

## Alfonso Siciliano, Ph.D.

Head of Marine and Fisheries Department & Senior Marine Biologist / Scientist  
AquaBioTech Group, Malta

Italian citizen, Malta resident, New Zealand resident

Phone: +39 379 11 89 052 (IT)

E-mail: [sicilianoalfonso@gmail.com](mailto:sicilianoalfonso@gmail.com)

Website: [www.alfonsosiciliano.com](http://www.alfonsosiciliano.com)



### EDUCATION

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

**2022 - to date: Head of Marine and Fisheries Department, Senior Marine Biologist / Scientist, AquaBioTech Group, Malta.**

Marine habitat survey, monitoring, and mapping; Community ecology, species interactions, ecosystem functioning; Statistical analysis; Scientific diving; Macrobenthos, phyto- and zooplankton; Environmental Impact Assessment (EIA); Marine Baseline Environmental Reports (MBES); Preliminary Reconnaissance Marine Survey (PRMS); Environmental Monitoring and Management Plans; Marine Protected Areas (MPA) management; GIS for habitat mapping and spatial planning; ROV inspections and UAV surveys; Bathymetric and oceanographic surveys (SSS, MBS, SBP); Training courses.

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

Freshwater and marine ecological and habitat survey, monitoring, and mapping; Community ecology, species interactions, ecosystem functioning; Environmental and Anthropogenic Impact Assessments (EIA, AIA); Assessment of Ecological Effects (AEE); Sustainable energy power plants planning and development; National and regional policies and consents; Biosecurity; Ecosystem restoration and rehabilitation; Scientific diving and benthic surveys and monitoring; Remotely-piloted aircraft system (RPAS) operations, photogrammetry, mosaiced georeferenced aerial imagery; Geographic Information Systems (GIS) and 2D-3D mapping and modelling; Stream Ecological Valuation (SEV), Stream Enhancement Plans, Fish Management Plans; Experimental multi-factorial designs, quantitative ecology, statistical analysis; Staff supervision and training.

**2018 - 2021: Senior Fishery Ranger / Planner, Taupo Fishery, Department of Conservation, New Zealand Government.**

Project management and coordination; Freshwater ecological research; Native fish surveys and monitoring; Pest-fish monitoring and surveillance; Data analysis and reporting; Plan and monitor the annual, monthly, and weekly work program; Monitor field operations, delivery performance, and expenditure; Business intelligence, plan, phase and track budget and variances; Resource Management Act and consents; Policies writing and review; Supporting and promoting excellent standards of H&S; Fishery management; Compliance.

**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.**

Project management and coordination; Ecological research based on underwater studies, benthic communities, artificial reefs, native and non-native species monitoring; Environmental and Anthropogenic Impact Assessments (EIA, AIA); Coordinating initiatives and internships in collaboration with Universities and MPAs.

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

Delivering ecological research based on Environmental and Anthropogenic Impact Assessments (EIA, AIA), shipwrecks' ecology, artificial reefs and species interactions in benthic communities.

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

Delivering ecological research based on Environmental and Anthropogenic Impact Assessments (EIA, AIA) and marine ecotoxicology, analysis of biomarkers and bioindicators.

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**PROFESSIONAL DEVELOPMENT**

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**2023:** *'Unmanned Aerial Systems (UAS): Fundamentals'*, University of Alaska Fairbanks (USA).

**2023:** *'Coral Reefs: Introduction to Challenges and Solutions'*, University of Queensland (AUS).

**2023:** *"Assessing Ecosystem Health using Copernicus Marine Data"*. Copernicus, Copernicus Marine Service, Mercator Ocean International, and Gopacom (MT).

**2023:** *"Coastal Protection Strategy. C-COVER: Coastal-Climate Overall Vulnerability and Exposure Risk. Malta National Workshop"*. Public Works Department (MT).

**2023:** *'R Programming Basics for Data Science'*, IBM (USA).

**2022:** *'Introduction to SQL'*, Davidson College (USA).

**2022:** *'Drones for Agriculture: Prepare and Design Your Drone (UAV) Mission'*, Wageningen University & Research (NL).

