



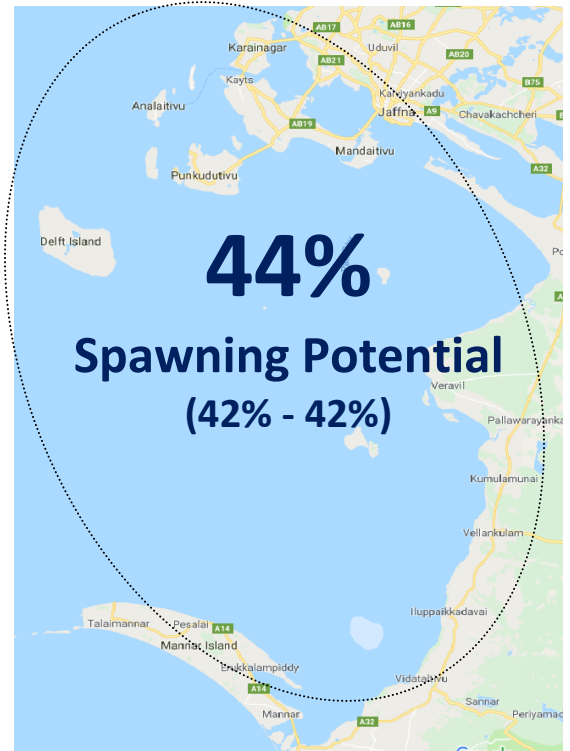
# Sri Lankan Blue Swimming Crab Palk Bay Fishery Assessment Preliminary Results - 2024

## Assessment

Fisheries Inspectors (FIs) from the Department of Fisheries & Aquatic Resources' (DFAR) District Fisheries Offices in Jaffna, Kilinochchi and Mannar and pelagikos pvt ltd conducted the 10<sup>th</sup> annual assessment of the BSC fishery in the Palk Bay. The assessment was completed over a period of 25 days between 11<sup>th</sup> May and 10<sup>th</sup> August 2024. 6,011 female crabs were measured and checked for maturity at 11 landing centres in the three districts. Fishing communities, agents and seafood manufacturers notably Taprobane Seafood Group assisted the DFAR and pelagikos to collect data from the Palk Bay fishery.

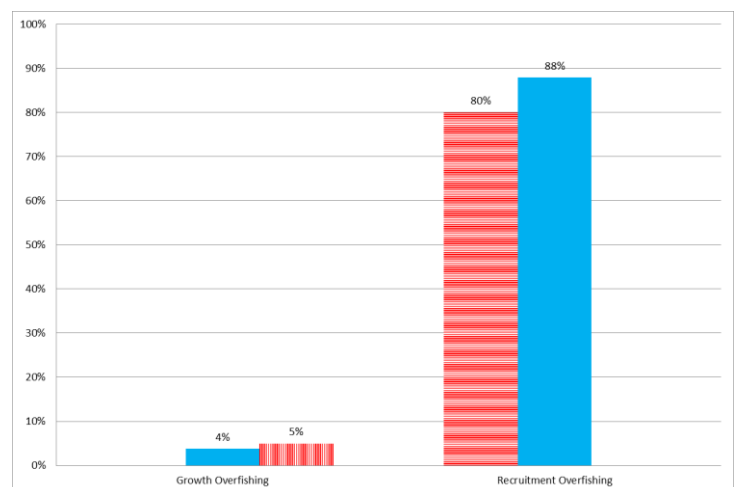
## Stock Status | Biomass

The spawning potential (SP) of the stock was estimated using an application available in the [Barefoot Ecologist's Toolbox](#) [ $M/k = 1.37$  |  $L_{inf}/L_{m50} = 0.55$  |  $L_{inf} = 189\text{mm}$  |  $L_{m50} = 104\text{mm}$  |  $L_{m95} = 124\text{mm}$ ]. The result ( $SP = 44\% \pm 2\%$ ) suggests that the status of the BSC stock in the Palk Bay is **SUSTAINABLE** and the biomass was **UNDERFISHED** in 2024. XX% of the crabs measured were caught at the Optimum Size (117mm – 143mm | 104g – 202g)



## Impact of Fishing on the Stock

The percentage of immature crabs (<104mm  $\approx$  74g) observed in the catch was 4% in 2024, below the threshold for Moderate Concern (5%), but higher than observed in 2023 (2%) and 2022, 2021 (3%). 2 and 2021. No indication of **GROWTH OVERFISHING** was observed in the Palk Bay fishery in 2024. 88% of the female crabs measured were at or above the Optimum Carapace Width (>117mm  $\approx$  104g). No indication of **RECRUITMENT OVERFISHING** was observed in the Palk Bay fishery in 2024.



