

**Interdisciplinary assessment (biodiversity, water quality, hydrology & rehabilitation) of the Muri lagoon to address impacts of public sanitation in Muri lagoon, Cook Islands**

Name of legal entity	Country	Overall project value (EUR)	Proportion carried out by candidate (%)	No of staff provided	Name of client	Origin of funding	Dates (start/end)	Name of partners if any
Sustainable Seas Ltd	Cook Islands	EUR200,000	33%	1	AECOM	EU 10th EDF	March 17 to Oct 17	N/A

Detailed description of project	Type of services provided
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For the last twenty years there have been concerns that the lagoon health on Rarotonga and Muri in particular has been deteriorating from the effects of anthropogenic activities. The ecology of Muri has become extremely vulnerable because of the extensive removal of the wetlands and the high concentration of residential and tourist accommodations which have increased the loading of sediments, nutrients, pathogens and toxic substances in to the natural lagoon ecosystem. Agricultural and farming practices taking place close to streams have also thought to contribute to sources of pollutants. In addition, the frequency of global impacts from extreme climatic events such hurricanes or droughts and saltwater intrusion from sea level rises would be compounding the additional stresses of the localised activities. The exact cause of this prolific algae growth in the Muri lagoon has not been adequately determined, however it is assumed that sewage contamination is in large, partly responsible. It has been suggested by local Marine experts that the El Nino weather pattern is a major contributor in addition to run off from land based activities and animal wastes.

The global objective of this assignment is to undertake a multidisciplinary review of Muri lagoon of key parameters impacting on the health and quality of the marine ecosystems, adverse impacts from land activities, aesthetic attributes of the area and rejuvenation of the lagoon ecosystem for the safe public use and contribute to marine tourism.

This assignment as a result of the unproven cause of the algae outbreak experienced in November 2015, shall provide a professional opinion on the cause of the prolific algae growth in the Muri lagoon.

- Sustainable Seas Ltd provided the following services ;
- A) A baseline review of all relevant water quality data collected.
  - B) Determine parameters for an improved monitoring program. Carry out coastal hydrology study of the area
  - C) Review public health safety concerns surrounding ciguatera, bacteria loads and other noxious agents
  - D) Develop statistical sampling methodology and biometric standards for routine and intensive monitoring programs to ensure accurate and precise reporting
  - E) Review and update as required a consolidated database
  - F) Review the coral and fish surveys of the Muri lagoon and develop biodiversity indices for comparison
  - G) Compile a comprehensive habitat map and investigate sites for establishing coral gardens within Muri lagoon
  - H) Develop a resource monitoring programme to assess the health of the marine ecosystem .
  - I) Design communication and information materials