, **G. Capillo***, C. Faggio, Merkel cells immunohistochemical study in striped dolphin (*Stenella coeruleoalba*) skin, *Tissue and Cell*. 56 (2019) 1–6. doi:10.1016/j.tice.2018.11.003.

G. Zaccone, J. Maina, A. Germanà, G. Montalbano, **G. Capillo**, L. Aragona, M.J. Kuciel, E.R. Lauriano, J.M. Icardo, First demonstration of the neuroepithelial cells and their chemical code in the accessory respiratory organ and the gill of the sharptooth catfish, *Clarias gariepinus*: A preliminary study, *Acta Zoologica*. 100 (2019) 160–166. doi:10.1111/azo.12242.

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P. Licata, R. Tardugno, S. Pergolizzi, **G. Capillo**, M. Aragona, A. Colombo, T. Gervasi, V. Pellizzeri, N. Cicero, M. Calò, In vivo effects of PCB-126 and genistein on vitellogenin expression in zebrafish, *Natural Product Research*. 33 (2019) 2507–2514. doi:10.1080/14786419.2018.1455048.

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R. Costa, **G. Capillo***, A. Albergamo, R.L. Volsi, G. Bartolomeo, G. Bua, A. Ferracane, S. Savoca, T. Gervasi, R. Rando, G. Dugo, N. Spanò, A multi-screening evaluation of the nutritional and nutraceutical potential of the mediterranean jellyfish pelagia noctiluca, *Marine Drugs*. 17 (2019). doi:10.3390/md17030172.

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S. Savoca, **G. Capillo**, M. Mancuso, T. Bottari, R. Crupi, C. Branca, V. Romano, C. Faggio, G. D'Angelo, N. Spanò, Microplastics occurrence in the Tyrrhenian waters and in the gastrointestinal tract of two congener species of seabreams, *Environmental Toxicology and Pharmacology*. 67 (2019) 35–41. doi:10.1016/j.etap.2019.01.011.

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S. Savoca[§], **G. Capillo[§]**, M. Mancuso, C. Faggio, G. Panarello, R. Crupi, M. Bonsignore, L. D'Urso, G. Compagnini, F. Neri, T. Bottari, N. Spanò, Detection of artificial cellulose microfibers in Boops boops from the northern coasts of Sicily (Central Mediterranean), *Science of the Total Environment*. 691 (2019) 455–465. doi:10.1016/j.scitotenv.2019.07.148.

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F. Fazio, C. Saoca, V. Ferrantelli, G. Cammilleri, **G. Capillo**, G. Piccione, Relationship between arsenic accumulation in tissues and hematological parameters in mullet caught in Faro Lake: a preliminary study, *Environmental Science and Pollution Research*. (2019). doi:10.1007/s11356-019-04343-7.

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G. Montalbano[§], **G. Capillo[§]**, R. Laurà, F. Abbate, M. Levanti, M.C. Guerrera, E. Ciriaco, A. Germanà, Neuromast hair cells retain the capacity of regeneration during heavy metal exposure, *Annals of Anatomy*. (2018). doi:10.1016/j.aanat.2018.03.007.

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E.R. Lauriano, S. Pergolizzi, J. Gangemi, M. Kuciel, **G. Capillo**, M. Aragona, C. Faggio, Immunohistochemical colocalization of G protein alpha subunits and 5-HT in the rectal gland of the cartilaginous fish *Scyliorhinus canicula*, 80 (2017) 1018–1027. doi:10.1002/jemt.22896.

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E.R. Lauriano, S. Pergolizzi, **G. Capillo**, M. Kuciel, A. Alesci, C. Faggio, Immunohistochemical characterization of Toll-like receptor 2 in gut epithelial cells and macrophages of goldfish *Carassius auratus* fed with a high-cholesterol diet, *Fish and Shellfish Immunology*. 59 (2016) 250–255. doi:10.1016/j.fsi.2016.11.003.

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M. Pagano^S, **G. Capillo**^S, M. Sanfilippo, S. Palato, F. Trischitta, A. Manganaro, C. Faggio, Evaluation of functionality and biological responses of *mytilus galloprovincialis* after exposure to quaternium-15 (Methenamine 3-Chloroallylochloride), *Molecules*. 21 (2016). doi:10.3390/molecules21020144.

