g trials on the South and South-east coasts of Sri Lanka for the deep sea lobster *Puerulus sewelli*

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Investigations were conducted using two commercial trawlers Deepthi I and Deepthi II during November-December 2002 off Kirinda, Great Basses and Little Basses area to evaluate the stock size and also to study the depth and substrata related distribution of deep sea lobsters. The area permitted for trawling was divided into three main depth strata, 151-200, 201-250, and 251-300 m. Trawl duration was approximately two hours. The stock biomass of *Puerulus sewelli* was estimated using the swept area method. The study indicated that the deep-sea lobster resources in the area of investigation were mostly concentrated to the 201-250 m depth range, and were abundant on flat bottom areas of sand and mud with organic materials. The estimated mean catch rate of *P. sewelli* for the study period was 12 kg haul^{-1} hour^{-1}.

The total catch from fishing during the period of investigation was 36.2 tons (whole weight), comprising 3.3 tons of deep-sea lobsters, 8.3 tons of deep-sea shrimp and 24.6 tons of fish and crabs. The fishing effort expended was 366 hauls with a true fishing time of around 733 trawl hours. The estimated biomass of *P. sewelli* in the study area was 85.13 tons. The following tables show the economic returns of the experimental fishing trials.

Vessel 1 (Deepthi 1)

Group	Total catch (t)	Processed weight (t)	Value LKR/kg	Total value (LKR)
Lobsters	3.3*	1.1*	2, 300	2, 530, 000
Shrimps	8.3	8.3	350	2, 905, 000
Fish	24.6**	11.6**	100	1, 160, 000

* weight loss due to removing heads

** weight loss due to discard of less valued fish

operational cost of the vessel – LKR 100, 000 day^{-1}

The total value of the catch of Deepthi I was estimated as LKR 6, 595, 000 (equivalent to USD 0.066 million).

Vessel 2 (Deepthi II)

Group	Total catch (t)	Processed weight (t)	Value LKR/kg	Total value (LKR)
Lobsters	2.4*	0.8*	2, 300	1, 840, 000
Shrimps	7.9	7.9	350	2, 765, 000
Fish	19.3**	10.8**	100	1, 080, 000

* weight loss due to removing heads

** weight loss due to discard of less valued fish

operational cost of the vessel – LKR 100, 000 day^{-1}

The total value of the catches of Deepthi II was estimated as LKR 5, 685, 000 (equivalent to USD 0.057 million)

Species and sizes of lobsters in the catches

Puerulus sewelli was the only deep sea lobster species identified from the catches. The size ranged from 5.6 to 24.5 cm in total length. Five distinct size groups were identified during length analysis indicating the presence of five cohorts in the commercial catches.

Sex ratio and external eggs

The contribution of females to the lobster catches was around 72% of which around 82% were formed by egg bearing females. The colour variation of the external eggs from orange to dark brown implies a possible overlap of trawling and spawning grounds of *P. sewelli.*

Profitability

Total value of the catch	=	LKR 12, 280, 000
Operational cost for 120 days	=	LKR 12, 000, 000
Net profit for 120 days	=	LKR 2, 280, 000
Net profit per vessel	=	LKR 1, 140, 000