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Cochin Fisheries Harbour have landing and berthing facilities for 60 deep sea fishing trawlers and 900 smaller fishing vessels besides country crafts. Cochin Port Trust is maintaining the fishing harbour and collects license fee and berthing charges for different crafts. This report presents gearwise and seasonwise marine fish landings for the period 1971 to 2000.

Over the years the landings showed an increasing trend. Starting with about 7000 tonnes in 1971, the landings gradually increased to 15,000 tonnes in 1975 and 25,000 tonnes in 1980. The average annual landings during 1981-85 period also remained in the same level. During late eighties, the average landings touched 35,000 tonnes. From 1990 onwards, an increasing trend in the overall total landings was noticed with about 38,000 tonnes in 1990 and 62,000 tonnes in 1994 which was the record landing at this harbour. This phenomenal increase of nearly ten times, was mainly due to the increase in trawler operations, motorization of country crafts, introduction of purse-seines, emergence of ring seines, increased operations of multi-day trawlers and extension of fishing area. From 1995 onwards, the landings were more or less steady with

an average of 38,000 tonnes. In 1999, a reduction of 7,000 tonnes in the total landings was observed. During 2000, the total landings showed again an increasing trend with 41,000 tonnes. During the period 1991-2000, Cochin Fisheries Harbour's contribution to Ernakulam District landings ranged between 55 and 65%. It contributed 6 to 11% to the annual state landings.

Major pelagic resources landed were oil sardine, whitebaits, mackerel, ribbonfishes, carangids and tunnies. Demersal assemblage consists of lizardfishes, perches, croakers, prawns and cephalopods.

Till 1975, most of the landings were constituted by the demersal groups. From 1976 onwards, the contribution from pelagic group has started increasing. Percentage contribution of pelagics was fluctuating from 4% in 1976 to 31% in 1979. The significant increase in the pelagic contribution and relative reduction in the demersals during 1980-1985 was mainly due to the heavy landings of oil sardines and mackerel in the purseseine catches. During this period, pelagic contribution rose to 65% and the demersals contributed only 35% to the total landings. However, during 1986-2000, the relative contribution of the demersal was

higher (Fig. 1). This was mainly due to extension of fishing areas and targeted fishing of perches, prawns and cephalopods, particularly by trawlers. The quantity-wise pelagic contribution remained more or less at the same level as that of demersals during 1989, 1996, 1998 and 1999. In 1983, 1984 and 1985, the ratio of the pelagics to demersals remained constant (2:1), while the same had been reversed in 1986, 1987, 1991 and 1994 (1:2). In 1989, 1996, 1998 and 1999, both groups equally contributed to the total landings at Cochin Fisheries Harbour (1:1). In 1978 and 1988, demersals showed a three-fold increase over the pelagics. During 1986-1995, the pelagic contribution was reduced to 37%,

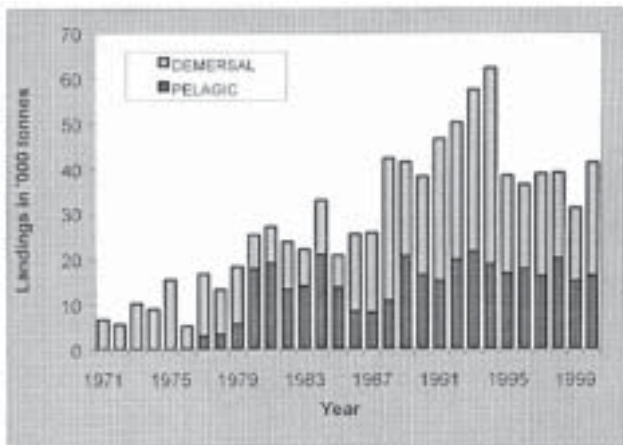


Fig 1. Pelagic-demersal assemblages at Cochin Fisheries Harbour

while demersals showed an improvement contributing 63% to the total landings. Percentage contribution of pelagics slightly improved to 46% during 1996-2000, while demersal contribution was reduced to 54%.

