Shaw Mead. PhD

Nationality: New Zealand

Date of Birth: 3rd February1967

Profession: Environmental Scientist/Consultant

Contact Details: Ph: +64 21 423 224 E: s.mead@ecoast.co.nz

PRESENT POSITIONS:

- Managing Director/Environmental Scientist, eCoast Ltd
- Director, Eco Surf Viti Ltd
- Lecturer and Research Provider, Unitec.

SPECIALISATION:

Coastal oceanography/engineering, beach processes, coastal hazards/SLR, climate change adaptation and resilience strategies, ecology (marine, freshwater, and terrestrial), coastal structure design and impact assessment, surf science, hydrodynamic and sediment transport numerical modelling, marine protected areas, aquaculture, environmental impact assessment, expert witness/reviewer.

YEARS OF EXPERIENCE: 27

KEY QUALIFICATIONS:

- PhD in Coastal Oceanography & Numerical Modelling, University of Waikato, New Zealand (1996-2000)
- MSc (Hons) in Environmental Science & Marine Ecology/Aquaculture, University of Auckland, New Zealand (1994-96)
- BSc in Marine Biology & Botany, University of Auckland, New Zealand (1991-93)

PROFESSIONAL MEMBERSHIPS:

- New Zealand Coastal Society (ENZ)
- New Zealand Association of Impact Assessment (NZAIA)
- International Coral Reef Society (ICRS)
- Technical Advisor for the Surfbreak Protection Society (NZ) and Save the Waves Coalition
- Editorial Board for the Journal of Coastal Conservation, Planning and Management
- New Zealand Fiji Business Council
- Registered Environmental Impact Assessment (EIA) consultant in Fiji (coastal processes, coastal engineering, marine ecology, numerical modelling)
- The Aotearoa New Zealand Association for Surfing Research (ANZASR)/the International Association of Surfing Research (IASR)
- Waikato Business Mentor

PERSONAL STATEMENT:

Dr Mead's background in coastal oceanography and marine ecology, specialising in hydrodynamic and sediment transport numerical modelling, coastal processes, coastal hazards and beach management, coastal structures/processes interactions, marine ecology and aquaculture, allows him to effectively bridge the multi-disciplinary gap between physical processes and marine ecological impacts. His PhD thesis in physical oceanography is based on a series of peer-reviewed papers that together with more than 30 popular articles, have presented novel techniques to record the shape of the seabed at surfing breaks, specify the breaking intensity of waves and to break-down surf breaks into their morphological components using numerical modelling.

Dr Mead's research and consulting have led to major advances in our knowledge of offshore reefs for the development of multiple-use structures (coastal protection, amenities such as surfing, wind-surfing, diving, fishing, and ecological enhancement), and have incorporated numerical modelling of waves, currents and sediment transport to develop the designs and assess the impacts of coastal structures over a large range of spatial and temporal scales. Dr Mead is a world-leader in the discipline of surf science and multi-purpose reef design and research, enabling the incorporation of high-quality surfing reefs into multi-purpose coastal structures. This work has also been applied to the development of recreational wave-pool designs and patents, and advising on wave generation techniques for a range of applications (e.g. for water scenes in the King Kong movie, the development of a multi-wave surf pool facility, etc.). He has also applied surf science to the protection and understanding of natural surfing breaks, was instrumental in the incorporation of New Zealand's nationally significant surfing breaks

into the New Zealand Coastal Policy Statement (NZCPS, 2010), and was recently part of a government-funded research team developing the world's first set of management and protection guidelines for surf breaks.

Commercially, Dr Mead has been involved in development of beach management and coastal remediation/protection strategies, assessments of coastal hazards, marina and beach design, ecological and physical effects of marine construction, dredging, oil industry[1] and aquaculture ventures, ecological and physical effects of subdivisions and outfalls, development of climate change resilience strategies to sea level rise, and the management and protection of surfing breaks.

Practical Experience

Dr Mead is currently an environmental scientist and Managing Director at eCoast, which is a marine consulting and research organization, focussed on applying up to date knowledge on physical and biological processes in a holistic approach to coastal, estuarine and freshwater management. Dr Mead has over 25 years' experience in marine research and consulting, has published 62 peer-reviewed publications, 2 chapters in Marine and Coastal Resource Management: Principles and Practise ('Beach Management', and 'Surf Science and Multi-Purpose Reefs'), and has solely or jointly produced over 550 technical reports pertaining to coastal management/hazards, coastal structures, erosion control, beach remediation and management strategies, surf break protection and management, marina and beach design, marine, freshwater and terrestrial ecology, coastal oceanography and aquaculture.

Dr Mead has undertaken more than 2500 consulting and research SCUBA dives around the coast of New Zealand, the Pacific Islands, Indian Ocean Islands, South Africa, Europe, Indonesia and North America, and is affiliated to the New Zealand Coastal Society (ENZ). Dr Mead is also experienced at presenting and providing expert witness evidence at resource consent Hearings and in Environment and High Court, EPA hearings, as well as public meetings and seminars. To keep up to date with the latest advances in coastal science and numerical modelling, Dr Mead regularly attends national and international conferences such as the ICCE, the Australasian Coasts and Ports and NZCS (ENZ).

