Catch Composition of *Portunus pelagicus* from Different Fishing Gear Used along Palk Bay Water of Ramanathapuram Coast of Tamil Nadu, India

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ABSTRACT

The experiment was conducted during November, 2019 to October, 2020 at Palk Bay water of Ramanathapuram coast of Tamil Nadu to investigate the catch composition of *P. pelagicus*, commonly known as the blue swimming crab, focusing on different fishing gears used in the Palk Bay waters. 25 fishing grounds were identified within 1 to 5 nautical miles, where bottom-set gillnets, trammel nets, and country trawls were employed by fishermen. Craft types included non-motorised small wooden boats and FRP boats with outboard motor engines ranging from 9.9 to 20 horsepower. Bottom-set gillnets, with mesh sizes of 80 to 100 mm, were primarily used to target crabs, while trammel nets and country trawls were utilised for cephalopods and as bycatch. The study discovered a diverse size range of captured *P. pelagicus*, with carapace lengths ranging from 30 to 92 mm and carapace widths spanning from 70 to 193 mm. Notably, individuals within the length group of 55 to 60 mm and the width group of 115 to 125 mm constituted the predominant size classes. Catch per unit effort analysis revealed fluctuations across gear types, with bottom-set gillnets contributing the majority (94.8%) of the total catch, followed by trammel nets (3.19%) and country trawls (2.01%). Comparison with previous studies highlighted the historical dominance of bottom-set gillnets in *P. pelagicus* fisheries while emphasising the complementary contributions of trammel nets and country trawls. These findings underscored the importance of integrated management approaches to sustainably manage crab fisheries in the region.

KEYWORDS: CPUE, crafts, catch, fisheries, gillnet, mesh size

Data Availability Statement: Legal restrictions are imposed on the public sharing of raw data. However, authors have full right to transfer or share the data in raw form upon request subject to either meeting the conditions of the original consents and the original research study. Further, access of data needs to meet whether the user complies with the ethical and legal obligations as data controllers to allow for secondary use of the data outside of the original study.

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1. INTRODUCTION

The sustainability of fisheries resources has garnered significant attention globally, particularly in regions where fishing activities serve as vital economic and food sources. Along the coast of Tamil Nadu, India, the Palk Bay region stands as a major fishing ground, supporting diverse marine ecosystems and contributing substantially to the livelihoods of coastal communities (Kasim, 2015; Salagrama, 2014). Crabs stand out as a significant crustacean group in commercial fisheries, boasting a diverse array within Indian waters (Dash et al., 2013). With a staggering count of 990 species across 281 genera and 36 families (Kathirvel, 2008; Varadharajan and Soundarapandian, 2013; Sahu et al., 2023), among these, the family Portunidae emerges as the primary sustainer of India's edible crab fishery (Josileen et al., 2021). They are captured incidentally, through trawling activities, and intentionally, using specialised bottom set gill nets, locally called 'nanduvalai,' particularly prevalent in the Palk Bay and Gulf of Mannar (Josileen et al., 2019; Josileen et al., 2021). Among the numerous species harvested, *Portunus pelagicus* holds considerable ecological and economic importance (Sahu et al., 2023; Sathiya et al., 2024). However, understanding the catch composition of *Portunus pelagicus* and the impact of different fishing gears on its abundance is very important for effective fisheries management in the region. The blue swimming crab (*Portunus pelagicus*), a decapod crustacean,which predominates the marine crab population along the Palk Bay coast (Josileen et al., 2019; Haputhantri et al., 2021). With a wide distribution spanning the Indo-West Pacific region from Africa to India and extending further eastward to Southeast Asia and Australia (Chande and Mgaya, 2003; Svane and Hooper, 2004), *P. pelagicus* thrives in tropical waters (Weerakoon et al., 2020). It typically inhabits coastal and estuarine environments, occupying varying water depths ranging from 10 to 60 metres across different regions of Asia, Australia, and Africa (Sara et al., 2019). Renowned for its commercial value, particularly in tropical and subtropical regions, the blue swimming crab is frequently encountered as bycatch in trawl fisheries and other gear types like bottom-set gillnets, beach seines, and traps (Fazrul et al., 2015; Josileen et al., 2021). These fishing methods are often selectively utilized in specific regions to target various crab species (Rajamani and Manickaraja, 1998). The genus Portunus exhibits rich taxonomic diversity, with over 80 distinct species distributed worldwide (Stephenson, 1962). Variations in distribution and abundance among Portunidae species across different geographic regions are influenced by environmental factors and unique life histories (Zainal, 2013; Luan et al., 2018). Despite its widespread presence, globally, *P. pelagicus* accounts for approximately 0.4% of total capture production and represents about 5.0% of global crustacean fisheries (Anonymous, 2020). Research on the catch composition of *P. pelagicus* from various fishing gears is essential for informing evidence-based management strategies aimed at ensuring the long-term viability of crab populations in Palk Bay. By quantifying the relative abundance of *P. pelagicus* from different gear types, fisheries managers can better understand the impact of fishing practices on crab stocks and implement targeted conservation measures where necessary. Additionally, such studies contribute to the broader scientific understanding of the interactions between fishing gear and target species, facilitating the development of more sustainable fishing practices worldwide. Previous studies have highlighted the importance of considering gear selectivity and efficiency when assessing the impact of fishing activities on marine populations (Hiddink et al., 2017). This research builds upon existing knowledge by focusing specifically on the catch composition of *P. pelagicus*; this research builds upon existing knowledge and provides region-specific insights into the dynamics of crab fisheries along the Ramanathapuram coast. Moreover, the findings of this study can serve as a basis for future research endeavours aimed at refining fishing techniques and conservation efforts to promote the sustainable utilisation of marine resources in the Palk Bay ecosystem.