The important gears operating at Cochin Fisheries Harbour are mechanized trawlnets, mechanized gillnets, mechanized hooks & lines, purseseines and motorized ringseines. Some motorized units with boatseines, drift/gillnets, hooks & lines and minitrawls also land their catches, though not regularly. Trawl net mainly exploited prawns, threadfinbreams, scads, lizardfishes, flatfishes, ribbonfishes and cephalopods. Main resources caught by mechanized gillnets were

tunnies, seerfishes, elasmobranchs and carangids. Eventhough catfishes and pomfrets contributed during the early years of mechanized gillnet operations, later they have been totally marginalised. Purseseines and ringseines were introduced to catch the pelagic shoals like oilsardine, whitebaits, other sardines, mackerel, carangids and tunnies. Major landings by hooks & lines were perches, tunnies, carangids, elasmobranchs and barracudas. During 1971-1977, the entire landings were by trawlers. In 1978, mechanized gillnets started operation and they contributed 31% to the total landings. In 1979, purseseiners ventured off Cochin primarily to harvest pelagic shoals like oil sardine and mackerel, which contributed only 10%, while gillnet's contribution was reduced to 27%. The remaining 63% was contributed by trawlers. From 1980-1985, contribution of purseseiners rose to 56%, trawlers' contribution reduced to 34% and the remaining 10% was by gillnetters. Eventhough mechanized hooks & lines started operating from 1982, they could not make any significant impact to the total landings. During 1986-1990, again catches from trawlers dominated the landings contributing 74% and purseseines' contribution was reduced to 11%. When the ringseiners started operation first time during this period, they contributed 4%, the remaining 2% was by mechanized hooks & lines. During 1991-1995, maximum trawl contribution of 81% was witnessed at this harbour, purseseine contribution slightly came down to 10%, gillnet contribution declined to 2%, ringseines showed a slight improvement of 1% and hook & lines contributed 1%. At present (1996-2000), 67% of the total landings was by mechanized trawlnets, 14% by purseseines, 5% each by ringseines and mechanized gillnets, 8% by mechanized hooks & lines and all other units contributed nearly 1% (Fig 2). During this period, multi-day operations of trawlers and hooks & liners and multigear operations of mechanized gillnetters were in vogue. The fishing units had sophisticated equipments like GPS, RADAR systems and giant fish

holds to keep the catch for days without any spoilage. From 1999 onwards, deep-sea trawlers began to harvest the depth zones upto 400m to exploit deep sea resources. Their operations were seasonal (November-February). Important species caught were *Aristeus alcocki*, *Heterocarpus. woodmasoni*, *H. gibbosa* etc. During 1999-2000, more than 3500 tonnes of deep sea non-penaeid prawns landed at this harbour.

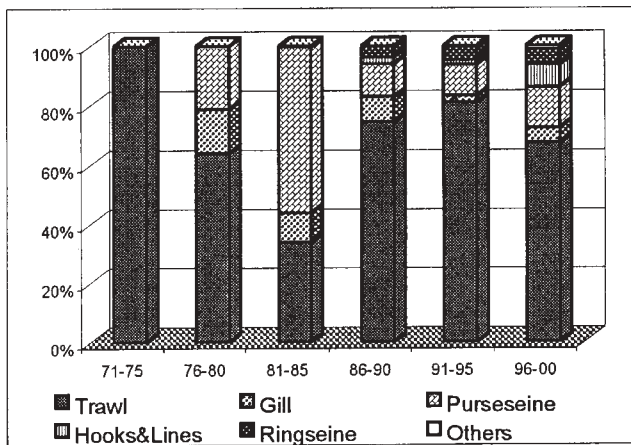


Fig 2. Percentage contribution of different gears at Cochin Fisheries Harbour

The number of trawl net units operated was maximum during the period 1991-1994 and that of mechanized gillnet units during 1979-1990. The maximum effort expended by purseseiners was during 1980-1985 and that of hooks & lines was during 1996-2000. Ringseiners made more trips during 1989-2000.

The catch per unit effort (CPUE) was maximum for trawlers and hooks & lines during 1996-2000. CPUE of mechanized gillnets, purseseines and ringseines was maximum during 1986-1990.

