

**ASSESSMENT OF BIODIVERSITY AND BIOMASS OF NON-TARGET FISH SPECIES
CAUGHT IN BOTTOM SET GILL NET FISHERY TARGETING BLUE SWIMMING CRAB IN
PALK BAY REGION**

SUMMARY OF THE RESEARCH ACTIVITIES UNDERTAKEN

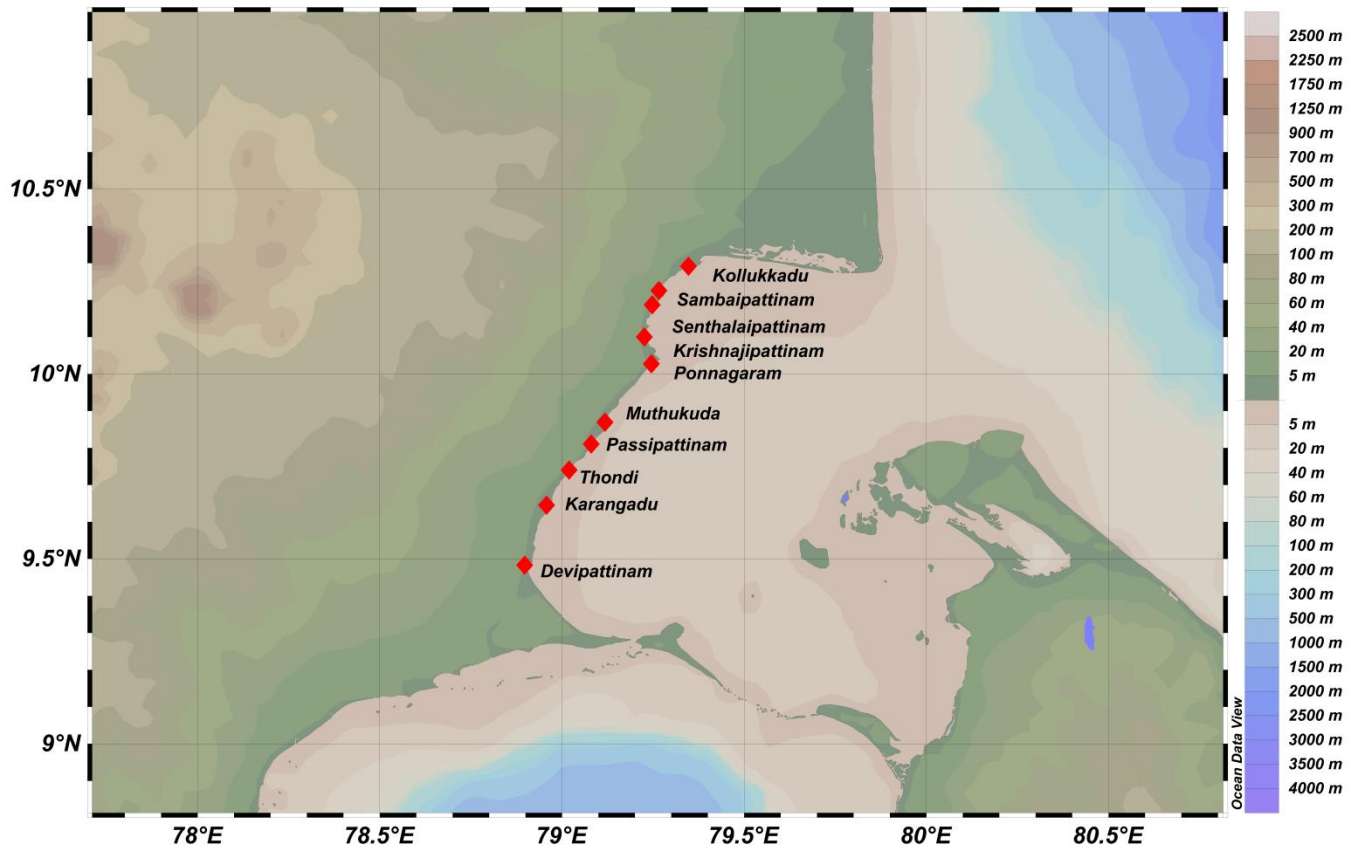
01st December 2023 to 30th April 2024

- i. Title** : Assessment of biodiversity and biomass of non-target fish species caught in bottom set gillnet fishery targeting blue swimming crab in Palk Bay region
- ii. Funding Agency** : Crab Meat Processors Association (CMPA), Thoothukudi
- iii. Principal Investigator** : Dr. R. Durairaja
- iv. Location** : Palk Bay region (Pamban - Adirampattinam)
- v. Budget Outlay** : Rs. 4.0 lakh
- vi. Duration** : One year (September 2023 – August 2024)
- vii. Date of Start** : 1st December 2023
- viii. Date of Closure (tentative, if it is Ongoing)** : August 2024
- ix. Objectives :**
1. To collect occurrence and abundance data of non-target fish species caught in bottom set gill net for blue swimming crab from the selected landing centres in the Palk Bay region
 2. To investigate the spatio-temporal variations in the biodiversity of non-target fish species caught in bottom set gillnet for blue swimming crab in the Palk Bay region
 3. To document the Endangered, Threatened and Protected species (ETP species) caught in bottom set gillnet for blue swimming crab in the Palk Bay region

Sampling Sites (Crab Landing centres)

- The following is the list of major gillnet landings centres situated along the Palk Bay region selected for sampling

SL. No.	District	FISHING VILLAGE	LATITUDE	LONGITUDE
1	Thanjavur District	Kollukkadu	10°29'62'' N	79°34'69'' E
2		Sambaipattinam	10°22'69'' N	79°26'42'' E
3		Senthalaipattinam	10°19'67'' N	79°27'84'' E
4	Pudukottai District	Krishnajipattinam	10°09'84'' N	79°22'43'' E
5		Ponnagaram	09°91'09'' N	79°14'49'' E
6		Muthukuda	09°87'02'' N	79°11'85'' E
7	Ramanathapuram District	Passipattinam	09°81'16'' N	79°08'09'' E
