

**FIELD PRACTICE REPORT ON THE BROODSTOCK MANAGEMENT OF
GIANT FRESHWATER PRAWN (*Macrobrachium rosenbergii* De Man) AT
THE BUREAU OF FISHERIES AND AQUATIC RESOURCES –
GUTUAN MARINE FISHERIES DEVELOPMENT
CENTER**

By

MARLEE ESMEERE DONCILLO BADUA

**Department of Aquaculture
COLLEGE OF FISHERIES
Central Luzon State University
Science City of Muñoz, Nueva Ecija
Philippines**

2017

**FIELD PRACTICE REPORT ON THE BROODSTOCK MANAGEMENT OF
GIANT FRESHWATER PRAWN (*Macrobrachium rosenbergii* De Man) AT
THE BUREAU OF FISHERIES AND AQUATIC RESOURCES –
GUTUAN MARINE FISHERIES DEVELOPMENT
CENTER**

By


MARLEE ESMEEERE DONCILLO BADUA

Undergraduate Field Practice Report presented to the faculty
of College of Fisheries, Central Luzon State University
in partial fulfillment of requirements for the degree

of

BACHELOR OF SCIENCE IN FISHERIES

Approved:


APOLINARIO V. YAMBOT
Adviser


CLAIRE SAMANTHA T. JUANICO
Critic


KARL MARX A. QUAIZON
Department Chairperson


CLAIRE SAMANTHA T. JUANICO
Field Practice Coordinator

Accepted:


RAVELINA R. VELASCO
Acting Dean

Department of Aquaculture
COLLEGE OF FISHERIES
Central Luzon State University
Science City of Muñoz, Nueva Ecija
Philippines

2017

BIOGRAPHICAL DATA



Personal Data

Name	Marlee Esmee D. Badua
BirthdaY	January 23, 1996
Birthplace	Alicia, Isabela
Address	Dagupan, Alicia, Isabela
Parents	Mr. Mario M. Badua and Mrs. Lelita D. Badua

Educational Attainment

Elementary	Alicia Central School Alicia, Isabela
Secondary	School of our Lady of Atocha Alicia, Isabela
Tertiary	Central Luzon State University Science City of Muñoz, Nueva Ecija

ACKNOWLEDGEMENT

First and foremost, the author would like to acknowledge The Lord, Who has provided wisdom, courage and strength during her internship, and in her daily life. All the glory and praises are given to Him.

She is also thankful to her family without whose help, this paper might not have been possible: Mr. Mario M. Badua, and Mrs. Lelita D. Badua, her parents, who supported her morally and financially; her brothers, Leomar D. Badua and Marville D. Badua, who gave her valuable advices, and encouragement.

She is also grateful to Dr. Apolinario V. Yambot , her adviser, and Mr. Claire Samantha T. Juanico, her critic and the current On-the-Job Training Coordinator, for patiently checking and improving this report.

In addition, she wants to extend her gratitude to the staff of the Guiuan Marine Fisheries Development Center, namely; Mrs. Nenita Cabacaba, Chief of the Center; to Kuya Rony Añora for being her technician on the hatchery *Macrobrachium rosenbergii*; and Kuya Teddy Fajerlan assistant of the station.

She is also thankful to the Phycology Laboratory family, namely: Ma'am Elizabeth Tumanda , Station Head; *Ate* Aileen , *Ate* Sarah and Manilyn, technical assistants of the station and at the same time, her mentors, and counselors during her training.

She would like to express her special gratitude to Graciela Joyce Nocum, who made her On-the-Job training memorable and enjoyable.

Lastly, the trainee would like to thank all her classmates and friends for their concern, and for sharing their ideas so she could improve her manuscript: Gela, Mariel, Eden, Kai, Loty, and Alpha.

The author knows that mere words could not fully express her gratitude.

