



केन्द्रीय समुद्री मात्स्यिकी अनुसंधान संस्थान
(भारतीय कृषि अनुसंधान परिषद)
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
(Indian Council of Agricultural Research)



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03.03.26

To

Yashawasi Fish Meal and Oil Company
Udyavara, Udupi

Kindly find enclosed herewith the Annual Report (2025-26) of the Consultancy Project on the Fishery and Stock Assessment of Small Pelagics in Purse Seines along the Karnataka coast.

Regards


Dr. Sujitha Thomas

अध्यक्ष
HEAD

भा.कृ.अनु.प.-केन्द्रीय समुद्री मात्स्यिकी अनुसंधान संस्थान
का मंगलूर क्षेत्रीय केंद्र / Mangalore Regional Centre of
ICAR-Central Marine Fisheries Research Institute
कृ.अनु.शि.वि., कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार
DARE, Ministry of Agriculture & Farmers' Welfare, Govt. of India
होइगे बाज़ार, मंगलूरु / Hoige Bazar, Mangaluru-575001



2025 ANNUAL REPORT

Fishery and Stock Assessment of Small Pelagics along the Karnataka Coast

ICAR - CMFRI Mangalore Regional Centre, Hoige Bazar, Mangaluru



Report of the Consultancy project on the Fishery and stock assessment of small pelagic in purse seines along Karnataka coast.

Species Composition of Purse Seine Landings during 2025

Based on in situ sampling conducted during January–December 2025 from selected purse seine units, the species composition of fish landings was assessed. Indian mackerel, *Rastrelliger kanagurta*, dominated the landings, accounting for 33.1% of the total catch. Oil sardine, *Sardinella longiceps*, formed the second major component, contributing 16.7%. Tunas collectively contributed a notable share of 18.0% of the landings, with *Euthynnus affinis* accounting for 10.9%, followed by *Auxis thazard* (3.5%), *Thunnus albacares* (2.8%) and *Auxis rochei* (0.8%). Among the other commercially important resources, *Scomberomorus commerson* contributed 10.2%, followed by *Trichiurus lepturus* (3.8%), *Decapterus russelli* (3.8%), *Megalaspis cordyla* (3.6%), *Sardinella gibbosa* (2.8%), *Selar crumenophthalmus* (2.1%), *Thryssa setirostris* (1.4%), *Thryssa vitirostris* (1.1%), *Decapterus macrosoma* (0.6%) and *Elagatis bipinnulata* (0.5%). The miscellaneous group contributed 2.3% of the total landings and comprised species including *Coryphaena hippurus*, *Nemipterus japonicus*, *Sphyraena putnamae*, *Tylosurus crocodilus*, *Katsuwonus pelamis*, *Scomberoides tol*, *Loligo duvaucelii*, *Sphyraena obtusata*, *Encrasicholina devisi*, *Priacanthus hamrur*, *Alepes djedaba*, *Parastromateus niger*, *Chirocentrus dorab*, *Sphyraena jello*, *Thunnus tonggol*, *Acanthocybium solandri*, *Hirundichthys coromandelensis*, *Kyphosus cinerascens* and *Lobotes surinamensis*.

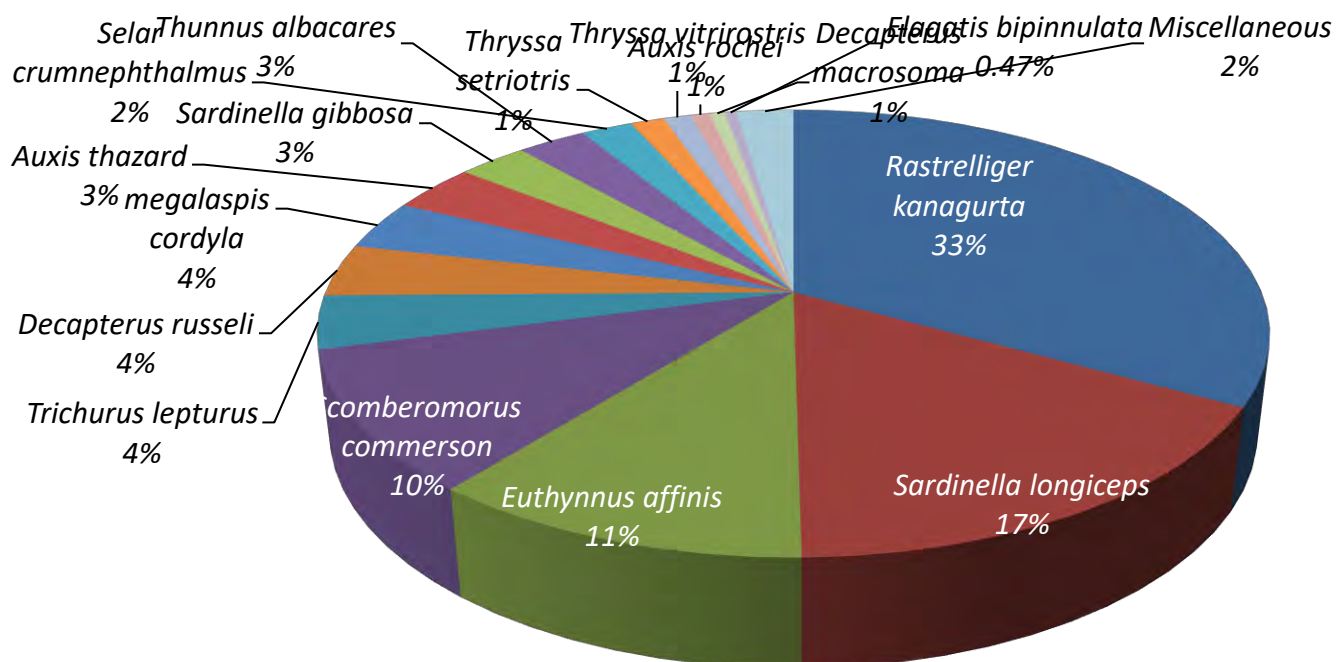
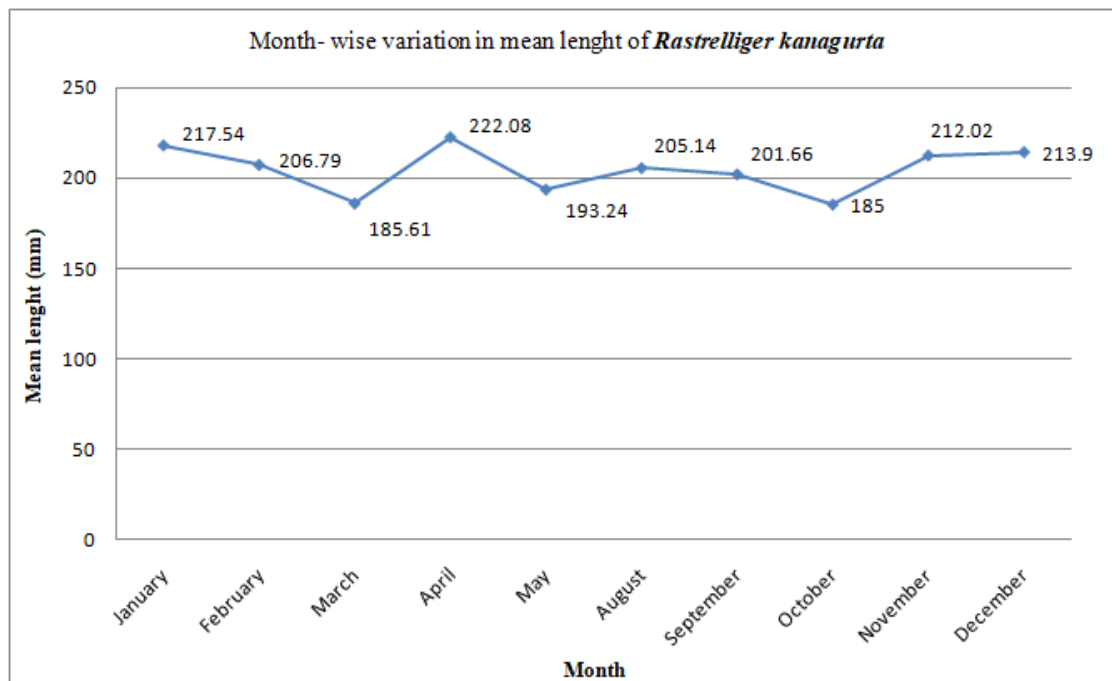


Table 1. Monthly species composition (%) of marine fish landings by purse seine along the Karnataka coast, 2025

