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EDUCATION

2018: Ph.D. in Experimental Marine Ecology, School of Biological Sciences, Marine Ecology Research Group, University of Canterbury, New Zealand.

Dissertation: *Testing when and how habitat cascades control biodiversity of marine benthic ecosystems.*

2012: M.Sc. with honors in Biology and Ecology of Marine and Coastal Environment, University of Study of Messina, Italy.

Thesis: *Photo-quadrats technique and use of CPCe software for the evaluation of the impact of recreational diving on the macroalgae coverage of 'Zenobia' shipwreck (Cyprus - Mediterranean Sea).*

2009: B.Sc. in Biological Sciences, University of Study of Catania, Italy.

Thesis: *Parablennius sanguinolentus (Pallas, 1814): an example of Teleost Blenniidae bioindicator.*

WORK EXPERIENCE

2025 - to date: Senior Research Officer, Applied Research & Innovation Centre, MCAST - The Malta College of Arts, Science & Technology, Malta.

- Research project management and coordination.
- Research and Innovation.
- Identification of technologies and methodologies to support and build upon the research framework.
- Steer pre- and post-award research teams for research initiatives, projects and grants.
- Ensuring all research projects fully abide by the financial and operational metrics and guidelines.
- Support the Research Ethics Board in analyzing and reporting on research proposals.

2022 - 2025: Head of Marine and Fisheries Department, Senior Marine Biologist / R&D Scientist, AquaBioTech Group, Malta.

- Environmental consultancy based on marine and fisheries projects for private and government bodies.
- Research and development.
- Oversee GIS and remote sensing operations.
- Management of project teams, reporting, and regulatory compliance.

2021 - 2022: Senior Freshwater and Marine Ecologist, Wildland Consultants Ltd, New Zealand.

- Environmental consultancy based on marine and freshwater habitats. EclA, EIA, AIA.
- Provided consultancy for sustainable energy and environmental policies.

2018 - 2021: Senior Fishery Ranger / Project Manager, Department of Conservation, New Zealand Government.

- Management of fisheries, compliance, and biosecurity programs.
- Management of staff, training, and operational logistics.

2018 - 2021: Casual Researcher - Marine Ecologist.

- Marine Ecology Research Group, University of Canterbury: Drone surveys and monitoring; Habitat mapping; Intertidal surveys.
- Leigh Marine Laboratory, The University of Auckland: Scientific diving and subtidal surveys.

2012 - 2015: Technical Advisor and Project Manager, Eco Divers - Centre of Underwater Scientific Activities, Italy.

- Management and delivery of marine conservation projects and monitoring programs.
- Habitat assessments and impact studies.

2011: Marine Biologist, AP Marine Environmental Consultancy Ltd., Cyprus.

- Biodiversity research and shipwreck ecology studies.
- Artificial reef ecology and anthropogenic impact assessment.

2009: Biologist, Department of Biological Sciences, University of Study of Catania, Italy.

- Anthropogenic impact assessment based on marine ecotoxicology and biomarker analysis.

PROFESSIONAL DEVELOPMENT

- 2025:** *'Artificial Intelligence Fundamentals'*, IBM (USA).
- 2024:** *'Machine Learning with Python'*, IBM (USA).
- 2024:** *'Python for Data Science'*, *'Analyzing Data with Python'*, and *'Visualizing Data with Python'*, IBM (USA).
- 2024:** *'Programming with Python'* and *'Python Data Structure'*, University of Michigan (USA).
- 2024:** *'Assessing Ecosystem Health using Copernicus Marine Data'*. Copernicus Marine Service.
- 2024:** *'Nuclear energy: Science, Systems and Society'*, Massachusetts Institute of Technology (USA).
- 2024:** *'Understanding Nuclear Energy'*, Delft University of Technology (NL).
- 2023:** *'Unmanned Aerial Systems (UAS): Fundamentals'*, University of Alaska Fairbanks (USA).
- 2023:** *'Coral Reefs: Introduction to Challenges and Solutions'*, University of Queensland (AUS).
- 2023:** *'R Programming Basics for Data Science'*, IBM (USA).
- 2023:** *'Introduction to SQL'*, Davidson College (USA).
- 2023:** *'Drones for Agriculture: Prepare and Design Your Drone (UAV) Mission'*, Wageningen University & Research (NL).
- 2023:** *'Analyzing and Visualizing Data with Power BI'*, Davidson College (USA).
- 2023:** *'Tropical Coastal Ecosystems'*, University of Queensland (AUS).
- 2023:** *'Nuclear Reactor Physics Basics'*, University of Memphis (USA).