Therefore, the objective of this study was to assess the catch composition of *P. pelagicus* obtained from various fishing gears employed along Palk Bay of Ramanathapuram coast. By analysing the catch data from different fishing methods, including but not limited to trawling, gillnetting, and crab pots, this research aimed to elucidate the effectiveness and selectivity of each gear type in capturing *P. pelagicus*.

2. MATERIALS AND METHODS

2.1. Description of study area

This study focused on the coastal stretch of Palk Bay along the Ramanathapuram District from November, 2019 to October, 2020. It covered 126 km of the Ramanathapuram coast of Palk Bay. It is situated between latitudes 9° 55' and 10° 45' N and longitudes 78° 58' and 79° 55' E (Azeez et al., 2016). For the present study, the four landing centres, namely Devipattinam, Thirupalaikudi, Uppur and Karankadu, located along the Palk Bay coast of the Ramanathapuram district, were selected randomly as basic sampling units (Figure 1). The data were collected by weekly sampling from selected fish landing centers by direct observation as well as by interviewing the fisherman through the structured schedule. Moreover, the crab fishing operation has been carried out for approximately 20 days every month at all these selected landing centres (Ameer Hamsa, 1978; Josileen et al., 2019). To monitor the fishing activities, data were collected twice a month for a span of

Figure 1: Map of study area along Palk Bay of Ramanathapuram coast

one year, from November, 2019 to October, 2020. For the collection of data, the stratified random sampling method was applied, as this method minimises the variability in the data by segregating the population into homogeneous subgroups based on factors such as water depth, mesh size and gear types (Anonymous, 2021). The collected data encompassed catch records, total operational units, CPUE (catch per unit effort), and catch compositions sampled by different gears.

2.2. Design and technical details of fishing crafts and gears involved in crab fishing

The crafts employed along the Palk Bay coast included small wooden boats, vathai and FRP boats. Information on the design and technical details of crafts employed in crab fishing was collected through direct measurement from selected landing centres, as per the FAO Catalogue. Detailed information on the design and technical specification of fishing gear employed in crab fishing along the Ramanathapuram coast was collected through direct measurement and face-to-face interviews with the fishermen at landing centers. The technical details were collected and presented as per the FAO Catalogue on Fishing Gear Design (Nedelec, 1975; Kazi et al., 2011). The operational details of fishing gear involved in crab fishing along the Ramanathapuram coast were collected by direct interviews with fishermen during sampling. Other details, such as the distance of the fishing grounds, the number of fishing trips month^{-1}, the depth of the operation, the duration of the fishing trip, the nature of the operation, the fishing season and the equipment used, were collected.

