

Solomon Islands

MAP 12b



The Solomon Islands consist of over 900 islands widely distributed in the Western Pacific. The bulk of the land area comprises seven large volcanic islands which form a double chain running from northwest to southeast and converging on the island of Makira (San Cristobal). The Santa Cruz Islands are a second group of three larger volcanic islands lying to the east: Ndenö, Utupua and Vanikolo together with smaller islands, including the Reef Islands and the Duff Islands. In addition to these there are several more remote islands and reefs. Ontong Java is a large atoll of some 1 500 square kilometers lying over 250 kilometers north of Santa Isabel, while nearby there is a smaller atoll, Roncador Reef, which has no associated islands. About 200 kilometers northeast of Malaita is Sikaiana Atoll (Stewart Islands), with a number of small islands around a near-atoll (there is a 45 meter high remnant of the volcano). To the south of the main island chain are two raised atolls, Bellona and Rennell, with fringing reefs around their perimeter. South of these are three large atoll structures with no associated islands – the Indispensable Reefs. The far eastern borders of this island nation are determined by the three small islands of Anuta, Fatutaka and Tikopia.

The Solomon Islands lie on the western margin of the

Pacific plate and all are of volcanic origin. There is still volcanic activity in a number of locations, notably on Tinakula in the Santa Cruz Islands and on the submarine volcano of Kavachi, south of New Georgia. The latter is one of the most active volcanoes in the region and has created several new islands in the last century, most recently in May 2000.

Coral reefs are widespread throughout the country. A number of atolls have already been mentioned, and fringing reefs are numerous around most of the islands. Even where they are not marked on maps, such as around Guadalcanal, there are narrow, steeply shelving fringing structures. Barrier reefs are less developed, although there are barrier complexes with associated islands around New Georgia and northeast Choiseul and around Utupua. A complex system occurs around the Reef Islands, including the 25 kilometer Great Reef extending westwards from the main island group. Other shallow platform reefs are found north of the Reef Islands.

Very little is currently known about biodiversity on the reefs of the Solomon Islands, however given their location and the relatively low levels of human impact in many areas, they are likely to include highly diverse and important reef communities. A recent survey of the fish

Left: A sunset wrasse Thalassoma lutescens takes shelter under a plate Acropora. Right: A feather star with a massive coral.





communities in the Santa Cruz Islands identified 725 species (including non-reef species). Some of the most detailed data describing the reefs of the region were gathered during a 1965 Royal Society expedition which visited a large number of the western islands. Overall this expedition concluded that coral reef growth was not well developed, and listed only 87 species of scleractinian coral. But it would appear that these observations were misplaced: little use was made of scuba diving, and it has been further suggested that the reefs may have been impacted by some form of mass mortality just prior to the expedition. Coral bleaching was reported from a wide range of localities in 2000, at the same time as the major bleaching event recorded in Fiji. These include observations from the high islands in the west, but also from Ontong Java Atoll. There is no information about the degree of associated mortality.

The coral reefs of the Solomon Islands include wide areas still largely unimpacted by human activities, although there are also areas where such pressures are large and growing. The islands have one of the fastest population growth rates in the world, and 86 percent of the people are rural. Dependence on coral reefs for protein remains high and subsistence fishing is widespread. In the more populous areas this is leading to overfishing and in certain parts, such as the Lau Lagoon off north Malaita, many of the preferred edible species have been lost. Fishing methods can also be destructive, whether trampling and damaging the reefs with nets, or poison fishing including traditional methods that use coastal plant species to provide the poison. This poison is unselective, killing a number of non-targeted species and reportedly damaging corals.

Traditional management systems are still of considerable importance in the Solomon Islands, as customary

marine tenure is widely held and all reefs are “owned” by particular groups who have fishing rights. Christian leaders, traditional *kastom* men, or even the villagers themselves regularly place taboos on particular reefs, usually for a restricted period of time. More complete protection is provided in some areas by other beliefs, such as around Onogou (Ramos) Island, which is believed to house the spirits of the dead and can only be visited after following strict protocols.