Species	Jan	Feb	Mar	Apr	May	Aug	Sep	Oct	Nov	Dec
<i>Rastrelliger kanagurta</i>	19.8	5.1	33.5	–	35.3	48.5	40.	6.1	61.2	23.1
<i>Sardinella longiceps</i>	42.1	31.4	–	–	23.5	–	–	–	16.4	13.0
<i>Euthynnus affinis</i>	17.0	17.0	15.0	–	17.7	24.5	13.6	–	4.9	39.2
<i>Auxis thazard</i>	3.5	2.3	–	–	–	14.2	29.1	6.8	–	3.4
<i>Megalaspis cordyla</i>	2.3	5.7	1.4	–	5.9	8.5	1.7	10.1	2.9	2.6
<i>Selar crumenophthalmus</i>	3.2	–	–	–	–	–	–	–	–	7.3
<i>Decapterus macrosoma</i>	2.8	–	–	–	–	1.2	2.4	–	–	–
<i>Decapterus russelli</i>	1.7	12.3	6.9	60.0	–	0.3	–	–	–	3.1
<i>Auxis rochei</i>	1.9	–	–	–	–	2.8	5.8	–	–	–
<i>Scomberomorus commerson</i>	1.8	–	–	–	–	–	–	3.4	4.5	45.9
<i>Trichiurus lepturus</i>	–	12.7	14.4	20.0	–	–	–	–	5.9	–
<i>Katsuwonus pelamis</i>	–	3.4	–	–	–	–	–	–	–	–
<i>Thryssa vitrirostris</i>	–	2.6	4.6	10.0	–	–	–	–	–	–
<i>Thryssa setirostris</i>	–	1.7	6.9	10.0	–	–	–	–	–	–
<i>Sardinella gibbosa</i>	–	–	16.2	–	11.8	–	–	–	–	–
<i>Coryphaena hippurus</i>	–	2.1	–	–	–	–	2.3	0.6	–	–
<i>Sphyræna putnamae</i>	–	1.4	–	–	–	–	–	–	–	–
<i>Scomberoides tol</i>	–	1.3	–	–	–	–	–	–	–	–
<i>Alepes djedaba</i>	–	1.0	–	–	–	–	–	–	–	–
<i>Nemipterus japonicus</i>	–	–	–	–	5.9	–	–	–	–	–
<i>Loligo duvaucelii</i>	–	–	–	–	–	–	2.0	–	–	–
<i>Parastromateus niger</i>	–	–	–	–	–	–	1.2	–	–	–
<i>Thunnus albacares</i>	–	–	–	–	–	–	–	60.8	–	–
<i>Elagatis bipinnulata</i>	–	–	–	–	–	–	–	10.1	–	–
<i>Sphyræna obtusata</i>	–	–	–	–	–	–	–	2.0	–	–
<i>Tylosurus crocodilus</i>	–	–	–	–	–	–	–	–	2.1	–
<i>Miscellaneous</i>	3.9	–	1.2	–	–	–	1.4	–	2.2	1.7

Table 2. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio (M: F) and length frequency distribution of *Rastrelliger kanagurta* collected from purse seine

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
January	198-232	217.5	1:0.52	4.3	95.7	0.0	0.0	0.0	100.0
February	172-227	206.8	1:0.83	29.2	70.8	0.0	20.0	0.0	80.0
March	101-219	185.6	1:1.88	0.0	100.0	7.6	9.1	4.5	78.8
April	121-268	222.1	1:2.50	20.0	80.0	0.0	8.0	0.0	92.0
May	179-205	193.2	1:0.26	0.0	100.0	0.0	0.0	0.0	100.0
August	177-223	205.1	1:0.63	3.3	96.7	5.3	21.1	0.0	73.7
September	190-226	201.7	1:1.57	0.0	100.0	3.0	27.3	0.0	69.7
October	168-216	185.0	1:1.64	58.8	41.2	75.0	21.4	0.0	3.6
November	148-257	212.0	1:0.56	21.7	78.3	46.2	0.0	30.8	23.1
December	118-264	213.9	1:1.73	0.0	100.0	0.0	15.9	2.9	81.2



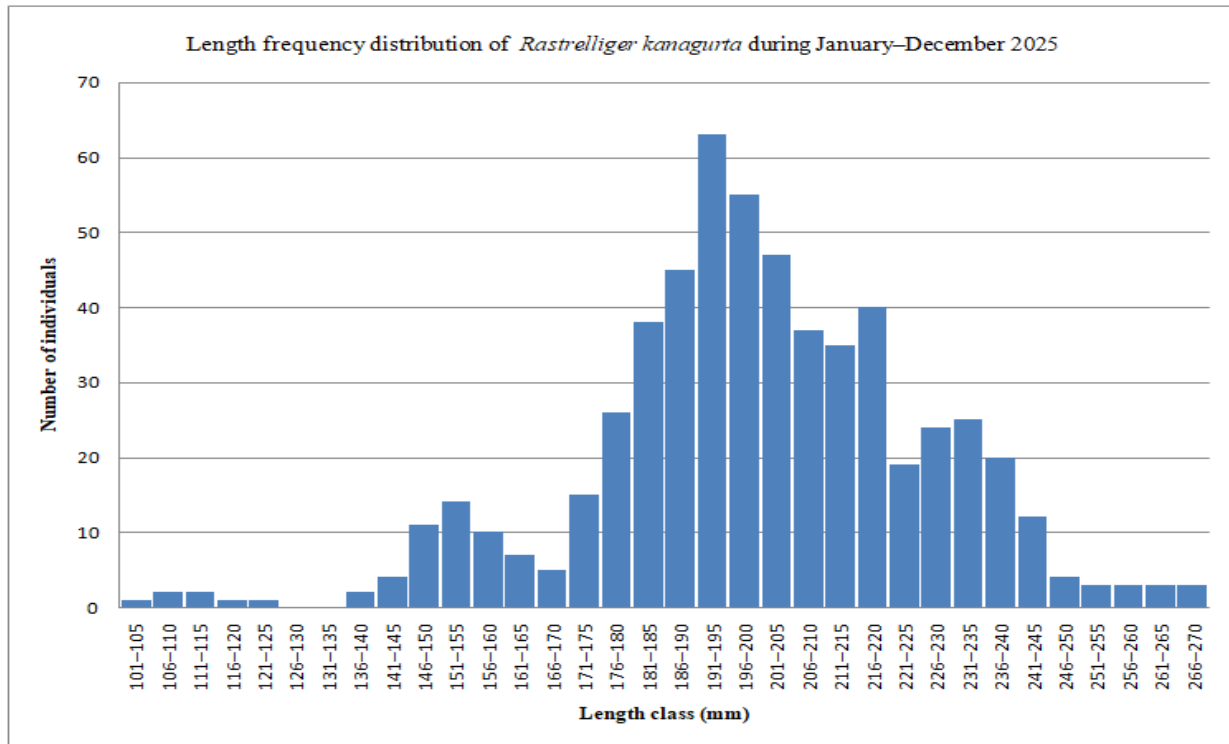


Table 3. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio (M: F) and length frequency distribution of *Sardinella longiceps* collected from purse seine

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Jan	119-148	132.0	1:1.61	76.2	23.8	29.4	70.6	0.0	0.0
Feb	119-151	130.0	1:0.55	20.0	80.0	5.3	94.7	0.0	0.0
Mar	125-163	135.0	1:0.44	11.1	88.9	0.0	100.0	0.0	0.0
Apr	125-163	135.8	1:0.44	11.1	88.9	0.0	100.0	0.0	0.0
May	141-187	165.6	1:1.63	0.0	100.0	0.0	6.5	0.0	93.5
Aug	163-186	174.2	1:6.16	0.0	100.0	0.0	0.0	0.0	100.0
Sept	163-186	172.0	1:1.25	0.0	100.0	0.0	33.3	0.0	66.7
Oct	147-191	167.4	1:0.60	0.0	100.0	0.0	6.7	0.0	93.3
Nov	164-201	178.7	1:2.00	0.0	100.0	0.0	0.0	0.0	100.0
Dec	101-184	127.0	1:1.88	23.5	76.5	21.9	78.1	0.0	0.0

