

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A),
(Re- Accredited by NAAC with B Grade)
Jagannaickpur, Kakinada-533002, East Godavari, AP

DEPARTMENT OF ZOOLOGY & AQUACULTURE
TECHNOLOGY

2019-2020



Guest lecture

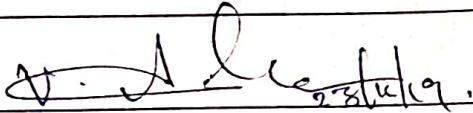
By

Dr. K. Narasimha Murthy

ASD Govt. Degree College for Women (A)

Jagannaickpur, Kakinada

Activity register 2019-2020

Date	23 - 11 - 2019
Conducted through (DRC/JKC/NCC/NSS/Department)	Aquaculture Technology
Nature of Activity (Seminar/Workshop/Extn. Lecturer ect.)	Guest lecture
Title of the Activity	Biology and culture of fresh water prawn
Name of the Department/Committee	Aquaculture Technology
Details of Resource Persons (Name. Designation ect.)	Dr.K.Narasimha murthy
No. of Students Participated	69
Brief Report on the Activity	Discussed and explained biology and how to culture the freshwater prawn and explained about importance of culture of fresh water prawn
Name of the Lecturers who Planned & Conducted the Activity	U. Satyanarayana G/F IN ZOOLOGY N. Veera Chanti G/F IN AQUACULTURE IN TECHNOLOGY B. Sonia G/F IN ZOOLOGY
Signature of the in Charge	
Signature of the Principal	H. Sivarajulu
Remarks	

INVITATION



స్వీచిద్వ్యప్రవర్తతాం

The Department of Aquaculture Technology of A.S.D.Govt.Degree College for Women(A) has been pleased to Organize a Invited Lecture on dt. 23-11-2019 at 02-00 P.M. at the SEMINAR HALL

on the

TOPIC

“Biology of fresh water prawn and Culture of fresh prawn ”

By

Dr. K. Narasimha Murthy, M.Sc., PhD
Academic Co-ordinator(B.voc.courses),
Head of the Dept Fisheries and Aquaculture
Ideal degree college of arts and sciences Kakinada.

“All the faculty members are requested to attend the Lecture”

We request the In-charges of the concerned departments to give permission to the students to attend for the Invited Lecture.

Convenor,
Department of Aquaculture Technology,
A.S.D.Govt.Degree College for Women(A),
Kakinada.

LIST OF TEACHING STAFF

S.No.	Name of the employee	Designation	Remarks
1	M.Suvarchala	Principal	
2	P.Sanjotha	Lec in English	<i>Sanjotha</i>
3	Y.Swarna Sri	Lec in English	<i>Swarna</i>
4	K.Madhavi	Lecturer in Telugu	
5	Dr. D.Chenna Rao	Lec. in Chemistry	<i>Chenna Rao</i>
6	V.B.Narayana Rao	Lec. In Chemistry	<i>V.B.Narayana Rao 21/11/19</i>
7	V.Ananthalakshmi	Lec. In Chemistry	<i>V. Ananthalakshmi</i>
8	Dr. S.Priya Darshini	Lec. In Chemistry	<i>S. Priya Darshini</i>
9	P.A.S.S.Krishna Kumari	Lec. In Botany	<i>P.A.S.S.Krishna Kumari 21/11/19</i>
10	G.R.N.S.Sujatha	Lec. In Botany	<i>G.R.N.S.Sujatha 21/11/19</i>
11	K.Vekateswararao	Lec. In Physics	<i>K. Vekateswararao 21/11/19</i>
12	G.SriDevi	Lec. In Physics	<i>G. Sri Devi 21/11/19</i>
13	R.Shasikala	Lec. In Physics	<i>R. Shasikala 21/11/19</i>
14	M.Madhavi	Lec.in Maths	<i>M. Madhavi 21/11/19</i>
15	Dr.K.Aruna	Lec. In Micro Biology	<i>Dr. K. Aruna 21/11/19</i>
16	K.Lavanya	Lec. In H.Sience	
17	Dr. G.Anitha	Lec. In H.Science	<i>Dr. G. Anitha 21/11/19</i>
18	Dr.B.Anjani Kumari	Lec.in History	
19	P.Syama	Lec in Commerce	
20	R.Ramadurga Sireesha	Lec in Commerce	<i>R. R. Ramadurga Sireesha 21/11/19</i>
21	Dr. K. Yamuna	Lec.in Economics	
22	N.N.Subhramanyeswari	Lec.in Computer Science	<i>N.N.S. Subhramanyeswari 21/11/19</i>
23	G.Satya Suneetha	Lec.in Computer Applications	<i>Suneetha 21/11/19</i>
24	G.Pramilarani	Physical Director	