TECHNICAL SKILLS

Expertise and Operations

- Environmental consultancy, project management and coordination.
- Biodiversity and sensitive habitat mapping, assessment, conservation, restoration, rehabilitation, management, and monitoring.
- Species interactions, meta-community, ecosystem functioning, population dynamics.
- Benthic studies in canopy-forming seaweeds-dominated systems, rocky shores, seagrasses beds and soft-bottom estuaries.
- Artificial habitats and reefs for conservation and restoration purposes, shipwreck ecology.
- Marine Protected Areas (MPA) development and management.
- Native and pest-species surveys and monitoring. Biosecurity.
- Research and development (R&D), integrating cutting-edge technologies to environmental science.
- Drone (UAV) operations, ROV surveys, and scientific diving.
- Image analysis and processing, computer vision, deep-learning (YOLO, Faster R-CNN).
- GIS and remote sensing, satellite imagery, spatial planning, photogrammetry, and 3D modelling.
- Data analysis and statistics. Experimental designs, multi-factorial analysis and quantitative ecology.
- Ecological, Environmental and Anthropogenic Impact Assessments (EcIA, EIA, AIA). Project Description Statement (PDS). Marine Baseline Environmental Reports (MBES). Monitoring and Management Plans. Stream Ecological Valuation (SEV).
- Staff supervision and training. Plan and monitor the annual, monthly, and weekly work program. Monitor operations, delivery performance, and expenditure. Health and Safety.

Informatic Skills

- Programming: Python, HTML, CSS, Java, C++.
- Statistics and databases: RStudio, PRIMER/PERMANOVA+, PAST, PowerBI, Minitab, SigmaPlot, pgAdmin, PostgreSQL.
- GIS: Quantum GIS, Ocean Data View (ODV), Copernicus Data Hub.
- Satellite imagery: Google Earth Engine, Copernicus Hub.
- Management and planning: SAP NetWeaver, SAP Business Intelligence, Microsoft Project, MyPM, AMIS, Risk Manager.
- Image and video: CPcE, ImageJ, Photoshop, GIMP, Adobe Premiere, Pinnacle.
- Drone: DroneDeploy, MapMadeEasy, GroundControl.
- Modelling and photogrammetry: Pix4D, Autodesk Memento, Agisoft Metashape, SketchUp.

OTHER SKILLS AND COMPETENCIES

Field work

- Basic Life Support: First Aid, CPR, AED habilitation, oxygen provider. GPS, PLBs and EPIRBs.
- Sectoral Training and Work Committee (STWC): Fire Prevention and Fire Fighting, Personal Survival Techniques, Personal Safety and Social Responsibility, MG2I, MCAST.
- 4WD in off-road environment. UBCO dual electric drive motor bike.
- Unmanned Aerial Vehicles (UAV): European Licenses A1/A3, A2. Advanced Remote Pilot Certificate, Part 102, CAA of New Zealand.
- Remotely-Operated Vehicles (ROV).
- Electric Fishing Machine Operator.

Boating and Diving Skills

- Scientific Diving: Occupational Diving Certificate of Competency, Worksafe NZ.
- Boat Master: MF, HF, VHF Marine Radio Operator and EPIRB, Maritime Restrictive Radio Operator.
- Dive master CMAS. III level Apnea Academy. Nitrox EAN 40%. Full Face Mask operator. Diver Propulsion Vehicle operator.
- Excellent underwater video and photographic skills (www.alfonsosiciliano.com).

Languages

- Italian (native), English (C2), Spanish (B2), Greek (A2).

