



Personal information

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Summary

Senior fisheries scientist ("Director of Research" highest level in Italian system) with more than 30 years experience of studying the wider ecosystem effects of fishing on the marine environment at the National Research Council (CNR), Institute of Marine Biological Resources and Biotechnologies (CNR-IRBIM), Ancona (Italy).

Expert knowledge of physical and biological impacts in the marine environment produced by human activities, as well as impacts and operations of global fisheries, including marine litter, efficiency and selectivity of fishing gears, performance of fishing gears using underwater instrumentation, fishing gear design and modelling, and energy saving measures in fisheries operations. Lead scientist in numerous international research projects (>20) and national projects (>30). Chief scientist in more than 40 interdisciplinary oceanographic sea cruises.

Since 2020, fishing technology consultant (COF.REG) in the Fishing Technology and Operations team (NFIFO) of the Food and Agriculture Organization of the United Nations (FAO, Rome). Since 2014, external statistical expert for the European Fisheries Control Agency (EFCA, Spain). In 2019, programme officer providing scientific advice on the implementation of the Common Fisheries Policies and Fisheries Dependent Information at the European Commission DG Joint Research Centre (JRC, Italy). Since 2018, Fishery team member for Marine Stewardship Council (MSC) standard Certification of sustainable fisheries.

From January 2020, chairperson of the ICES/FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB). From 2010 to 2019, member and vice-chair (in 2018-2019) of the EU-STEFCF Committee (*European Scientific, Technical and Economic Committee for Fisheries*).

Author of numerous peer reviewed publications (90) and holder of 3 patents pending. Author's h-index in Scopus: 25 and Web of Science: 25 (Google scholar: 29, with 3381 citations). Member on the editorial board of the *Scientific Data (Nature)*, *Frontiers in Marine Science* (Associate Editor), *Open Journal of Marine Science*, *Journal of Ocean Technology*, *Turkish Journal of Fisheries and Aquatic Science*, and *Journal of Agricultural Science and Applications*.

Research academic profile, full list of publications, and working references can be found at the following public platforms:

ResearcherID: www.researcherid.com/rid/B-8517-2016 (ID: B-8517-2016)
Scopus: www.scopus.com/authid/detail.uri?authorId=7101706705
ORCID: <http://orcid.org/0000-0001-7066-1152>
Google Scholar: <https://scholar.google.it/citations?hl=en&user=XR9xkgEAAAAJ>
Publons: <https://publons.com/researcher/1594351/antonello-sala>
ResearchGate: www.researchgate.net/profile/Antonello_Sala
Linkedin: linkedin.com/in/antonello-sala-91059729

Project coordination and management

2017-18. Lead scientist of the project *“Improvement of trawl gear selectivity in Maltese fisheries”*, co-financed by the European Union and the Government of Malta.

2014-17. Coordinator of the research programme (2014-17) and partner responsible (2009-14) for the *“Evaluation of the accidental catches of protected species in the pelagic trawling (BYCATCH)”*, financed by the Italian Ministry of Agriculture and Forestry, Fishery and Aquaculture Directorate.

2014-15. EU-project coordinator *“Catch and discard composition including solutions for limitation and possible elimination of unwanted by-catches in trawl net fisheries in the Mediterranean (DISCATCH)”*, financed by the European Commission.

2012-17. Lead scientist of the EU-project *“Benthic ecosystem fisheries impact study (BENTHIS)”*, financed by the European Commission, Seventh Framework Programme.

2012-14. Coordinator of the national project *“Assessment and testing technological innovations for energy saving in bottom trawl fisheries (eApulia)”* financed by the Regional authority.

2012-13. Coordinator of the EU-project *“Technical specifications of Mediterranean trawls gears (myGears)”*, financed by the European Commission.

2012-13. Lead scientist of the national project *“Yearly monitoring of the clam resources targeted by the hydraulic dredge”*, financed by the Italian Ministry of Agriculture and Forestry, Fishery and Aquaculture directorate.

2011-14. Lead scientist of the EU-project *“Ecosystem-based Responsive Fisheries Management in Europe (EcoFishMan)”*, financed by the European Commission, Seventh Framework Programme.

2010-14. Coordinator of the EU-programme *“Information Collection in Energy Efficiency for Fisheries (ICEEF)”*, financed by the European Commission, Joint Research Centre.