A.S.D.GOV.T.DEGREE COLLEGE WOMEN (A) KAKINADA

LIST OF TEACHING STAFF

S.No.	Name of the employee	Designation	Signatures
1	M.Subbalakshmi	C/F in Chemistry	M. Subba H
2	P.Rajya Lakshmi	C/F in Commerce	
3	K.N.B.Kumari	C/F in Commerce	
4	V.Venkata Ramana	JKC Mentor	
5	K.Kamakshi	Guest Lec in Telugu	K. Kamakshi
6	N.Durga Lakshmi	Guest Lec in Telugu	N. Durga Lakshmi
7	P.Satya Naga Veni	Guest Lec in Hindi	P. Satya
8	R.Aruna Devi	Guest Lec in Sanskrit	R. Aruna Devi
9	P.S.N.Murthy	Guest Lec in Commerce	
10	M.Pushpa Latha	Guest Lec in Commerce	M. P. Latha
11	A.Sandhya	Guest Lec in Commerce	
12	M.Sree Ramulu	Guest Lec in Economics	M. Sree Ramulu
13	P.Bhuvanewari	Guest Lec in Politics	P. V. B. Devi
14	S.Saptagiri	Guest Lec in Botany	
15	N.Kiranmayi	Guest Lec in Maths	N. Kiranmayi
16	L.Bhanu Teja	Guest Lec in History	L. Bhanu Teja
17	U.Satyanarayana	Guest Lec.in Zoology	U. Satyanarayana
18	S.Malleswari	Guest Lec in Home Science	S. Malleswari
19.	A.K.V. Acharyulu	Asst. Librarian	
20	N.Veera Chanti	Guest Lec in CZAqT	
21	B.Sonia	Guest Lec.in Zoology	B. Sonia 2/11/19.
22	D.Javani	Guest Lec.in English	D. Javani 2/11/19.

Conducted Guest lecture on 23-11-2019



By. Dr. K. Narasimha Murthy guru.

Topic : Biology and culture of fresh water prawn



Biology of Prawn (*Macrobrachium rosenbergii*)

Introduction:

All the freshwater prawns that have been cultured so far belong to the genus *Macrobrachium*, Bate 1868, the largest genus of the family Palaemonidae. About 200 species have been described, almost all of which live in freshwater at least for part of their life.

The giant river prawn, *Macrobrachium rosenbergii*, was one of the first species to become scientifically known, the first recognizable illustration appearing in 1705. The nomenclature of freshwater prawns, both on a generic and a species level has had quite a muddled history. In the past, generic names have included Cancer (Astacus) and Palaemon. Previous names of *M. rosenbergii* have included *Palaemon carcinus*, *P. dacqueti* and *P. rosenbergii* (De Man 1879) became universally accepted.

There are 200 species of *Macrobrachium* in the world, of which 49 are commercial. Twenty seven of the commercial species are found in Asia and the Pacific. Most live in freshwater. A few species live in saltwater in the mouths of rivers.

M. rosenbergii is found extensively in the tropical and subtropical waters of the Indo-Pacific region in Malaysia, Thailand, the Philippines, India, Sri Lanka, Bangladesh, Myanmar, Indonesia and Vietnam. They are generally found in freshwater, in ponds, rivers, lakes, ditches, canals, depressions, low-lying floodplains and river mouths. Most of the species spend their early life in saltwater that is connected directly or indirectly with the sea. Some species complete their life cycle in freshwater, but these are not of commercial importance.

Prawns move upstream, entering lakes and even paddy fields, up to about 200 km from the sea. This type of migration is observed not only in *M. rosenbergii* but also in other species of *Macrobrachium*.

Importance:

Prawns are important groups of shellfish belongs to the class crustacean. Prawns have large economic significance. So, it is cultured worldwide. In Bangladesh, there are 24 species of freshwater prawns. It is very important to know about their external and internal morphology. On the other hand, male and female prawn have some distinct external characteristics between them.

- To know their external and internal morphologies
- To know about their maturity and their reproduction techniques
- To distinguish male and female
- To determine their culture techniques
- To know about their feeding and breeding behavior

Subspecies of *M. rosenbergii*

Due to differences in climate, weather and natural environment, many subspecies of *M. rosenbergii* have evolved. Three varieties are generally observed in nature.

Blue claw subspecies:

This subspecies grows to a large size. The ratio of claw to body length is 1.6 ± 0.1 . The male is territorial, its breeding behavior is complex and growth is comparatively slow.

Orange claw subspecies:

This subspecies is a little bigger than the median size of the blue claw variety and has orange-colored claws. The ratio of claw to body length is 1.0 ± 0.05 . The rate of fertilization of eggs is comparatively slow, but growth is fast.

Small subspecies:

This is the smallest of all the subspecies with spineless claws. The ratio of claw to body length is 0.5 ± 0.1 . At the time of copulation, these adopt the 'snake' mating strategy. Their growth is the slowest of the three varieties.

Classification:

Kingdom: Animalia

Phylum: Arthropoda

Sub-Phylum: Crustacea

Class: Malacostraca

Order: Decapoda

Family: Palaemonidae

Genus: *Macrobrachium*

Species: *M. rosenbergii*

Description:

The body of post larval and adult prawns consists of the cephalothorax (head) and the abdomen (tail). The bodies of freshwater prawns are divided into twenty segments (known as somites). There are 14 segments in the head, which are fused together and invisible under a large dorsal and lateral shield, known as the carapace. The carapace is hard and smooth, except for two spines on either side; one (the antennal spine) is just below the orbit and the other (the hepatic spine) is lower down and behind the antennal spine. The carapace ends at the front in a long beak or rostrum, which is slender and curved upwards. The rostrum extends further forward than the antennal scale and has 11-14 teeth on the top and 8-10 underneath. The first two of the dorsal teeth appear behind the eye socket.