RECENT TEACHING AND MENTORING

2024-2025: M.Sc. lecturing for ECOLUTION (master's Course on smart sustainability solutions): 'Management of natural resources', 'Wetland conservation and management', 'Drone systems', 'Environmental engineering', and 'Ecological data processing'.

2024: M.Sc. lecturing for The Malta College of Arts, Science & Technology (MCAST): 'Overview of Common Fisheries Policies, Legislations, and Directives in the Mediterranean Sea', and 'Environmental Impact Assessment: framework, protocols, and methodologies'. Malta.

Since 2011, provided mentoring for 11 students (BSc and MScs), and provided guidance as laboratory demonstrator at the University of Canterbury.

PEER-REVIEW SERVICES

Zeng C., Li D., Wang B., Jin H., Ye R., Sun Q., Jiang Z., Tao Y., Ma X., Liu Q., Li H., Chen J., 2025, 'Influence of nitrate sources on summer algal bloom in the Changjiang plume revealed by high-resolution profiles'. Marine Environmental Research.

Clemente K.J.E. and Thomsen M.S., 2025, 'Co-occurring foundation species increase habitat heterogeneity across estuarine intertidal environments on the South Island of New Zealand'. Marine Environmental Research.

RECENT/RELEVANT PUBLICATIONS

Siciliano A., submitted, 'Prioritizing Ecological Values with Sequential Hierarchical Intersection Layers (SHIL): A Case Study from a Mediterranean Biodiversity Hotspot'. Journal for Nature Conservation.

Siciliano A., Deguara D., Scerri D., Olatoye D.S., Zama F., Dimech S., Sililo N., Boujmil I., Pierucci M., Paolacci S., **submitted,** 'Advancing marine benthic habitat and species identification using AI-driven computer vision: a Mediterranean marine ecosystem case study'. Journal of Machine Learning Research.

Boujmil I., Karovic S., Zama F., Olatoye D.S., Klenczner T.A., **Siciliano A.,** Dimech S., Sililo N., Sacco O., Pierucci M., Deguara D., Scerri D., Theuma L., Paolacci S., 2024, 'Automated benthic detection and identification system of key marine features through machine learning, machine vision prototypes and artificial neural networks'. Poster at BEING SEA-EU conference.

Chantzaropoulos A., Robinson F., Fernandez D., Howard C., **Siciliano A.,** Ssekandi J., Kiggundu N., Kasozi N., Ogello E., Maro J., Raswio R., Hoinkis J., Paolacci S., 2024, 'Mapping of the integrated aqua-agriculture practices in East Africa, as part of the EU-funded Horizon project PrAEctice'. Poster at Aquaculture Africa 2024 Conference and Exposition. November, 2024, Tunisia.

Thomsen M.S., Altieri A.H., Angelini C., Bishop M.J., Buller F., Farhan R., Fruling V., Harrison S., Gribben P.E., Klinghardt M., Langeneck J., Lanham B.S., Mondardini L., Mulders Y., Oleksyn S., He Q., Ramus A., Schneider T., Schiel D.R., **Siciliano A.,** Silliman B.R., Smale D., South P.M., Wernberg T., Zhang S., Zott G., 2022, 'Heterogeneity within and among co-occurring foundation species increases biodiversity', Nature Communications.

Thomsen M.S., Metcalfe I., **Siciliano A.,** South P.M., Gerrity S., Alestra T., Schiel D.R., 2020, 'Earthquake-driven destruction of an intertidal habitat cascade', Aquatic Botany.

Siciliano A., Thomsen M.S., Schiel D.R., 2019, 'Effects of local anthropogenic stressors on an habitat cascade in a estuarine seagrass system', Marine and Freshwater Research.

Siciliano A., Thomsen M.S., Schiel D.R., 2018, 'Testing when and how habitat cascades control biodiversity of marine benthic ecosystems', Ph.D. thesis, University of Canterbury.

Thomsen M.S., Hildebrand T., South P.M., Foster T., **Siciliano A.,** Oldach E., Schiel D.R., 2016, 'A sixth-level habitat cascade increases biodiversity in an intertidal estuary', Ecology and Evolution.

