

Chapter 1

Fishing vessels of India

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Introduction

The fishing vessels can be classified into (i) artisanal fishing vessels, (ii) traditional fishing vessels, (iii) motorized vessels, (iv) mechanized vessels, (v) Fishing related vessels.

Artisanal fishing vessels: Small-scale, low-technology, low-capital, low- energy, relatively small fishing vessels, making short fishing trips, close to shore by individual fishers of coastal or island ethnic fishers and mainly for local consumption. In practice, definition varies between countries- India wooden dugout canoes, coracles and catamaran are artisanal crafts.



Fig.1 Artisanal coracle-reservoir/ river fishing



Fig.2 & 3 Artisanal fishing vessel-Nicobar & Wooden Cattamaran

Traditional fishing vessels: These are vessels using traditional methods for fishing. There is no deck equipment such as winch. No insulated/cold storage is available onboard. No wheel house and accommodation is provided in these vessels. In general simple traditional fishing carried out from these vessels.



Fig.4 Traditional fishing boat - Andamans

Motorized vessels: Motor is used for the propulsion of these vessels. Fig.5 shows motorized fishing boat used in marine fishing. 2 hp to 65 hp inboard and outboard engines are used here.



Fig.5 Outboard motor fitted vessel for marine fishing.

Mechanized fishing: Uses engine power for cruising and fishing activities. These vessels use mechanical/hydraulic/electric power for fishing gear handling. Has insulated/cold storage/freezer storage onboard. Accommodation/galley/toilet facilities are available for

multiday fishing. Also, communication, lifesaving, fire control, light and sound signals, etc. are required in these boats.

TABLE 12. **FISHING CRAFTS IN THE FISHERY** (excluding Lakshadweep and Andaman & Nicobar Islands)

State	Mechanized							Motorized			Non-motorized	Total	
	Trawlers	Gillnetters	Dolnetters/ Bagnetters	Liners	Ring seiners	Purse-seiners	Others	Total Mechanized	Inboard	Outboard			Total Motorized
West Bengal	2,004	1,764	191	31	0	0	24	4,014	6,564	0	6,564	476	11,054
Odisha	1,390	358	0	0	0	0	0	1,748	2,443	3,235	5,678	1,256	8,682
Andhra Pradesh	1,176	0	0	0	0	0	0	1,176	3,146	8,932	12,078	6,965	20,219
Tamil Nadu	5,278	441	0	16	219	0	7	5,961	8,945	22,334	31,279	6,115	43,355
Puducherry	223	0	0	0	78	0	0	301	387	975	1,362	656	2,319
Kerala	2,654	417	0	2	646	81	0	3,800	0	13,868	13,868	4,016	21,684
Karnataka	3,071	40	0	0	0	669	0	3,780	304	5,575	5,879	2,225	11,884
Goa	600	0	0	0	0	209	49	858	5	937	942	182	1,982
Maharashtra	3,408	584	1,637	0	0	230	8	5,867	5,979	809	6,788	2,865	15,520
Gujarat	9,905	2,602	1,554	0	0	0	0	14,061	3,541	9,284	12,825	756	27,642
Daman & Diu	1,063	342	14	0	0	0	0	1,419	95	301	396	177	1,992
Total	30,772	6,548	3,396	49	943	1,189	88	42,985	31,409	66,250	97,659	25,689	1,66,333

(CMFRI-2016)

Types of mechanized fishing vessels: Following types of commercial fishing are used in India.

- Trawler
 - Stern trawler
- Seiner
 - Purse seiner
 - Ring Seiner
- Gill netters
- Dol Netters
- Liners
 - Hand liner
 - Long liner
 - Pole and liner
- Trollers
- Multipurpose fishing vessels

Trawler

Uses trawl gear for catching fish from the sea. This vessel has a main engine fitted with reversible reduction gear box for propulsion. The trawl winch powered by the main engine handles the trawl gear. The gallows fitted in aft is used for shooting and hauling the gear as well as storing the otter boards after the fishing.