The front portion of the cephalothorax, known as the cephalon, has six segments and includes the eyes and five pairs of appendages. The final three of these six segments can be seen if the animal

is turned upside down and appendages of the thorax are moved aside. The cephalon segments therefore support, from the front of the animal

- ✓ The stalked eyes;
- ✓ The first antennae, which each have three-segment peduncles from which three tactile flagella emerge;
- ✓ The second antennae, which each have five-segments peduncles and a single long flagellum;

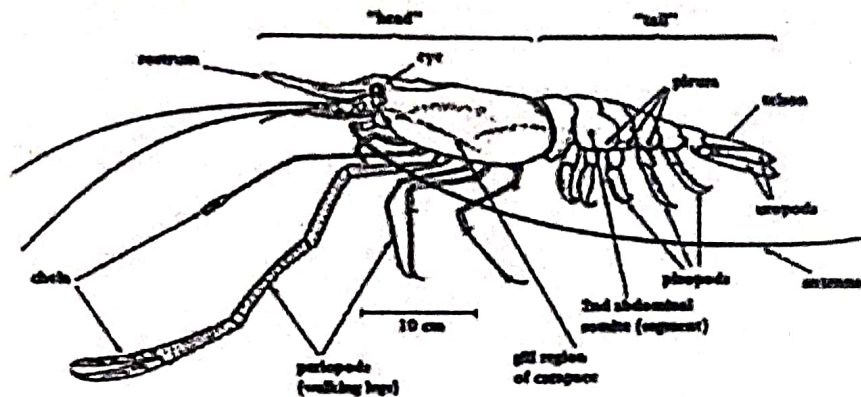


Figure 1.1: External morphology of freshwater prawn *M. rosenbergii*

- ✓ The mandibles, which are short and hard and are used to grind food;
- ✓ The first maxillae, which are plate-like, hidden below the second maxillae, and used to transfer food into the mouth; and
- ✓ The second maxillae, which are similar to the first maxillae but have an additional function.

The rear portion of the cephalothorax, known as the thorax, consists of 8 fused segments which have easily visible pairs of appendages. These appendages consist of 3 sets of maxillipeds and 5 pairs of pereopods, as follows:

- ✓ The first and second maxillipeds are similar to the first and second maxillae and function as mouthparts;
- ✓ The third maxillipeds, which are also mouthparts but look rather like legs;
- ✓ The first and second legs, which have pincers. These pincerred legs are also called chelipeds.

- ✓ The second chelipeds are used for capturing food, as well as in mating and agonistic behavior ; and the third, fourth and fifth legs (pereiopods), which are much shorter than the second cheliped, have simple claws, and are sometimes called walking legs. Eggs are extruded from oval gonophores in the base of the third pereiopods of females, which are covered with a membrane. In males, sperm is extruded from gonophores which are covered by flaps, situated in the base of the fifth pereiopods.

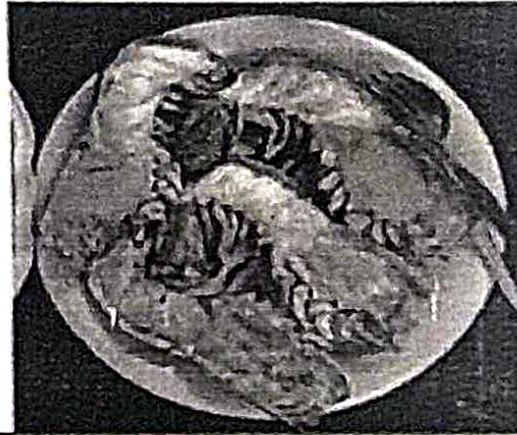


Figure 1.2: Grilled giant river prawns in Thai cuisine; each (whole) prawn weighing around 500 grams

M. rosenbergii can grow to a length of over 30 centimeters (12 inch). *M. rosenbergii* has been used in research more than any other species and has been introduced many new countries for commercial culture. Fujimura and Okamoto (1972) were successful in producing post-larvae (FL) of *M. rosenbergii* in large numbers in Hawaii in 1972. *M. rosenbergii* is being cultured in commercial quantities in many parts of the world including Hawaii, Honduras, Mauritius, Taiwan, Thailand and the Philippines. Farms have also been developed in Costa Rica, Israel, Bangladesh, Malaysia, and Mexico.

The shape (external morphology) and other characteristics of *M. rosenbergii*:

Eggs of *M. rosenbergii* are slightly elliptical, with a long axis of 0.6-0.7 mm and are bright orange in color until 2-3 days before hatching when they become grey-black. This color change occurs as the embryos utilize their food reserves. Most scientists accept that the larvae go through 11 distinct stages (Uno and Kwon 1969) before metamorphosis, each with several distinguishing features which are described and illustrated in Table 1.

Selected characteristics of *M. rosenbergii*:

STAGES	CHARACTERISTICS						
	Eyes	Rostrum	Antennal flagellum	Uropod	Telson	Pleopods	Periopods
I	sessile						
II	stalked						
III		1 dorsal tooth		first appearance			
IV		2 dorsal teeth		biramous with setae			
V			2 or 3 segments		more elongated and narrower		
VI			4 segments		more narrow	first appearance of buds	
VII			5 segments			biramous and bare	
VIII			about 7 segments			biramous with setae	
IX			about 9 segments			endopods with appendices internae	
X		3 or 4 more dorsal teeth	about 12 segments				1st & 2nd fully chelated
XI		many dorsal teeth	about 15 segments				

