

Akoya Research in NSW

by Dr Wayne O'Conner¹

In July 1998, researchers at NSW Fisheries, Port Stephens Research Centre began investigations into the possibility of establishing a pearl industry in Port Stephens, an industry based on the Akoya pearl oyster, *Pinctada imbricata*.

Interest in the possibility of farming Akoya oysters in NSW has been shown for several years. However, extensive surveys of the NSW coast indicated that there were insufficient oysters to permit gathering from the wild. To overcome the shortage of oysters and to commence trial farming, NSW Fisheries signed a memorandum of understanding with a pearl farming company 'Australian Radiata', who have a wealth of farming experience in both Australia and Japan.

Port Stephens, 200 km north of Sydney, was chosen for farming because it is among the best waterways in Australia for temperate shellfish farming owing to its fortunate combination of a suitable temperature range, lack of pollution, and expanse of sheltered, well-flushed and relatively deep waters. Further, Port Stephens offered the facilities of NSW Fisheries, Port Stephens Research Centre, with its extensive experience in the production of new aquaculture species.

Together, scientists from NSW Fisheries and representatives of Australian Radiata devised a research programme with three major goals: first, to elucidate the biology of the Akoya oyster in NSW, focusing in particular on species distribution,

growth rates in NSW estuaries and reproductive biology; second, to establish techniques for reliable hatchery production of spat in NSW to preclude the need for collecting oysters from the wild; finally, to construct experimental farms in Port Stephens so that the viability of farming can be tested and any potential environmental impacts can be assessed.

Within a year of the programme's inception, work is well under way. Four experimental leases with a total area of 28 ha have been obtained to allow farming in different areas of Port Stephens. Oysters have been deployed at these sites so that growth and survival can be monitored. Sampling to follow growth and reproduction in the wild Akoya population has been underway for 11 months and settlement collectors have been deployed in order that natural recruitment can be followed. In the hatchery, oysters have been brought into reproductive condition and induced to spawn. More than 2.5 million spat have been produced, enabling farming trials to begin.

Spat growth has been encouraging; the first oysters are expected to be large enough to allow pearl-nuclei implantation by the end of this year (1999). The quality of pearls produced will then be assessed in the hope that Port Stephens could become the centre of an Australian Akoya pearl industry, an industry that has a low environmental impact and complements other existing industries such as tourism.



Black Pearls of Micronesia: first pearl harvest, farm expansion plans to include additional local partners

Virgil Alfred, Farm Manager for Black Pearls of Micronesia Inc., reports that the company is looking to expand its activities in the Marshall Islands. Over the last few years of expansion on the farm, Virgil and his crew have been able to adapt the established pearl farming techniques to Republic of Marshall Islands conditions, and have trained over 15 Marshallese workers in the basics of pearl farming.

The company is now looking to set up joint-venture arrangements with local partner farms. Dr Dale Sarver, BPOM President said that the company's plans had always been not just to get their own operation up and running, but to also show the way for others to participate in this potentially lucrative industry in the RMI. 'As well as expanding BPOM's own "nucleus" farm', he said, 'we

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would like to involve local Marshallese partners in developing "satellite" farms in the surrounding lagoons. We have now reached the stage where we would like to begin this expansion. These development plans have a long time horizon, and potential farmers must realise it involves a lot of hard work, significant investment, and a long payback period.'

The company's plan is to set up a demonstration 'satellite' pearl farm in Majuro lagoon, as a joint-venture partner with the larger 'nucleus' farm. This way the larger farm can provide all the technical expertise and management, as well as train the new workers at the existing farm site. BPOM could also provide advantages for smaller farms by bulk purchasing of equipment, assisting with obtaining seeding technicians to operate the oysters, and with marketing of the final crop. The BPOM hatchery would provide spat (young oysters) for the partner farm. The costs for spat and other operating expenses could be shared between the partners. 'BPOM would like to encourage local Marshallese participation in this venture in whatever way possible,' said Dr Sarver.

The company's pearl oyster hatchery in Woja has been increasing its production capacity over the last six months, with the appointment of a full-time hatchery manager from Tasmania. Mr David Wise was formerly Assistant Manager of the largest oyster hatchery in Australia. The hatchery has operated for the last year out of a containerised facility, but a permanent hatchery will be built in the near future. Four Marshallese staff are also currently employed at the Woja hatchery.

BPOM has moved its operations from the DUD area to Bikirin, near Enamanet. 'The new site has excellent water exchange with the ocean all along this northern edge of Majuro' said Dr Sarver. Other potential expansion sites are now being evaluated.

'Our last year's harvest has shown that this lagoon can produce superb pearls', he said. Size and shape of the pearls harvested were within expectations, but the most pleasing aspect was the colour. 'A striking gold colour was present in a good proportion of the crop', said Sarver. 'The strength of this colour, and lustre throughout the crop were all far better than we could have hoped.' A proportion of the better

pearls from the harvest was sold to a distinguished jewellery house from 5th Avenue, New York.

'The RMI government, through the Marshall Islands Marine Resource Authority (MIMRA), has been very supportive of our early research and development efforts here. We continue to carry out joint R&D projects with MIMRA, and expect this cooperation to continue. It has taken a long time to bring our plans to fruition, and we would like to acknowledge the invaluable assistance we have received over the years from the government,' said Dr Sarver. The company also has prepared a plaque, containing a pearl from the first harvest and one of their hatchery-produced shells, which they intend to present to the RMI government as a token of their appreciation. US Government support has also been integral to the company's R&D efforts in the RMI. The initial support from NOAA/NMFS, through the Salston-Kennedy Program, was crucial to developing the first hatchery and nursery techniques, said Neil Sims, company Vice President. Ongoing support from USDA and SeaGrant's PADP has also enabled greater training and extension work.

In furthering the growth of the industry in the RMI, BPOM is also seeking Marshallese locals suitable as candidates for training as pearl-seeding technicians. The pearl-seeding operation requires very steady hands, and lots of patience. Currently, most of the seeding technicians in the black pearl industry are Japanese, Australian, or Tahitian. BPOM uses a Cook Islander to seed its oysters on its own farm. 'As the industry expands here in the RMI' said Sims, 'there will be a need for Marshallese seeding technicians to fill the growing demand'.

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