

PEARLING INDUSTRY STATUS REPORT 2009

INTRODUCTION

The Northern Territory (NT) pearling industry produced 137.8 Kan* of pearls in 2009 from farmed pearl oysters (*Pinctada maxima*). Production increased slightly (by 7%) from the 127.8 Kan produced in 2008. Total industry value of production increased by 16% from \$16.3 million in 2008 to \$18.98 million in 2009.

The recent global economic crisis continues to have an impact on the pearling industry as there is still a reduced demand, leading to reduced prices for pearls in international markets. Pearl production and value are expected to remain relatively stable next year.

*Kan and momme are old Japanese units of weight (1000 momme = 1 Kan). A momme equals 3.75 g. A 13 mm round pearl weighs about 1 momme.

PROFILE OF THE FARMING SECTOR

Commercial Production

Active pearl oyster farms are distributed along the northern coast of the NT in three main areas: Bynoe Harbour, Cobourg Peninsula/Croker Island and English Company Islands/Truant Island areas. Other lease sites are owned by licensees, but are not currently used for the cultivation of pearls.

Hatchery/Nursery Production

Most pearl oysters used in the production of Australian South Sea pearls in the NT are hatchery-reared. Only one company operates a commercial hatchery in the NT at present. It uses oysters produced in its hatchery for growout on its leases and also has the option to sell them to other licensees. Pearl oysters farmed by other licensees are sourced from hatcheries or are wild-harvested oysters from Western Australia (WA).

Farm Production

Pearl oyster farms are usually located in sheltered embayments that facilitate continual access. Pearl oysters are placed in panels that are suspended from floated longlines and are watched regularly to ensure that fouling does not impede the viability of the pearl oyster or the production of the pearl.

Pearl oysters are seeded by artificially placing a nucleus derived from the shell of the Mississippi mud mussel together with a piece of donor mantle tissue into the oyster. Pearl nacre forms around the nucleus, creating the pearl. A series of turning actions occur after the nucleus is implanted to assist in the development of a well shaped pearl sac to ensure even coating of the nacre. It takes two years to produce a pearl.

If an oyster produces a good quality round pearl, it may be re-seeded with another nucleus and maintained for another full growout cycle. However, only a small proportion of oysters are seeded a second time and even fewer a third time. Re-seeded pearl oysters generate larger pearls, as a space has already been created in the oyster by the production of the first pearl.

Farmed pearls vary in size, shape and quality, and are priced accordingly. There are also several other products from pearl oyster culture, namely half pearls or Mabe, Keshi (natural pearls of various shapes and sizes), Mother of Pearl (MOP - pearl oyster shell used for buttons, jewellery and decorative inlays) and pearl meat (the adductor muscle of the pearl oyster).

Translocation

A protocol is in place that addresses health and security issues related to the importation of adult and juvenile pearl oysters into the NT and their translocation within the NT.

Marketing

The marketing of Australian South Sea pearls is conducted individually by licensees. Most of the pearls produced each year are sold via private

treaty, at auctions in either Japan or Hong Kong, or through retail outlets operated by the companies in Australia and overseas. MOP is sold in many different countries; Italy and Korea are the major customers. Pearl meat, which is valued at around \$85/kg, is currently only sold in the Australian market.

Employment

About 98 people were directly employed in pearl farming or farm-related activities in the NT during 2009, down from 114 in 2008. The effects of the global economic crisis have resulted in further rationalisation of employment. The closure of several pearling companies in WA along with the downturn in staffing requirements by the mining industry is continuing to ease recruitment difficulties previously experienced by the local pearling industry.

Indigenous Development

Aboriginal people play an important role in the operation of pearl farms. The land-based infrastructure of most farms is located on Indigenous owned land and is controlled through access agreements with traditional owners and land councils. Employment opportunities exist for local Aboriginal people to assist in the operation of the farms.

Ecologically Sustainable Development/Environmental Management

Pearling farms operate under Environmental Management Plans (EMPs) to ensure that best practices are employed to minimise the impact of pearling operations on the environment. In cooperation with the NT Government, the industry has developed EMPs for each farm.

RESEARCH

Summary

The renewed interest in pearling in the mid 1980s highlighted a lack of knowledge regarding pearl stocks in the NT. This led to a survey of diving for

pearl oysters by the Bureau of Rural Resources in 1989. This was followed by a Fisheries Research and Development Corporation (FRDC)-funded project which commenced in 1991 to describe the current status of the fishery, determine the size-frequency and morphometric characteristics of harvested NT pearl oysters, and monitor the period and abundance of pearl oyster settlement.

Work on improving the feeding of pearl oyster spat and broodstock was undertaken in the mid-1990s using funds from the Cooperative Research Centre for Aquaculture.

An FRDC-funded report on a survey of pearl oyster health across northern Australia in 1998 provided valuable information to assist the industry and the government to improve disease management protocols. A book titled 'The pearl oyster *Pinctada maxima*: An atlas of functional anatomy, pathology and histopathology' was published in 2005, based on samples taken during the pearl oyster health survey. The samples were submitted to the Veterinary Pathology Laboratories in WA, to Queensland and to the NT.

Much of the research by the pearling industry is conducted in-house and its outcome is contributing to the competitive advantage of individual companies.

INDUSTRY DEVELOPMENT

History

Several species of pearl oysters are found in Australian waters. The gold or silver-lipped pearl oyster (*Pinctada maxima*) forms the basis of Australia's pearl oyster fishery and the pearl oyster culture industry. The distribution of this species extends across the central Indo-Pacific region from India to New Guinea and the Philippines; in Australia, it extends from Carnarvon on the west coast, to south of Cairns on the east coast.

