

ASIAN PACIFIC AQUACULTURE 2009

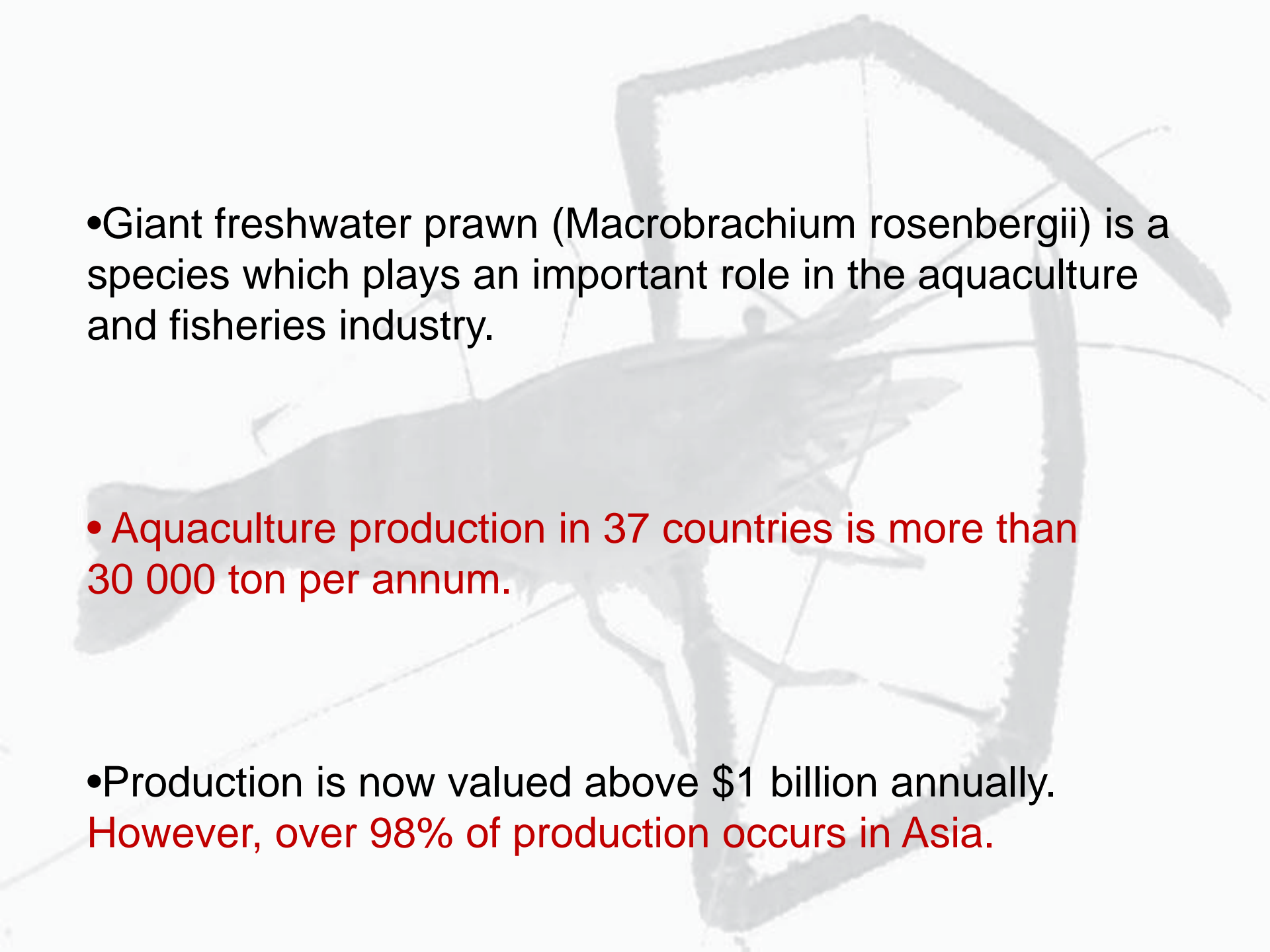
CULTURE AND BREEDING OF FRESH WATER PRAWN *Macrobrachium rosenbergii* AS AN EXOTIC SPECIES IN IRAN, PRESENT STATUS AND FUTURE PERSPECTIVE

