

# The Solomon Islands National Ocean Planning Spatial Information System (SINOPSIS)

by Dan Breen | Dec 8, 2018 | Lali, SINOPSIS, Sustainable development | 0 comments

## A GIS based decision support tool for sustainable seaweed farming in the Solomon Islands

The Solomon Islands include some of the most unique and beautiful ecosystems in the world but economic opportunities are limited and are often associated with environmental impacts. The Solomons are the second largest archipelago in the South Pacific with over 992 islands, and a landmass of 28,000km<sup>2</sup> spread over 2 million square kilometres of ocean. It is home to a population of nearly 600,000 Melanesians, Polynesians, Micronesians and people from other backgrounds.

Global interest in seaweed production is increasing in response to the environmental and economic benefits that seaweed farming can provide. Seaweed is used directly as a food and to produce additives such as carrageenan and alginates used in icecream, gels, cosmetics and animal food. Successful seaweed farms already exist in parts of the Solomons, and there is the potential to expand these to other regions of the archipelago. They provide a sustainable alternative to other more extractive industries and farms also have the potential to sequester atmospheric carbon dioxide as “blue” carbon and mitigate ongoing climate change.

In collaboration with the Solomon Island Ministry of Fisheries and Marine Resources and Makem Strong Solomon Islands Fisheries (MSSIF), we developed Geographic Information System (GIS) based tools to help plan for sustainable seaweed farming and provide important income for isolated communities while conserving local environments. GIS are spatial databases that integrate data across many formats, scales and fields of research in readily interpreted maps. These allow managers, stakeholders and community to visually explore, discuss and compare options for management under different environmental, economic and cultural scenarios.

In the SINOPSIS v.1.1 database (Solomon Islands National Ocean Planning Spatial Information System), we analysed over 90 variables from existing spatial data, literature and discussions with managers. Data for over 30,000 habitat areas and 30 farm sites were analysed and mapped using ArcGIS and Quantum GIS, multiple criteria analysis and statistical models. Depth, substrata, current, wind and wave action and herbivory by fish, dugong and turtle were considered important environmental factors. Labour in competing industries and the price and buying arrangements for dried seaweed were important social and economic constraints. Likely outcomes were however, also strongly influenced by local context, international markets and buyers, and social and cultural opportunities. The tools can therefore flexibly accommodate different viewpoints, situations and priorities and incorporate new quantitative and qualitative information.

We also mapped farms from satellite photos, visited sites in the Western Province with managers and surveyed potential farms using unmanned aerial vehicles (UAV drones) and underwater transects. Pacific Island students Antony Vavia and Clayton Chan completed postgraduate degrees as part of the investigation and fifteen Solomon Island Fisheries staff attended a three day workshop on using the GIS tools, drone and hardware provided. These will enable local staff to carry out analyses and surveys themselves.

The project demonstrates how innovative technology and local expertise can be integrated to provide ongoing support for planning, investment and community engagement. Working together with local managers allowed the project to target key areas for improvement and develop tools that will be useful for marine spatial planning throughout the Pacific.

### **Get a closer look at the project**





[Accessibility](#) | [Copyright](#) | [Privacy](#) | [Disclaimer](#)