...habits and environment similar to those of the adult

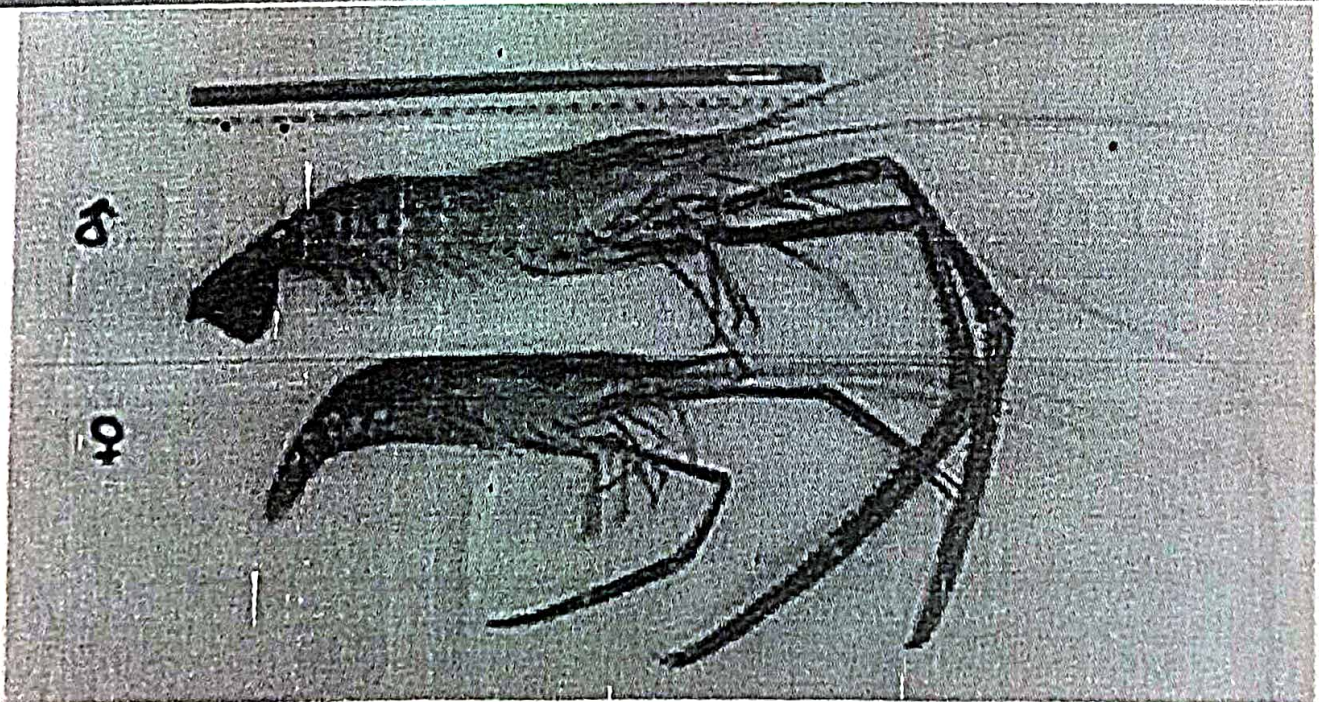
Fresh Water Prawn Culture

1. About fresh water prawn
2. Broodstock Management
3. Spawning and Larval Rearing
4. Larval Feeding
5. Harvesting of Post-larvae
6. Post-larval Rearing
7. Grow-out Culture
8. Economics
9. Related Resources

About fresh water prawn

Fresh Water Prawn (*Macrobrachium malcolmsonii*), the second largest fast-growing prawn occurs commonly in Indian rivers, draining into Bay of Bengal. They are cultivated under monoculture as well as polyculture systems. Under monoculture systems production levels of 750-1,500 kg prawns/ha/ 8 months are achieved. Further, it is a compatible species for polyculture along with Indian Major Carps and Chinese carps, which may yield 400 kg prawns and 3000 kg carps/ha/yr. Since the seed requirement for the commercial farming of this species is not met from the natural resources, large-scale seed production under controlled conditions for year-round supply is extremely important. The technologies of large-scale seed production and grow-out culture have led to increased awareness of the farmers and entrepreneurs for diversification of their culture practice.

Fresh Water Prawn Brooder



Male and female *Macrobrachium rosenbergii* (scampi)

Broodstock Management

Broodstock and berried females are essential component for continuous operation for seed production. The gonadal maturation of the species differs greatly in nature depending on the agro-climatic conditions. In the Ganga, the Hooghly and the Mahanadi river systems, the maturation and breeding start from May and continue till the end of October, whereas in the Godavari, the Krishna and the Cauvery systems it commences from April and continue till November. Under pond conditions, sexual maturity generally occur after attaining a maximum size of 60-70 mm. Berried females are recorded year-round in most of the ponds. The ratio of berried females in total population is found to be higher during August-September and during this period they carry good quantity of eggs (8000-80,000). Prawns breed 3-4 times in a season. Successful community breeding and year-round seed production under captive conditions is possible by employing air-lift bio-filter re-circulatory system.