8		Thondi	09°72'16'' N	79°00'64'' E
9		Karangadu	09°64'88'' N	78°96'61'' E
10		Devipattinam	09°47'49'' N	78°89'84'' E



Map showing sampling sites (Crab landing centre)

1. KOLLUKKADU

- Location of the village from 10.2953° N to 79.3451° E
- Total number of boats 85 (motorized – 85)
- Number of persons per boat 4 to 5
- Number of nets per boat 20
- Landing is maximum of 4 days per week on the days of Monday, Wednesday, Friday and Saturday (except fish ban period)
- During fish ban period landing up to 6 days per week
- Mesh size of the gillnet – 85 mm to 90 mm
- Type of nets used for fishing are gill net (rope & sinkers) and trammel net
- Time of net setting from 2 pm to 6 pm
- Time of hauling the net from 2 am
- Time of landing from 6 am to 10 am
- Distance of fishery maximum up to 15 nautical miles
- 24 different kind of non-target fishes from various order found in kollukkadu in bottom set gillnet target blue swimming crab
- Endangered, threatened, protected (ETP) species not found

2. SAMBAIPATTINAM

- Location of the village from 10.2235° N to 79.2634° E
- Total number of boats 33 (motorized – 31 & non-motorized – 2)
- Number of persons per boat 4 to 5
- Number of nets per boat 12
- Landing is maximum of 4 days per week on the days of Monday, Wednesday, Friday and Saturday (except fish ban period)
- During fish ban period landing up to 6 days per week
- Mesh size of the gillnet – 85 mm to 90 mm
- Type of nets used for fishing are gill net (rope & sinkers) and trammel net
- Time of net setting from 2 pm to 6 pm
- Time of hauling the net starting from 4 am

- Time of landing from 8 am to 10 am
- Distance of fishery maximum up to 7 nautical miles
- Crab catching high in the months of April to May and low at February to march
- 18 different kind of non-target fishes from various order found in sambaipattinam in bottom set gillnet target blue swimming crab
- Endangered, threatened, protected (ETP) species – *Holothria scabra*