**2021:** *'Analyzing and Visualizing Data with Power BI'*, Davidson College (USA).

**2021:** *'Tropical Coastal Ecosystems'*, University of Queensland (AUS).

**2021:** *'Nuclear Reactor Physics Basics'*, University of Memphis (USA).

**2021:** *'Understanding Nuclear Energy'*, Delft University of Technology (NL).

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**RECENT TEACHING AND MENTORING**

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**2020:** Mentor (L. Poulsen - Drone surveys), Kaitiaki Whenua Trainee Ranger, Nelson Marlborough Institute of Technology, New Zealand.

**2017:** Laboratory demonstrator (*'Habitat formers' effects on estuarine biodiversity'*), University of Canterbury, New Zealand.

**2017:** M.Sc. student mentor (L. Mondardini), University of Canterbury, New Zealand.

**2017:** B.Sc. student mentor (N. Ligtenbarg - Project: *'Testing the role of primary and secondary habitat-formers in shaping habitat cascades in a soft-bottom estuary'*), University of Canterbury, New Zealand, in association with Has University Den Bosch, Netherlands.

**2016:** Laboratory demonstrator (*'Biodiversity in soft-bottom estuaries' ecosystems'*), University of Canterbury, New Zealand.

**2014:** M.Sc. internship student mentor (S. Cunsolo - Scientific diving), University of Study of Catania in association with Eco Divers - Centre of Underwater Scientific Activities, Italy.

**2013:** B.Sc. internship-thesis student mentor (G. Provenzani - Thesis: *'Ecological assessment of the quality of the Isola Bella's Marine Protected Area (Sicily, Italy)'*), Alma Mater Studiorum - University of Bologna in association with Eco Divers - Centre of Underwater Scientific Activities, Italy.

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**TECHNICAL SKILLS**

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**Ecology**

- Species interactions, meta-community, ecosystem functioning, population dynamics, native and non-native species;
- Habitat assessment, monitoring, conservation and restoration;
- Artificial habitats and reefs for conservation and restoration purposes, shipwreck ecology;
- Experimental designs, multi-factorial analysis and quantitative ecology;
- Benthic studies in canopy-forming seaweeds-dominated systems, rocky shores, seagrasses beds and soft-bottom estuaries;
- Drone surveys, habitat mapping, and ground-truthing, photogrammetry, mosaiced georeferenced aerial imagery;
- Macroinvertebrate taxonomy, stereo and compound microscopes, biotic indices;
- Biological underwater sampling and underwater video-photographic techniques;
- Extraction and reading of otoliths;
- Fractals and morphometric analysis, 3D modelling and printing, Image analysis and processing;
- Environmental and Anthropogenic Impact Assessments (EIA, AIA): Analysis of bioindicators/biomarkers and matrices; Cytological and molecular analysis for ecotoxicological assessment;
- Fishery management, legislation, law enforcement and compliance;
- Freshwater fish biology, native and non-native fish monitoring;
- Electric-fishing; Echo-sounding.

**Informatic Skills**

- Advanced knowledge of Windows OS, MS Office, HTML, CSS, Java, C++;
- Statistics and databases: RStudio, pgAdmin, PostgreSQL, PowerBI, PRIMER v6, PERMANOVA+, PAST, Minitab, SigmaPlot, SSPS;
- Drone: DroneDeploy, Pix4D, MapMadeEasy, Agisoft Metashape, GroundControl;
- GIS: Quantum GIS;
- Work management and planning: SAP NetWeaver, SAP Business Intelligence, MyPM, AMIS, Risk Manager;
- Image, video, 3D modelling: CPCe, ImageJ, Photoshop, GIMP, Adobe Premiere, Pinnacle, Autodesk Memento, SketchUp.

**OTHER SKILLS AND COMPETENCIES****Field work**

- Warrant Officer toward the Conservation Act 1987, Department of Conservation, New Zealand;
- Basic Life Support: First Aid, CPR, AED habilitation, oxygen provider; GPS, PLBs and EPIRBs; River crossing and self-rescue in remote locations;
- 4WD in off-road environment; UBCO dual electric drive motor bike;
- Drones: European Licenses A1/A3, A2; Advanced Remote Pilot Certificate, Part 102, Civil Aviation Authority of New Zealand;
- 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](http://www.alfonsosiciliano.com)).