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● DRIVING LICENCE

Driving Licence: A

Driving Licence: B

COMPETENZE PROFESSIONALI

Competenze professionali

- Tecniche di prelievo di organi e tessuti da organismi acquatici
- Tecniche di citochimica, istochimica e immunoistochimica
- Utilizzo di microscopi ottici, a fluorescenza e di stereoscopi
- Utilizzo di vari sistemi di acquisizione immagine
- Utilizzo del microscopio confocale a scansione laser Zeiss LSM 700 applicato nel campo dell'immunofluorescenza e della ricostruzione tridimensionale
- Tecniche di biologia molecolare e bioinformatica, dall'estrazione del DNA alla progettazione di primers, all'amplificazione del DNA
- Tecniche di campionamento visivo in immersione, Visual Census
- Utilizzo delle principali attrezzature di campionamento in ambienti acquatici (bottiglia Niskin, Rosette, Benne, Sonda multiparametrica).
- Conoscenza delle principali metodiche di analisi di acque e sedimenti.
- Utilizzo di TOC Analyzer per valutazione del contenuto in carbonio delle acque
- Utilizzo di Spettrofotometri

PARTECIPAZIONE A CONVEGNI DI CARATTERE SCIENTIFICO IN ITALIA O ALL'ESTERO

2021

Contributo-Savoca S., **Capillo G.**, D'angelo G., Spanò N., Di Paola D., Albano M., Matanovic K., Gjurcevic E.. Occurrence of microfibers in farmed gilthead seabream and common carp at different life stages (2021), J. Biol. Res., 94 (S1): 54. Virtual meeting 93° Congresso SIBS 22-25 Aprile 2021

Contributo-Albano M., Panarello G., Di Paola D., Savoca S., Famulari S., D'iglio C., Capparucci F., Spanò N., **Capillo G.**. Effects of microplastics ingestion on development and feeding behavior in brine shrimp (*Artemia salina*) (2021), J. Biol. Res., 94 (S1): 48. Virtual meeting 93° Congresso SIBS 22-25 Aprile 2021 (Best oral communication)

Contributo-Di Paola D., Savoca S., Bottari T., Mancuso M., Spanò N., **Capillo G.**, Abbate J., Lanteri G.. A scanning electron microscopy protocol for the study of marine microplastics (2021), J. Biol. Res., 94 (S1): 50. Virtual meeting 93° Congresso SIBS 22-25 Aprile 2021 (Best poster)

Contributo-D'iglio C., **Capillo G.**, Rinelli P., Di Fresco D., Savoca S., Spanò N., Tiralongo F.. New data on the diet and feeding habits of the blackmouth catshark, *Galeus melastomus* rafinesque, 1810 from the southern Tyrrhenian Sea (2021), J. Biol. Res., 94 (S1): 50. Virtual meeting 93° Congresso SIBS 22-25 Aprile 2021

Contributo-Famulari S., D'iglio C., Lanteri G., Rinelli P., Abbate J., Spanò N., Savoca S., **Capillo G.**. New insights into otoliths ecomorphology of two congeneric seabreams species, *Pagellus erythrinus* (Linnaeus, 1758) and *Pagellus bogaraveo* (Brünnich, 1768) (2021), J. Biol. Res., 94 (S1): 50. Virtual meeting 93° Congresso SIBS 22-25 Aprile 2021

2020

Contributo_Immunostimulating effect of *Gracilaria gracilis* powder in zebrafish (*Danio rerio*). Pagano, M., **Capillo, G.**, Albano, M., Savoca, S., Aliko, V., Faggio, C. "Marine biobased products: challenge for a sustainable innovation based on the three p's. Virtual Meeting, June, 2020

2019

Partecipazione_ Deepen the knowledge about spiral valve and associated lymphoid tissue (galt) of the small-spotted catshark *Scyliorhinus canicula* (Linnaeus, 1758). **Capillo, G.**, Aragona, M., Albano, M., Pergolizzi, S., Guerrera, M.C., Lauriano, E.R. 92th SIBS. Sassari, Italy, Dec, 2019

Contributo_ Plastic occurrence in *Pelagia noctiluca* from the Strait of Messina. Savoca, S., Albano, M., Panarello, G., **Capillo, G.**, Granata, A., Guglielmo, L., D'Angelo, G., Branca, C. Bottari, T., Mancuso, M., Spanò, N. 92th SIBS. Sassari, Italy, Dec, 2019

Contributo_ *Merluccius merluccius* and *Chlorophthalmus agassizi*: similarity and differences of microplastics ingested. Panarello, G., Savoca, S., **Capillo, G.**, Bottari, T., Mancuso, M. Albano, M., Spanò, N. 92th SIBS. Sassari, Italy, Dec, 2019

Plastic debris ingestion by demersal elasmobranch species from tyrrhenian sea: *Galeus melastomus*, *Scyliorhinus canicular* and *Raja miraletus*. Panarello, G., Savoca, S., **Capillo, G.**, Mancuso, M., Bottari, T., Spanò, N. First symposium on experimental biology: sea and environment. Trapani, Italy, May, 2019.