Siciliano A., Jimenez C., Petrou A., 2016, 'Recreational diving and its effects on the macroalgal communities of the unintentional artificial reef Zenobia shipwreck (Cyprus)', Journal of Oceanography and Marine Research.

Provenzano G., **Siciliano A.,** 2013, 'Ecological assessment of the current state of the Isola Bella's Marine Protected Area (Sicily, Italy)', B.Sc. thesis, Alma Mater Studiorum - University of Bologna.

RECENT/RELEVANT TECHNICAL REPORTS

- Siciliano A.**, Bojamil I., 2025. 'Machine Learning detection model report: image processing and labeling in Roboflow, Model training and validation'. Report prepared for government organization.
- Dimara A., Krinidis S., Figurella F., Bargiota E., Karavidas A., Alexandros V., Pieri M., **Siciliano A.**, Bojamil I., 2024. 'UnderWater Cultural Heritage Assets' Safeguarding, Services, and UW Health & Safety'. Report prepared for government organization.
- Boujamil I., **Siciliano A.**, Dimech S., Sililo N., 2024. 'Autonomous Bio-mimetic Underwater Vehicle for Digital Cage Monitoring | AMBULANT'. Report prepared for government organization.
- Gambino E., **Siciliano A.**, 2024. 'Report on a survey of sediment quality at sites in il-Ħofra ż-Żgħira and at Delimara (Marsaxlokk Bay), undertaken as part of the requirements of the IPPC permit for the Delimara Power Station'. Report prepared for private client.
- Suarez F.M., **Siciliano A.**, 2024. 'Report on the diving survey performed at Golden Bay, as part of a cable route survey on Malta's continental shelf in connection with a proposed Medusa submarine telecommunications cable'. Report prepared for private client.
- Boujamil I., Sililo N., **Siciliano A.**, 2024. 'Blue Culture Technology Excellence Hubs in EU Widening Member States | BCTHubs'. Report prepared for government organization.
- Boujamil I., Galea J., **Siciliano A.**, 2024. 'Autonomous Network System with Specialized and Integrated Multi-Sensor Technology for Dynamic Monitoring of Marine Pollution | SMARTPOL'. Report prepared for government organization.
- Sililo N., Dimech S., **Siciliano A.**, 2023. 'Impact of Reverse Osmosis discharges on the marine environment'. Report prepared for private client.
- Siciliano A.**, Sililo N., Dimech S., 2023. 'Surveys to assess the impacts of anchoring/mooring activity, and the socio-economic assessment of management options: Assessment of impacts through localized surveys'. Report prepared for government organization.
- Pluda E., Sililo N., Dimech S., **Siciliano A.**, 2023. 'Surveys to assess the impacts of anchoring/mooring activity, and the socio-economic assessment of management options: Spatio-temporal analysis report'. Report prepared for government organization.
- Siciliano A.**, Gambino E., Tessarolo C., 2023. 'Electrical InterConnector 2 - Environmental and biodiversity baseline report'. Report prepared for private client.
- Gambino E., **Siciliano A.**, Tessarolo C., 2023. 'Electrical InterConnector 2 - Posidonia oceanica and sensitive habitats study'. Report prepared for private client.
- Haddi I., Galea J., **Siciliano A.**, 2023. 'Service Tender for the Provision of Monitoring and Assessment of Exploited Marine Species in Maltese Waters'. Report prepared for government organization.
- Siciliano A.** and Hartley A.G., 2022-2023. 19x Marine Baseline Environmental Survey reports for Red Sea and Gulf of Aqaba sites. Reports prepared for private client.
- Goldwater N., Peart J., **Siciliano A.**, Budd S., 2022. 'Assessment of terrestrial ecological effects of the proposed Palmerston North wastewater consenting project'. Report prepared for government organization.
- McQueen J., Mackay J., Smith V., **Siciliano A.**, Thoresen J., Tidwell L., Bennet D., 2022. 'Effects of constructing, operating, and maintaining high voltage transmission lines on biodiversity: how to reach a net gain'. Report prepared for private client.
- Siciliano A.**, Lloyd K., 2022. 'Ecosystem prioritisation methods and Zonation data vetting in Otago, New Zealand'. Report prepared for government organization.
- Bycroft C., McQueen J., McQuillan A., Renner M., Tidwell L., Buckley E., Funnell I., West M., **Siciliano A.**, Deacon L., 2022. 'Ecological monitoring of geothermal vegetation in the Wairākei and Ohaaki geothermal fields, 2022'. Report prepared for private client.
- Siciliano A.**, Goldwater N., 2022. 'Assessment of environmental effects for water take below minimum flow at Waipaoa River, Gisborne, New Zealand'. Report prepared for government organization.
- Konlechner T., **Siciliano A.**, Gallagher E., Smith V., Patrick B., Mazzieri F., Smith S., 2022. 'Evaluation of freshwater invertebrate features and values at Lake Onslow, Central Otago, New Zealand'. Report prepared for government organization.
- McQueen S., Papworth N., **Siciliano A.**, Thorpe C., McKay J., Mazzieri F., McQueen J., 2022. 'Ecological Impact Assessment for the Foxton flood mitigation project, New Zealand'. Report prepared for government organization.

