

TOKELAU

INTRODUCTION

Area: 12.25 sq.km.

Population: 1,700 (1988).

Tokelau, formerly the Union Islands, is an island territory under New Zealand administration. It comprises three small atolls, Atafu (3.5 sq.km), Nukunonu (4.7 sq.km) and Fakaofu (4.0 sq.km), each consisting of a number of low-lying, scrub-covered islets surrounded by reefs and encircling a large central lagoon up to 400 fathoms in depth. The islands are situated between latitudes 8° and 10° South and longitudes 171° and 173° West, some 480 km north of Western Samoa. The central atoll, Nukunonu, lies 92 km from Atafu and 56 km from Fakaofu. The islets are made up of coral rubble and sand mixed with a thin layer of humus, and are of generally low fertility. At no point do they rise more than 5 m above sea level.

The climate is humid tropical, tempered by trade winds. The average annual temperature is 28°C, with little seasonal variation. Rainfall is irregular but heavy, averaging about 2,500 mm per year. Tokelau is at the north edge of the main hurricane belt, and hurricanes are rare, although stormy weather is not uncommon between November and March.

The islands became a British Protectorate in 1877, and were formally annexed in 1916 and included within the Gilbert and Ellice Islands Colony. The islands were separated from the Gilbert and Ellice group in 1925, and administrative control was transferred to New Zealand. The 1948 Tokelau Islands Act included Tokelau within the boundaries of New Zealand. The islands are governed from the Office of Tokelau Affairs in Apia, Western Samoa. The inhabitants, who are now citizens of New Zealand, are Polynesian, with close links with Tuvaluans and Western Samoans. The resident population of about 1,700 is evenly distributed between the three atolls, but there are at least another 3,000 Tokelauans living in New Zealand. The principal activity is fishing. Agriculture is limited, because of the low fertility of the soil, the main crops being coconuts, pulaka, breadfruit, pawpaw, pandanus and bananas. The principal revenue earners are copra, postage stamps, souvenir coins and handicrafts, and the economy is dependent to a large extent on subsidies from New Zealand and remittances from Tokelauans working in New Zealand. There are no harbour or airport facilities in the islands.

The marine ecosystems have been described by UNEP/IUCN (1988). The principal terrestrial ecosystems are beach scrub and coconuts, but there are remnants of atoll forest, with species of *Cordia*, *Pisonia* and *Guertarda*, on Tokelau and Long islets in Nukunonu Atoll (Dahl, 1986; Parham, 1971). Mangroves are absent. Some 67 vascular plants have been recorded, including 16 adventive weeds and grasses and 13 cultivated plants (Anon, 1989). There are no major breeding colonies of sea-birds, but small colonies of most of the common species of terns, noddies and boobies are to be found on relatively undisturbed islets. The investigation of suitable islets for sea-bird protection was identified as a priority by Hay (1985). Only one land-bird, the Pacific Pigeon (*Ducula pacifica*), breeds on the islands. Sea-birds and the pigeon are taken for food by the local population, and are at present on the decline (Anon, 1989). Three species of turtle, the Green Turtle (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*) and Loggerhead (*Caretta caretta*), nest on the islands, but all are now rare (UNEP/IUCN, 1988).

In general, the vegetation has not been greatly modified, and apart from the over-exploitation of giant clams and turtles, there is no evidence of depletion of marine resources (IUCN, 1991; UNEP/IUCN, 1988). The potentially most threatening environmental hazard is that posed by increasing sea level due to global warming. Even a small rise in sea level could make the islands uninhabitable because of the greatly increased damage that would be caused by hurricanes.

Because of the dependence of a dense population on a very limited area of land, most of Tokelau's conservation

policies relate to protection of the human environment. Conservation of Tokelau's natural resources has so far been achieved through traditional practices (SPREP, 1985). The traditional "lafu" system, which prohibits the harvesting and disturbance of a particular land or marine resource, is still practised. This system is imposed and policed by the Council of Elders who are the traditional authority on each atoll (Anon, 1989). An Agriculture and Fisheries Committee was established in 1984 to supplement and complement the work of the Council of Elders in resource management. This Committee has imposed various restrictions on the harvesting of giant clams (*Tridacna squamosa* and *T. maxima*) and taking of turtle eggs. The Department of Agriculture and Fisheries has facilitated resource surveys and provided scientific information to support conservation and resource management (Anon, 1989). Recently, however, there have been difficulties with the traditional system, largely as a result of a general reduction in the authority of the Council of Elders (Toloa & Gillett, 1989).

The preparation of a National Conservation Strategy was identified as a priority in the Action Strategy for Nature Conservation in the South Pacific Region (SPREP/IUCN, 1989), as was the establishment of national parks on each of the three atolls. It has recently been reported that some 47 ha of land on Nukunonu Atoll has been designated a protected area by the local Council of Elders, with adjoining reef areas to be added at a later date (IUCN, 1991).