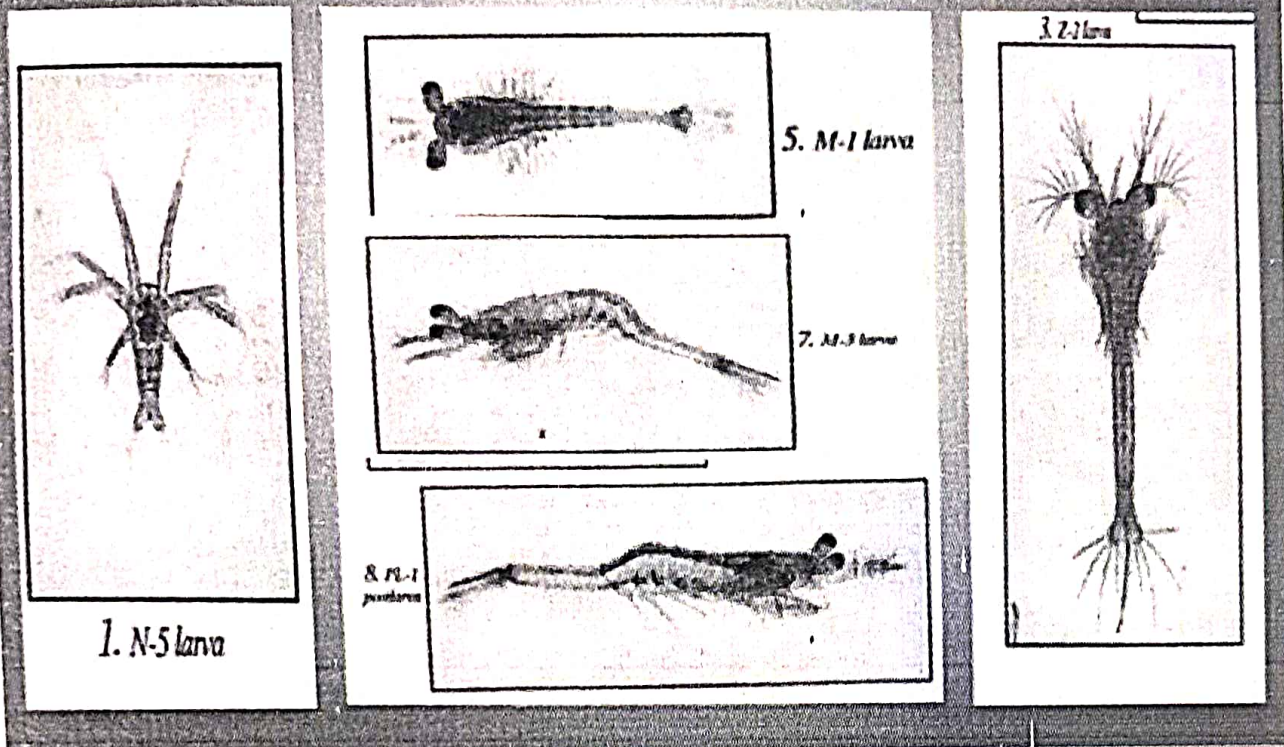
Spawning and Larval Rearing

Mating takes place immediately after pre-mating moult in matured female and spawning occurs few hours after mating. Incubation period of eggs lasts between 10-15 days depending upon the water temperature of 28-30°C. However, at lower temperature, the incubation period is prolonged to more than 21 days. Hatching of fully developed 1st zoea takes place through the body stretching of the zoea, which breaks the eggshell and comes out from the egg and starts swimming as plankton.

Different larval rearing technologies viz., static, flow-through, clear or green water, closed or semi-closed, with or without circulation systems of larval rearing of prawn species under hatchery conditions have been developed with varying degrees of success. The green water technique has been claimed to increase the post-larval production by 10-20% over other techniques and provide a quality seed. But higher mortalities are generally encountered due to rise in pH and uncontrolled algal bloom. Further, increase in numbers of adult *Artemia*, due to abundance of feed in green water, contributes to accumulation of ammonia in the culture medium. The production of post-larvae (PL) in large numbers is possible following airlift bio-filter re-circulatory system. The larvae passed through 11 zoeal stages before attaining PL within a period of 39-60 days at salinity and temperature ranging from 18-20‰ and 28-31°C, respectively, with the production density of 10-20 PL/l.

Bio-filter equipped with air-lift re-circulation has shown promising results in maintaining favorable water quality in different rearing media with enhanced rate of post-larval production. The water quality parameter generally influences the growth, survival and