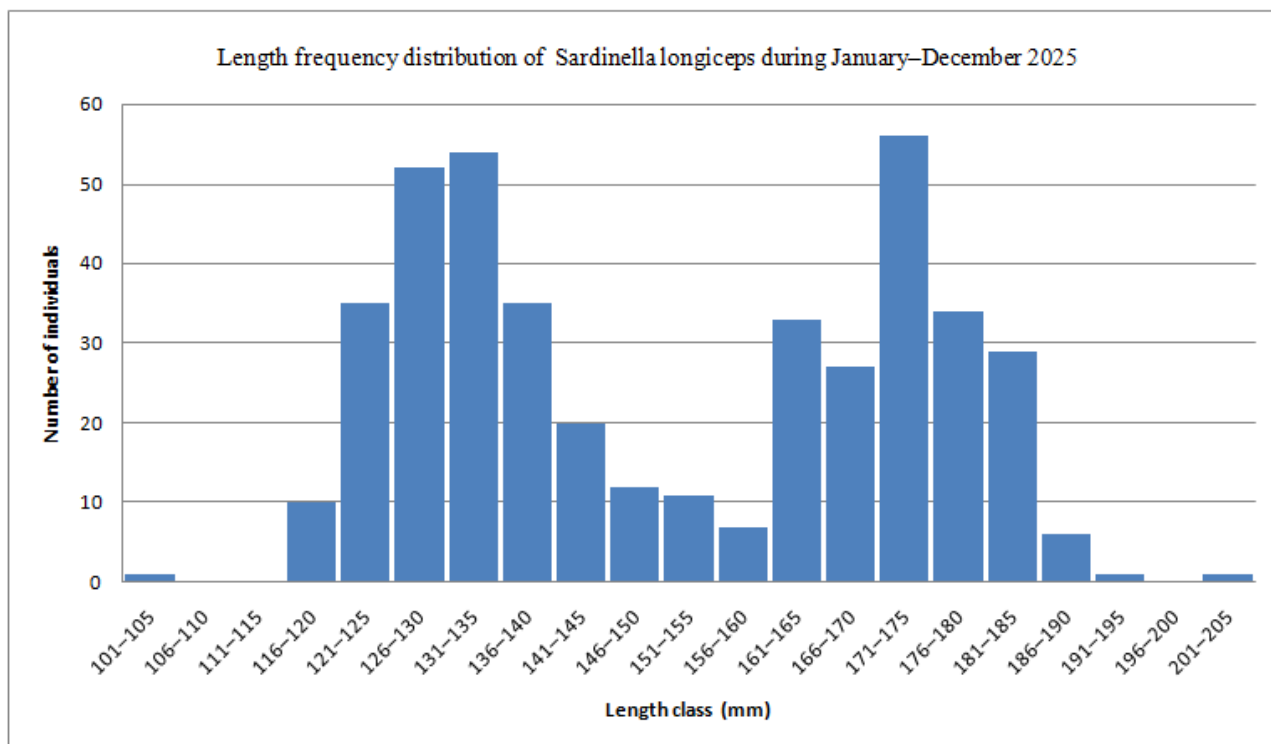
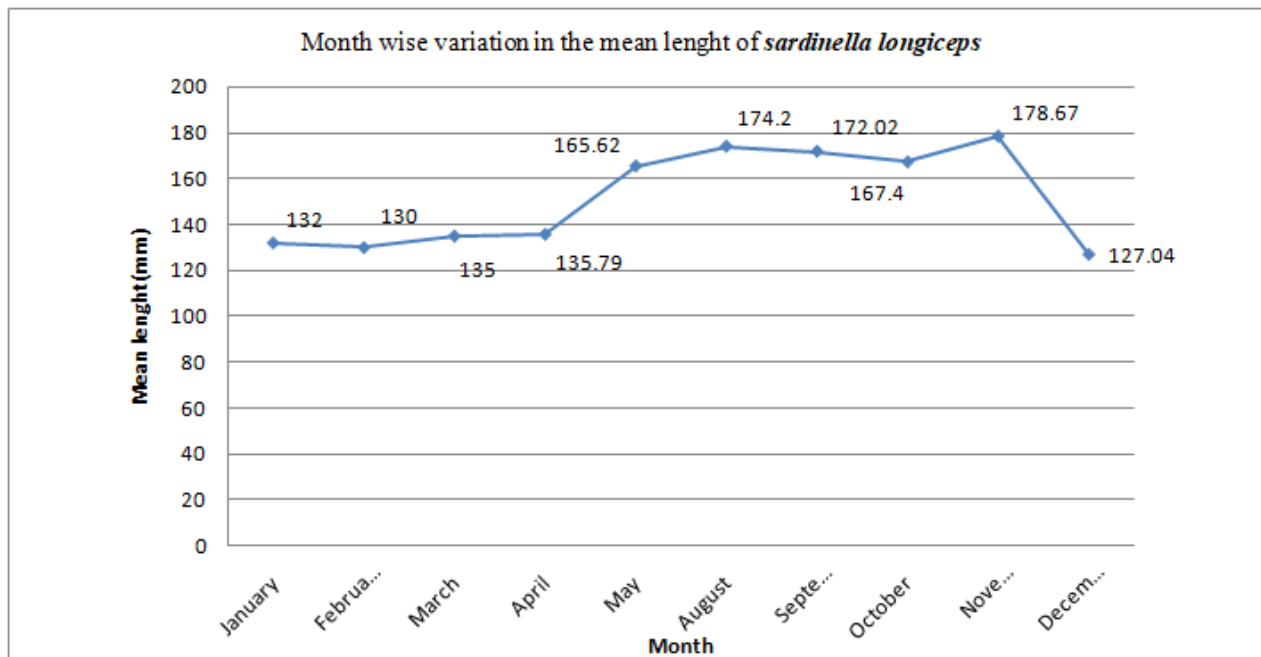
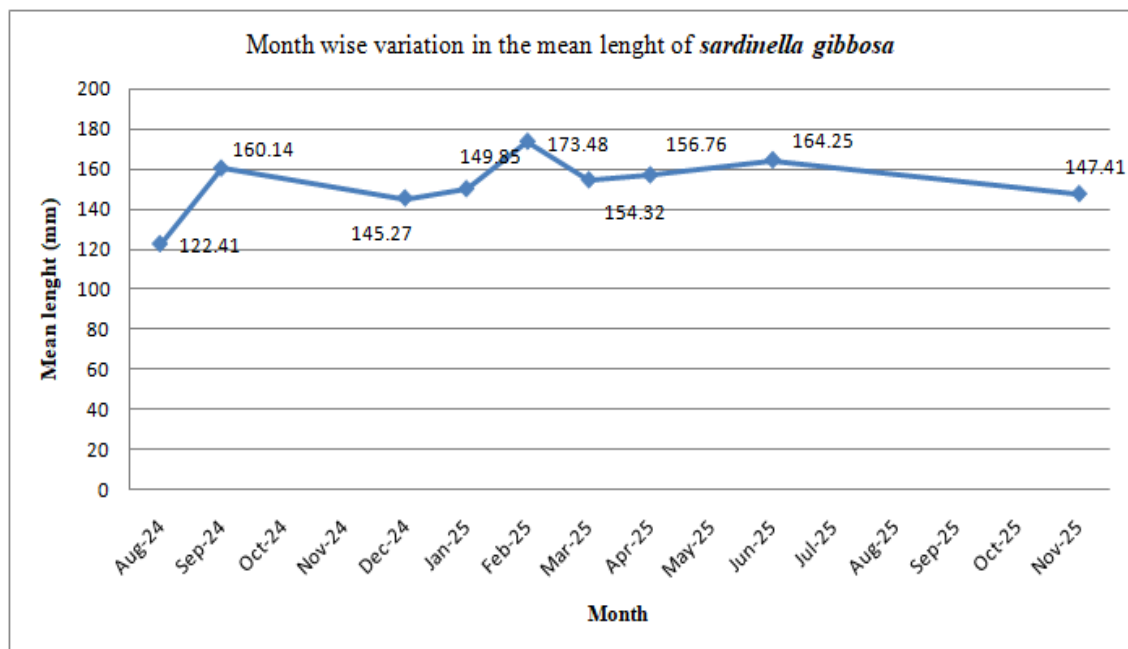


Table 4. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio (M: F) and length frequency distribution of *Sardinella gibbosa* collected from purse seine

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Aug-24	90-144	122.4	1:1.7	66.7	33.3	27.3	9.1	0.0	63.6
Sep-24	146-177	160.1	1:1.4	0.0	100.0	0	0.0	0.0	100.0
Dec-24	135-160	145.3	1:0.4	0.0	100.0	6.3	37.5	0.0	56.3
Jan-25	102-167	149.9	1:0.8	10.5	89.47	12.5	50.0	0.0	37.5
Feb-25	150-194	173.5	1:4.0	0.0	100.0	0.0	0.0	0.0	100.0
Mar-25	127-185	154.3	1:1.6	0.0	100.0	0.0	1.1	3.3	95.6
Apr-25	102-183	156.8	1:0.6	0.0	100.0	0.0	15.8	0.0	84.2
Jun-25	136-179	164.3	1:3.0	0.0	100.0	0.0	0.0	0.0	100.0
Nov-25	136-163	147.4	1:1.5	0.0	100.0	0.0	0.0	0.0	100.0



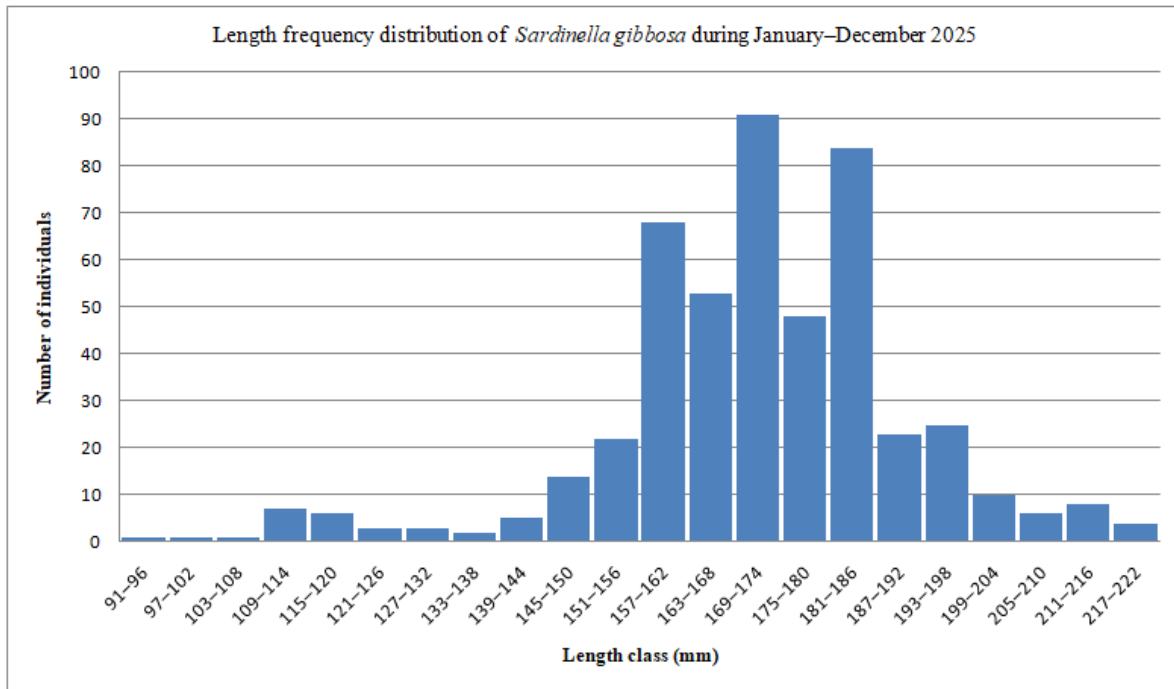


Table 5. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio and length frequency distribution of *Sardinella albella* collected from purse seine

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Aug-24	90-144	122.4	1:0.7	16.7	83.3	5.9	58.8	0.0	35.3
Sep-24	124-146	136.5	1:0.7	0.0	100.0	0.0	82.4	0.0	17.6
Oct-24	116-155	133.3	1:0.5	39.0	61.0	5.3	47.4	0.0	47.4
Nov-24	126-159	144.1	1:2.5	0.0	100.0	13.3	20.0	0.0	66.7
Jun-25	91-113	99.2	1:1.7	3.7	96.3	8.7	91.3	0.0	0.0
Jul-25	132-153	143.5	1:1.9	23.1	76.9	0.0	76.0	0.0	24.0
Aug-25	121-151	139.2	1:1.4	0.0	100.0	0.0	67.6	0.0	32.4
Oct-25	126-157	144.8	1:0.7	0.0	100.0	0.0	0.0	0.0	100.0