3. SENTHALAIPATTINAM

- Location of the village from 10.1906° N to 79.2437° E
- Total number of boats 75 (motorized – 70 & non-motorized – 5)
- Number of persons per boat 4
- Number of nets per boat 15
- Landing is maximum of 4 days per week on the days of Monday, Wednesday, Friday and Saturday (except fish ban period)
- During fish ban period landing up to 6 days per week
- Mesh size of the gillnet – 85 mm to 95 mm
- Type of nets used for fishing are gill net (rope & sinkers) and trammel net
- Time of net setting from 2 pm to 6 pm
- Time of hauling the net starting from 3 am
- Time of landing from 7.30 am to 10 am
- Distance of fishery maximum up to 15 nautical miles
- Crab catching high in the months of April to May and low at February to march
- 24 different kind of non-target fishes from various order found in senthalaipattinam in bottom set gillnet target blue swimming crab
- Endangered, threatened, protected (ETP) species not found

4. KRISHNAJIPATTINAM

- Location of the village from 10.0979° N to 79.2196° E
- Landing is maximum of 4 days per week on the days of Monday, Wednesday, Friday and Saturday (except fish ban period)
- During fish ban period landing up to 6 days per week

- Total number of boats 49 (only 30 boats for crab fishery)
- Dimension of net: length 600 meter & breadth 3 feet
- Mesh size of the gillnet – 85 mm to 95 mm
- Time of net setting from 2 pm to 6 pm
- Time of hauling the net starting from 4 am
- Time of landing from 8.30 am to 10 am
- Distance of fishery maximum up to 8 nautical miles
- Crab catching high in the months of April to May and low at February to march
- Type of nets using – bottom set gillnet (Rope & sinkers), trammel net and shell net for baby octopus
- 17 different kinds of non-target fishes from various order found in krishnajipattinam in bottom set gillnet target blue swimming crab
- Endangered, threatened, protected (ETP) species not found

5. PONNAGARAM

- Location of the village from 10.0225° N to 79.2375° E
- Landing is maximum of 4 days per week on the days of Monday, Wednesday, Friday and Saturday (except fish ban period)
- During fish ban period landing up to 6 days per week
- Total number of boats 104
- Mesh size – 85 - 110 mm
- Dimension of net: length 1000 meter & breadth 3 feet
- Time of net setting from 2 pm to 6 pm
- Time of hauling the net starting from 12 am
- Time of landing from 7.30 am to 12 pm
- Distance of fishery maximum up to 20 nautical miles
- Crab catching high in the months of April to May and low at February to march
- Type of nets using – bottom set gillnet (Rope & sinkers)
- 20 different kinds of non-target fishes from various order to be found in ponnagaram in bottom set gillnet target blue swimming crab

- Endangered, threatened, protected (ETP) species not found

6. MUTHUKUDA

- Location of the village is from 9.8713° N to 79.1139° E
- 800 fisherman families are living in the village.
- Michael is a Head person of village.
- 60 boats were going to caught the crab in Every day.
- The gill net size 70mm – 110 mm.
- 4-5 fishermen per boat.
- Distance of fishery up to 7 natural miles.
- Time of landing 6.00 - 7.30 am.
- Artificial Coral Reef is placed by a Govt inside the sea.
- Endangered, threatened, protected (ETP) species one found - *Holothuria scabra*

7. PASSIPATTINAM

- Location of the village is from 9.8120° N to 79.0810° E
- Abdullah is a chief person of village.
- The using gill net mesh size is 70mm -90mm.
- 4-5 fishermen per boat.
- Distance of fishery up to 6 natural miles.
- Time of landing 7.00 - 8.30 am
- Endangered, threatened, protected (ETP) species not found.

8. THONDI

- Location of the village is from 9.7438° N to 79.0185° E
- 1700 fisherman families are living in the village.
- Mr. Ravi is chief person of village.
- Using gillnet mesh size is 70mm – 90mm.
- 4-5 fishermen per boat.
- Fishing KM are 7 natural miles.

