

Record landings of cephalopods by trawlers at Veraval during first quarter of 2009

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Cephalopods represent one of the most important exploited marine fishery resources at Veraval. The cephalopod landings in Gujarat increased by more than two folds from 0.234 lakh t in 2002 to 0.49 lakh t in 2006 (Mohanraj *et al.*, 2009), with a concomitant increase in catch rate from 5.05 kg h⁻¹ in 2003 to 14.74 kg h⁻¹ in 2006. The cephalopod resource was constituted mainly by *Loligo duvauceli*, *Sepia pharaonis* and *S. aculeata*. The cephalopod landing in the pre-monsoon period was dominated by *L. duvauceli* but during the post-monsoon period it was dominated by *S. aculeata*. The dominance of *L. duvauceli* in the pre-monsoon period and that of *S. aculeata* in the post-monsoon period was because of the shift in fishing grounds by trawlers from near shore to off shore areas in the post-monsoon period. An alarming nature of the fishery was the large scale capture and export of juvenile squids mostly measuring less than 5 cm, commercially called nipple squids, which is a threat to the sustenance of the fishery.

During the first quarter of 2009, record landings of cephalopods to the tune of 5,692 t by trawlers at Veraval were recorded (Fig. 1). There was an increase by 41% when compared to 4,038 t landed in the first quarter of 2008. The catch in the month of January increased by more than two fold from 794 t in the previous year to 1945 t in the present year (Table 1). During the month of February, the catch increased by almost three fold from 679 t in 2008 to

1,843 t in 2009 (Table 1). The species dominating were *Octopus* sp., *Sepia pharaonis*, *Sepiella inermis* and *Loligo* sp. (Fig. 2 and 3). However in the month of March, the catch decreased when compared to the previous year. The catch in the month of March was 2,565 t during 2008 and 1,904 t during 2009 (Table 1). This decrease in catch in the month of March was mainly attributed to the decreased landings of *L. duvauceli* in the present year.



Fig. 1. Bulk landings of cephalopods by trawlers at Veraval

Similar scenario was observed in catch rates too. The catch per effort of *Loligo* sp. in the month of January and February increased from 3.6 kg h⁻¹ and 6.4 kg h⁻¹ in 2008 to 5.2 kg h⁻¹ and 7.9 kg h⁻¹ in 2009. However in the month of March, it decreased from 13 kg h⁻¹ in 2008 to 8.3 kg h⁻¹ in 2009. The catch per effort of other cephalopods during January-March

Table 1. A comparison of the cephalopod landings by trawlers at Veraval during the first quarter of 2008 and 2009

Species	January				February				March			
	2008	2009	Difference%		2008	2009	Difference %		2008	2009	Difference %	
<i>Loligo</i> sp.	580860	882107	448753	85.86	580475	1272269	691994	119.18	2312576	1218117	1094459	-47.33
<i>Sepia pharaonis</i>	44089	107034	62945	142.77	7080	33683	26603	375.75	9038	41811	32773	362.61
<i>Sepiella inermis</i>	8154	62040	53886	660.85	14919	73388	58478	392.21	200928	484684	283756	141.22
<i>Octopus</i> sp.	666	236640	235974	35531.53	1250	102830	101580	8126.4	15204	120350	105146	691.57
Other species	160104	657643	497539	310.76	75110	360869	285759	380.45	27491	39255	11764	42.79



Fig. 2. Specieswise segregation of cephalopods at Veraval Fisheries Harbour

also increased tremendously in the current year as compared to previous year (Table 2).

The reduction in the catches of high value penaeid shrimps and increased demand for cephalopods has resulted in trawlers extending their operation to deeper waters and increasing the number of fishing days per trip. The operation of multiday trawlers (5 - 8 days) in deeper unexploited waters (80 - 100 m) for cephalopods has resulted



Fig. 3. Landings of *Sepia aculeata* by trawlers in February '09 at Veraval

in this huge increase in catch for the first quarter of 2009. GPS (Garmin, USA) data collected from multiday trawlers revealed that fishing for cephalopods was carried out between Lat. 20° 57' to 21° 30' N and Long. 57° 49' to 69° 03' E. The high incidence of berried cephalopod females in the catch could give an indication that the fishing ground would be a probable breeding ground for cephalopods.

Table 2. Catch rates of cephalopods landed by trawlers at Veraval during the first quarter of 2008 and 2009

Species	January				February				March			
	2008		2009		2008		2009		2008		2009	
	C/U	C/hour	C/U	C/hour	C/U	C/hour	C/U	C/hour	C/U	C/hour	C/U	C/hour
<i>Loligo</i> sp.	120.49	3.57	155.11	5.19	196.77	6.43	213.83	7.91	402.89	13.01	234.43	8.34
<i>Sepia pharaonis</i>	9.15	0.27	18.82	0.63	2.4	0.08	5.66	0.21	1.57	0.05	8.05	0.29
<i>Sepiella inermis</i>	1.69	0.05	10.91	0.37	5.05	0.17	12.33	0.46	4.79	0.16	7.55	0.27
<i>Octopus</i> sp.	0.14	0.004	41.61	1.39	0.42	0.01	17.28	2.24	2.65	0.09	23.16	0.82
Other species	33.21	0.98	115.64	3.87	25.46	0.83	60.65	0.64	35	1.13	93.28	3.32