2010-11. Coordinator of the national project *“Energy Audit in Fisheries (e-AUDIT)”*, financed by the Regional Authority.

2009-11. Lead scientist of the national project *“Free wave Over the Sea (FOS): system for the radio interconnection in free wave band of the shipping vessels”*, financed by the Regional authority.

2009-10. Lead scientist of the national project *“Twin-trawl impact and catch efficiency (SISCA)”*, financed by the Ministry of Agriculture and Forestry, Fishery and Aquaculture Directorate.

2006-09. Lead scientist of the EU-project *“Development of fishing Gears with Reduced Effects on the Environment (DEGREE)”*, financed by the European Commission, Sixth Framework Programme.

2007-08. Lead scientist of the EU-project *“Energy Saving in Fisheries (ESIF)”*, financed by the European Commission, Framework Open Call for Tenders FISH/2006/17-LOT3.

2006-07. Coordinator of the national project *“Development of an innovative technology for the reduction of bio-fouling oyster culture (WAVE-BRUSH)”*, financed by the Regional Authority.

2005-07. Responsible of the Unit *“Biology and Ecology of the krill”* in the national research project *“Investigation on the three key species of the Middle Trophic Level of the Ross Sea (Antarctic krill, Ice krill and Silver fish) and on their interactions with the Top-Level Species (Birds, Whales, Seals) and the environment (MTL)”*, financed by the Ministry of Education, Universities and Research (MIUR), National Programme of Antarctic Researches.

2004-07. Lead scientist of the EU-project *“Nephrops and Cetacean Species Selection Information and Technology (NECESSITY)”*, financed by the European Commission, Sixth Framework Programme.

2004-05. Coordinator of the national project *“Environmental impact reduction of the Italian bottom trawling: twin-trawls experiment”*, financed by the Regional Authority.

2003-05. Lead scientist of the national project *“Using the square mesh codends in Italian trawl net: effect on efficiency and selectivity”*, financed by the Italian Ministry of Agriculture and Forestry, Fishery and Aquaculture Directorate.

2002-05. Lead scientist of the EU-project *“Development of predictive model of codend selectivity (PREMECS-2)”*, financed by the European Commission, Fifth Framework Programme.

2002-04. Responsible of the Unit *“Biology of the krill”* in the national project *“Krill, environment and predators: interactions, functional relationships and ecological implications for the Ross Sea resources management (KEP)”*, financed by the Ministry of Education, Universities and Research, National Programme of Antarctic Researches.

Selected short-term scientific professional services

Chair of the ICES Workshops on “The use of Collecting bags in shrimp fisheries (WKCB, 2021)” and “Innovative fishing gear (WKING, 2020)”. Scientific expert for the service to review the work of the ICES Working Group on Spatial Fisheries Data (WGSFD, 2016) for an OSPAR request related to the further development of fishing intensity/pressure mapping. In 2015, scientific expert for the European Parliament for an in-depth analysis of alternative solutions for driftnet fisheries and final oral dissertation in the European Parliament. Scientific expert for the East China Sea Fisheries Research Institute for a study on Energy Saving in Trawl Fisheries in China. Scientific member of the Steering Group (2012) for the development of the British Standards Institution “Publicly Available Specification for the Assessment of life cycle greenhouse gas emissions (PAS 2050).

Project evaluation commissions

Independent evaluator for the following project frameworks:

- Ocean Innovation Challenge (2020) funded by the United Nations Development Programme (UNDP);
- [EU-MarTERA ERA-NET Cofund](#) (2017, 2019, 2020, 2021), the European Research Area (ERA) in maritime and marine technologies and blue growth;
- Bycatch mitigation technologies (2015, 2017) funded by the National Oceanic and Atmospheric Administration (NOAA);
- Marine Systems and Renewable Energy (2014) funded by the Research Council of Norway;
- Gillnets bycatch reduction (2009) funded by the Northeast Consortium, University of New Hampshire (USA).

Invited lecturer in professional and training courses

Guest lecturer (2017, 2014, and 2010) at the International courses: *Technological solutions for reduction of discard in fisheries, Ecosystem approach to fisheries in the Mediterranean and Black seas. Management and decision making, Technical advances in fishing gear for sustainable management, organised by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) at the Mediterranean Agronomic Institute of Zaragoza*. Lecturer (2008) at the professional courses *Quality systems and certification: an integrated approach for the improvement of fishing products*, directed to the Fisheries inspectors of the Albanian Ministry of Fishery.