- Time of landing 4.00 - 6.30 am.
- Endangered, threatened, protected (ETP) species not found

9. KARANGADU

- Total number of boats 110.
- Location of the village is from 9.6480° N to 78.9599° E
- 2500 families are living in the village.
- Mr. Immanuel is the chief person of the village.
- Using gill net mesh size is 70mm – 90 mm.
- 4-5 fishermen per boat.
- Time of landing 6.00 - 8.00 am
- Endangered, threatened, protected (ETP) species not found.

10.DEVIPATTINAM

- Total number of boats 4500 in four divisions.
- Location of the village is from 9.4794° N to 78.8904° E
- Mr. Raja is chief person of village.
- Total numbers of crab fishing boats are 150.
- Using gill net mesh size is 80mm – 95mm.
- 4-5 fishermen per boat.
- Time of landing 7.00 - 8.30 am
- Endangered, threatened, protected (ETP) species – *Hippocampus trimaculatus* was found

SAMPLING SITES (CRAB LANDING CENTRES) IN THE PALK BAY REGION

Thanjavur District



Kollukadu



Sambaipattinam



Senthalaipattinam

Pudukottai District



Krrishnajipattinam



Ponnagaram



Muthukuda
Ramanathapuram District



Passipattinam



Thondi











Karangadu



Devipattinam

Non-Target Species Report 2023 - 24
The Palk Bay Blue Swimming Crab Fishery
 FINFISH SPECIES

	
<i>Siganus javus</i>	<i>Platycephalus indicus</i>
	
<i>Hyporhamphus dussumieri</i>	<i>Eleutheronema tetradactylum</i>
	
<i>Cynoglossus cynoglossus</i>	<i>Plotosus canius</i>
	
<i>Chanos chanos</i>	<i>Drepane punctata</i>



Nemapteryx caelata



Pennahia argentata



Sillago sihama



Upeneus moluccensis



Caranx sexfasciatus



Upeneus bensasi



Psamoperca waigainensis



Scatophagus argus



Gerres filamentosus



Pelates quadrilineatus



Etroplus suratensis



Sphyraena forsteri



Atule mate



Triacanthus biaculatus



Chiloscyllium indicum



Neotrygon indica



Mugil cephalus



Platybelone argalus



Hippocampus trimaculatus

SHELLFISH - CRUSTACEANS (Crab, lobster and shrimp species)



Charybdis feriata



Charybdis helleri



Calapa bilineata



Charybdis natator



Thalamita crenata



Panulirus Versicolor



Scylla serrata



Coral crab



Portunus sanguinolentus



Oratosquilla interrupta



Penaeus semisulcatus

SHELLFISH - MOLLUSCA (Gastropods)



Lambis lambis



Margistrombus marainatus



Paphia sp



Pecten sp



Turbinella pyrum



Tonna dolium



Murex spp

Brunneifuscus ternatanus

SHELLFISH - MOLLUSCA (Bivalve)



Placuna placenta



Sepia pharaonis



Amphioctopus aegina



Uroteuthis (Photololigo) duvaucelii

ECHINODERMATA



Pentaceraster spp



Salmacis virgulata



Holothuria scabra



Pinna bicolor; Clypeaster humilis; Babylonia spirata; Murex spp; Pentaceraster mammillatus

Table 1. Non-target finfish species caught in the bottom set gillnet targeting BSC in the Palk Bay region