Among the four quarters, the third quarter (July-September) was the most productive season. Nearly 32% of the total landings at this harbour was during the third quarter. During the thirty years under study (1971-2000), third quarter has registered higher landings (Table 1). With the introduction of purseseines and ringseines to the fishing fleet of Cochin Fisheries Harbour, the trend was very clear during 1986-1996 that

Table 1. Quarterwise average landings (in tonnes) at Cochin Fisheries Harbour

Period	I Qr	II Qr	III Qr	IV Qr	Total
1971-75	2552	2449	1725	2627	9354
1976-80	3062	3689	4126	4859	15735
1981-85	6772	5294	6820	6441	25327
1986-90	5986	10325	12321	6032	34664
1991-95	8772	14004	19561	8623	50960
1996-00	7777	8769	10454	10359	37359

third quarter became the most productive season with exemptions in 1990 and 1996. This change in 1990 could be attributed to the heavy landings of carangids (35%) in the trawl landings during May and the ban of trawling for the first three weeks of July 1990. Even the ban was imposed on trawlers from 1988, July catch was affected from 1990 onwards. Less operations of trawlers and purseseiners in the third quarter of 1996 reduced the production and hence the landings in this season was pushed to third place.

Next productive season was the second quarter which covers the period April to June. Nearly 26% of the total landings at this harbour were during the second quarter. Nearly 22% of the total landings were during the fourth quarter (October-December). The lean period was the first quarter (January-March) and about 20% of the total marine fish landings was during this quarter.

During 1994, third quarter production reached 27,632 tonnes (44%), which was the maximum of the period under study, from the meagre landings of 18 tonnes in 1971 (less than 1%). Second quarter production reached 16,431 tonnes (29%) in 1993 from 558 tonnes in 1972 (10%). Fourth quarter landings was maximum during 2000 with 13,319 tonnes (32%), whereas the minimum landings was in 1976 with 871 tonnes (17%). First quarter production was the highest during 1994 with 10,816 tonnes (17%) and least during 1977 with 1078 tonnes (6%).

Penaeid prawns, perches, oil sardine, cephalopods,

mackerel and carangids are the major resources landed at Cochin Fisheries Harbour in the order of abundance. During the period under study, penaeid prawns contributed 17% to the total landings with the lowest landings of 1561 tonnes (8%) in 1985 and record landings of 12,197 tonnes (26%) in 1991. Main contributors to this groups are *P. stylifera* (48%), *M. dobsoni* (35%) and *P. indicus* (5%). The entire prawn catch was by trawlnets eventhough rare occurrence of the species were found in purseseines, ringseines and other motorized units like boatseines.

Perches contributed on an average 5,440 tonnes during this period. The first landings of perches was recorded in 1974 with a small catch of 42 tonnes. Maximum landings of this group was recorded in 1993 with 15,700 tonnes (27%). Main contributor to this group was *Nemipterus* spp. About 95% of the perches were landed by trawlnets and the remaining 5% by mechanized hooks & lines eventhough meagre landings were by gillnets and purseseines.

Oil sardine (*Sardinella longiceps*) contributed 11% to the total landings. When purseseine operation gained momentum during the early eighties, oil sardine landings reached 11,000 tonnes per annum, contributing 42% of the total landings. The maximum landings of this species was in 1984 with 14,786 tonnes (45%). About 89% of the total oil sardine catch was by purseseines, 7% by ringseines and remaining 4% by

trawlnets. There were incidents of oil sardine catch in mechanized gillnets and in some motorized units.

Cephalopods consisted of squids, cuttlefish and *Octopus*. When species targeted trawling started during the late eighties, this group was prominent at this harbour. From 1988 onwards, the average landings of this group touched 5,400 tonnes and their contributions towards the total landings was 12%. Maximum landings of cephalopods was in 1994 with nearly 11,000 tonnes (18%) and the minimum recorded landings was 8 tonnes in 1976. Almost the entire landings of cephalopods were due to trawlers.

Mackerel (*R. kanagurta*) constituted 8% of the total landings. The landings was maximum in 1996 (20%) and minimum in 1976 with an insignificant catch of 18 tonnes. Nearly 73% of the total mackerel were landed by purseseines, 21% by mechanized trawlers, 4% by ringseines and the remaining 2% by gillnets.

Carangids contributed 7% to the total landings. Maximum landings was in 1993 with 7,900 tonnes and minimum in 1977 with 14 tonnes only. Carangids include scads, horse mackerels, *Coryphaena* spp., *Alepes* spp., *Selar* spp., etc. Major portion (79%) of the carangids were landed by mechanized trawlers, 11% by purseseines, 6% by gillnetters, 3% by ringseiners and the remaining 1% by mechanized hooks & lines.