News from Tokelau

The current status of introduced trochus in Fakaofo, Tokelau

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Introduction

In late 1997, Tokelau requested assistance from the Secretariat of the Pacific Community (SPC) to conduct a stock assessment of marine resources in Fakaofo as a first step towards producing a management plan for the lagoon. SPC recruited a consultant to conduct the survey in conjunction with local staff, and the survey was undertaken in July and August 1998. The consultant travelled on the *Forum Tokelau*, departing Apia on 27 July, arriving at Fakaofo on 29 July. The total duration of the stay on Fakaofo was 21 days. The other two atolls (Nukunono and Atafu) were not visited. This brief paper on trochus is extracted and modified from the larger report covering a greater range of marine resources of Fakaofo (Passfield, 1998).

Geography

Tokelau consists of three atolls stretching in a north-westerly direction from 9°23'S and 171°14'W for a distance of 170 km to 8°30'S and 172°30'W. The southern most atoll of Fakaofo is 65 km from Nukunono, with a further 105 km to Atafu, the northern most atoll. The total land area for the three atolls is only 10 sq. km., in an Exclusive Economic Zone (EEZ) of 290,000 sq. km. None of the three lagoons has deep-water entrances, and access for the artisanal fleet of small aluminium skiffs and traditional canoes is through shallow passages in the reef, often inaccessible at low tides. Figure 1 shows the location of Tokelau and Fakaofo.

Demography

The population of Tokelau consists of approximately 1500 people, with between 400 and 600 people on each of the three atolls. A further 5000 Tokelauans live in New Zealand (SPC, 1998), with an unknown number living in Australia and Samoa. In 1996, Fakaofo, the location for this study, had a population of 564, living in 87 households, on two islands (SPC 1998). The island of Fale currently has a population of about 340 living in 51 households, with approximately 220 people in 33 households living on the other inhabited island of Fenua Fala (M. Pelasio, pers. comm.).

Survey methods

Ten areas around the lagoon perimeter were surveyed for marine resources. There were usually three men either walking or swimming in the shallow water on the reef flat. Observations of fish life were made, and transects were undertaken in areas where there were sedentary resources of interest, e.g. trochus, clams, sea cucumbers and sea urchins. An intensive search for trochus was conducted in one area where anecdotal reports indicated they were abundant. Snorkelling over the reef was undertaken where conditions permitted. Figure 2 shows the ten survey sites.

Results

Although extensive surveys for trochus were not conducted all around the atoll, the fact that

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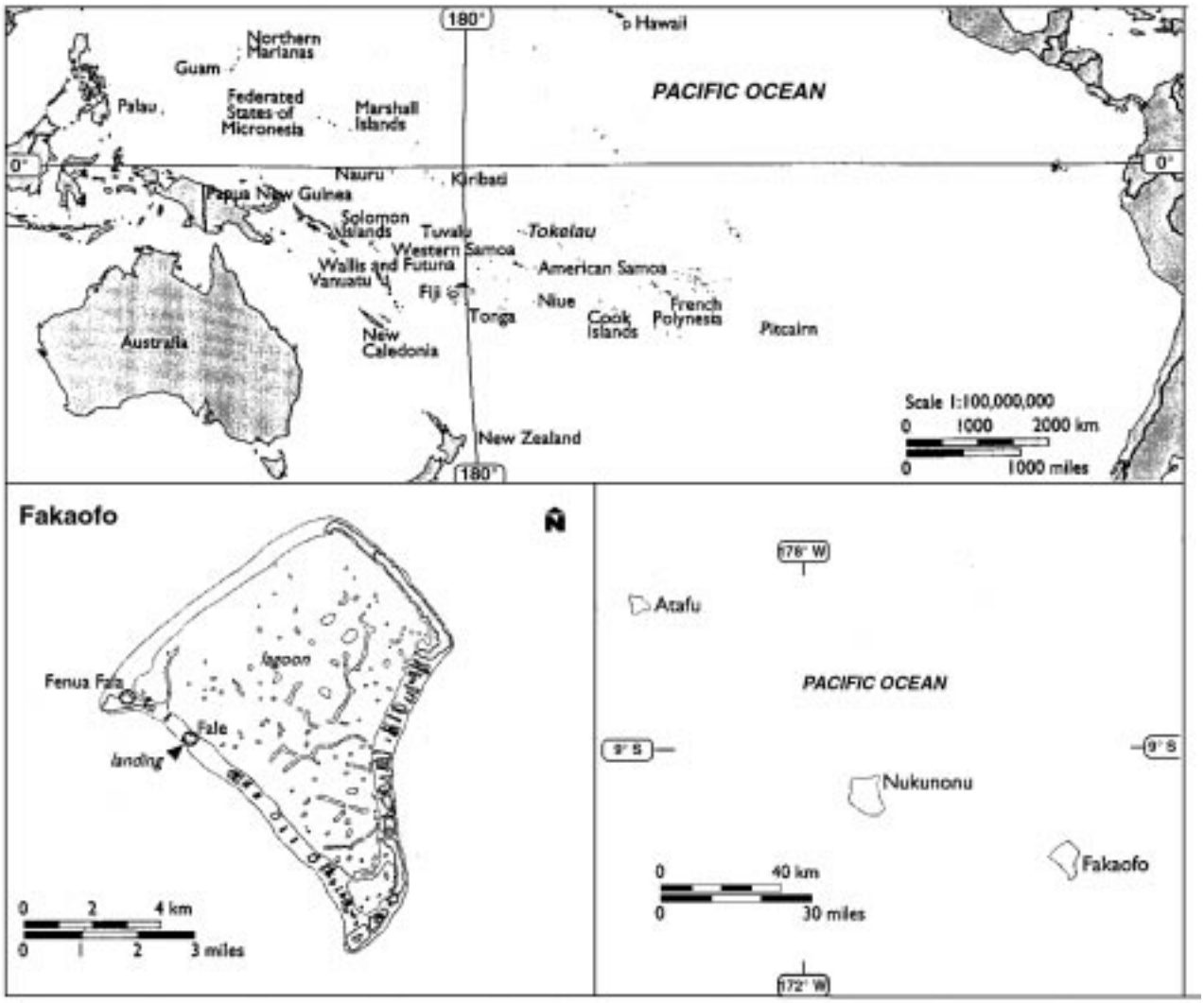