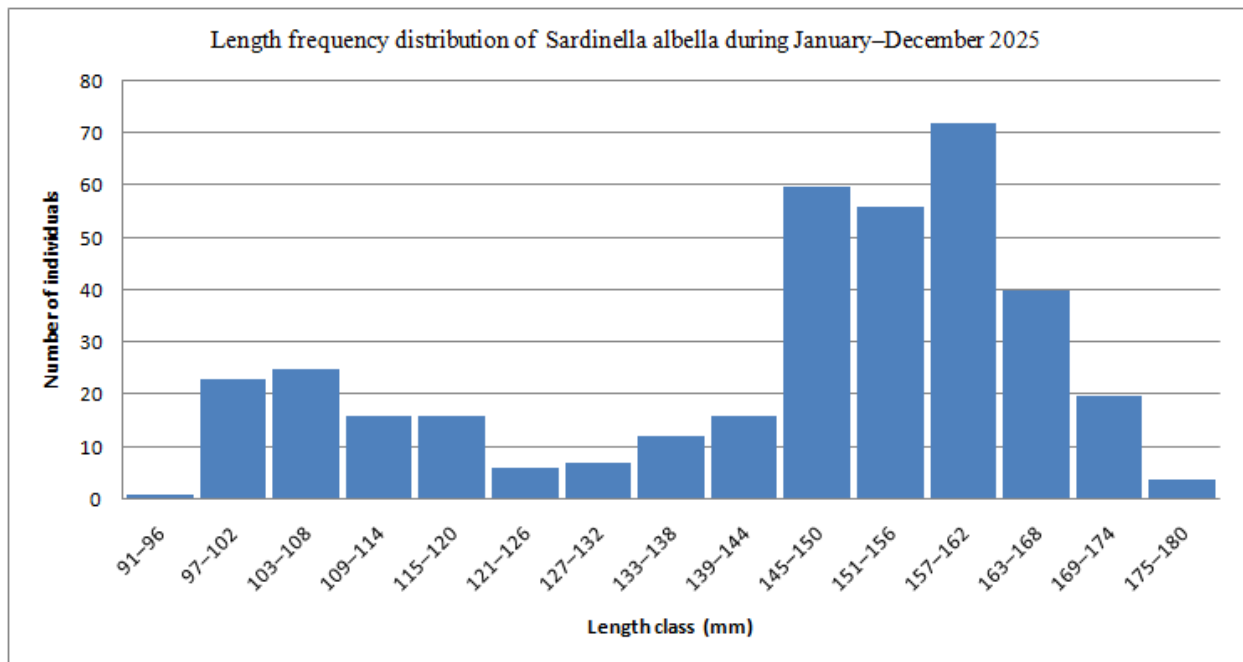
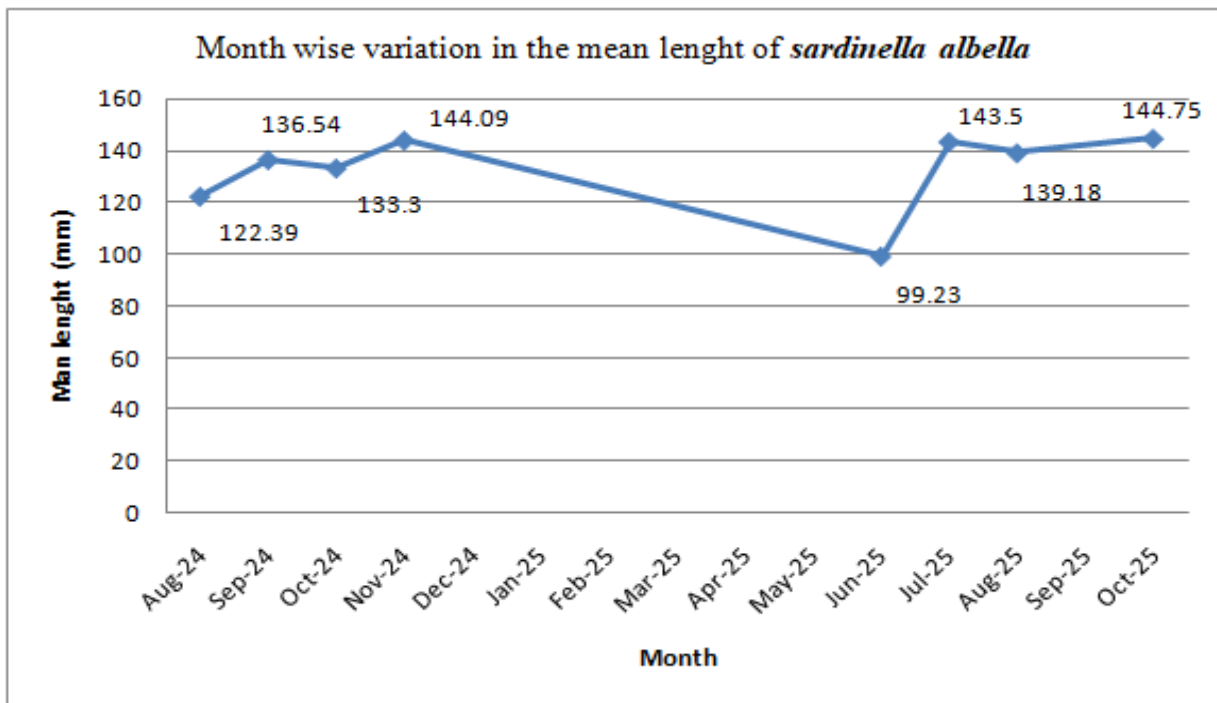
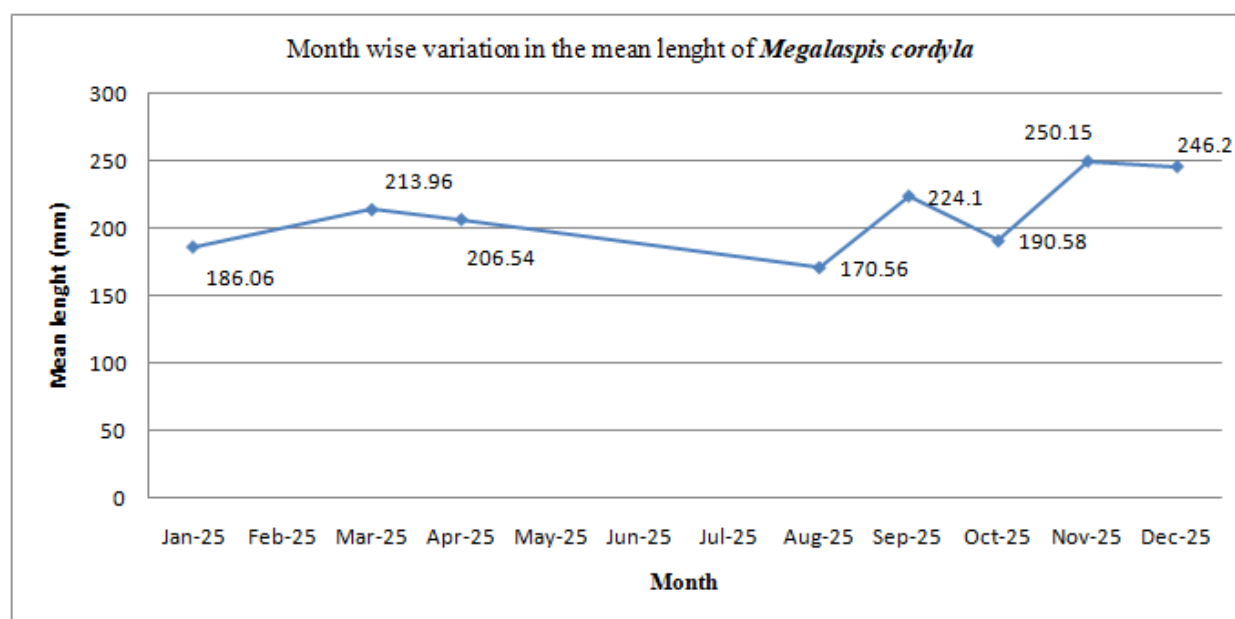


Table 6. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio and length frequency distribution of *Megalaspis cordyla* collected from purse seine during 2025

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Jan-25	115-245	186.1	1:1.6	50.0	50.0	55.0	45.0	0.0	0.0
Mar-25	196-236	214.0	1:1.7	9.1	90.9	0.0	0.0	0.0	100.0
Apr-25	170-225	206.5	1:0.3	88.0	12.0	0.0	0.0	0.0	100.0
Aug-25	145-203	170.6	1:0.8	92.4	7.5	77.5	22.5	0.0	0.0
Sep-25	203-241	224.1	1:1.0	8.3	91.7	8.7	91.3	0.0	0.0
Oct-25	182-206	190.6	1:0.4	32.0	68.0	77.8	22.2	0.0	0.0
Nov-25	206-331	250.2	1:1.4	0.0	100.0	0.0	47.4	0.0	52.6
Dec-25	205-296	246.2	1:1.3	0.0	100.0	0.0	52.6	0.0	47.4



