FAP 17
Fisheries Studies and Pilot Project

FINAL REPORT
(Draft)

JUNE 1994

Supporting Volume
No. 1

FISHERIES STUDY

TANGAIL COMPARTMENTALIZATION PILOT PROJECT

Prepared for the Government of Bangladesh

FAP 17

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Tangail Compartmentalization Pilot Project

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SUMMARY OF PRINCIPAL FINDINGS

1. The peripheral embankment to be used in the Tangail CPP had no influence on flooding patterns on floodplain, beel and canal sites inside the CPP.

   There was a delay in the first river flooding into beel and floodplains of about 2-3 weeks inside the CPP, but this was caused by natural siltation at the mouth of the Lohajang River.

2. The annual catch per unit length of the Lohajang River flowing through the CPP was higher (784 kg/km) than those of two adjacent rivers, the Pungli (598 kg/km) and the Northern Dhaleswari (438 km/kg) lying immediately outside the CPP, but the difference could not be validated statistically because of the lack of consistency in catch rate trends.

3. There was no statistically significant ($p < 0.05$) difference between annual catches of canals inside (955 kg/km) and outside (1,042 kg/km) the CPP.

4. Floodplain catches were similar inside (57 kg/ha) and outside (60 kg/ha) the CPP. A baor-like beel inside the CPP produced a higher catch per unit area (550 kg/ha) than comparable beel outside it (404 kg/ha) but there was little difference between floodplain depression-type beel inside (123 kg/ha) and outside the CPP (108 kg/ha). Although fish productivity appeared slightly higher inside the CPP, the difference could not be tested statistically because of inconsistencies in catch rate trends of dominant gears.

5. Species richness, as measured by the total number of species recorded in the catch, was similar inside and outside the CPP and also between rivers, canals, floodplain and beel. Species numbers ranged from 79 to 92 between different habitats outside the CPP and from 84 to 90 between different habitats within it.

6. Species composition of floodplain and beel catches was almost identical inside and outside the CPP, while rivers and canals supported a higher proportion of migratory species outside the CPP compared with inside it. The majority of migratory species

in canals comprised major carps which totalled 30% of the catch outside and 6% of the catch inside the CPP. Species dominating floodplain and beel catches comprised mainly floodplain residents (90 - 94%), whilst the few migratory species comprised the major carps rui, catla, mrigel and raik, the catfish, boal and the minnow, fulchela. This composition appeared typical of floodplains on the left bank of the Jamuna River and along the Dhaleswari-Kaliganga system.

TANGAIL COMPARTMENTALIZATION PILOT PROJECT

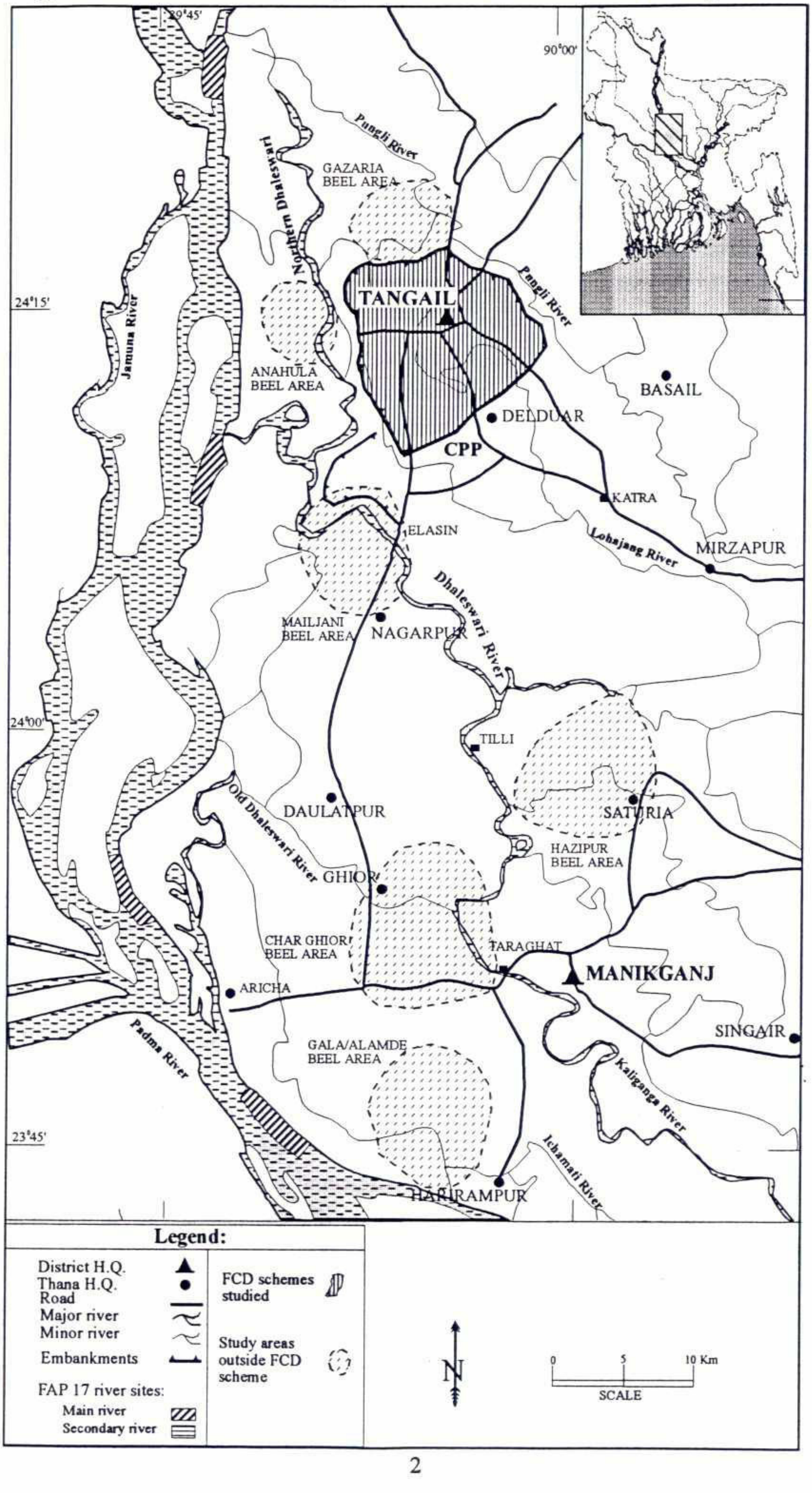
1. STUDY AREA: BACKGROUND

The Tangail Compartmentalization Pilot Project (CPP) is situated on the left bank of the Jamuna River surrounding Tangail town (Fig. 1.1). The CPP lies between the Northern Dhaleswari to the east and the Pungli River, an offtake of the Northern Dhaleswari, to the west. The project area is bisected by the Lohajang River, a second offtake of the Northern Dhaleswari. A third offtake, the Elanjani River, runs southwards along the western boundary of the project area. The CPP incorporates an older FCD scheme, the Silimpur-Karatia project, which comprises an embankment running along the western boundary of the horseshoe-shaped CPP (Fig. 1.1). The embankment was constructed by local people on a piecemeal basis in 1963 without professional planning. BWDB assumed responsibility for the scheme from 1975 onwards and installed four flushing inlets for irrigation purposes. In practice this objective was not achieved. The scheme was evaluated by FAP 12 (FCD/I Agricultural Study) as part of a series of Rapid Rural Appraisals. The general conclusion from this study was that the amount of water entering through the inlet gates was small, even in the relatively wet year of 1991, and that the land area targeted for flood protection flooded from the Lohajang to the east. In normal years, flooding was not regarded as a major problem to agriculture. To achieve flood control there would need to be regulation of the flow of the Lohajang and improved drainage to remove congestion by the creation of drainage structures.

The Compartmentalization Pilot Project (FAP 20) selected Tangail as one of its study areas. The boundary of the area, enclosing 13,765 ha, is formed by an embankment along the Elanjani and Northern Dhaleswari Rivers to the east (this is part of the former Silimpur-Karatia project), the Lohajang and Gala khal to the north and the Pungli River in the east. The southern boundary is formed by an earthen road between Silimpur and Karatia.

The FAP 20 CPP is viewed as a key component of the Flood Action Plan, to test the concept of compartmentalization in the field with the aim of achieving integrated water management through controlled flooding. The principal structural work to be completed by FAP 20 involves the installation of a major regulator on the Lohajang River and the control of internal drainage by excavation, sills and sluice gates.

Figure 1.1 Location of study areas in the North Central Region



FAP 17 selected the CPP for study to provide the following:

a. An investigation of the impact of partial flood control on fisheries.

b. Evaluation of methods for the assessment of capture fisheries in an area where detailed hydrological and sociological data were already available and where an improved MIKE 11 flood simulation model was being developed.

c. Baseline data collected during the pre-implementation phase of a key FAP initiative which could be used in future assessments of the impact of the project on capture fisheries.

During the study, FAP 17 worked in close collaboration with FAP 20 on studies of the movements of fish hatchlings in rivers (Supporting Volume 11).

2. SAMPLING SITES

Rivers, canals, floodplains and beel were sampled inside and outside the CPP at fortnightly intervals for a total of 19 months from August 1992 to February 1994 inclusive. Detailed information on catch by species and fishing effort of different types of gears was collected at each site following the methods previously outlined in the FAP 17 Inception and Interim Reports.

Two beel were sampled within the CPP : Atia (site 15) and Indrabelta (site 11), lying to the south and east of Tangail town respectively (Fig. 2.1). A floodplain area adjacent to Atia beel was also sampled (site 14), but at Indrabelta a large area of floodplain was included in the area of site 11 (Table 2.1).

The beel selected represent two types which commonly occur along the left bank of the Jamuna River and along the Dhaleswari River system. Atia beel (site 15) is a small baor-type beel formed from an old river which has long since changed course, leaving a series of disconnected beel of which Atia is one. Indrabelta beel (site 11) is a true depression-type beel which would be more seasonal in nature were it not for the limited area of brickwork excavations which serve the same function as a small perennial beel. The depression-type beel differ hydrologically from the baor type because they are physically more closely associated with the floodplain immediately surrounding them, onto which they overspill during the pre-monsoon and from which they concentrate floodwaters and fish during the drawdown. The baor-type beel do not possess such close association with their floodplains but instead tend to drain rainfall runoff and receive river floodwater via canal links to adjacent rivers, overspilling their banks only in times of higher floods.

Each type of beel inside the CPP was paired with an equivalent outside it: Atia with Mailjani beel (site 19) to the south of the CPP and on the right bank of the Dhaleswari River and Indrabelta with Gazaria (site 05) and Tepi beel immediately to the north of the CPP (Fig. 2.1). A second baor-type beel, Anahula beel, was selected for comparison with Atia beel, because this beel directly connected with the Northern Dhaleswari through Anahula khal. However, the elevations of the floodplain surrounding this beel were somewhat higher than those of Atia.

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Figure 2.1 Location of sampling sites inside and outside the Tangail CPP

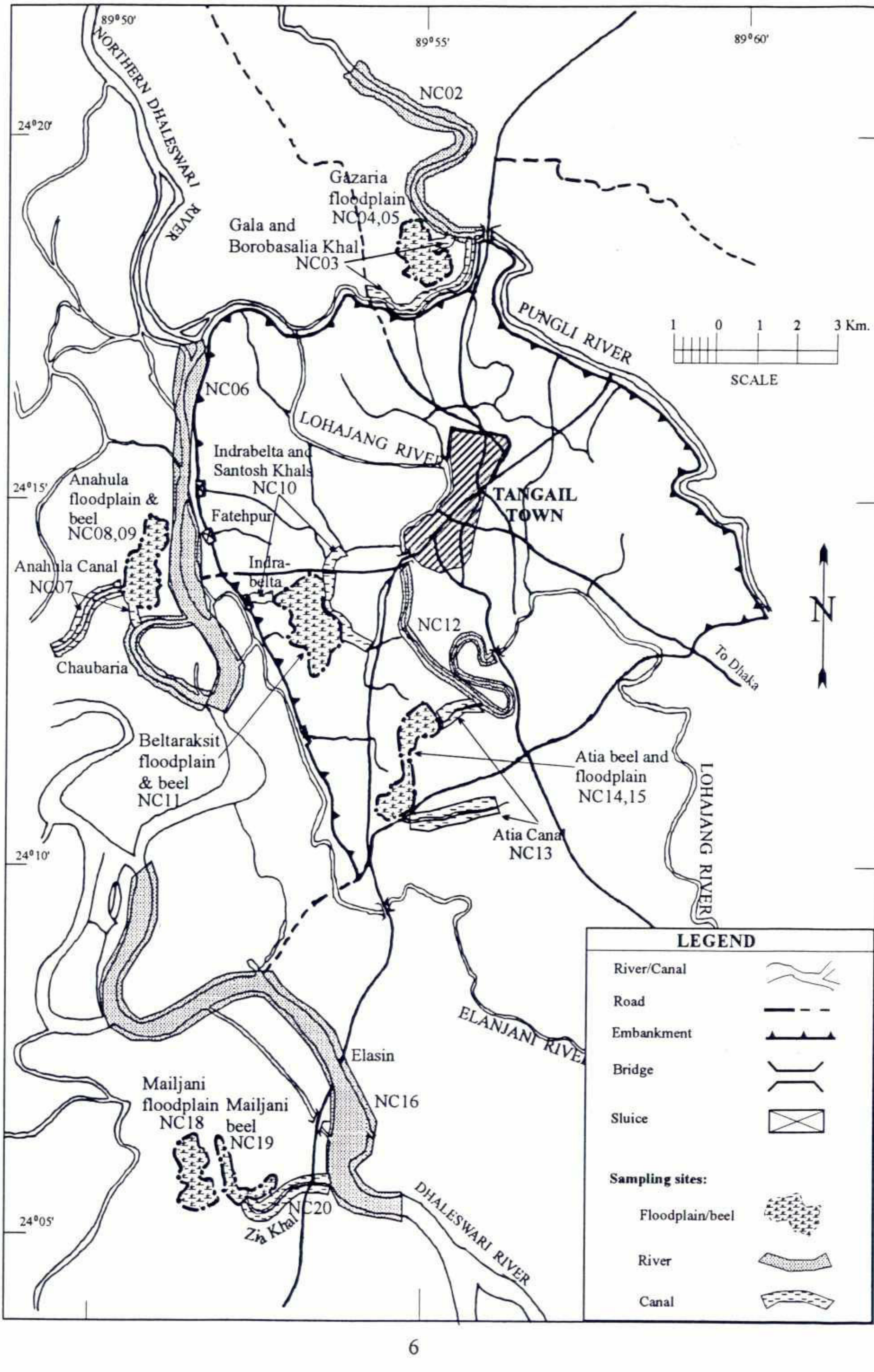


Table 2.1 Description of sampling sites inside and outside the Tangail CPP

Site Code	Site Name	Habitat	In/Out CPP	Size	
				Area (ha)	Length (Km)
NC 12	Lohajang River	Secondary River	I		9.80
NC 02	Pungli River	Secondary River	O		7.45
NC 06	Northern Dhaleswari River	Secondary River	O		16.05
NC 10	Indrabelta and Santosh Khals	Canal	I		5.64
NC 13	Deojan and Atia Khals	Canal	I		3.62
NC 03	Gala & Borobasalia Khals	Canal	O		4.87
NC 07	Anahula Khal	Canal	O		4.78
NC 17	Zia Khal	Canal	O		4.41
NC 11	Beltaraksit Floodplain	Floodplain	I	1.8470	
NC 14	Atia/Kumuria Floodplains	Floodplain	I	1.9890	
NC 15	Atia Beel	Beel	I	0.1790	
NC 04/05	Gazaria Floodplain/Beel	Floodplain	O	1.2350	
NC 08	Anahula Floodplain	Floodplain	O	0.7730	
NC 09	Anahula Beel	Beel	O	0.1440	
NC 18	Mailjani Floodplain	Floodplain	O	1.1890	
NC 19	Mailjani Beel	Beel	O	0.1790	

The total floodplain/beel area sampled within the CPP was 402 ha. A control area of 352 ha was sampled outside the CPP, at sites in Gazaria beel and floodplain (sites 4 and 5) immediately to the north, Anahula beel and floodplain (sites 8 and 9) to the east across the Northern Dhaleswari, and Mailjani beel and floodplain (sites 18 and 19) to the south across the Dhaleswari River.

Canals linking each floodplain/beel with adjacent rivers were sampled inside and outside the CPP (Fig. 2.1). Inside the scheme the canals included Santosh khal (site 10) draining Indrabelta floodplain and leading indirectly to the Lohajang River and Deojan and Atia khal (site 13) draining Atia beel and again connecting with the Lohajang River. Outside the scheme Gala and Borobasalia khal (site 03) on Gazaria floodplain/beel, linked with the Pungli and Lohajang Rivers respectively, were sampled. Anahula khal (site 07) connected the beel with the Northern Dhaleswari, and Zia khal (site 17) linked Mailjani beel to the main Dhaleswari River. A total of 9.26 km of canal was sampled inside the CPP, and 14.06 km outside.

Three rivers were sampled : 9.80 km of the Lohajang (site 12) inside the CPP, and 7.45 km of the Pungli (site 02) and 16.05 km of the Northern Dhaleswari (site 06) outside it (Fig. 2.1).

3. HYDROLOGY

3.1 Outside the CPP

Pre-monsoon rainfall resulted in the gradual water-logging of floodplains during April and May 1993. In May, canals linking floodplains and beel with rivers made their first hydraulic connection as a result of this rainfall running off into the rivers. During early May the Northern Dhaleswari filled with rainfall runoff and fully connected with its ox-bow like loops, one of which was included in the sampled site No. 06. About two weeks later, in mid-May, the Pungli River was transformed by rainfall runoff from its winter condition of a series of disconnected pools into a continuously flowing system.

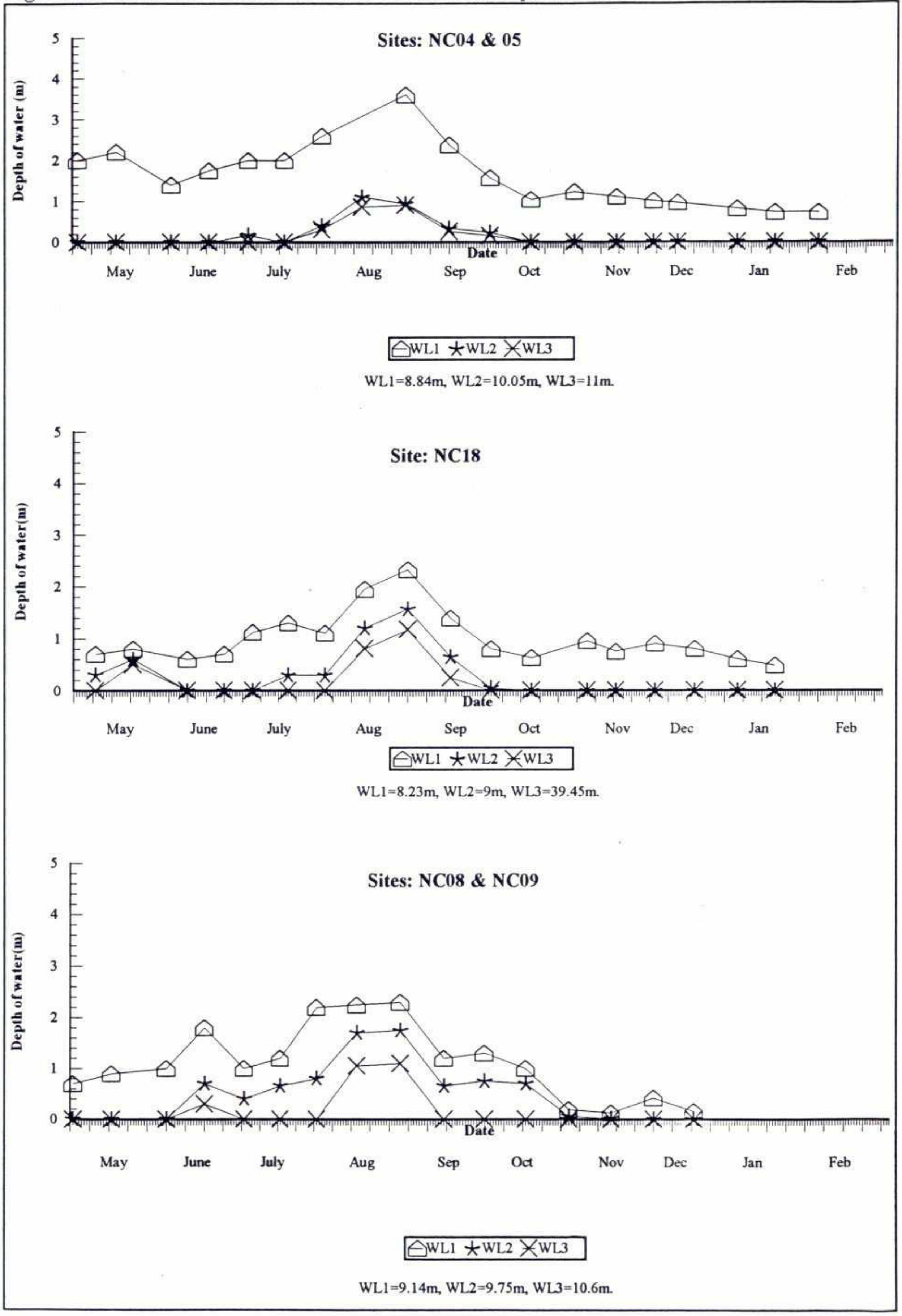
Rainfall runoff continued to enter rivers from the floodplains until the end of the first week in June. By mid-June hydraulic connections were made between the Jamuna River, Northern Dhaleswari and Pungli River and rising river levels reversed most flows in connecting canals which then began to deliver river floodwaters to beel and floodplains. Continued rises in river levels and heavy prevailing rainfall caused increased flooding of floodplains during July and August, reaching a peak in early September. After that water levels dropped sharply at all sampling sites (Fig. 3.1). At sites of higher elevation (Figs. 3.1 and 3.2) floodplains dried out quickly during September, but most retained water until mid-October, after which only a few scattered small depressions held water on the floodplains. Flood depths obviously varied with land height, but over much of the area sampled depths ranged from 0.5m to 1.5m for between 2 and 3 months.

3.2 Inside the CPP

Pre-monsoon flooding by rainfall followed a similar pattern to that outside the CPP. Floodplains were inundated during May and rainfall runoff entered the Lohajang River via connecting canals. In mid-May the Lohajang was transformed from a series of isolated pools to a continuously flowing river by rainfall runoff. It made its first hydraulic connection with the Northern Dhaleswari on the 12 June, about 2 weeks earlier than in the previous dry year of 1992 when it connected on the 29 June.

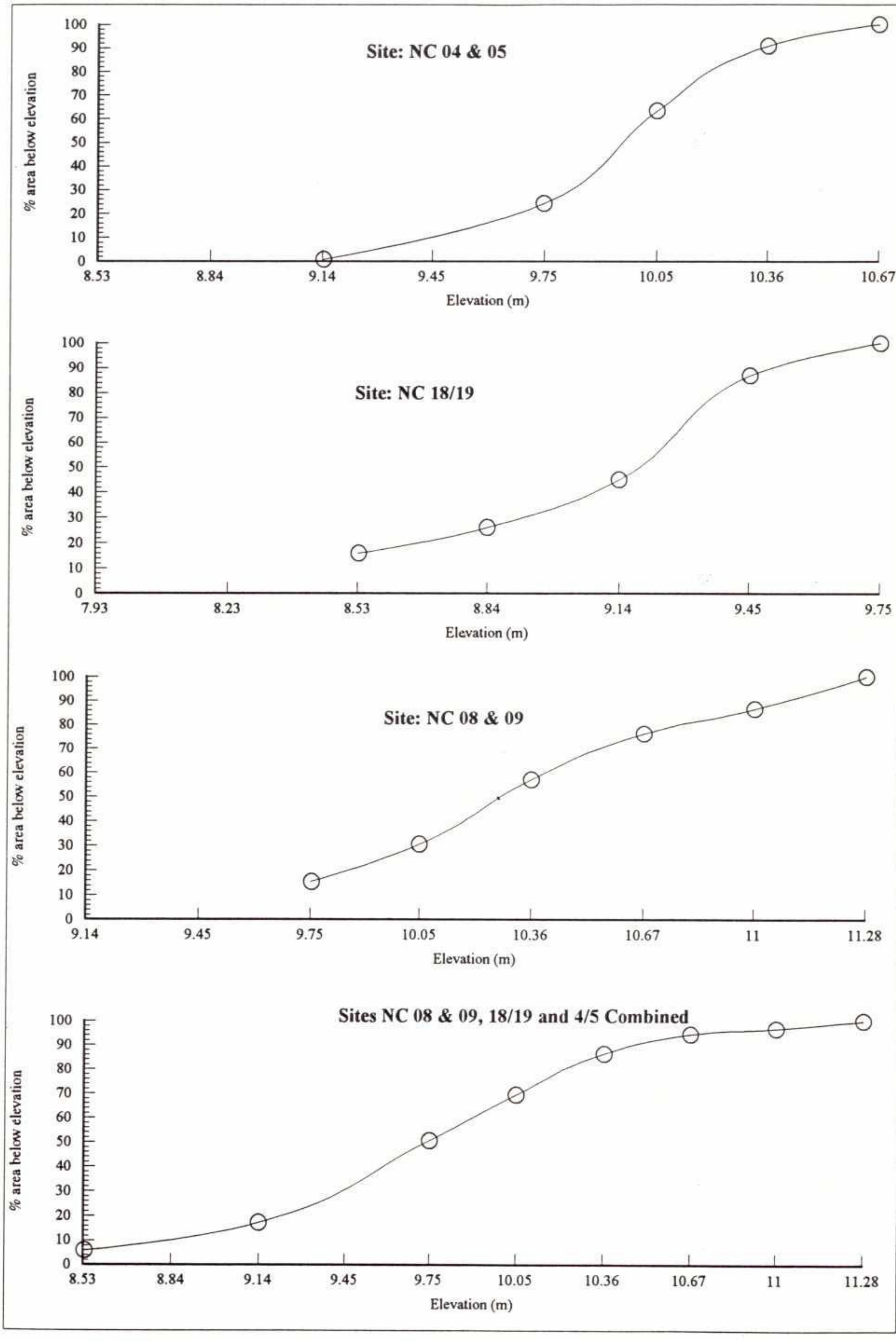
The first floodwater from the Lohajang was delivered to floodplain and beel about 2 weeks later than the Pungli and Northern Dhaleswari waters. Flow reversal in Deojan khal feeding Atia beel and Kumuria floodplain was not observed until the fisheries survey on 11 July, but

Figure 3.1 Seasonal variation in water levels at floodplain/beel sites outside the CPP



WL = Positions of depth measurements

Figure 3.2 Area elevation curve of floodplain/beel sites outside the CPP



first connection may have occurred a week earlier.