Figure 1.

Map showing the locations of Tokelau and Fakaofo

trochus were not observed at any of the survey sites other than from south-east of Fale to Fenua Fala (around site 9) suggests that they are still not widespread. The reef crest and inner reef flat were searched. Juveniles were searched for under rocks. A total of 162 trochus were measured and tagged by writing on the inside bottom nacre of the shell with a pencil.

All trochus were found in the area from Fale to the Catholic Island. Most were found in a 400-metre stretch from the powerhouse towards the Catholic Island. Sea conditions did not permit searching over the reef in this area, where Gillett (1994) found more trochus of an average larger size than those on the reef flat. Figure 3 shows the size distribution for the trochus found during the 1998 survey. Most were in the 9 to 10 cm size range. During the 1994 survey by Gillett, trochus were most abundant in the 6 to 7 cm category on the reef flat. This large cohort is unlikely to be the same one four years later, as growth would be expected to be around 2 cm per year at the 6 to 7 cm age class, decreasing to about 1 cm per year at the 10 cm age class (Nash, 1985). Gillett's 6 and 7 cm trochus would now be around 12 cm. It is possible these have moved over the reef flat into deeper water, as Gillett's survey found trochus of an average larger size over the reef.

Discussion and recommendations

Trochus are not native to Tokelau, but were transplanted there in the hope that they would become established and provide a source of income for the islands. They were transplanted to Fakaofo in 1986 (586 and 283 trochus on two separate occasions) and again in 1988 (578 trochus) (Gillett, 1986,

