site also located near the banks. At this site the pearl oyster would be cultured in captivity for one year with a co-study in nucleation or implantation to determine pearl production capability.

Calling mainland China

by C. Dennis George
Cairns, Australia

C. Dennis George, of Cairns, Australia, writes:

The recent reference to China in *Pearl Oyster Bulletin* # 5 is appropriate. What about the Korean pearl, which is also of significance ? I need a contact with mainland China (for historical / record purposes). Please, can you assist me? Many years back I had a contact but I lost it.

I am pleased with the initiative to preserve the 'grey' literature, as I have plenty of that. As my days are coming to an end, I would like to see better utilisation of my accumulated files / library / experiences and I feel they would be more effective if sold to someone who will appreciate them. Do you know anyone who could be interested?

Dissertation studies management of the Tuamotuan pearl culture industry

Source: M. Rapaport
Honolulu, Hawaii

Moshe Rapaport, of the East–West Center and the University of Hawaii at Manoa, has recently completed his PhD dissertation, entitled Defending the Lagoons: Insider / Outsider Struggles over the Tuamotuan Pearl Industry. *This dissertation is the product of five years of research at the University of Hawaii and the East–West Center. The fieldwork, conducted primarily on Takaroa Atoll took place during 1990–91, at the height of a black pearl boom, and was sponsored by a Fulbright study abroad grant, an East–West Center scholarship, and a research contract from the Institute for the Promotion of Aquaculture and Maritime Activities (EVAAM), French Polynesia. An abstract of his thesis is given below.*

Because of their natural stocks of black pearl oysters, Tuamotuan lagoons have attracted the covetous interests of external society since the early 19th century. Under the French colonial administration, land was individualised and lagoons were declared public domain. Island populations responded to these intrusions through hidden and open forms of resistance.

Nevertheless, pearl oyster stocks were over-exploited and became nearly extinct on many atolls. By 1970, the mother-of-pearl industry had ended. It was replaced by a pearl farming industry, now pitting Tuamotuan populations against the Tahitian administration.

The struggle over land and sea resources parallels a deeper struggle over ideology and meaning. External administrations, entrepreneurs, and local populations have contrasting ideologies of rights and different conceptualisations of environment, society, and the nature of their interrelationships.

Notes on the Pearl Oyster (*Mutiara*) production in Malaku Province, Eastern Indonesia

by Rick Braley, Nell Tetelepta and Bob Mosse
Pattimura University
Poka-Ambon, Maluku, Indonesia

Pearl oyster farms make up the largest number of aquaculture businesses in the Maluku Province of eastern Indonesia. Here, suitable areas for culture are relatively distant from high density human populations.

The greatest concentration of farms is located in Maluku Tengara (S.E. Malaku) – the Aru Islands, some in the Kei Islands and in the Tanimbar Islands. The main farms are joint ventures with Japanese companies. The Indonesian-owned companies are new, small, and susceptible to any short- or long-term disasters.

The Provincial Government Fisheries Department (Dinas Perikanan – Ambon) produces annual statistical records for Maluku Province. The drop in production of whole shell in 1990 to about half the

production seen in 1989 (Figure 1a) may indicate that overharvest has occurred, particularly since the same production figure was also obtained in 1991, despite a considerable increase in the value of the shell between 1989 and 1990 / 1991. Pearl oyster beds have been quite heavily fished to supply mother-of-pearl for the implantation operation for most of the farms in maluku Tengara (and one hatchery / farm in maluku Tengah. Loose pearl production has steadily increased since 1988 (Figure 1b). Although not included in Figure 1b, the half-pearl production was only recorded for 1987. There were 20 kg of half-pearls produced, valued at US$ 540,000.