2.3. Estimation of catch and effort of different fishing gears

To estimate the catch and effort data of *Portunus pelagicus*, catch data were collected for 12 months (November, 2019 to October, 2020) from the selected landing centres on the Ramanathapuram coast for the fishing gears involved in crab fishing. The collected catch data were expressed in terms of numbers and weights randomly during each sampling day. Each sampling day was multiplied by the number of boats engaged in fishing on the day of sampling to obtain the average daily catch estimates. The average daily catch estimates were multiplied by the number of fishing days in a particular month to obtain the monthly catch. The total effort was expressed as the number of boat days per month. The catch per unit effort (CPUE) was calculated for one fishing day for all types of gear and crafts (Kumar et al., 2019).

3. RESULTS AND DISCUSSION

3.1. Crab fishing grounds along Ramanathapuram coast

The fishermen of Palk Bay were found operating their fishing nets in the areas near coastal waters to deep sea. According to the GPS position data collected from Palk fishermen's, there were 25 fishing grounds identified in Palk Bay water on the Ramanathapuram coast. All these fishing grounds were found scattered in the distance range of 1 to 5 Nm, where the bottom-set gillnets, trammel nets and country trawls are operated by fishermen on the Ramanathapuram coast.

3.2. Crafts and gear involved in crab fishing along palk bay

Along the Palk Bay waters, two types of fishing crafts were involved in crab fishing: non-motorised small wooden boat vathai and FRP boats with OBM engines. Both crafts were aimed at targeting the crabs. The FRP boats of Palk Bay were found to be fitted with outboard engine power ranging from 9.9 to 20 hp. Technical details of crab fishing crafts are provided in Table 1.

Three types of gear, including bottom-set gillnets (Nandu valai), trammel nets (Kanava valai) and country trawls (Thallumadi), were found employed in crab fishing along the Palk Bay waters of the Ramanathapuram coast. We found that only bottom-set gillnets target crabs among these gears. Fishermen operate bottom-set gillnets with mesh sizes of 80 to 100 mm to capture crabs in the coastal waters. Ramanathapuram coast fishermen operating bottom-set gillnets were doing single-day fishing. As far as fishing season is concerned, the bottom set gillnet had peak fishing season during the south-west monsoon, i.e., January to June in Among these three types of crab fishing gear, country trawls (Thallumadi) were found to be operated only in Devipattinam and Thirupalaikudi landing centres

Table 1: Technical specification of fishing craft involved in crab fishing along Palk Bay

Sl. No.	Particulars	Karankadu	Moreppanai	Thirupalaikudi	Devipattinam
1.	Type of fishing vessel	FRP with OBM	FRP with OBM	Vathai (non motorized)	FRP with OBM	FRP with OBM
2.	Material	FRP	FRP	Wooden	FRP	FRP
3.	Dimension a. Length (m)	7.9 – 9.7	7.9 – 9.7	4.5 – 5.5	7.3 – 8.2	7.5 - 10
	b. Breadth (m)	1.8 – 2.1	1.8 – 2.1	0.8 – 1.2	1.6 – 1.8	0.8 – 2.2
	c. Depth (m)	0.7 – 1.06	0.7 – 1.06	0.6 – 0.8	1.06 – 1.2	0.7 – 1.08
	d. Draught (m)	0.5 – 1	0.5 – 1	0.3 – 0.5	0.8 – 0.9	0.5 – 1.2
4.	Engine power (hp)	8 - 10	8 - 10	-	8 – 10	8 - 10
5.	Make of engine	Kirlosker	Kirlosker	-	Yamaha, Suzuki, Kirlosker	Kirlosker
6.	Speed (in knots) a. Maximum speed	9- 11	9- 11	-	9- 11	8- 11
	b. Fishing speed	5 - 6	5 - 6	-	5 – 6	5 - 6
7.	Total no. of craft operated	120	156	65	295	456
8.	No. of craft targeted /bycatch involved in crab fishing	120 (Main catch)	110 (Main catch)	25 (Main catch)	125 (Main catch)	170 (Main catch)
9.	Navigational aid	GPS	GPS	-	GPS	GPS

to catch crab as bycatch. Previous studies also reported the same gear and craft employed by the fishermen's of Palk Bay for crab fishing (Ameer Hamsa, 1978; Rajamani and Palanichamy, 2010; Josileen et al., 2019).