Larval Stages of Prawn

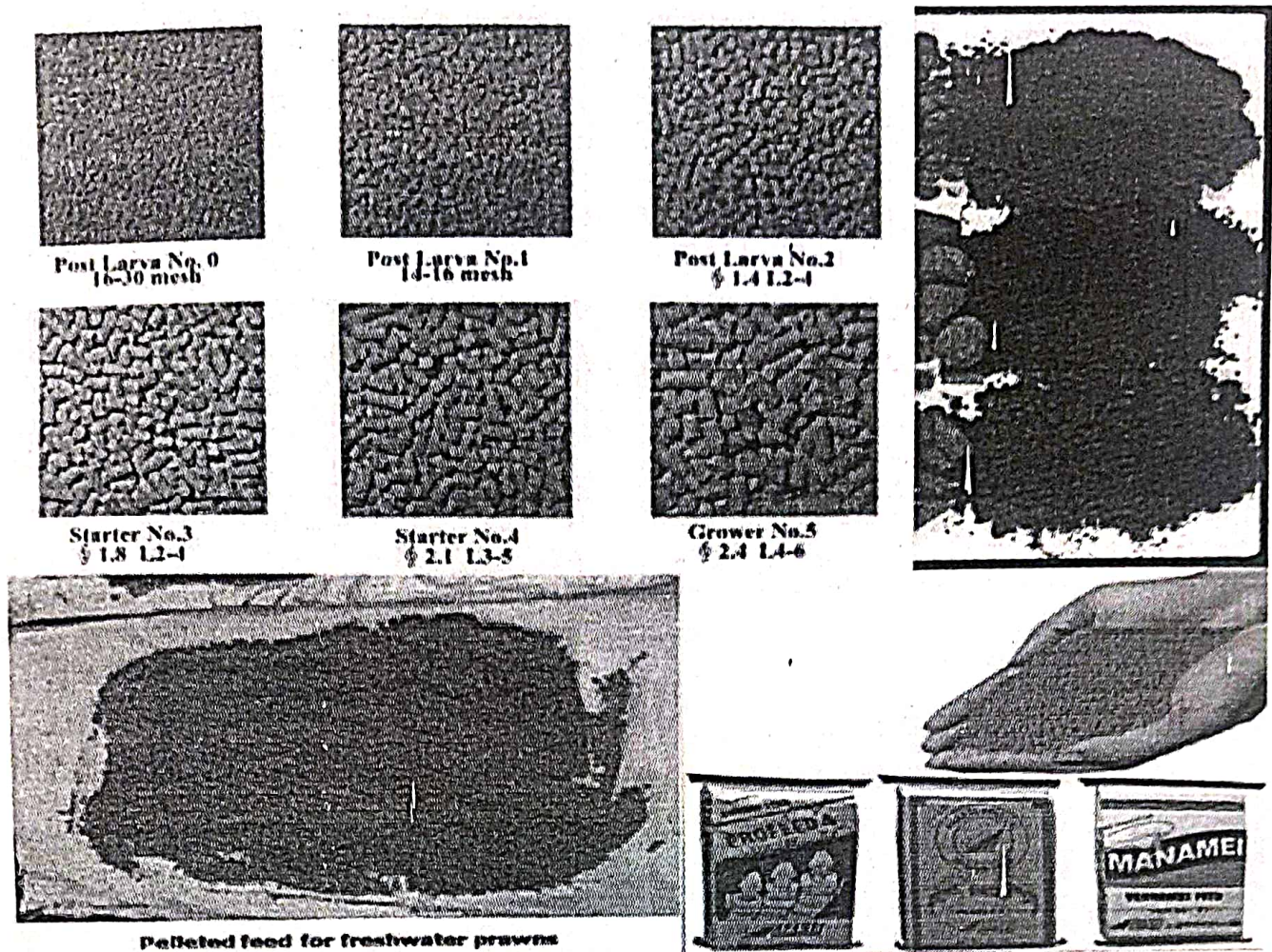


better survival (Table.1).

Parameter	Range
Temperature	: 28-30°C,
pH	: 7.8-8.2,
Dissolved Oxygen	: 4.4 to 5.2,
Total hardness	: 3000-4500 ppm
Total alkalinity	: 80-150 ppm
Salinity	: 18-20‰
Ammonical nitrogen	: 0.02-0.12 ppm

Larval Feeding

Various feed items viz., *Artemia* nauplii, zooplankton especially cladocerans, copepods, rotifers, flesh of prawn and fish, molluscan meat, earthworms, tubificid worm, egg custard and cut pieces of goat/hen viscera are used during larval rearing. Among these *Artemia* nauplii have been recognized as an excellent larval food for the prawn larvae. At the beginning, freshly hatched *Artemia* nauplii are provided to the 1st stage zoea at 1 g/30,000 larvae twice daily up to 15 days or till they attain stage VI. Thereafter, the feed is given once



Pelleted feed for freshwater prawns

Harvesting of Post-larvae

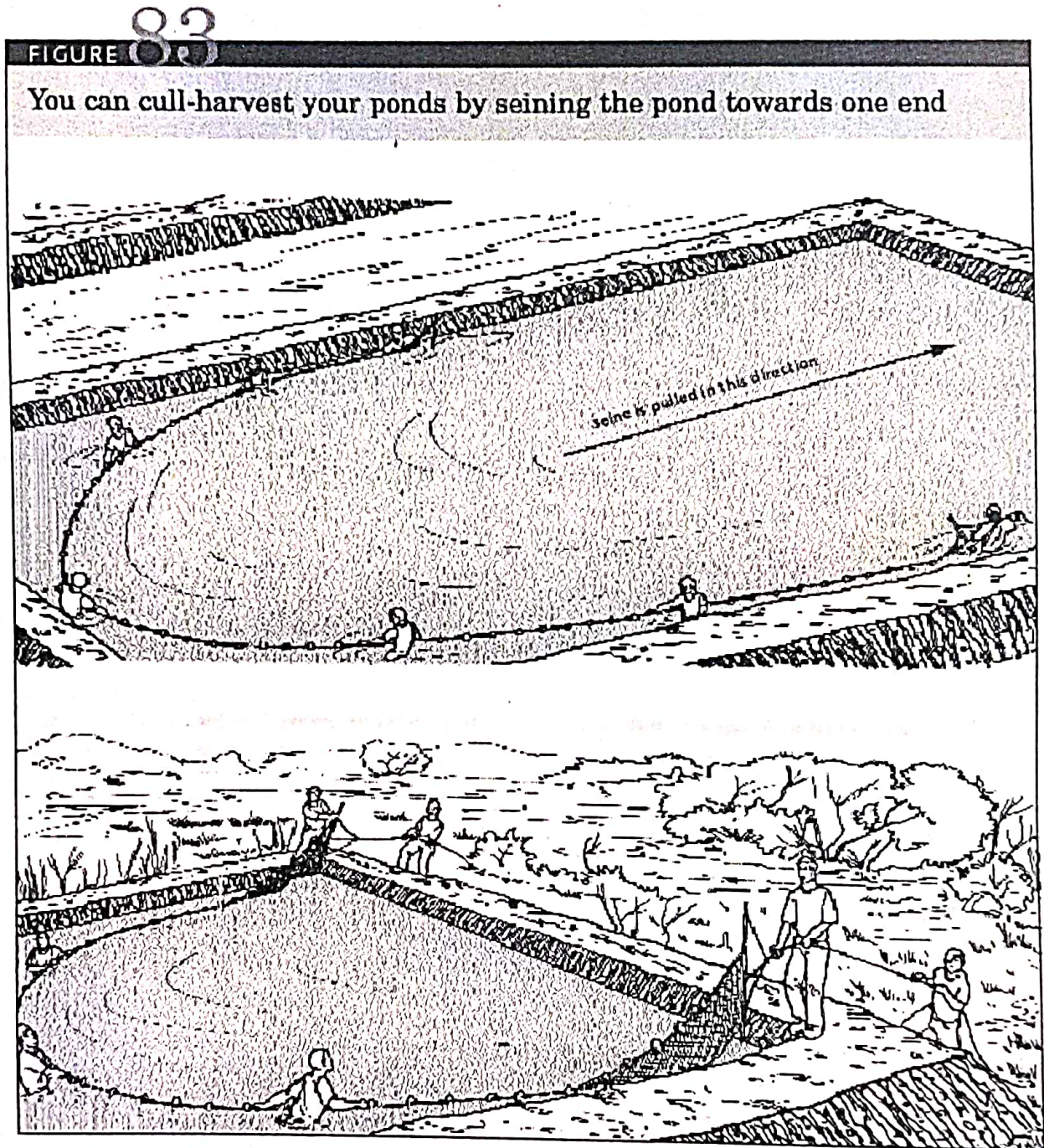
Harvesting of post-larvae of prawn is rather difficult due to their crawling habit. Therefore, both turn-down and drain siphoning of water are commonly used for harvesting. But due to longer duration for attaining post-larval stage the above methods are neither useful nor safe. Further, the presence of post-larvae in the larval tank affects the growth and survival of advanced larvae due to competition for food and cannibalism. Hence, the need for an ideal device for regular harvest of post-larvae from the rearing unit is very much essential. String shell is therefore devised and is successfully used for phase wise harvest of post-larvae during larval rearing. Post-larval survival and production rates, following air-lift bio-filter re-circulatory system, are in the range of 10-20 PL/l.