Flooding patterns inside the CPP followed those seen outside (Fig. 3.3). Water levels increased during July and August to a peak in early September, after which they decreased rapidly during the drawdown. Floodplains dried out completely, depending on land height (Fig. 3.4) between the first weeks of October and November, suggesting a slightly longer water retention period than outside floodplains. Flood depths varied from 0.5 m to 2.5 m over about the same period of inundation as sites outside the CPP.

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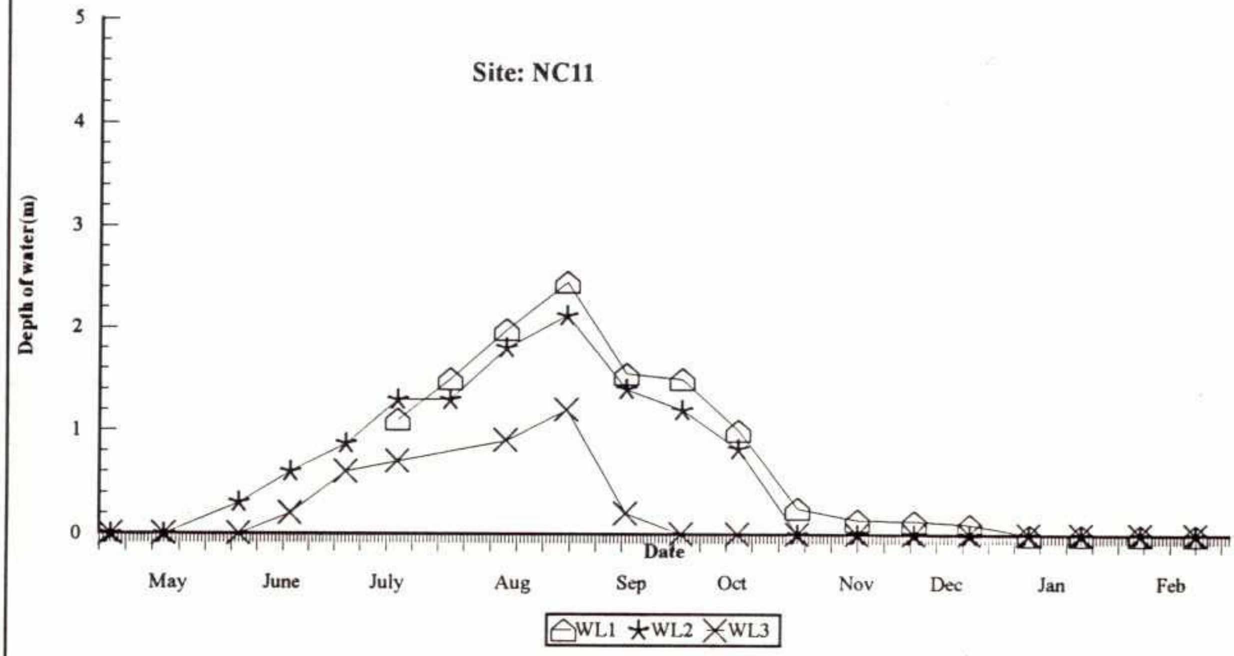
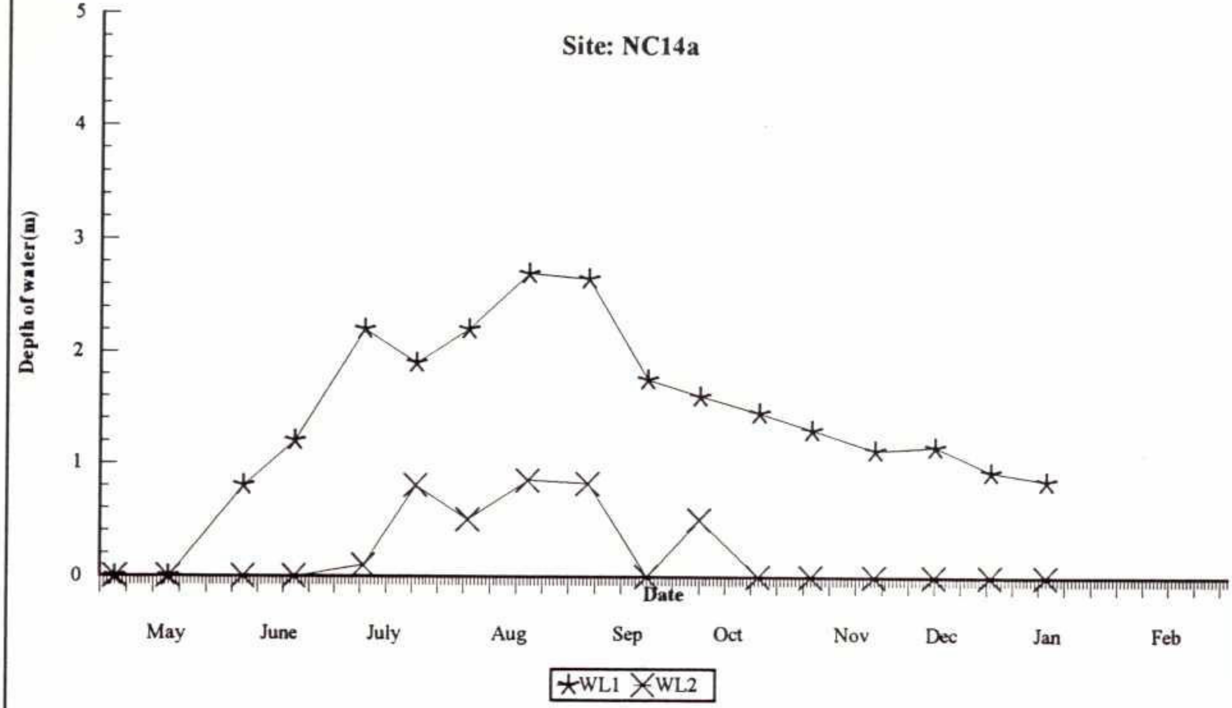
Figure 3.3 Seasonal variation in water levels at floodplain/beel sites inside the CPP



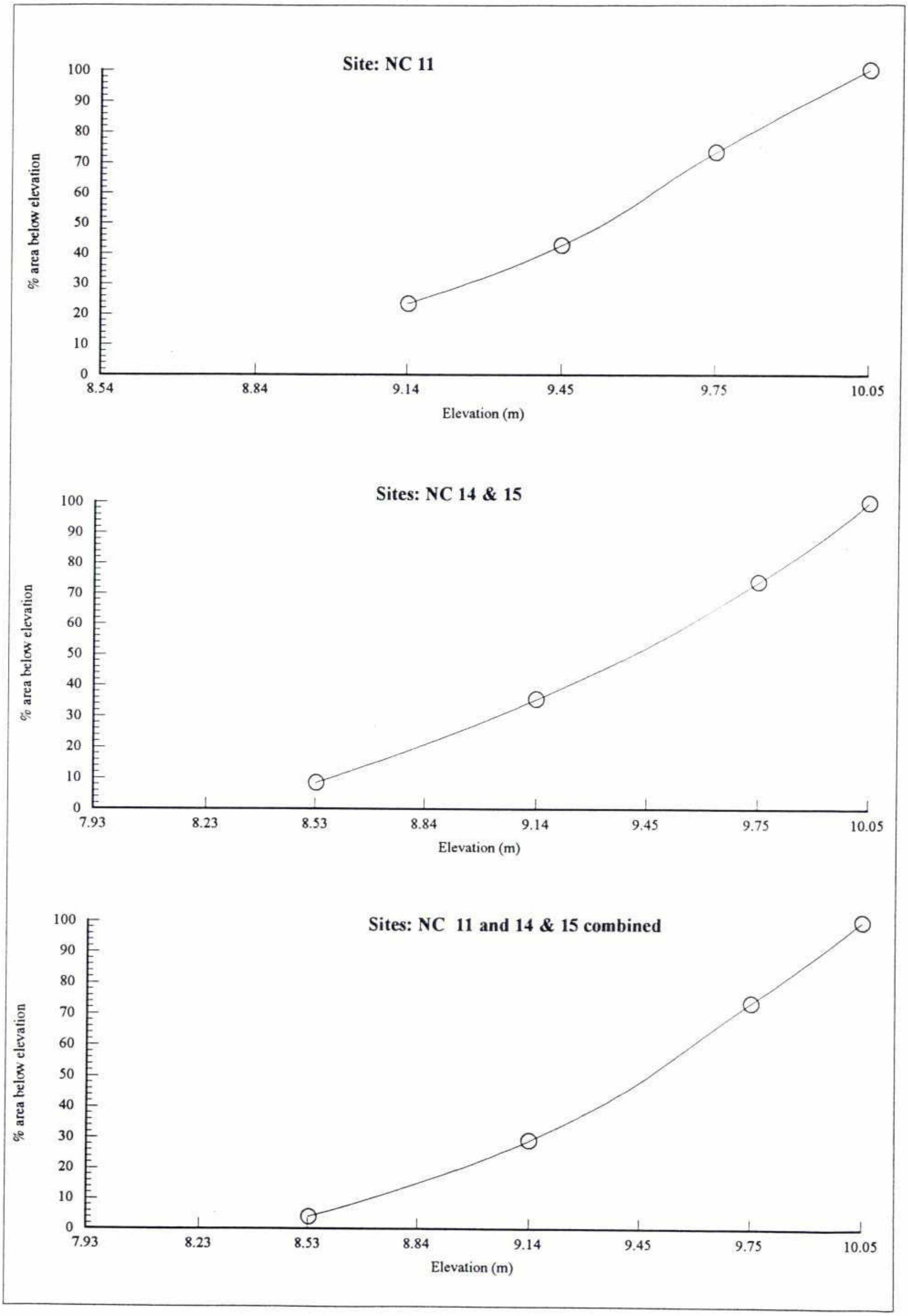
WL1=9.45m, WL2=9.45m, WL3=10.67m



WL1=8.84m, WL2= 10.67m

WL = Positions of depth measurements

Figure 3.4 Area elevation curve of floodplain/beel sites inside the CPP



4. RIVER FISHERIES

4.1 Total Catch

4.1.1 Pattern of catch

The collection of catch data for the period of 19 months from August 1992 to February 1994 provided the opportunity to examine changing patterns of catch through two full flood drawdown periods. All three rivers exhibited the same rapid increase in catch coinciding with the drawdown period each year (Fig. 4.1). The Northern Dhaleswari, being the largest of the three rivers, tended to retain water longer during the drawdown and dry season resulting in a slightly extended period of increased catches compared to the other rivers. The Pungli River, although hydrologically very similar to the Lohajang, showed differences in its pattern of catch during the pre-monsoon period (April - May). Heavy runoff from rainfall during April 1993 increased water levels in the series of disconnected pools which remained in the Pungli and Lohajang Rivers. Later, in May, these connected to form a continuous flow of water which resulted in significant increases in catches in the Pungli but, for reasons unknown, not in the Lohajang (Fig. 4.1).

4.1.2 Size of catch

The highest catches per unit length of river were recorded at the inside sites on the Lohajang River (Table 4.1). However, as will be demonstrated in the following section, there was no statistical evidence on which to base differences in catch between rivers inside and outside the CPP.

The lowest catch/km was recorded in the Northern Dhaleswari, the largest and most perennial in water of the three rivers. A similar pattern was found in the Southwest Region, where catches per unit length of seasonal rivers greatly exceeded those of neighbouring perennial rivers (Supporting Volume 2). The difference can be attributed to the increased "catchability" of fish populations trapped in disconnected pools during the drawdown in seasonal rivers. Very heavy fishing effort is concentrated on these isolated stocks.

The survey period of 19 months, from August 1992 to February 1994, provides an opportunity to examine inter-annual changes in total fish catch through two full flood drawdown periods. Peak catches in outside rivers were slightly higher in 1992 than in 1993.

Figure 4.1 Seasonal variation in catch per unit length (Kg/Km) of rivers inside and outside the Tangail CPP, August 1992 - February 1994

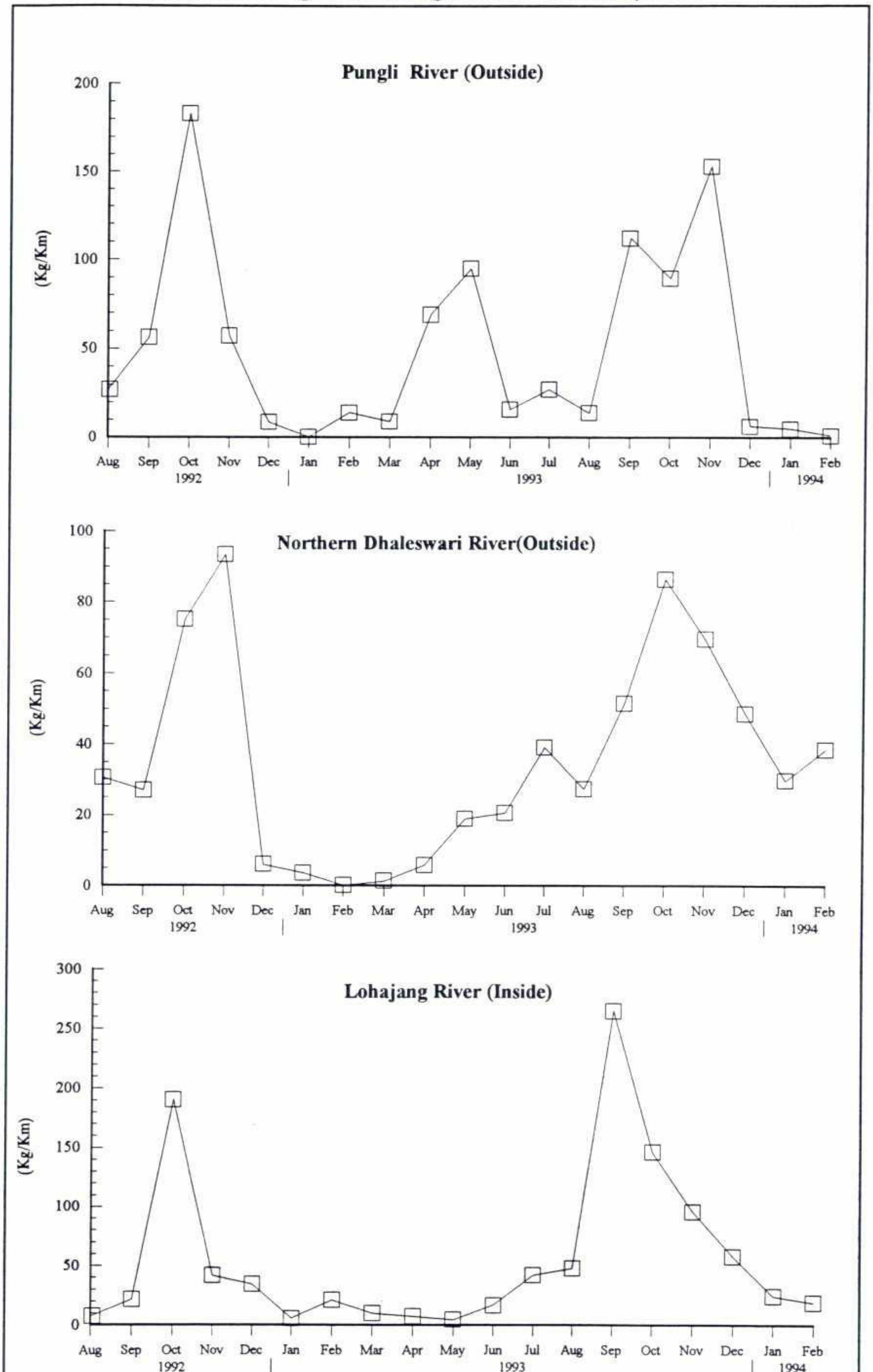


Table 4.1 Comparison of the annual Catch per Unit Length of Rivers Inside and Outside the Tangail CPP.

Site	Name	Inside/Outside	Annual Catch March 1993 - Feb 1994 (kg/km)	Total Sampled Catch Aug 1992 - Feb 1994 (kg/km)
12	Lohajang	Inside	784	1,107
02	Pungli	Outside	598	945
06	Northern Dhaleswari	Outside	438	674
All rivers sampled in NCR		-	1,060	1,554

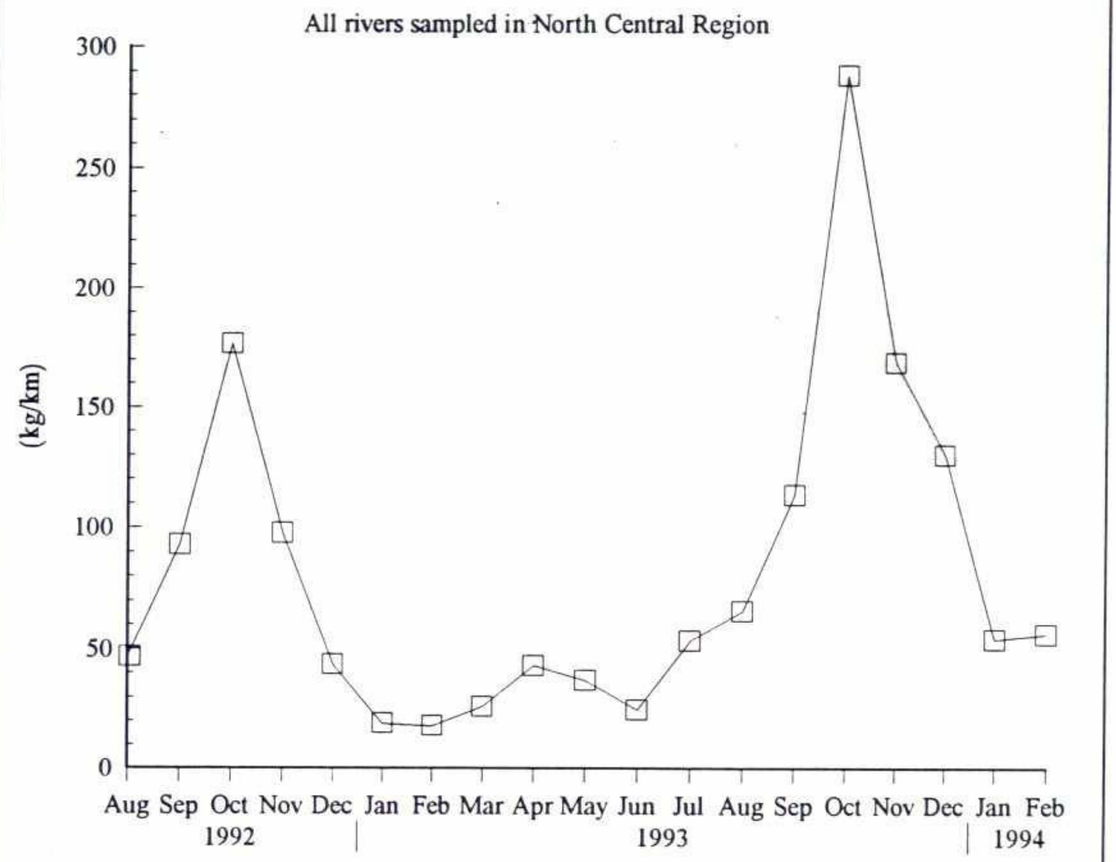
However, this masks the real difference between years, which is clearly revealed in Table 4.2 and Fig. 4.2. Comparison of the total catch over comparable time periods in the different hydrological years revealed a consistent and substantial increase in the 1993 - 1994 catch compared with the 1992 - 1993 catch. In rivers outside the CPP this overall increase in catch was greater despite high peak catches in 1992. Combining data from all rivers sampled in the NCR, including those not associated directly with the CPP study, an increase in catch of 77% was observed. This can be explained partly in hydrological terms. 1992 - 1993 was a particularly dry year compared with the following year and, given the relationship between flood extent and floodplain fish production demonstrated elsewhere in the world (Welcomme and Hagborg, 1977)[1] it is likely that such differences in magnitude, extent and duration of the flood between years was responsible for differences in catch.

Another factor which may have been influential in determining fish densities and thus catches between years was the occurrence of epizootic fish disease. The disease arrived only recently in Bangladesh (it was first seen in 1988), and outbreaks of it occur irregularly from year to year. The disease was much more severe in 1992 than in 1993. However, since the first serious disease outbreak occurred in mid-November 1992, after the bulk of the catch had already been taken, it is unlikely to have had a major influence on the comparisons of catches made in Table 4.2.

Higher catches observed in 1993/94 were largely a function of increased catch rates of dominant gears (Fig. 4.3). The only gears for which a noticeable increase in fishing effort was observed in 1993/94 were veshal and hooks. For other dominant gears (ber jal, jhaki jal,

1 Welcomme, R.L. and Hagborg, D. 1977. Towards a model of a floodplain fishery. Environ. Biol. Fish 2, 7-24.

Figure 4.2 Seasonal variation in catch per unit length (kg/km) of all rivers sampled in the North Central Region, August 1992 - February 1994



Notes:

1 - Sampled rivers include: a) Pungli (Site 02)
b) Northern Dhaleswari (Site 06)
c) Lohajang (Site 12)
d) Dhaleswari (Site 16)
e) Gazikhali (Site 21)
f) Kaliganga (Site 25)
g) Ichamati (Site 29).

2 - Total length of river sampled = 90.1 Km.