Plastics ingestion evidences in two commercially important species from central Mediterranean Sea. Costanzo, M., **Capillo, G.**, Savoca, S., Panarello, G., Bottari, T., Mancuso, M., Spanò, N. First symposium on experimental biology: sea and environment. Trapani, Italy, May, 2019.

Microfibers occurrence in the Mediterranean sea: evidence of ingestion by demersal-semipelagic (*Boops boops*) fish species. Di Fresco, D., Panarello, G., **Capillo, G.**, Savoca, S., Bottari, T., Mancuso, M., Spanò, N. First symposium on experimental biology: sea and environment. Trapani, Italy, 2019. **BEST POSTER**

Presence of microplastics in the gastrointestinal tract of two seabreams species (*Pagellus erythrinus* and *Pagellus bogaraveo*). Famulari, S., Savoca, S., Panarello, G., **Capillo, G.**, Mancuso, M., Bottari, T., Spanò, N. First symposium on experimental biology: sea and environment. Trapani, Italy, May, 2019.

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Antimicrobial Activities of Extracts from *Gracilaria gracilis* (Rhodophyta). Savoca S., **Capillo G.**, Panarello G., Lo Giudice A., Rizzo C., Rando R., Bartolomeo G., Costa R., Spanò N. 91thSIBS Congress Ancona, Italy, November 2018.

Characterization of the Metabolic Profile of *Pelagia noctiluca* (Scyphozoa). Li Volsi R., Rotondo A., Costa R., **Capillo G.**, Spanò N. 91thSIBS , Ancona November 2018.

Langerhans Cells, Morphological and Immunohistochemical Characterization in Striped Dolphin (*Stenella coeruleoalba*) Epidermis. Aragona M., **Capillo G.**, Magazzù C., Pergolizzi S., Lauriano ER. 91thSIBS Congress, Ancona November 2018.

Gracilaria gracilis: a Powerful Product from Sustainable Aquaculture. **Capillo G.**, Faggio C., Savoca S., Panarello G., Sanfilippo M., Spanò N. 91thSIBS Congress, Ancona November 2018.

Gracilaria gracilis of Capo Peloro Lagoon, a powerful product from sustainable aquaculture. **Capillo G.**, Serena S., Rizzo C., Sanfilippo M., Spanò N. *Eurolag8: 8thEUROPEAN COASTAL LAGOONS SYMPOSIUM*. Atene March 2018.

2017

An evaluation of the nutritional value of the jellyfish *Pelagia noctiluca*.

Li Volsi R., Costa R., Albergamo A., Bartolomeo G., Bua G., Ferracane A., Gervasi T., **Capillo G.**, Spanò N., Dugo G. *90thSIBS National Congress*, Trapani October 2017.

Optimal housing protocols for the small-spotted catshark (*Scyliorhinus canicula*) in captivity. Panarello G., **Capillo G.**, Bottari T., Spanò N., Marino F. *90thSIBS National Congress*, Trapani October 2017.

Appraisal of the abiotic and biotic framework of faro lake (Messina, Sicily). Silvestro S., **Capillo G.**, Sanfilippo M., Fiorino E., Giangrosso G., Ferrantelli V., Dara S., Vazzana I., Faggio C. *90thSIBS National Congress*, Trapani October 2017.

Clibanarius erythropus and *Phorcus turbinatus* in intertidal ponds: evaluation of predator-prey interactions. **Capillo G.**, Consolo G., Li Volsi R., Panarello G., Spanò N. *School & Research Workshop. Mathematical Modeling of Self-Organizations in Medicine, Biology and Ecology: from micro to macro*. Giardini Naxos (Messina) September 2017.

Neuromast hair cells retain the capacity of regeneration during heavy metal exposure. Montalbano G., **Capillo G.**, Laurà R., Levanti M., Scopitteri T., Cavallaro M., Germanà A. *XI CONGRESSO NAZIONALE Associazione Italiana Morfologi Veterinari*, Roma May 2017.

Bioactive natural products from the mediterranean sponge *Raspaciona aculeata* (Johnston, 1842). Spinelli A., Ortega M. J., **Capillo G.**, Bertolino M., Vitale D., and Spanò N. *XIII INCONTRO DEI DOTTORANDI IN ECOLOGIA E SCIENZE DEI SISTEMI ACQUATICI*, Palermo May 2017.

Gracilaria gracilis (gracilariales, rhodophyta) from Ganzirri lagoon, state of art and perspectives. **Capillo G.**, Sanfilippo M., Li Volsi R., Spinelli A., Panarello G., Spanò N., Manganaro A. *XIII INCONTRO DEI DOTTORANDI IN ECOLOGIA E SCIENZE DEI SISTEMI ACQUATICI*, Palermo May 2017.