Fig.6 Commercial Trawler, otter boards seen hanging on the gallows and winch in the last Fig. Seiner

These vessels use surrounding seine nets. They comprise a large group ranging from open boats and canoes up to large ocean going vessels. They are used to catch pelagic species. Relatively high maneuverability is required for operation of the surrounding and seine nets.

To assist in fish school spotting observation crows nests are fitted on forward or on the mast. The equipment of seiners consists usually of a power block and a net drum for hauling and stowing the net aboard and one or more winches for setting and hauling operations. In small boat and canoe type seine netting, all operations are generally performed by hand. For removing of fish collected in the purse, a brailer is provided. OBM and IBM type Ring Seinners shown in Fig.7 below.



Fig.7- Small boats are OBM fitted and large one has IBM.

Gill Netters

Boats and canoes use gill net in inland and marine waters. The decked small gill netters fish in coastal waters and medium sized vessels operate gillnets in offshore. Deep sea gillnetters have their wheelhouse in the aft. On small vessels setting and hauling operations are performed by hand. Larger vessels are often equipped with hydraulic net haulers as seen below.

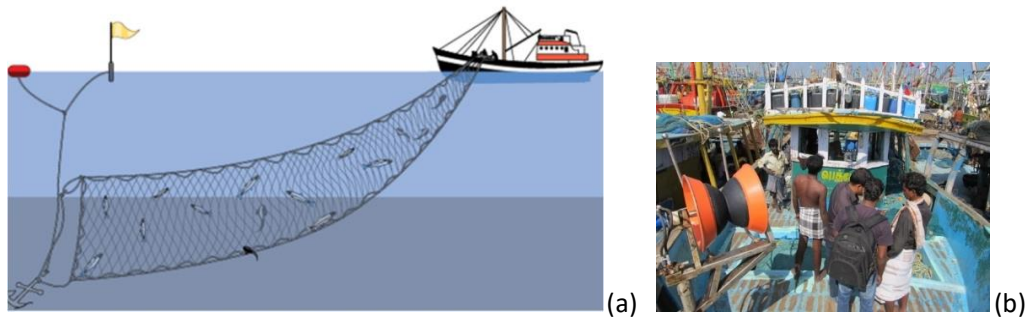
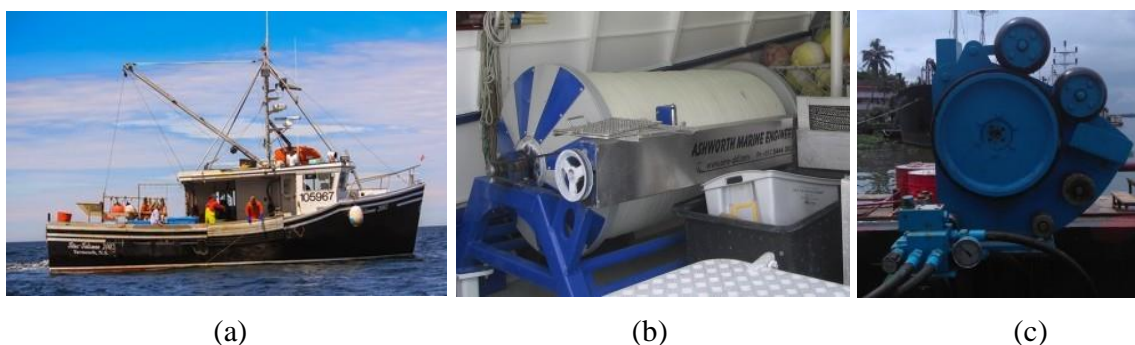


Fig.8 (a) Gill netting (b) Hydraulic winch used for deep sea gill netting

Liners

These vessels use lines and hooks with or without bait or lure. Depending on the method of fishing with lines, area of operation and species to be caught, liners comprise vessels of all size classes. Containers or tanks for storing the bait are kept on main deck. Sufficient deck area for attaching the bait to the hooks and a convenient place for preparing the lines for setting and hauling are typical features for line fishing vessels. Fig.9 (a) shows a long liner and (b) shows the main line hauler and (c) the line setter.