3.3. Design features of fishing gears involved in crab fishing

Design features of bottom set gillnets are given in Table 2. Bottom set gillnets, locally called 'Nandu Valai', were operated by fishermen of Palk by targeting crabs in coastal waters. Fishermen were found operating bottom set gillnet throughout the year. The mesh size of main webbing of the bottom set gillnet (Nandu valai) was found from 80–100 mm and made of green, white and blue coloured Polyamide monofilament. The length of head rope was found from 60 to 300 m and was made of PE. Foot rope also found with same specifications as head rope, but differ in diameter. The hanging co-efficient of horizontal and vertical meshes were ranged from 0.4–0.6 and 0.6–0.7 respectively. The lead sinker of weight 10 and 20 grams were found used in foot rope with the gape ranged 0.6 to 1 m.

Design features of trammel net are given in Table 3. Trammel net, locally called 'Kanava Valai', were operated by fishermen of Palk Bay of Ramanathapuram coast by targeting cephalopods in coastal waters and catch crab as bycatch. Fishermen were found operating trammel net throughout the year. The trammel net consists three layers of webbing, The mesh size of smaller inner webbing

ranged from 35–70 mm and outer larger layers ranged from 140–350 mm. the mean hanging coefficient of inner smaller and outer larger layers were 0.5–0.6 and 0.5–0.8 respectively. The main webbing of trammel net (Kanava valai) was made of white and blue coloured PA monofilament. The length of head rope was found from 40 to 100 m and was made of PE. Foot rope also found with same specifications as head rope, but differ in diameter. The lead sinker of weight 10 and 20 grams were found used in foot rope with the gape ranged 0.6 to 1 m.

Country trawl was reported to be operated only by the fishermen of Devipattinam and Thirupalaikudi throughout the year to target shrimp, and crab catch as commercially valuable bycatch. Design features of Country trawl are given in Table 4. The head rope length of Country trawl was 10–15 m made of PA material. The mesh size of cod end was 18–20 mm.

3.4. Size range and mean size

The Blue swimming crab (*Portunus pelagicus*) population along the Ramanathapuram coast in Palk Bay, predominantly harvested using bottom set gillnets, trammel nets, and country trawls, displayed a broad spectrum of carapace lengths (CL) and carapace widths (CW). CL ranged from 30 to 92 mm, while CW spanned from 70 to 193 mm. notably, individuals within the length group of 55 to 60 mm and width group of 115 to 125 mm constituted the