Figure 4.3 Inter-annual variation in total monthly fishing effort and catch rate (CPUE) of dominant gears: all rivers sampled in NCR, August 1992 - February 1994

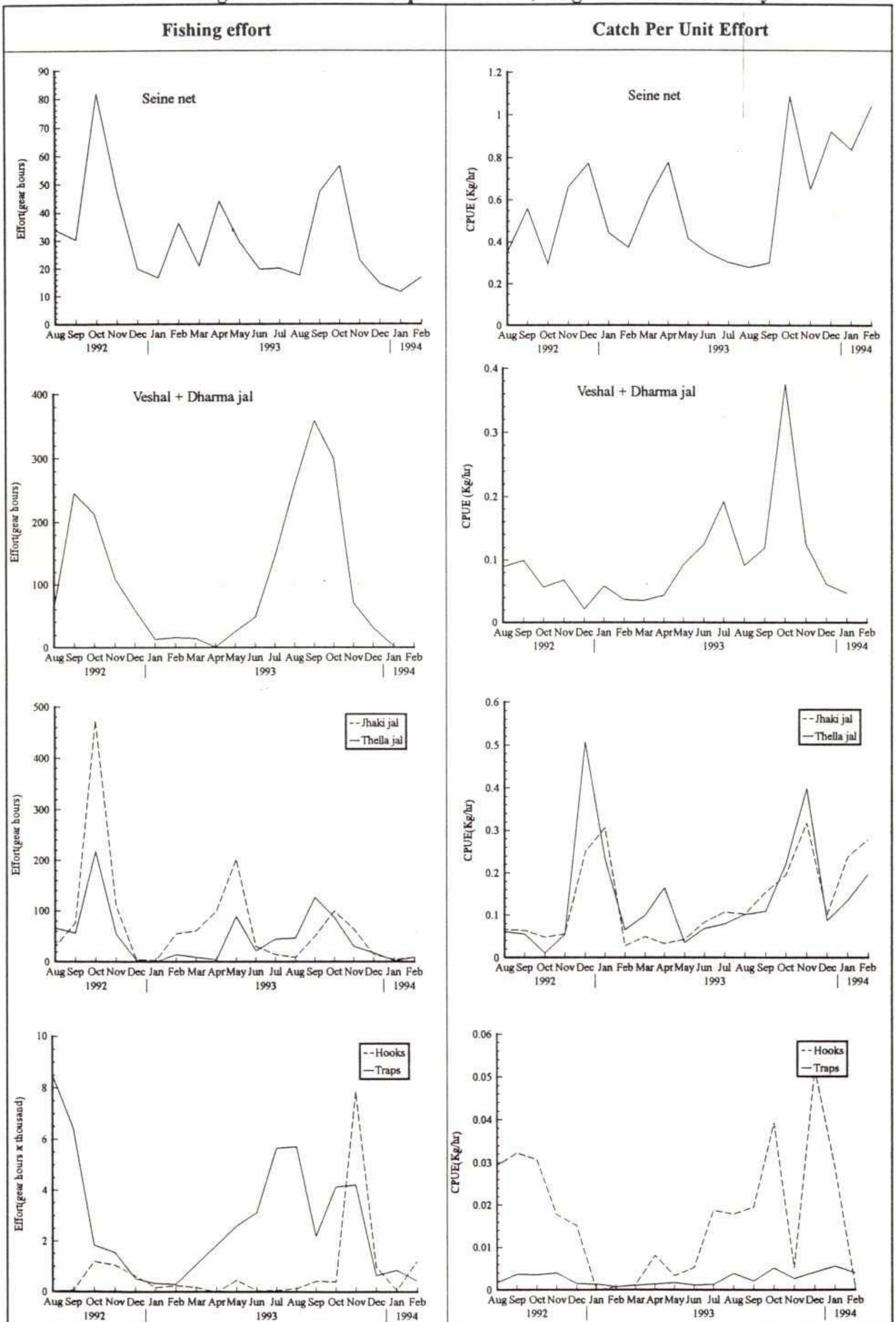


Table 4.2 **Comparison of the Total Catch (kg/km) from Rivers Inside and Outside the Tangail CPP between Different Years.**

		Aug 1992 - Feb 1993	Aug 1993 - Feb 1994	Percentage Increase
Inside	-	323	657	103
Outside	(N. Dhaleswari)	236	674	185
	Pungli	347	945	175
All rivers sampled in NCR		494	876	77

traps and thella jal), there was little difference in effort between years. Catch rates of ber jal, veshal, jhaki jal and thella jal were higher during 1993/94 compared to the previous year, but little change was seen in the catch rates of traps and hooks.

The increase in catch rates of several dominant gears indicate higher overall fish densities during 1993/94 compared to 1992/93.

4.2 Pattern of Fishing

4.2.1 Catch by gear

Details of the percentage of the total catch taken by each gear sampled on rivers inside and outside the CPP are presented in Tables 4.3 and 4.4. Data for the Northern Dhaleswari and Pungli Rivers were combined together in these tables, but a summarised list of dominant gears is presented separately for each river in Table 4.5. In all three rivers about the same number of different types of fishing gear were found, and the majority of the total catch was captured by small-scale gears frequently used by subsistence or part-time fishermen. These common gears included sip (hand lines), jhaki jal and thella jal. Inside the CPP, on the Lohajang River, the small lift net, dharma jal and doiar traps captured a greater proportion of the catch than in other rivers. This can be explained by the greater density of houses along the banks of the Lohajang, from which the dharma jal and traps operate at subsistence level. Katha fishing was only important in the Northern Dhaleswari, the largest of the three rivers with a greater water retention during the dry season when katha predominate. The moi jal (drag net) also captured a greater part of the total catch in this river, possibly because of the greater area of gently sloping banks which favours the use of this gear.

Table 4.3 Percentage total monthly catch by gear type: Lohajang river

Gear		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93–Feb'94)	
Code	Gear name(Bengali)	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
30	Sip	14.780	–	71.721	71.534	34.264	1.165	0.161	5.906	–	–	8.604	6.302	44.804	19.039	37.294	15.481	0.472	0.321	–	1436.194	19.833
105	Dharma jal	2.949	7.428	6.277	2.156	7.450	24.122	13.799	26.693	–	23.702	39.440	0.736	18.458	26.488	11.064	4.660	16.314	3.920	–	1185.417	16.370
95	Doiar trap	31.576	7.992	1.493	10.209	7.029	74.713	2.210	–	–	9.234	18.299	26.072	15.586	2.283	5.413	25.687	35.204	74.864	9.121	991.914	13.698
164	Jhaki jal	4.829	68.473	18.130	10.475	7.747	–	31.162	11.043	63.713	61.376	24.919	8.314	8.894	13.230	18.550	10.877	4.590	9.065	11.562	987.618	13.638
255	Thella jal	45.867	9.145	2.378	4.610	43.510	–	35.524	4.716	3.035	1.908	7.949	1.135	3.587	15.140	11.997	1.608	7.528	–	8.355	681.869	9.416
271	Suti jal	–	6.962	–	–	–	–	–	–	–	–	0.790	57.441	8.672	11.723	–	–	–	–	–	583.775	8.062
45	Ber jal	–	–	–	–	–	–	–	–	1.784	–	–	–	–	11.544	–	–	–	–	22.240	343.079	4.738
270	Katha	–	–	–	–	–	–	–	24.667	24.759	–	–	–	–	–	–	–	28.921	–	48.722	298.140	4.117
152	Tana Barshi	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	23.819	6.655	–	–	262.004	3.618
307	Hand fishing	–	–	–	–	–	–	17.144	22.191	6.709	–	–	–	–	–	5.942	8.537	–	–	–	192.411	2.657
266	Veshal	–	–	–	1.016	–	–	–	–	–	–	–	–	–	0.413	8.242	1.499	–	–	–	143.322	1.979
277	Kachitana	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7.207	–	–	–	67.846	0.937
88	Current jal	–	–	–	–	–	–	–	0.580	–	3.325	–	–	–	0.139	–	0.624	0.317	11.564	–	41.322	0.571
170	Juti	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.500	–	–	–	–	21.559	0.298
202	Moi jal	–	–	–	–	–	–	–	4.206	–	–	–	–	–	–	–	–	–	–	–	4.092	0.057
314	Boat Katha	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.265	–	0.639	0.009
89	Dhor jal	–	–	–	–	–	–	–	–	–	0.455	–	–	–	–	–	–	–	–	–	0.217	0.003
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	7241.418	100.000

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Table 4.4 Percentage total monthly catch by gear type: Northern Dhaleswari and Pungli rivers

Gear		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Gear name(Bengali)	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
255	Thella jal	32.880	23.395	4.673	5.111	15.930	39.078	8.994	12.764	2.882	19.915	18.510	31.662	59.570	20.121	15.147	0.970	6.003	3.467	9.780	1698.857	14.787
30	Sip	8.080	5.253	31.487	48.556	53.424	–	–	–	0.547	12.064	–	5.723	2.348	12.379	12.832	35.582	24.429	0.352	–	1663.354	14.478
164	Jhaki jal	20.321	25.352	37.361	5.392	2.714	32.817	5.743	73.256	12.374	40.255	12.788	11.654	5.629	10.177	20.565	7.497	4.452	3.275	2.507	1564.254	13.615
45	Ber jal	11.199	2.729	11.650	20.579	–	–	76.675	–	80.644	16.562	34.939	7.607	–	1.419	8.143	5.128	–	–	–	1186.175	10.325
202	Moi jal	0.120	2.773	7.941	2.007	–	–	–	–	–	2.391	14.953	0.301	–	–	3.822	22.350	38.104	–	13.267	1077.070	9.375
307	Hand fishing	–	–	–	–	–	–	3.567	13.980	2.870	–	–	–	–	33.780	13.266	1.265	–	–	6.291	932.146	8.113
270	Katha jal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.100	18.895	49.700	44.292	762.217	6.634
105	Dharma jal	10.617	15.082	2.430	2.612	–	4.603	–	–	–	4.624	1.079	2.140	5.918	9.589	19.344	1.787	–	–	–	698.704	6.082
95	Doiar trap	2.885	21.854	–	–	–	–	–	–	–	–	13.454	6.872	2.031	0.746	0.733	4.368	–	38.833	20.196	582.549	5.071
175	Kathi jal	–	–	0.128	–	–	–	–	–	–	2.318	2.774	31.234	12.187	6.379	0.512	–	–	–	–	479.064	4.170
152	Tana Barshi	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8.770	0.796	–	–	204.661	1.781
272	Daun	7.230	3.564	0.420	11.825	6.411	–	–	–	–	–	0.932	0.815	12.317	0.782	1.515	0.306	2.529	–	–	150.047	1.306
271	Suti jal	–	–	–	1.193	–	–	–	–	–	1.833	–	1.993	–	–	–	4.928	–	–	–	146.445	1.275
316	Kajuli jal	–	–	1.935	–	–	–	–	–	–	–	–	–	–	4.629	0.721	–	–	–	–	91.752	0.799
88	Current jal(stationary)	–	–	1.719	1.504	12.972	0.577	5.021	–	–	0.039	–	–	–	–	0.249	0.129	3.997	3.168	3.316	78.829	0.686
282	Current jal (drifting)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.182	2.978	–	–	–	70.978	0.618
268	Konaber jal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2.003	0.069	–	–	–	42.681	0.371
123	Koi jal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.776	–	0.676	–	21.006	0.183
89	Dhor jal	6.668	–	0.257	0.998	–	19.230	–	–	–	–	–	–	–	–	0.967	–	–	–	–	19.866	0.173
314	Boat Katha	–	–	–	–	–	3.696	–	–	0.682	–	–	–	–	–	–	–	0.794	0.531	0.210	14.800	0.129
278	Nol barsi	–	–	–	–	–	–	–	–	–	–	0.570	–	–	–	–	–	–	–	–	2.569	0.022
170	Juti	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.142	0.896	0.008
266	Veshal	–	–	–	0.160	8.548	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
149	Horga	–	–	–	0.063	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	11488.920	100

Table 4.5 Percentage of the Total Catch Taken by Dominant Gears Used on Rivers Inside and Outside the CPP, August 1992 - February 1994.

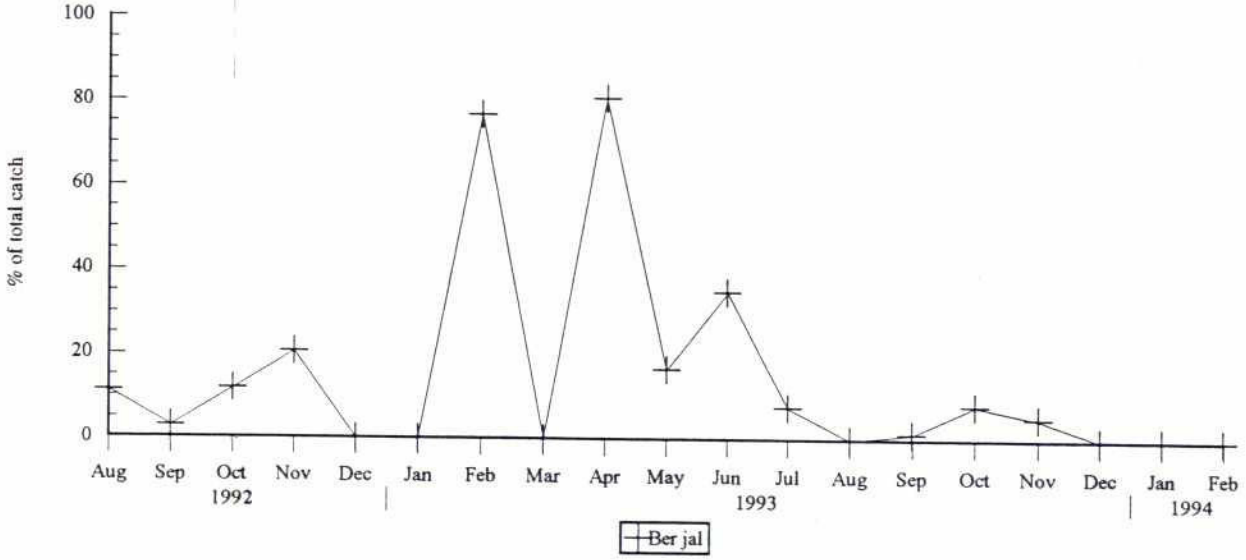
Gear Name	Lohajang (Inside)	Pungli (Outside)	Northern Dhaleswari (Outside)	All Rivers Sampled in NCR
Sip	31	29	14	8
Jhaki jal	15	23	13	7
Dharma jal	13	3	7	2
Doiar trap	11		7	9
Thella jal	10	11	15	5
Sutiber jal	6	16	8	18
Katha	3		7	14
Hatani (hand fishing)	3	5	6	
Kathi jal (seine)		3	3	
Moi jal			12	2
Daun			4	
Veshal				16
Tara barsi				5
Total No. of Gear types used	19	20	19	

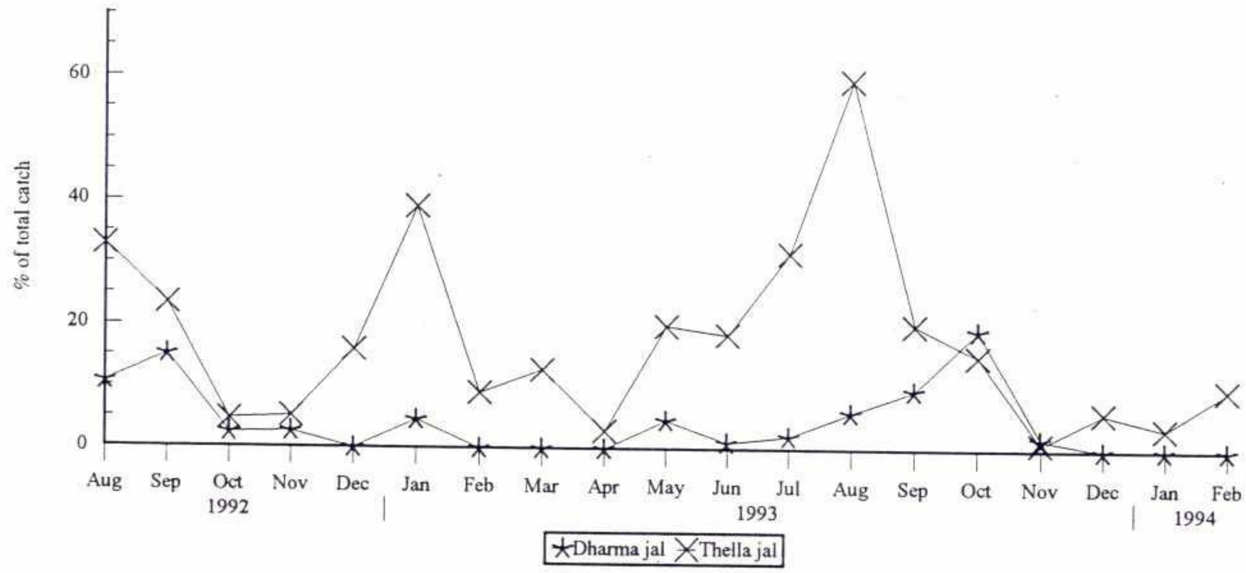
Note: Dominant gears are defined as those which between them take at least 90% of the catch in each river.

4.2.2 Catch by gear by month

In the rivers outside the CPP, peak catches during the flood drawdown of 1992 (October - November) were mainly attributable to a mixture of simple rod-and-line fishing (sip), the jhaki jal and the ber jal of professional fishermen (Fig. 4.4) catching mainly boal, puti (*Puntius sophore*) and baim. The dramatic catch increase resulted from increased fishing **effort** of these gears (Fig. 4.5), since catch rates of all three gears actually declined compared with the previous two months (Fig. 4.6). During the slack winter period, between December 1992 and March 1993, catches fell to a minimum, but catch rates of certain gears e.g. thella and ber jal (Fig. 4.6) reached maximum levels by exploiting the last remaining stocks of fish and prawns concentrated in shallow waters. As runoff from floodplains increased river water level in May and June, catches by small-scale gears such as jhaki jal and thella contributed most of the catch, together with the larger-scale operation of the ber jal.

Figure 4.4 Percentage of the total monthly catch taken by dominant gears: Northern Dhaleswari and Pungli rivers





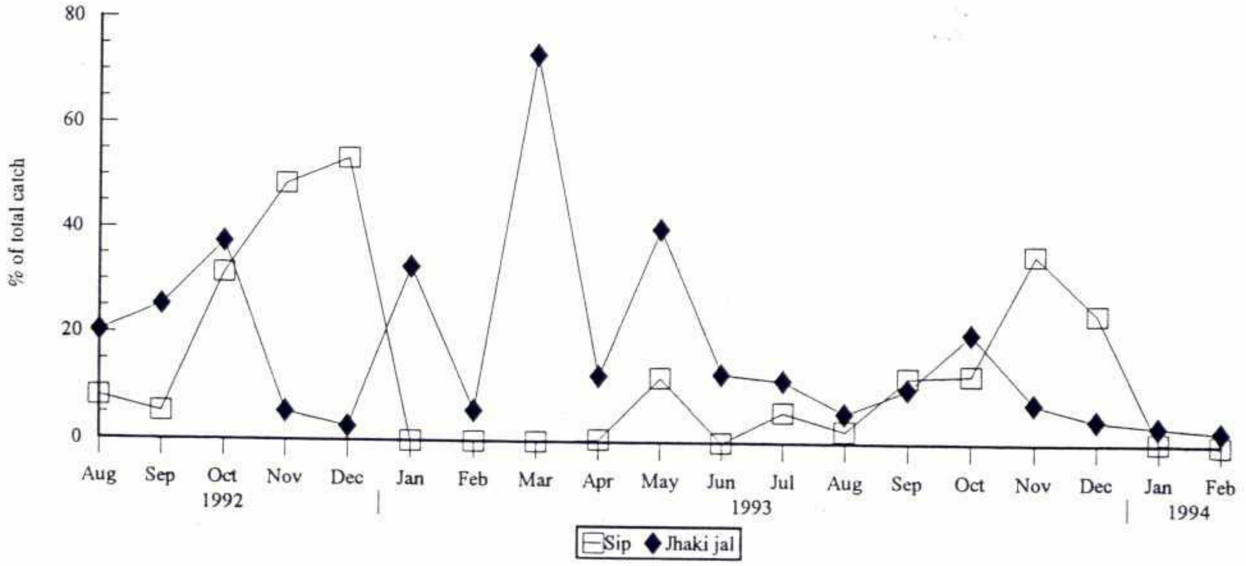


Figure 4.5 Total monthly fishing effort of dominant gears: Northern Dhaleswari and Pungli rivers

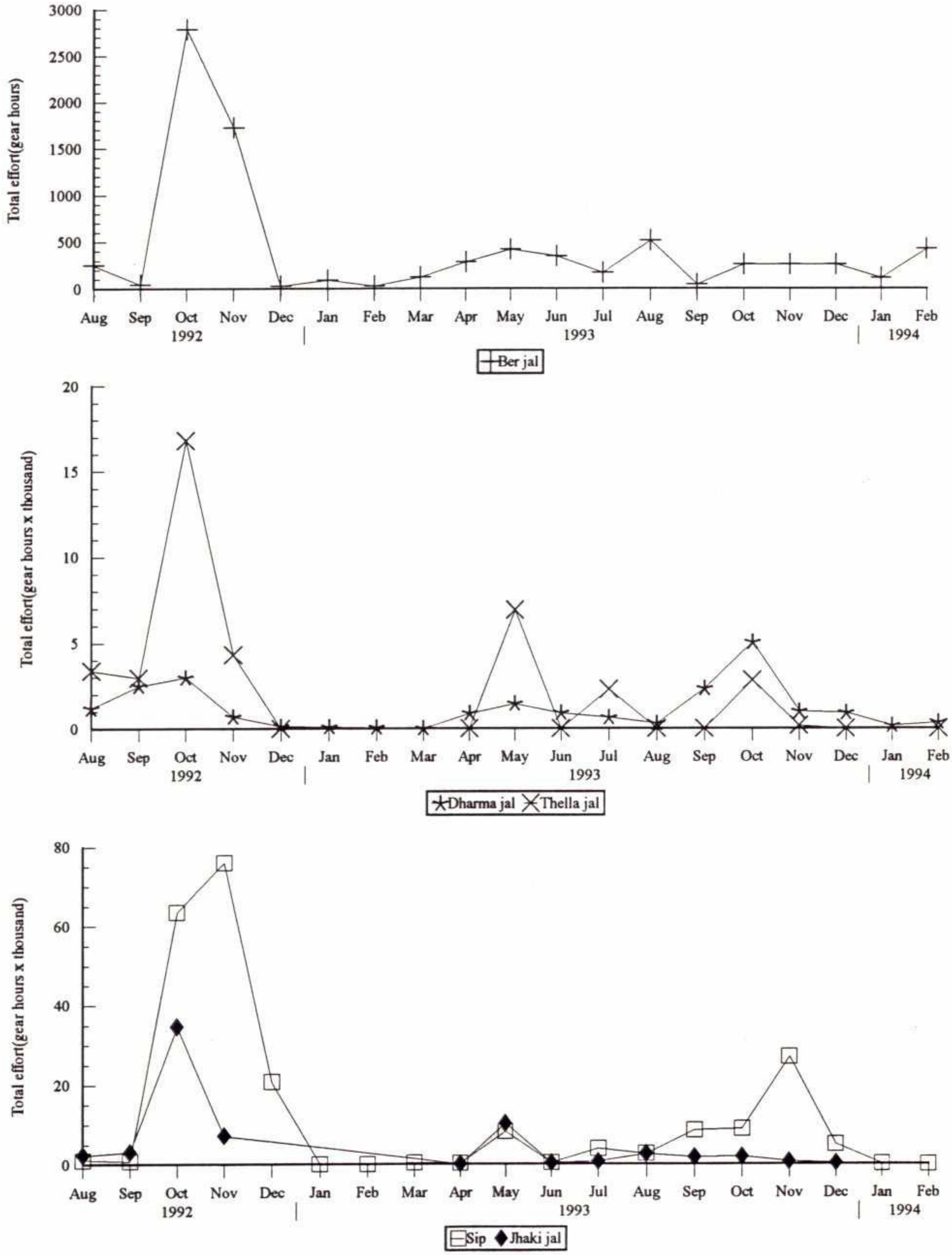
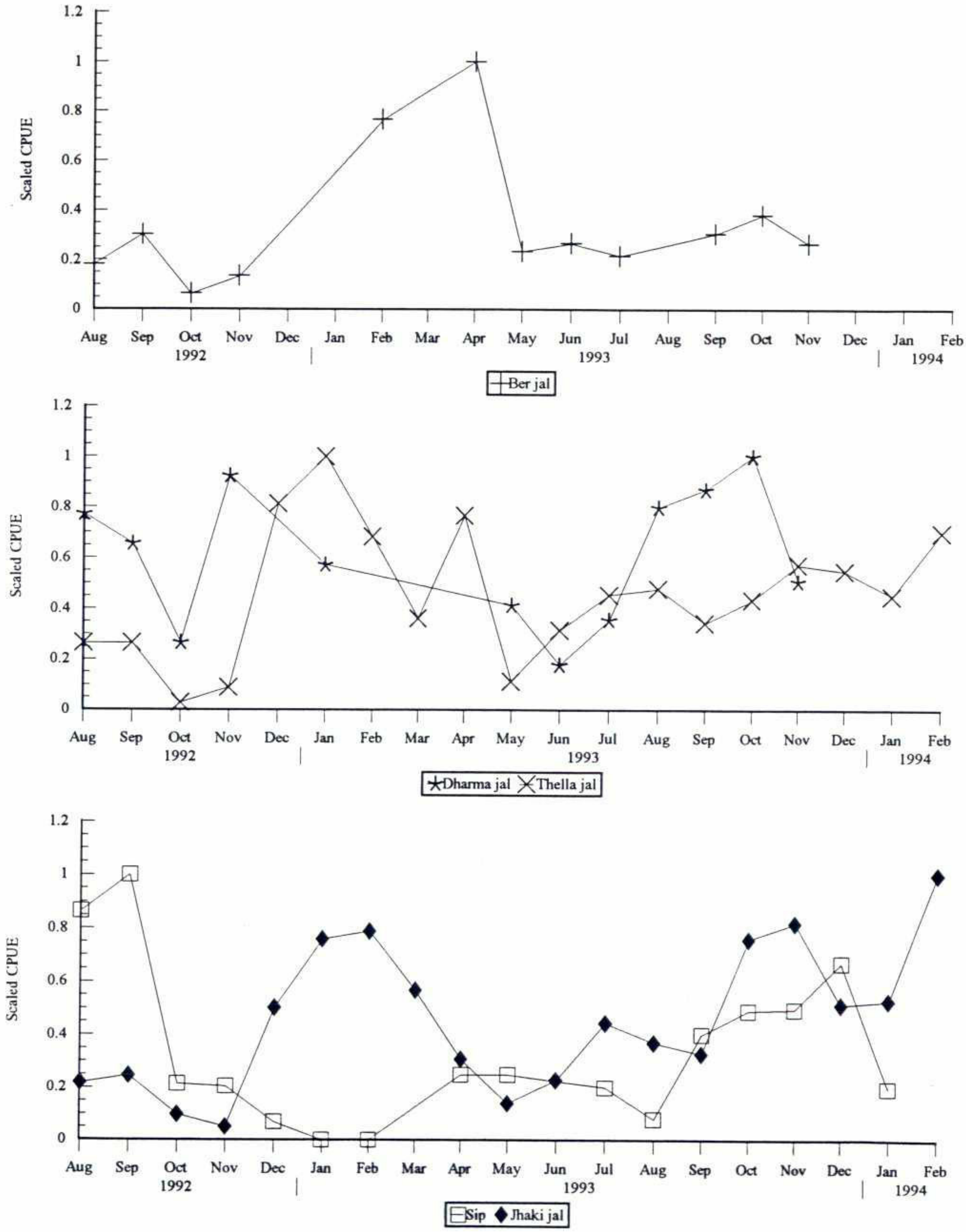


Figure 4.6 Catch rates (Scaled CPUE) of dominant gears: Northern Dhaleswari and Pungli rivers



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

Peak catches of the 1993 flood recession were taken principally by jhaki jal (21%), dharma jal (19%) and thella jal (15%) in October, and by sip (36%) and moi jal (22%) in November. In contrast to the catches made during the 1992 drawdown, boal did not contribute greatly during the same period in 1993, although it did do so a little later in December. Instead, the carp *Labeo calbasu* predominated together with two other species, puti (*P. sophore*) and baim, which also contributed greatly to the 1992 drawdown catches.