Sl. No.	species	Family	Order	Local Name
Finfishes (Teleost)				
1	<i>Eleutheronema tetradactylum</i>	Polynemidae	Perciformes	Kala Meen
2	<i>Caranx sexfasciatus</i>	Carangidae	Carangiformes	Muntakannu paarai
3	<i>Platycephalus indicus</i>	Platycephalidae	Perciformes	Naakku meen, Serruppu meen
4	<i>Sillago sihama</i>	Silaginidae	Perciformes	Killaikhan meen
5	<i>Psammoperca waigiensis</i>	Latidae	Perciformes	sengani meen
6	<i>Gerres filamentosus</i>	Gerridae	Perciformes	Ootagam meen
7	<i>Sphyaena forsteri</i>	Sphyaenidae	Perciformes	Olli meen
8	<i>Siganus javus</i>	Siganidae	Perciformes/ Acanthuriformes	ora meen
9	<i>Scatophagus argus</i>	Scatophagidae	Perciformes/ Acanthuriformes	Pulli Ellathi meen
10	<i>Pennahia argentata</i>	Scianidae	Acanthuriformes	Panna Meen
11	<i>Drepane punctata</i>	Drepaneidae	Acanthuriformes	Eillathi meen
12	<i>Upeneus bensasi</i>	Mullidae	Mulliformes	Loomeya meen
13	<i>Upeneus moluccensis</i>	Mullidae	Mulliformes	Loomeya meen
14	<i>Arius thalassius</i>	Aridae	Siluriformes	Kelluthi meen
15	<i>Nemapteryx caelata</i>	Aridae	Siluriformes	Kelluthi meen
16	<i>Plotosus canius</i>	Plotosidae	Siluriformes	Theylee meen
17	<i>Platybelone argalus</i>	Belonidae	Beloniformes	Kolliya mural
18	<i>Hyporhamphus dussumieri</i>	Hemiramphidae	Beloniformes	Kolliya mural
19	<i>Pelates quadrilineatus</i>	Teraponidae	Centrarchiformes	Keeli meen
20	<i>Triacanthus biaculatus</i>	Triacanthidae	Tetradontiformes	Keelathi meen
21	<i>Cynoglossus cynoglossus</i>	Cynoglossidae	Pleuronectiformes	Naakku meen, ooti meen
22	<i>Etroplus suratensis</i>	Chichlidae	Chichliformes	Kari meen
23	<i>Chanos chanos</i>	Chanidae	Gonorynchiformes	Paal meen
24	<i>Atule mate</i>	Carangidae	Carangiformes	Manja maththi
25	<i>Mugil cephalus</i>	Mugilidae	Mugiliformes	madavai
Finfishes (Elasmobranch)				
1	<i>Chiloscyllium griseum</i>	Hemiscyllidae	Orectolobiformes	Kurangu sura , thalan sura
2	<i>Neotrygon indica</i>	Dasyatidae	Mylobatiformes	Thirrukai meen

Table 2. Non-target shellfish species caught in the bottom set gillnet targeting BSC in the Palk Bay region

Sl. No.	species	Family	Order	Local name
Arthropoda (Crustacean)				
1	<i>Penaeus monodon</i>	Penaeidae	Decapoda	Irral
2	<i>Portunus sanguinolentus</i>	Portunidae	Decapoda	Monnu pulli nandu
3	<i>Charybdis feriata</i>	Portunidae	Decapoda	Silluvai nandu
4	<i>Charybdis hellri</i>	Portunidae	Decapoda	Neechal nandu
5	<i>Calapa bilineata</i>	Calappidae	Decapoda	Biscuit nandu
6	<i>Charybdis natator</i>	Portunidae	Decapoda	Paarai nandu
7	<i>Scylla serrata</i>	Portunidae	Decapoda	Kal nandu
8	<i>Thalamita crenata</i>	Portunidae	Decapoda	
9	Coral crab			
10	<i>Oratosquillina interrupta</i>	Squillidae	Stomatopoda	Kadal Purran/ Elee Poochi
11	<i>Panulirus versicolor</i>	Palinuridae	Decapoda	Singieral
Mollusc (Gastropoda)				
1	<i>Turbinella pyrum</i>	Turbinellidae	Neogastropoda	Sangu
2	<i>Pecten</i> sp	Pectinidae	Pectinida	Varri sippi
3	<i>Lambis lambis</i>	Strombidae	Littorinimorpha	Ai viral sangu
4	<i>Margistrombus marainatus</i>	Strombidae	Littorinimorpha	Sangu sippi
5	<i>Tonna dolium</i>	Tonnidae	Littorinimorpha	Varri sangu
6	<i>Brunneifuscus ternatanus</i>	Melongenidae	Neogastropoda	--
7	<i>Babylonia spirata</i>	Babyloniidae	Neogastropoda	--
8	<i>Harpa major</i>	Harpidae	Neogastropoda	
9	<i>Paphia</i> sp	Veneridae	Venerida	Sippi
Mollusc (Bivaliva)				
1	<i>Pinna bicolor</i>	Pinnidae	Ostreida	--
2	<i>Placuna placenta</i>	Placunidae	Pectinida	Windowpane oyster
Mollusc (Cephalopoda)				
1	<i>Amphioctopus aegina</i>	Octopodidae	Octopoda	Pei kanavai
2	<i>Uroteuthis(Photololigo) duvaucelii</i>	Myopsida	Loligonidae	Oosi kanavai
3	<i>Murex carbonnieri</i>	Muricidae	Neogastropoda	
Echinoderm				
1	<i>Pentacaster regulus</i>	Asteriidae	Forcipulatida	Starfish
2	<i>Salmacis virgulata</i>	Temnopleuridae	Camarodonta	Sea urchin
3	<i>Clypeaster humilis</i>	Clypeasteridae	Clypeasteroida	Star fish
Cnidaria				
1	<i>Lobonemoides robustus</i>	Lobonemidae	Rhizostomeae	Jelly fish