Table 2: Design features of bottom set crab gill (Nandu valai) net of Palk Bay

Sl. No.	Particulars	Landing centers			
		Karankadu	Moreppanai	Thirupalaikudi	Devipattinam
1.	Common name	Crab net	Crab net	Crab net	Crab net
2.	Local name	Nandu valai	Nandu valai	Nandu valai	Nandu valai
3.	Main webbing				
	a. Mesh size	80–100	80–1O0	80–110	80–110
	b. No. of meshes along head rope per unit	1140–4400	1140–4400	1140–4400	1140–3800
	c. No. of meshes in depth	10–12	10–12	10–12	10–12
	d. Twine type	PA mono	PA mono	PA mono	PA mono
	e. Twine diameter (mm)	0.3–0.4	0.3–0.4	0.3–0.4	0.3–0.6
	f. Colour of webbing	White, Blue, Green & Yellow	White, Blue, Green & Yellow	White, Blue, Green & Yellow	White, Blue, Green & Yellow
4. Head rope					
	a. Length (m)	60–100	60–100	60–200	60–200
	b. Diameter (mm)	2.5–3.5	2.5–3.5	2–3	3–3.5
	c. Material	PE	PE	PE	PE
5. Foot rope					
	a. Length (m)	60–200	100–200	100–200	60–300
	b. Diameter (mm)	2–2.5	2–2.5	2–2.5	2–2.5
	c. Material	PE	PE	PE	PE
6. Floats		-	-	-	-
7. Sinkers					
	a. Shape	Cylindrical	Cylindrical	Cylindrical	Cylindrical
	b. Diameter (mm)	0.8–1	0.8–1	0.8–1	0.8–1
	c. Weight (gms)	6 and 10	6 and 10	6 , 10 and 20	6 , 10 and 20
	d. Material	Pb	Pb	Pb	Pb
	e. Gap between two consecutive sinker (m)	0.6–1	0.6–1	0.6–1	0.6–1
8.	Horizontal hanging coefficient	0.4–0.6	0.4–0.6	0.4–0.6	0.4–0.6
9.	Vertical hanging coefficient	0.6–0.7	0.6–0.7	0.6–0.7	0.6–0.7
10.	Presence of stapling rope	Yes	Yes	Yes	Yes
11.	Time and duration of fishing	5 am–7 am 26 hrs	4 pm–8 am 16 hrs	5 pm–6 am 13 hrs	5 pm–6 am 13 hrs
12.	Units operated per trip	30–35	25–35	15–30	15–30

predominant size classes among the sampled population. Among these gears, the largest individuals (CW-193 mm and CL – 92 mm) were captured using bottom set crab gillnets, whereas the smallest individuals (CW 70mm and CL 30 mm) were captured via country trawls. Josileen et al. (2019) reported the maximum catches of *P. pelagicus* were consistently recorded in June, with a size composition ranging from 70–195 mm carapace width, and the major portion of the catch contributed by the 105–170 mm size group for both sexes. The maximum recorded sizes were 195 mm for males and 193 mm for females, which is very close to present study. The dominance of individuals within the length group of 55 to 60 mm and width group of 115 to 125 mm suggests a size-selective harvesting pattern within the blue swimming crab population in Palk Bay. This finding aligns with previous studies that have reported similar size

Table 3: Design features of trammel net of Palk Bay

Sl. No.	Particulars	Landing centers		
		Moreppanai	Thirupalaikudi	Devipattinam
1.	Common name	Trammel net	Trammel net	Trammel net
2.	Local name	Kanava valai	Kanava valai	Kanava valai
3.	Main webbing (Inner layer)			
	a. Mesh size	38–65	35–65	35–70
	b. No. of meshes on head rope/ unit	1520–2280	1520–3800	1520–3800
	c. No. of meshes in depth	50–55	50–55	50–55
	d. Twine type	PA mono	PA mono	PA mono
	e. Twine diameter (mm)	0.1–0.2	0.1– 0.2	0.1–0.2
	f. Colour of webbing	white	white	white
	g. Hanging coefficient	0.5–0.6	0.5–0.6	0.52–0.6
	Outer layer			
	a. Mesh size	180–240	140 –350	140 –350
	b. No. of meshes on head rope/ unit	260–318	200 –500	200 –500
	c. No. of meshes in depth	7–12	7–12	7–12
	d. Twine type	PA mono	PA mono	PA mono
	e. Twine diameter (mm)	0.3–0.4	0.3–0.4	0.3–0.4
	f. Colour of webbing	White & Blue	White & Blue	White & Blue
	g. Hanging coefficient	0.6–0.7	0.7–0.8	0.7–0.8
3.	Head rope			
	a. Length (m)	40–60	40–100	40–100
	b. Diameter(mm)	3–4	3–4	3–4
	c. Material	PE	PE	PE
4.	Foot rope			
	a. Length (m)	40–60	40–100	40–100
	b. Diameter (mm)	3–4	3–4	3–4
	c. Material	PE	PE	PE
5.	Floats			
	a. Shape	Circular	Circular	Circular
	b. Diameter (cm)	12–15	12–15	12 –15
	c. Thickness (cm)	1.2–1.5	1.2–1.5	1.2–1.5
	d. Material	Plastic	Plastic	Plastic
	e. Number per unit	15–40	15–40	15–40
6.	Sinkers			
	a. Shape	Cylindrical	Cylindrical	Cylindrical
	b. Diameter (mm)	0.8–1	0.8–1	0.8–1
	c. Weight (gms)	10 & 20	10 & 20	10 & 20
	d. Material	Pb	Pb	Pb
	e. Gap between two sinker (m)	0.6–1.2	0.6–1.2	0.6–1.2

Table 3: Continue...