On the Lohajang River inside the CPP sip, and to a much lesser extent jhaki jal, provided the bulk (90%) of the peak catch during the 1992 drawdown (Fig. 4.7), taking mainly the spiny eels baim and tara baim. Increased catches were a function of both increased effort (Fig. 4.8) and high catch rates (Fig. 4.9). During the rising floods of July and August, suti jal (bag nets), dharma jal and hooks predominated, but catches remained fairly low compared with the considerable increase observed during the initial drawdown of September. At that time dharma jal, hooks and thella jal again captured a great variety of species, none of which particularly dominated the monthly catch. During the continuing drawdown of October and November hooks, jhaki jal and traps predominated. As in 1992, peak catches were a function of both increased fishing effort and increased catch rates of dominant gears (Fig. 4.8 and 4.9),

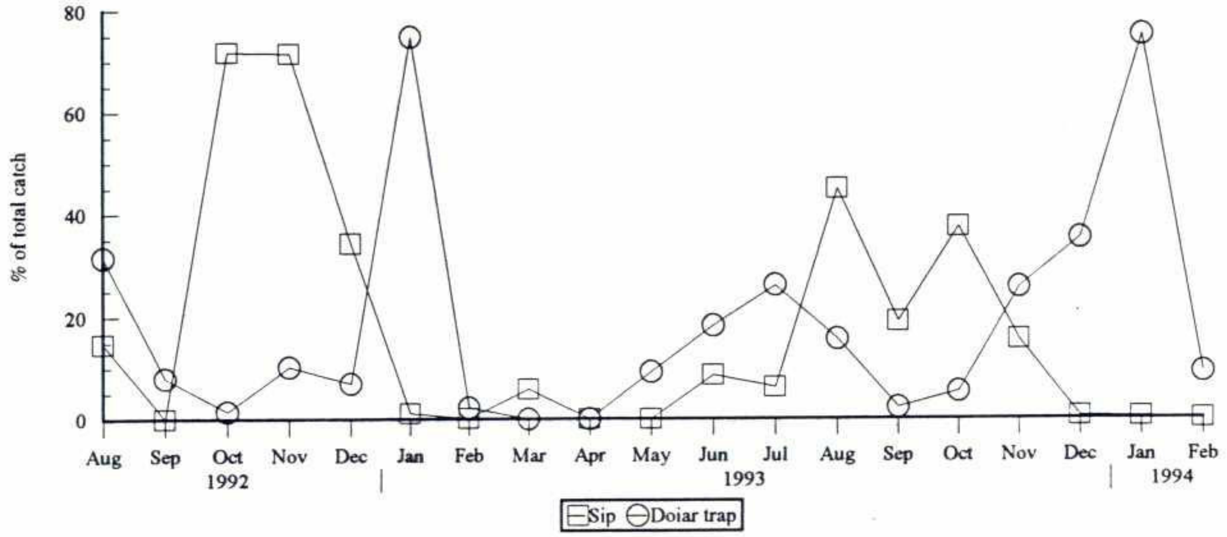
4.2.3 Statistical comparison of catch rates

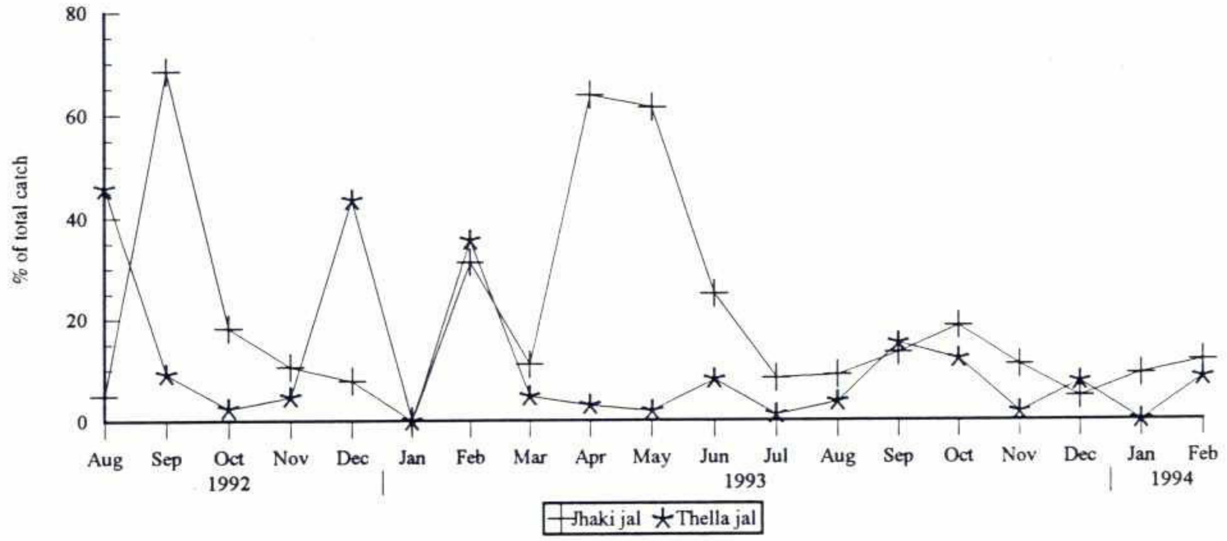
At the inside sites for this habitat type, over 88% of the total catch per kilometre for the period March 1993 to February 1994, excluding katha, was taken by 7 gears. In descending order of catch per kilometre, these were: sip, dharma jal, doiar, jhaki jal, thella jal, suti jal and ber jal. At the outside sites, over 87% of the total catch per kilometre over the same period was taken by 8 gears.These were: thella jal, sip, jhaki jal, ber jal, moi jal, hand/dewatering, dharma jal and doiar. Six gears appeared in both lists: thella jal, sip, jhaki jal, ber jal, doiar and dharma jal. Sip took nearly 21% of the catch at inside sites, and nearly 16% at outside sites.

Unfortunately, when seasonal catch rates for the six common gears were compared, there was very little consistency in the trends. For each gear, there was at least one season when the trends in catch rates at inside and outside sites were substantially different. These data provide no basis for valid statistical comparisons of fish densities using the proposed model.

80

Figure 4.7 Percentage of the total monthly catch taken by dominant gears: Lohajang River





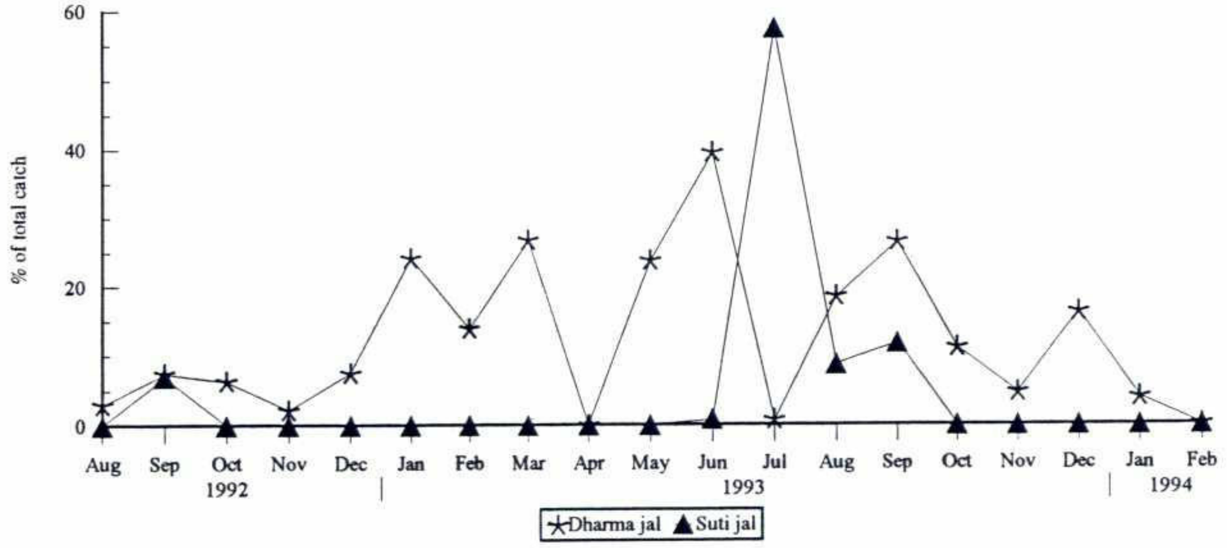


Figure 4.8 Total monthly fishing effort of dominant gears: Lohajang River

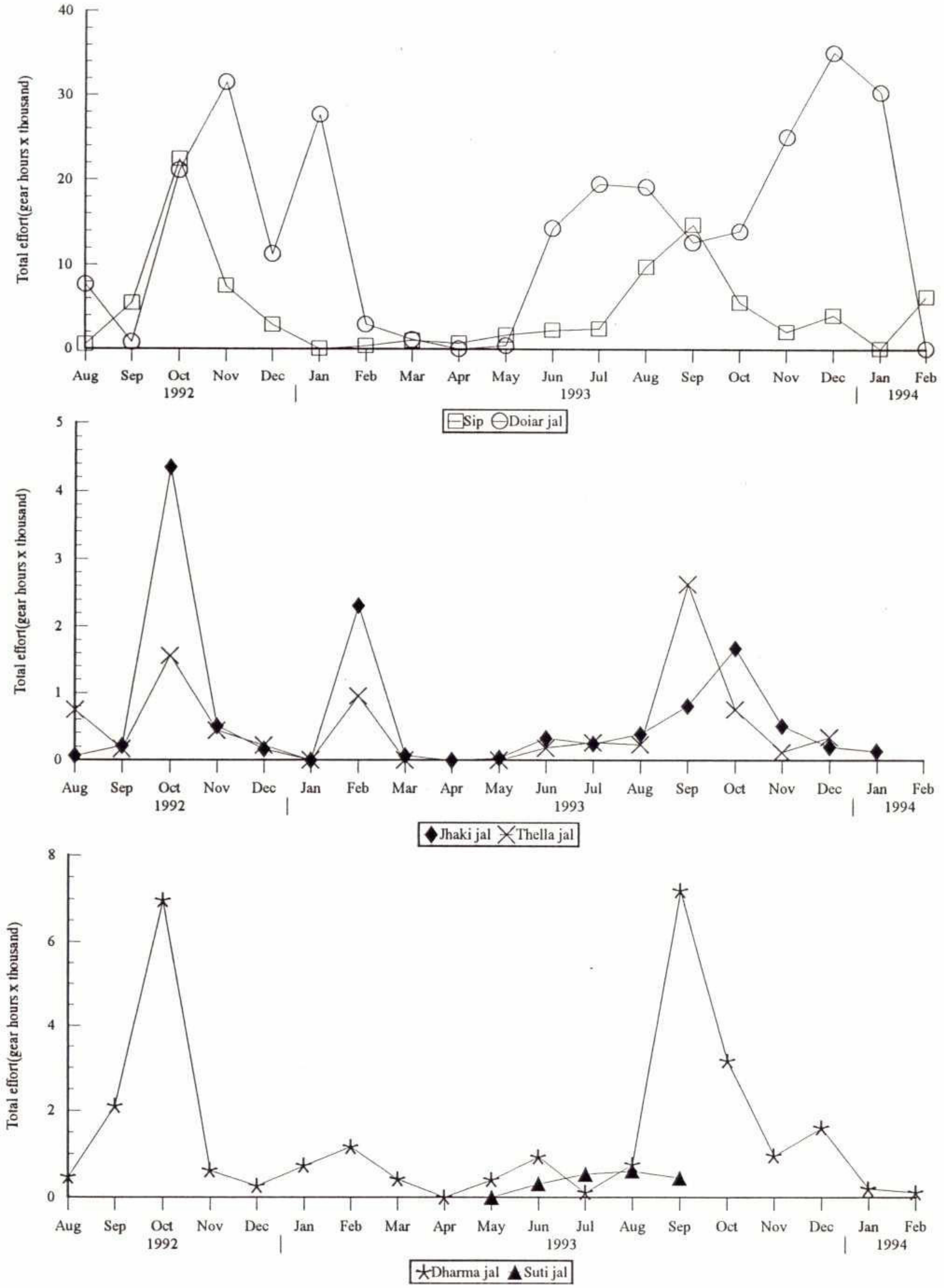
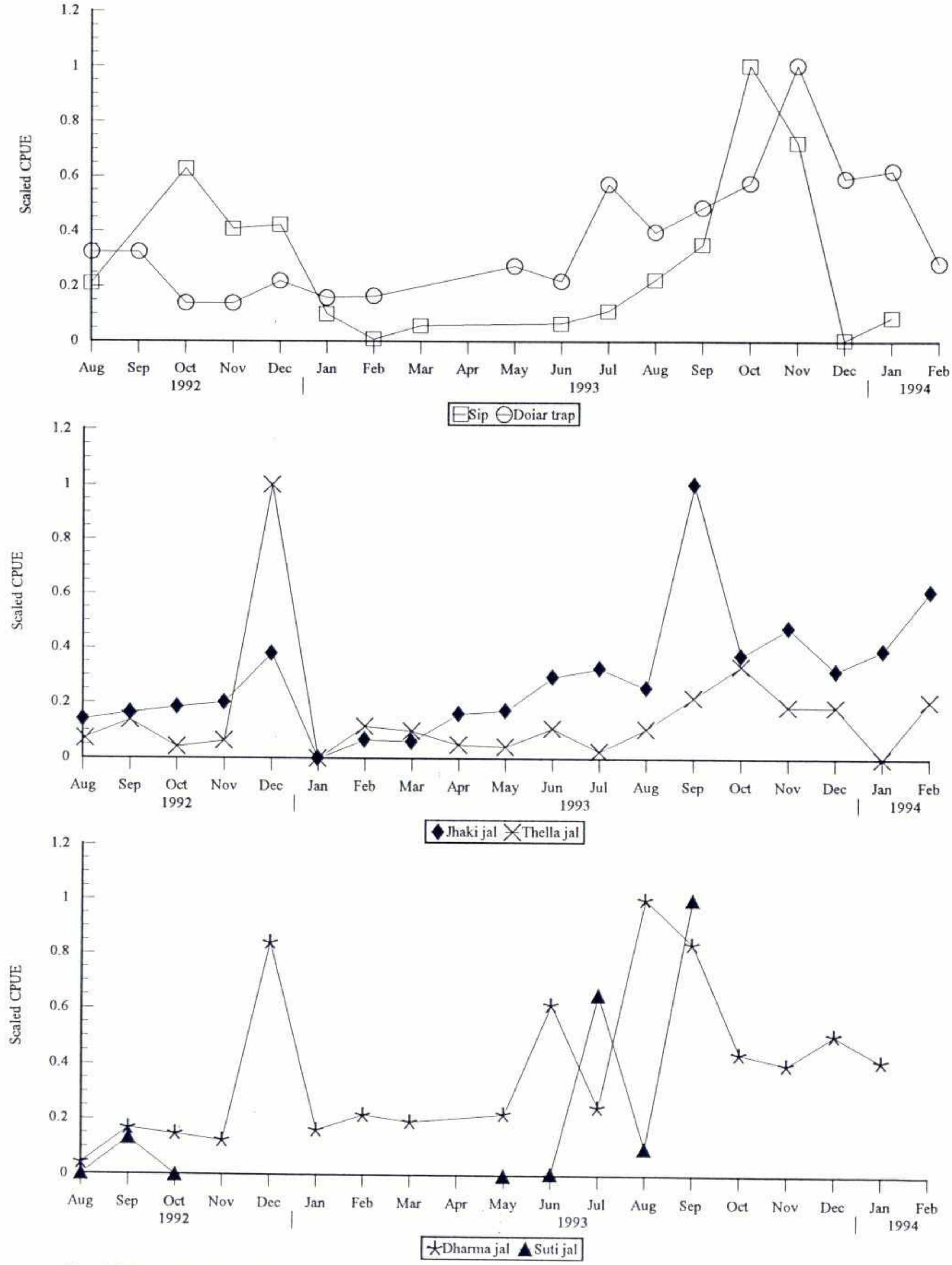


Figure 4.9 Catch rates (Scaled CPUE) of dominant gears: Lohajang River



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

However, while the seasonal trends by gear are different at inside and outside sites, in almost all cases the inside catch rates for a gear equal or exceed the outside catch rates for that gear (Fig. 4.10). Assuming these catch rates are a valid indicator of fish density, then this provides evidence of higher productivity on the Lohajang River compared to the Pungli and Northern Dhaleswari Rivers outside the CPP.

4.3 Species Composition and Biodiversity

4.3.1 Species richness

A total of 79 species and 84 species were recorded from the Pungli and Northern Dhaleswari rivers respectively, compared with 89 species recorded from the Lohajang inside the CPP. Thus, species richness was slightly higher at the inside site compared with the outside sites.

Clear seasonal changes in species numbers were observed in all rivers. Lowest numbers were found during the winter and pre-monsoon, gradually increasing as river levels increased during the monsoon, before a very sharp rise coinciding with the flood recession when fish migrate from floodplains to rivers (Fig. 4.11). A similar seasonal trend in species richness changes was recorded in other regions studied by FAP 17.

4.3.2 Species composition

Detailed monthly species compositions (% of catch by weight) are presented in Tables 4.6 and 4.7 for rivers outside and inside the CPP respectively. Dominant species, i.e. those together comprising 90% of the catch by weight, found in each river are listed in Table 4.8. These species accounted for 85% of the total catch from the Lohajang and Northern Dhaleswari and slightly more (90%) from the Pungli.

A striking feature of the lists presented in Table 4.8 is the dominance of typical floodplain species in all rivers. This same characteristic has been noted in seasonal rivers in the Southwest Region of Bangladesh (Supporting Volume 2). Such dominance by floodplain species results from the majority of the annual catch being captured during the flood drawdown, when floodplain species migrate to rivers. In the Southwest Region, rivers which

Figure 4.10 Comparison of catch rates of dominant gears from rivers inside and outside the Tangail CPP, August 1992 - February 1994.

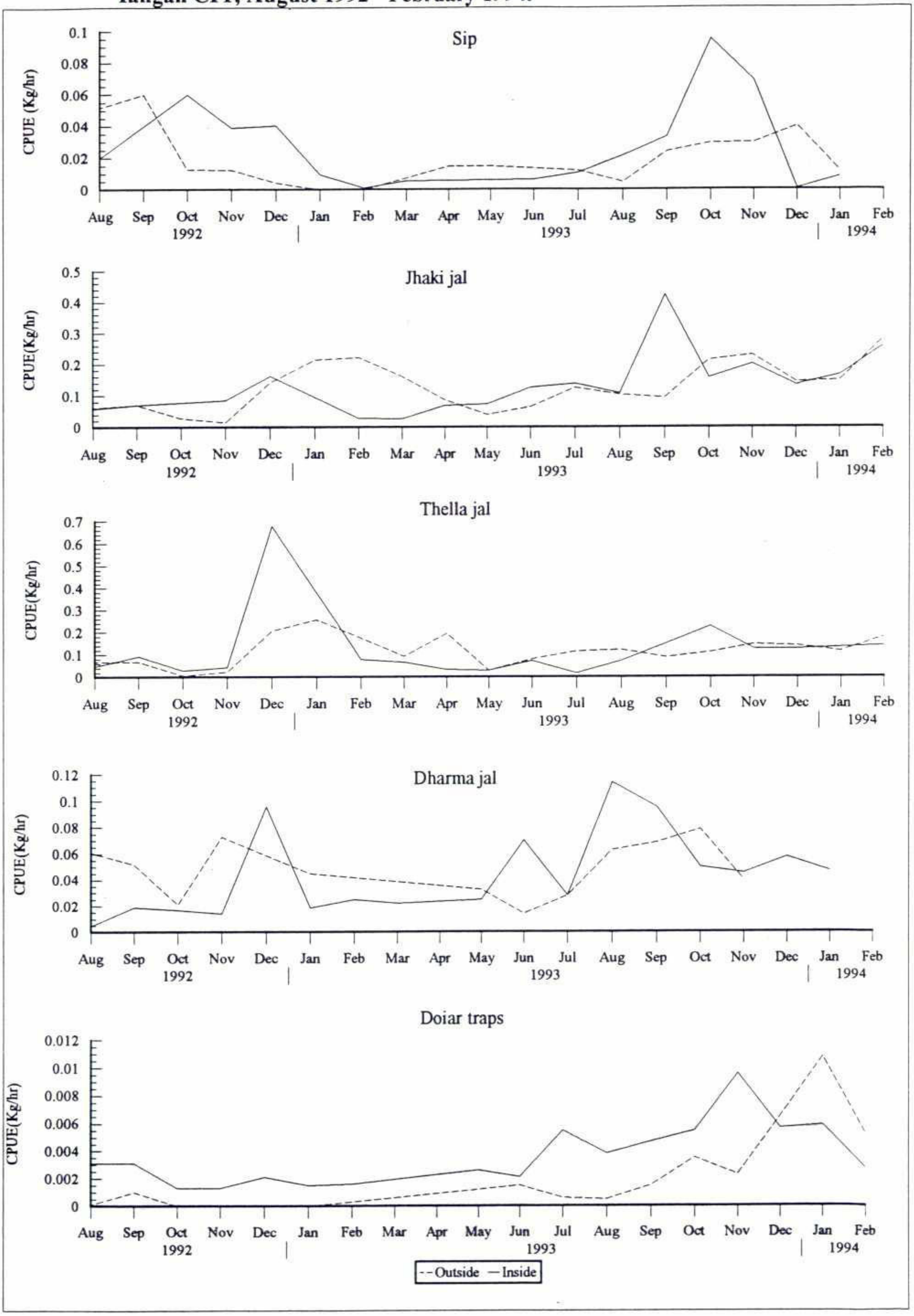


Figure 4.11 Seasonal variation in the number of fish species recorded from rivers inside and outside the Tangail CPP, August 1992 - February 1994