Post-larval Rearing

Optimum growth, production and survival of prawns can be achieved in grow-out ponds on stocking the nursery reared juveniles rather than stocking directly with the freshly metamorphosed post-larvae. Post-larvae slowly adopt themselves to freshwater. Optimum growth and survival of healthy juveniles during post-larval rearing is achieved at salinity of 10 parts per thousand.

Post-larval rearing can be done both in well-prepared earthen ponds with adequate aeration facility and inside the hatchery following bio-filter re-circulatory system. Stocking density, feed and water quality management play the major role in raising healthy juveniles during

rearing. Stocking density between 10-15 PL/l is ideal. Among various feed items, egg custard along with chopped freshwater mussel meat have been established to be more effective in maintaining good growth. Water quality parameters, viz., water temperature, pH, dissolved oxygen and dissolved ammonia in the ranges of 27.5-30°C, 7.8-8.3, 4.4-5.2 ppm and 0.02-0.03 ppm, respectively are considered to be favorable for better survival

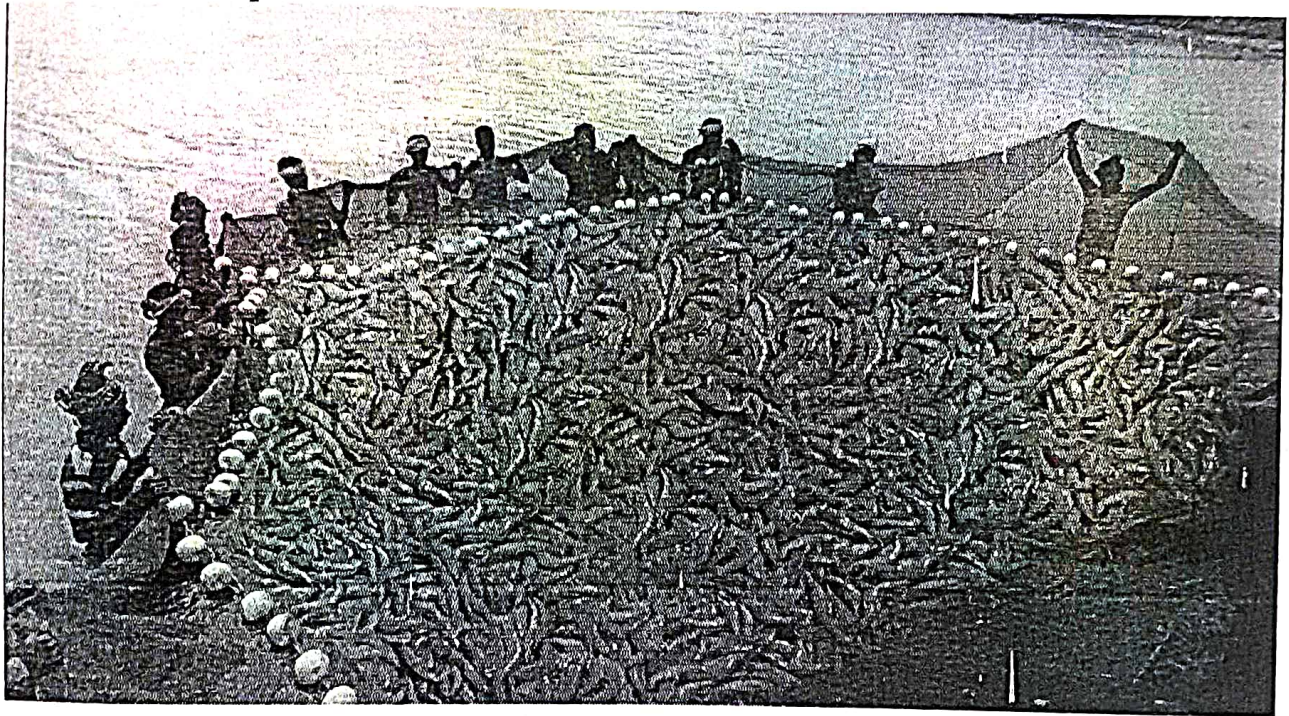


Grow-out Culture

Grow-out system of prawn is normally comparable to that of freshwater fish farms. As the prawns can migrate from one pond to other due to its crawling habit, it is necessary to have the pond embankment 0.5 m higher from the water level. Sandy-clay pond bottom is considered to be favourable for better growth. Undrainable ponds may be treated with conventional piscicides for eradication of predatory and weed fishes. Stocking density of

30,000 to 50,000/ha is recommended for semi-intensive monoculture farming. Ponds with the facility of water exchange and aeration can be used for intensive farming where stocking density could be increased to 1 lakh/ha. Temperature is the most important factor which directly controls the growth and survival of prawns. Temperatures above 35°C or below 14°C are generally reported to be lethal and 29-31°C is optimal.