Sl. No.	Particulars	Landing centers		
		Moreppanai	Thirupalaikudi	Devipattinam
7.	Presence of stapling rope	Yes	Yes	Yes
8.	Time and duration of fishing	4 pm–9 am	4 pm–6 am	5 pm–6 am
		17 hrs	14 hrs	13 hrs
9.	Units operated per trip	10–25	5–20	5–20

Table 4: Design features of country trawl net (Thallumadi) Palk Bay

Sl. No.	Particulars	Thallumadi	
		Thirupalaikudi	Devipattinam
1.	Head rope		
	a. Length (m)	10–15	10–15
	b. Diameter(mm)	6–8	6–8
	c. Material	PE	PE
2.	Foot rope		
	a. Length (m)	10–15	10–15
	b. Diameter (mm)	6–8	6–8
	c. Material	PE	PE
3.	Wing		
	a. Stretched mesh size (mm)	25–35	25–35
	b. Twine diameter (mm)	0.75	0.75
	c. Material	PE	PE
4.	Belly		
	a. Mesh size (mm)	25–30	25–30
	b. Height (m)	3–8	3–8
	c. Twine diameter (mm)	0.75	0.75
	d. Material	PE	PE
5.	Cod end		
	a. Mesh size (mm)	18–20	18–20
	b. Twine diameter	1	1
	c. Material	PE	PE

distributions in crab populations subjected to commercial fishing pressure. Size-selective fishing can have significant implications for population dynamics, as it may lead to alterations in age structure, reproductive potential, and overall population resilience (Charbonneau et al., 2019).

The observed size range of Blue swimming crabs in Palk Bay corresponds to juvenile and sub-adult stages, indicating the presence of a relatively young population within the fishery. This is consistent with findings from other crab fisheries worldwide, where juvenile stages often comprise a substantial proportion of the harvested population due to their vulnerability to fishing gear and high market demand. However, the overexploitation of juvenile crabs can negatively impact stock sustainability and reproductive output, underscoring the importance of size-specific management measures (Josileen, 2015).

3.5. Catch, effort and CPUE of P. pelagicus from different fishing gears

The catch per unit effort (CPUE) of *P. pelagicus* along Palk Bay of Ramanathapuram coast for study period was provided in Table 5. The CPUE of *P. pelagicus* in bottom set gillnets fluctuated over the course of the study period. It peaked in December 2019 at 12.84 kg day^{-1} and reached its lowest point in October 2020 at 7.80 kg day^{-1}. May experienced the highest fishing effort with 5176 boat landings, whereas April had the fewest with 2826 landings. The maximum catch occurred in May at 55521 kg, while April had the lowest catch at 34598 kg. Over the one-year period from November 2019 to October 2020, the total catch from bottom set gillnets was 522427 kg. In trammel nets, CPUE for *P. pelagicus* also varied throughout the study period. It was highest in December 2019 at 1.16 kg day^{-1} and lowest in February 2020 at 0.39 kg day^{-1}. May recorded the highest fishing effort with 2685 boat landings, while April had the lowest with 1044 landings. July saw the highest catch at 2277 kg, whereas April had the lowest catch at 737 kg. The total catch from trammel nets for the one-year period was 17550 kg. For country trawls, CPUE exhibited fluctuations similar to other gear types. It peaked in November 2019 at 1.35 kg day^{-1} and reached its lowest point in September 2020 at 0.46 kg day^{-1}. September had the highest fishing effort with 1520 boat landings, while November had the lowest with 790 landings. March recorded the highest catch at 1418 kg, while April had the lowest at 469 kg. The total catch from country trawls for the one-year period was 11091 kg. Comparing the CPUE data across gear types reveals interesting patterns in catch composition and gear selectivity. Bottom set gillnets contributed the majority (94.8%) of the total catch, followed by trammel nets (3.19%) and country trawls (2.01%).