Summary of Wetland Situation

There is no surface fresh water on any of the atolls, the inhabitants relying on roof catchments, small tanks and galleries for their water supply. There are some tiny brackish pools on two of the atolls, but no mangroves or closed lagoons, and the only other wetlands are reef flats exposed at low tide. These are important feeding areas for Pacific Reef-Herons (*Egretta sacra*) and migratory shorebirds.

Wetland Research

A hydrogeological study of Tokelau was undertaken by Kammar (1981).

Wetland Area Legislation

There is no legislation in Tokelau concerning either the conservation of habitats and species or the establishment of protected areas. Instead, there is a long-standing system of resource management based on traditional custom (IUCN, 1991).

New Zealand acts for Tokelau in international agreements. The Government of New Zealand is party to the Ramsar Convention, World Heritage Convention and Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP Convention), but it is not clear if this places any obligations upon Tokelau itself (IUCN, 1991).

Wetland Area Administration

All land is under customary ownership.

Organizations involved with Wetlands

The Department of Agriculture and Fisheries is the government body responsible for natural resources.

WETLANDS

Tokelau has no significant wetlands in the conventional sense. Information on the most important area of reef flats has been provided by Kirifi Kirifi, Extension Officer, Fakaofu.

Wetland Name: Teahagaloa

Country: Tokelau

Coordinates: 9°19'-9°24'S, 171°12'-171°16'W

Location: on the island of Fakaofu.

Area: 10 ha.

Altitude: Sea level.

Overview: An area of reef flat, almost exposed at low tide, with deposits of sand and coral limestone, scattered coral heads and boulders of sedimentary rock.

Physical features: A large area of reef flats separating the deep central lagoon of Fakaofu Atoll from the open ocean. About 10% of the area comprises a continuous plate of sedimentary rock which underlies the entire atoll. Sand dunes on this plate are normally submerged at high tide. There are also many large boulders of sedimentary rocks scattered about the surface of the plate. On the lagoon side, there are extensive coral reefs at depths of two to five metres. Water flows over the plate during rising and falling tides as it enters and drains out of the lagoon. The water depth varies from place to place but is generally between 30 cm and 5 metres during low tide.

The climate is humid tropical, tempered by trade winds. The average annual temperature is 28°C, with little seasonal variation. Rainfall is irregular but heavy, and can exceed 2,500 mm per year.

Ecological features: The flats support some small patches of marine algae. The marine fauna is dominated by a great variety of reef fish, with lesser numbers of shellfish, echinoderms and sea cucumbers.

Land tenure: Customary ownership. The reef flat is owned by the whole community, with everyone on the island having equal rights to fish on it at any time, except under very special circumstances when specific localities may be privately claimed following their initial discovery.

Conservation measures taken: The island Council of Elders occasionally imposes regulations to control fishing activities and to resolve social disputes.

Land use: About 900 people live in the area. They are highly dependent on marine life as their primary source of protein. Fishing is the principal activity, the fishing occurring either with traditional stone traps, with nets, by rod-and-line, with spears or by hand (harvesting of clams). The use of stone traps is normally seasonal. In 1986, the Fisheries Department imported *Trochus niloticus* from Fiji, and released these onto the reef on a trial basis. Preliminary results suggest that this introduction has been successful.

Disturbances and threats: The area remains relatively undisturbed by man's activities, and the only serious problem is overfishing. The excessive use of fishing nets with small mesh-size poses a major threat to fish populations, especially parrotfish, while a rapid decline in the clam population is forecast as a result of the over-exploitation of immature clams.

Hydrological and biophysical values: The reef flat is the principal gap through which water flows between the lagoon and the open ocean. It plays a vital role in removing pollutants, including oil, from the waters of the lagoon, and thereby protects the adjacent reefs from excessive pollution. These reefs support the largest marine biomass in the atoll, including many economically important species such as the clams *Tridacna maxima* and *T. squamosa* and many reef fish species. Huge numbers of juvenile fish find shelter around the coral reefs.

Social and cultural values: The area constitutes a major fishing ground for the islanders. Traditional stone traps are still used for fishing, and until recently, were the main method of fishing, catching enough fish to support the whole community. However, with the introduction of modern fishing techniques, there is a fear that this traditional activity, with strong cultural links, will gradually disappear.

Noteworthy fauna: The marine fauna of the coral reefs and reef flats has been summarized by UNEP/IUCN (1988). This rich marine fauna provides abundant food for a variety of fish-eating birds such as Pacific Reef-Heron (*Egretta sacra*), Wandering Tattler (*Heteroscelus incanus*), Black-naped Tern (*Sterna sumatrana*), Black Noddy (*Anous minutus*) and Fairy Tern (*Gygis alba*).

Noteworthy flora: None known.

Management authority and jurisdiction: The Fakaofu Council of Elders is responsible for the management

of the site.

References: UNEP/IUCN (1988).

Reasons for inclusion: 1a, 2b, 2c. An important fishing ground for the inhabitants of Fakaofu Atoll, and an important feeding area for a variety of waterfowl and sea-birds.

Source: Kirifi Kirifi.

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