International scientific awards

International ICES Service Award (2020) as Chair of the Workshop on Innovative fishing gear (WKING). International Young Scientist Conference Attendance Grant Award (2001), for the oral presentation Stationary hydroacoustic methodology to determine diel activity of fish biomass in the artificial habitats at the 17th International Congress on Acoustics (ICA 2001). International scholarship (2000) awarded by the Norwegian Research Council for implementing the study Using measurements of eyeball diameter to decipher the population dynamics of *Meganyctiphanes norvegica* at the Norwegian University of Science and Technology (Trondheim, Norway).

Education

Laurea in Mathematical, Physical and Natural Sciences with a specialisation on Marine Biology and Oceanography at the University of Ancona (Italy). Graduated with full marks discussing the final dissertation “*Assessment of fish biomass of an artificial reef in the Adriatic Sea through acoustic methodology*”. Diploma in Electronic and Telecommunication at the Technical High School “V. Volterra” of Ancona (Italy).

Patent Cooperation Treaty

Sala, A., Buglioni, G., Lucchetti, A., Palumbo, V., 2009. Instrument for measuring the netting rigidity modulus. *Patent Deposit No. AN2009A000051 (IT1395481-B)*.

Sala, A., Antolini, B., Lucchetti, A., Palumbo, V., Giuliani, G., 2007. Low-cost tool to reduce biofouling in oyster longline culture. *Patent Deposit No. AN2007U000026*.

Grilli, R., Lucchetti, A., Palumbo, V., **Sala, A.**, 2007. Light beam trawl with a rigid frame and tickler chains used for demersal fishing. *Patent Deposit No. MC2007U000024*.