MARLEE ESMEERE DONCILLO BADUA

TABLE OF CONTENTS

	Page
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF APPENDIX FIGURES	xi
EXECUTIVE SUMMARY	xii
BACKGROUND OF THE FIELD PRACTICE	1
Nature of the Field Practice	1
Location and Description of the Station	1
Organization and Management of the Station	3
Morphological Characteristics and Habits	4
Characteristics of Male and Female Freshwater Prawn	4
Species Cultured	5
Life Cycle	6
Colouration	6
Distribution	7
Broodstock Management	8
Source	8
Selection	9
Characteistic of prawns in breeding	10
Feeding habit of <i>Macrobrachium rosenbergii</i>	11
Feeding habit for the Larvae stage (BFAR REGION 3)	12
Feeding habit for the Larvae stage (BFAR REGION 8)	12
Handling and Transportation	13
Desirable larval rearing parameters	14
ACTIVITIES UNDERTAKEN	15
Preparation of Tanks	15
Selection of Breeders	16

Monitoring of Larval Development	18
Monitoring of Salinity	21
OTHER ACTIVITIES UNDERTAKEN	22
Spawning of Sea Cucumber	22
Implantation of Nucleus on the Giant Pearl Oyster	23
STRENGTHS AND WEAKNESSES OF THE STATION	25
Strengths of the Station	25
Weaknesses of the Station	26
REFERENCES	27
APPENDICES	29

LIST OF TABLES

Table	Title	Page
1	Feeding habit for the Larvae stage (BFAR REGION 3)	10

LIST OF FIGURE

Table	Title	Page
1	Satellite in mage of the location of the station	2
2	Organizational structure of the <i>Macrobrachium rosenbergii</i> Section	3
3	<i>Macrobrachium rosenbergii</i> male	4
4	<i>Macrobrachium rosenbergii</i> female	4
5	Digital image of freshwater (<i>Macrobrachium ronsenbergii</i>)	5
6	Life cycle of <i>Macrobrachium rosenbergii</i>	6
7	Preparation of tanks	15
8	Selection of breeders	16
9	Collection of larvae	17
13	Monitoring of Larval Development	18
14	Newly hatched	18
15	Stage I	19
16	Stage II	19
17	Stage III	19
18	Stage V	19
19	Stage VII	20
20	Stage VIII	20

21	Stage IX	20
22	Post larvae stage	20
23	Monitoring of salinity	21
24	Spawning of Sea cucumber	22
24	Implanation of Nucleus into Giant Pearl Oyster	23

LIST OF APPENDIX FIGURES

Appendix Figure	Title	Page
1	Daily activities	30

LIST OF APPENDIX FIGURES

Appendix Figure	Title	Page
1	Daily activities	30

**FIELD PRACTICE REPORT ON THE BROODSTOCK MANAGEMENT OF
GIANT FRESHWATER PRAWN (*Macrobrachium rosenbergii* De Man)
AT THE BUREAU OF FISHERIES AND AQUATIC RESOURCES –
GUTUAN MARINE FISHERIES DEVELOPMENT
CENTER**

EXECUTIVE SUMMARY

The author undertook a training on the hatchery of freshwater prawn (*Macrobrachium rosenbergii*- De Man) at the Barangay Santo Niño Guiuan Eastern Samar from June 17, 2016 to July 21, 2016 during weekdays and a Saturday which is equivalent to 30 working days.

The activities involved in *Macrobrachium rosenbergii* hatchery are: the selection of breeders, monitoring of larval development, monitoring of salinity, feeding of larvae and broodstock.

The strengths of *Macrobrachium rosenbergii* hatchery include good source of salt water, skilled workers and manpower, efficient power supply and multi-tasking of the staff. The weaknesses of the hatchery include lack of office and laboratory supplies, lack of freshwater supply.

1/ Undergraduate Field Practice Report presented to the faculty of College of Fisheries, Central Luzon State University in partial fulfillment of the requirements of Bachelor of Science in Fisheries, Prepared under the Department of Aquaculture under the supervision of Dr. Apolinario V. Yambot.