**Languages**

- Italian (native), English (fluent), Spanish (fluent).

**RECENT PUBLICATIONS**

- Thomsen M.S., Altieri A.H., Angelini C., Bishop M.J., Bulleri 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.

**RECENT TECHNICAL REPORTS**

- Siciliano A.**, Sililo N., Dimech S., 2023. '*Impact of Reverse Osmosis discharges on the marine environment*'. Report 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 localised surveys*'. Report for government organization.
- Gambino E., **Siciliano A.**, 2023. '*Preliminary Reconnaissance Marine Report: Environmental and biodiversity baseline Report*'. Report for private client.
- Gambino E., **Siciliano A.**, 2023. '*Posidonia oceanica and sensitive habitats study*'. Report for private client.
- Siciliano A.** and Hartley A.G., 2023. '*Red Sea control sites Biota Survey Report*'. Report for private client.
- Siciliano A.** and Hartley A.G., 2023. '*Gulf of Aqaba control sites Biota Survey Report*'. Report for private client.
- Siciliano A.** and Hartley A.G., 2023. '*NEOM Bay Entrance Biota Survey Report*'. Report for private client.
- Siciliano A.** and Hartley A.G., 2022. '*Qead Al Shyookh Biota Survey Report*'. Report for private client.
- Siciliano A.** and Hartley A.G., 2022. '*Wadi Jubba Biota Survey Report*'. Report for private client.

- Siciliano A.** and Hartley A.G., 2022. 'Al Farshah Island Biota Survey Report'. Report for private client.
- Siciliano A.** and Hartley A.G., 2022. 'Duba Port Entrance Biota Survey Report'. Report for private client.
- Pluda E., Sililo N., Dimech S., **Siciliano A.**, 2022. 'Surveys to assess the impacts of anchoring/mooring activity, and the socio-economic assessment of management options: Spatio-temporal analysis report'. Report for government organization.
- Goldwater N., Peart J., **Siciliano A.**, Budd S., 2022. 'Assessment of terrestrial ecological effects of the proposed Palmerston North wastewater consenting project'. Report for government organization.
- Siciliano A.**, Payne R., Bennet D., Smith V., Giejsztowt J., McQueen S., 2022. 'Ecological impact assessment for boardwalks and a viewing platform at Seafield Park, Brooklands'. Report for private client.
- 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 for private client.
- Siciliano A.**, Lloyd K., 2022. 'Ecosystem prioritisation methods and Zonation data vetting in Otago, New Zealand'. Report 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 geothermal field, 2022'. Report 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 for private client.
- 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 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 for government organization.

## RECENT CONFERENCE PAPERS

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- Siciliano A.**, 2023. Final Dissemination Conference of the Excellent Mediterranean Net (MEN). Malta College of Arts, Science, and Technology (MCAST). 21 July 2023.
- 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). 19 May 2023.
- 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, 5 December.
- 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, 4-7 July.
- 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, 4-7 July.

## OTHER ACHIEVEMENTS

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- 2017:** BioSoc photo-competition 2017, University of Canterbury (New Zealand).  
Winner of 'Best underwater picture' category ([www.alfonsosiciliano.com](http://www.alfonsosiciliano.com)).
- 2016:** BioSoc photo-competition 2016, University of Canterbury (New Zealand).  
Winner of 'Laboratory', 'Videos' and 'Others' categories ([www.alfonsosiciliano.com](http://www.alfonsosiciliano.com)).
- 2014 - 2017:** Royal Society of New Zealand, Marsden Fund project (13-UOC-106, 20,000 NZ\$).
- 2013:** Video-competition "Live the Sea", Auxiliary Coast Guard (Italy).  
Video-documentary: "The simplicity of life..." ([www.alfonsosiciliano.com](http://www.alfonsosiciliano.com)).