Major mortality of pearl oysters

A very serious mortality rate of stocks held in baskets hanging from rafts, as well as of new stocks collected from the wild, has plagued the industry in the Aru Islands since November 1992. It is estimated that 85-90 per cent of all stocks have succumbed to the unknown 'disease'. The *Pos Maluku* (newspaper) stated in mid-February that Rp 80,000,000 (2,000 Rp = 1 US$) were lost by the combined pearl oyster businesses. Oysters which contract the unknown 'disease' look healthy, but within two or three days only a gaping shell with dead soft tissues remains. A similar mass mortality occurred at Aru farms about 40 years ago.

It was suggested to us that a certain farmer in Aru has not lost stocks of oysters like many other businesses and that he reputedly handles them better after harvest from the bottom. This would result in less stress on the oysters and perhaps these oysters could maintain resistance to the 'disease' especially if it were an opportunistic pathogen rather than a primary pathogen. Heavy rains at the end of the year and the resultant lowered surface salinity may have stressed oysters which were collected from deep water and held at the surface in a *parahu* (outrigger canoe) for up to several hours before being transported to the rafts for holding.

Diver deaths

Not only is the industry suffering from loss of product, but a quite serious mortality rate of divers occurs here in the Aru Islands. Many divers, though accustomed to deep snorkel dives, are taught to use scuba gear (although not to PADI or other standards) and coerced to dive to depths of 50-70 m up to five or more times per day. There were 18 deaths among divers in 1992 and 4 by the end of January 1993.

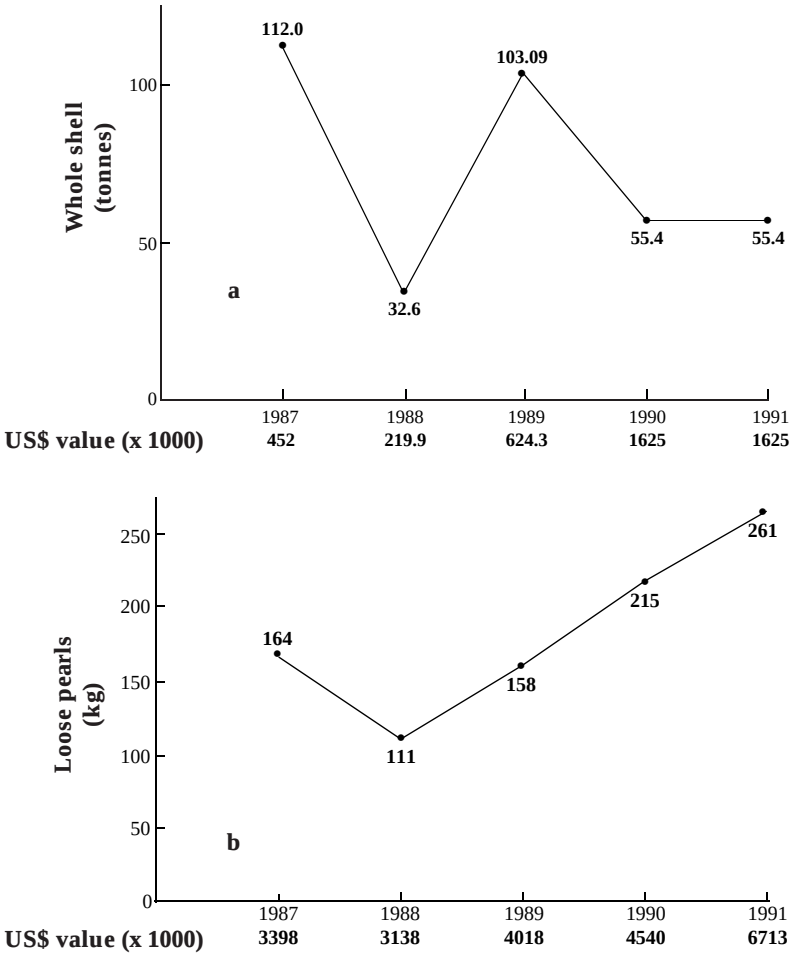

Figure 1: Pearl oyster production in Maluku Province, Indonesia 1987 – 1991; (a) Whole shell, (b) Loose pearls