2016

Variation of temperature in a coastal protected area (Ganzirri lagoon, ME) during the last half century: global warming? Li Volsi R., Sanfilippo M., Cortese G., Manganaro A., Spanò N., **Capillo G.** *89° Convegno SIBS*, Ozzano dell'Emilia (BO) December 2016.

Preliminary investigation of an intertidal zone's faunal assemblage (beachrock, R.N.O. Capo Peloro, NE Sicily). **Capillo G.**, Sanfilippo M., Panarello G., Spinelli A., Manganaro A., Spanò N. *89° Convegno SIBS*, Ozzano dell'Emilia (BO) December 2016.

The importance of research in economic and environmental exploitation of a fragile transitional ecosystem: the Ganzirri lagoon (NE SICILY).

Capillo G., Sanfilippo M., Li Volsi R., Spanò N., Manganaro A. *89° Convegno SIBS*, Ozzano dell'Emilia (BO) December 2016.

2015

The impact of quaternium-15 on *Mytilus galloprovincialis*: in vitro study. Pagano M., **Capillo G.**, Sanfilippo M., Palato S., Trischitta F., Manganaro A., Faggio C. *88° Convegno SIBS*, Genova December 2015.

Environmental quality of Ustica Marine Protected Area (Sicily, Italy). Sanfilippo M., **Capillo G.**, Manganaro A. *88° Convegno SIBS*, Genova December 2015.

Growth of *Gracilaria gracilis* in fish farming and phytoremediation. **Capillo G.**, Sanfilippo M., Palato S., Manganaro A. *88° Convegno SIBS*, Genova December 2015.

The noble fan mussel *Pinna nobilis* behavior along a marine-brackish gradient. Spinelli A., Pagano M., **Capillo G.**, Orefice T., Vazzana I., Giacobbe S., Faggio C. *88° Convegno SIBS*, Genova December 2015.

Neurotransmitter localization in the airway putative oxygen-sensitive chemoreceptor cells of air breathing fishes with particular reference to nitric oxide. **Capillo G.**, Lauriano E. R., Sanfilippo M., Icardo J., Zaccone G. *2nd Young Natural History Scientists' Meeting*, Paris February 2015.

Organic carbon in the brackish environments of the Oriented Natural Reserve of Capo Peloro (Sicily, Italy). Sanfilippo M., **Capillo G.**, Cortese G., Monteleone A., Manganaro A. *2nd Young Natural History Scientists' Meeting*, Paris February 2015.

Effects of temperature on the density of *Gracilaria gracilis* in the salted pond of Ganzirri (NE Sicily): Global changes? Monteleone A., **Capillo G.**, Sanfilippo M., Manganaro A. *2nd Young Natural History Scientists' Meeting*, Paris February 2015.

Structural and immunohistochemical study of photophores in the body of the dragonfish, *Chauliodus sloani*. **Capillo G.**, Lauriano E.R., Zaccone G., Dugo G. *SIBS*, Turin December 2014.
From culture to application. Agar from *Gracilaria gracilis* of Ganzirri lagoon (Sicily, Italy). **Capillo G.**, Genovese G., Monteleone A., Morabito M., Sanfilippo M., Manganaro A. *SIBS*, Turin December 2014.
Culture of *Gracilaria gracilis* for agar extraction (food uses) and aquaculture waste water treatment. Albano M., **Capillo G.**, Cortese G., Monteleone A., Palato S., Sanfilippo M., Manganaro A. *LET'S*, Bologna September 2014.

● NATIONAL AND INTERNATIONAL RESEARCH GROUPS PARTICIPATION

08/2012 – CURRENT

Nord University - Norway

Participation in a research group with national (Prof. Giacomo Zaccone) and international (Prof. Jorge Manuel de Oliveira Fernandes) collaborations. Visiting at Nord University, Bodø (Norway). Objective of the research: to define structure, regulation and gene expression of HCN channels (Hyperpolarization-activated Cyclic Nucleotide-gated channels) in the pace-maker cells of Atlantic cod (*Gadus morhua*). Research product: Capillo, G., Lauriano, E.R., Icardo, J.M., Siriyappagounder, P., Kuciel, M., Karapanagiotis, S., Zaccone, G., Fernandes, J.M.O., 2021. Structural Identification of the Pacemaker Cells and Expression of Hyperpolarization-Activated Cyclic Nucleotide-Gated (HCN) Channels in the Heart of the Wild Atlantic Cod, *Gadus morhua* (Linnaeus, 1758). *Int. J. Mol. Sci.* 22, 7539. <https://doi.org/10.3390/ijms22147539>