Table 3. ETP SPECIES FOUND IN THE REGION

Sl.No.	species	Family	Order	Local name
1	<i>Holothuria scabra</i>	Holothuridae	holothuriida	Kadal attai
2	<i>Hippocampus trimaculatus</i> (CITES)	Syngnathidae	Syngnathiformes	Kadalkuthirai

Table 4 . Mesh size adopted by fishermen in the project area

Survey Month	District	Landing sites	Mesh size (mm)
December – May	Thanjavur	Kollukkadu	85 – 95
	Thanjavur	Senthalaipattinam	85 - 90
	Thanjavur	sambaipattinam	85 - 90
	Pudukkottai	Krishnajipattinam	80 - 90
	Pudukkottai	Ponnagaram	100 - 110
	Pudukkottai	Muthukuda	70 – 110
	Ramanathapuram	Pasipattinam	70 - 90
	Ramanathapuram	Thondi	70 – 90
	Ramanathapuram	Karankadu	70 – 90
	Ramanathapuram	devipattinam	80 - 95

Table 5. Total landings of non-target fish species caught in the bottom set gillnet targeting BSC in the Palk Bay region

District	Tanjavur				Pudukottai			Ramnad		
Landing sites	Kollukadu	Sambaipattinam	Senthalaipattinam	Krishnajipattinam	Ponnagaram	Muthukuda	Passipattinum	Thondi	Karankadu	Devipattinum
No. days	16	15	16	15	15	15	15	16	15	15
No. samples /Net sets	7	5	8	5	8	7	6	7	8	8
Avg. samples / day	35	30	40	30	45	50	45	50	50	50
Total catch	20 kg	16kg	20kg	17kg	25kg	30 kg	30 kg	30 kg	30 kg	30 kg
Total BSC catch	15 kg	13 kg	16 kg	13 kg	22 kg	25 kg	25 kg	25 kg	25 kg	25 kg
Total NTS catch	5 kg	3 kg	4 kg	4 kg	3 kg	5 kg	5 kg	5 kg	5 kg	5 kg
Total discarded NTS catch	2 kg	1kg	2 kg	2 kg	1 kg	2 kg	2 kg	2 kg	2 kg	2 kg
Total Retained NTS catch	3 kg	2 kg	2 kg	2 kg	2 kg	3 kg	3 kg	3 kg	3 kg	3 kg

Table 6. Occurrence of NTS caught in the bottom set gillnet targeting BSC in the Palk Bay region

Class	Category of Non-Target Species		Total
	ETP	Secondary	
Finfish (Teleost)	1	25	
Finfish (Elasmobranch)		2	
Arthropoda (Crustacea)			
Shrimp		1	
Crab		8	
Lobster		1	
Squilla		1	
Mollusc (Gastropoda)		9	
Mollusc (Bivalvia)		2	
Mollusc (Cephalopoda)		3	
Echinoderms	1	3	
Cnidaria		1	
Reptiles		--	
Birds		--	
Mammals		--	
Totals	2	56	

Date: 27.05.2024

Signature of the Principal Investigator



(Dr. R. Durairaja)