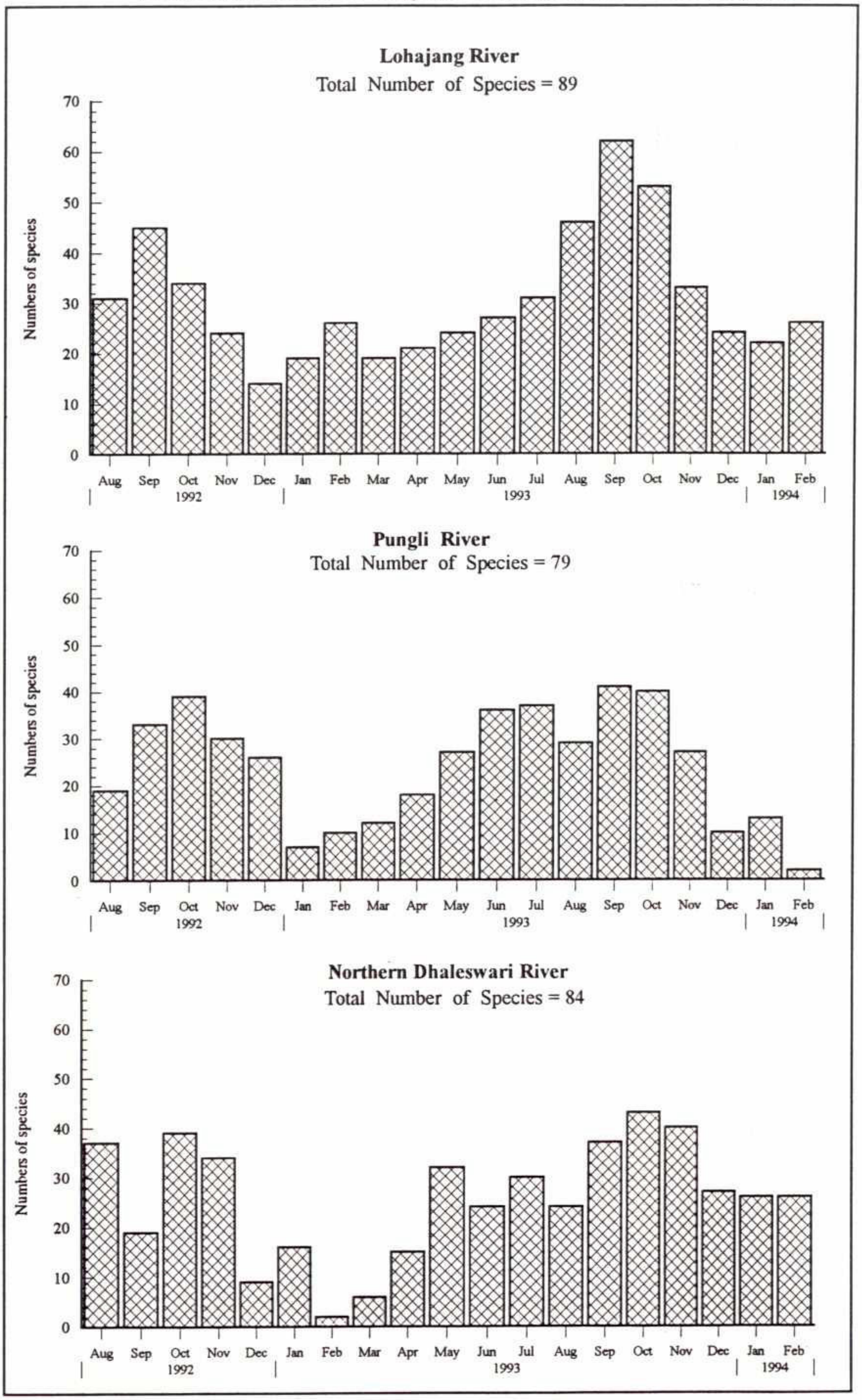


Table 4.6 Percentage total monthly catch by species: Northern Dhaleswari and Pungli rivers

Species Code	Species name: Scientific	Species name: Bengali	Year: 1992 Aug	Sep	Oct	Nov	Dec	Year: 1993 Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year: 1994 Jan	Feb	Total annual catch (Mar'93 – Feb'94) Kg	%
175	*Puntius conchonius*	*Canchan puti*	–	0.089	1.834	6.492	8.651	12.730	7.529	32.888	50.526	49.419	6.164	0.332	0.329	15.139	4.240	2.024	12.694	4.196	6.980	1425.288	12.406
931	Prawn spp.	Prawn	18.075	27.818	2.258	2.481	6.554	20.885	1.143	10.837	0.650	5.591	25.395	22.288	7.478	14.035	5.218	5.217	2.727	16.954	13.689	1065.682	9.276
180	*Puntius sophore*	*Puti*	0.662	4.508	13.669	6.056	7.521	2.130	3.354	1.885	0.575	0.966	0.299	0.239	2.611	1.709	27.654	8.183	6.744	15.670	11.417	1022.325	8.898
83	*Glossogobius giurus*	*Bailla*	9.965	3.176	1.291	2.768	1.019	13.489	7.428	15.101	30.481	14.369	9.521	6.027	8.090	10.909	4.702	2.032	4.582	5.849	5.946	911.251	7.931
102	*Labeo calbasu*	*Kalbaus*	–	0.157	0.007	0.013	–	–	–	–	–	–	–	–	–	0.722	0.842	27.995	1.453	0.676	–	677.057	5.893
122	*Mastacembelus armatus*	*Baral baim*	0.239	0.344	2.728	15.085	22.469	1.803	–	–	0.301	0.037	8.201	0.638	3.181	3.822	3.762	14.266	5.812	4.010	6.096	632.086	5.502
51	*Clupisoma garua*	*Ghaura*	13.802	12.707	7.590	6.934	1.134	–	–	–	–	0.069	3.538	9.256	15.125	12.038	5.766	3.596	0.600	–	–	580.812	5.055
123	*Macrognathus pancalus*	*Guchi*	0.323	0.112	0.566	0.339	0.172	5.573	5.843	5.144	4.441	5.351	3.323	1.665	–	0.990	3.222	7.003	13.008	9.364	8.181	563.230	4.902
41	*Channa punctatus*	*Taki*	0.082	1.910	5.899	1.433	2.275	–	–	19.853	0.124	0.832	0.530	0.048	–	6.889	8.880	2.203	8.398	13.701	7.033	561.041	4.883
2	*Ailia coila*	*Kajuli*	16.387	3.626	5.467	4.720	2.262	–	–	–	–	0.259	14.827	11.008	5.591	4.631	4.736	1.488	–	–	–	399.381	3.476
209	*Wallagu attu*	*Boal*	0.366	–	26.393	43.616	35.740	–	–	–	–	–	–	2.448	–	–	0.949	2.042	29.223	2.350	5.172	373.210	3.248
137	*Mystus vittatus*	*Tengra*	1.418	2.413	2.201	2.350	2.556	2.038	0.092	1.224	2.637	12.348	0.519	–	0.120	1.317	2.919	2.923	2.978	4.938	3.900	367.774	3.201
132	*Mystus cavasius*	*Kabashi*	–	5.197	2.546	0.185	1.203	–	–	–	0.859	–	0.446	–	0.184	2.734	0.470	7.118	0.115	0.294	2.634	243.154	2.116
189	*Salmostoma phulo*	*Fulchela*	0.034	1.780	0.637	0.481	–	9.305	–	–	3.376	2.322	5.050	6.427	0.915	0.951	1.618	1.018	–	0.157	2.174	211.867	1.844
218	*Barilius evezardi*		–	–	–	0.057	–	–	–	–	–	–	–	12.471	6.103	2.772	0.006	–	–	–	–	183.334	1.596
131	*Mystus bleekeri*	*Golsha tengra*	–	–	0.525	0.598	0.359	–	0.254	–	0.603	0.008	1.255	0.108	0.488	0.329	5.186	1.017	1.556	0.576	3.031	182.836	1.591
210	*Xenentodon cancila*	*Kaikka*	0.511	1.727	0.370	0.146	–	9.820	–	5.507	0.151	0.908	0.144	–	–	0.366	2.100	1.182	1.217	4.679	4.390	153.483	1.336
13	*Aspidoparia morar*	*Morari*	1.000	1.588	0.171	0.319	1.046	–	70.312	–	0.212	1.833	3.017	5.056	5.063	0.257	0.714	0.202	1.603	–	–	139.933	1.218
130	*Aorichthys aor*	*Ayre*	7.092	2.761	–	–	–	–	–	–	–	0.014	0.549	2.173	3.782	0.944	0.341	1.161	0.450	–	5.611	129.284	1.125
81	*Gagata youssoufi*	*Gang tengra*	2.069	4.091	2.407	1.087	0.623	–	–	–	–	0.094	5.586	3.023	5.405	0.427	1.002	0.350	0.041	–	–	116.670	1.015
77	*Gagata cenia*	*Kauwa*	–	0.028	0.209	–	–	–	–	–	–	0.004	2.134	2.084	13.729	0.309	0.094	–	–	–	–	108.845	0.947
110	*Lepidocephalus guntea*	*Gutum*	0.357	0.303	1.580	0.232	0.610	0.051	–	0.218	0.213	0.339	0.656	0.040	–	1.066	0.843	1.095	2.802	0.769	1.230	102.937	0.896
36	*Chanda nama*	*Nama Chanda*	0.627	0.340	0.117	0.134	0.088	–	–	–	3.091	1.685	1.328	0.130	2.867	0.852	0.343	0.426	0.560	0.238	–	95.290	0.829
120	*Macrobrachium rosenbergii*	*Golda*	–	–	–	–	–	–	–	–	–	–	–	0.449	–	–	4.200	0.076	–	–	–	91.706	0.798
47	*Cirrhinus mrigala*	*Mrigel*	–	0.910	–	–	–	–	–	–	–	–	–	–	4.540	4.009	–	–	–	–	–	91.360	0.795
18	*Barilius barna*	*Bani Koksa*	–	–	–	–	–	–	–	–	–	–	–	10.178	–	0.307	–	–	–	–	–	89.896	0.782
55	*Colisa fasciatus*	*Khalisha*	–	2.668	0.045	–	–	–	–	–	0.014	0.010	–	0.053	–	0.995	0.121	0.136	0.292	6.712	3.172	79.752	0.694
48	*Cirrhinus reba*	*Raik*	0.149	0.220	0.324	0.156	0.120	–	–	–	–	–	–	0.032	0.229	0.286	1.743	0.340	0.975	0.044	2.209	71.962	0.626
37	*Chanda ranga*	*Lalchanda*	0.117	0.293	0.272	0.061	–	–	–	–	0.014	0.586	0.351	0.121	1.215	1.991	0.453	0.228	0.257	0.550	0.304	69.671	0.606
76	*Eutropiichthys vacha*	*Bacha*	0.057	0.333	0.458	0.717	1.891	–	–	–	–	0.208	2.116	–	–	0.829	1.492	0.431	–	–	–	65.795	0.573
212	*Puntius ticto*	*Tit puti*	7.301	8.599	–	–	–	5.105	2.860	5.682	–	–	0.428	0.046	–	1.011	0.415	0.542	0.365	0.430	0.315	52.201	0.454
80	*Gagata viridescens*	*Gang tengra*	–	–	–	0.004	–	–	–	–	–	0.015	–	0.053	6.881	0.040	0.005	0.481	–	–	–	49.695	0.433
139	*Nemacheilus botia*	*Balichata*	–	1.296	0.240	0.072	0.070	0.063	0.270	0.612	0.512	0.026	1.018	0.039	0.122	–	0.278	0.516	0.738	0.106	0.670	37.772	0.329
6	*Anabas testudineus*	*Koi*	0.030	0.262	–	–	–	–	–	–	–	–	–	0.200	–	–	0.128	–	–	5.804	–	34.232	0.298
136	*Mystus tengara*	*Bajari tengra*	0.241	0.094	0.011	0.003	–	1.223	–	–	0.056	–	–	–	–	0.114	–	1.413	–	–	–	34.153	0.297
32	*Catla catla*	*Catla*	–	–	–	–	–	–	–	–	–	–	–	0.013	–	1.992	–	–	–	–	–	33.231	0.289
86	*Gudusia chapra*	*Chapila*	0.243	0.014	0.157	0.113	0.276	–	–	–	–	0.147	0.811	0.481	0.131	–	0.456	0.005	–	–	1.360	27.898	0.243
121	*Macrognathus aculeatus*	*Tara baim*	–	–	0.210	0.084	–	–	–	–	–	0.457	–	0.280	–	–	0.703	–	–	–	0.984	27.595	0.240
186	*Rita rita*	*Rita*	1.963	–	0.185	–	–	–	–	–	–	–	–	0.037	0.160	1.336	0.093	–	–	–	–	25.305	0.220
88	*Heteropneustes fossilis*	*Shingi*	–	–	0.097	–	–	1.180	–	–	–	–	–	–	–	0.112	–	0.685	0.143	0.151	0.625	23.234	0.202
16	*Bagarius bagarius*	*Baghair*	0.709	0.250	0.756	–	–	–	–	–	–	–	0.759	1.691	0.670	–	–	–	–	–	–	21.154	0.184
188	*Salmostoma bacaila*	*Katari*	0.406	1.926	0.563	0.085	0.192	–	–	0.437	–	–	–	–	0.425	0.194	0.573	0.080	–	–	–	19.495	0.170
174	*Puntius chola*	*Chala puti*	–	–	0.025	–	0.227	–	–	–	–	–	–	–	–	0.092	–	–	0.135	–	2.379	17.647	0.154
75	*Esomus danricus*	*Darkina*	0.459	–	0.009	0.003	–	0.409	–	–	–	0.407	0.174	0.082	0.624	0.132	0.311	–	–	–	–	17.565	0.153
144	*Notopterus chitala*	*Chital*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.730	–	–	–	16.477	0.143
101	*Labeo boga*	*Bhangan*	–	–	0.309	0.029	1.640	–	–	–	–	–	–	–	–	–	0.726	0.067	–	–	–	16.425	0.143
169	*Pseudeutropius atherinoides*	*Batasi*	–	1.524	0.748	0.105	–	–	–	–	0.038	–	0.028	–	–	0.031	0.180	0.511	–	–	–	16.118	0.140
198	*Somileptes gongota*	*Gharpoia*	–	–	0.025	–	0.209	–	–	–	–	0.025	–	–	–	–	–	0.693	–	–	–	15.911	0.138
135	*Aorichthys seenghala*	*Guizza*	–	–	–	–	–	–	–	–	–	–	0.114	0.053	1.425	–	0.334	–	–	–	–	15.583	0.136

Table 4.6 Percentage total monthly catch by species: Northern Dhaleswari and Pungli rivers(Cont.)

Species	Species name		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
923	*Sicamugil cascasia*		–	–	–	–	–	–	–	–	–	–	–	–	1.248	0.497	0.004	–	–	–	–	15.128	0.132
154	*Securicula gora*	*Chora chela*	7.228	–	–	–	–	–	–	–	–	–	–	–	–	0.424	0.376	0.011	–	–	–	15.009	0.131
196	*Silonia silondia*	*Shillong*	0.049	–	–	0.208	–	–	–	–	–	–	–	–	0.138	–	0.617	–	–	–	–	13.411	0.117
107	*Labeo rohita*	*Rui*	0.300	0.554	–	–	–	–	–	–	–	–	–	0.250	0.024	0.508	–	–	–	0.348	–	12.445	0.108
185	*Rhinomugil corsula*	*Khorsula*	0.801	0.084	0.043	0.123	0.436	4.603	–	–	–	0.204	0.244	0.203	0.480	0.241	0.017	–	–	–	–	11.815	0.103
59	*Crossocheilus latius*	*Kalabata*	–	–	0.136	–	–	–	–	–	0.038	–	–	–	0.048	0.523	0.028	0.043	–	–	–	10.718	0.093
178	*Puntius phutunio*	*Phutani puti*	–	–	–	0.013	–	9.122	–	–	0.079	0.234	0.067	0.062	–	0.183	–	–	–	–	0.380	9.102	0.079
193	*Setipinna phasa*	*Phasa*	–	–	0.165	–	–	–	–	–	–	–	–	0.007	0.048	0.037	0.383	–	–	–	–	8.809	0.077
5	*Amblypharygodon mola*	*Mola*	–	–	0.053	–	–	–	–	0.263	–	–	0.048	0.014	–	0.047	0.087	0.142	–	0.337	–	8.059	0.070
100	*Labeo bata*	*Bata*	–	1.940	4.807	1.016	0.479	–	–	–	–	–	–	–	–	0.185	0.037	0.180	–	–	–	7.898	0.069
14	*Awaous stamineus*	*Bele*	–	–	–	–	–	–	–	–	–	0.669	0.080	–	–	–	–	–	–	–	–	7.130	0.062
25	*Batasio tengana*	*Tengra*	–	–	–	–	–	–	–	–	–	–	–	–	0.186	0.356	–	–	–	–	–	6.932	0.060
176	*Puntius gelius*	*Giliputi*	–	–	0.006	–	–	–	–	–	1.010	–	–	0.016	–	0.004	–	–	–	–	–	6.355	0.055
28	*Botia dario*	*Rani*	0.539	–	0.289	0.139	0.144	–	–	–	–	–	–	0.039	–	0.022	0.164	0.078	–	–	0.050	6.124	0.053
15	*Badis badis*	*Napit koi*	–	–	–	–	–	0.064	0.916	–	–	0.056	0.010	0.005	–	0.030	–	–	–	0.961	–	6.113	0.053
217	*Lepidocephalus thermalis*	*Puiya*	–	–	–	–	–	–	–	–	–	–	0.879	0.049	–	–	–	–	–	–	–	4.367	0.038
155	*Pama pama*	*Poa*	–	–	0.068	–	–	–	–	–	–	0.001	0.129	–	–	–	0.183	–	–	–	–	4.358	0.038
145	*Notopterus notopterus*	*Foli*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.144	–	0.053	–	0.137	–	4.293	0.037
56	*Colisa lalia*	*Lal Khalisha*	–	–	–	–	–	–	–	0.350	–	0.008	0.010	–	0.230	–	0.107	–	–	–	–	3.887	0.034
68	*Danio devario*	*Chebli*	–	–	0.196	0.047	–	–	–	–	–	–	–	–	0.024	0.050	0.113	–	–	–	–	3.264	0.028
9	*Aplocheilus panchax*	*Kanpona*	0.049	–	–	–	–	0.409	–	–	–	0.143	0.070	0.053	0.092	0.030	–	–	–	–	–	3.211	0.028
148	*Ompok pabda*	*Madhu pabda*	0.076	0.157	0.152	–	–	–	–	–	–	–	–	–	–	–	–	–	0.292	–	–	2.425	0.021
57	*Colisa sota*	*Khalisha*	–	0.021	–	–	–	–	–	–	–	–	–	–	–	0.017	–	–	0.234	–	–	2.228	0.019
85	*Gonialosa manmina*	*Goni chapila*	–	–	–	–	–	–	–	–	–	0.071	–	–	–	–	0.067	–	–	–	–	2.103	0.018
179	*Puntius sarana*	*Sarputi*	–	–	–	–	–	–	–	–	–	0.151	–	–	–	–	–	–	–	–	–	1.530	0.013
91	*Hypophthalmichthys molitrix*	*Silver carp*	–	–	–	–	–	–	–	–	–	0.078	0.093	–	–	–	–	–	–	–	–	1.204	0.010
203	*Tetraodon cutcutia*	*Potka*	–	–	0.038	–	–	–	–	–	–	0.029	0.034	–	–	–	–	0.009	0.004	–	–	0.674	0.006
181	*Puntius terio*	*Teri punti*	–	1.516	10.863	1.465	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.070	0.439	0.004
187	*Osteobrama cotio cotio*	*Keti*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.021	–	0.002	–	–	–	0.390	0.003
177	*Puntius guganio*	*Mola puti*	–	–	–	–	–	–	–	–	–	–	0.048	–	–	–	–	0.002	–	–	–	0.262	0.002
69	*Brachydanio rerio*	*Anju*	–	–	–	–	–	–	–	–	–	–	–	0.029	–	–	–	–	–	–	–	0.244	0.002
43	*Chela cachius*	*Chep Chela*	0.269	–	–	–	–	–	–	–	–	0.016	–	–	–	–	–	–	–	–	–	0.160	0.001
44	*Chela laubuca*	*Kash Khaira*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.006	–	–	–	0.144	0.001
211	*Colisa labiosus*	*Khalisha*	–	–	–	–	–	–	–	–	–	0.008	0.010	–	–	–	–	–	–	–	–	0.126	0.001
197	*Sisor rhabdophorus*	*Sisor*	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	–	–	–	0.034	0.0002
89	*Hilsa ilisha*	*Ilish*	2.862	0.698	–	–	–	–	–	–	–	0.003	–	–	–	–	–	–	–	–	–	0.027	0.0002
12	*Aspidoparia jaya*	*Piali*	1.194	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
147	*Ompok bimaculatus*	*Kani pabda*	–	–	0.263	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
158	*Pangasius pangasius*	*Pangas*	0.046	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	*Batasio batasio*	*Tengra*	0.019	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
907	*Unidentifed*	*Bauskata*	–	0.166	0.025	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	*Raiamas bola*	*Bhol*	0.073	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
117	*Machrobrachium styliferus*	*Gura icha*	–	–	–	0.003	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
128	*Liza parsia*	*Bata*	–	0.042	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
171	*Psilorhynchus balitora*	*Balitora*	–	–	–	0.027	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
22	*Barilius tileo*	*Tila koksa*	1.785	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
39	*Channa marulius*	*Gajar*	–	1.758	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
955	*Amblyceps mangois*	*Magur*	–	–	–	–	0.035	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	11489.021	100.000

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Table 4.7 Percentage total monthly catch by species: Lohajang river