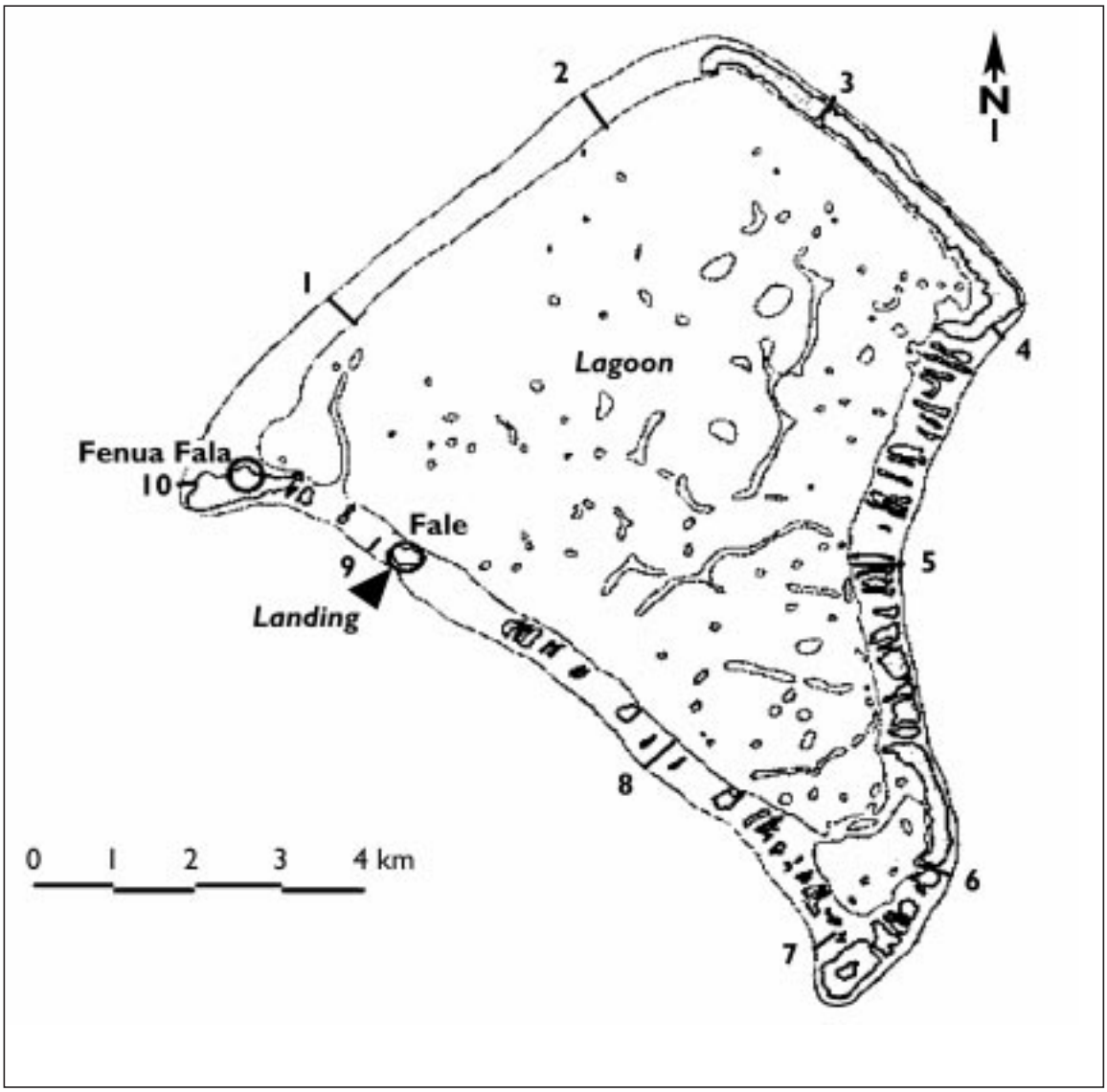

Figure 2.
Fakaofo, showing the ten survey sites

1988). Several subsequent trochus surveys have been carried out, the last in June 1994 (Gillett, 1988, 1994).

This survey indicated that trochus are continuing to do well, and increase in numbers. However, they have still not managed to become established in most of the reef area, despite the apparently suitable habitat in many locations. It is still far too early to have a commercial harvest. However, trochus could be collected from the area where they are abundant, and transplanted to other areas around the island containing suitable habitat, in an effort to increase overall abundance. A total ban on the harvesting of trochus currently in place should be continued for at least the next five years, after which the situation should be reassessed.

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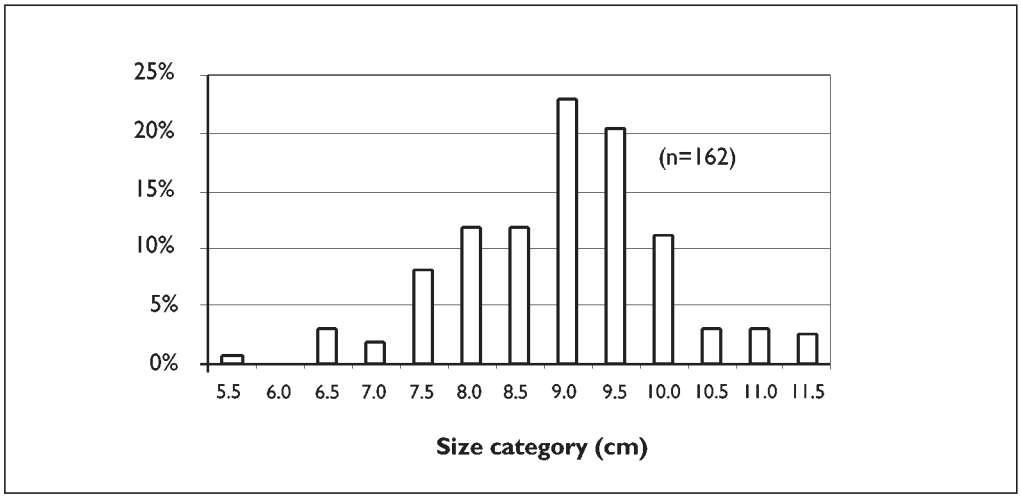

Figure 3.

Trochus size distribution from the 1998 survey

Mose Pelasio (right) and other members of the survey team measuring trochus on Fakaofo reef flat