Saeed Ziaei-Nejad **, *Gholamreza Rafiee* & *Mehdi Shakouri

Department of Fisheries
Natural Resources Faculty
Behbahan high educational complex
Behbahan, Iran, 63616-47189
zbsaeed@yahoo.com

Introduction

- Freshwater prawns belong to the family **Palaemonidae** which includes the **brackish and freshwater** grass shrimp and the larger river shrimp.
- The *Macrobrachium rosenbergii*, is **a commercially important species** of crustacean cultured extensively throughout Southeast Asia.
- Basic production techniques were developed in the late **1950's in Malaysia**.
- Giant freshwater prawn have always been concerned as a **suitable species** for aquaculture because it can be grown in both **fresh and low salinity waters**,



- Giant freshwater prawn (*Macrobrachium rosenbergii*) is a species which plays an important role in the aquaculture and fisheries industry.

- Aquaculture production in 37 countries is more than 30 000 ton per annum.

- Production is now valued above \$1 billion annually. However, over 98% of production occurs in Asia.

THE NATURAL HOME OF FRESHWATER PRAWNS



Species of the freshwater prawn genus *Macrobrachium* are distributed throughout the tropical and subtropical zones of the world.

Most species require brackishwater in the initial stages of their life cycle.

They are found in most inland freshwater areas including lakes, rivers, swamps, irrigation ditches, canals and ponds, as well as in estuarine areas.

Many *Macrobrachium* species have been transferred from their natural location to other parts of the world

Import of *M.rosenbergii* to Iran

In order to increase the aquaculture capacities in Iran, 56 prawn broodstocks were consequently imported from Bangladesh in 1990.

But it didn't succeed, because of various reasons such as the lack of expertises in its breeding and of required facilities .

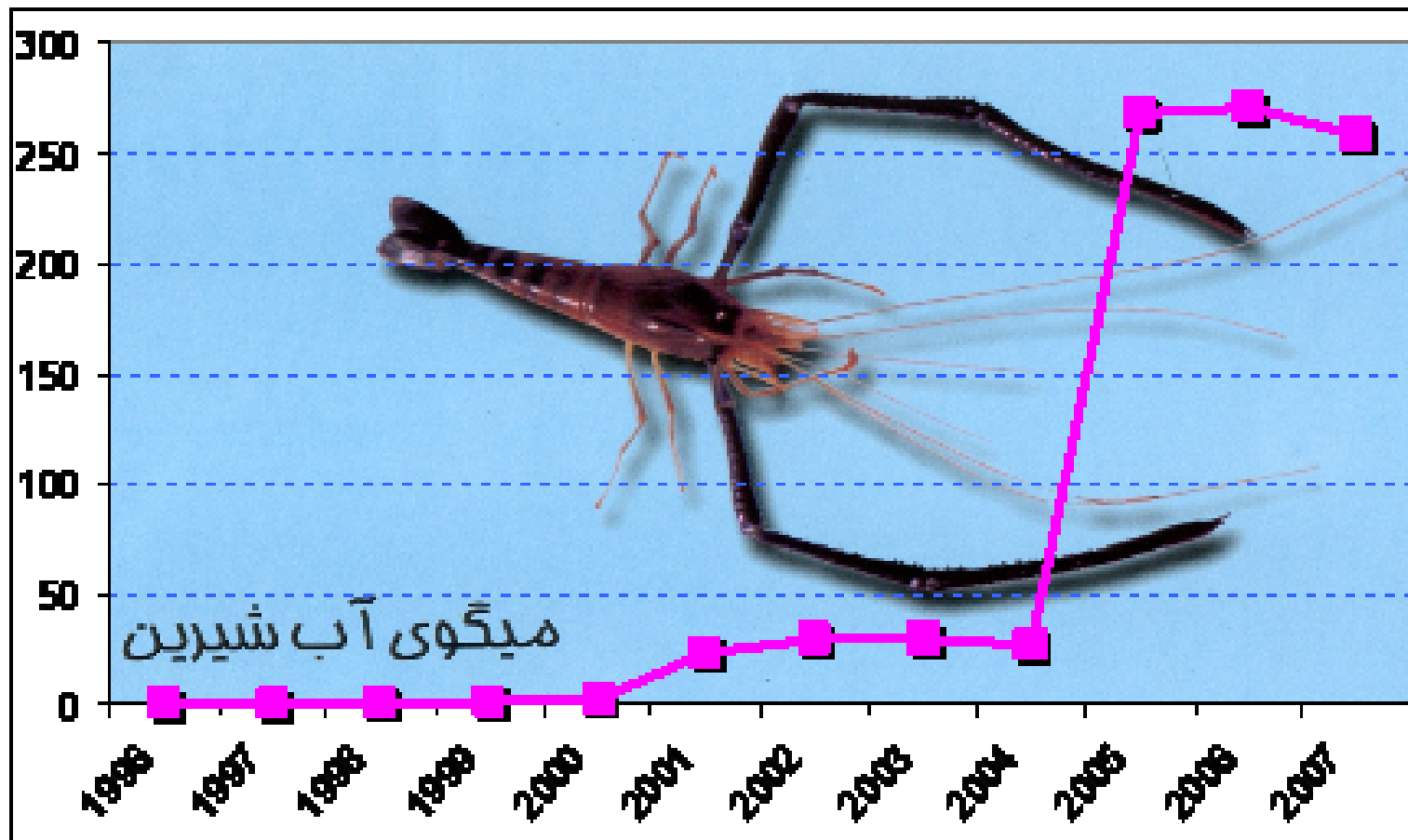
The serious and successful starting point of gaint freshwater prawn aquaculture was in 1993 when 60000 juveniles of *M.rosenbergii* were introduced to Iran (Khozestan Prov.) from Thailand.

