

market in Hong Kong has dropped somewhat and 1989 prices are around A\$150/kg.

The industry is undergoing a number of difficulties including widely varying spatfalls, resulting in a quota system for shell collection, problems with deaths of pearl oysters during transport to the culture farms, outdated technology and lack of co-operation between growers. The establishment of the Licenced Pearl Producers Association (LPPA) is expected to overcome some of these difficulties.

The industry is regulated jointly through the Federal Department of Primary Industries and Energy and the Western Australian Fisheries Department. A Pearling

Industry Review Committee has also been established and has made a number of recommendations for future development. Research work has been undertaken by the Western Fisheries Department into hatchery production of pearl oyster spat. While there has been limited success, problems have occurred with the collection and conditioning of broodstock, especially with nutrition. A number of research projects are underway to find solutions to these problems.

Despite the problems, the outlook for the industry is bright. Implementation of the Review Committee's recommendations, the LPPA and the co-operative research projects all will enable the industry to further develop, and continue to provide an extremely valuable export product.

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### Winged Pearl Shell newly found in Tonga

A number of grown winged pearl shell were found attached to the deployed ropes of FADs (fish aggregation devices) during the recent FAD replacement project undertaken in Vava'u, Tonga. Winged pearl shell were previously unknown in Vava'u and it is believed that the ones found may have originated from the pearl culture trials carried out by Tasaki Pearl Company in 1975, 1976, 1977 and 1979 which introduced winged, gold-lip, black-lip and Japanese pearl shell at the request of the King of Tonga.

It is unlikely that the winged pearl shell will produce round pearls as the gonad, into which the pearl nucleus is inserted, is too small and too complicated in structure to allow successful implantation. At the present time winged pearl shell produce only a half-round pearl which, well appreciated for its colour and large size, demands a considerably higher market price compared to half-pearls from other pearl shells. This has led to remarkable increases in production in recent years. Successful artificial seeding has only been carried out by the Tasaki Pearl Company hatchery in Amani, Japan which was possibly where the seed introduced to Vava'u came from. However, there is no

firm evidence to prove that the winged pearl shell found in Vava'u is originated in Japanese stocks. This would require an amino-acid analysis by electrophoresis or a comparative study of genes.

The Fisheries Division of Tonga, in association with the the FAO South Pacific Aquaculture Development Project, carried out a survey of the newly discovered winged pearl shell resource in Vava'u in November 1989 to assess the feasibility of winged pearl shell culture and half-pearl production. As a result of the survey a spat collection programme was initiated in December 1989, deploying three sets of spat collectors in different locations in Vava'u to increase settlement of winged pearl shell in the area. The collectors will be examined and re-installed periodically over a period of one year. This programme is expected to show results on depth and sites for spat collection, collector materials, the spawning season, and the growth rate of shells.

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### Tokelau Islands Survey

Dr Rick Braley (ACIAR Giant Clam Project, James Cook University, Townsville) conducted a preliminary investigation of pearl oysters in the three lagoons of Tokelau, this past June-July. This was as an adjunct to the giant clam survey of Tokelau, funded by the FAO South Pacific Aquaculture Development Project.

Spot checks were made down the slopes of patch reefs in the deeper parts of the lagoons. SCUBA gear was used down to 120 ft (36 m), but no black-lip pearl oysters (*Pinctada margaritifera*) were found. Pearl oysters are still occasionally found by local divers, who use them for pearl shell lures for tuna fishing. Bob Gillet (1985) had earlier suggested that the post-WWII introduction of diving goggles to

Fakaofu had led to the demise of the then scarce stocks of *P. margaritifera*. A questionnaire survey at Atafu indicated that perhaps only seven pearl oysters had been found in the lagoon there from 1954-1989. Rick considered that the prevalent thorny oysters (spondylids) in Fakaofu lagoon (as high as 56 per square metre at one site) might exclude pearl oysters by competing for settlement sites and food. It was suggested that this could seriously hinder any attempt at re-introducing pearl oysters there.

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