

Name of species/group

Macrobrachium rosenbergii (Crustacea: Palaemonidae).

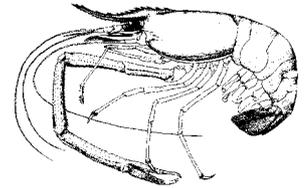
Macrobrachium shrimp

Primary potential

Aquaculture for cash income.

Attributes for aquaculture

- ▶ Larval cycle is uncomplicated, up to 20 days duration.
- ▶ Hatchery technology for mass seed production is standardised and well established.
- ▶ Juveniles are hardy and easily transported.
- ▶ In countries like Australia, annual mass migrations of juveniles occur. Captured juveniles could be used to conduct pilot grow-out trials, thereby avoiding the need to build an expensive hatchery initially.
- ▶ Neither juveniles nor adults are prone to diseases under culture conditions.
- ▶ Diet is less demanding than for marine prawns.
- ▶ Grow-out period is 6 months, allowing two crops per year. Selective harvesting could be done every two weeks after 4 months of culture.
- ▶ In some countries, macrobrachium fetches a higher price than marine prawns.
- ▶ Macrobrachium is best sold live or fresh chilled.



Culture methods

- ▶ Both clear and green water larval culture systems could be used for juvenile production. Low technology backyard and commercial hatcheries have been operating successfully for a number of decades.
- ▶ Grow-out production is pond-based. Pond sizes of 0.1–1 ha are suitable for production. The grow-out system is simple.
- ▶ Integration of prawn and farm animal production has been successfully applied in many Asian countries. Such low technology and low cost production systems could be readily adopted by Pacific countries.
- ▶ Marine prawn production systems have been successfully modified for intensive macrobrachium culture, with production of 2–5 tonnes/ha/year achievable.
- ▶ The farming system generally has low impacts on the environment. More intensive systems will have greater impacts on the aquatic system, but the fresh water could be re-used for watering terrestrial crops, and prawn waste accumulated in the bottom of ponds could be removed for fertilising land crops.

- ▶ Integrated macrobrachium and animal farming could be environmentally benign.
- ▶ Both hatchery and grow-out operations could involve women and family units.

Current production status

- ▶ Both hatchery and grow-out production systems are very well developed.
- ▶ Extensive, intensive and integrated farming of *Macrobrachium* species is conducted in many countries in Southeast Asia.
- ▶ World aquaculture production probably exceeded 130,000 tonnes in 1999, and is growing. The production from China alone was 79,000 tonnes in 1999 and 97,000 tonnes in 2000.

Marketing

- ▶ Frozen shrimp are easier to transport but this product is still not well accepted by many Asian countries (dead shrimp fetch only 50–70% of the price for live product of the same size in Thailand and China).
- ▶ The best practical option for many Pacific Islands countries is to sell fresh chilled, blanched if needed.
- ▶ The opportunity for export of processed shrimp is low because of the higher head/tail ratio than marine prawns and the loose meat texture that results from autolysis (enzymatic self-digestion) of body tissues.
- ▶ The shrimp is specially suited for cuisines where lots of spices are used in cooking. Many from Europe love the shrimp as it cooks extremely well with a variety of wines.
- ▶ Freshly grilled shrimp is popular in Southeast Asia and among tourists. Despite its freshwater origin, it is displayed in seafood restaurants in aerated aquaria and sold at USD10/kg. There are some 'shrimp-fishing' restaurants in Southeast Asia.
- ▶ Opportunity for local value-adding is limited.

Comparative advantages/disadvantages (risks) of producing the species in the Pacific

Advantages

- ▶ The species is established in the Indo-Pacific region. Where successful introductions have taken place, the shrimp has proved to be benign and has been well received by the local communities.
- ▶ Suitable for culture in smaller ponds. This is an advantage in many of the Pacific countries that have small land masses.

- ▶ Hatchery and seed production techniques are relatively easy, established and could be low technology.
- ▶ Suitable for extensive and intensive farming. Very successful species suitable for polyculture — for example, rice and prawn farming.
- ▶ Well developed market. The meat has an established niche market.

Disadvantages

- ▶ Some Pacific nations need to translocate the broodstock from their neighbours.
- ▶ *Macrobrachium rosenbergii* is not endemic to the countries in the Pacific, although other species of *Macrobrachium* are. However, it is believed that *M. rosenbergii* has been introduced into Guam, Fiji Islands, French Polynesia, Micronesia, New Caledonia, New Zealand, Palau, Solomon Islands, Vanuatu and Samoa during the past thirty years. No negative impacts have been reported in these translocations.
- ▶ Being a freshwater species, it may spread throughout the river systems within an island but there is little threat of it spreading between islands.