

The Indian Scad, *Decapterus russelli*

.... On its Fishery from Maharashtra Waters

Nalini Poojary

Central Institute of Fisheries Education, (Deemed University),
Off Yari road, Panch Marg, Andheri(W),
Mumbai- 400061, email: nalusiri@rediffmail.com

Sujit Sundaram

Central Marine Fisheries Research Institute,
Mumbai Regional Centre, Fisheries University Road,
Seven Bungalows, Andheri(W), Mumbai-400 061.

India has a coastline of 8,129 km with a continental shelf of 4,14,868 sq. km. Its marine resources are spread in the Indian Ocean, Arabian Sea and in the Bay of Bengal. It has an Exclusive Economic Zone of 2.02 million square km comprising 0.86 million sq. km on the West coast, 0.56 million sq. km of the East coast and 0.60 million sq. km around Andaman and Nicobar Islands, with a harvestable fishery fishery potential of 3.9 million tonnes (Malhotra and Sinha, 2007). The present marine capture fishery landings of India are about 3.16 million tonnes (CMFRI, 2009).

Carangids form a part of pelagic fisheries. Their resources consist of horse mackerels, round scads, queenfishes, trevallies and jacks. While some of them attain large sizes, others grow to smaller sizes. The smaller ones are however abundant in the form of big shoals (Reuben *et al.*, 1992). Carangids are gonochoristic

and in the case of most of them, there is no apparent external difference between the sexes. Females are oviparous and iteroparous. Some species spawn pelagically whereas others spawn close to the shore. Carangids are generally described as fast swimming carnivores and pursuit predators. Carangids exhibit the carangiform mode of swimming, obviously named so for this group of fishes. The anterior one-half to two-thirds of the body bends only slightly while swimming and most of the thrust is generated in the rear third. The characteristic narrow caudal peduncle and forked caudal fin in high aspect ratios serve to increase the efficiency of the tail (Bond 1996). The scutes, when present, probably help in reinforcing the narrow peduncle (Randall, 1983). They are consumed fresh as well as in a brine cured form or in sun dried form. They are also utilised as raw material to prepare fish meal (Bal and Rao, 1984).

The carangids are widely distributed in the Atlantic, Pacific and Indian oceans in the temperate, subtropical and tropical regions of the northern and southern hemispheres (Bannikov, 1987). In India, Carangids are available almost throughout the year and they constitute a major fishery (Premlatha, 1993). In the recent years, the production of carangids is increasing and it forms about 4.5% of the total marine fish production and 8-9% of the pelagic resources. Carangids have been receiving attention in various parts of the world for the past 30 years or so as potential aquaculture candidates (Honebrink, 2000).

The Indian scad *Decapterus russelli* is a commercially important fish in Kerala, Tamil Nadu, Andhra Pradesh, Karnataka and Gujarat. It is the dominant species in trawl landings at Veraval, Mangalore, Kochi and Visakhapatnam, as also in purse seine and ring seine nets at Kochi.

Table 1. Total marine, pelagic, carangid and scad landings (in tonnes) of India from 1985-2008

Year	Total	Pelagic	Carangids	Scads	(in tonnes)		
					% of Scad to total landing	% of Scad to pelagic landing	% of Scad to carangid landing
1985	15,22,517	7,84,008	54,704	7,901	0.52	1.01	14.44
1986	16,79,373	8,87,535	1,44,660	57,635	3.43	6.49	39.84
1987	16,49,165	8,54,615	79,993	16,512	1.00	1.93	20.64
1988	17,85,549	9,24,008	1,26,200	39,473	2.21	4.27	31.28
1989	22,00,000	13,71,787	1,36,044	58,935	2.68	4.30	43.32
1990	21,62,270	12,13,999	1,41,787	67,598	3.13	5.57	47.68
1991	22,42,450	11,97,237	1,68,287	1,02,018	4.55	8.52	60.62
1992	22,86,845	11,86,503	1,88,224	1,17,810	5.15	9.93	62.59
1993	22,78,212	11,53,104	1,29,345	59,505	2.61	5.16	46.00
1994	23,58,234	11,02,587	1,39,014	49,559	2.10	4.49	35.65
1995	22,58,832	11,13,408	1,96,868	1,03,063	4.56	9.26	52.35
1996	24,14,649	12,47,842	1,47,378	66,790	2.77	5.35	45.32
1997	27,26,230	14,02,304	1,39,967	38,829	1.42	2.77	27.74
1998	26,69,480	13,27,593	1,47,496	53,948	2.02	4.06	36.58
1999	24,18,514	12,93,913	1,26,297	32,864	1.36	2.54	26.02
2000	27,00,264	13,68,449	1,10,734	25,584	0.95	1.87	23.10
2001	23,26,507	11,88,028	1,16,067	40,914	1.76	3.44	35.25
2002	26,23,449	14,08,577	1,26,307	38,625	1.47	2.74	30.58
2003	26,20,899	14,26,452	1,29,058	28,493	1.09	2.00	22.08
2004	25,96,736	14,05,394	1,33,350	41,693	1.61	2.97	31.27
2005	22,95,490	12,55,342	1,42,956	54,438	2.37	4.34	38.08
2006	27,12,802	14,92,763	1,21,863	39,409	1.45	2.64	32.34
2007	28,81,336	16,47,773	1,41,567	43,518	1.51	2.64	30.74
2008	32,15,242	16,85,001	1,41,289	35,793	1.11	2.12	25.33

