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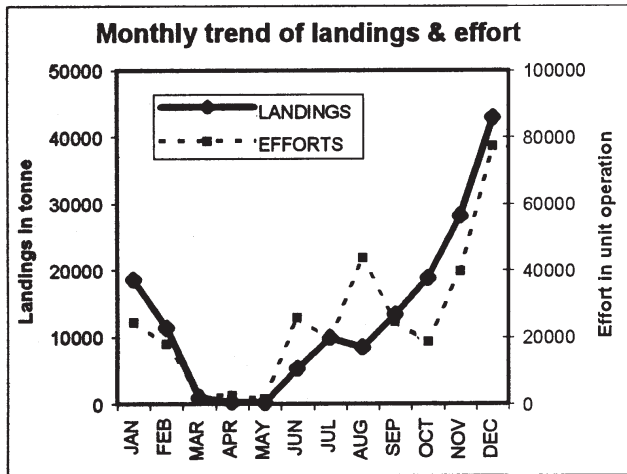
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

COCHIN, INDIA

(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)

The continental shelf along West Bengal is wide (nearly 150 km), shallow and the sea bottom is muddy. State's annual income from marine sector has accounted for more than Rs. 460 crores, at the first sale.

Estimated marine fish landing in 2002 has reached 1.59 lakh tonnes indicating 60% increase over the previous year. Among the two coastal districts of West



Bengal, Midnapur (>50%) showed a slight improvement over 24 Paraganas (<50%). There are 13 marine fish landing centres in 24 Parganas and 27 in Midnapur. Among them, Diamond Harbour, Kakdwip Stimarghat, Kakdwip 8 No. ghat, Kakdwip Akshynagar and Digha Mohana are the most important landing centres where multiday trawlers and gillnetters are operated.

Fishing season : The fishing season starts from July and ends in February. Most productive season was the fourth quarter (57%) followed by first and third quarters (20% each). During fourth and first quarter, bombayduck, croakers, prawns and catfishes recorded

fairly good landings, whereas in the third quarter hilsa shad and pomfrets dominated the landings. Due to cyclonic weather conditions and strong southern wind, second quarter was not good for the fishing activities. During first quarter, bombayduck (18%), non-penaeid prawns (16%), penaeid prawns (10%), catfishes (9%), croakers (8%) and ribbonfishes (7%) were the major contributors. Nearly 52% of the landings were by bag nets during the first quarter, 29% by mechanized trawl nets and 16% by mechanized gill nets and the remaining 3% by the artisanal gears like gill net, hooks & lines, shore seines and stake nets. Second quarter was the lean season with hilsa shad (46%) as the main contributor. More than 70% of the landings were carried out by gill nets and 18% by motorized bag nets. Important landings of the third quarter were hilsa shad (31%), croakers (7%), pomfrets (9%), *Scombermoris guttatus* (4%) and penaeid prawns (4%). About 59% of the production was by mechanized gill netters followed by mechanized trawl nets (24%). Fourth quarter was rich with Bombayduck (20%) followed by non penaeid prawns (14%), croakers (11%), penaeid prawns, hilsa shad and catfishes 5% each. Maximum landing was by motorized bag nets (42%), trawl nets (30%) and gill nets (15%). Multiday trawler operations were maximum during fourth quarter. Multiday gill netters and single day gill netters were maximum during third quarter. Maximum number of mechanized bag netters operated during fourth and first quarter. Maximum effort of motorized gill netters was expended during second and third quarters, whereas motorized bag net operations were maximum during fourth and first quarters

followed by the second and third quarters. Motorized hooks & lines operations were maximum during third quarter. In the artisanal sector maximum number of operation was during fourth quarter (16000 units). There were stake net operation in Midnapur during the first quarter.

Fishing gear : Main gears operated were trawl nets, drift/gill nets, bag nets, hooks and lines, shore seines and some stake nets. Multiday trawlers catch was 28%, gill netters contributed 26%, mechanized bag net yielded 9%, motorized bag nets catch was 32%, motorized gill nets landing was 3%, bag net in the artisanal sector contributed 1% and all other gears together accounted for 1% of the total landings. Multiday trawlers landed more than 2 tonnes per unit. Catch per hour for trawler was 37 kg. and each unit operated on an average 77 hours per trip. Number of hauls varied between 17 to 54. Multiday gill netter caught more than 1 tonne per unit. They were fishing for more than 90 hours per trip and number of hauls were in the range of 3-26. In bag netter catch per unit (mechanized sector) was 610 kg, while in the motorized sector it was nearly 420 kg and in the artisanal sector, it was 139 kg. Catch per unit of hooks & lines was 324 kg. Bag net contributions including mechanized, motorized and non mechanized was 42% of the total landings. Maximum contribution was by the mechanized sector (63%) followed by motorized (35%) and the remaining 2% was by artisanal sector. Mechanized sector contributed to hilsa shad (18%), croakers (13%), catfishes (9%), pomfret (8%), penaeid prawns (8%), whereas motorized sector's contribution was maximum to Bombayduck (37%), non-penaeid prawns (23%) and anchovies (10%). Non-mechanized sector's

