Curriculum vitae – Matteo Zarantoniello

Contact information

E-mail

ORCID

Scopus ID

Current positions

May 1, 2023 – Present

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Post doctoral researcher

- Project: Horizon Europe "*Bringing knowledge and consensus to prevent and reduce Food Loss at the primary production stage. Understanding, measuring, training and recommending - FOLOU*"
- Supervisor: Prof. Ike Olivotto
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Academic Year 2023-2024

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Sessional lecturer (docente a contratto)

- Course title: Pet nutrition and feeding
- Included in: Master's degree in Nutrition and Food Sciences
- Hours - CFU: 48 h - 6 CFU
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Education and career

January 1, 2022 – April 30, 2023

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Research fellowship

- Project: "*INSHORE – Approcci innovativi per un'orticoltura circolare e sostenibile nei sistemi acquaponici*" (PSR Marche 2014/2020)
- Supervisor: Prof. Ike Olivotto
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

November 1, 2018 - December 31, 2021

Università Politecnica delle Marche
Department of Life and Environmental Sciences

PhD in Life and Environmental Science, curriculum: Marine Biology and Ecology

- Thesis: "*Future feeds in aquaculture: insects as a new ingredient for fish culture*"
- Supervisor: Prof. Ike Olivotto
- Final grade: Outstanding

April 1, 2017 - October 30, 2019

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Research fellowship

- Project: "*Sustainable fish feed innovative ingredients - SUSHIN*"
- Supervisor: Prof. Ike Olivotto
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

September 2014 - October 2016

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Master's Degree in Marine Biology (LM-6)

- Experimental thesis: "*Autonomous Reef Monitoring Structures for the study of biodiversity in the Adriatic Sea*"
- Supervisor: Prof. Roberto Danovaro
- Final grade: 110/110 magna cum (full marks with honors)

October 1 - November 30, 2015

Oceanogràfic Aquarium, Valencia

Internship at Oceanogràfic Aquarium (Valencia)

- Job description: Daily maintenance of tanks and animals.

September 2010 - February 2014

Università degli Studi di Milano Bicocca

Bachelor's Degree in Biological Sciences (L-13)

- Review thesis: "La biodiversità dell'habitat come determinante della struttura della comunità ittica legata alla scogliera corallina"
- Supervisor: Prof. Paolo Galli
- Final grade: 96/110

September 2005 - June 2010

ITCS Primo Levi, Bollate, Milano

High School leaving qualification in Scientific studies

- Final grade: 90/100

Job-related skills

Histological analysis	Application of histopathological indexes on digestive system of fish (intestine and liver)
Molecular analysis	Real-time PCR on marker involved in fish growth, appetite, long-chain PUFA biosynthesis, and immune, stress, and oxidative stress responses
Spectroscopic analysis	FTIR to evaluate the biochemical composition of hepatocytes
Biochemical analysis	Determination of fish fillet quality in terms of fatty acid profile
Confocal microscopy	Identification of dietary microplastics in target organs of fish
Fish maintenance	Management and maintenance of fish tanks; teleost reproduction and larval development; feeding practices; zooplankton culture
Computer skills	Optimal knowledge of Microsoft Windows and of the Office software (Word, Excel, PowerPoint); optimal ability to use the online program PrimerBLAST and the software GraphPad for statistical analysis

		Reading	Writing	Speaking
Languages	English	Excellent	Excellent	Excellent

Research activity

May 1, 2023 - present

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Development, testing and validation of multi-spectral cameras (VIS+NIR) technology tool for food loss in salmonids aquaculture

- Project: Horizon Europe "*FOLOU*"
- Research activity: Application of multi-spectral cameras to estimate aquaculture food loos due to poor harvesting practice, particularly focused on hatchery system of salmonids. The automatic system relies on: (i) multi-spectral cameras able to identify and count dead eggs, after being trained by

deep learning model; (ii) a robotic system able to allow a gently movement of the eggs for an easier recognition by the image collecting and processing

November 2021 - Present
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Effects of dietary microplastics in fish and possible strategies to mitigate their adverse effects

- Research activity: investigating the effects of dietary contamination with fluorescent microplastic beads with different size ranges (40-47 µm and 1-5 µm) included at different concentrations (0.05 and 0.5 g/kg of feed) and testing mitigation strategies in zebrafish (all the life-cycle stages; *publication 31*), European seabass, and rainbow trout.

November 2021 - Present
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Application of synthetic flavours in diets intended for experimental model and farmed fish

- Research activity: testing synthetic flavours as potential feed attractants in diets for zebrafish (all the life-cycle stages; *publication 34*) and European seabass juveniles.

January 2022 – September 2023
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Physiological effects of different dietary inclusions of full-fat *Hermetia illucens* prepupae meal enriched with spirulina on species of commercial interest

- Project: "*INSHORE - Approcci innovativi per un'orticoltura circolare e sostenibile nei sistemi acquaponici*" - (PSR Marche 2014/2020)
- Research activity: (**i**) improving the nutritional value of *H. illucens* prepupae in terms of PUFA and bioactive molecules (carotenoids and tocopherols) by adding spirulina to their growth substrate; (**ii**) formulating diets replacing fish meal with enriched *H. illucens* prepupae meal; (**iii**) investigating the physiological effects on juveniles of European seabass (*Dicentrarchus labrax*; *publication 30*) and rainbow trout (*Oncorhynchus mykiss*; *publication 28*) or in giant freshwater prawn post larvae (*Macrobrachium rosenbergii*; *publication 29*), all reared in aquaponic systems.

