



समुद्री मात्स्यकी सूचना सेवा MARINE FISHERIES INFORMATION SERVICE

No. 129

JUNE 1994



तकनीकी एवं
विस्तार अंकावली

TECHNICAL AND
EXTENSION SERIES

केन्द्रीय समुद्री मात्स्यकी
अनुसंधान संस्थान
कोचिन, भारत

CENTRAL MARINE FISHERIES
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INDIAN COUNCIL OF AGRICULTURAL RESEARCH

ON THE UNUSUAL LANDINGS OF LESSER DEVIL RAY *MOBULA DIABOLUS* (SHAW) FROM GULF OF MANNAR*

Rays which are locally known as Thirukkai are being exploited by bottom set drift gill net (*Thirukkai valai*; mesh size 30-45 cm) and by trawl net. Occasionally they are also caught in small quantities by two type of drift gill nets namely *Podi valai* (mesh size 6-10 cm) and *Paru valai* (mesh size 11-18 cm). The rays formed one of the constituents of elasmobranch catch exploited by the above gears.

Among the rays lesser devil ray, *Mobula diabolus* had never formed a fishery during the past many years. Their landings were noticed in very few numbers only during June-August for the past five years.

Every year during the tuna fishing season which commences around June and lasts till September, fishermen actively operate drift gill net especially *Paru valai* at a depth range of 40-60 m to exploit mainly tunas, bill fishes, seer fishes, sharks, barracudas etc., Off Kayalpatnam and off Tuticorin.

An estimated catch of 20.5 t and 13.3 t of *M. diabolus* were landed by *Paru valai* unit at

Kayalpatnam and Tuticorin north landing centre during July '93 and August '93 (Table I). *M. diabolus* formed 4.0% and 4.6% of total fish catch landed by *Paru valai* during July '93 and August '93 respectively. They have contributed nearly 27.27% in July '93 and 35.4% in August '93 towards the total elasmobranch landings. *M. diabolus* formed as much as 94.4% in July '93 and 96.3% in August '93 of the total rays landed by *Paru valai*.

On 20.7.'93 around 1.5 t (21 numbers) of *M. diabolus* were landed unusually at Kayalpatnam by a single drift gill net unit. Their sizes ranged between 160 - 169 cm and 260 - 269 cm and weighed between 35 and 140 kg. Out of these 21 rays, four were larger in size. Talwar and Kacker (1984., *Commercial Sea fishes of India*, 119 - 120) have reported the occasional catches of *M. diabolus* from Gulf of Mannar area in drift gill nets at 40 - 60 m depth during September - October period. Size range of such specimens varied from 572 to 1674 mm disc width with a weight of 14 - 44 kg.

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TABLE 1. Month-wise estimated fishing effort (drift gill net) and catch of *Mobula diabolus* (Shaw)

Month	Kayalpatnam			Tuticorin north landing centre		
	Effort	Catch (kg)	CPUE	Effort	Catch (kg)	CPUE
July '93	1,333	13,640	10.2	540	5,738	10.6
August '93	1,138	6,929	6.1	413	7,568	18.3
Total	2,471	20,569	8.3	953	13,303	14.0

Sex-wise length measurements (across disc) of *M. diabolus* were taken at both the centres and presented in Table 2. Morphometric measurements of four larger specimens are also presented in Table 3 along with their price.

The catch was disposed by open auction at the landing centres. They were sold for approximately Rs. 7-9 per kg. The ray is cut open to remove the liver for oil extraction and the flesh is cut into strips for salting. The salted and dried flesh is sent to Kerala market.

TABLE 2. Month-wise and sex-wise observed size distribution of *Mobula diabolus* caught by drift gill nets at Kayalpatnam and Tuticorin north landing centre

Total disc width (cm)	July '93		August '93	
	Male	Female	Male	Female
160 - 169	—	1	—	—
170	1	—	—	1
180	2	1	3	2
190	6	2	3	5
200	3	4	2	1
210	1	—	—	3
220	4	—	2	2
230	1	1	—	1
240	—	—	—	—
250	—	—	—	—
260	2	1	—	—
Total	20	10	10	15

TABLE 3. Morphometric measurements (in cm) of four large sized specimens of *Mobula diabolus*

Morphometric characters	Specimen			
	1	2	3	4
Disc width	235	260	266	266
Disc length	122	138	141	145
Cephalic horn to origin of head	16	17.8	18	18.5
Cephalic horn to mouth	27	29	30	30
Length of head	24	26	26.5	27
Origin of head to mouth	11	12.5	13	13
Length of mouth	25	28	28.5	29
Eye diameter (vertical)	3.0	3.2	3.2	3.5
Eye diameter (horizontal)	2.5	2.8	3.0	3.0
Distance between eyes	42	47	48	48.5
Snout (origin of head) to spiracle	34	40	41	41.5
Spiracle diameter (vertical)	5.5	6	6	6
Distance from spiracle to spiracle	45	50	51	51
Snout to 1st gill opening	40	43	46	47
" IInd gill opening	46	48	52	53
" IIIRD gill opening	51	53	58	58
" IVth gill opening	57	58	63	63
" Vth gill opening	61	63	68	68
Length of tail	213	220	220	225
Length of dorsal	13	15	16	17
Breadth of dorsal	11	13	14	17
Curve of dorsal	7.5	8	8	9
Sex	F	M	M	F
Weight (kg)	90	120	125	130
Auction Price (in Rs.)	830	1020	915	980