

Evolution in fishing crafts and gears of the Saurashtra coast

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Saurashtra coast is situated in the Southwestern part of Gujarat which covers the coastal districts of Porbandar, Junagadh, Rajkot, Dwarka, Bhavanagar, Jamnagar, Amreli, and newly formed Gir somnath. From 1967 to till date there was marked improvement in the fisheries sector of this region. In 1967, trawling was introduced and since then the number of trawlers has increased from 900 to 10,000 (CMFRI, 1978) along the coast.

Crafts used along Saurashtra coast

Trawlers

Trawlers made up of wood are locally known as “halvalii” boat having OAL of 12-16 m with engines of 88-118 hp using nets with a cod mesh size 15-40 mm. Most of the trawlers go for multiday fishing up to 15 days operating along the coast at a depth range

of 20-150 m. In 1980s the depth of operation was 20-60 m (Rao and Kasim, 1985). The fishing vessels are operated both northward up to Okha, sometimes in the areas of Kachh and southward off Veraval extending its ground up to Karnataka and Goa. The season of operation starts in September after the 45 days ban from June to August. The cost of a trawler is 25- 30 lakhs.

Gillnetters

OBM (Hodi)

The FRP boats of OAL 8-11 m locally known as “hodi” are operated at a depth of 10-50 m along the coast. They are equipped with outboard motor engines. Each boat carries two engines when they go for long trip fishing as a safety measure. They operate in Veraval, northward off Veraval towards Mangrol and Porbandar and southward towards

Nawabandar and Rajpara. The duration of operation is for 3 days.

Mechanised gillnetter

Mechanized gillnetters made up of fibre locally known as “Bethadi” started operation along the coast in 2008. They exclusively use gillnets (jada jal) targeting tuna and seer fish. At present there are about 150 mechanized gill netters in operation in the region and some trawlers have converted into gillnetters due to less catches in trawls. The depth of operation varies from 150-200 m and duration of voyage is 7 days.

Dolnetters

The dolnetters locally known as “vahan” are of OAL 12-14 m with engine power 85-110 hp. These boats have winch and cold storage facility. The depth of operation varies from 10-60 m. The duration of voyage is 4-8 days. The engine power was used for searching the fishing ground in earlier days but now a days is also used for shooting, piling and hauling.

Time line for the crafts and gears

Trawl net

Trawl nets are locally known as “Oza”. Along the Saurashtra coast, trawl fishing first started in 1965 which was for single day operations. Slowly longer trip trawling for three days started in 1975 and 11 days in 2011 due to increase in storage capacity of the boats. The percentage of long trip fishing increased in 1980 onwards and in the present situation 90% of the trawl fishing extends up to 15 days. The target fishing by trawls was started in



Fig. 1. A view of the fishing vessels operated along the Saurashtra coast, Gujarat

2005 mainly for threadfin breams. Recently the trawlers are targeting ribbon fish and squid due to its increased demand in export market. About 10 to 15 trawl nets are carried by the trawlers in each voyage. Along with it they also keep gillnets and hook and line and operate it as and when required depending upon the species availability. The cod-end mesh size for catching ribbon fishes is 40-50 mm with a top of 2000 to 3000 mm while trawl net for other fish catch is having a cod end mesh size of 30-35 mm and top 180- 250 mm. Single day trawlers are having trawl net of cod end size of 15-20 mm and top with 50-80 mm specifically to catch prawns. Target fishing is done for two hauling and they change the gear immediately upon not getting the target fish. As shrimp catch is poorer in these days and as it require more time and laborers for sorting the by catch and debris, shrimp hauling is limited to only single day trawlers.

Gillnets

The use of gillnets started in 1975 which is known as “Kandari jal”, made up of cotton and nylon was used extensively along the coast. Slowly jada jal (big mesh gillnets) and chokla jal (small mesh gillnets) were introduced in 1975 onwards and dominated in the fishery due to less catch of seer fish and black pomfret in Kandari net. Nylon monofilament gill nets were introduced in 1976. Mavol jal (thick nylon monofilament) was introduced in 2000 in place of Jada jal. In 2009, chokla jal was modified into Ghaghara jal expanding its width up to 9 to 10 m. Recently, a new gillnet called “Khatri jal” which is a modification of Chokla jal was introduced. The technical details of these nets has been given in table 1.

Prior to 1975 all the gill netters of OAL 8 m were made up of wood. Fiber boat was introduced in 1975 and gillnetters of OAL 11m was introduced in 2001. From 1995 onwards the gillnetters started long trip fishing.

Dolnet

Locally known as “Dor” along the Saurashtra coast these bag nets are about 70-100 m long and each boat carries 3-5 nets. The cod end mesh size

Table 1. Different types of gillnets used along the Saurashtra coast with their operational details

Name of Gill nets	Materials used	Length (mt) (each piece)	Mesh size (mm)	Depth of operation (mt)	Total pieces carried/boat	Fishes caught	Season of operation
Khandari	Cotton + nylon thin monofilament	4-5	85-90	30-50	40-60	<i>Hilsa</i> , <i>Chirocentrus dorab</i> , <i>S. guttatus</i> , <i>Thryssa</i> and other clupeids	Post monsoon
Mavol	Nylon thick monofilament	7-8	85-95	80-120	50-80	Tuna, <i>S. guttatus</i> , <i>S. commerson</i> and <i>Sphyraena jello</i>	Post monsoon
Jada	Nylon multifilament	8-10	140-260	50-100	50-250	Sharks, Tuna, <i>Protonibea diacanthus</i> , <i>Otolithoides biauritus</i> , <i>Polynemus</i> etc.	Post monsoon
Chokla	Nylon thin monofilament	4-5	55-60	10-50	25-60	<i>Trichiurus lepturus</i> , <i>Megalaspis cordyla</i> , Sciaenids and <i>Rastrelliger kanagurta</i>	Throughout year
Point (monsoon)	Nylon thin monofilament	7-8	100-110	20-40	30-80	<i>Pampus chinensis</i> (small size)	Monsoon
Pankha	Nylon thick monofilament	8-10	140-160	10-50	40-80	<i>Pampus chinensis</i> and <i>Parastromateus niger</i> (bigger size)	Monsoon
Khatri	Nylon thin monofilament	4-5	85-95 and 100-125	10-60	20-45	Hilsa, smaller sized tuna, Mackerel, Catfish	Throughout year

is 25-35 mm and top mesh size 110-240mm. They also go for long trip fishing of 4 to 8 days taking 15-25 hauls. During 1975 the length of dolnet was 40 feet and it became 100 ft in 2001.

The dol net mechanization started in 1966 and 100% mechanization happened in 1995. Winch and pulley system started in 2001 and dolnetters started to carry ice in 2006.