Total landings of *D. russelli* throughout the world and India during 1995-2008 are presented in Table.2. On an average (2004-2008), the Indian contribution of *D. russelli* to the total *D. russelli* landings of the world was 25.03%.



Megalaspis cordyla is the dominant species in gill net landings at Veraval, Kochi and Visakhapatnam and in purse seine and gill net landings at Mangalore.

At Tuticorin, *Caranx ignobilis* is the dominant species caught in *paruvalai* and in hooks and line. *C. carangus* is dominant in *podivalai* and *Decapterus* spp. and

S. leptolepis are the dominant species in trawl landings.

Table 2. World total landings and total landings from India (in tonnes) of *D. russelli* from 1995-2008

Year	Total world landings (<i>D. russelli</i>)	Total landings from India (<i>D. russelli</i>)	% of Indian scad to total world landings
1995	1,33,544	1,03,063	77.18
1996	1,45,320	66,790	45.96
1997	1,50,027	38,829	25.88
1998	1,45,747	53,948	37.01
1999	1,63,863	32,864	20.06
2000	1,82,499	25,584	14.02
2001	1,71,701	40,914	23.83
2002	1,95,422	38,625	19.76
2003	1,79,011	28,493	15.92
2004	1,68,625	41,693	24.73
2005	1,70,001	54,438	32.02
2006	1,89,016	39,409	20.85
2007	1,59,869	43,518	27.22
2008	1,75,743	35,793	20.37

Total marine landings and total scad landings in Maharashtra from 1985-2008 are presented in Table. 3. The highest landing of scad (9,494 tonnes) was seen in the year 1989 and by 2008 it came down drastically to 660 tonnes (Poojary, 2009).

Table 3. Total marine landings and total scad landings (in tonnes) in Maharashtra from 1985-2008

Year	Total marine catch	Total carangid landing	Total scad landing	% of scad to total marine landings	% of scads to total carangid landings
1985	3,35,809	5,583	1,383	0.41	24.77
1986	3,15,218	11,491	2,319	0.74	20.18
1987	2,85,208	6,872	2,351	0.82	34.21
1988	3,15,244	13,868	4,390	1.39	31.66
1989	3,62,330	22,452	9,494	2.62	42.29
1990	3,45,724	14,215	8,768	2.54	61.68
1991	3,84,162	9,668	3,893	1.01	40.27
1992	3,27,695	11,311	5,947	1.81	52.58
1993	3,33,003	11,112	3,444	1.03	30.99
1994	3,23,828	17,477	3,554	1.10	20.34
1995	3,16,462	18,626	3,705	1.17	19.89
1996	3,39,148	9,526	2,188	0.65	22.97
1997	3,90,067	12,261	4,954	1.27	40.40
1998	4,15,741	8,326	352	0.08	4.23
1999	2,97,032	6,144	735	0.25	11.96
2000	3,68,222	7,947	1,122	0.30	14.12
2001	3,95,966	11,984	1,552	0.39	12.95
2002	4,49,599	13,847	1,088	0.24	7.86
2003	4,15,094	19,247	1,439	0.35	7.48
2004	3,50,712	12,548	1,584	0.45	12.62
2005	2,67,003	7,096	852	0.47	12.00
2006	3,34,451	7,155	858	0.44	11.99
2007	3,19,470	6,311	674	0.43	10.68
2008	3,58,746	6,241	660	0.39	10.58