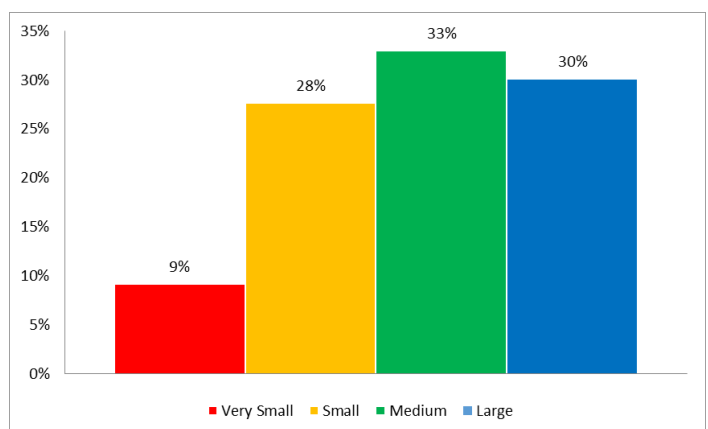
## FIP Fishery Observations 2024

Year	SP	Stock Status	Biomass
2024	44%	Sustainable	Underfished
2023	44%	Sustainable	Underfished
2022	44%	Sustainable	Underfished
2021	47%	Sustainable	Underfished
2020	45%	Sustainable	Underfished
2019	42%	Sustainable	Underfished
2018	45%	Sustainable	Underfished
2017	47%	Sustainable	Underfished
2016	44%	Sustainable	Underfished
2015	32%	Sustainable	Fished @ MSY

The stock status and biomass of the BSC population in the Palk Bay in 2024 [SUSTAINABLE | UNDERFISHED] remained the same as in 2023 and 2022. This result, together with the absence of growth (i.e., *catching too many juveniles*) and recruitment (i.e., *not catching enough large mature adults*) overfishing, strongly supports the argument that 4½”(114mm), 5½” (140mm) and 6” (152mm) bottom-set crab-nets are an extremely sustainable way to harvest Asian blue swimming crabs, year after year.

The sampling strategy introduced by the FIP in 2022 was implemented again by DFAR officers and pelagikos staff in 2024. Six landing centres were sampled in Jaffna, two in Kilinochchi and six in Mannar districts to represent the varying level of fishing effort across the fishery. Landing centres catching large, medium and small sized crabs were included in the sampling strategy.

The percentage of Very Small (<100g ≈ 114mm) female crabs in the catch increased from 8% in 2023 to 9% in 2024. The low level of immature female crabs in the catch (4%) and the relatively low level of crabs measuring less than the minimum legal weight for export of 100 grams (114mm), suggests that fishermen are not targeting and seafood exporters are not purchasing Very Small crabs in accordance with the 2022 regulation for BSC fishing.



## FIP Management Advice 2024/25

The DFAR, fishing communities, agents and the seafood export industry continue to implement the 2022 regulations for BSC fishing in 2024/25.



The National Fisheries Institute Crab Council together with the Department of Fisheries and Aquatic Resources co-financed the 10<sup>th</sup> annual stock assessment of the BSC fishery in the Palk Bay



## Palk Bay Fishery (Jaffna | Kilinochchi | Mannar Districts)

### I. Data Collection

Districts	Days	LC	No.	%
Jaffna	11	6	1,923	32%
Kilinochchi	6	2	1,167	19%
Mannar	8	5	2,921	49%
<b>Palk Bay 2024</b>	<b>25</b>	<b>13</b>	<b>6,011</b>	

Data Collection	n =	Cumul
May	1,146	1,146
June	1,572	2,718
July	2,421	5,139
August	872	6,011
<b>Grand Total</b>	<b>6,011</b>	

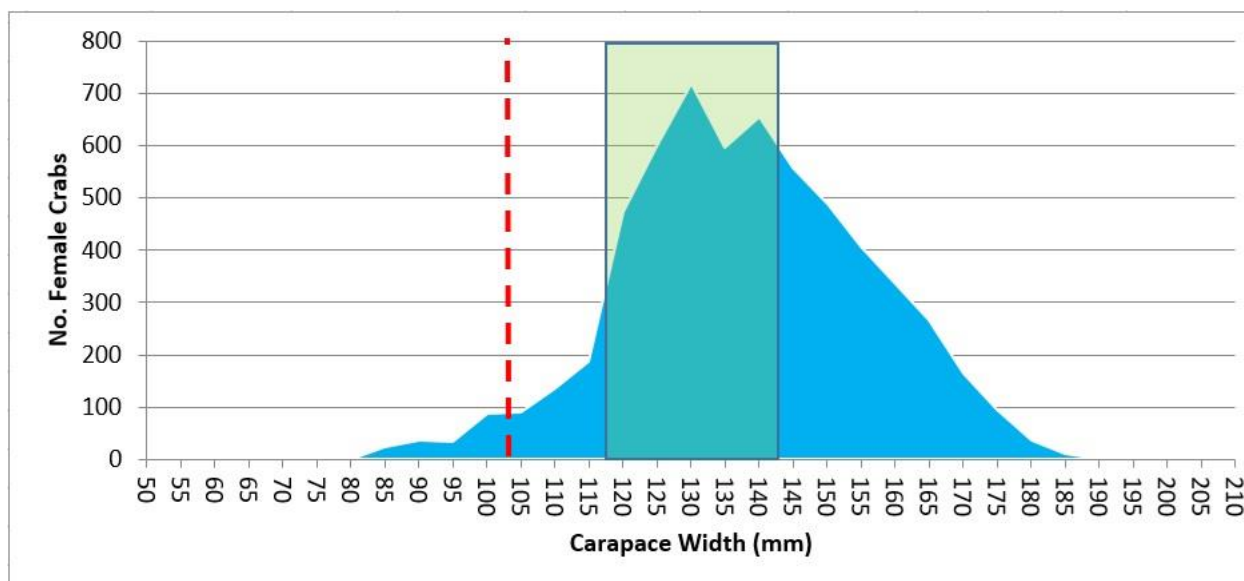
### II. Minimum, Maximum & Average Size (Carapace Width / mm)

