

## Dr Graham Edgar

Graham Edgar is best known for his writings for the wider public. His book *Australian Marine Life* is highly valued and much used by temperate marine biologists. It was awarded the Whitley Award by the Royal Zoological Society of NSW in 1997, and a companion volume on ecology, *Australian Marine Habitats*, also received a Whitley Award in 2001. The knowledge contributing to these books is deep and extensive, and many years in the making. Additional to these books, his >100 journal publications are widely recognised and highly cited in the scientific literature.



Graham is one of a few generalist marine scientists, spending time in a variety of fields, as well as interdisciplinary areas. His interests and scientific publications cover seaweed/fish/invertebrate interactions; marine biodiversity; crustacean and fish taxonomy; seagrass habitat ecology; temperate reef ecology; estuarine ecology; marine protected areas; effects of fishing, aquaculture, oil spills, sedimentation, introduced species and global warming on the marine environment; identification and protection of threatened marine species; and marine conservation planning.

He graduated with a BSc degree from University of Sydney, followed by Honours and a PhD at the University of Tasmania studying interactions between macro-algae, invertebrates and fishes. He then embarked on a series of post-doctoral studies. His first, at CSIRO's Marmion laboratory (Western Australia), examined the trophic role of lobsters in seagrass ecosystems. It was followed by a year at the Amakusa Marine Biological Laboratory in Japan where he developed a novel, and now widely-used method, for estimating secondary production of benthic communities. Subsequently, studies into the plankton, benthos and fishes in isolated Port Davey in SW Tasmania exposed him to southern Australia's most pristine temperate marine environment. This galvanised a conservation ethic and an increasing interest in the effects of human activity on marine environments.

Whilst based at Melbourne University, he investigated the effect of seagrass loss on fish and benthic invertebrates across southern Australia, with particular focus on Western Port. These studies showed the great value of ecological studies at continental scales in generating findings of broad significance. Over the next two decades he became an expert on human impacts on coastal environments, and a specialist of tanaidacean crustaceans. Pre-eminently a field worker, he developed with co-workers huge multi-year ecological data sets over broad taxonomic, temporal and spatial scales.

The effectiveness of Marine Protected Areas subsequently became a recurrent research focus, with nineteen journal papers so far published on the topic. A notable feature of this work has been collaboration with government researchers that developed into formal linkages with conservation departments in five Australian States, as well as with management and research agencies in Colombia, Ecuador, Panama and Costa Rica. Graham's strong eastern tropical Pacific connections developed from two years as leader of the Marine Science and Conservation section at the Charles Darwin Research Station in the Galapagos Islands – a turbulent period when zoning plans for the Galapagos Marine Reserve were formalised and fishery quotas negotiated. He and staff survived fisher blockades of the Station and the seizure of threatened tortoises as hostages over

sea cucumber quotas! From these experiences, he is now regarded as an authority on tropical eastern Pacific reef ecology as well.

Throughout his career, Graham has established strong links with private industry and the community. The environmental consultancy company that he formed with two others fifteen years ago (Aqueal Pty Ltd) currently employs about a dozen biologists, and has established a niche reputation for high quality environmental impact and assessment work.

Graham is now probably the best known, and most highly respected marine conservation scientist, in temperate Australia. With Dr Cath Samson, he was awarded an inaugural Mia Tegner Award by the US-based Marine Conservation Biology Institute for studies on historical changes to inshore marine ecosystems. His advocacy and work in conservation biology (some behind the scenes) include a proposal to Commonwealth authorities in the early 1990s to declare deep water seamounts as no-fishing MPAs, at a time when the idea was novel globally. This led to a study by CSIRO on trawling impacts, which resulted in a moratorium on trawling on about 70 seamounts which, in turn, has likely saved many seamounts from complete destruction of coral.

Graham's huge overall impact on government policy can be gauged from the Commonwealth's environment website where seventy reports citing his work are referenced – probably the highest number for an Australian marine ecologist. In 2007, Graham received the only Commonwealth Environment Research Facilities Significant Project grant to be awarded for a marine topic. The project's aim was to channel the enthusiasm and skills of recreational divers to allow ongoing monitoring of reefs around Australia at scales impossible for scientific teams to cover. An incorporated NGO was formed (Reef Life Survey Foundation), with >150 volunteer divers now trained and data collected from >1100 sites around the country. This is the only Australia-wide set of systematically-collected information on marine communities that encompasses this island continent. The spectacular success of the program, with its strong community linkages, led to a 'Community Action and Partnerships' award in the 2010 Victorian Coastal Awards for Excellence. Graham's efforts with Reef Life Survey continue to expand, most recently at the global level.