contribution was maximum for non-penaeid prawns (51%). Mechanized trawl net operation started in July and ended in February in 24 Parganas, whereas the season was from June to March in Midnapur. Even though mechanized gill net operation began in June and ceased in March, the same gear in motorized sector operated throughout the year in 24 Parganas. In Midnapur, mechanized gill nets operated during the entire year except in April. In the motorized sector, gill net operation was limited to June - October only. Gill netters in the artisanal sector operated during November - August. Bag nets were operating from October to March only in 24 Parganas and in Midnapur, their operation started in August and continued upto November - March. Bag nets in the motorized sector operated during June - February in 24 Parganas and October to July in Midnapur. In the artisanal sector, bag net operated only in December in 24 Parganas, whereas their operation was restricted during March - July and October - December in Midnapur. In West Bengal, hooks & lines operation was very rare and seasonal (January-February) and their operation was limited to 24 Parganas only. Trawlers were more in Midnapur and gill netters were maximum in 24 Parganas. Mechanized bag netters operated more in Midnapur. Stake net operations were restricted to Midnapur only. Fishermen were also engaged in *Penaeus monodon* seed collection during February - October using mosquito nets locally known as *Bhuri jal*.

Resources : Important species were *Hilsa ilisha* (11%), Bombayduck (17%), croakers (9%), prawns (17%), catfishes (6%), pomfrets (5%), anchovies (8%) and ribbonfishes (4%). All others contributed 23% of the total landings. Hilsa shad was maximum in gill netters

(mechanized sector - 17,600 tonnes, motorized - 500 tonnes and non-mechanized - 6 tonnes). Bombayduck was more in bag nets (bag nets - 22,500 tonnes, trawl nets - 1,200 tonnes, gill nets - 2,500 tonnes). Croakers were maximum in trawl nets (12,100 tonnes). Contribution of prawns was more in bag nets (11,200 tonnes) followed by trawl nets (6,300 tonnes) and all others including stake nets and shore seines contributed 100 tonnes. Catfishes were caught mainly in multiday gears like trawl nets and gill nets. Promfrets were also high in multiday gears. Anchovies were caught mainly by trawl nets and bag nets. Ribbonfishes were in good quantities in trawlers, gill netters and bag netters.

Prices : Hilsa shad was the major resource of West Bengal which were caught in gill nets. Nearly 96% of hilsa shads were landed by multiday gill netters. Price ranged between Rs. 9/- to Rs. 220/- per kg. during different seasons. Their concentration was mainly in 24 Paraganas (95%) and the contribution was maximum during the third quarter and the lean season was March to May. This group ranked first among the commercially important groups realizing nearly Rs. 200 crores.

In West Bengal, yield of pomfret was spread round the year with highest catches during September to February. They were mainly caught in trawl net and gill net. *Pampus chinensis* fetched the price range of Rs. 60/- to 450/- per kg. followed by *P. argenteus* with Rs. 20/- to 240/- per kg. and *P. niger* was fetching Rs. 20/- to 85/- per kg. In West Bengal, nearly 80 crores of rupees worth pomfrets were landed during 2002.

Better priced *P. indicus*, *P. stylifera* and *P. sculptilus* were the better priced among the *Penaeus* spp. *P. indicus* realised Rs. 210/- to Rs. 600/-, whereas *P. monodon* fetched between Rs. 400/- to Rs. 700/- per kg. *P.*

hardwickii was a rare species found in Midnapur only, whereas *Solenocera hextii* was found along the entire coast and their price ranged between Rs. 20/- and 35/- per kg. More than 30 crores of rupees per year were realized from this group alone.