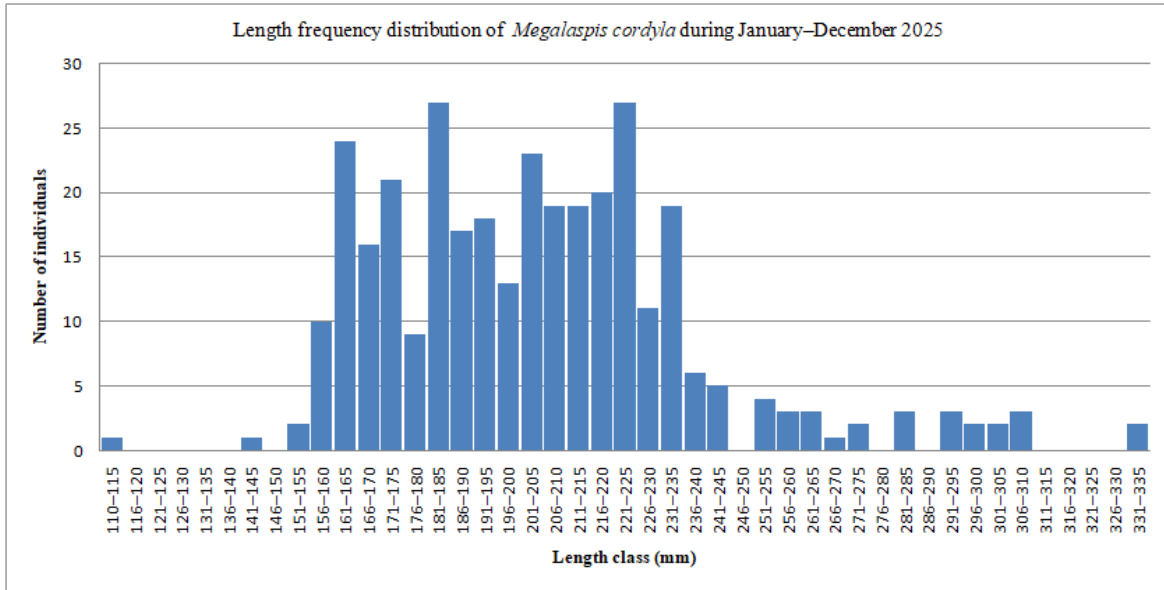


Table 7. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio and length frequency distribution of *Decapterus russelli* collected from purse seine during 2025

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Jan	158-225	179.06	1:0.4	13.6	86.4	12.5	25.0	0.0	62.5
Mar	171-200	183.15	1:1.2	0.0	100	0.0	0.0	0.0	100
Apr	154-190	179.23	1:2.5	0.0	100	0.0	44.4	0.0	55.6
Aug	175-230	200.6	1:0.5	0.0	100	0.0	18.2	0.0	81.8
Sep	146-216	169.86	1:0.8	0.0	100	20.0	20.2	0.0	60
Oct	164-216	178.62	1:0.6	0.0	100	0.0	15.8	0.0	84.2
Nov	179-233	204.88	1:1.2	0.0	100	0.0	8.7	0.0	91.3
Dec	160-246	203.83	1:0.8	0.0	100	0.0	12.5	0.0	87.5

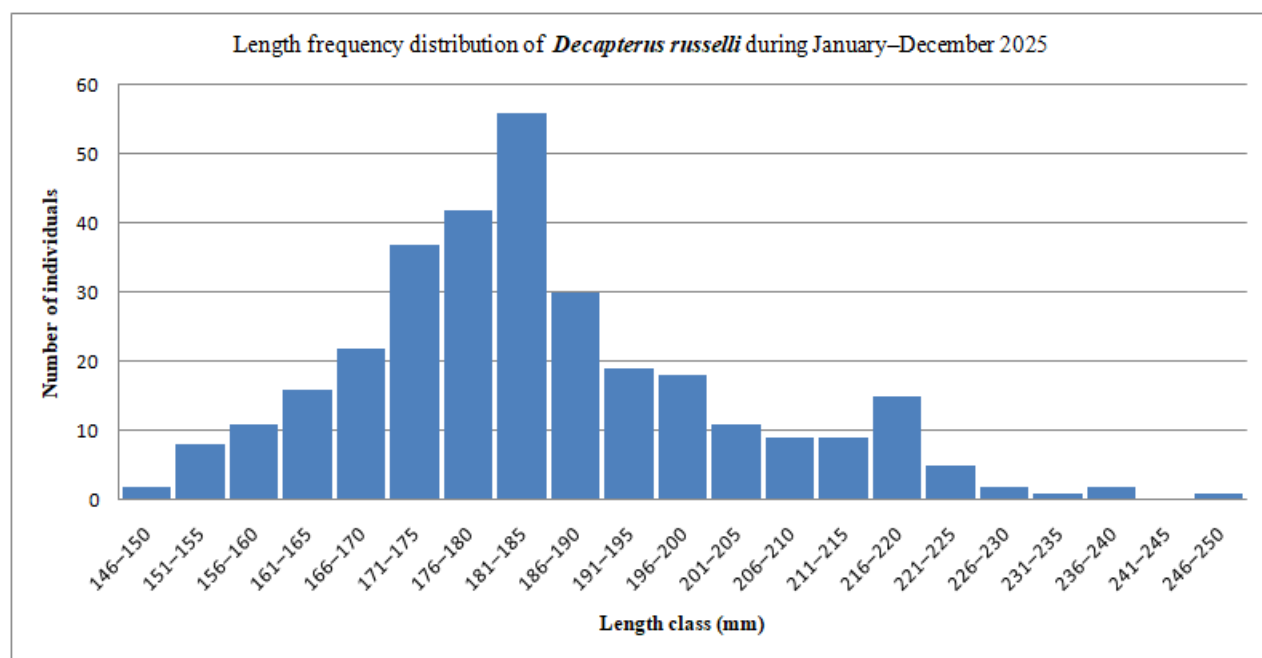
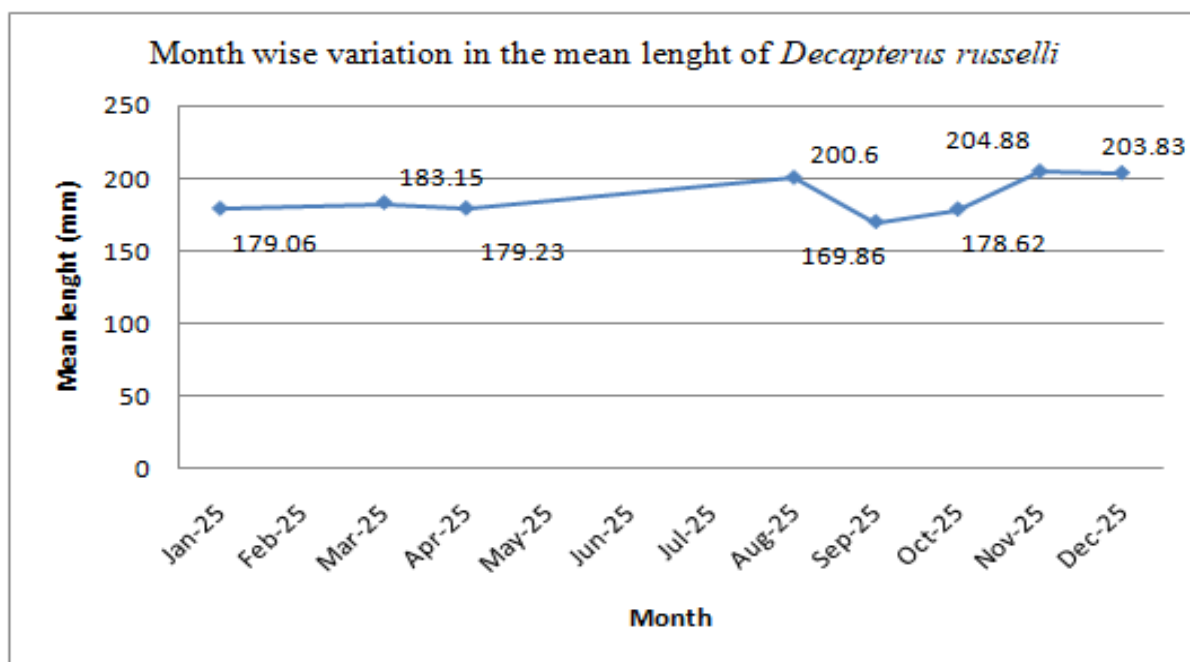
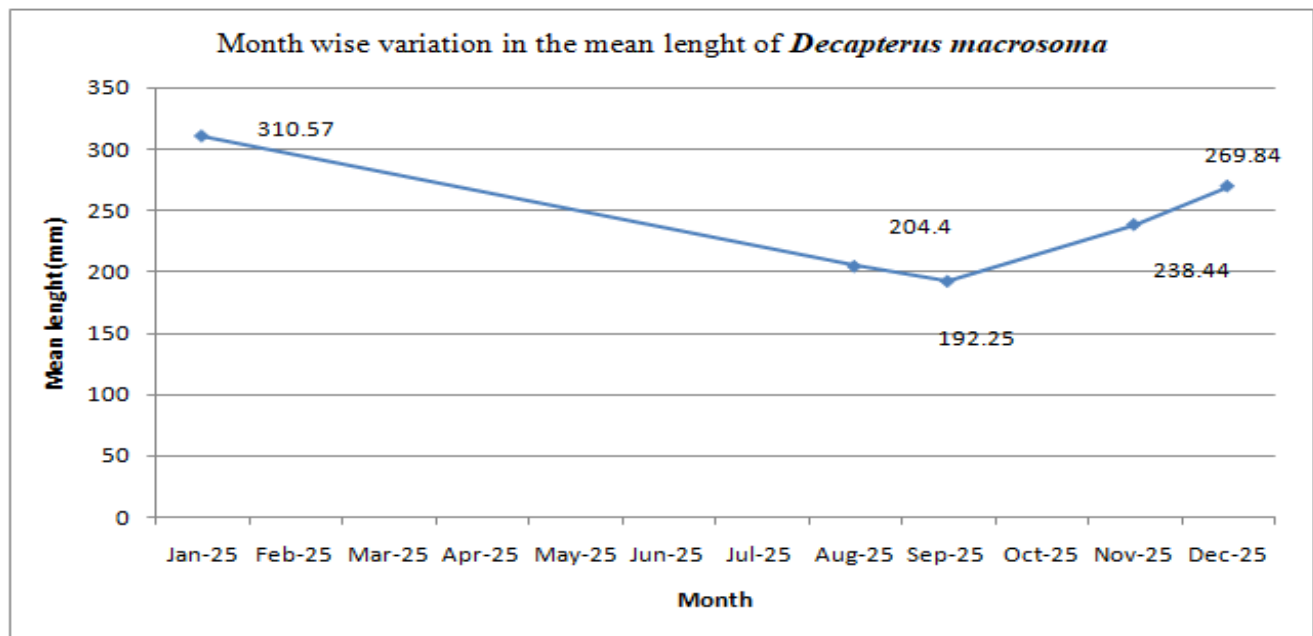


