TECHNOLOGY GUIDE ON BLUE SWIMMING CRAB

(*Portunus pelagicus*)

Hatchery Technology

Philippine Association of Crab Processors, Inc.
An Association For Sustainable Crab Fisheries

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

OUTLINE

1. Background
2. Broodstock Preparation
3. Spawning and Larval rearing
4. Water parameters
5. Feeding
6. Harvesting
7. Requirements per cycle

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

BACKGROUND

- The blue-swimming crab (*Portunus pelagicus*) is a significant commercial species in the Philippines, ranking as the **4th major fishery export product**.
- However, increased demand has led to overfishing and declining wild blue swimming crab populations.
- To address this issue and enhance sustainable production, BFAR Region 7 conducted recent experiments to develop a technology guide for farming this valuable commodity.
- This guide addresses the limited knowledge of their reproductive biology, assessment methods, optimal water conditions, and feeding frequency, aiming to support the responsible cultivation of blue-swimming crabs.

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

BROODSTOCK PREPARATION

1. Source live berried crab in the nearby landing areas or wet market.
2. Select a 300-500g berried crab, preferably with black/dark green coloured eggs.
3. Disinfect broodstock using 3ml formalin in 25 liters of seawater and soak for 30 minutes.
4. Keep the crabs in a 50L tank of filtered seawater with salinity between 27-35 ppt.
5. Maintain a temperature that should not fall <28°C.
6. Use only filtered seawater using a 5 micron filter bag during the entire rearing, following a 50% daily water change.
7. Disinfect seawater using 10g of chlorine and 25g of sodium thiosulfate per ton of filtered seawater to avoid bacterial and other pathogenic infections

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

SPAWNING AND LARVAL REARING

SPAWNING

Allow to naturally spawn in the tanks within **24- 48 hours**. After spawning, transfer the zoea to the 10 tons capacity tanks with a stocking density of **250,000/8 tons water**.

LARVAL REARING

ZOEA (Day 0-10)

- Daily water change at 30-40% every morning.
- Siphon out excess feeds, dead larvae, and other deposits in the tank's bottom.
- Feed daily
- Vigorous aeration is required in zoea stages

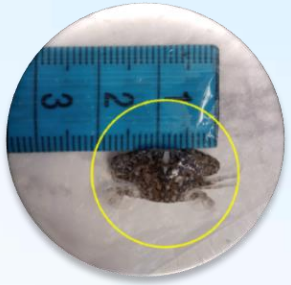
MEGALOPA (Day 11-14)

- Placed a black mesh nets (20µ) in the rearing tank as substrate
- Repeat the steps in Zoea Stage
- Feed daily
- Reduce aeration

INSTAR (Day 15-21)

- Repeat the step in Zoea Stage
- Feed daily

CRABLET (Day 22-35



- Change the water daily at 80%.
- Feed daily

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

WATER PARAMETERS

Salinity	28-35ppt	Ammonia	0.10ppm
Temp	29-32°C	Nitrite	<0.05ppm
pH	7.0-8.5	Sulfide	<0.01ppm
D.O	5-8mg/L	Phosphate	<0.01ppm

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

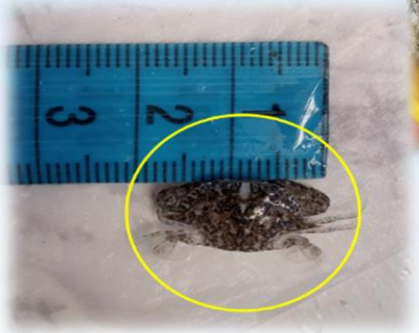
FEEDING

STAGES	FOOD	FREQUENCY /DAY
Zoea (day 1-4)	P. japonicus (3.18g/8 tons tank) Rotifer (17 individuals/ml) Nannochloropsis (120,000cells/ml)	3x 2x 2x
Zoea (day 5-9)	P. japonicus (3.18g/8 tons tank) Rotifer (17 individuals/ml) Nannochloropsis (120,000cells/ml) Artemia (4 individual/ml)	3x 2x once 2x
Megalopa (day 10-14)	Brine pellets(14.78/tank (8 tons) Artemia (5-7 individual/ml)	3x 2x
Instar (day 15-21)	Trash Fish 285g/tank (8 tons) Artemia (5-7 individual/ml)	Once
Crablets (day 22-35)	Trash Fish 285g/tank (8 tons) Artemia (5-7 individual/ml)	Once

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

HARVESTING

- The harvestable size is 1.5-2.0cm.
- Upon harvest, water in the larval rearing tank is reduced to 25% of its total capacity.
- Collect crablets using nets or through the ball valve, then transfer them to a tank or a container with known water volume.



TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

REQUIREMENTS PER CYCLE

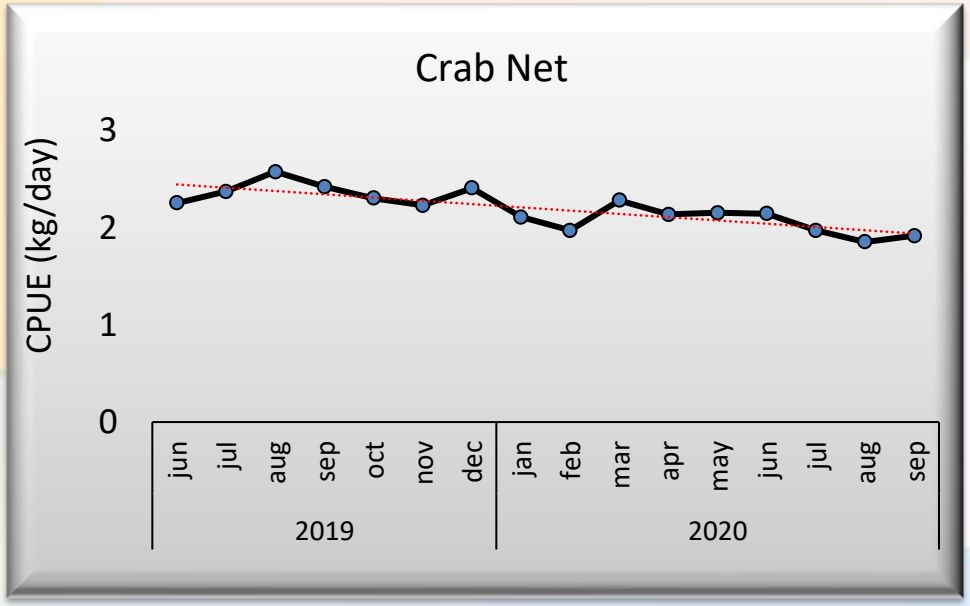
ITEMS	COST
A. MANPOWER (Monthly)	
• Head Technician	14,500
• Aide 1	12,560
• Aide 2	11,560
Subtotal	**38,620**
B. CHEMICALS WATER DISINFECTION	
• Sodium Thiosulfate (15kg@200/kg)	3,000
• Chlorine (10kg @120/kg) B.	1,200
Subtotal	**4,200**
C. FEED (live)	
• Artemia cyst (6cans @3,500/can)	21,000
• Trash Fish (40kg @120/kg)	4,800
Subtotal	**25,800**
D. FEED (artificial)	
• Penaeus japonicus (1kg @120/kg)	950
E. BERRIED CRAB (Broodstock)	
• Live berried crabs (bidhan) (3-4 pcs @ 300/kg)	600
F. OTHER COSTS	
• Electricity (1 month operation)	15,000
G. PETTY CASH	
• Reserved cash for other items	10,200
GRAND TOTAL	**95,370**

Duration: 21-35 days
Average Produced: 55,000 crablets
Survival rate: 15%
Est. Cost/crablet: Php1.74

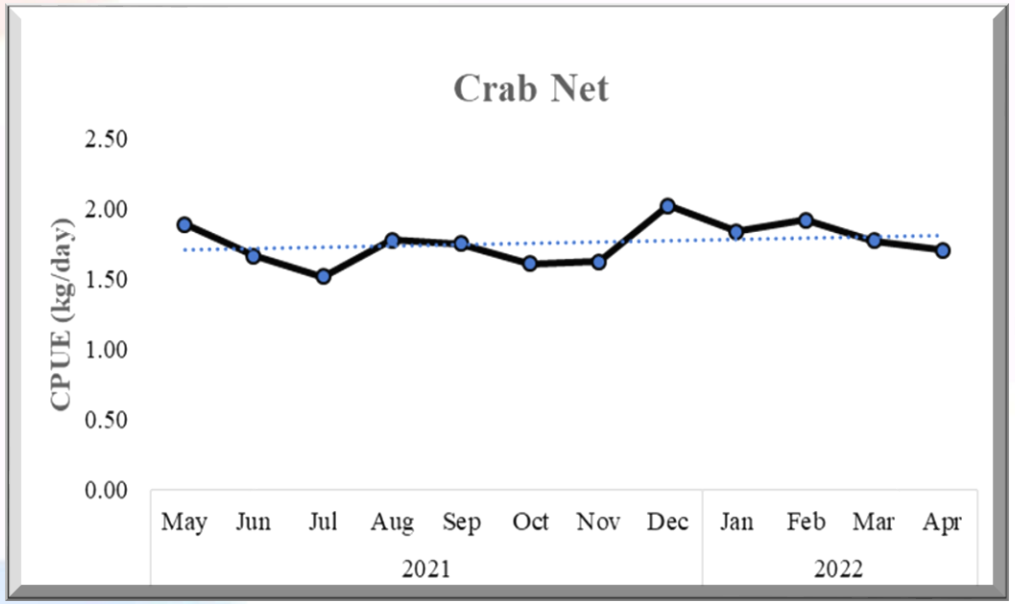
**NOTE: Utilization of existing hatchery facilities/structure is advised with a minor renovation or structural preparation estimated cost of Php250,000

TECHNOLOGY GUIDE
ON
BLUE SWIMMING CRAB
(Portunus pelagicus)
Hatchery Technology

Catch per Unit Effort (CPUE)



Monthly trend of mean CPUE (kg/day) of BSC gear in Danajon Bank from Jun 2019 to Sep 2020.



Monthly trend of mean CPUE (kg/day) of BSC gear in Danajon Bank from May 2021 to April 2022.

TECHNOLOGY GUIDE
ON

BLUE SWIMMING CRAB

(Portunus pelagicus)

Hatchery Technology

SCAN ME!