Districts	No.	Min	Max	Av.	StdDev
Jaffna	1,923	80	190	138	21
Kilinochchi	1,167	71	181	134	18
Mannar	2,921	85	182	136	16
<b>Palk Bay</b>	<b>6,011</b>	<b>71</b>	<b>190</b>	<b>136</b>	<b>18</b>

### III. Optimum Size ( $L_{opt} = 3/(3+M/K) \times L_{inf}$ )

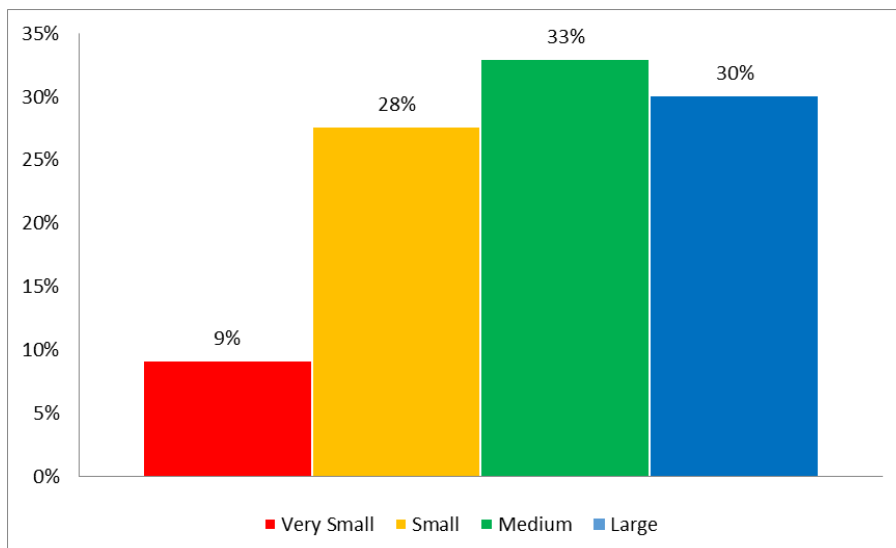
Optimum Length  $L_{opt}$  = 130 mm      where  $M/K = 1.37$  and  $L_{inf} = 189$  mm for SLBSC  
 Range (+/- 10%) = 117 – 143 mm  
 No. caught at Optimum Length = 3,273 (54%)

### IV. Length Frequency (mm) versus $L_{ms0}$ (104 mm) and Optimum Size (117 – 143 mm)



## V Grading (Approximation)

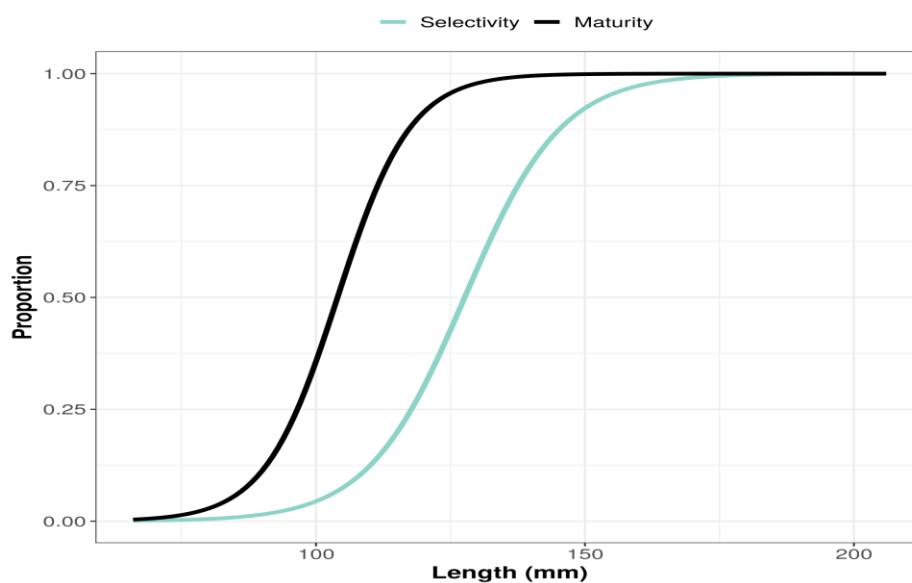
Grade	Weight	Approx. CW	No.	
1	> 200 g	> 146	1,810	30%
2	150 - 199 g	130 - 145	1,983	33%
3	100 - 149 g	115 - 129	1,664	28%
4	< 100 g	< 114	554	9%
<b>Palk Bay</b>			<b>6,011</b>	<b>100%</b>