RECENT/RELEVANT CONFERENCE PAPERS

- Boujamil I., **Siciliano A.**, Dimech S., Sililo N., Sacco O., Pierucci M., Deguara D., Scerri D., 2024. 'Automated benthic detection and identification system of key marine features through machine learning, machine vision prototypes and artificial neural networks'. BEING SEA-EU Conference. Malta.
- Siciliano A.**, 2023. Final Dissemination Conference of the Excellent Mediterranean Net (MEN). Malta College of Arts, Science, and Technology (MCAST). Malta.
- Siciliano A.**, 2023. 'ABTG as a case study of successful cross-border opportunities for the Research, Regulation and Environment Protection sectors'. Malta College of Arts, Science, and Technology (MCAST). Malta.
- Siciliano A.**, 2019. 'Effects of water temperature and oxygen concentration on survival rate of rainbow trout - A case study from Lake Otamangakau'. Tongariro Power Scheme Annual Consultative Hui. Genesis Tokaanu Power Station, New Zealand.

- Dedual M, **Siciliano A.**, 2018. '*Behavioural response of Taupo anglers to new liberal fishing regulations*'. New Zealand Freshwater Science Society. Nelson, New Zealand.
- Siciliano A.**, 2018. '*Implementing a VAKI River-watcher fish counter in the Taupo Fishery*'. Tongariro Power Scheme Annual Consultative Hui. Genesis Tokaanu Power Station, New Zealand.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2017. '*Host variety enhances diversity: the role of multiple secondary habitat-forming seaweeds in facilitating estuarine invertebrates' communities*'. New Zealand Marine Science Society. University of Canterbury, New Zealand.
- Thomsen M.S., Metcalfe I., **Siciliano A.**, Alestra T., Lilley S., Gerrity S., Schiel D.R., 2017. '*Habitat cascades destroyed in the Kaikoura earthquake*'. New Zealand Marine Science Society. University of Canterbury, New Zealand.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2016. '*Effects of seaweeds, nutrients and sedimentation on seagrass and seagrass-associated fauna*'. Annual Biology Conference. University of Canterbury, New Zealand.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2016. '*Variability in habitat cascades across sites, environmental conditions, host and epiphyte species and underpinning mechanistic test-factors*'. Australian Marine Science Association - New Zealand Marine Science Society. Victoria University of Wellington, New Zealand.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2016. '*Epiphytism as key driver of biodiversity in canopy-forming seaweeds-dominated systems*'. 11th International Temperate Reefs Symposium. University of Pisa, Italy.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2015. '*Cascading effects of epiphytism associated with co-occurring congeneric hosts*'. New Zealand Ecological Society. University of Canterbury, New Zealand.
- Siciliano A.**, Thomsen M.S., Schiel D.R., 2015. '*Epiphytism and cascading effects associated with co-occurring habitat formers*'. Annual Biology Conference. University of Canterbury, New Zealand.