05/2014 – CURRENT

Universidad de Cantabria - Spain

Participation in research activities characterized by national and international collaborations with "Departamento de Anatomía y Biología Celular", Universidad de Cantabria, Santander, 39011, Spain (Prof. José M. Icardo). Target of the project: Identification and localization of neurochemical markers involved in the control of aquatic and aerial respiration of fish, and structure and ultrastructure analysis. Products of research: DOI: 10.1016/j.zool.2020.125755; DOI: 10.1111/azo.12242; DOI: 10.1016/j.zool.2017.08.002; DOI: 10.1002/jmor.20323; DOI: 10.1002/jmor.21271

05/2014 – CURRENT

Jagellonian University - Poland

Participation in research activities characterized by international collaboration with "Department of Toxicology and Environmental Disease", Faculty of Medicine, Jagellonian University, Kpemia 15, Kraków, 30-501, Poland (Prof. Krystina Zuwała, Dr. Michal Kuciel et al.). Target of the project: Fish nervous system, respiratory system and immune system. Research products: DOI: 10.1016/j.zool.2020.125755; DOI: 10.1016/j.acthis.2019.151471; DOI: 10.1111/azo.12328; DOI: 10.1111/azo.12242; DOI: 10.1016/j.acthis.2018.08.009; DOI: 10.1016/j.fsi.2018.01.014; DOI: 10.1016/j.zool.2017.08.002; DOI: 10.1002/jemt.22896; DOI: 10.1016/j.fsi.2016.11.003; DOI: 10.1111/azo.12112; DOI: 10.1111/azo.12068; DOI: 10.1016/j.acthis.2014.09.004. DOI:10.1111/azo.12351;

05/2014 – CURRENT

University of Allahabad - India e Universidade do Estado do Rio de Janeiro - Brazil

Participation in research activities characterized by national and international collaborations with "Department of Zoology", University of Allahabad, Allahabad, U.P. 211002, India (Prof. Anita Gopesh); Departamento de Zoologia, Instituto de Biologia, Universidade do Estado do Rio de Janeiro, Rua São Francisco Xavier, 524, Rio de Janeiro, 20550-900, Brazil (Dr. Camila Cupello). Project target: Morphological, histochemical, immunohistochemical and ultrastructural analysis of the respiratory system of fish with bimodal respiration (*Clarias batrachus*, *Arapaima gigas*). Prodotti della ricerca: DOI: 10.1016/j.zool.2020.125755; DOI: 10.1111/azo.12100.

05/2014 – CURRENT

University of Guelph - Canada e Yokohama City University School of Medicine - Japan

Participation in research activities characterized by international collaborations with "Department of Integrative Biology", University of Guelph, Guelph, ON N1G-2W1, Canada (Prof. Douglas S. Fudge e Dr. Timothy M. Winegard); "Department of Neuroanatomy", Yokohama City University School of Medicine, 22-2 Seto, Kanazawa Ward, Yokohama, Kanagawa Prefecture, 236-0027, Japan (Prof. Kengo Funakoshi). Target of the project: Nervous control of the mucus glands of Atlantic myxine (*Myxine glutinosa*). Research product: DOI: 10.1111/azo.12068

09/2016 – CURRENT

Universidad de Oviedo - Spain

Participation in a research group with national (Prof. Antonino Germanà) and international (Prof. José A. Vega) collaborations. Visiting (PhD student) at "Departamento de Morfología y Biología Celular de la Universidad de Oviedo" during the participation in Research & Mobility project entitled: "Effects of N-acyl ethanolamines and Polyphenols Association in the Control of Neuroinflammation after Traumatic Central Nervous System Injuries." The project also carried out an assessment of the impact of heavy metal pollution on aquatic ecosystems using zebrafish (*Danio rerio*) as an experimental model. Search product: DOI: 10.1016/j.aanat.2018.03.007

01/2017 – CURRENT

Gorgan University - IRAN e Chiang Mai University - Thailand

Participation in research activities characterized by National and International collaborations with "Department of Fisheries", Faculty of Fisheries and Environment, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran (Prof. Seyed Hossein Hoseinifar); Department of Animal and Aquatic Sciences, Faculty of Agriculture, Chiang Mai University, Chiang Mai, 50200, Thailand (Dr. Hien van Doan). Target of the Project: Stimulation of the immune system of Pisces (*Danio rerio*, Experimental Model). Search product: DOI: 10.1016/j.fsi.2018.09.046.

01/2012 – 12/2014

RITMARE - IRBIM CNR

Participation in the research activities of the group of the Institute for Biological Resources and Marine Biotechnology (IRBIM-CNR) U.O.S. of Messina (Dr.ssa Teresa Bottari). Project flag RITMARE, of the Unit Operative SP2_WP1_AZ4_UO06. The parasites as "biological tags" for the identification of fish stocks.