## VI Immature & mature crabs in the catch

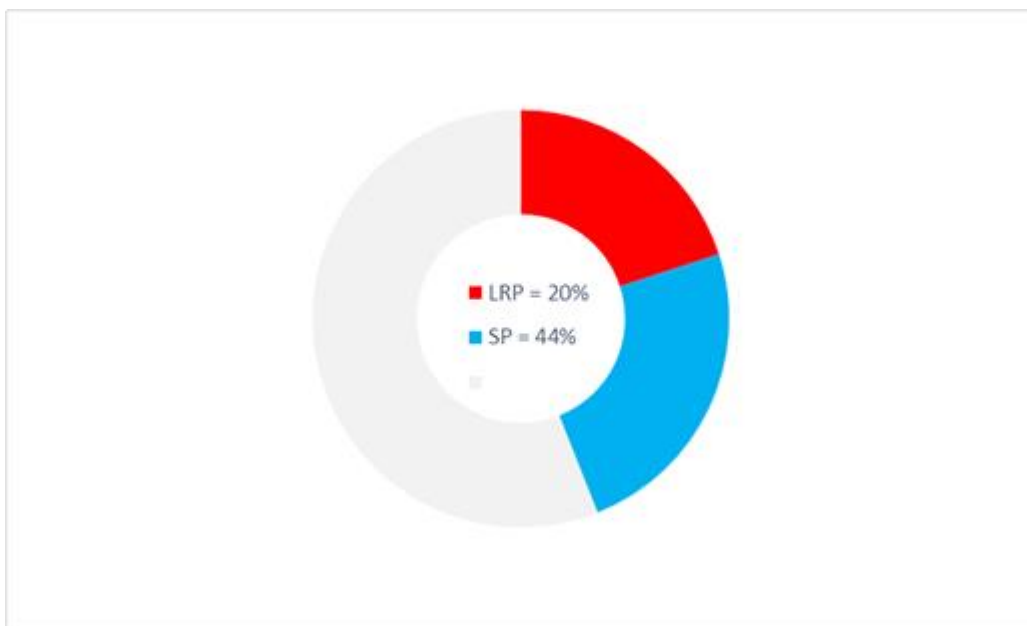
Districts	%IM	Immature	Mature	Total
Jaffna	6%	109	1,814	1,923
Kilinochchi	5%	55	1,112	1,167
Mannar	3%	89	2,832	2,921
<b>Palk Bay</b>	<b>4%</b>	<b>253</b>	<b>5,758</b>	<b>6,011</b>

## VII Maturity / Selectivity



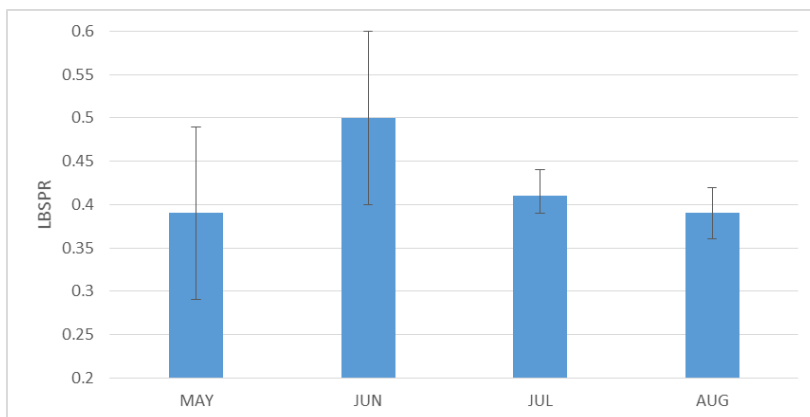
### VIII Spawning Potential = 44%

YR	n =	SPR	SL50	SL95	F/M	MK	Linf	L50	L95
2024	6,011	0.44 (0.42 - 0.46)	127.66 (125.98 - 129.34)	154.15 (151.56 - 156.74)	1.56 (1.41 - 1.71)	1.37	189	104	124



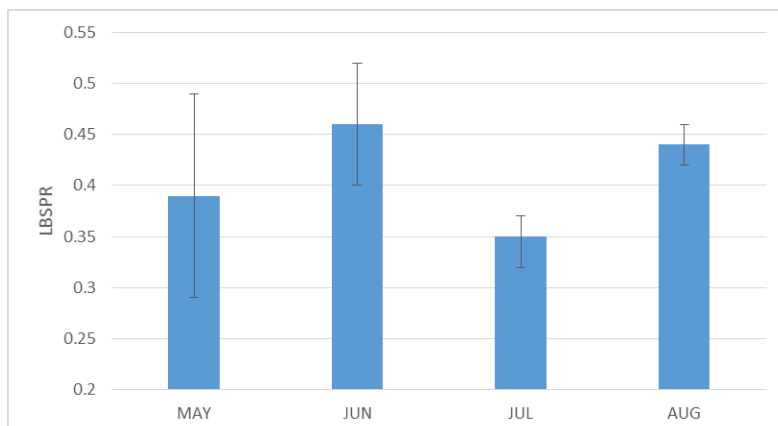
#### a. LBSPR estimates by month, with confidence limits