February 2021 – January 2023
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Investigation of the physiological responses of carpione (*Salmo carpio*) to innovative commercial diets

- Project: "*Carpio*" - Caritro Bando Ricerca e Sviluppo 2020 (N 2020.0410)
- Research activity: formulating and testing, for the first time, practical diets for carpione ensuring production rates, fish welfare, and quality of the product. Carpione (*Salmo carpio*) is a precious endemism of Lake Garda, particularly refined for its high-quality meat, which is listed as severely endangered species (*publication 26*).

2018 - 2021
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Investigation of the physiological responses of fish to innovative insect-based diets

- Project: "*NUTRIFISH*" – Cariverona
- Research activity: (**i**) improving the nutritional value and safety of *H. illucens* prepupae rearing on coffee silverskin enriched with 10% *Schizochytrium* sp. as source of PUFA (*publications 36,23,16,15,7*); (**ii**) investigating the physiological responses of zebrafish at different life cycle stages (larvae, juveniles, adult, and F1 generation) to increasing dietary percentages of enriched prepupae meal (0, 25, 50, 75 and 100 % respect to fish meal) (*publications 33,24,22,18,9,8,6*); (**iii**) testing the best percentage of inclusion from zebrafish trials on a farmed species (*Acipenser baerii*, Siberian sturgeon) reared in aquaponic systems (*publications 27,14*).

2017 - 2021
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Investigation of the physiological responses of farmed fish species to innovative aquafeed ingredients included in diets totally deprived of fish meal

- Project: "*SUSHIN – SUstainable fiSH feeds innovative INgredients*" – Progetto Ager, Fondazioni in Rete per la Ricerca Agroalimentare
- Research activity: Assessing the effects of innovative and sustainable ingredients (*H. illucens* prepupae meal, poultry by-product meal, microbial dried biomass, and red swamp crayfish meal) included, singly or in combination, in diets totally deprived of fish meal (the major protein fraction was composed by plant-derived ingredients) intended for rainbow trout (*publications 25,20,12,3*), gilthead seabream (*publications 32,17*), and European seabass (*publication 32*).

2017 - 2020
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Application of insect-based diets over zebrafish life cycle

- Research activity: Assessing the effects of insect-based diets during zebrafish larval development (*publications 1,2*), the whole life cycle (*publication 4*), and on the reproductive performances of female specimens (*publication 11*)

Publications on peer-reviewed journals and editorial roles

Metrics

Co-author of 36 scientific publications in peer-reviewed journals recorded in SCOPUS; first/last name in 17 ones; corresponding author in 1 publication.
SCOPUS - h-index: 17, citations: 920 by 481 documents

List of publications

[*] equal contribution / [CA] Corresponding author

36. Ruschioni, S., Duca, D., Tulli, F., **Zarantoniello, M.**, Cardinaletti, G., Corsi, L., Olivotto, I., Basili, D., Naspetti, S., Truzzi, C., Isidoro, N, Riolo, P. Evaluation of growth performance and environmental impact of *Hermetia illucens* larvae reared on coffee silverskins enriched with *Schizochytrium limacinum* or *Isochrysis galbana* microalgae. *Animals* **2024**, 14(4), 609. 10.3390/ani14040609

35. Hoseinifar, S.H., Ashouri, G., Marisaldi, L., Candelma, M., Basili, D., Zimbelli, A., Notarstefano, V., Salvini, L., Randazzo, B., **Zarantoniello, M.**[*], Pessina, A., Sojan, J.M., Vargas, A., Carnevali, O. Reducing the use of antibiotics in European aquaculture with vaccines, functional feed additives and optimization of the gut microbiota. *Journal of Marine Science and Engineering* **2024**, 12(2), 204. 10.3390/jmse12020204

34. Conti, F.[*], **Zarantoniello, M.**[*], Antonucci, M., Cattaneo, N., Rattin, M., De Russi, G., Secci, G., Lucon-Xiccato, T., Lira de Medeiros, A.C., Olivotto, I. The application of synthetic flavors in zebrafish (*Danio rerio*) rearing with emphasis on attractive ones: effects on fish development, welfare, and appetite. *Animals* **2023**, 13(21), 3368. 10.3390/ani13213368

33. Truzzi, C., Girolametti, F., Annibaldi, A., **Zarantoniello, M.**, Olivotto, I., Riolo, P., Tulli, F., Illuminati, S. Insect-based aquafeeds modulate the fatty acid profile of zebrafish: a comparison on the different life stages. *Animal Feed Science and Technology* **2023**, 305, 115761. 10.1016/j.anifeedsci.2023.115761

32. Randazzo, B., Di Marco, P., **Zarantoniello, M.**, Daniso, E., Cerri, R., Finoia, M.G., Capoccioni, F., Tibaldi, E., Olivotto, I., Cardinaletti, G. Effects of supplementing a plant protein-rich diet with insect, crayfish or microalgae meals on gilthead sea bream (*Sparus aurata*) and European seabass (*Dicentrarchus labrax*) growth, physiological status and gut health. *Aquaculture* **2023**, 575, 739811. 10.1016/j.aquaculture.2023.739811

