

Prof Craig Cary

MSc San Diego State, PhD University of California San Diego

From the depths of the world's most uninhabitable oceans, to the soils of Antarctica and New Zealand's lakes, rivers and beaches, Professor Craig Cary is a researcher with a wide range of credits to his name. Despite the varied locations of his research, the focus has remained the same since his passion for science began as a tertiary student in Southern California.

Dr Cary considers himself a Microbial Ecologist and his interest lies in researching bacteria which live in extreme environments. Such environments include deep sea thermal vents and the soils of Antarctica. He is interested in learning how bacteria in these environments establish themselves, maintain life, and evolve as communities. He is also concerned with how the bacteria are different or similar to bacteria living in other extreme environments.

His childhood was spent in Southern California, followed by 10 years in London throughout his high school years. He returned to America as a tertiary student and completed his Bachelor of Science degree in Florida, followed by a scholarship which enabled him to travel the world researching marine biology. A Master of Science (MSc) at San Diego State University, a PhD at the University of California, San Diego, post doctoral research at Oregon State University and his first job at the University of Delaware were to follow.

It was during his PhD that Dr Cary turned his focus to microbiology and became a student at the Scripps Institute of Oceanography - one of the highest ranking oceanographic science institutes in the world. With the institute he began his studies on deep sea hydrothermal vents, which involved using deep sea submersibles like the Alvin, to travel down to 2.5 km below the surface. "This was an exciting time to be involved, as this research was the first to be done to explore the unique biology of these deep-sea vents. It was also a time when molecular biology was also just taking off, moving forward in leaps and bounds," says Dr Cary.

In 2001 Dr Cary first arrived in New Zealand at the University of Waikato, on a one year sabbatical. In this time he made his first trip to Antarctica, a place he immediately realised was "a goldmine for potential research". He has since been to Antarctica seven further times.

In 2003 he was offered a position at the University of Waikato, which he accepted. To this day Cary holds a unique joint position between the University of Waikato and the University of Delaware. At Waikato he is based in the Thermophile Research lab (TRU) and a new PC2 containment lab wing which was built recently allowing the University to bring in samples from Antarctica for research.

Currently Dr Cary's research projects include deep sea hydrothermal vent research, an area of research which is based at the University of Delaware. His second area of research is lake restoration work with Dr David Hamilton, as part of the OBI. The third area is his studies on toxic sea slugs which have been poisoning dogs on Auckland beaches; a study funded by a recent Marsden award.

Dr Cary's final area of research is in Antarctica. This research relies in a large part to the many grants which have been won over the years. Four years ago the study was awarded an International Polar Year award to complete research in Antarctica. This is when the NZ Terrestrial Antarctic Biocomplexity Survey was set up and started a new centre: NZ Terrestrial Antarctic Research - maintaining leadership in Antarctic research (nztabs.ictar.aq). Dr Cary is the director of this group. Two years ago he received his first Marsden award to work on studying bacteria that lives in the high temperature soils on Mount Erebus, followed closely by a further opportunity to work as an associate investigator on another Marsden award with Dr Charles Lee. Dr Lee's research is also in the TRU to research the bacteria that lives in the dry valleys of Antarctica. A Marsden covers the research project for three years and can be worth up to \$700,000.



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