Palk Bay	n =	LBSPR	CL -	CL +
MAY	1,146	0.39	0.1	0.1
JUN	1,572	0.5	0.1	0.1
JUL	2,421	0.41	0.02	0.03
AUG	872	0.39	0.03	0.03



#### b. LBSPR estimates cumulative, with confidence limits

Palk Bay	n =	LBSPR	CL -	CL +
MAY	1,146	0.39	0.10	0.10
JUN	2,718	0.46	0.06	0.06
JUL	5,139	0.35	0.03	0.02
AUG	6,011	0.44	0.02	0.02



## Jaffna District (Palk Bay Fishery)

### I. Field Data Collection

LC / Date	No.			
<b>Delft</b>	<b>152</b>		<b>8%</b>	
2024/06/24	152		8%	
<b>Eluvaithivu</b>	<b>300</b>		<b>16%</b>	
2024/05/11	150		8%	
2024/06/29	150		8%	
<b>Karainagar</b>	<b>272</b>		<b>14%</b>	
2024/05/26	136		7%	
2024/06/13	136		7%	
<b>Mandaithivu</b>	<b>602</b>		<b>31%</b>	
2024/05/19	180		9%	
2024/06/03	196		10%	
2024/07/29	226		12%	
<b>Nainathivu</b>	191		<b>10%</b>	
2024/05/27	191		10%	
<b>Punguduthivu</b>	406		<b>21%</b>	
2024/06/05	204		<b>11%</b>	
2024/07/24	202		11%	
<b>Jaffna District</b>	<b>1,923</b>			
Landing Centres	6			
Days	11	<b>LKR</b>	<b>per crab</b>	
Average	175	135,000	70	

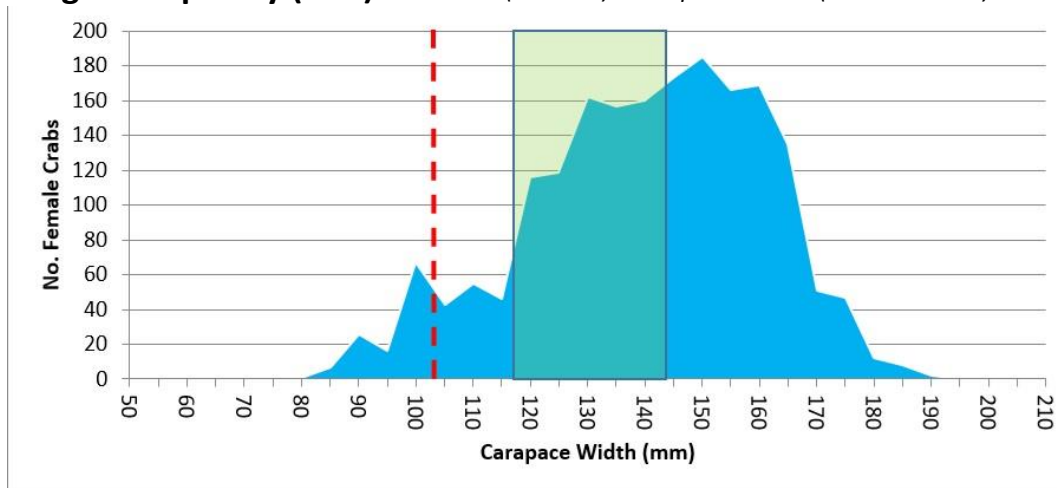
### II. Minimum, Maximum & Average Size (Carapace Width / mm)

Landing Centre	No.	Min	Max	Av.	StdDev
<b>Delft</b>	152	119	186	155	17
<b>Eluvaithivu</b>	300	80	190	140	21
<b>Karainagar</b>	272	82	177	132	23
<b>Mandaithivu</b>	602	82	172	136	18
<b>Nainathivu</b>	191	89	172	140	18
<b>Punguduthivu</b>	406	81	173	136	21
<b>Jaffna District</b>	<b>1,923</b>	<b>80</b>	<b>190</b>	<b>138</b>	<b>21</b>