Bibliography

1. Mytilineou, C., Herrmann, B., Smith, C.J., Mantopoulou-Palouka, D., Anastasopoulou, A., Siapatis, A., **Sala, A.**, Megalofonou, P., Papadopoulou, N., Vassilopoulou, V., Stamouli, C., Kavadas, S., Lefkaditou, E., Nicolaidou, A., 2022. Impacts on biodiversity from codend and fisher selection in bottom trawl fishing. *Frontiers in Marine Science* 9: 1021467. (doi:10.3389/fmars.2022.1021467).
2. Colombelli, A., Pulcinella, J., Bonanomi, S., Notti, E., Moro, F., **Sala, A.**, 2022. Fishing the waves: comparing GAMs and random forest to evaluate the effect of changing marine conditions on the energy performance of vessels. *Mediterranean Marine Science* 23(4), 935-951 (doi:10.12681/mms.29721).
3. **Sala, A.**, Damalas, D., Labanchi, L., Martinsohn, J., Moro, F., Sabatella, R., Notti, E., 2022. Energy audit and carbon footprint in trawl fisheries. *Scientific Data*, 9, 428: 1-12 (doi:10.1038/s41597-022-01478-0).
4. Corrias, V., de Vincenzi, G., Ceraulo, M., Sciacca, V., Sala, A., de Lucia, G.A., Filiciotto, F., 2021. Bottlenose Dolphin (*Tursiops truncatus*) whistle modulation during a trawl bycatch event in the Adriatic Sea. *Animals* 11, 3593 (doi:10.3390/ani11123593).
5. Lucchetti, A., Virgili, M., Vasapollo, C., Petetta, A., Bargione, G., Li Veli, D., Brčić, J., Sala, A., 2021. An overview of bottom trawl selectivity in the Mediterranean Sea. *Mediterranean Marine Science* 22(3), 566-585 (doi:10.12681/mms.26969).
6. Mytilineou, C., Herrmann, B., **Sala, A.**, Mantopoulou-Palouka, D., Megalofonou, P., 2021. Estimating overall size-selection pattern in the bottom trawl fishery for four economically important fish species in the Mediterranean Sea. *Ocean and Coastal Management* 209: 105653 (doi:10.1016/j.ocecoaman.2021.105653).
7. Mytilineou, C., Herrmann, B., Mantopoulou-Palouka, D., **Sala, A.**, Megalofonou, P., 2021. Escape, discard, and landing probability in multispecies Mediterranean bottom-trawl fishery. *ICES Journal of Marine Science*, 1-14 (doi:10.1093/icesjms/fsab048).
8. Bonanomi, S., Brčić, J., Herrmann, B., Notti, E., Colombelli, A., Moro, M., Pulcinella, J., **Sala, A.**, 2020. Effect of a lateral square-mesh panel on the catch pattern and catch efficiency in a Mediterranean bottom trawl fishery. *Mediterranean Marine Science* 21(1), 105-115 (doi:10.12681/mms.21955).
9. Vasapollo, C., Virgili, M., Petetta, A., Bargione, G., **Sala, A.**, Lucchetti, A., 2019. Bottom trawl catch comparison in the Mediterranean Sea: Flexible Turtle Excluder Device (TED) vs traditional gear. *PLoS ONE* 14(12): e0216023 (doi:10.1371/journal.pone.0216023).
10. **Sala, A.**, Notti, E., Bonanomi, S., Pulcinella, J., Colombelli, A., 2019. Trawling in the Mediterranean: an exploration of empirical relations connecting fishing gears, otterboards and propulsive characteristics of fishing vessels. *Frontiers in Marine Science* 6(534): 1-15 (doi:10.3389/fmars.2019.00534).
11. Notti, E., Figari, M., **Sala, A.**, Martelli, M., 2019. Experimental assessment of the fouling control coating effect on the fuel consumption rate. *Ocean Engineering* 188: 1-6 (doi:10.1016/j.oceaneng.2019.106233).
12. Pulcinella, J., Bonanomi, S., Colombelli, A., Fortuna, C.M., Moro, F., Lucchetti, A., **Sala, A.**, 2019. Bycatch of Loggerhead Turtle (*Caretta caretta*) in the Italian Adriatic midwater pair trawl fishery. *Frontiers in Marine Science* 6(365): 1-11 (doi:10.3389/fmars.2019.00365).
13. Kalogirou, S., Pihl, L., Maravelias, C.D., Herrmann, B., Smith, C.J., Papadopoulou, N., Notti, E., **Sala, A.**, 2019. Shrimp trap selectivity in a Mediterranean small-scale-fishery. *Fisheries Research* 211: 131-140 (doi:10.1016/j.fishres.2018.11.006).
14. Bonanomi, S., Colombelli, A., Bucciarelli, B., De Angelis, R., **Sala, A.**, 2019. Serving local fish in school meals: the nutritional importance of consuming oily fish. *Sustainability* 11(14),3990: 1-10 (doi:10.3390/su11143990).
15. Vitale, S., Milisenda, G., Gristina, M., Baiata, P., Bonanomi, S., Colloca, F., Gancitano, V., Scannella, D., Fiorentino, F., **Sala, A.**, 2018. Towards more selective Mediterranean trawl fisheries: are juveniles and trash excluder devices effective tools for reducing undersized catches? *Scientia Marina* 82S1: 215-223 (doi:10.3989/scimar.04751.28A).
16. Brčić, J., Herrmann, B., **Sala, A.**, 2018. Predictive models for codend size selectivity for four commercially important species in the Mediterranean bottom trawl fishery in spring and summer: effects of codend type and catch size. *PLoS ONE* 13(10): e0206044 (doi:10.1371/journal.pone.0206044).
17. Lucchetti, A., Notti, E., **Sala, A.**, Virgili M., 2018. Multipurpose use of side-scan sonar technology for fisheries science. *Canadian journal of fisheries and aquatic sciences* 75: 1652-1662 (doi:10.1139/cjfas-2017-0359).
18. Amoroso, R.O., Pitcher, C.R., Rijnsdorp, A.D., McConnaughey, R.A., Parma, A.M., Suuronen, P., Eigaard, O.R., Bastardie, F., Hintzen, N.T., Althaus, F., Baird, S.J., Black, J., Buhl-Mortensen, L., Campbell, A.B., Catarino, R., Collie, J.S., Cowan, J.H., Durholtz, D., Engstrom, N., Fairweather, T.P., Fock, H.O., Ford, R., Gálvez, P.A., Gerritsen, H.D., Góngora, M.E., Jessica González, Jan Geert Hiddink, Kathryn M. Hughes, Steven S Intelmann, Christopher Jenkins, Patrik Jonsson, Kainge, P., Kangas, M., Kathena, J.N., Kavadas, S., Leslie, R.W., Lewis, S.G., Lundy, M., Makin, D., Martin, J., Mazor, T., Mirelis, G.G.,