01/2014 – CURRENT

UNIME-UNIBA

Participation in research activities characterized by national collaborations with the Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Italy (Proff. Eugenia Rita Lauriano, Simona Pergolizzi et al.); Department of Veterinary Medicine, University of Bari Aldo Moro, Bari, Italy (Prof. Nicola Zizzo); Department of Veterinary Sciences, "Zebrafish Neuromorphology Lab", University of Messina, Messina, Italy (Proff. Antonino Germanà, Giuseppe Montalbano et al); Target of the project: Immune system and morpho-functional adaptations of aquatic and terrestrial vertebrates. Products of research: DOI: 10.1016/j.tice.2020.101384; DOI: 10.1080/14786419.2018.1523161; DOI: 10.1016/j.zool.2020.125755; DOI: 10.1016/j.acthis.2019.151471; DOI: 10.1111/azo.12328; DOI: 10.1007/s00418-020-01883-9; DOI: 10.1016/j.fsi.2019.01.049; DOI: 10.1111/azo.12242; DOI: 10.1016/j.tice.2018.11.003; DOI: 10.1016/j.acthis.2018.08.009; DOI: 10.1016/j.fsi.2018.01.014; DOI: 10.1016/j.zool.2017.08.002; DOI: 10.1002/jemt.22896; DOI: 10.1111/azo.12100; DOI: 10.1016/j.fsi.2016.11.003; DOI: 10.1111/azo.12112; DOI: 10.1002/jmor.20323; DOI: 10.1111/azo.12068; DOI: 10.1016/j.acthis.2014.09.004.

05/2014 – 09/2016

RITMARE - UNIME

Participation in research activities Flag Project "RITMARE - Italian research for the sea" SP2_WP4_AZ2_UO02, developed by the National Inter-university Consortium for Sea Sciences with the Department of Biological and Environmental Sciences of the University of Messina (Prof. Antonio Manganaro). Evaluation of innovative species to be exploited in aquaculture (*Pagellus bogaraveo* and *Scorpaena scrofa*) on an industrial scale.

04/2014 – 12/2015

INNOVAQUA - UNIME

Participation as a Fellow in the research activities of the PON02_00451_3362185 project, CUP: B68J12000330007, "INNOVAQUA - Technological innovation to support the increase in productivity and competitiveness of Sicilian aquaculture", "Support activities for the experimental centre for the management of stock of *Seriola* breeders" of the Department of "Veterinary Sciences" (Proff. Fabio Marino, and Antonio Manganaro), of the University of Messina, Italy.

06/2017 – 10/2017

ARBIOME - UNIME

Participation in the research group of the ArBioMe Project, of Biological and Archaeological Research in the Strait of Messina, University of Messina (Prof. Nunziacarla Spanò). The main activities concerned research and identification, through deep diving in submarines Triton 3300/3, Triton 3300/1MD, video monitoring using ROV (Remotely Operated Underwater Vehicle), multibeam system, Side-scan sonar system, of sites of biological and historical interest in the area of the Strait of Messina (Sella and its benthic populations, mapping of the *Posidonia oceanica*, wreck under identification maximum depth 270 m, motorboat Valflorita maximum depth 70m)

01/2018 – CURRENT

MIFT - UNIME

Participation in research activities characterized by national collaboration with the "Department of Mathematical and Informatic Sciences, Physical Sciences and Earth Sciences" of the University of Messina, Italy (Prof.ssa Giovanna D'Angelo and Prof.ssa Caterina Branca). Project target: Research and analysis of microplastics in Mediterranean fish species and their impact on the marine environment. Research products: DOI: 10.1016/j.etap.2019.01.011; 10.1016/j.marpolbul.2019.110596

01/2018 – CURRENT

UNIME - IRBIM CNR - SZN

Participation in research activities characterized by national collaborations with the "Department of Mathematical and Informatic Sciences, Physical Sciences and Earth Sciences" of the University of Messina, Italy (Professor Enza Fazio); Department of Chemical Sciences, University of Catania, (Prof. Luisa D'Urso and Prof. Giuseppe Compagnini); Institute for Biological Resources and Marine Biotechnology (IRBIM-CNR) Section of Messina, Italy (Prof/Dr. Gian Marco Luna); Superior Institute for Environmental Protection and Research (ISPRA), Milazzo (ME), Italy (Dott.ssa Teresa Romeo); "Anton Dohrn Zoological Station" Naples, Italy (Dr. Silvestro Greco). Target of the project: Research and analysis of microplastics in Mediterranean fish species of commercial interest. Research products: DOI:10.1016/j.scitotenv.2019.07.148; 10.1016/j.marpolbul.2019.07.003; 10.1016/j.scitotenv.2020.137457.