Commercial fishing has probably had more far-reaching effects across the islands, notably for selected target species. In 1999 the export of trochus and related snails brought in over US\$1 million, with sea cucumbers, shark fins, live fish and spiny lobster also bringing in substantial amounts. Both trochus and sea cucumbers are already overfished and their numbers are declining rapidly in many areas. A significant giant clam fishery peaked in 1983, but overharvesting has depleted these stocks in all areas, exacerbated by illegal poaching by foreign vessels. (A Taiwanese vessel was captured on the Indispensable Reefs in 1986 with 10 tons of frozen adductor muscles on board, representing many tens of thousands of individual clams.) There is some concern that as these different fisheries collapse exploitation of other stocks, such as those used in the live fish trade, will increase.

Efforts to establish giant clam mariculture have been ongoing for about ten years. While this has been interrupted by violence on Guadalcanal, a smaller operation continues near Ghizo. Pearl exports have traditionally been an important industry in the Solomons, and with the export of wild-caught stocks prohibited there are now ongoing efforts to establish a farm near Ghizo. The aquarium trade has been increasing relatively rapidly, much of it around Nggela in the Florida Islands, where

Protected areas with coral reefs

Site name	Designation	Abbreviation	IUCN cat.	Size (km ²)	Year
Solomon Islands					
Arnavon	Marine Conservation Area	MarCA	VI	82.70	na
EAST RENNELL	WORLD HERITAGE SITE			370.00	1998

there have been reports of extensive damage. Coral pieces are broken off for collection, damaging methods such as cyanide are used to capture reef fish, and reefs are trampled during capture, resulting in coral breakage.

One unusual but highly significant threat to reefs in the Solomon Islands comes from the use of lime in the habit of chewing betel nuts. The latter are taken from the fruits of a palm and are chewed with a pepper leaf and lime in an addictive habit. The lime is prepared by burning branching corals (typically *Acropora*). Major users may consume 20 kilos of lime per year (derived from over 30 kilos of live coral), and in some areas, such as the lagoon reefs of Malaita, these corals are highly depleted. One estimate suggested that about 6 million kilos of lime are used per year, derived from 10 million kilos of live coral, making this one of the largest single threats to reefs in the country. There are some ongoing efforts to establish coral gardens which might be harvested sustainably, and some communities report that they utilize coral patches on a rotation system.

Although many of the Solomon Islands remain forested, logging is ongoing in many areas and there are few efforts to control sediment runoff. Although there have been no studies it seems highly likely that coral reefs will be impacted in some areas. Particular concern has been expressed about logging activities on the island of Vangunu and the potential impact on the Marovo Lagoon. Previously selectively logged areas on this island are now being clear-felled and converted to oil-palm plantations, and there is concern that the conversion process may produce even higher levels of sedimentation, and that subsequent fertilizer use could create ongoing problems.

There is no sewage treatment in any of the urban centers in the Solomon Islands. As populations grow this will increasingly threaten the health of both humans and reefs. Tourism has never been a major industry, although there are various hotels and "live-aboards" which cater for divers. The establishment of legally gazetted protected areas in the Solomon Islands is complicated by the customary tenure of all reefs. A number of island sanctuaries have recently been repealed. As negotiations on the ownership of at least one of these have been ongoing, there is evidence that a number of villages have been using the

confusion to rapidly deplete the surrounding reef resources. The most successful marine protected area is the Arnavon marine conservation area. First established in 1975 there have been a number of disputes and problems, but in 1992 the site was revived and a community-based management committee established. The eastern third of Rennell Island was declared a World Heritage Site in 1998, with boundaries extending seawards for 3 nautical miles.

The current civil unrest in the Solomon Islands is largely confined to the island of Guadalcanal, but general instability is causing considerable disruption, not only to the small tourism industry, but also to development activities, including mariculture. In particular the closure of the Coastal Aquaculture Centre near Honiara in late 1999 has set back aquaculture research considerably, although some of its activities have been transferred to a second center near Ghizo, while other work has relocated to New Caledonia. A new Institute of Marine Resources run by the University of the South Pacific has also been abandoned.

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GENERAL DATA

Population (thousands)	466
GDP (million US\$)	224
Land area (km ²)	27 740
Marine area (thousand km ²)	1 630
Per capita fish consumption (kg/year)	33

STATUS AND THREATS

Reefs at risk (%)	46
Recorded coral diseases	0

BIODIVERSITY

Reef area (km ²)	5 750
Coral diversity	101 / 398
Mangrove area (km ²)	642
No. of mangrove species	22
No. of seagrass species	3