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19. **Sala, A.**, Lucchetti, A., Sartor, P., 2018. Technical solutions for European small-scale driftnets. *Marine Policy* 94: 247-255 (doi:10.1016/j.marpol.2018.05.019).
 20. Mytilineou, C., Herrmann, B., Mantopoulou-Palouka, D., **Sala, A.**, Megalofonou, P., 2018. Modelling gear and fishers size-selection for escapees, discards and landings: a case study in Mediterranean trawl fisheries. *ICES Journal of Marine Science* fsy047 (doi:10.1093/icesjms/fsy047).
 21. **Sala, A.**, 2018. Influence of tow duration on catch performance of trawl survey in the Mediterranean Sea. *PLoS ONE* 13(1): e0191662 (doi:10.1371/journal.pone.0191662).
 22. Brčić, J., Herrmann, B., **Sala, A.**, 2018. Can a square-mesh panel inserted in front of the codend improve size and species selectivity in Mediterranean trawl fisheries? *Canadian journal of fisheries and aquatic sciences* 75(5): 704-713, (doi:10.1139/cjfas-2017-0123).
 23. Soma, K., Nielsen, J.R., Papadopoulou, N., Polet, H., Zengin, M., Smith, C., Eigaard, O.R., **Sala, A.**, Bonanomi, S., van den Burg, S., Piet, G.J., Buisman, E., Gumus, A., 2018. Stakeholder perceptions in fisheries management - Sectors with benthic impacts. *Marine Policy* 92: 73-85 (doi:10.1016/j.marpol.2018.02.019).
 24. Bonanomi, S., Pulcinella, J., Fortuna, C.M., Moro, F., **Sala, A.**, 2018. Elasmobranch bycatch in the Italian Adriatic pelagic trawl fishery. *PLoS ONE* 13(1): e0191647 (doi:10.1371/journal.pone.0191647).
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 26. Utizi, K., Notti, E., **Sala, A.**, Buzzi, A., Rodella, I., Simeoni, U., Corbau, C., 2018. Impact assessment of EMFF measures on Good Environmental Status (GES) as defined by Italy. *Marine Policy* 88: 248-260 (doi:10.1016/j.marpol.2017.12.003).
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 28. Tsagarakis, K., Carbonell, A., Brčić, J., Bellido, J.M., Carbonara, P., Casciaro, L., Edridge, A., García, T., González, M., Krstulović Šifner, S., Machias, A., Notti, E., Papantoniou, G., **Sala, A.**, Škeljo, F., Vitale, S., Vassilopoulou, V., 2017. Old Info for a New Fisheries Policy: Discard Ratios and Lengths at Discarding in EU Mediterranean Bottom Trawl Fisheries. *Frontiers in Marine Science* 4(99): 1-13 (doi:10.3389/fmars.2017.00099).
 29. Bonanomi, S., Colombelli, A., Malvarosa, L., Cozzolino, M., **Sala, A.**, 2017. Towards the Introduction of Sustainable Fishery Products: The Bid of a Major Italian Retailer. *Sustainability* 438(9): 1-8 (doi:10.3390/su9030438).
 30. **Sala, A.**, Brčić, J., Herrmann, B., Lucchetti, A., Virgili, M., 2017. Assessment of size selectivity in hydraulic clam dredge fisheries. *Canadian journal of fisheries and aquatic sciences* 74: 339-348 (doi:10.1139/cjfas-2015-0199).
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 33. Capasso, C., Veneri, O., Notti, E., **Sala, A.**, Figari, M., Martelli, M., 2017. Preliminary design of the hybrid propulsion architecture for the research vessel "G. Dallaporta". *International Conference on Electrical Systems for Aircraft, Railway, Ship Propulsion and Road Vehicles & International Transportation Electrification Conference (ESARS-ITEC)*, ISBN:978-1-5090-0814-8, 6 pp (doi:10.1109/ESARS-ITEC.2016.7841342).
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35. Bonanomi, S., Brčić, J., Colombelli, A., Notti, E., Pulcinella, J., **Sala, A.**, 2017. Fisheries Bycatch of Chondrichthyes. In Da Silva Rodrigues Filho and De Luna Sales (Eds.) *Chondrichthyes - Multidisciplinary Approach*. InTech Publisher, ISBN 978-953-51-3712-2: 39-62.
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