Species Code	Species name		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
931	Prawn spp.	Prawn	0.542	4.610	2.217	6.056	45.511	19.888	6.855	5.981	5.082	2.109	2.703	18.476	10.901	5.940	14.041	14.670	20.008	25.647	9.684	830.385	11.467
180	*Puntius sophore*	*Puti*	5.544	2.243	4.048	5.262	6.449	15.826	9.046	18.013	3.528	7.406	30.059	2.538	0.610	12.281	4.779	16.980	12.974	28.816	7.010	790.775	10.920
122	*Mastacembelus armatus*	*Baral baim*	0.247	2.586	53.478	52.886	16.454	0.590	33.571	3.757	1.633	2.684	–	0.381	1.091	5.716	24.718	10.137	1.318	1.663	–	623.630	8.612
209	*Wallagu attu*	*Boal*	–	1.061	–	–	–	–	–	–	–	–	0.575	–	35.799	–	3.525	17.554	7.015	–	8.471	440.521	6.083
175	*Puntius conchonius*	*Canchan puti*	–	1.951	0.703	1.052	6.338	25.634	8.823	14.352	22.984	33.695	19.522	2.374	0.731	2.743	3.352	9.024	10.194	3.494	3.353	369.827	5.107
137	*Mystus vittatus*	*Tengra*	14.601	2.504	2.119	0.808	17.871	4.926	2.322	6.575	19.563	5.391	6.326	2.151	0.899	4.867	3.675	10.527	2.544	1.379	1.706	346.614	4.787
145	*Notopterus notopterus*	*Foli*	–	–	0.228	–	–	2.588	–	–	–	–	–	–	–	9.974	0.818	–	4.335	–	0.595	296.642	4.096
83	*Glossogobius giurus*	*Bailla*	3.159	3.006	1.802	9.250	2.945	8.741	4.933	10.410	9.129	7.557	8.832	6.039	8.608	2.400	1.731	3.468	6.935	9.467	2.572	287.412	3.969
2	*Ailia coila*	*Kajuli*	1.551	2.479	–	–	–	–	–	–	–	–	–	41.017	3.039	2.880	0.354	–	–	–	–	263.506	3.639
41	*Channa punctatus*	*Taki*	4.821	0.603	0.042	0.420	0.187	8.983	1.017	5.290	1.985	1.246	0.131	2.997	0.416	1.505	8.591	2.359	2.141	4.018	9.508	246.272	3.401
75	*Esomus danricus*	*Darkina*	–	–	–	–	–	0.110	0.003	–	–	2.598	–	0.119	0.023	8.777	–	0.008	2.180	1.591	–	246.197	3.400
131	*Mystus bleekeri*	*Golsha tengra*	–	5.301	0.237	–	–	–	–	11.017	2.519	1.218	0.105	1.227	1.319	0.403	12.952	1.697	0.625	0.074	1.104	243.030	3.356
107	*Labeo rohita*	*Rui*	–	15.020	–	–	–	–	–	–	–	–	–	1.386	0.045	5.031	2.216	–	–	1.091	3.868	178.415	2.464
62	*Cyprinus carpio*	*Karfu*	–	–	–	–	–	–	–	–	–	–	–	–	–	1.914	–	–	17.933	–	12.899	175.697	2.426
110	*Lepidocephalus guntea*	*Gutum*	2.469	1.034	0.639	0.523	0.267	6.467	6.194	5.225	8.470	1.432	1.647	7.058	0.264	1.094	1.967	1.851	1.431	9.952	3.951	158.899	2.194
123	*Macrognathus pancalus*	*Guchi*	1.905	5.503	2.386	0.129	0.886	2.099	7.544	4.742	11.551	17.951	6.098	1.789	0.225	1.323	2.306	2.008	2.254	2.026	2.704	149.560	2.065
91	*Hypophthalmichthys molitrix*	*Silver carp*	–	–	–	–	–	–	–	–	–	–	–	–	1.114	4.594	0.897	–	–	–	–	137.507	1.899
48	*Cirrhinus reba*	*Raik*	0.819	0.664	–	–	–	–	–	–	–	–	–	–	0.015	2.104	2.629	0.326	3.233	–	1.138	116.091	1.603
51	*Clupisoma garua*	*Ghaura*	1.854	1.295	–	–	–	–	–	–	–	–	0.056	5.165	6.530	2.011	0.476	–	–	–	–	111.133	1.535
210	*Xenentodon cancila*	*Kaikka*	–	1.256	0.950	0.165	0.370	0.155	4.109	0.834	2.724	–	0.303	–	0.150	0.308	2.968	0.803	0.538	0.042	18.411	100.001	1.381
5	*Amblypharygodon mola*	*Mola*	–	–	–	–	–	–	–	–	–	2.967	0.613	0.039	0.155	3.119	0.403	0.121	–	–	–	91.300	1.261
47	*Cirrhinus mrigala*	*Mrigel*	0.052	4.515	–	–	–	–	–	–	–	–	–	–	–	2.422	1.417	–	–	–	3.037	88.990	1.229
100	*Labeo bata*	*Bata*	–	8.192	0.123	–	–	–	–	–	–	–	–	–	–	2.512	0.413	0.018	–	–	–	71.368	0.986
32	*Catla catla*	*Catla*	0.342	0.849	–	–	–	–	–	–	–	–	–	–	14.371	–	–	–	–	–	–	67.410	0.931
37	*Chanda ranga*	*Lal chanda*	1.654	0.370	0.676	0.155	–	–	1.368	0.145	0.462	0.398	3.443	0.711	0.503	1.672	0.326	0.102	0.039	0.136	0.319	61.922	0.855
81	*Gagata youssoufi*	*Gang tengra*	0.211	1.871	0.100	0.092	–	–	–	–	–	–	–	2.137	1.223	1.495	0.297	–	–	–	–	57.684	0.797
55	*Colisa fasciatus*	*Khalisha*	–	0.385	–	1.062	0.499	0.155	0.235	–	1.278	1.092	4.181	–	0.197	0.836	0.204	0.728	0.163	4.206	2.438	56.488	0.780
212	*Puntius ticto*	*Tit puti*	4.187	1.615	–	–	0.684	–	6.772	8.100	3.472	0.161	–	0.138	0.015	0.333	0.076	1.628	1.702	1.442	3.064	55.155	0.762
36	*Chanda nama*	*Nama Chanda*	7.592	0.074	0.728	0.145	0.281	–	0.602	–	–	1.791	3.523	0.237	0.395	1.031	0.416	0.115	0.093	0.073	0.630	45.252	0.625
203	*Tetraodon cutcutia*	*Potka*	–	–	–	–	–	–	–	–	–	–	0.205	–	0.179	0.003	0.096	2.464	1.503	2.272	0.465	40.712	0.562
56	*Colisa lalia*	*Lal Khalisha*	–	–	–	–	–	0.265	0.008	–	–	–	2.114	–	0.105	1.077	0.222	0.045	–	0.379	1.194	38.750	0.535
86	*Gudusia chapra*	*Chapila*	–	0.779	0.019	–	–	–	–	–	–	–	–	2.080	2.836	0.516	0.130	–	–	–	0.336	37.796	0.522
132	*Mystus cavasius*	*Kabashi*	–	5.784	0.874	0.114	–	0.823	2.058	0.668	0.477	–	0.894	–	–	0.554	0.154	1.524	0.364	–	0.414	36.281	0.501
49	*Clarias batrachus*	*Magur*	–	–	–	–	–	–	–	–	–	–	–	–	1.733	1.064	–	0.049	–	–	–	36.241	0.500
196	*Silonia silondia*	*Shillong*	0.016	1.061	–	–	–	–	–	–	–	–	–	–	–	1.339	–	–	–	–	–	34.800	0.481
178	*Puntius phutunio*	*Phutani puti*	–	–	0.373	0.070	–	–	–	–	–	6.163	0.053	–	–	0.825	0.094	–	–	1.666	–	29.845	0.412
101	*Labeo boga*	*Bhangan*	–	–	–	–	–	–	–	–	–	–	–	–	–	1.031	0.080	–	–	–	–	27.946	0.386
88	*Heteropneustes fossilis*	*Shingi*	4.915	–	0.166	0.159	–	–	–	0.567	2.859	–	2.794	–	0.864	0.371	–	0.060	–	0.008	–	21.613	0.298
211	*Colisa labiosus*	*Khalisha*	–	–	–	–	–	–	–	0.183	–	0.482	0.896	0.392	0.209	0.657	–	–	–	–	–	21.562	0.298
945	*Crab sp*	*Kakra*	–	–	–	–	–	–	–	–	–	–	–	–	3.066	0.254	–	–	–	–	–	20.978	0.290
189	*Salmostoma phulo*	*Fulchela*	–	0.628	0.024	0.054	–	–	2.630	–	0.477	0.965	0.231	0.096	0.488	0.325	0.319	0.027	–	–	0.961	18.968	0.262
130	*Aorichthys aor*	*Ayre*	0.196	–	–	–	–	–	–	–	–	–	–	–	0.008	0.017	0.339	1.043	–	–	–	15.173	0.210
76	*Eutropiichthys vacha*	*Bacha*	–	0.775	–	–	–	–	–	–	–	–	–	–	–	0.139	0.770	–	–	–	–	14.671	0.203
218	*Barilius evezardi*		–	–	–	–	–	–	–	–	–	–	–	–	–	0.512	–	–	–	–	–	13.314	0.184
102	*Labeo calbasu*	*Kalbaus*	0.127	2.954	–	–	–	–	–	–	–	–	–	0.107	–	0.031	0.618	0.017	0.279	–	–	11.880	0.164
169	*Pseudeutropius atherinoides*	*Batasi*	0.012	0.718	2.149	–	–	–	–	–	–	0.430	–	–	–	0.347	0.084	0.027	–	–	–	10.690	0.148
77	*Gagata cenia*	*Kauwa*	–	–	–	–	–	–	–	–	–	–	–	0.224	0.263	0.297	–	–	–	–	–	9.879	0.136

Table 4.7 Percentage total monthly catch by species: Lohajang river(Cont.)

Species	Species name		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
121	*Macrognathus aculeatus*	*Tara baim*	0.040	2.505	18.710	18.664	–	–	0.283	–	–	–	2.057	–	0.104	–	0.360	–	–	–	–	9.064	0.125
193	*Setipinna phasa*	*Phasa*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.267	–	–	–	–	–	6.937	0.096
120	*Macrobrachium rosenbergii*	*Golda*	–	–	–	–	–	0.471	–	–	–	–	–	0.641	0.891	–	–	–	–	–	–	6.826	0.094
139	*Nemacheilus botia*	*Balichata*	0.012	0.258	0.380	–	–	–	–	–	0.544	–	–	0.192	0.117	0.145	–	0.070	–	0.232	–	6.742	0.093
80	*Gagata viridescens*	*Gang tengra*	–	–	–	–	–	–	–	–	–	–	–	–	0.067	0.245	–	–	–	–	–	6.678	0.092
176	*Puntius gelius*	*Giliputi*	–	–	–	0.181	–	–	–	–	–	–	–	–	–	0.205	0.065	–	–	–	–	6.254	0.086
15	*Badis badis*	*Napit koi*	–	–	0.277	0.065	–	0.176	0.618	1.657	0.477	0.323	0.138	0.015	–	0.028	0.099	–	0.081	0.328	0.172	6.151	0.085
148	*Ompok pabda*	*Madhu pabda*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.425	0.119	–	–	4.682	0.065
198	*Somileptes gongota*	*Gharpoia*	–	–	–	–	–	–	0.177	2.079	–	–	–	0.044	0.033	–	0.110	0.032	–	–	–	4.245	0.059
136	*Mystus tengara*	*Bajari tengra*	4.887	0.887	0.744	0.562	0.514	–	0.036	0.293	0.126	0.728	0.444	–	–	0.028	0.139	–	–	–	–	4.189	0.058
40	*Channa orientalis*	*Cheng*	–	–	–	–	–	–	–	–	–	–	1.653	–	–	–	–	0.082	–	–	–	3.509	0.048
6	*Anabas testudineus*	*Koi*	2.946	0.746	–	–	–	–	–	–	–	–	–	–	0.033	0.108	–	–	–	–	–	2.969	0.041
16	*Bagarius bagarius*	*Baghair*	0.148	–	–	–	–	–	–	–	–	–	–	–	–	0.009	0.179	–	–	–	–	2.813	0.039
59	*Crossocheilus latius*	*Kalabata*	–	–	0.275	–	–	1.883	–	–	–	–	–	0.010	0.017	0.007	0.167	–	–	–	–	2.690	0.037
163	*Pisodonophis boro*	*Kharu*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.100	–	–	–	–	–	2.602	0.036
33	*Chaca chaca*	*Cheka*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.162	–	–	–	–	2.323	0.032
69	*Brachydanio rerio*	*Anju*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.084	–	–	–	–	–	2.186	0.030
28	*Botia dario*	*Rani*	0.024	1.071	0.029	–	–	–	–	–	–	–	–	0.010	0.076	0.027	0.050	–	–	–	–	1.826	0.025
25	*Batasio tengana*	*Tengra*	–	–	–	–	–	–	–	–	–	–	–	–	0.016	0.056	–	–	–	–	–	1.542	0.021
186	*Rita rita*	*Rita*	–	–	0.062	–	–	–	–	0.112	–	–	–	–	0.007	0.004	0.080	–	–	–	–	1.394	0.019
9	*Aplocheilus panchax*	*Kanpona*	–	–	0.014	–	–	0.110	0.003	–	0.535	0.208	–	–	0.089	–	0.022	–	–	–	–	1.232	0.017
57	*Colisa sota*	*Khalisha*	11.065	0.142	0.053	–	–	–	–	–	–	–	0.409	–	–	–	0.028	–	–	–	–	1.082	0.015
68	*Danio devario*	*Chebli*	–	–	–	–	–	–	0.144	–	–	0.900	–	–	–	–	0.019	–	–	–	–	0.699	0.010
18	*Barilius barna*	*Bani Koksa*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.026	–	–	–	–	–	0.686	0.009
154	*Securicula gora*	*Chora chela*	6.218	–	–	–	–	–	–	–	–	–	–	–	–	0.001	0.028	–	–	–	–	0.439	0.006
14	*Awaous stamineus*	*Bele*	–	–	–	–	–	–	–	–	–	–	–	0.103	–	–	–	–	–	–	–	0.427	0.006
187	*Osteobrama cotio cotio*	*Keti*	0.036	–	–	–	–	–	–	–	–	–	–	–	–	0.000	0.028	–	–	–	–	0.412	0.006
85	*Gonialosa manmina*	*Goni chapila*	–	–	–	–	–	–	–	–	–	–	–	0.096	–	–	–	–	–	–	–	0.397	0.005
188	*Salmostoma bacaila*	*Katari*	–	2.549	0.376	0.004	–	–	–	–	–	–	–	–	0.075	–	–	–	–	–	–	0.351	0.005
29	*Botia lohachata*	*Putul*	–	–	–	–	–	–	–	–	–	–	–	–	0.074	–	–	–	–	–	–	0.348	0.005
35	*Chanda baculis*	*Chanda*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.013	–	–	–	–	–	0.343	0.005
182	*Rasbora daniconius*	*Darkina*	–	–	–	–	–	0.110	0.003	–	0.126	–	–	–	–	–	0.006	0.011	–	–	–	0.280	0.004
13	*Aspidoparia morar*	*Morari*	–	0.654	–	–	–	–	–	–	–	–	–	–	–	0.000	0.006	–	–	–	–	0.094	0.001
135	*Aorichthys seenghala*	*Guizza*	–	–	–	–	–	–	–	–	–	–	–	–	0.015	–	–	–	–	–	–	0.069	0.001
177	*Puntius guganio*	*Mola puti*	–	–	–	–	–	–	–	–	–	0.107	–	–	–	–	–	–	–	–	–	0.051	0.001
58	*Corica soborna*	*Kachki*	–	–	–	–	–	–	–	–	–	–	–	0.010	–	–	–	–	–	–	–	0.042	0.001
109	*Lepidocephalus berdmorei*	*Puiya*	–	1.219	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
156	*Pampus argenteus*	*Fali chanda*	–	1.330	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
147	*Ompok bimaculatus*	*Kani pabda*	–	–	–	–	–	–	0.442	–	–	–	–	–	–	–	–	–	–	–	–	–	–
181	*Puntius terio*	*Teri punti*	–	1.588	4.709	2.070	0.744	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
138	*Nandus nandus*	*Bheda*	–	0.296	0.143	0.053	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
165	*Plotosus canius*	*Gang Magur*	–	–	0.147	–	–	–	0.204	–	–	–	–	–	–	–	–	–	–	–	–	–	–
174	*Puntius chola*	*Chala puti*	–	0.258	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
185	*Rhinomugil corsula*	*Khorsula*	–	0.221	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
113	*Machrob. birmanicus*	*Chingri Thengua*	17.542	4.440	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
22	*Barilius tileo*	*Tila koksa*	0.267	0.147	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	7241.356	100.000

Table 4.8 Percentage Contribution to the Total Riverine Catch of Dominant Species Inside and Outside the Tangail CPP, August 1992 - February 1994.

Species Name	Lohajang River Site 12: Inside	Pungli River Site 02 Outside	Northern Dhaleswari River Site 06 Outside
Mastacembelus armatus	18.9	6.0	5.7
Prawn spp	10.4	4.5	11.5
Puntius sophore	9.1	4.3	11.5
Mystus vittatus	4.6	3.6	2.3
Puntius conchonius.	4.3	13.7	6.1
Wallagu attu	4.3	3.5	15.7
Macrognathus aculeatus	4.2		
Glossogobius giurus	3.8	6.7	5.9
Notopterus notopterus	2.9		
Ailia coila	2.6	6.1	3.3
Channa punctatus	2.5	2.9	5.2
Mystus bleekeri	2.5	1.9	
Esomus danricus	2.4		
Macrognathus pancalus	2.2	1.9	4.3
Labeo rohita	2.0		
Lepidocephalus guntea	1.9		1.1
Cyprinus carpio	1.7		
Hypophthalmichthys molitrix	1.2		
Xenentodon cancila	1.2	1.3	
Cirrhinus reba	1.1		
Clupisoma garua	1.1	8.2	5.0
Labeo Calbasu		9.0	
Puntius terio		4.3	
Mystus cavasius		3.2	1.2
Gagata youssoufi		2.3	
Labeo bata		2.0	
Salmostoma phulo		1.9	1.2
Aspidoparia morar		1.5	1.3
Macrobrachium rosenbergii		1.3	
Aorichthys aor		1.1	1.2
Puntius ticto			1.5
Barilius evezardi			1.3

had a perennial flow supported a community of more typically riverine species. In the Lohajang very few (11%) of the dominant fish species could be categorised as riverine or migratory. These included only boal, kajuli, ghaura and the major carps rui and raik. Two exotic carps, common and silver carp, were found in the list of dominant species of the Lohajang, but did not appear in the lists from the other two rivers (Table 4.8). In these outside rivers there was a higher proportion of dominant riverine or migratory species, 36% in the Pungli and 28% in the Northern Dhaleswari. The migratory species included boal, which was particularly abundant in the Northern Dhaleswari, the carps rui, kalbaush and *Labeo bata,* and the catfish, ayre. The riverine species comprised kajuli, ghaura, gang tengra, fulchela and piali.

Prawns formed an important component of the total catch, particularly in the Lohajang (10%) and Northern Dhaleswari (12%), as they did in the Bhubaneswar (13%), a seasonal river in the Southwest region.

Although there were differences between the Lohajang River within the CPP and those outside it in terms of the relative importance of certain dominant species and in the proportion of migratory or riverine fish contributing to the list of dominant species, there were similar differences between the two outside rivers themselves. It is therefore difficult to attribute such differences to the fact that the Lohajang flowed through the CPP.

5. CANAL FISHERIES

5.1 Total Catch

5.1.1 Pattern of catch

Distinct seasonal changes in catch from canals inside and outside the CPP were observed (Fig. 5.1). Catches from both remained low between December and July 1993, but rose rapidly through August to a peak in September in canals outside the CPP. The peak inside was reached during October. This period of high catch coincided with the flood drawdown. The only difference between sites inside and outside the CPP was that the period of high catches was extended by one month, up to November, within the CPP (Fig. 5.1). This can be explained, certainly for 1993, by the longer period of water retention in Santosh khal inside the CPP compared with canals outside. The clear seasonal trends observed in the Tangail area are similar to those observed in other regions studied by FAP 17.

5.1.2 Size of catch

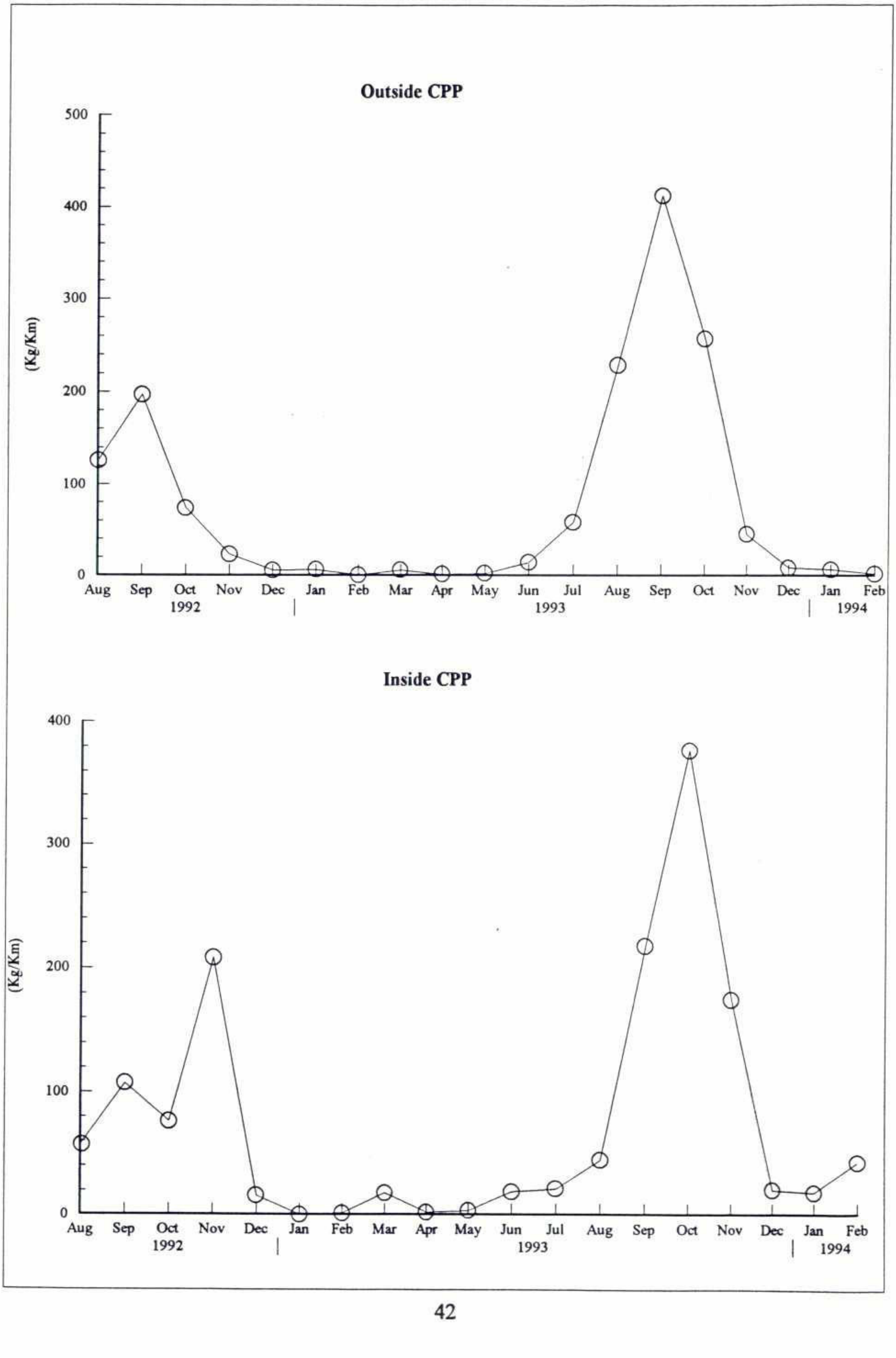
Total annual catches per unit length of canal were very similar at sites inside and outside the CPP (Table 5.1). No statistical difference between catches was detected using comparisons of catch rates (see Section 5.2.3).

Table 5.1 Comparison of Catch per Unit Length of Canals Inside and Outside the Tangail CPP.

	Annual Catch March 1993 - Feb 1994 (kg/km)	Total Sampled Catch Aug 1992 - Feb 1994 (kg/km)
Outside	1,042	1,392
Inside	955	1,358
All canals sampled in NCR	1,230	1,702

Catches per unit length of canal inside and outside the CPP were slightly lower than the overall average estimated from all canals sampled in the North Central Region (Table 5.1)

Figure 5.1 Seasonal variation in the catch per unit length (Kg/Km) of canals inside and outside the Tangail CPP, August 1992-February 1994



and were considerably lower than catches recorded in three of the four canals sampled in the southwest, where annual catches ranged from 2182 to 3235 kg/km. In comparison with riverine catches from Tangail, canal catches were consistently higher. A similar, though not so clear, trend was observed in the southwest.

Inter-annual changes in catch were clearly seen from plots of monthly catch data (Fig. 5.1) and from total catch estimates made over longer comparable periods between years (Table 5.2).

Table 5.2 Comparison of the Total Catch (kg/km) from Canals Inside and Outside the Tangail CPP Between Different Years.

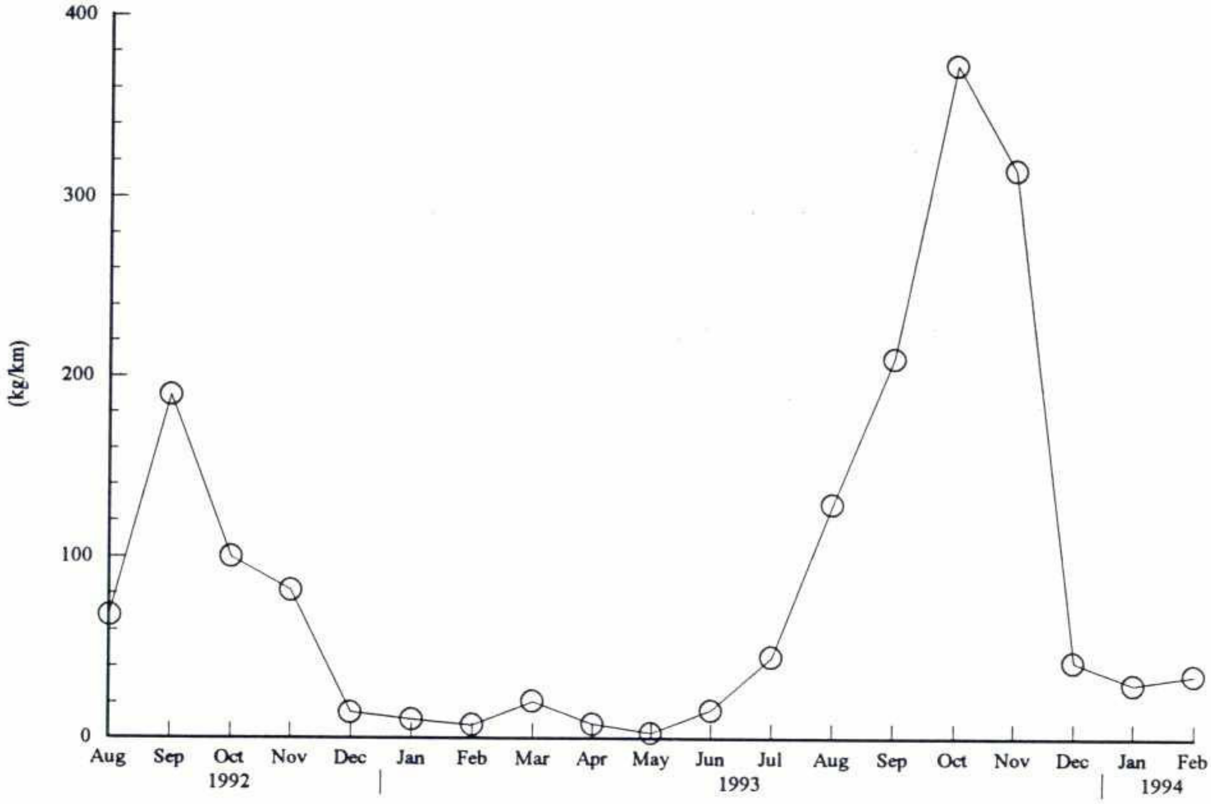
	Aug 1992 - Feb 1993	Aug 1993 - Feb 1994	Percentage Increase
Inside	465	893	92
Outside	432	960	122
All canals sampled in NCR	472	1,137	140

It is obvious from Table 5.2 that both inside and outside the CPP there were substantial increases in the canal catches of 1993, when floods were greater and more prolonged, over those of 1992, which was a very dry year. This pattern was seen in all canals sampled in the NCR, where an average increase in catch of 140% was recorded (Table 5.2 and Fig. 5.2). This increase was a function of both increased fishing effort by dominant gears and increased catch rates (Fig. 5.3). Of the dominant gears, only ber jal exhibited no increase in effort or catch rate during 1993/94. Doiar traps increased in effort, but their catch rates remained unchanged. The increased catch rates of other gears (lift nets, cast nets and push nets) indicated higher fish densities in the more extensively flooded year of 1993/94.