Table 8. Month-wise length range (mm), mean length (mm), maturity stages, sex ratio and length frequency distribution of *Decapterus macrosoma* collected from purse seine during 2025

Month	Length range	Mean Length	Sex Ratio	Maturity stages %					
				Male		Female			
				Immature	Matured	Immature	Matured	Gravid	Spent
Jan	261-340	310.6	1:1.6	0.0	100.0	0.0	15.4	0.0	84.6
Aug	201-207	204.4	1:1.0	0.0	100.0	0.0	33.3	0.0	66.7
Sep	173-205	192.3	1:3.0	0.0	0.0	0.0	0.0	0.0	100.0
Nov	216-253	238.4	1:0.8	0.0	100.0	0.0	0.0	12.5	87.5
Dec	245-310	269.8	1:1.4	0.0	100.0	0.0	0.0	0.0	100.0



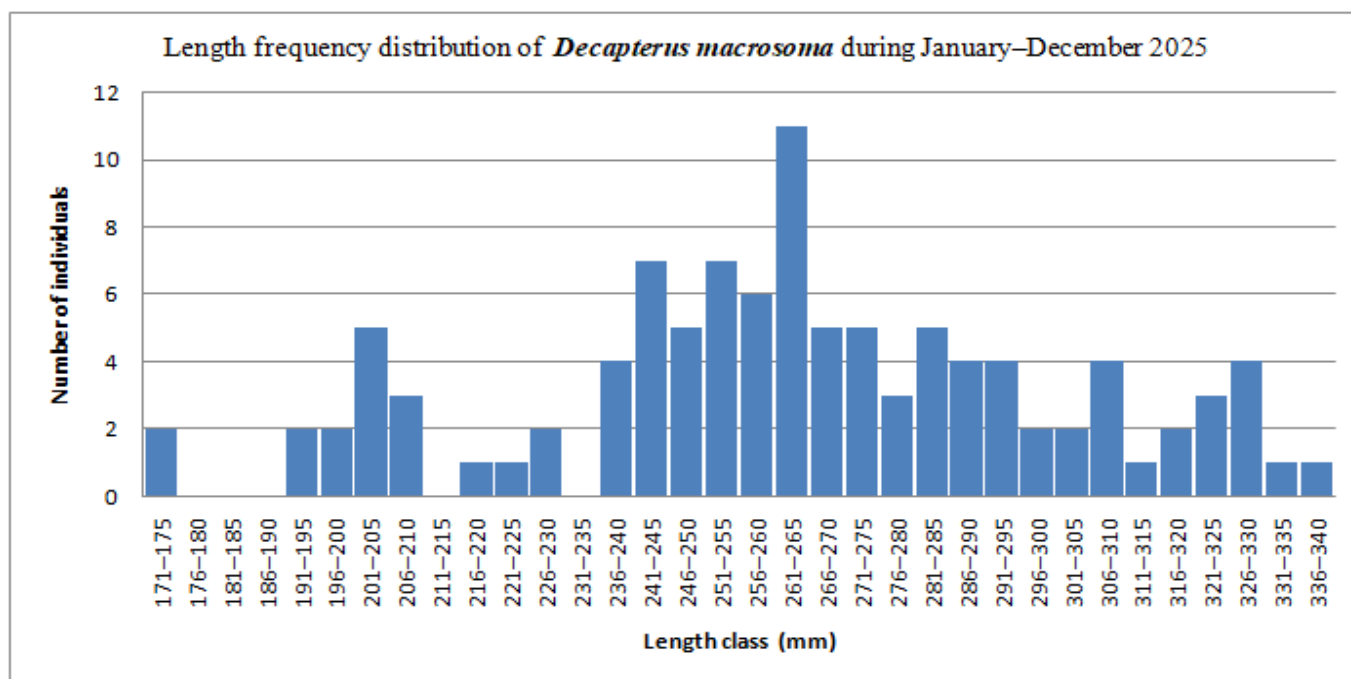


Table 9. Month-wise length range (mm) and mean length (mm) of Tuna species from in situ samples collected from purse seine landings during 2025.

Species	Parameter	Jan	Feb	Mar	Aug	Sep	Oct	Nov	Dec
<i>Euthynnus affinis</i>	Length	303–	386–	317–	262–	252–	–	343–	335–
	range	563	451	557	451	483		392	483
	Mean length	396.3	416.3	400.9	359.4	383.0	–	366.0	430.2
<i>Auxis thazard</i>	Length	239–	217–	325–	315–	225–	306–496	–	223–
	range	412	326	387	385	385		–	411
	Mean length	312.6	297.1	362.9	348.6	286.0	385.0	–	327.0
<i>Auxis rochei</i>	Length	283–	217–	218–	–	231–	–	–	245–
	range	396	326	277		278		–	311
	Mean length	329.9	297.9	252.2	–	246.9	–	–	279.5
<i>Katsuwonus pelamis</i>	Length	410–	301–	302–	–	–	–	–	–
	range	420	398	415		–		–	–
	Mean length	415.0	350.4	364.3	–	–	–	–	–
<i>Thunnus albacares</i>	Length	–	–	–	–	–	362–	–	–
	range						1148		
	Mean length	–	–	–	–	–	807.5	–	–

Species composition of ring seine landings during 2025

The major fishes recorded in the samples collected from selected ring seine boats operated during January, June, July and December 2025 included *Sardinella longiceps* (38%), *Metapenaeus dobsoni* (30%), *Rastrelliger kanagurta* (6%), *Thryssa setirostris* (6%), *Stolephorus waitei* (5%), *Parapenaeopsis styliifera* (3%), *Thryssa vitrirostris* (3%), *Lactarius lactarius* (2%), *Sardinella gibbosa* (2%), *Sardinella albella* (1%), *Trichiurus lepturus* (1%), *Opisthopterus tardoore* (1%), and miscellaneous species (1%), which included *Tenuulosa toli*, *Escualosa thoracata*, and *Secutor insidiator*.