### III Optimum Size ( $L_{opt} = 3/(3+M/K) \times L_{inf}$ )

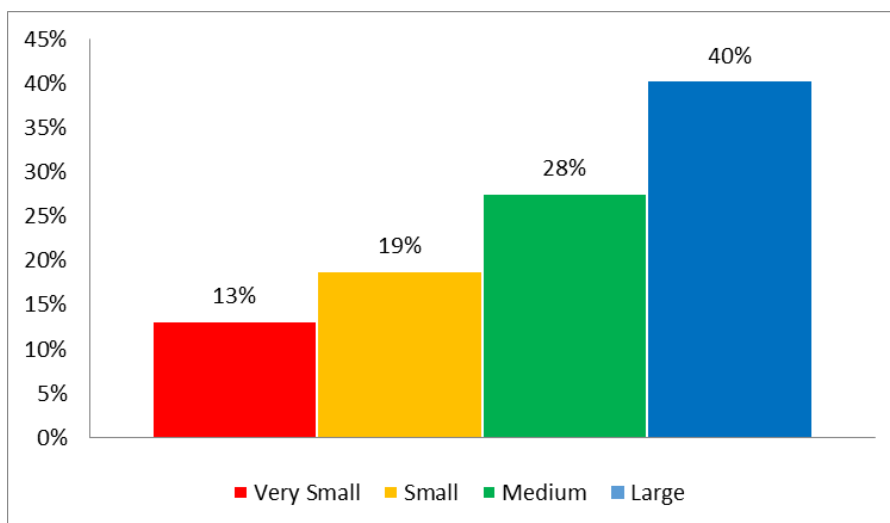
**Optimum Length  $L_{opt}$**  = 130 mm      where  $M/K = 1.37$  and  $L_{inf} = 189$  mm for SLBSC  
**Range (+/- 10%)** = 117 – 143 mm  
**No. caught at Optimum Length** = 783 (41%)

#### IV Length Frequency (mm) versus $L_{m50}$ (104 mm) and Optimum Size (117 – 143 mm)



#### V Grading (Approximation)

Grade	Weight	CW $\approx$ mm	No.	%
1	> 200 g	> 146	775	40%
2	150 - 199 g	130 - 145	531	28%
3	100 - 149 g	115 - 129	363	19%
4	< 100 g	< 114	254	13%
<b>Jaffna District</b>			<b>1,923</b>	



#### VI Immature crabs in the catch

Landing Centre	% IM	Immature	Mature	Total
Delft	0%		152	152
Eluvaithivu	8%	23	277	300
Karainagar	17%	45	227	272
Mandaithivu	1%	5	597	602
Nainathivu	3%	5	186	191
Punguduthivu	8%	31	375	406
<b>Jaffna District</b>	<b>6%</b>	<b>109</b>	<b>1,814</b>	<b>1,923</b>

## Kilinochchi District (Palk Bay Fishery)

### I. Field Data Collection

LC / Date	No		
<b>Irranimarthanager</b>	<b>750</b>		<b>64%</b>
2024/05/19	180		15%
2024/05/26	70		6%
2024/06/25	250		21%
2024/07/26	<b>250</b>		<b>21%</b>
<b>Palikuda</b>	<b>417</b>		<b>36%</b>
2024/05/27	239		20%
2024/06/29	178		15%
<b>Kilinochchi District</b>	<b>1,167</b>		
Landing Centres	2		
Days	6	LKR	per crab
Average	195	52,500	45

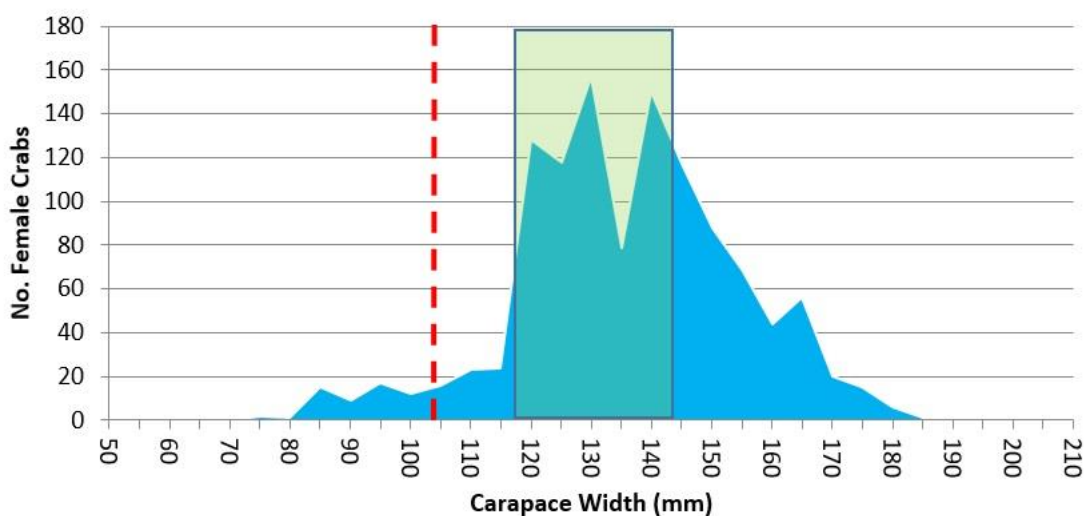
### II. Minimum, Maximum & Average Size (Carapace Width / mm)