This confirms the pattern found in rivers (Fig. 4.2) where an increase of 77% was observed. The greater increase in canal catches between years suggests that there may be a differential impact of inter-annual changes in flood regimes on fish populations in different aquatic habitats, with the riverine fish being less affected than canal fisheries. This point will be returned to in section 6.1.2 where floodplain catches are examined.

αY.

Figure 5.2 Seasonal variation in the catch per unit length (kg/km) of all canals sampled in the North Central Region, August 1992-February 1994

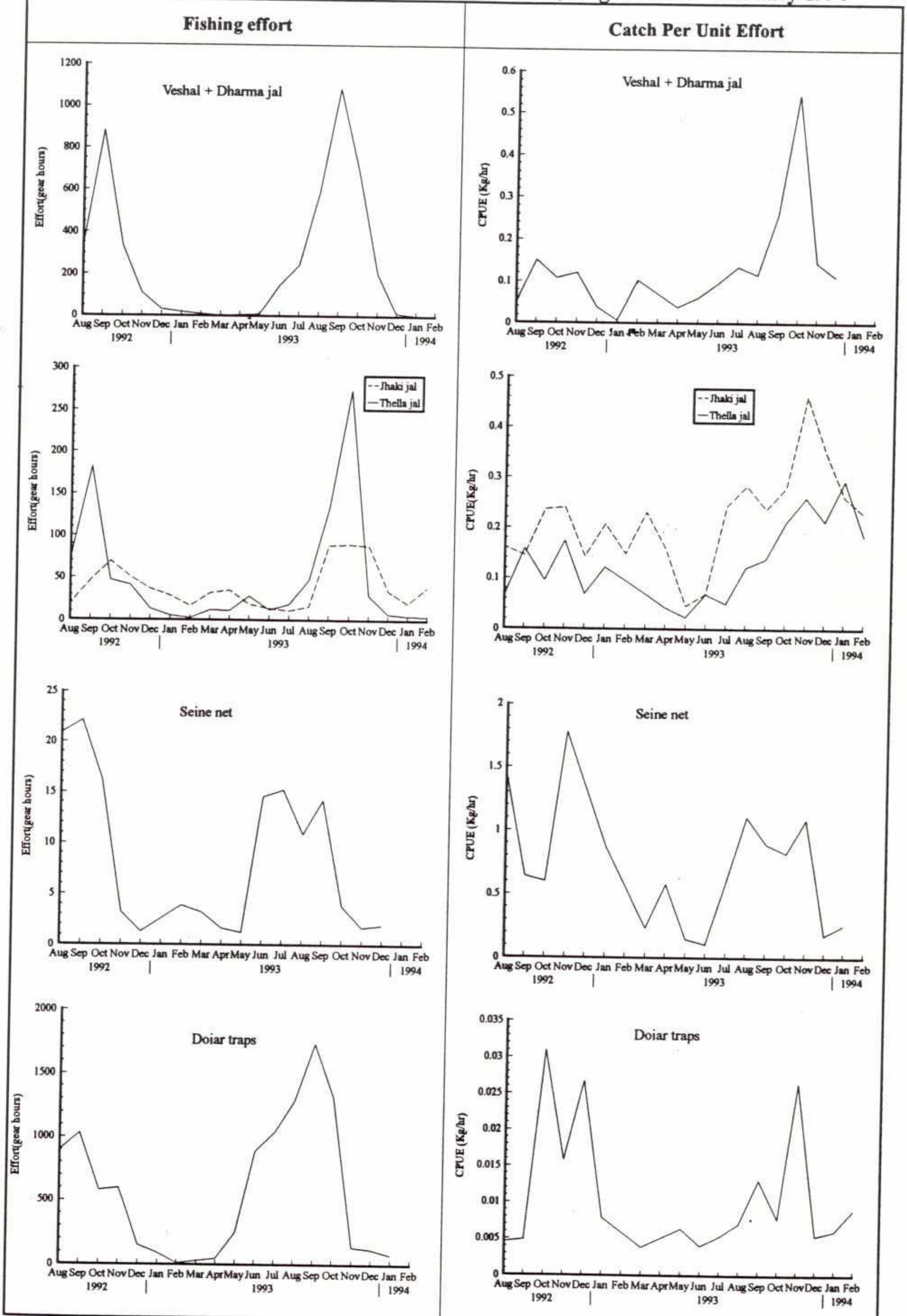


Notes:

1 - Canals sampled comprised Gala+borobasalia(Site 03), Anahula (Site 07), Santosh & Indrabelta (Site 10), Deojang & Atia (Site 13), Zia (Site 17), Chandrakhali (Site 22), Mailagi (Site 26) and Sakini (Site 30).

2 - Total length of canals sampled = 46.8 Km.

Figure 5.3 Inter-annual variation in total monthly fishing effort and catch rate (CPUE) of dominant gears: all sampled canals in NCR, August 1992 - February 1994



dK

5.2 Pattern of Fishing

5.2.1 Catch by gear

A total of 19 different types of gear were recorded being used in canals outside the CPP and 17 gears inside it (Tables 5.3 and 5.4).

In general, the composition of gear types used inside and outside was similar, but there were differences in the relative importance of dominant gears (Table 5.5).

Lift nets predominated to an equal extent in and out. The dharma jal was the most important type of lift net used on sites outside the CPP, capturing 39% of the catch, whereas inside the CPP dharma jal and veshal captured an equal share (19.5% each) of the total catch (Table 5.5)

Thella jal and ber jal were both more important outside, while small-scale gears such as sip, doiar and current jal took more of the catch inside the CPP. Katha were important only inside, particularly on Santosh khal, an important drainage canal within the CPP which retained water longer than most others and therefore could support a dry season katha fishery.

5.2.2 Catch by gear by month

On the canals outside the CPP, peak catches during August to October 1992 were taken mainly by lift nets (dharma jal and veshal), thella jal and ber jal (Fig. 5.4). The maximum catch recorded during September principally resulted from thella jal (48%) and dharma jal (20%) capturing prawns, puti *(P.sophore)* and the major carp, mrigal. The following year peak catches (seen again in September despite the larger flooding), were due to dharma jal (51%), jhaki jal (16%) and thella jal (11%) capturing mainly major carps, catla, rui and mrigal.

These species also dominated the high August catches of dharma jal and ber jal. The high catches during the flood drawdown in both years were a function of both increased fishing effort by the dominant gears (Fig. 5.5) and also increased catch rates of these same gears (Fig. 5.6).

Figure 5.4 Percentage of the total monthly catch taken by dominant gears: canals outside the Tangail CPP

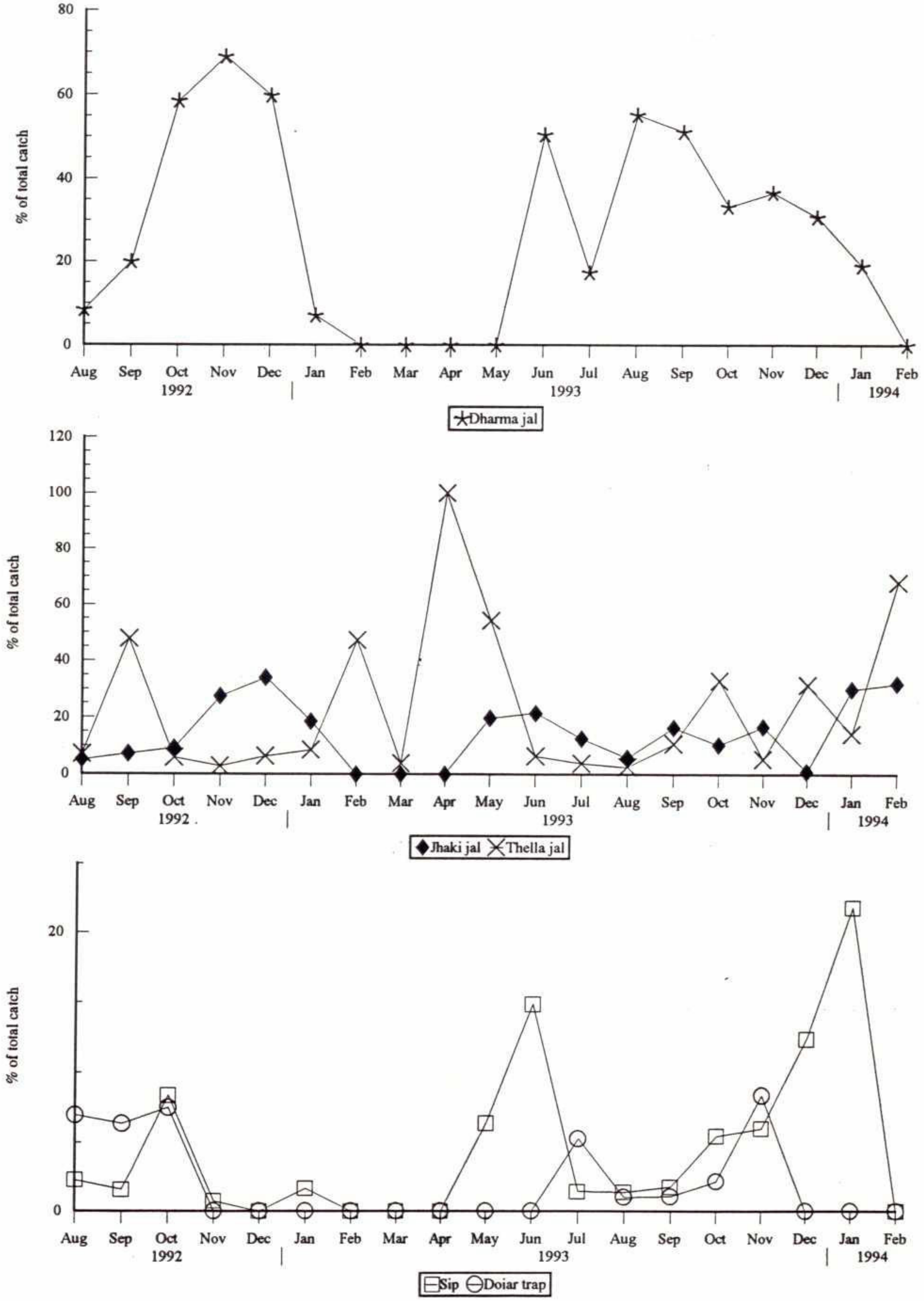


Figure 5.5 Total monthly fishing effort of dominant gears: canals outside the Tangail CPP

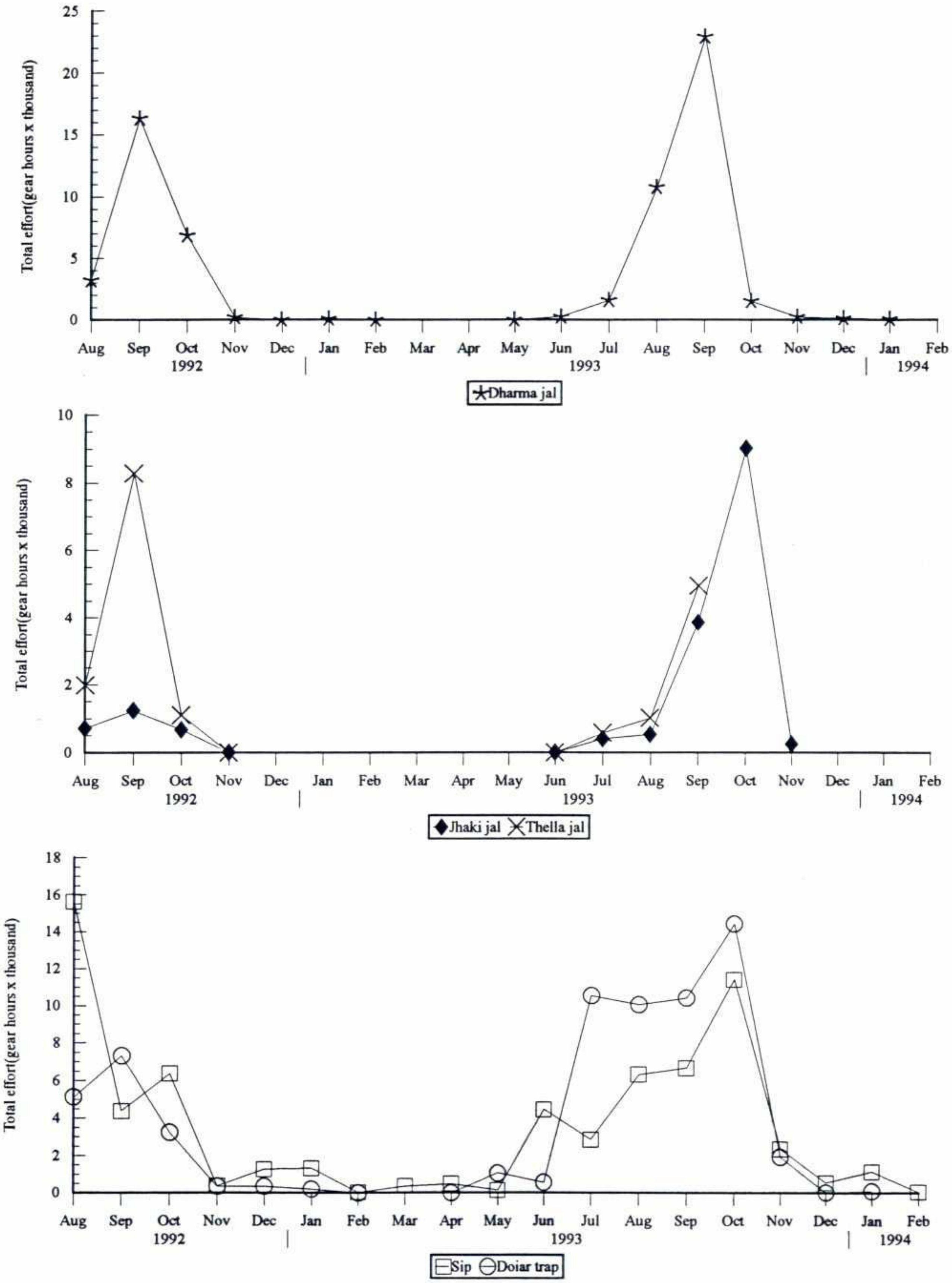
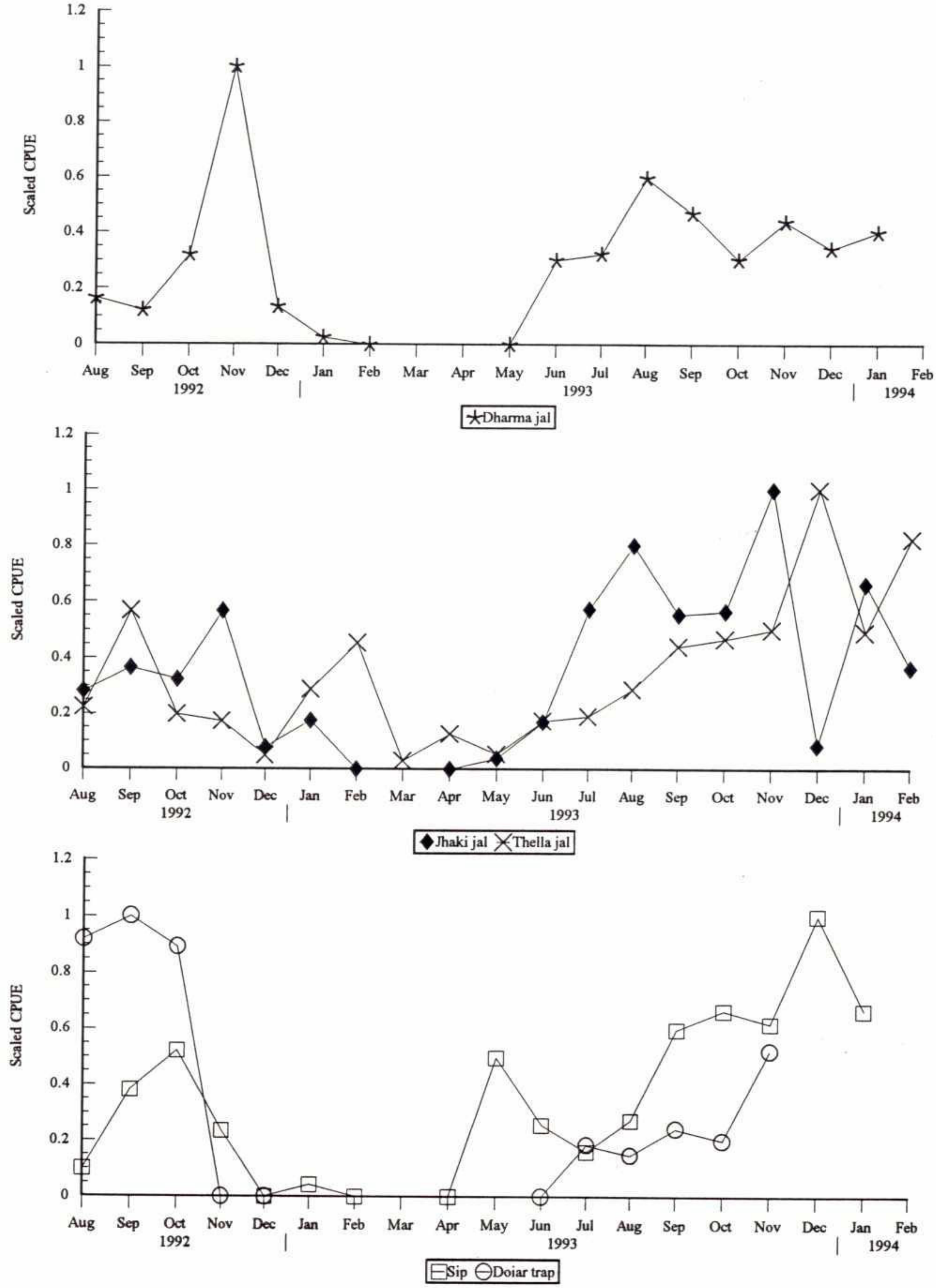


Figure 5.6 Catch rates (Scaled CPUE) of dominant gears: canals outside the Tangail CPP



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

Table 5.3 Percentage total monthly catch by gear type: canals outside CPP

Gear		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Gear name(Bengali)	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
105	Dharma jal	8.334	19.865	58.459	68.931	59.680	7.038	–	–	–	–	50.341	17.315	55.071	51.038	33.163	36.512	30.583	18.855	–	6456.186	44.073
255	Thella jal	7.024	47.634	5.838	2.831	6.348	8.455	47.129	3.781	100.000	54.177	6.251	3.756	2.535	10.620	32.919	5.330	31.471	14.091	68.088	2071.593	14.142
164	Jhaki jal	5.014	7.186	9.206	27.494	33.972	18.627	–	–	–	19.709	21.485	12.509	5.814	16.360	10.381	16.781	0.992	29.932	31.912	1806.551	12.332
45	Ber jal	63.846	13.218	3.761	–	–	–	–	–	–	–	–	33.330	23.381	7.080	–	–	–	–	–	1435.120	9.797
307	Hand fishing	–	–	–	–	–	18.511	48.907	42.669	–	19.709	–	–	–	0.397	8.367	20.293	6.409	–	–	502.119	3.428
30	Sip/Barshi	2.263	1.576	8.380	0.744	–	1.661	–	–	–	6.405	14.895	1.444	1.398	1.797	5.484	6.018	12.401	21.832	–	463.730	3.166
88	Current jal	3.377	0.243	3.742	–	–	–	–	–	–	–	3.853	7.691	5.152	0.355	4.725	–	–	–	–	427.730	2.920
266	Veshal	–	2.348	–	–	–	–	–	–	–	–	–	1.048	1.273	5.908	–	–	–	–	–	392.064	2.676
202	Moi jal	–	–	–	–	–	–	–	–	–	–	–	–	1.237	3.675	0.966	–	11.868	–	–	301.770	2.060
95	Doiar trap	6.952	6.348	7.500	–	–	–	–	–	–	–	–	5.287	1.025	1.083	2.182	8.394	–	–	–	271.084	1.851
89	Dhor jal	1.735	1.583	0.723	–	–	–	–	–	–	–	3.175	13.653	–	0.753	1.029	1.615	6.277	–	–	216.651	1.479
272	Daun	1.454	–	–	–	–	–	–	–	–	–	–	1.385	2.703	0.085	0.262	–	–	–	–	112.597	0.769
271	Suti jal	–	–	–	–	–	–	–	–	–	–	–	1.262	0.334	0.800	–	–	–	–	–	67.443	0.460
175	Kathi jal/Dolna	–	–	2.392	–	–	–	–	53.550	–	–	–	–	–	–	0.295	–	–	–	–	53.703	0.367
270	Katha jal	–	–	–	–	–	45.459	–	–	–	–	–	–	–	–	–	5.057	–	15.289	–	45.980	0.314
278	Nol barsi	–	–	–	–	–	–	–	–	–	–	–	1.321	0.079	–	–	–	–	–	–	13.341	0.091
291	Urani	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.228	–	–	–	–	8.239	0.056
123	Koi jal	–	–	–	–	–	–	–	–	–	–	–	–	–	0.050	–	–	–	–	–	2.925	0.020
314	Boat katha	–	–	–	–	–	0.248	3.965	–	–	–	–	–	–	–	–	–	–	–	–	–	–
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	14648.8	100

Table 5.4 Percentage total monthly catch by gear type: canals inside CPP

Gear		Year: 1992					Year: 1993											Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Gear name(Bengali)	Aug	Sep	Oct	Nov	Dec	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
266	Veshal	4.228	19.116	6.931	2.575	–	–	–	–	–	20.745	6.842	4.904	20.867	49.854	2.072	–	–	–	2259.376	25.551
105	Dharma jal	7.269	43.849	25.059	10.218	7.533	–	–	–	34.785	47.156	23.225	29.376	47.923	10.759	6.395	0.635	–	–	1701.052	19.237
164	Jhaki jal	10.650	9.296	20.970	11.468	28.982	13.144	33.179	63.647	–	1.970	10.040	4.442	0.322	16.994	35.039	17.179	31.813	29.817	1472.028	16.647
95	Doiar trap	14.368	6.044	0.145	–	–	–	1.452	–	–	6.864	22.014	29.209	20.625	9.763	9.299	3.576	–	7.002	1117.024	12.632
270	Katha	–	–	–	–	46.836	–	45.699	–	–	–	–	–	–	–	18.576	71.219	41.789	62.342	820.796	9.282
255	Thella jal	19.486	2.021	10.879	15.242	11.642	34.056	7.755	28.248	29.259	8.645	6.687	13.535	7.130	3.057	6.439	7.390	26.398	0.758	523.842	5.924
291	Urani	–	–	–	–	–	–	–	–	–	–	–	–	–	0.972	15.659	–	–	–	286.774	3.243
45	Ber jal	42.672	17.058	5.340	–	–	–	–	–	–	–	–	–	–	6.286	–	–	–	–	219.022	2.477
30	Sip	1.254	2.617	8.616	23.639	5.007	10.986	–	–	35.956	14.620	4.614	17.300	3.022	0.177	1.779	–	–	–	211.811	2.395
307	Hand fishing	–	–	–	–	–	–	11.521	6.675	–	–	–	–	–	–	4.142	–	–	–	86.678	0.980
271	Suti jal	0.073	–	–	–	–	–	–	–	–	–	26.578	–	–	–	–	–	–	–	51.646	0.584
88	Current jal	–	–	22.060	36.858	–	–	–	–	–	–	–	0.423	0.112	1.222	0.215	–	–	0.080	50.355	0.569
202	Moi jal	–	–	–	–	–	–	–	–	–	–	–	–	–	0.916	–	–	–	–	31.904	0.361
170	Juti	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.385	–	–	–	6.214	0.070
278	Nol barsi	–	–	–	–	–	–	–	–	–	–	–	0.810	–	–	–	–	–	–	3.348	0.038
314	Boat Katha	–	–	–	–	–	–	0.394	–	–	–	–	–	–	–	–	–	–	–	0.639	0.007
296	Tukri	–	–	–	–	–	41.815	–	1.430	–	–	–	–	–	–	–	–	–	–	0.240	0.003
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	8842.7	100

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38.

Table 5.5 Percentage of Total Catch Taken by Dominant Gears Used on Canals Inside and Outside the Tangail CPP, August 1992 - February 1994.