31. Cattaneo, N.[*], **Zarantoniello, M.**[*], Conti, F., Frontini, A., Chemello, G., Dimichino, B., Marongiu, F., Cardinaletti, G., Gioacchini, G., Olivotto, I. Dietary microplastic administration during zebrafish (*Danio rerio*) development: a comprehensive and comparative study between larval and juvenile stages. *Animals* **2023**, 13(14), 2256. 103390/ani13142256

30. Zarantoniello, M., Alves de Oliveira, A., Sahin, T., Freddi, L., Torregiani, M., Tucciarone, I., Chemello, G., Cardinaletti, G., Gatto, E., Parisi, G., Bertolucci, C., Riolo, P., Nartea, A., Gioacchini, G., Olivotto, I. Enhancing rearing of European seabass (*Dicentrarchus labrax*) in aquaponic systems: investigating the effects of enriched black soldier fly (*Hermetia illucens*) prepupae meal on fish welfare and quality traits. *Animals* **2023**, 13(12), 1921. 10.339/ani13121921

29. Zarantoniello, M. [CA], Chemello, G., Ratti, S., Pulido-Rodriguez, L.F., Daniso, E., Freddi, L., Salinetti, P., Nartea, A., Bruni, L., Parisi, G., Riolo, P., Olivotto, I. Growth and welfare status of giant freshwater prawn (*Macrobrachium rosenbergii*) post larvae fed diets including enriched black soldier fly (*Hermetia illucens*) prepupae meal. *Animals* **2023**, 13, 715. 10.3390/ani13040715

28. Ratti, S.[*], **Zarantoniello, M.**[*], Chemello, G., Giammarino, M., Palermo, F.A., Cocci, P., Mosconi, G., Tignani, M.V., Pascon, G., Cardinaletti, G., Pacetti, D., Nartea, A., Parisi, G., Riolo, P., Belloni, A., Olivotto, I. Spirulina-enriched substrate to rear black soldier fly (*Hermetia illucens*) prepupae as alternative aquafeed ingredient for rainbow trout (*Oncorhynchus mykiss*) diets: possible effects on zootechnical performances, gut and liver health status, and fillet quality. *Animals* **2023**, 13(1), 173. doi: 10.3390/ani13010173

27. Milanović, V., Cardinali, F., Aquilanti, L., Maoloni, A., Garofalo, C., **Zarantoniello, M.**, Olivotto, I., Riolo, P., Ruschioni, S., Isidoro, N., Corsi, L., Cardinaletti, G., Osimani, I. Quantification of antibiotic resistance genes in Siberian sturgeons (*Acipenser baerii*) fed *Hermetia illucens*-based diet. *Aquaculture* **2022**, 560, 738485. doi:10.1016/j.aquaculture.2022.738485

26. Randazzo, B.[*], **Zarantoniello, M.**[*], Secci, G., Faccenda, F., Fava, F., Marzorati, G., Belloni, A., Maradonna, F., Orazi, V., Cerri, R., Povinelli, M., Parisi, G., Olivotto, I. Towards the identification of a suitable commercial diet for carpione (*Salmo carpio*, Linnaeus 1758): a multidisciplinary study on fish performances, animal welfare and quality traits. *Animals* **2022**, 12, 1918. doi:10.3390/ani12151918

25. Zarantoniello, M.[*], Pulido Rodriguez, L.F.[*], Randazzo, B., Cardinaletti, G., Giorgini, E., Belloni, A., Secci, G., Faccenda, F., Pulcini, D., Parisi, G., Capoccioni, F., Tibaldi, E., Olivotto, I. Conventional feed additives or red claw crayfish meal and dried microbial biomass as feed supplement in fish meal-free diets for rainbow trout (*Oncorhynchus mykiss*): Possible ameliorative effects on growth and gut health status. *Aquaculture* **2022**, 554, 738137. doi:10.1016/j.aquaculture.2022.738137

24. Chemello, G., **Zarantoniello, M.**, Randazzo, B., Gioacchini, G., Truzzi, C., Cardinaletti, G., Riolo, P., Olivotto, I. Effects of black soldier fly (*Hermetia illucens*) enriched with *Schizochytrium* sp. on zebrafish (*Danio rerio*) reproductive performances. *Aquaculture* **2022**, 550, 737853. doi:10.1016/j.aquaculture.2021.737853

23. Truzzi, C., Girolametti, F., Giovannini, L., Olivotto, I., **Zarantoniello, M.**, Scarponi, G., Annibaldi, A., Illuminati, S. New eco-sustainable feed in aquaculture: influence of insect-based diets on the content of potentially toxic elements in the experimental model zebrafish (*Danio rerio*). *Molecules* **2022**, 27(3), 818. doi:10.3390/molecules27030818

22. Milanović, V., Cardinali, F., Aquilanti, L., Maoloni, A., Garofalo, C., **Zarantoniello, M.**, Olivotto, I., Riolo, P., Ruschioni, S., Isidoro, N., Cattalani, M., Cardinaletti, G., Clementi, F., Osimani, A. Quantitative assessment of transferable antibiotic resistance genes in zebrafish (*Danio rerio*) fed *Hermetia illucens*-based feed. *Animal Feed Science and Technology* **2021**, 277, 114978. doi: 10.1016/j.anifeedsci.2021.114978