References

- Ang, K.J. and Y.K. Law. 1991. Fecundity changes in *Macrobrachium rosenbergii* De Man during egg incubation. *Aquaculture and Fisheries Management* 22: 1–6.
- Cavalli, R.O., P. Lavens and P. Sorgeloos. 1999. Performance of *Macrobrachium rosenbergii* Broodstock fed diets with different fatty acid composition. *Aquaculture* 179: 387–402.
- Cavalli, R.O., G. Menschaer, P. Lavens and P. Sorgeloos, P. 2000a. Maturation performance offspring quality and lipid composition of *Macrobrachium rosenbergii* females fed increasing level of dietary phospholipids. *Aquaculture International* 8:41–58.
- Cavalli, R.O., M. Tamtim, P. Lavens, and P. Sorgeloos. 2000b. Variations in lipid classes and fatty acid content in tissues of wild *Macrobrachium rosenbergii* De Man females during maturation. *Aquaculture* 193: 24 -311.
- Cavalli, R.O., P. Lavens, and P. Sorgeloos. 2001a. Reproductive performance of a *Macrobrachium rosenbergii* females in captivity. *Journal of the World Aquaculture Society* 32: 7- 60.
- Cavalli, R.O., M. Tamtin, P. Lavens, P. Sorgeloos, H.J. Nelis, and A.P. Leenheer. 2001b. The content of ascorbic acid and toco-pherol in the tissues and eggs of wild *Macrobrachium rosenbergii* during maturation. *Journal of Shellfish Research* 20: 43- 939.
- Cavalli, R.O., F.M.M. Batista, P. Lavens, P. Sorgeloos, H.J. Nelis, and A.P. Leenheer. 2003. Effect of dietary supplementation of vitamins C and E on maternal performance and larval quality of the prawn *Macrobrachium rosenbergii*. *Aquaculture* 227: 46 -131.
- Dejarme, H.E. 2005. Hatchery and pond culture of *Macrobrachium rosenbergii* in Northern Mindanao.
- Doyle, R.W., S. Singholka, and M.B New. 1983. Indirect Selection' for genetic change: a quantitative analysis illustrated with *Macrobrachium rosenbergii*. *Aquaculture* 30: 47-237.
- FAO. 2016 . Pearl oyster farming and pearl culture. Retrieved on December 05, 2016 from <http://www.fao.org/docrep/field/003/AB726E/AB726E13.htm>
- Malecha, S.R. 1983. Vol. 1. Commercial seed production of the freshwater prawn, *Macrobrachium rosenbergii*, in Hawaii. pp. 30-205. In: J.P Mcvey and J.R Moore (eds.) *CRC Handbook of Mariculture, Crustacean Aquaculture*. CRC Press. BocaRaton.

- Nandlal, S., and Pickering T. 2005. Freshwater prawn *Macrobrachium rosenbergii* farming in Pacific Island countries. Hatchery operation, Noumea, New Caledonia: Secretariat of the Pacific Community.
- New, M.B. 2012. Farming freshwater prawns a manual for the culture of the giant river prawn (*Macrobrachium rosenbergii*).
- Rao, K.J. 1991. Reproductive biology of the giant freshwater prawn *Macrobrachium rosenbergii* De Man from Lake Kolleru (Andhra Pradesh). Indian Journal of Animal Sciences 61:7-780.
- Santos, M.J.M. 1998. Influence of ocular ablation in the camarão *Macrobrachium rosenbergii* De Man 1879 (Crustacea, Decapoda, Palaemonidae) on reproductive and epidermal pigmentation. Graduation Monograph, State University of São Paulo, Jaboticaba.
- Schmitt, A.S.C., and R.F Uglow. 1996. Effects of temperature change rate on nitrogen effluxes of *Macrobrachium rosenbergii* De Man. Aquaculture 140: 81-373.
- Smith, T.I.J., and A.J. Wannamaker. 1983. Shipping studies with juvenile and adult Malaysian prawns *Macrobrachium rosenbergii* De Man. Aquacultural Engineering 2:287-300.
- Tayamen, M.M., 2001. The biology and hatchery management of Giant freshwater prawn *Macrobrachium rosenbergii* De Man. Bureau of Fisheries and Aquatic Resources-National Freshwater Fisheries Technology, Central Luzon State University compound (manual).
- Varghese, A.G., A.L. Muthuraman, and G. Gopakumar. 1992. Sex-ratios in broodstock rearing of the giant prawn, *Macrobrachium rosenbergii* De Man: a critical factor for oviposition and larval production. pp.7-145. In: Silas, E.G. (eds). Freshwater Prawns .Proceedings of the National Symposium on Freshwater Prawns (*Macrobrachium* spp.). Kochi , Kerala Agricultural University, Thrissur.

<http://www.seafdec.org>

<http://www.bfar.da.gov>

<http://www.fao.org>

https://www.revolvy.com/topic/Broodstock&item_type=topic

http://agritech.tnau.ac.in/fishery/fish_freshwaterprawn.html

<https://www.revolvy.com>.