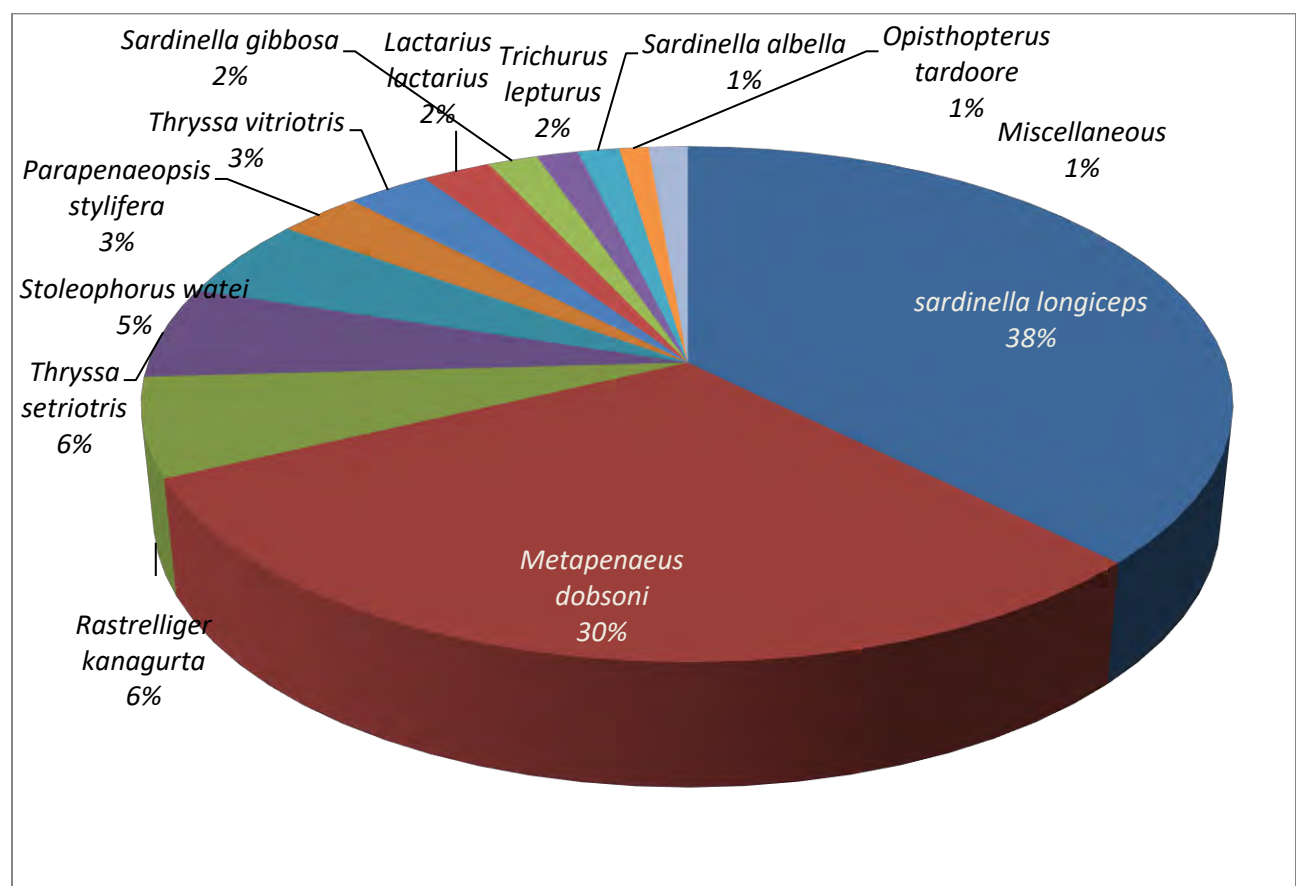
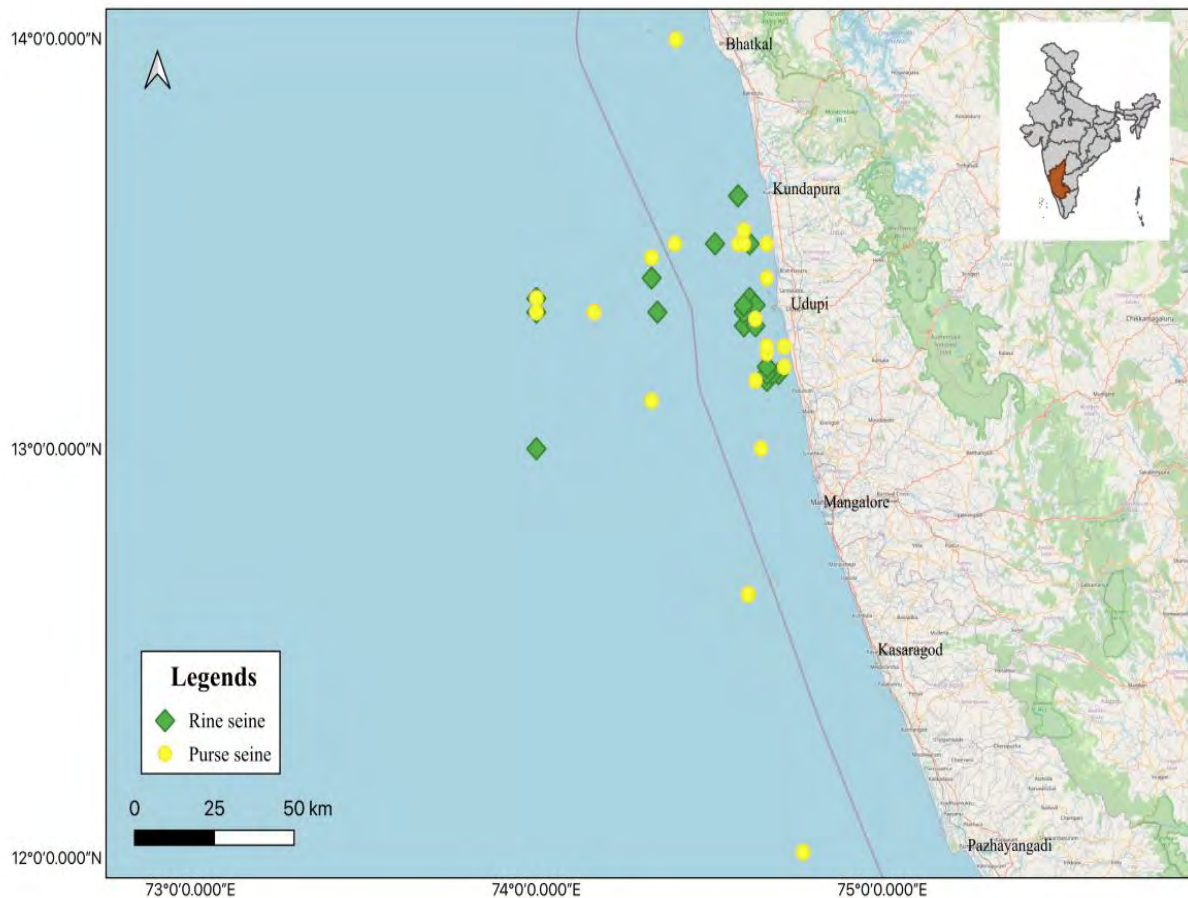


Table 10. Length range (mm) and mean (mm) of fishes collected from ring seine during 20

Species	Parameter	January	June	July	November	December
<i>Sardinella longiceps</i>	Length range	123–141	–	–	–	101–184
	Mean length	129.1	–	–	–	127.2
<i>Sardinella albella</i>	Length range	–	91–113	132–153	–	–
	Mean length	–	99.1	143.5	–	–
<i>Sardinella gibbosa</i>	Length range	–	92–181	136–179	136–163	–
	Mean length	–	157.	164.25	148.1	–
<i>Opisthopterus tardoore</i>	Length range	–	51–162	132–182	–	–
	Mean length	–	112.1	152.4	–	–
<i>Thryssa setirostris</i>	Length range	–	95–120	–	–	–
	Mean length	–	107.1	–	–	–
<i>Thryssa vitrirostris</i>	Length range	–	82–181	–	–	–
	Mean length	–	143.1	–	–	–
<i>Johnius glaucus</i>	Length range	–	65–111	–	–	–
	Mean length	–	88.3	–	–	–
<i>Secutor insidiator</i>	Length range	–	64–85	39–89	–	–
	Mean length	–	74.4	55.2	–	–
<i>Otolithes ruber</i>	Length range	–	63–125	–	–	–
	Mean length	–	90.6	–	–	–
<i>Lactarius lactarius</i>	Length range	–	–	63–136	–	–
	Mean length	–	–	99.0	–	–
<i>Alepes djedaba</i>	Length range	–	–	61–78	–	–
	Mean length	–	–	68.6	–	–
<i>Stoleophorus waitei</i>	Length range	–	–	62–105	–	–
	Mean length	–	–	74.2	–	–
<i>Tenualosa toli</i>	Length range	–	–	106–163	–	–
	Mean length	–	–	126.9	–	–
<i>Rastrelliger kanagurta</i>	Length range	–	–	136–161	148–257	–
	Mean length	–	–	150.9	213.6	–
<i>Pampus argenteus</i>	Length range	–	–	95–114	–	–
	Mean length	–	–	105.1	–	–
<i>Metapenaeus dobsoni</i>	Length range	–	–	91–120	–	–
	Mean length	–	–	106.3	–	–
<i>Parapenaeopsis styliifera</i>	Length range	–	63–82	–	–	–
	Mean length	–	75.14	–	–	–

Operational Fishing Areas of Purse seine and Ring seine Gears.

Based on in situ data collected from January to December, approximately 49 species were identified as contributors to the seine fishery. The geographic positions of fishing activities were documented from boats operating off the Malpe and Mangalore coast to assess the fishing dynamics of the region. Seine fishing operations were carried out in waters up to a depth of 50 m, with fishing trips generally lasting 1–2 days. The highest species diversity was recorded in January, indicating a seasonal peak in biodiversity.



Stock assessment of Oil Sardine

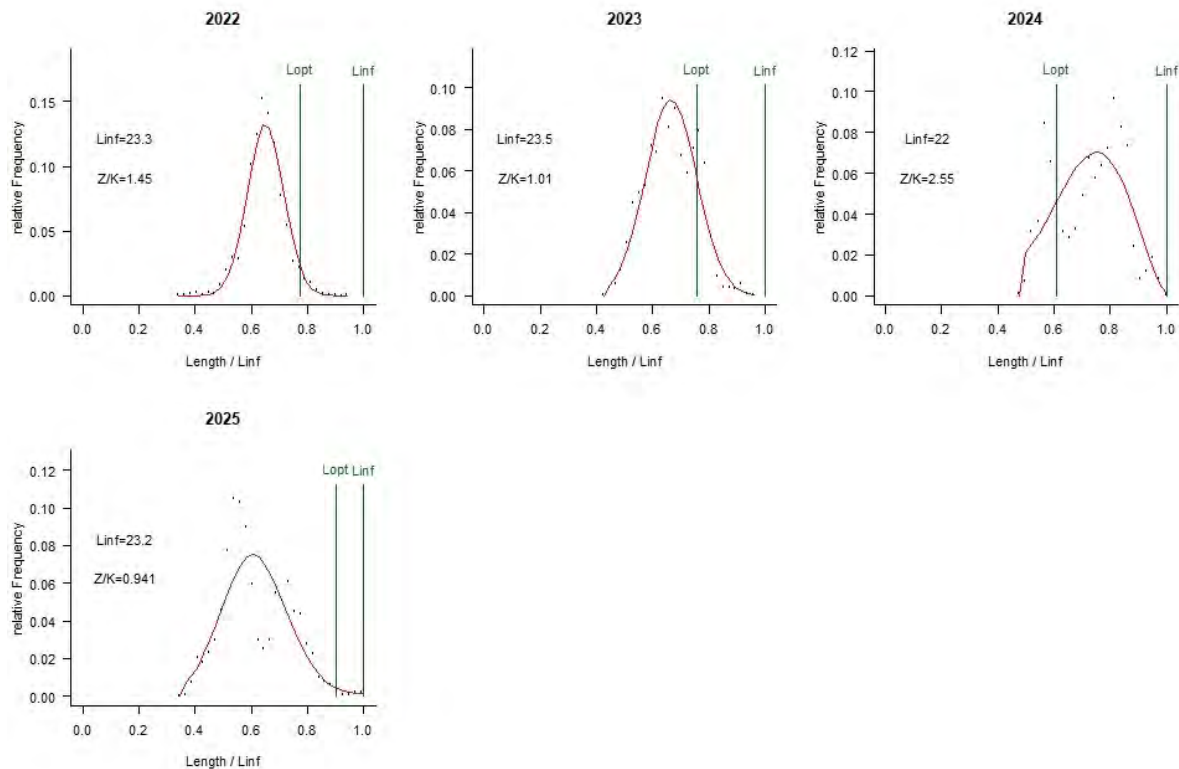
LBB results for *Sardinella longiceps*, stock oil_sardine, 2022-2025,