The average percentage contribution (2004-2008) of *D. russelli* towards the total catch of the world, India and Maharashtra is given in Table 4

Maharashtra has a coastline of about 720 km and the continental shelf off the State is about 11,512 sq km. It has a rich potential for marine fisheries that contribute about 16% of the total marine fish landing of India. The Indian scad *D. russelli*, belonging to the family Carangidae, contributes 30-40% of the total carangid catches in the trawl fishery off Mumbai region. *D. russelli* is caught throughout the year along the north-west coast of India, using mainly trawlers, in the depth range of 55-90 m.

During the present study, the data on world fish production have been collected from the FAO yearbook on the catch statistics (FAO, 1992-2008). The total all India marine and carangid landings in India and the total marine catch and carangid catch from the State of Maharashtra have been obtained from annual reports published by Central Marine Fisheries Research Institute, Kochi (CMFRI, 1985-2009).

Table. 1 shows the total marine catch, carangid catch and scad catch of India from 1985-2009. There were maximum landings of Scad in 1992 (1,17,810 tonnes) and then the catches dropped, to regain again in 1995 to 1,03,063 tonnes. In the subsequent years the catches per annum declined and in 2009 they were 50,759 tonnes. On an annual average (2004-2008), *D. russelli* contributed to 31.55% to the total carangid landings, 2.94% to the pelagic landings and 1.61% to the total landings of India.

Table 4. Average annual % (2004-2008) contribution of *D. russelli* to total Marine catches, to carangid catches of Maharashtra

% contribution	
To Total marine catch of Maharashtra	0.94
To Total catch of Carangids in Maharashtra	25.67

Table 4b. Average annual % (2004-2008) contributing of *D. russelli* to carangid landings of India/ World

% contribution	
To Total Carangid landings in India	25.33
To Total pelagic landings of India	2.12
To Total landings of India	1.11
To Total Indian scad landings of the world	25.33



The landings of *D. russelli* in Mumbai ranged from 266.50 tonnes in 2005 to 160.93 tonnes in 2008 (Poojary, 2009), showing a decreasing trend. Since the prices of quality fish are sky rocketing, attention should be paid to the effective utilisation of *D. russelli*. Hence proper management strategy needs to be in place after ascertaining the present status of the species.

References

BAL, D. V. and RAO, K. V., 1984. *Marine fisheries of India*, Tata Mc- Graw-Hill Publishing Company Limited, New Delhi, 212 pp.

BOND, C. E. 1996. *Biology of fishes*. Saunders, Philadelphia. 514 pp.

CMFRI, 1985-2008. *Annual reports (1985-2008)*. Central Marine Fisheries Research Institute, Cochin.

FAO, 1992-2008. *FAO Year Book, Fishery and Aquaculture Statistics*, FAO Fisheries and Aquaculture Information and Statistic Service (FAO, FIES).

HONEBRINK, R. R., 2000. *A review of the biology of family Carangidae, with emphasis on species found in Hawaiian waters*. Division of Aquatic resources, Technical Report 20-01, Hawaii, 37 pp.

MALHOTRA, S. P. and SINHA, V. R. P., 2007. *Indian fisheries and Aquaculture in a globalizing economy Part I*, Delhi, 385 pp.

POOJARY, N. 2009. *Studies on the Biology and Stock Assessment of Decapterus russelli (Ruppell 1830) from Mumbai waters*. Ph.D. Thesis, University of Mumbai, 277 p.

PREMALATHA, P., 1993. *Observations on the Carangid resources of the Southwest Coast of India*. *J. Mar. Biol. Ass. India*. 35: 157-166.

REUBEN, S., KASIM, H. M., SIVAKAMI, S., RADHAKRISHNAN, P. N., KURUP, K. N., SIVADAS, M., NOBLE, A., NAIR, K. V. S., and RAJE, S. G., 1992. *Fishery, biology and stock assessment of carangid resources from the Indian seas*. *Indian J. Fish.*, 39:195-234.