Landing Centres	No.	Min	Max	Av.	StDv
Irranimarthanager	750	109	180	137	14
Palikuda	417	71	181	130	23
<b>Kilinochchi District</b>	<b>1,167</b>	<b>71</b>	<b>181</b>	<b>134</b>	<b>18</b>

### III. Optimum Size ( $L_{opt} = 3/(3+M/K) \times L_{inf}$ )

Optimum Length  $L_{opt}$  = 130 mm where  $M/K = 1.37$  and  $L_{inf} = 189$  mm for SLBSC  
 Range (+/- 10%) = 117 – 143 mm  
 No. caught at Optimum Length = 670 (57%)

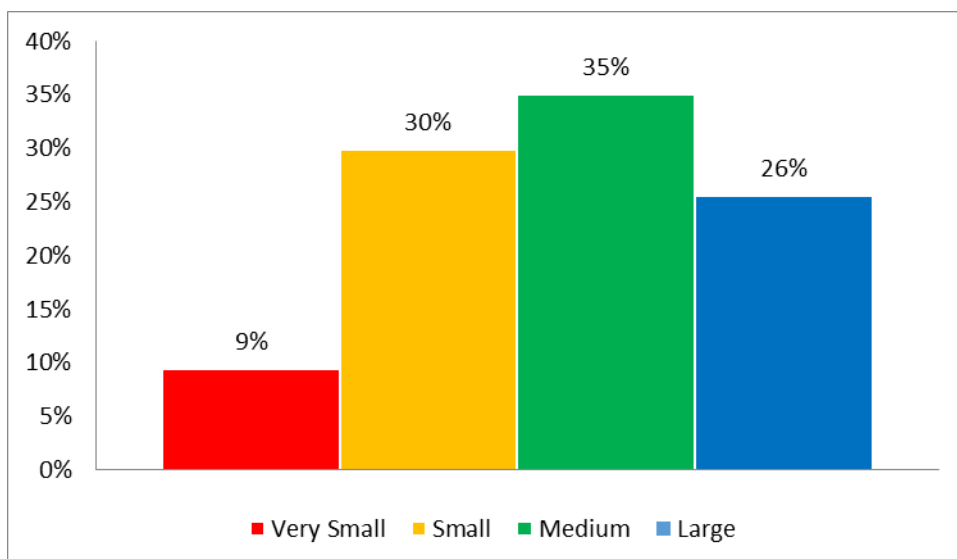
### IV. Length Frequency (mm) versus $L_{m50}$ (104 mm) and Optimum Size (117 – 143 mm)





## V Grading (Approximation)

Grade	Weight	CW ≈ mm	No.	%
1	> 200 g	> 146	299	26%
2	150 - 199 g	130 - 145	409	35%
3	100 - 149 g	115 - 129	349	30%
4	< 100 g	< 114	110	9%
<b>Kilinochchi District</b>			<b>1,167</b>	



## VI Immature crabs in the catch

Landing Centres	% IM	IM	M	Total
Iranaimarthanager	0%	2	748	750
Palikuda	13%	53	364	417
<b>Kilinochchi District</b>	<b>5%</b>	<b>55</b>	<b>1,112</b>	<b>1,167</b>

## Mannar District (Palk Bay Fishery)

### I. Field Data Collection

LC / Date	No.	%	
<b>Anthonyarpuram</b>	<b>129</b>	<b>4%</b>	
2024-07-25	129	4%	
<b>Erukkalampiddy</b>	<b>299</b>	<b>10%</b>	
2024-07-24	299	10%	
<b>Pesalai</b>	<b>1,090</b>	<b>37%</b>	
2024-06-22	129	4%	
2024/07/10	382	13%	
2024-08-07	579	20%	
<b>Thalaimannar pier</b>	<b>1,146</b>	<b>39%</b>	
2024-07-17	853	29%	
2024/08/10	293	10%	
<b>Vidathalthivu</b>	<b>257</b>	<b>9%</b>	
2024-06-22	177	6%	
2024/07/31	<b>80</b>	<b>3%</b>	
<b>Mannar District</b>	<b>2,921</b>		
<i>Landing Centres</i>	5		
<i>Days</i>	8	<b>LKR</b>	<b>per crab</b>
<i>Average</i>	<b>365</b>	<b>180,000</b>	<b>62</b>

