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## Flourishing trade of air bladders at Okha, Gujarat

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The swim bladders of eels (*Muraenesox talabonoides* Bleeker), ghol (*Protonibea diacanthus* Lacepede) and koth (*Otolithoides biauritus* Cantor) are of best quality and fetch very high market price owing to the huge export demand. Fish air bladder is mainly used for making isinglass. Considerable quantity of eel, ghol and koth are landed at Okha by trawlers operating on the rocky bottom (18 m depth) off Jakhau. Around 500 trawlers having an overall length of 40 to 45 ft, powered with 80 - 105 HP engines are actively engaged in the fishing of eel, ghol and koth. The fishing trip lasts for 7 - 10 days with 4 - 6 hauls of 3 h duration per day depending on whether they fish during only day or both day and night. The trawlers carry on an average 10 to 12 nets having length of 35 - 40 m with cod end mesh size varying between 8 and 15 mm.

The merchants trading on air bladder of eel purchase the fish from boat owners at Rs. 30-35/kg. The wet weight of air bladder extracted per kg of eel range from 30 - 50 g. Generally from eels weighing around 3-6 kg, 100 - 200 g (wet weight) of bladders measuring 385 - 565 mm are extracted (Fig. 1). The bladder after extraction from the fish is immersed overnight in a chemical solution to improve its colour and texture. The bladder is then inflated by blowing air into it and sun dried on nets in raised bamboo platforms after which it is packed and exported. The swollen air bladder fetches higher price than the flat air bladder. The price of air bladders varies between Rs. 4,000 and 7,000 / kg depending on the weight of the bladder.

Ghol weighing 10 - 15 kg and 15- 25 kg yield 350-450 g and 500-700 g wet weight of bladder respectively. The length, breadth and weight of dried air bladders obtained from males ranged between 132 - 180 mm, 120 - 170 mm and 100 - 290 g



Fig. 1. Air bladders extracted from eel

respectively. For females, the length, breadth and weight of the dried air bladder varied from 155 to 190 mm, 145 to 190 mm and 180 to 400 g respectively. For koth, 400 - 600 g wet weight of bladder was extracted from fishes weighing 12 - 15 kg and 300 - 500 g wet weight of bladder was extracted from fishes weighing 7 - 12 kg. The length, breadth and weight of dried air bladders obtained from adult koth (12 - 15 kg) ranged between 293 - 340 mm, 180 - 192 mm and 400 - 460 g respectively. The air bladders extracted from juveniles of koth are however much smaller and had lengths ranging from 98 mm to 132 mm weighing around 2 g each. The air bladders after extraction from ghol and koth (Fig. 2) are trimmed and immersed overnight in the chemical solution before sun drying and packing. An interesting feature is that air bladder from male ghol fetches double the price than that of female. The price of fresh and dried bladders from koth is given in Table 1. The price of fresh and dried bladders extracted from male and females of ghol is presented in Table 2. The air bladder of eel is exported via Mumbai to Singapore while that of ghol and koth is exported to Hong Kong.



Fig. 2. Air bladders extracted from ghol and koth

Table 1. Price of fresh and dried air bladders extracted from koth

	Weight of bladder (g)	Price of bladder (Rs./kg)
Fresh air bladder	2200	>350
	1800	250 - 300
Dried air bladder	>200	4,500
	150-200	4,000
	100-150	3,500
	50-100	3,000

Table 2. Price of fresh and dried air bladders extracted from males and females of ghol

		Weight of bladder (g)	Price of bladder (Rs./kg)
Male	Fresh air bladder	>400	15,000
		300-400	12,000
		250-300	9,000
		200-250	6,000
		150-200	4,000
	Dried air bladder	160-200	40,000
		140-160	30,000
		120-140	25,000
		100-120	22,000
		80-100	14,000
Female	Fresh air bladder	50-80	12,000
		>500	8,500
		400-500	6,500
		300-400	5,000
		200-300	2,500
	Dried air bladder	200-250	18,500
		160-200	14,000
		130-160	11,000
		100-130	10,000
		80-100	7,000
		50-80	6,000