01/2018 – 12/2018

IRBIM - CNR

Participation in the research activities of the group of the Institute for Biological Resources and Marine Biotechnology (IRBIM) Messina Headquarters, National Research Council (CNR). Search Campaign MEDITS 2018 Sub-geographic area (GSA) 10 - Central South Tyrrhenian Sea 2018. The experimental trawling campaign MEDITS is aimed at determining the distribution, abundance and size composition of 52 commercial fish species and 32 species of Selaci. The methodologies adopted are such as to make the results comparable with the similar surveys carried out under the same MEDITS project in other Mediterranean countries

02/2019 – CURRENT

SZN

Participation in the research activities of the group Zoological Station "Anton Dohrn" (Dr.ssa Teresa Romeo) for the assessment of stress induced by environmental contaminants in marine animal organisms, Assessment of the impact of human activities on the biodiversity of the marine-coastal environments, Assessment of the anthropogenic impact on marine protected areas.

09/2019 – CURRENT

FISH PATH NET - UNIME

Participation in the research activities of the Research Project Group PO_FEAMP_2014_2020_SIPA_01/MS/18 ENTITLED FISH PATH NET - "STRENGTHENING SICILIAN ICHTHYOPATHOLOGY CENTRES", BASED ON MEASURE UNDER TITLE 2.56 OF THE FEAMP OP 2014/2020, ENTITLED "ANIMAL HEALTH AND WELFARE MEASURES" NOTICE NO. 508/2014 OF 15 MAY 2014. CUP N. G47B18000130009 AND SIPA PROJECT CODE 01/MS/18, as Activity Manager A.5.2. "Diseases of the abalone"

● **RESPONSIBILITY FOR SCIENTIFIC STUDIES AND RESEARCH ENTRUSTED BY QUALIFIED PUBLIC INSTITUTIONS**

04/2014 – 12/2015

INNOVAQUA - UNIME

Awarding of a research grant for the activities of the PON02_00451_3362185, CUP project: B68J12000330007, "INNOVAQUA - Technological innovation to support the increase in productivity and competitiveness of Sicilian aquaculture", O.R. 1, S.A.1.2.4. "Support activities for the experimental centre for the management of stock of Seriola breeders" of the Department of "Veterinary Sciences" (Proff. Fabio Marino, and Antonio Manganaro), of the University of Messina, Italy.

01/10/2016 – 02/10/2017

Research & Mobility - UNIME

Participation in Research & Mobility project entitled: "Effects of N-acylethanolamines and Polyphenols Association in the Control of Neuroinflammation after Traumatic Central Nervous System Injuries" of the Department of Chemical Sciences, Biological, Pharmaceutical and Environmental Studies University of Messina, Messina (Italy)

02/09/2019 – CURRENT

FISH PATH NET - UNIME

Responsible for Activity A.5.2. "Diseases of the abalone". Research project PO_FEAMP_2014_2020_SIPA_01/MS/18 ENTITLED FISH PATH NET - "STRENGTHENING SICILIAN ICHTHYOPATHOLOGY CENTRES", BASED ON THE FEAMP 2014/2020 MEASURE 2.56 ENTITLED MEASURES RELATING TO ANIMAL HEALTH AND WELFARE" Notice No. 508/2014 of 15 May 2014. CUP N. G47B18000130009 AND SIPA PROJECT CODE 01/MS/18.

04/2021 – CURRENT
Renexia - UNIME

Participation in the project RENEXIA - Environmental Monitoring Channel of Sicily for Wind Power Plant - 2021

04/2021 – CURRENT
TERNA - UNIME

TERNA Project - Environmental Survey Rete Italia interconnection HDVC CampaniaSicilia - 2021. Chemical - Physical - Biological (meiobenthos and microbiological) sampling and analysis of sediments in the areas of Termini Imerese (PA) and Salerno (SA)

PNRA18_00041 - B2-SBAM - IRBIM - CNR

Participation Project "PNRA18_00041 - B2-SBAM" Scientific Coordinator: Dr Monique Mancuso. The aim of the activity will be the collection and analysis of biological samples (bony fish), Antarctic water and sediment, bacteriological isolation and analysis of samples.

● **SCIENTIFIC RESPONSIBILITY FOR INTERNATIONAL AND NATIONAL RESEARCH PROJECTS**

05/2020 – CURRENT
Responsabile di attività

Responsible for activities in the project INTERREG BIOBLU- "BIOremediation of marine debris in the BLUE flag beach and in a Maritime Protected Area" Cod. C2-3.1-129, Call n. 02/2019.