21. Planas, M., Olivotto, I., González, M.J., Laurà, R., Angeletti, C., Amici, A., **Zarantoniello, M**. Pre-breeding diets in the seahorse *Hippocampus reidi*: how do they affect fatty acid profiles, energetic status and histological features in newborn? *Frontiers in Marine Science* **2021**, 8, 688058. doi:10.3389/fmars.2021.688058

20. Randazzo, B., **Zarantoniello, M.**, Gioacchini, G., Cardinaletti, G., Belloni, A., Giorgini, E., Faccenda, F., Cerri, R., Tibaldi, E., Olivotto, I. Physiological response of rainbow trout (*Oncorhynchus mykiss*) to graded levels of *Hermetia illucens* or poultry by-product meals as single or combined substitute ingredients to dietary plant proteins. *Aquaculture* **2021**, 538, 736550. doi:10.1016/j.aquaculture.2021.736550

19. Zarantoniello, M., Randazzo, B., Secci, G., Notarstefano, V., Giorgini, E., Lock, E.J., Parisi, G., Olivotto, I. Application of laboratory methods for understanding fish responses to black soldier fly (*Hermetia illucens*) based diets. *Journal of Insects as Food and Feed* **2021**, 8(11), 1173-1195. doi:10.3920/JIFF2020.0135

18. Zarantoniello, M., Randazzo, B., Cardinaletti, G., Truzzi, C., Chemello, G., Riolo, P., Olivotto, I. Possible dietary

effects of insect-based diets across zebrafish (*Danio rerio*) generations: a multidisciplinary study on the larval phase. *Animals* **2021**, 11(3), 751. doi: 10.3390/ani11030751

17. Randazzo, B., **Zarantoniello, M.**, Cardinaletti, G., Cerri, R., Giorgini, E., Belloni, A., Contò, M., Tibaldi, E., Olivotto, I. *Hermetia illucens* and poultry by-product meals as alternatives to plant protein sources in gilthead seabream (*Sparus aurata*) diet: a multidisciplinary study on fish gut status. *Animals* **2021**, 11(3), 677. doi:10.3390/ani11030677

16. Milanović, V., Roncolini, A., Cardinali, F., Garofalo, C., Aquilanti, L., Riolo, P., Ruschioni, S., Corsi, L., Isidoro, N., **Zarantoniello, M.**, Olivotto, I., Ceccobelli, S., Tavoletti, S., Clementi, F., Osimani, A. Occurrence of antibiotic resistance genes in *Hermetia illucens* larvae fed coffee silverskin enriched with *Schizochytrium limacinum* or *Isochrysis galbana* microalgae. *Genes* **2021**, 12, 213. doi:10.3390/genes12020213

15. Osimani, A., Ferrocino, I., Corvaglia, M.R., Roncolini, A., Milanović, V., Garofalo, C., Aquilanti, L., Riolo, P., Ruschioni, S., Jamshidi, E., Isidoro, N., **Zarantoniello, M.**, Cocolin, L., Olivotto, I., Clementi, F. Microbial dynamics in rearing trials of *Hermetia illucens* larvae fed coffee silverskin and microalgae. *Food Research International* **2021**, 140, 110028. doi:10.1016/j.foodres.2020.110028

14. Zarantoniello, M., Randazzo, B., Nozzi, V., Truzzi, C., Giorgini, E., Cardinaletti, G., Freddi, L., Ratti, S., Girolametti, F., Osimani, A., Notarstefano, V., Milanović, V., Riolo, P., Isidoro, N., Tulli, F., Gioacchini, G., Olivotto, I. Physiological responses of Siberian sturgeon (*Acipenser baerii*) juveniles fed on full-fat insect-based diet in an aquaponic system. *Scientific Reports* **2021**, 11, 1057. doi:10.1038/s41598-020-80379-x

13. Zarantoniello, M., Bortoletti, M., Olivotto, I., Ratti, S., Poltronieri, C., Negrato, E., Caberlotto, S., Radaelli, G., Bertotto, D. Salinity, temperature and ammonia acute stress response in seabream (*Sparus aurata*) juveniles: a multidisciplinary study. *Animals* **2021**, 11, 97. doi:10.3390/ani11010097

12. Bruni, L., Randazzo, B., Cardinaletti, G., **Zarantoniello, M.**, Mina, F., Secci, G., Tulli, F., Olivotto, I., Parisi, G. Dietary inclusion of full-fat *Hermetia illucens* prepupae meal in practical diets for rainbow trout (*Oncorhynchus mykiss*): lipid metabolism and fillet quality investigations. *Aquaculture* **2020**, 529, 735678. doi:10.1016/j.aquaculture.2020.735678

11. Randazzo, B., **Zarantoniello, M.**, Gioacchini, G., Giorgini, E., Truzzi, C., Notarstefano, V., Cardinaletti, G., Huyen, K.T., Carnevali, O., Olivotto, I. Can insect-based diets affect zebrafish (*Danio rerio*) reproduction? A multidisciplinary study. *Zebrafish* **2020**, 17(5), 287-304. doi:10.1089/zeb.2020.1891