Dr Mead has led or been involved in a range of projects related to all aspects of coastal management and development including design and impact studies of coastal structures, beaches, marinas and multi-purpose reefs (coastal protection, amenity and ecological enhancement) (in NZ, UK, Australia, US, Fiji, Costa Rica, Mexico, South Africa, New Caledonia, Malaysia), marine protected areas (site selection and monitoring in NZ and the South Pacific Islands), coastal process investigations to identify the causes and remedies for coastal erosion (in NZ, Australia, UK, South Africa, Indian Ocean Islands), port expansion (breakwaters and directed wave-driven currents to reduce maintenance dredging), oil field development (historically NZ and Australia; eCoast no longer engage with the oil industry), seabed mining (NZ for Greenpeace and Kiwis Against Sand Mining (KASM), Friends of Pakiri Beach), habitat enhancement (in NZ), artificial reef designs for enhancement of fisheries and tourism (in NZ, Persian Gulf, Fiji), surf break impacts and management (NZ Surfbreak Protection Society (SPS), Save the Waves, NZ Ministry of Business, Innovation and Employment), and beach management and climate change resilience strategies (Australasia, the South Pacific Islands and worldwide).

These projects have included field data acquisition, data analysis, design, impact assessment, public consultation and application for permits. Clients have included central and local government authorities, private and public corporations, international engineering and management companies, private developers, hotels and resorts, the movie industry and aid providers (NZODA, ADB, SPC, UNDP, GIZ, WB). Dr Mead took the role of the Coastal Engineer/Scientist for the Tongan and Marshall Islands components of the Pacific Community's Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS), a programme which received the 2019 Energy Globe Award (July 2019), recognised for its outstanding work and contribution towards advancing peer to peer learning in climate change adaptation among Pacific communities. The Energy Globe Award, also known as World Awards for Sustainability and Nature's Nobel Prize, is one of the most prestigious environmental awards worldwide.

Dr Mead's career is focussed on the application of environmental science for sustainable development and the management of environmentally beneficial projects, and, like his associates with eCoast, he actively seeks ways to provide clients and the community with well-balanced solutions to coastal management and development projects. He currently divides the majority of his professional time between Raglan NZ and Fiji (where he is a registered EIA consultant with the DoE).

SPECIALISED SKILLS/TRAINING AND OTHER BACKGROUND

[1] Dr Mead and his fellow Directors made a conscious decision not to work in a number of areas in 2012 due to the associated impacts on the environment that cannot be avoided, remedied or mitigated, and/or are affecting $C0_2$ emissions, climate change and sea level rise.

- Company Director, Technical Group Manager, Project Manager, Project Leader/Field work programme leader, Designer – Managing Director/Director of ASR Ltd (1997-2011), Managing Director of eCoast (2011-present), Management of technical team and consulting/construction projects, Expert Witness, design and implementation of oceanographic data collection programmes for coastal process investigations and numerical model calibration, multi-purpose reef development/design (>40 projects), design of coastal structures and beach restoration/development projects, beach and marina design, beach management and resilience strategies for sea level rise, and ecology data collection programmes for ecological assessment and monitoring.
- Coastal Engineer/Scientist for the Tongan and Marshall Islands components of the Pacific Community's Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS), a programme which received the 2019 Energy Globe Award, recognised for its outstanding work and contribution towards advancing peer to peer learning in climate change adaptation among Pacific communities. The Energy Globe Award, also known as World Awards for Sustainability and Nature's Nobel Prize, is one of the most prestigious environmental awards worldwide.
- New Zealand Coastal Society (NZCS) Professional Development Award 2020
- FETA Fijian Tourism Awards – Sustainable Tourism 2016, and Culinary Excellence 2018 (Maqai Beach Eco Resort (Eco Surf Viti Ltd))
- Entrepreneur of the Year Finalist, 2009
- While Managing Director of ASR Ltd:
  - 10th fastest growing company in New Zealand (Deloittes Fast 50)
  - Fastest exporter company in central North Island (Deloittes)
  - Fastest growing technical, media, telecommunications company in central North Island (Deloittes)
  - ANZ Waikato Export Awards 2006 Innovator of the Year (ASR Ltd).
- Computer modelling (the 3DD suite) - WBEND (wave refraction and beach erosion/deposition model), GENIUS (sediment transport), 3DD (3-dimensional hydrodynamic and sediment transport), 2DBEACH (coupled beach and sediment transport model), Pol3DD ((POLlution dispersal coupled to 3DD – sediment transport, pollutants, larvae, etc.). Data analysis. Experience with a wide range environmental parameter testing procedures and equipment (water – nutrients, chemical properties, biological properties, etc., air, sediment, etc.)
- 4th Year Environmental Law (NZ RMA 1991)
- Experienced with a variety of software applications especially in areas useful for numerical modelling, GIS and statistical analysis of data including; Surfer, AutoCAD, Grapher, SigmaStat/Plot, Matlab, Statistica, Basic FORTRAN, Mocha, Kaliedograph, Pathfinder.
- Experienced with the deployment and data analysis of a variety of oceanographic data acquisition equipment - GPS (a wide range of systems), sidescan sonar, S4, Sontek ADP, FSI, Dobie, Nortek (Aqaudopps and Profilers), Sentinel, CTD's, drones (overhead and underwater), etc.
- Lecturer – Coastal Engineering, Environmental Change, AutoCAD, Physics
- Dive Master/Occupational Scientific Diver (>2500 field-work dives)
- Day Skipper's Certificate/Restricted Radiotelephone Operator's Licence
- Martial Arts Instructor (3rd Dan)
- Senior Science Award (University of Auckland)
- Paton Cup – Highest Marks in New Zealand School Certificate Technical Drawing

Peer-Reviewed Papers: 62
Conference Papers: 15
Technical Reports: >550
International Conference Presentations: 31
National Conference Presentations: 29
Seminars and Public Presentations: 71
Expert Witness/Evidence: 78
Popular Articles: 33
Graduate Student Supervision: 17
Keynote Presentations: 14
Book Chapters: 2
Patents: 1