Croakers were preferred for their white and firm flesh. High priced varieties were *Otolithoides biauritus* fetching Rs. 35/- to 70/- per kg. and *Protonibea diacanthus* of Rs. 75/- to 90/- per kg. The price of *Nibea* spp. varied between Rs. 110/- and 125/- per kg. The low priced varieties were the *Johnius* spp. and *Otolithus* spp. Their price ranged from Rs. 5/- to 32/- per kg. More than 30 crores of rupees were earned from this group alone. The main catfish varieties like *Arius thalassinus* and *Arius tenuispinis* fetched a price range of Rs. 10/- to Rs. 38/- per kg. whereas, *P. pangasium* fetched Rs. 50/- to Rs. 80/- per kg. and *P. madasys* spp. has a price range of Rs. 110/- to Rs. 230/- per kg.

Price of Bombay duck ranged between Rs. 4/- and Rs. 12/- per kilogram during 2002. More than Rs. 20 crores worth *Harpadon nehereus* were landed during the year. *Coilia* spp. fetched Rs. 8/- to Rs. 25/- per kg. in 24 Parganas, whereas their values differed from Rs. 8/- to Rs. 40/- per kg. in Midnapur. The prices of *Setipinna* spp. varied between Rs. 12/- and Rs. 30/- per kg. Value realised at the landing centre was about Rs. 17 crores, for anchovies alone.

Eleutheronema tetradactylum have a price range of Rs. 25/- to Rs. 80/- per kg., whereas *P. indicus* fetch Rs. 220/- per kg. which supports a small fishery in the Sunderban islands. Nealy 720 tonnes of polynemids. worth Rs. 4 crores, landed annually.

Price of ribbon fish range between Rs. 5/- to Rs. 18/- per kg. in 24 Paragnas and Rs. 3/- to Rs. 30/- per kg. in

Midnapur. Maximum landing was during the fourth quarter followed by first quarter and the lean period was the second quarter. The value realized from this group amounted to Rs. 9 crores.

Seerfishes constituted a small fishery with *Scombermorus guttatus* as the main species, which is a highly esteemed group. Their white flesh with high fat content fetched a price of Rs. 12/- to Rs. 90 per kg during different seasons. During 2002, the revenue realised by the sale of seer worked out to be Rs. 7 crores.

Cyclone and its impact : During the cyclone of April - May 2002, the landing centres of Ramagang and Gangasagar were totally devastated and at the end of the year, Ramaganga fishermen were forced to unload their catch at Raidighi and Kakdwip. In Midnapur an important landing centre, Sankarpur was closed. Boats could not enter the nearby canal to unload their catches as the canal was full of sand.

Cyclone storm hit 24 Paraganas on 12th November 2002 at a speed of 100-120 km/hour. 12 gill netters along with 73 fishermen were reported missing. Besides this, so many *doba behundi* nets and *vasa behundi* nets along with good quantities of dried and semi dried fishes and their shelters were damaged. Beguakhali, Gangasagar west, Baliara, Jambudip and Kalisthan were mostly affected. Estimated loss due to destruction worked out to be Rs. 1.47 crores.

Other Observations : Even though, West Bengal Government constructed a harbour at Sultanpur, landings were not taking place there due to non-availability of minimum requirements like drinking

water, ice plant and good roads. Hence landings were taking place at Diamond Harbour itself.

Jambudwip, a seasonal landing centre and an island which is part of Sunderbans, remains under water almost throughout the year. Fishermen had been using a portion of the island to dry their catch between October-March since 1955. Due to the conflict between fishermen and forest department, fishing was stopped from first week of November 2002. Forest department alleged that nearly 10000 fishermen in the core area of Sunderbans - Jambudwip - was disturbing its flora and fauna. Fisheries department argued that there was no pollution activity on the island and no threat to Sunderbans ecology. Fishing was resumed from the last week of December 2002 after the visit of a parliamentary standing committee. Dry fishes were bought and sold from this centre. More than 35 dry fish godowns are located in the Sunderban islands of Jambudip, Kakdwip and Raidighi.

During December 2002, at Khalistan and Ganagasagar west, some big mechanized bag netters were operating. Number of nets used from 4 boats were 144 and there were no carrier boats. Each boat was carrying the catch to the landing centre by turn and they were landing two times daily. Big bag netters got an average catch of 2300 kg, while the smaller units were getting nearly 900 kg. of fishes. Sixty proprietors owned 120 fishing boats along with 60 carrier boats and 540 fishermen as crew. Nearly 700 fishermen were engaged in drying the Bombayduck caught.

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