10. Planas, M., Olivotto, I., Jesús González, M., Laurà, R., **Zarantoniello, M**. A multidisciplinary experimental study on the effects of breeders diet on newborn seahorses (*Hippocampus guttulatus*). *Frontiers in Marine Sciences* **2020**, 7, 638. doi:10.3389/fmars.2020.00638

9. Zarantoniello, M., Randazzo, B., Gioacchini, G., Truzzi, C., Giorgini, E., Riolo, P., Gioia, G., Bertolucci, C., Osimani, A., Cardinaletti, G., Lucon-Xiccato, T., Milanović, V., Annibaldi, A., Tulli, F., Notarstefano, V., Ruschioni, S., Clementi, F., Olivotto, I. Zebrafish (*Danio rerio*) physiological and behavioural responses to insect-based diets: a multidisciplinary approach. *Scientific Reports* **2020**, 10, 10648. doi:10.1038/s41598-020-67740-w

8. Zarantoniello, M., Zimbelli, A., Randazzo, B., Delli Compagni, M., Truzzi, C., Antonucci, M., Riolo, P., Loreto, N., Osimani, A., Milanović, V., Giorgini, E., Cardinaletti, G., Tulli, F., Cipriani, R., Gioacchini, G., Olivotto, I. Black Soldier Fly (*Hermetia illucens*) reared on roasted coffee by-product and *Schizochytrium* sp. as a sustainable terrestrial ingredient for aquafeeds production. *Aquaculture* **2020**, 518, 734659. doi:10.1016/j.aquaculture.2019.734659

7. Truzzi, C., Giorgini, E., Annibaldi, A., Antonucci, M., Illuminati, S., Scarponi, G., Riolo, P., Isidoro, N., Conti, C., **Zarantoniello, M.**, Cipriani, R., Olivotto, I. Fatty acids profile of black soldier fly (*Hermetia illucens*): influence of feeding substrate based on coffee-waste silverskin enriched with microalgae. *Animal Feed Science and Technology* **2020**, 259, 114309. doi:10.1016/j.anifeedsci.2019.114309

6. Osimani, A., Milanović, V., Roncolini, A., Riolo, P., Ruschioni, S., Isidoro, N., Loreto, N., Franciosi, E., Tuohy, K., Olivotto, I., **Zarantoniello, M.**, Cardinali, F., Garofalo, C., Aquilanti, L., Clementi, F. *Hermetia illucens* in diets for zebrafish (*Danio rerio*): a study of bacterial diversity by using PCR-DGGE and metagenomic sequencing. *PLoS ONE* **2019**, 14(12), e0225956. doi:10.1371/journal.pone.0225956

5. Chemello, G., Randazzo, B., **Zarantoniello, M.**, Fifi, A.P., Aversa, S., Ballarin, C., Radaelli, G., Magro, M., Olivotto, I. Safety assessment of antibiotic administration by magnetic nanoparticles in in vitro zebrafish liver and intestine cultures. *Comparative Biochemistry and Physiology Part- C: Toxicology and Pharmacology* **2019**, 224, 108559. doi:10.1016/j.cbpc.2019.108559

4. Zarantoniello, M.*, Randazzo, B.*, Truzzi, C., Giorgini, E., Marcellucci, C., Vargas-Abúndez, J.A., Zimbelli, A., Annibaldi, A., Parisi, G., Tulli, F., Riolo, P., Olivotto, I. A six-months study on Black Soldier Fly (*Hermetia illucens*) based diets in zebrafish. *Scientific Reports* **2019**, 9, 8598. doi:10.1038/s41598-019-45172-5

3. Cardinaletti, G., Randazzo, B., Messina, M., **Zarantoniello, M.**, Giorgini, E., Zimbelli, A., Bruni, L., Parisi, G., Olivotto, I., Tulli, F. Effects of graded dietary inclusion level of full-fat *Hermetia illucens* prepupae meal in practical diets for rainbow trout (*Oncorhynchus mykiss*). *Animals* **2019**, 9(5), 251. doi:10.3390/ani9050251

2. Vargas, A., Randazzo, B., Riolo, P., Truzzi, C., Gioacchini, G., Giorgini, E., Loreto, N., Ruschioni, S., **Zarantoniello, M.**, Antonucci, M., Polverini, S., Cardinaletti, G., Sabbatini, S., Tulli, F., Olivotto, I. Rearing zebrafish on black soldier fly (*Hermetia illucens*): biometric, histological, spectroscopic, biochemical and molecular implications. *Zebrafish* **2018**, 15(4), 404-419. doi: 10.1089/zeb.2017.1559

1. Zarantoniello, M., Bruni, L., Randazzo, B., Vargas, A., Gioacchini, G., Truzzi, C., Annibaldi, A., Riolo, P., Parisi, G., Cardinaletti, G., Tulli, F., Olivotto, I. Partial dietary inclusion of *Hermetia illucens* (Black Soldier Fly) full-fat prepupae in zebrafish feed: biometric, histological, biochemical, and molecular implications. *Zebrafish* **2018**, 15(5), 519-532. doi:10.1089/zeb.2018.1596

Editorial roles

Guest editor

- Special issue: "*Innovations in aquaculture sustainability and endangered aquatic species conservation: advances in reproduction, new aquafeed formulations, sustainable farming systems, emerging contaminants, and waste treatment and revalorization*"
- Section: Aquatic Animals
- Journal: *Animals* (MDPI, ISSN: 2076-2615)