Male prawns grow faster than females. Mixture of groundnut oil cake and fish meal in the proportion 1:1 is used as supplementary feed. A production of 750-1200 kg/ha in six months of rearing are achieved under monoculture with the stocking density of 30,000-50,000. In polyculture, *M. malcolmsonii* at a stocking density of 10,000-20,000/ha along with carps at density of 2,500-3,500 nos/ha, a production of 300-400 kg prawn and 2000-3000 kg carps can also be raised.



Economics

Economics of Hatchery (2 Million Capacity)*

Sl. No.	Item	Amount (in Rupees)
I.	Expenditure	
A.	Fixed Capital	
1.	Construction of broodstock pond (0.2 ha, 2 nos)	50,000
2.	Hatchery shed (10 m x 6 m)	2,50,000
3.	Larval rearing tank (12 units cemented, 1000 l)	1,00,000
4.	Drainage system with PVC pipe	20, 000
5.	Bore-well	40, 000
6.	Water storage tank (capacity 20,000 l)	40, 000

7. Electrical installation	30,000
8. Air-blowers (5 hp, 2 nos)	1,50,000
9. Aeration pipe networking system	40,000
10. Generator (5 KVA)	60,000
11. Water pumps (2 hp) with pipelines	30,000
12. 1. Refrigerator	10,000
13. 1. Miscellaneous expenditure	30,000
Sub-total	8,50,000

B. Variable Cost

1. Broodstock development including feed	50,000
2. Transportation of seawater	20,000
3. Feed (<i>Artemia</i> & prepared feed)	2,30,000
4. Chemical & medicines	10,000
5. Electricity and fuel	40,000
6. Wages (One Hatchery Manager & 4 skilled laborers)	2,10,000
7. Miscellaneous expenses	50,000
Sub-total	6,10,000

C. Total Cost

1. Variable cost	6,10,000
2. Depreciation cost on fixed capital @ 10% yearly	85,000
3. Interest on Fixed Capital @15% per annum	1,27,500
Grand Total	8,22,500

II. Gross Income

Sale of 2 million seed (@ Rs.500/1000 PL)	10,00,000
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III. Net Income (Gross income - Total costs)	1,77,500
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**Fluctuate according to the region and prevailing market price.*

Guest lecture

23/11/2019



shot on U10
vo AI camera

Sl. No	Name of the student	Group	Signature
22.	P. Sowjanya	II BSC (CBZ)	P. Sowjanya
23.	M.V. Rajeswari	III BSC (CBZ)	M.V. Rajeswari
24.	Y. UmaAbrambica	III B.sc (CBZ)	Y. U. Abrambica
25.	Ch. Madhavi	III Bsc (CBZ)	Ch. Madhavi
26.	P. Kamakshi	III Bsc (CBZ)	P. Kamakshi
27.	K. Chandini	III Bsc (CBZ)	K. Chandini
28.	S. Hymavathi	III Bsc (CBZ)	S. Hymavathi
29.	K. Vatsavi	II Bsc (CBZ)	K. Vatsavi
30.	J. Jahnavi	II B.sc (CBZ)	J. Jahnavi
31.	K.S.D. Mahalakshmi	II B.sc (CBZ)	K.S.D. Mahalakshmi
32.	K. UKA Devi	II B.sc (CBZ)	K. UKA Devi
33.	P. Konda Devi	II B.sc (CBZ)	P. Konda Devi
34.	G. Dhana Lakshmi	II B.sc (CBZ)	G. Dhana Lakshmi
35.	T. Vara Lakshmi	II B.sc (CBZ)	T. Vara Lakshmi
36.	P. Sirisha	II B.sc (CBZ)	P. Sirisha
37.	P. Satya Janani	II B.sc (CBZ)	P. Satya Janani
38.	B. M.S. Prasanna	II B.sc (CBZ)	B.M.S. Prasanna
39.	U. Puji Tha	II B.sc (CBZ)	U. Puji Tha
40.	V. Bhavani	II B.sc (CBZ)	V. Bhavani
41.	K. Dayana	II B.sc (CBZ)	K. Dayana
42.	G. Megana	II B.sc (CBZ)	G. Megana

A. S. D. Govt Degree College for Women [A]

I Bsc Aquaculture technology [2019-2020]

Guest Lecture

S.No	Name of the Student	Group	Signature
1.	K. L. S. Lalitha	(CZAgT)	K. L. Sai Lalitha
2.	A. Santhi Rupa	(CZAgT)	A. Santhi Rupa
3.	M. Suguna	(CZAgT)	M. Suguna
4.	M. Bharathi	(CZAgT)	M. Bharathi
5.	M. Chandhini	[CZAgT]	M. Chandini
6.	L. Durga Bhavani	[CZAgT]	L. Durga bhavani
7.	G. H. V. L. Phaneel	[CZAgT]	G. H. V. L. Phaneel
8.	M. Lakshmi	[CZAgT]	M. Lakshmi
9.	B. N. D. Lakshmi	[CZAgT]	B. Naga durga Lakshmi
10.	Ch. Harshitha	[CZAgT]	Ch. Harshitha
11.	V. Keerthana	[CZAgT]	V. Keerthana
12.	B. P. K. CH. Kumari	[CZAgT]	B. P. K. CH Kumari
13.	P. Pushpa Latha	(CZAgT)	P. Pushpa Latha
14.	D. Sri Vani	[CZAgT]	D. Sri Vani
15.	G. Sudha	[CZAgT]	G. Sudha
16.	P. Suguna Kumari	[CZAgT]	P. Suguna Kumari
17.	N. Usha Rani	[CZAgT]	N. Usha Rani
18.	B. Vennisha Rani	[CZAgT]	B. Vennisha Rani