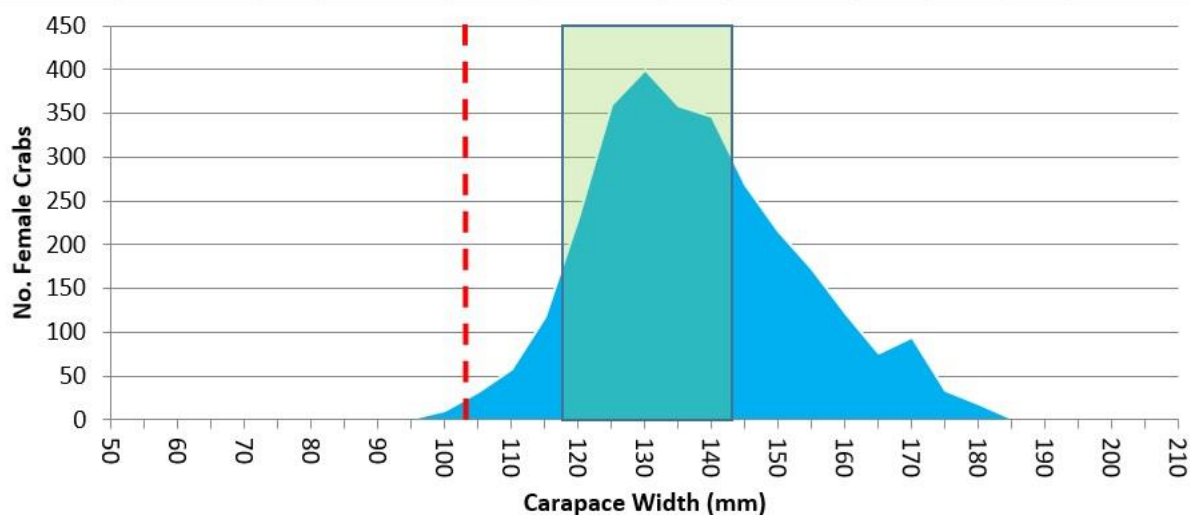
### II. Minimum, Maximum & Average Size (Carapace Width / mm)

Landing Centre	No.	Min	Max	Av.	StdDev
Anthonyarpuram	129	102	157	131	10
Erukkalampiddy	299	85	179	123	14
Pesalai	1,090	90	182	138	17
Thalaimannar pier	1,146	108	181	139	14
Vidathalthivu	257	95	170	130	14
<b>Mannar District</b>	<b>2,921</b>	<b>85</b>	<b>182</b>	<b>136</b>	<b>16</b>

### III Optimum Size ( $L_{opt} = 3/(3+M/K) \times L_{inf}$ )

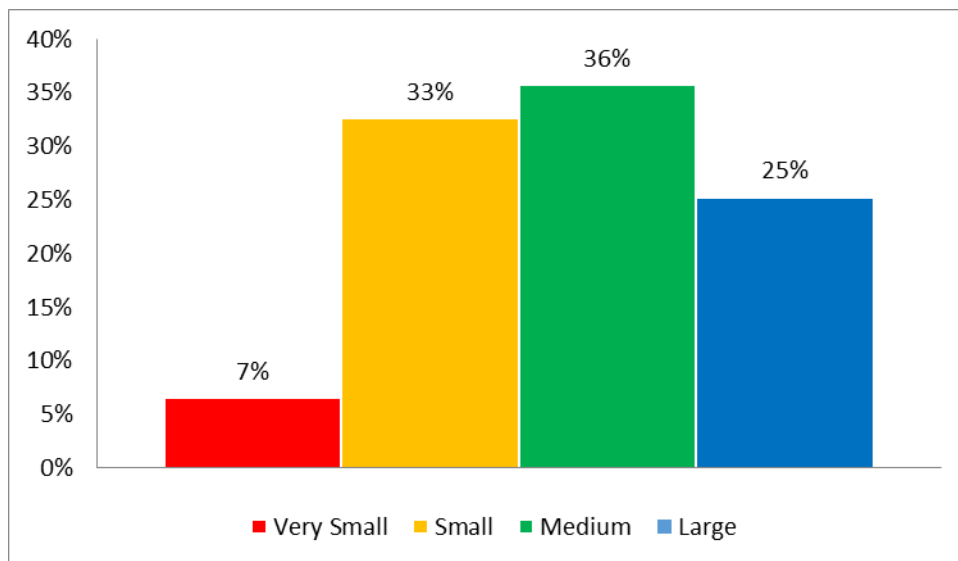
**Optimum Length  $L_{opt}$**  = 130 mm      where  $M/K = 1.37$  and  $L_{inf} = 189$  mm for SLBSC  
**Range (+/- 10%)** = 117 – 143 mm  
**No. caught at Optimum Length** = **1,820 (62%)**

#### IV Length Frequency (mm) versus $L_{m50}$ (104 mm) and Optimum Size (117 – 143 mm)



#### V Grading (Approximation)

Grade	Weight	CW ≈ mm	No.	%
1	> 200 g	> 146	736	25%
2	150 - 199 g	130 - 145	1,043	36%
3	100 - 149 g	115 - 129	952	33%
4	< 100 g	< 114	190	7%
<b>Mannar District</b>			<b>2,921</b>	



#### VI Immature crabs in the catch

Landing Centre	%	Immature	Mature	Total
Anthonyarpuram	3%	4	125	129
Erukkalampiddy	15%	44	255	299
Pesalai	2%	26	1,064	1,090
Thalaimannar pier	0%	4	1,142	1,146
Vidathalthivu	4%	11	246	257
<b>Mannar District</b>	<b>3%</b>	<b>89</b>	<b>2,832</b>	<b>2,921</b>