Reviewer

- *Aquaculture* (Elsevier, ISSN: 0044-8486)
- *Frontiers in Physiology* (Frontiers, ISSN: 1664-042X)
- *Animals* (MDPI, ISSN: 2076-2615)
- *Aquaculture Research* (Wiley Online Library, ISSN: 1365-2109)
- *Journal of Animal Physiology and Animal Nutrition* (Wiley Online Library, ISSN: 1439-0396)
- *Fermentation* (MDPI, ISSN: 2311-5637)
- *Fishes* (MDPI, ISSN: 2410-3888)

Conferences: participation and contribution

2023 Aquaculture Europe 2023, September 18-21, 2023, Vienna, Austria

- **Zarantoniello, M.**, Conti, F., Cattaneo, N., Freddi, L., Cardinaletti, G., Tucciarone, I., Nartea, A., Olivotto, I. Effects of diets including spirulina-enriched black soldier fly (*Hermetia illucens*) prepupae meal on growth, welfare, and quality of giant freshwater prawn (*Macrobrachium rosenbergii*) and European seabass (*Dicentrarchus labrax*) reared in aquaponic systems (Poster).
- Olivotto, I., **Zarantoniello**, **M.**, Gioacchini, G., Fiorentino, M.C., Fatone, F., Mancini, A. Development, testing and validation of multi-spectral cameras (VIS + NIR) technology tool for egg quality estimation (Poster).

- Verdile, N., Cattaneo, N., Camin, F., **Zarantoniello, M.**, Conti, F., Cardinaletti, G., Brevini, T.A.L., Olivotto, I., Gandolfi, F. Microplastics uptake observed in a cell-based organotypic rainbow trout *Oncorhynchus mykiss* intestinal platform (Poster).
- Tucciarone, I., Pulido-Rodriguez, L.F., Lira de Medeiros, A.C., Secci, G., **Zarantoniello, M.**, Olivotto, I., Parisi, G. Rearing of European seabass *Dicentrarchus labrax* in aquaponic systems: effects of enriched black soldier fly *Hermetia illucens* prepupae meal on fish liver (Poster).
- Gatto, E., **Zarantoniello, M.**, Bertolucci, C., Olivotto, I. Black soldier fly (*Hermetia illucens*) prepupae meal did not affect individual and group explorative swimming traits in European seabass (*Dicentrarchus labrax*): an ethological study on fish welfare (Poster).
- Conti, F., **Zarantoniello, M.**, Antonucci, M., Cattaneo, N., Olivotto, I. A new set of feed additives to promote fish feed intake and welfare in aquaculture: a comparative study on zebrafish (*Danio rerio*) larvae and juvenile stage (Oral presentation).
- Cattaneo, N., **Zarantoniello, M.**, Conti, F., Frontini, A., Cardinaletti, G., Gioacchini, G., Olivotto, I. Dietary microplastics exposure in different life cycle stages: a study on zebrafish (Danio rerio) physiological responses and welfare from larvae to adults (Oral presentation)

IEEE International workshop on Measurements and Applications in Veterinary and Animal Sciences, April 26-28, 2023, Naples, Italy

- **Zarantoniello, M.**, Secci, G., Parisi, G., Olivotto, I. Assessing fish physiological responses to dietary inclusion levels of black soldier fly (*Hermetia illucens*) prepupae meal: a focus on traditional and innovative laboratory approaches and look towards future approaches (Oral presentation).

2022 Aquaculture Europe 2022, September 27-30, 2022, Rimini, Italy

- **Zarantoniello, M.**, Pulido Rodriguez, L.F., Randazzo, B., Cardinaletti, G., Giorgini, E., Belloni, A., Secci, G., Faccenda, F., Fava, F., Di Marco, P., Pulcini, D., Parisi, G., Capoccioni, F., Tibaldi, E., Olivotto, I. Growth, blood metabolic parameters and gut health status in rainbow trout (*Oncorhynchus mykiss*) fed fish meal-free diets supplemented with conventional feed additives or dried microbial biomass and red swamp crayfish meal as feed supplement (Oral presentation).
- **Zarantoniello, M.**, Randazzo, B., Secci, G., Faccenda, F., Fava, F., Parisi, G., Giorgini, E., Belloni, A., Cerri, R., Conti, F., Cattaneo, N., Olivotto, I. Searching for a suitable commercial diet for carpione, *Salmo carpio*, to sustain a proper growth, welfare, and fillet quality (Poster).
- Olivotto, I., Randazzo, B., Gioacchini, G., Giorgini, E., Notarstefano, V., Cardinaletti, G., Huyen, K.T., Truzzi, C., Carnevali, O., **Zarantoniello M**. Effects of different full-fat *Hermetia illucens* prepupae meal dietary inclusions on reproductive performances of adult female zebrafish (Poster).
- Conti. F., Lucon-Xiccato, T., De Russi, G., Antonucci, M., Cattaneo, N., **Zarantoniello, M.**, Bertolucci, C., Olivotto, I. Behavioural responses to different feed additives in zebrafish (*Danio rerio*) larvae: a preliminary study (Poster).
- Ratti, S., **Zarantoniello, M.**, Chemello, G., Freddi, L., Cattaneo, N., Conti, F., Salinetti, P., Cardinaletti, G., Riolo, P., Olivotto, I. Rearing giant freshwater prawns (*Macrobrachium rosenbergii*) in aquaponic systems using sustainable aquafeeds (Poster).
- Cattaneo, N., **Zarantoniello, M.**, Conti, F., Randazzo, B., Chemello, G., Frontini, A., Cardinaletti, G., Gioacchini, G., Olivotto, I. The fate of dietary microplastics: a multidisciplinary laboratory approach to evaluate localization and physiological responses of zebrafish (*Danio rerio*) larvae (Oral presentation).
- Ratti, S., **Zarantoniello, M.**, Chemello, G., Palermo, F.A., Cocci, P., Mosconi, G., Giammarino, M., Pacetti, D., Nartea, A., Secci, G., Osimani, A., Pascon, G., Riolo, P., Parisi, G., Giorgini, E., Olivotto, I. Physiological responses of rainbow trout (*Oncorhynchus mykiss*) fed diets including *Hermetia illucens* prepupae meal enriched with spirulina (*Arthrospira platensis*) (Oral presentation).