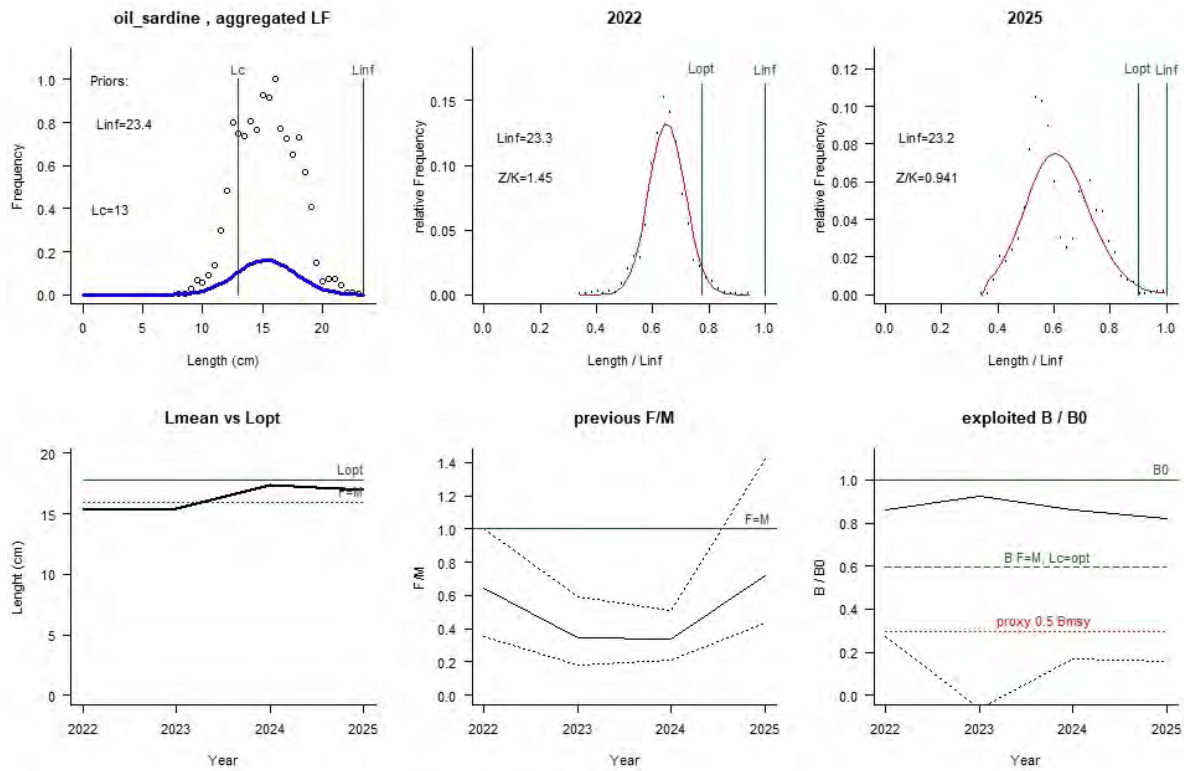
Gaussian selection

Pile-up correction applied with weight 1.00

Parameters	Values	Standard Deviation / Range
Linf prior	23.4 cm	0.23 cm
Lmax	24.5 cm	
Median Lmax	22.5 cm	
Z/K prior	2.1	0.27
M/K prior	0.853	0.075
General reference points (median across years)		
Linf	23.3 cm	23-23.7 cm
Lopt	18 cm	
Lopt/Linf	0.76	
Lc_opt	14 cm	
Lc_opt/Linf	0.59	
Lmean if F=M	16 cm	
M/K	0.923	0.625-1.21
F/M	0.48	0.319-0.67
F/K	0.591	0.44-0.631
Z/K	1.23	0.916-1.52
B/B ₀	0.81	0.26-1.6
B/B ₀ if F=M, Lmean=Lopt	0.59	
Y/R'	0.019	0.0091-0.031
Y/R' if F=M Lmean=Lopt	0.074	
Estimates for 2025 (mean of last 3 years with data):		
GLmean/Linf	0.74	
SD/Linf	0.137	
GLmean	17	3.13
F/M	0.72	0.43-1.4
F/K	0.42	0.37-0.48
Z/K	1.5	1.3-1.7
Y/R'	0.028	0.01-0.063
B/B ₀	0.82	0.16-2.7
B/B _{msy}	1.4	0.26-4.5

A length-based Bayesian approach (LBB) was applied to assess the stock status of oil sardine landed along the Karnataka coast. As the species is predominantly harvested by purse seines and ring seines, a Gaussian selectivity function was adopted in the analysis. Results from the LBB assessment indicate that the fishery is currently exploited sustainably. The mean length of the catch has improved over recent years (16 cm) and exceeds the length at first capture ($L_c = 14$ cm), suggesting reduced growth overfishing. Estimated fishing mortality relative to natural mortality (F/M) ranged from 0.43 to 1.40, indicating scope for harvest under appropriate management. Biomass relative to unfished biomass (B/B_0) showed the best model fit in 2022 and remained above the precautionary reference limit of 0.6. Furthermore, the B/B_{MSY} value of 1.4 suggests that the stock biomass is well above the level producing maximum sustainable yield, indicating healthy stock conditions and potential for sustainable exploitation.





Purse seine and ring seine operation along Karnataka coast, present status, regulations and recommendations

In Karnataka, purse seine fisheries operate with multiple gear variants tailored to specific pelagic resources. Key gear types include Kotibale, designed with larger mesh to selectively harvest bigger fishes from deeper waters; Thickkenbale/Boothabale, traditionally used for oil sardine fishing; and Golaibale, mainly deployed for anchovies. The dimensions and mesh sizes of these nets differ substantially based on the target species.

The fishery supports a wide range of pelagic species such as sardines, mackerel, seerfishes, barracudas, moonfish, bull's eye, squids, ribbonfish, tunas, large carangids, and other commercially valuable finfishes. Fishing units vary in scale. Smaller vessels (12–16 m) generally operate within 5–12 nautical miles from the shore, while larger crafts venture 25–40 nautical miles offshore in search of high-value species. Crew strength typically ranges between 18 and 30 members. Operations are mostly multi-day trips lasting 3–5 days and continue throughout the year, except during the mandated closed season. Catch per trip commonly ranges from 5 to 20 tonnes. Many of the larger vessels are equipped with modern navigation and fish-detection systems, including echo sounders, GPS, VHF radios, and AIS, enhancing efficiency and safety at sea.

Existing fishery regulations

The available legislative measures in place for purse seine fishery management in Karnataka are as follows:

Craft-gear types	Type of regulations	Existing legal provisions
Purse seiners using Kotibale / Thikkenbale/Booth aibale/Oilsardine seine / Golaibale/ Anchovie seine	Access control	Registration & licensing; Purse seiners capped to 808 nos. (including 529 trawlers to be re-registered).
	Spatial	Beyond 10 km from the shore
	Temporal	Restricted during seasonal closure
	Gear-based	Mesh size > 20 mm; No gear length and depth restrictions
	Craft-based	24-meter vessel length; Allowed up to 350 HP engine.
	Vessel tracking	No mandatory requirements
	Crew management	Biometric card for identity
	Other	Light fishing is banned; Using FAD for cuttlefish fishing banned
Ring seiners using ring nets / Rani Bale	Access control	No restrictions
	Spatial	Up to 10 km
	Temporal	Throughout the year
	Gear-based	Mesh size > 20 mm; No gear length and depth restrictions
	Craft-based	Up to 40 HP engine (only 9.9 hp engines permitted during trawl ban)
	Vessel tracking	No mandatory requirements
	Crew management	Biometric card for identity
	Catch-based	The state has notified a minimum legal size (MLS) for 19 species.
	Other	Light fishing is banned

Recommendations

- The Government of India may devise and implement a comprehensive seine fishery management plan for areas beyond territorial waters.
- The Government may regulate the fishing capacity of the purse seine fishery through standardizing/specifying the boat size/engine power/gear size and mesh size for catching specific resources or for operation in specific zones.

- Implement periodic forecasts of small pelagic fish abundance and issue advisories to regulate harvesting during periods of low stock availability, taking into account prevailing and projected climatic conditions.
- The Government may work on mechanisms to implement a catch declaration system and details of the operational areas (providing log sheets) on a pilot scale for the purse seine fishery.
- Enforce strict monitoring and control of illegal light fishing through strengthened marine surveillance and regular patrolling operations.
- Preventing capture of juveniles through mesh size regulations and effective monitoring of MLS implemented for the major fishery resources.
- Installation of vessel monitoring system (VMS), & guidelines for vessel construction & adoption of sea safety measures.
- Encourage and train fishers to sustainably exploit underutilized deep-sea resources, thereby easing pressure on nearshore fisheries.
- Develop and strengthen cold chain and supply chain infrastructure to efficiently handle abundant landings and minimize post-harvest losses.
- Designate closed "fish refugia" in areas of juvenile abundance and ETP species occurrence.



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