In a study by Josileen et al. (2019), it was found that 98.3% of the landed crabs from 2007 to 2017 were contributed by

Table 5: Monthly average catch and CPUE of *P. pelagicus* from bottom set gillnet, trammel net and country trawl at Palk Bay

Month	Bottom set gillnet (Nandu Valai)				Trammel net (Kanava Valai)				Country trawl (Thallumadi)			
	ABLD	ABDM	TCM	CPUE	ABDD	ABDM	TCM	CPUE (kg day^{-1})	ABDD	ABDM	TCM	CPUE
November' 19	213	4738	39594	8.35	108	2519	1360	0.53	58	790	1069	1.35
December	191	3544	45530	12.84	99	1869	2086	1.11	82	984	939	0.95
January' 20	187	4194	52349	12.48	95	2121	1506	0.71	84	828	716	0.86
February	187	4540	50570	11.13	105	2520	1905	0.75	85	1235	1012	0.81
March	220	3815	48015	12.58	110	1870	737	0.39	96	1106	1418	1.28
April	228	2826	34598	12.24	92	1044	1032	0.98	82	539	480	0.89
May	225	5176	55521	10.72	99	2315	1821	0.78	67	888	469	0.52
June	195	4633	48202	10.40	109	2658	1579	0.59	71	1108	1107	0.99
July	191	4390	36124	8.22	104	2302	2277	0.98	74	1188	973	0.78
August	180	4343	38356	8.83	109	2685	1418	0.52	73	1161	1314	1.13
September	185	4437	38529	8.68	106	2413	1014	0.42	95	1520	711	0.46
October	197	4488	35039	7.80	111	2488	1485	0.59	83	1127	883	0.78

ABLD: Average no. of boat landed day^{-1}; ABDM: Average no. of boat days month^{-1}; TCM: Total catch month^{-1} (kg); ABDD: Average no. of boat days day^{-1}

P. pelagicus, indicating its dominance in the crab landings during that period. Rajamani and Palanichamy (2010) provided data on *P. pelagicus* landings at Thirupalakudi, reporting 98 t in 2007 and 57 t in 2008, with corresponding CPUE values of 5.5 kg and 4.9 kg, respectively. At Devipattinam, the estimated catch over three years (1995–1998) was 108.2 t, with a CPUE of 13.3 kg and CPH of 4.4 kg. The highest catches were observed in September, March, and June, with a size range of 81–182 mm and maximum recorded sizes of 182 mm for males and 176 mm for females. Ameer Hamsa (1978) reported *P. pelagicus* gillnet landings in the Palk Bay and Gulf of Mannar during 1972–1974, amounting to 510 t and 227 t, respectively. Josileen (2001) estimated the total catch of *P. pelagicus* at Mandapam (Palk Bay) during 1995–1998 as 502.4 t, with an average CPUE of 4.2 kg and CPH of 0.3 kg.

Comparing the findings of the present study with previous research provided additional context for the observed trends in *P. pelagicus* fisheries. The dominance of bottom-set gillnets in contributing to the total catch aligned with the historical data, underscoring the continued significance of this gear type in *P. pelagicus* fisheries. However, trammel nets and country trawled complement each other, emphasizing the importance of diverse fishing methods in capturing *P. pelagicus* throughout the year. The varying contributions of each gear type to the total catch underscored the need for integrated management approaches that consider the ecological and socio-economic implications of different fishing practices.

4. CONCLUSION

This study examined *Portunus pelagicus* catch in Ramanathapuram coast, using bottom-set gillnets, trammel nets, and country trawls. It revealed diverse crab sizes (30–92 mm length, 70–193 mm width), with 55–60 mm length and 115–125 mm width predominant. Bottom-set gillnets contribute 94.8% of catch; trammel nets 3.19%, and country trawls 2.01%.

5. FURTHER RESEARCH

Author may suggest future course of action/ research.

6. ACKNOWLEDGEMENT

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