2020 Aquaculture America 2020, February 9-12, 2020, Honolulu, Hawaii

- **Zarantoniello, M.**, Physiological effects of insect-based diets during *Danio rerio* larval development (Oral presentation).
- Olivotto, I., Zimbelli, A., Randazzo, B., Gioia, G., Truzzi, C., Annibaldi, A., Riolo, P., Loreto, N., Osimani, A., Milanovic, V., Giorgini, E., **Zarantoniello, M**. Effects of graded dietary *Hermetia illucens* inclusion levels on juvenile and adult zebrafish growth and welfare (Poster).
- Olivotto, I., **Zarantoniello, M.**, Conti, C., Cardinaletti, G., Messina, M., Faccenda, F., Gioacchini, G., Randazzo, B. Insect meal and poultry by-product meal based diets during rainbow trout (*Onchorynchus mykiss*) culture. FTIR imaging and histological correlative study to investigate intestine and liver welfare (Poster).
- Randazzo, B., **Zarantoniello, M.**, Tibaldi, E., Cardinaletti, G., Giorgini, E., Lunelli, F., Olivotto, I. A multidisciplinary approach to investigate biological effects on intestine morphology and appetite stimulus in rainbow trout (*Oncorhynchus mykiss*) fed diets with graded levels of insect meal and poultry by-product meal (Oral presentation).

2019 65° Convegno GEI-SIBSC Gruppo Embriologico Italiano, Società italiana di Biologia dello Sviluppo e della Cellula 2019, June 24-27, 2019, Ancona, Italy.

- **Zarantoniello, M.**, Randazzo, B., Giorgini, E., Gioacchini, G., Zimbelli, A., D'Addazzio, A., Angrilli, A., Olivotto, I. Effects of new and sustainable aquafeed ingredients on zebrafish reproduction (Oral presentation).
- Zimbelli, A., **Zarantoniello, M.**, Piccinetti, C.C., De Leo, A., Cosoli, G., Scalise, L., Randazzo, B., Cerri, G., Olivotto, I. 100 MHz electromagnetic field radiation effects on zebrafish *Danio rerio* embryonic development: a multidisciplinary approach (Poster).
- Randazzo, B., **Zarantoniello, M.**, Zimbelli, A., Zavattini, B., Montalbano, G., Olivotto, I. Exposure of zebrafish larvae to low concentrations of cadmium and zinc and evaluation of the hair cell regeneration by a visual and molecular approach (Poster).
- **Zarantoniello, M.**, Zimbelli, A., Randazzo, B., Delli Compagni, M., Riolo P., Loreto, N., Truzzi, C., Antonucci, M., Giorgini, E., Conti, C., Osimani, A., Roncolini, A., Cardinaletti, G., Tulli, F., Cipriani, R., Olivotto, I. Physiological effects of insect-based diets during *Danio rerio* larval development. (Oral presentation).

DIDACTIC ACTIVITY AND STUDENT SUPERVISION

Academic Year 2023/2024

Università Politecnica delle Marche
Department of Agricultural, Food and Environmental Sciences – D3A

Lecturer (Docente)

Course title: Basics of Aquaculture

- 27 hours - 3 CFU (Lecturer for 10 hours of frontal lessons and 9 hours of scientific trips)
- Included in: "Attività didattica integrativa" addressed to students of: (i) Bachelor's Degree in Agricultural Sciences and Technology, Forest and Environmental Sciences, Food Sciences and Technology, and Innovative Agricultural Systems; (ii) Master's Degree in Land and Agricultural Sciences, Forest, Soils and Landscape Sciences.
- Scientific sector: AGR/20 (Aquaculture, poultry, and rabbit sciences)
- Coordinator: Dott. Simone Ceccobelli
- Other lecturers: Prof. Marina Pasquini

Academic Year 2023/2024

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Sessional lecturer (Docente a contratto)

Course title: Pet nutrition and feeding

- Hours - CFU: 48 h - 6 CFU
- Included in: Master's degree in Nutrition and Food Sciences
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Academic Year 2023/2024

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Member of the graduation committee (commissione esame di laurea)