04/05/2020 – CURRENT
Responsabile di Attività

Responsible for Activity A.5.2. "Diseases of the abalone". Research project PO_FEAMP_2014_2020_SIPA_01/MS/18 ENTITLED FISH PATH NET - "STRENGTHENING SICILIAN ICHTHYOPATHOLOGY CENTRES", BASED ON THE FEAMP 2014/2020 MEASURE 2.56 ENTITLED MEASURES RELATING TO ANIMAL HEALTH AND WELFARE" Notice No. 508/2014 of 15 May 2014. CUP N. G47B18000130009 AND SIPA PROJECT CODE 01/MS/18.

● **EDITORIAL AND PEER-REVIEWER ACTIVITIES**

24/06/2020 – CURRENT
Section Board Member

Section Board Member "Biodiversity and Conservation" Journal "Sustainability". MDPI. https://www.mdpi.com/journal/sustainability/sectioneditors/sustainability_biodiversity_conservation

06/2021 – CURRENT
Guest Editor

Guest Editor of the special Issue "Feature Papers in Marine Biology", section "Marine Biology", "Journal of Marine Science and Engineering" (ISSN 2077-1312 IF 2.458), MDPI. https://www.mdpi.com/journal/jmse/special_issues/feature_papers_marine_biology

20/12/2020 – CURRENT

Guest Editor

Guest editor: of the special Issue "Morpho-Functional Adaptation of Marine Organisms to Different Habitats", section "Biodiversity and Conservation", Journal "Sustainability", MDPI.
https://www.mdpi.com/journal/sustainability/special_issues/morpho_functional_adaptation_of_marine_organisms

26/02/2019 – CURRENT

Guest editor

Guest editor: special Issue "Effects of Pollutants on Fish" della sezione "Aquatic Animals", rivista "Animals" (EISSN 2076-2615; IF. 2.323) Gruppo MDPI. https://www.mdpi.com/journal/animals/special_issues/Effects_of_Pollutants_on_Fish

05/07/2019 – CURRENT

Guest Editor

Guest Editor: Special Issue "Homeostasis" AIMS Neuroscience. <https://www.aimspress.com/newsinfo/1252.html>

01/2015 – CURRENT

Invited Reviewer

- Acta Histochemica
- Animals
- AIMS Neuroscience
- Annals of Marine Biology and Research
- Biological Trace Element Research
- Biology
- Biometals
- Cancers
- Comparative Biochemistry and Physiology, Part C
- Diversity
- Fishes
- Foods
- Frontiers in Marine Science
- Grasas y Aceites
- Heliyon
- International Journal of Molecular Sciences
- International Journal of Environmental Research and Public Health
- Journal of Marine Science and Engineering
- Microscopy Research and Technique
- Microorganisms
- Molecules
- Marine Pollution Bulletin
- Pathogens
- Progress in Biophysics and Molecular Biology
- Regional Studies in Marine Science
- Science of the Total Environment
- Scientific Reports
- Sustainability
- Thalassas: An International Journal of Marine Sciences
- Veterinary Sciences

● PARTICIPATION IN THE COLLEGE OF LECTURERS AND TEACHING ASSIGNMENTS IN PHDS

02/05/2022 – CURRENT

PhD Participation Year 2022

PARTICIPATION AT THE COLLEGE 2020 [DOT1314952] (accession completed on 02/05/2022) University of MESSINA Title: "APPLIED BIOLOGY AND EXPERIMENTAL MEDICINE" Academic year beginning: 2022/2023 - Cycle: XXXVIII

01/04/2021 – CURRENT

Year 2021

PARTICIPATION IN THE COLLEGE 2020 [DOT1314952] (membership completed on 01/04/2021) University of MESSINA Title: "APPLIED BIOLOGY AND EXPERIMENTAL MEDICINE" Academic year beginning: 2021/2022 - Cycle: XXXVII

09/04/2020 – CURRENT

Year 2020

PARTICIPATION AT THE COLLEGE 2020 [DOT1314952] (accession completed on 09/04/2020) University of MESSINA Title: "APPLIED BIOLOGY AND EXPERIMENTAL MEDICINE" Academic year beginning: 2020/2021 - Cycle: XXXVI

● ACHIEVEMENT OF AWARDS FOR SCIENTIFIC ACTIVITY

20/03/2018 – 23/03/2018

GRANT

Murray Foundation Grant for participation in the European Symposium on Coastal Lagoons "EUROLAG8" Athens (GR)

01/2020

Most-cited article

Most cited article 2018/2019 of the 2018/2019 of the Journal "Chemistry and Biodiversity". Capillo, G., Silvestro, S., Sanfilippo, M., Fiorino, E., Giangrosso, G., Ferrantelli, V., Vazzana, I., Faggio, C., 2018. Assessment of Electrolytes and Metals Profile of the Faro Lake (Capo Peloro Lagoon, Sicily, Italy) and Its Impact on *Mytilus galloprovincialis*. Chemistry and Biodiversity. <https://doi.org/10.1002/cbdv.201800044>.