Pearl oysters have been fished commercially in NT waters since 1884 when 50 tonnes of pearl

shell were harvested from Darwin Harbour. Historically, most pearl oysters were collected for their shell, which was sold for its MOP value – the lustrous nacre of the shells was used for the production of buttons, ornaments and as an additive in paints and cosmetics. Between 1884 and 1887, oysters were collected from the harbour until they were fished out.

As pearlers spread around the coast from Darwin, new pearling grounds were discovered as the old were progressively fished out. This resulted in large yield fluctuations of MOP over the next 80 years. By 1899, 51 luggers were working the grounds harvesting about 200 tonnes of MOP a year. This slowly fell to 60 tonnes by 1910, ceased during WWI, and did not start again until 1923. Again production increased until 1930 when 32 luggers yielded about 700 tonnes per year. Production stayed around this level until 1939 when WWII halted production until 1948. After the war, production slowly increased until 1953. In 1953, the Australian Government permitted 35 Japanese divers into Australia in an attempt to rebuild the industry. The MOP industry flourished again and production peaked at 1100 tonnes a year and remained at that level for three years. As the new areas were fished out, production again declined slowly.

The arrival of plastics made shell harvesting uneconomic and MOP harvesting virtually ceased by 1964 when only two luggers remained in the industry, harvesting only 5 tonnes that year. The Japanese fleet's last harvest was in 1961.

Meanwhile, pearl culture techniques were proving commercially viable and pearl oysters were being collected for this purpose. In 1964 Paspaley Pearls established a pearl oyster farm for the culture of pearls at Knocker Bay, Port Essington. From 1966 until 1987 Paspaley Pearls was the only company farming and conducting diving for NT pearl oysters. Unlike the shallow and productive grounds in WA, the NT grounds are deeper, more isolated and patchier and have a higher proportion of oysters not suitable for round pearl culture. Consequently, in the early 1970s, Paspaley Pearls started to obtain culture stock

from WA and as techniques improved in the transport of oysters to the NT, the reliance on sourcing local oysters declined.

The success of Paspaley Pearls' pearling activities in the NT and WA, along with an expanding WA industry, prompted the NT Government to promote the expansion of a local pearling industry. Five additional companies met the government's selection criteria and were given restricted licences in 1988. Companies that met the development covenants over the following three years had their licences converted to unrestricted licences. From 1987 to 1993, there was renewed interest in harvesting pearl oysters from NT waters, with average yields during this period reaching 40 tonnes per year. Since 1994, there has been very limited harvesting of pearl oysters due to a reliable supply of hatchery-reared oysters and poor yields of good culture stock from the local pearling grounds.

In 1998, to assist with the development of the industry, both the Pearl Oyster Culture Industry Management Plan and Fisheries Regulations were changed to allow trade in fishing and hatchery units. Further changes occurred in 2006 that included changing licensing from a financial to a calendar year, the provision of additional pearl oysters to assist in training technicians in the art of pearl oyster seeding and allowing additional shell to account for pearl oysters that fail to retain their seeded nuclei. This was achieved by increasing the unit value by 15%, from 1000 to 1150 oysters.

Current Management Arrangements

The NT pearling industry is managed under a quota-based system and operates using two types of licences: a licence to fish for wild pearl oysters and a licence to culture pearls (either from fished or hatchery-propagated pearl oysters). There are 120 wild-harvest fishery units and 300 hatchery units. A licensee may substitute part or all of their annual pearl oyster fishing allocation for hatchery-reared pearl oysters. Although a limited allocation of MOP fishing occurs in most years, no licensee

currently fishes for pearl oysters suitable for pearl culture.

The fishery and hatchery units have a value of 1150 oysters. Therefore, with the available 420 units, the total number of new pearl oysters that may be seeded each year under the NT allocation system is 483 000. Only 25% of the seeding entitlement was used in 2009.

After successful negotiations with the WA Department of Fisheries and the WA pearling industry, NT licensees now have the option of seeding their NT allocation in WA and afterwards moving it to the NT.

A Memorandum of Understanding (MoU) has been developed between the NT and WA Governments that the Australian South Sea pearl industry should be managed in a consistent manner as the industry is highly susceptible to market pressures and any change in management arrangements for one jurisdiction could impact on the other. The MoU was signed by the respective Fisheries Ministers in June 2006 to ensure that complementary management measures are put in place and that both jurisdictions consult on any matter affecting the industry.

A compliance program based around farm audits, developed in conjunction with the industry, was implemented in 2007.

Current Issues

Investigations are continuing in WA to find the causative agent of the significant disease termed 'oyster oedema disease' that occurred in Exmouth Gulf, WA, in late 2006. There is no evidence that this disease occurs in the NT. Current translocation protocols mitigate the disease risk posed by the continued importation of WA oysters for seeding in the NT.

The WA Government review of the pearling industry of 2008, termed the "Hicks Review", recommended the removal of seeding quota from the industry. Discussions with the WA Government on this topic are continuing.

Future Plans

The NT pearling legislation will be reviewed as part of the full review of the NT *Fisheries Act 1988*.

Industry Liaison

The Department of Resources (DoR) provides a dedicated management officer for the pearling industry to assist with its issues and strategic development of the industry. The Pearl Industry Advisory Committee (PIAC) meets once a year to address issues of specific importance to the pearling industry and is composed of each pearling licensee and DoR officers. PIAC is chaired by the Executive Director of Fisheries.

The industry can also raise any issues of concern and contribute to aquaculture development in the NT through its representative on the Ministerial Advisory Committee on Aquaculture in the NT.

Pearling Industry Manager – Mr Murray Barton

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