Master's degree in Marine Biology

Sessions:
- October 17, 2023, Sessione Autunnale A.A. 2022/2023
- February 23, 2024, Sessione straordinaria A.A. 2022/2023

Academic Year 2023/2024

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Member of the examination committee (commissione esami di profitto)

- Course: Pet nutrition and feeding (President)
  Included in: Master's degree in Nutrition and Food Sciences
- Course: Nutrition and Reproduction (Member)
  Included in: Master's degree in Nutrition and Food Sciences
- Course: Biotechnology and Blue Growth (aquaculture) (Member)
  Included in: Master's degree in Marine Biology
- Course: Developmental biology (Member)
  Included in: Bachelor's degree in Biological Sciences
- Course: Citology and Histology (Member)
  Included in: Bachelor's degree in Biological Sciences

Academic Year 2022/2023

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Sessional lecturer (Docente a contratto)

Module title: Rearing techniques for teleost larvae
- Hours - CFU: 8 h - 1 CFU
- Included in: II Level University Master "Acquacoltura del futuro: innovazione tecnologica e gestionale a favore di sostenibilità e redditività"
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Academic Year 2022/2023

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Auxiliary teacher (Coadiutore alla didattica)

Course: Citology and Histology
- Included in: Bachelor's Degree in Biological Sciences
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)
- Hours: 60

Academic Year 2020/2021 - present

Università Politecnica delle Marche
Department of Life and Environmental Sciences

Co-Supervisor (Correlatore)

Thesis for Master's Degree in Marine Biology

- The use of synthetic feed attractants in European seabass (*Dicentrarchus labrax*) rearing: effect on growth, welfare and appetite stimulation. Candidate: Elena Belfiore. Supervisor: Prof. Ike Olivotto. A.A. 2022/2023.
- Dietary microplastics exposure during European seabass (*Dicentrarchus labrax*) culture: physiological responses and mitigation approaches. Candidate: Margherita Carrino. Supervisor: Prof. Ike Olivotto. A.A. 2022/2023.

- Study of the effects of feeding with synthetic feed attractants on the welfare and reproduction of zebrafish model species (*Danio rerio*). Candidate: Massimiliano Pavanello. Supervisor: Prof. Ike Olivotto. A.A. 2022/2023.
- Use of synthetic flavours in the feeding of zebrafish (*Danio rerio*), effects on well-being and appetite. Candidate: Mirko Rattin. Supervisor: Prof. Ike Olivotto. A.A. 2022/2023.
- Evaluation of the use of astaxanthin in zebrafish (*Danio rerio*) feeds to mitigate the negative effects of microplastics included in diets. Candidate: Alessandro Tavano. Supervisor: Prof. Ike Olivotto. A.A. 2022/2023.
- Dietary inclusions of *Hermetia illucens* prepupae meal enriched with spirulina (*Arthrospira platensis*): possible beneficial effects on rainbow trout (*Oncorhynchus mykiss*) juveniles growth and welfare. Candidate: Miriam Giammarino. Supervisor: Prof. Ike Olivotto. A.A. 2020/2021.
- Use of insect meal feeds in the rearing of sea bass (*Dicentrarchus labrax*) in aquaponic systems. Candidate: Matteo Torregiani. Supervisor: Prof. Ike Olivotto. A.A. 2020/2021.
- Impact due to contamination of diets containing microplastics on welfare and growth of zebrafish adults (*Danio rerio*). Candidate: Fabio Marongiu. Supervisor: Prof. Ike Olivotto. A.A. 2020/2021.
- Dietary inclusion of *Hermetia illucens* in zebrafish (*Danio rerio*) feed: effects on reproduction. Candidate: Federica Matilde Di Renzo. Supervisor: Prof. Ike Olivotto. 2020/2021.

Academic Year 2018/2019 - present
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Lecturer for specific lessons

Lesson title: Blood and haematopoiesis
- Included in: Bachelor's Degree in Biological Sciences
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Lesson title: Muscular tissue
- Included in: Bachelor's Degree in Biological Sciences
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Lesson title: Aquaculture techniques
- Included in: Master's Degree in Marie Biology
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)

Academic Years: from 2018/2019 to 2021-2022
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Didactic Tutor

Course: Citology and Histology
- Included in: Bachelor's Degree in Biological Sciences
- Scientific sector: BIO/06 (Citology and Comparative Anatomy)
- Hours: 80

Academic Year 2017/2018 - present
Università Politecnica delle Marche
Department of Life and Environmental Sciences

Staff Member of the Reproductive and Developmental Biology Lab

Events:
- SHARPER - La notte dei ricercatori
- UNIVPM orienta
- Programma PNRR – Missione 4 – Inv. 1.6 "Orientamento Attivo"
- Micro Genius
- Tipicità in blu

ACADEMIC AWARDS

July 2021

Università degli Studi di Udine
Department of Agri-Food, Environmental and Animal Sciences

SUSHIN Award

Contest: Best innovative research project

- Title: "*Zero-waste production of alternative aquafeed ingredients for farmed fish culture"*
- Prize: 1000 €
- Scientific sector: AGR/20 (Aquaculture, poultry and rabbit science)

ADDITIONAL INFORMATION

- In reference to the law 196/2003, I assent to the entire treatment of the inserted personal and professional data.
- In reference to the D.P.R. 445/2000, I declare the accuracy of the contents reported.