Pole and line vessels

These vessels are used primarily for catching of tuna and skipjack, the fishermen stand on the railing or on special platforms and fish with poles, to which a line with hook is attached. Tanks with live bait and a water spray system for fish attraction are typical features of these vessels. Because live bait is used to attract fish, the fishing method is also known as live-bait fishing. Fig.10 shows a pole and line vessel used in Lakshadweep.



Fig.10

Dol netter

Dol nets are fixed bag nets which are tied to the poles or ropes anchored at the sea bottom and kept afloat by floats. In the Saurashtra coast heaps of stones are used as anchors. Below figure shows a Dolnetter.



Fig.11

Trollers

Equipped for catching pelagic fish swimming close to the surface these vessels tow a number of lines fitted with lures. The lines are attached to trolling booms which are raised and lowered by topping lifts and fore and aft stays. Manual, hydraulic or electrically powered reels (gurdies) are frequently used to haul in the lines. According to area of operation, vessels may be laid out with wheelhouse and mast either forward or in the after part of the vessel.



Fig.12 Troller

Multipurpose vessels

These are vessels which are equipped for alternative use of two or more different fishing gear without major modifications to the vessels' outfit and equipment. The simplest examples of this concept are traditional open craft which operate one of the surrounding net types of gear, e.g., purse seine, during the seasonal appearance of pelagic species and handlines for demersal fish

during the remainder of the year - no special features or equipment are used and the appearance of the craft is unchanged. Other examples of combinations in common use are gillnetter/longliner, trawler/gillnetter, trawler/purse seiner etc., with a variety of other gear being used in cases where gear and equipment investment is not high and layout changes minimal, e.g., a gillnetter may use hand lining, trolling and trap fishing when seasonal variations are appropriate.

The deck equipment used in fishing vessels

- Long lining- Line hauler & setter
- Trawling- Trawl winch, gallows, mast & derrick
- Gill netting – Net hauler
- Purse seining – Power block, line spooler, brailer
- Pole and lone vessel – Pole and line, water sprayer

Fishing related vessels

Following are the vessels related to fishing activities.

Fishery Research Vessels, Training vessels and Marine Ambulance

Fishery Research Vessel: Research vessels are mainly engaged experimental fishing using various gear experiments. The size of fishery research operation and on research programmes. The vessels are usually fitted for the operation of two or more fishing gear. Special winches for taking samples and apparatus for measurements of environmental characteristics are provided. The cabin comprises space for laboratories and accommodation for scientific staff. Store rooms for instruments and samples are also provided. Fig.13 is the picture of F.V.Sagar Harita research vessel of CIFT.



Fig.13

Novel features	L= 19.75m, Breadth=6.5 m Depth =2.8m, V = 10 knots
Bulbous bow	Reduces resistance and improves fuel efficiency
Larger fuel tank (14000L capacity)	For greater endurance at sea
RSW tank (4-5m ³)	Quick and better quality fish preservation
Solar panels (20m ²)	Navigational lighting, wheel house, mess lighting, fan
Hydraulic longline winch	Reduces operation constrains by one third
Split trawl winch	To save deck space
Multi stage Gillnet drum	Reduces the human effort
Stainless roller at stern	For easy hauling of net
Net drum	For neat storage of gear
Freezer-cold store-RSW tank in a row	For easy handling and quality assurance of catch
FRP wheel house construction	For increased stability and carrying capacity with vessels of similar size also reduces the resistance
Efficient propulsion system	Increased thrust, maneuverability and energy efficiency during fishing operations
Bilge keel	To reduce rolling and improved sea keeping characteristics

Fishery training vessels

These vessels are used for training future fishermen and students in navigation, seamanship, fishing operations and fish handling. They are mostly typical fishing vessels with additional accommodation for trainees. Fig. 14 M.V.Prashikshini training vessel of CIFNET



Fig 14

Marine Ambulance

For sea rescue marine ambulances are used. These boats require high speed and essential medical facilities. Fig.15 shows a marine ambulance used in Kerala for the rescue of fishermen.



Fig.15