


Aquaculture & Fishery Biology

 VI Sem B.Sc. Zoology – Elective
Paper

Swapana Johny
Asst. Professor
Dept of Zoology





PRAWN CULTURE



INTRODUCTION

- PRAWNS – FRESH WATER FORMS
 - SHRIMPS – MARINE SPECIES
 - PRAWNS & SHRIMPS- HIGH COMMERCIAL VALUE, GREAT DEMAND & WORLD APPEAL.
 - RICH SOURCE OF FOREIGN EXCHANGE
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IMPORTANT CULTURE SPECIES

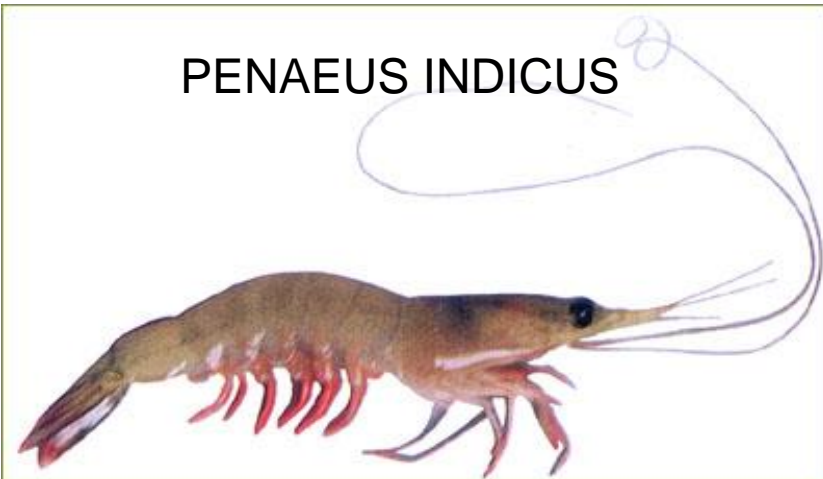
MACROBRACHIUM ROSENBERGII



PENAEUS MONODON



PENAEUS INDICUS



PENAEUS MERGUIENSIS



IMPORTANT CULTURE SPECIES



PENAEUS SEMISULCATUS



METAPENAEUS DOBSONI



METAPENAEUS AFFINIS



METAPENAEUS MONOCEROS

IMPORTANT CULTURE SPECIES

METAPENAEUS BREVICORNIS



COMMON NAMES

- *Penaeus indicus*- Indian white prawn- naran/
vellakonchu
 - *Penaeus monodon*- Tiger prawn-
karachemmeen/ pulikonchu
 - *Penaeus merguensis*- Banana prawn-
pazhakonchu
 - *Penaeus semisulcatus*- Green Tiger prawn-
kuzhikara
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COMMON NAMES

- *Metapenaeus dobsoni*- Flower tailed prawn-
thelli / poovalan
 - *Metapenaeus affinis*- Indian prawn-
kazhanthan
 - *Metapenaeus monoceros*- Indian prawn-
choodan
 - *Metapenaeus brevicornis*- Yellow prawn-
manjakonchu
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CULTURE OF FRESH WATER PRAWN

- 40 Sps. of Fresh water prawns genus *Macrobrachium*
 - Faster growth rate, high tolerance for temp fluctuations & salinity and less cannibalistic tendency
 - Inhabits rivers upper to lower reaches.
 - Mature males – upturned rostrum, larger than females & have enlarged second pair of walking legs.
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MACROBRACHIUM ROSENBEGII

- Inhabits rivers
 - Omnivorous – shallow muddy environment
 - Grows – 32cm – 200gm
 - Culture systems - Male size 25cm and females 15cm
 - Freshwater form – river – estuaries for breeding – young ones – freshwater habitats
 - River prawn cultured for 5-6 months
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Penaeus indicus

- Commonest marine shrimp sps in India
 - Body pale white, creamy or pale yellow colouration.
 - Smaller in size (23cms & 150gms)but highly delicious
 - Optimum salinity 20-30ppt.
 - Culture system with sandy bottom
 - Culture period 3-4 months
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Penaeus monodon

- Tiger prawn
 - Fastest growing of all species & cultivated throughout
 - Body reddish or brownish with thick black lines across abdomen
 - Euryhaline salinity 10-25ppt
 - Size 32cm and 400gms
 - Culture period 4 to 5 months
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SHRIMP CULTURE SYSTEMS

- Traditional and modern methods involved in culture
 - Traditional – in fields from tidal waters
 - Modern hatchery units and nursery facilities
 - Intensive culture systems also.
 - Traditional - Prawn Filtration(chemmeen varthu) – pokkali fields- chemmeen kettu
 - June- September rice cultivation
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- September – mid November – tidal water enters- prawn seeds trapped-
 - Harvesting April – May
 - Harvesting early morning or evening, a few days before or after full moon.
 - Thrissur, Alappuzha, Ernakulam & Kottayam.
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REPRODUCTION & LARVAL REARING

- Berried females
 - Collected from natural water bodies
 - Maintained in hatchery
 - Mature males - petasma
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Berried female, the orange colour of the eggs indicates they have been recently laid



Berried female

- **The eggs of *Macrobrachium rosenbergii* are carried by the ('berried') females until they are ready to hatch; as they ripen, they change from orange to grey/black**
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INDUCED BREEDING – EYE STALK ABALATION

- Endocrine Organs in the eyestalk
 1. Medulla terminalis X organ(MTX)
 2. Sensory papilla X organ (SPX)
 3. Sinus gland
 - X- organ produce moult inhibiting and gonad inhibiting hormones
 - Y- Organ – moult hormones- crustecdysone
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- Intervals between spawning -10-67 days changed to 3-15days
 - Cauterized females and double the number of males put together.
 - Brood stock fed with nutritious diet
 - pH maintained at 8
 - Sexual maturation after one week.
 - Larval stages from nauplius onwards.
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- Nauplius (6 sub stages - in 2-3 days) fed on yolk
 - Protozoa (3 sub stages – 3-6 days) feed on unicellular algae
 - Mysis (3 sub stages – 3-5 days) feed on algal cells.
 - Post larvae feeds on zooplankton
 - Post larva to juvenile- slow process- 15-20 days
 - Juveniles stocked when 20-25mm.
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CULTURE IN PRODUCTION PONDS

- Extensive production system use seeds from flow for culture
 - Low stocking density – 3000-5000 fry/ha
 - Pond preparation and supplementary feeding
 - Average production 200kg/ha per crop
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- Semi intensive shrimp farming- specially designed ponds
 - Hatchery, nursery & rearing ponds
 - Stocking rate 28,000-50,000 fry/ha
 - Enhanced natural food production & supplementary feeding
 - *P.indicus* 130-165mm (18-20g) in 3 months
 - *P. monodon* 160-165mm (35-40g) in 4-5 months
 - Shrimps are harvested in this period or a slow growth exhibited
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HARVESTING



MARKETING





THANK YOU