Import of *M.rosenbergii* to Iran

In next years , culture and breeding of the prawn increased significantly, as total production increased form 0.5 ton in 1996 to 258 ton in 2007,

Production of postlarvae increased form 143000 pcs in 1996 to about 70 millions pcs in 2007.

M. rosenbergii production in Iran (ton) from 1996 to 2007 (source: FAO and Iran fisheries organization statistics)



Monoculture system and polyculture system together with carps.

Some reports recorded excellent growth and survival of *M. rosenbergii* in intensive carp culture operations.

At the present it is becoming a sustainable industry with low environmental impacts.

System	Stocking Density (juveniles/ m²)	Culture Period (days)	Production (kg/ha/crop)	Survival (%)
Semi-Intensive	10-15	180-210	500-700	60-75
Extensive Polyculture	1-2	240	300-500	60-70
Semi-Intensive Polyculture	5	240	400	60-70

Hatchery system for breeding of *M.rosenbergii* in Iran



Source of pictures: Iran fisheries organization

Stocking of *M.rosenbergii* in earthen pond



Source of pictures: Iran fisheries organization

FUTURE PERSPECTIVE

Climates: Semi-tropical and Mediterranean climate in southern, central and Northern areas of Iran (especially in summer).

Water Resources: The existence of fresh and brackish water resources are potential facilities for introduction and future development of the prawn culture and breeding in Iran.

Iran potentially has excellent conditions for freshwater prawn farming.

FUTURE PERSPECTIVE

Suitable temperatures year round (especially in some prov. Such as Khozestan) and **abundant flat land**.

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In addition, a portion of its several thousand hectares of **carps ponds**.

Millions of hectares of **rice fields** could be easily and inexpensively adapted to polyculture and **integrated culture** with freshwater prawns.

with significant potential for increasing profitability and **environmental sustainability**.

FUTURE PERSPECTIVE

The **further researches** on *Macrobrachium* should address proper **indoor broodstock maintenance** for year-round seed production.

Intensive rearing techniques for raising postlarvae to juvenile size need urgent attention.

The further popularization of freshwater prawn **monoculture and polyculture** should be supported for various levels of production.

Strategies for Sustainable Development of Freshwater Prawn Culture in Iran



میگوی آب شیرین

1- Establishment of Quality Prawn Seed Production System

- Further research work needs to be carried out on the **genetic improvement** of cultured prawn species;
- **Improved prawn breeding techniques** to be developed for **maintaining high quality seeds** at production level;

2- Improvement of Culture Technique

- There is a need for further studies on **improvement of culture technology** of *M.rosenbergii* under different environments in Iran.
- **improvement of feed and feeding.**
- **to maintain economic benefit** and ensure the **high quality of the products.**

3- Improvement in Marketing and Processing

- **Effective marketing strategy**
- **Further investment for suitable processing technology**
of freshwater prawn, value adding and **reducing market pressure**



Thanks for your attention