Gear Name	Outside	Inside	All Canals Sampled in NCR
Dharma jal	38.8	19.5	14
Thella jal	17.4	7.9	8
Ber jal	14.3	5.0	6
Jhaki jal	11.2	15.5	11
Doiar trap	3.1	9.5	7
Sip	3.1	5.8	3
Current jal	2.6	7.0	2
Veshal		19.5	30
Katha		6.7	5

Note: Dominant gears are those gears taking between them at least 90% of the total catch inside or outside the CPP.

Within the CPP, peak catches of 1992 were largely due to current jal and sip catching puti *(P. sophore)* and taki respectively. Peak catches in October 1993 resulted from lift nets (Fig. 5.7) taking *P. sophore*, bailla, kaika and the major carps rui and catla. Peak catches in both years were due to increased fishing effort (Fig. 5.8) and increased catch rates (Fig. 5.9) of the dominant gears.

5.2.3 Statistical comparison of catch rates

At the inside sites for this habitat type, over 90% of the total catch per kilometre for the period March 1993 to February 1994, excluding katha and kua, was taken by 6 gears. At the outside sites, over 90% of the total catch per kilometre over the same period was taken by 7 gears. In all, 10 gears were used in the statistical analysis of catch rates, as listed in Table 5.6. Three gears appeared in both lists: dharma jal, thella jal and jhaki jal. Dharma jal took 21% of the catch at the inside sites, and 44% of the catch at the outside sites. A total of 569 individual catch rate observations were used in this analysis.

Figure 5.7 Percentage of the total monthly catch taken by dominant gears: canals inside the Tangail CPP

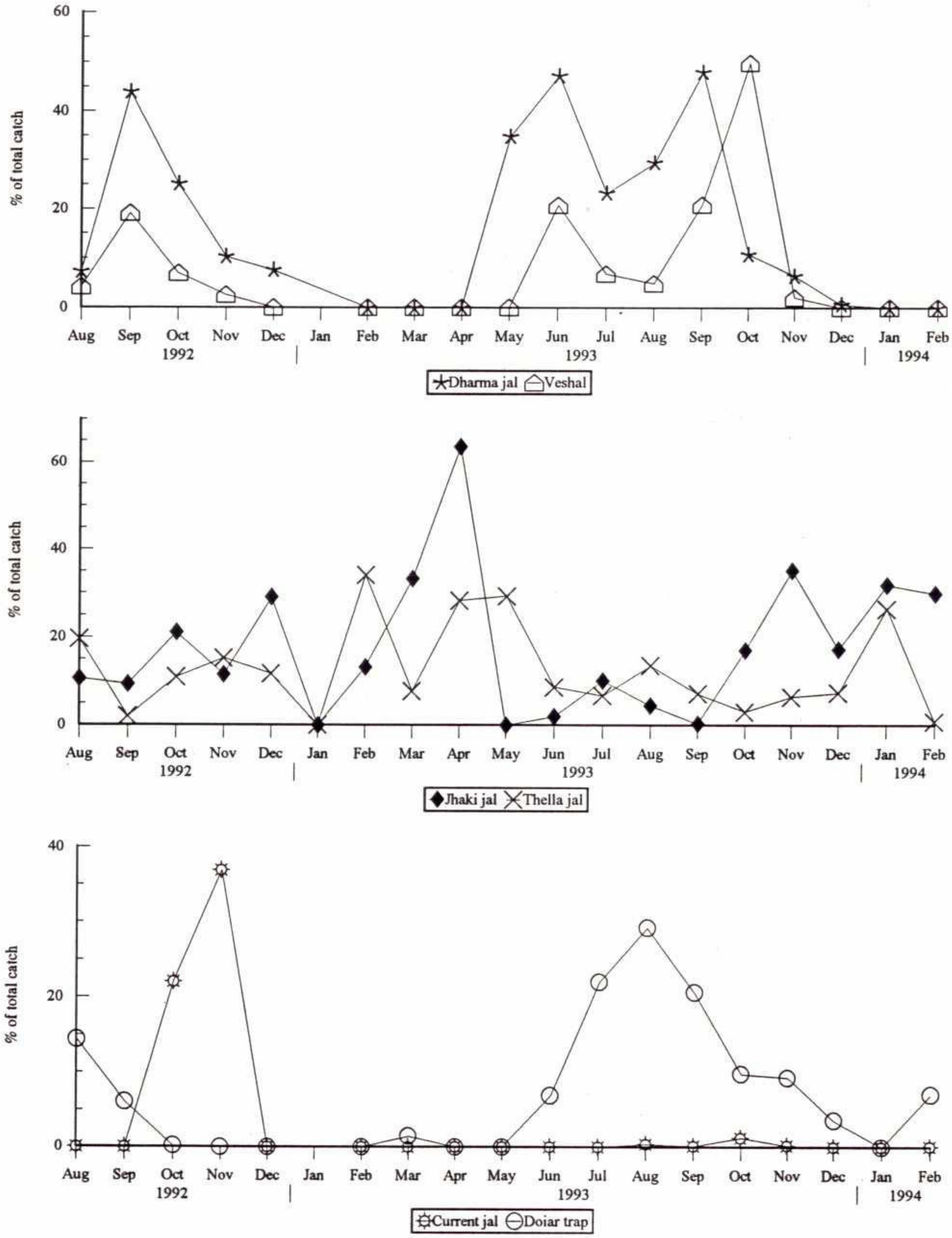


Figure 5.8 Total monthly fishing effort of dominant gears: canals inside the Tangail CPP

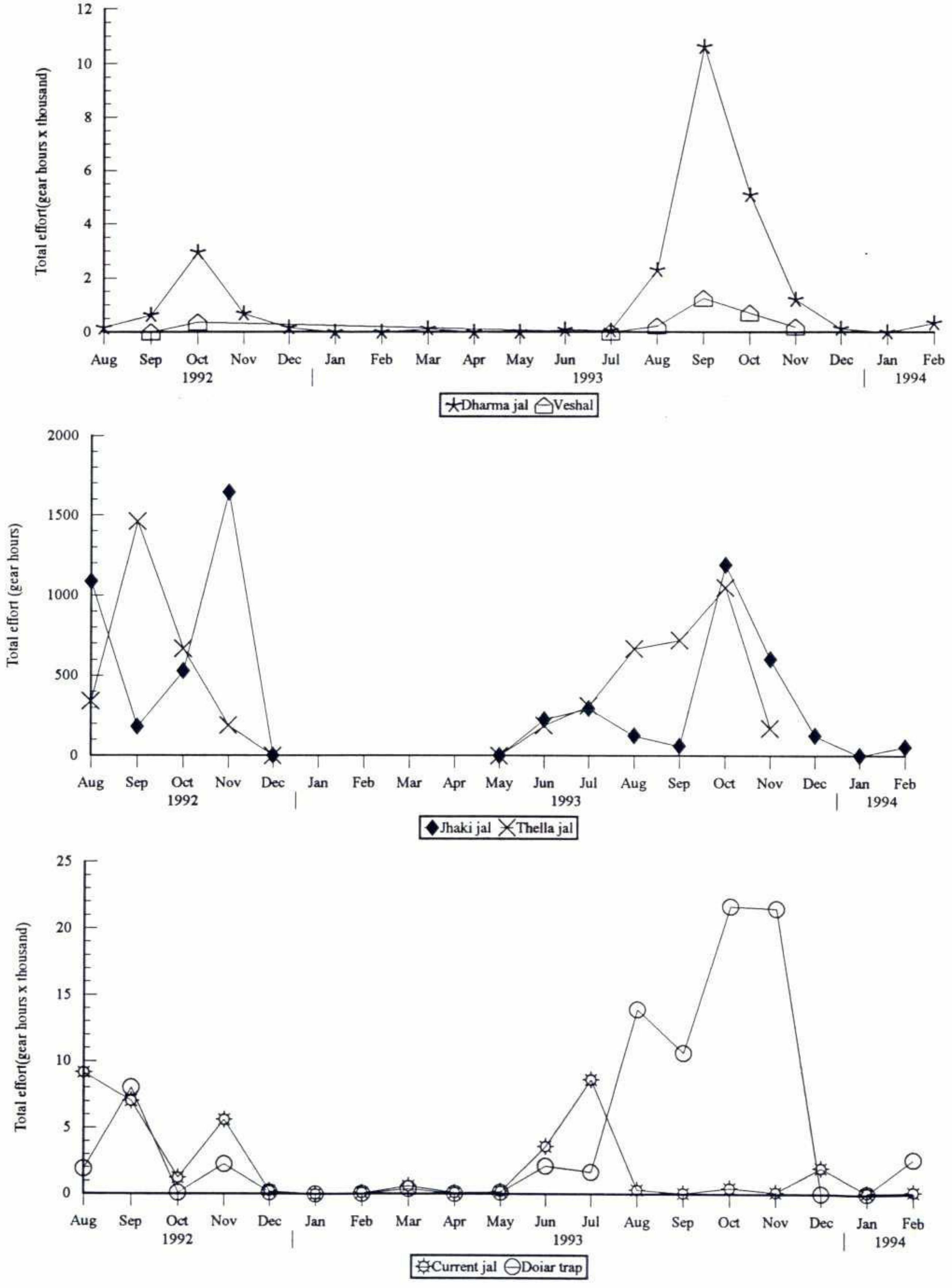
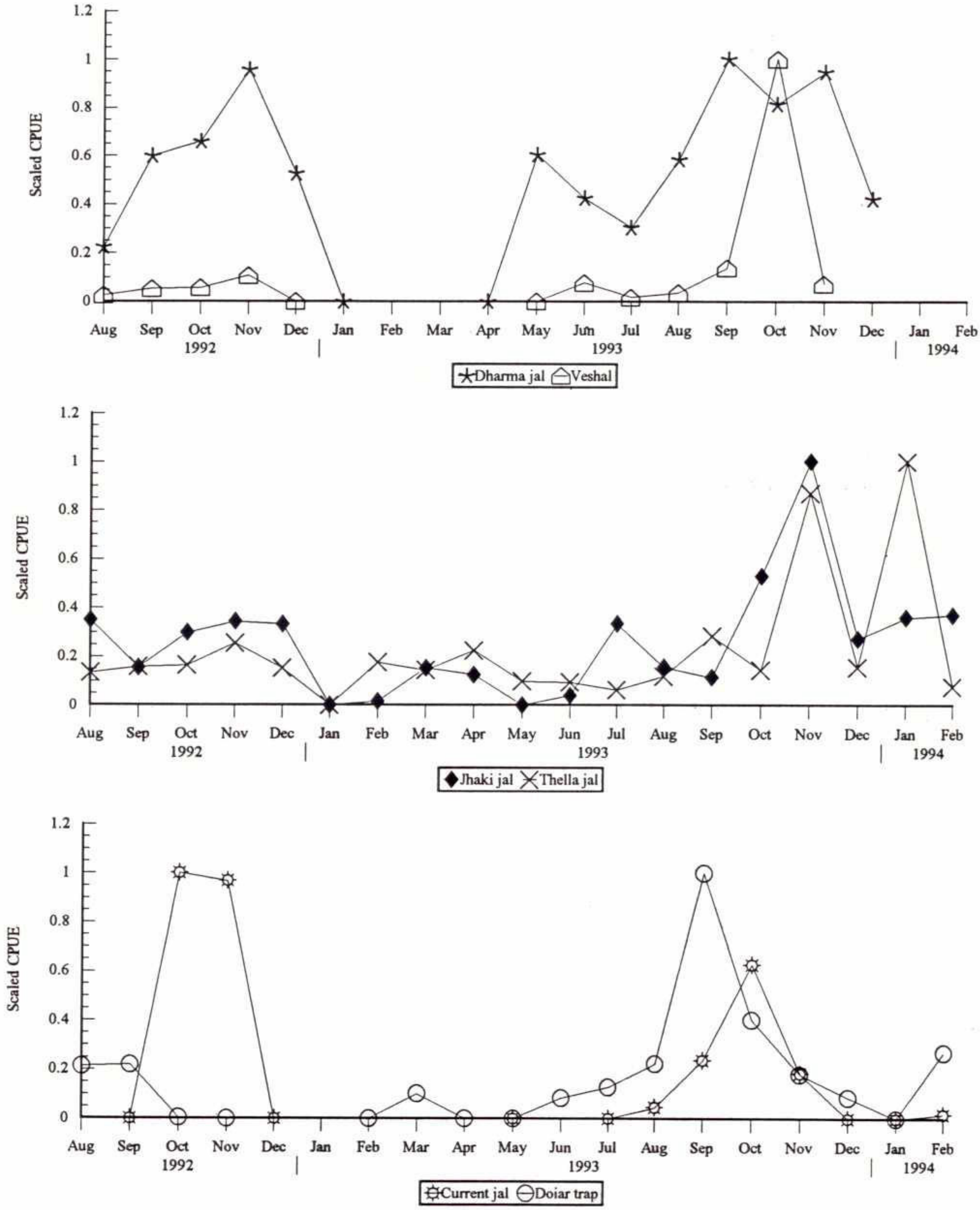


Figure 5.9 Catch rates (Scaled CPUE) of dominant gears: canals inside the Tangail CPP



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

Table 5.6 Statistical Comparison of Catches Per Unit Area Inside and Outside the Tangail CPP, March 1993 - February 1994.

		SEASON																	
		March - April			May - June			July - Sept			Oct - Nov			Dec - Feb					
		1			2			3			4			5			Total		
	Gear	Obs	Pred	Pred Out	Obs	Pred	Pred Out	Obs	Pred	Pred Out	Obs	Pred	Pred Out	Obs	Pred	Pred Out	Obs	Pred	Pred Out
OUTSIDE	105 SL	0.0	0.0		5.0	4.5		350.1	300.2		114.9	98.0		3.7	3.6		473.7	406.4	
	255 PU	4.2	4.2		5.3	5.7		43.9	69.1		85.6	88.8		4.7	4.4		143.6	172.1	
	164 CA	0.0	0.0		3.4	3.4		78.2	78.3		30.8	44.4		2.2	2.9		114.7	129.0	
	45 SE	0.0	0.0		0.0	0.0		102.1	102.1		0.0	0.0		0.0	0.0		102.1	102.1	
	307 HA	14.5	14.5		2.6	2.6		0.0	0.0		37.1	37.1		0.8	0.8		54.9	54.9	
	30 HO	0.0	0.0		2.1	2.1		9.0	9.0		17.0	17.0		2.6	2.6		30.8	30.8	
	88 SG	0.0	0.0		2.7	2.7		16.2	16.2		9.4	9.4		0.0	0.0		28.3	28.3	
	266 SL	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
	95 PT	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
	291 OT	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
TOTAL STD ERR		18.6	18.6 5.8		21.1	21.0 5.2		599.4	574.9 43.5		294.8	294.8 21.0		14.0	14.2 2.4		948.0	923.5 49.0	
INSIDE	105 SL	0.0	0.0	0.0	14.3	14.8	13.0	107.8	129.3	188.0	54.1	73.4	57.2	25.7	87.4	63.8	201.8	304.9	322.0
	255 PU	2.1	2.1	1.1	2.7	2.5	2.2	26.5	18.6	27.0	24.6	22.7	17.7	33.8	36.1	26.4	89.6	81.9	74.4
	164 CA	7.0	7.0	0.0	0.4	0.6	0.5	4.2	4.2	6.1	115.0	89.0	69.4	62.8	59.6	43.5	189.5	160.4	119.5
	45 SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	307 HA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	30 HO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	88 SG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	266 SL	0.0	0.0	0.0	3.9	3.9	3.4	37.9	37.9	55.1	201.6	201.6	157.1	0.0	0.0	0.0	243.4	243.4	215.6
	95 PT	0.3	0.3	0.1	1.3	1.3	1.1	34.3	34.3	49.9	60.4	60.4	47.1	27.4	27.4	20.0	123.7	123.7	118.3
	291 OT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL STD ERR		9.4	9.4 2.4	1.3 0.5	22.4	23.0 5.1	20.2 5.3	210.8	224.3 23.7	326.2 35.6	455.7	447.2 79.8	348.5 67.1	149.8	210.5 49.8	153.7 12.9	848.0	914.4 97.2	849.8 77.3

Comparison of the seasonally pooled catch rates by gear between inside and outside sites indicated that the main assumptions of statistical analysis were reasonably satisfied, with acceptable agreement between observed and predicted catch rates. Parameter estimates measuring the seasonal differences in underlying density of fish at the inside and outside sites indicated higher densities at the inside sites in seasons 1, 2, 4 and 5, and lower densities in season 3. Only the difference in season 3 was statistically significant when judged individually. Taken together, the seasonal densities at inside and outside sites are significantly different, but the statistical test was only marginally significant ($p=0.03$).

Total annual catches per kilometre by the 10 gears were quite similar at the inside and outside sites (Table 5.6). Estimates of standardised effort per kilometre, summed across all 10 gears and seasons, were derived from the statistical analysis. For the inside sites, the total standardised effort (measured in dharma jal hours per kilometre) was 8,970, compared with 10,408 for the outside sites.

To make allowance for this small difference in effort, estimates of the total annual catch per kilometre at inside sites, based on the observed effort pattern by gear at the inside sites, were calculated using both the predicted densities at inside and outside sites. The results are shown in Table 5.6. The predicted total catch per kilometre using the inside densities was 914.4 kg per kilometre (s.e. 97.2), while the corresponding figure predicted using the outside densities was 849.8 kg per kilometre (s.e. 77.3). This comparison suggests that the inside sites may have been slightly more productive than the outside sites, but the difference between the predicted values is nowhere near statistically significant.

5.3 Species Composition and Biodiversity

5.3.1 Species richness

A total of 90 species of fish was found in canals outside the CPP and 84 species in canals inside it. The numbers are comparable with those found in the three rivers over the same sampling period (79 - 89 species) but are considerably higher than the number of species found in canals in some parts of the Southwest Region, where total numbers ranged from 42 to 55. The regional difference is partly due to the shorter sampling period (13 months) in the southwest. If the same period is used on the North Central data, then species numbers recorded outside and inside the CPP decrease to 77 and 73 respectively; still considerably higher than in the southwest.

Seasonal changes in species number were similar inside and outside the CPP (Fig. 5.10) and followed the same trend as that in rivers (Fig. 4.11), with numbers rising during the flood season to peak at the time of the recession as fish leave the floodplains, followed by a decrease again during the winter.

5.3.2 Species composition

Percentage monthly catches by species are provided in Tables 5.7 and 5.8 for sites outside and inside the CPP respectively. Those species dominating the total catches for the period August 1992 to February 1994 are listed in Table 5.9. The composition of dominant species was very similar inside and outside the CPP, differing only in the relative contributions made by certain species.

It is clear from Table 5.9 that the greatest difference between sites was in the reduction of the abundance of major carps inside the CPP (6% of total catch) compared with sites outside it (30%). This reduction was most marked in 1993, when carp were generally more abundant. The reduction can be partly explained by the differences in timing of the first flow of river waters into beel and floodplains inside and outside the CPP and the effect of this on the supply of carp hatchlings delivered by these waters. Some sites outside the CPP (e.g. site 19) received waters from the Jamuna River in late May, but most first received river waters in mid-June. By contrast, within the CPP, Lohajang River waters did not flow into beel/floodplains until late June or early July. Since carp hatchlings first appeared in mid-May (Supporting Volume 11), the delay in reaching the floodplain inside the CPP resulted in a significantly lower recruitment which would be expected to result in lower catches later in the year.

A prominent feature of the composition of the dominant species list for all sites is the importance of typical floodplain resident species. This same characteristic was noted in rivers around Tangail. Of the species listed in Table 5.9 only the four major carps, catla, rui, mrigel and raik are migratory, while the minnow, fulchela is more typical of rivers. The remainder are species capable of remaining on the floodplain throughout the year and can therefore be categorised as floodplain residents, even though they also inhabit canals and rivers.

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Figure 5.10 Seasonal variation in the number of fish species recorded from canals inside and outside the Tangail CPP, August 1992 - February 1994

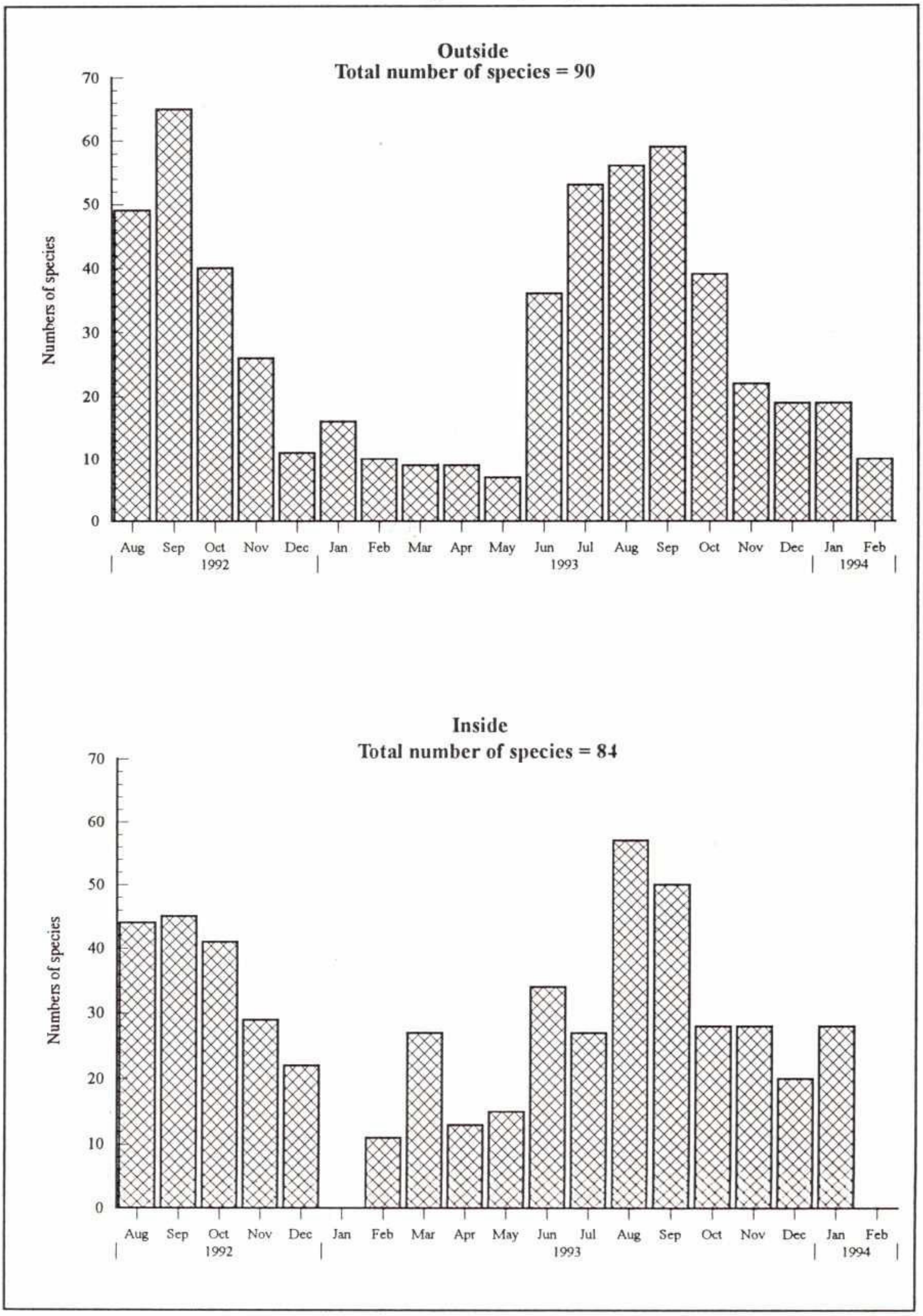

Table 5.7 Percentage total monthly catch by species: canals outside CPP

Species	Species name		Year: 1992					Year: 1993												Year: 1994		Total anuual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
32	*Catla catla*	*Catla*	4.533	4.170	–	–	–	–	–	–	–	–	0.471	12.903	14.876	22.992	1.442	–	–	–	–	1970.267	13.453
107	*Labeo rohita*	*Rui*	1.286	2.164	0.566	–	–	–	–	–	–	–	0.225	12.966	11.039	22.040	5.699	–	–	–	–	1945.655	13.285
180	*Puntius sophore*	*Puti*	5.631	9.026	38.836	61.570	33.714	26.461	37.149	3.395	–	16.452	29.249	11.722	6.765	2.924	23.586	48.664	21.459	24.898	16.500	1763.274	12.040
931	Prawn spp.	Prawn	2.339	38.446	0.697	0.357	–	7.672	8.813	0.231	12.703	18.772	1.088	10.594	3.330	11.149	20.326	8.697	4.475	15.572	14.965	1664.613	11.366
47	*Cirrhinus mrigala*	*Mrigel*	6.992	7.073	7.500	–	–	–	–	–	–	–	0.165	1.902	24.379	8.117	–	–	–	–	–	1270.260	8.673
41	*Channa punctatus*	*Taki*	1.398	2.568	10.466	6.667	6.118	19.783	15.927	10.403	14.242	–	5.293	3.614	1.934	3.194	10.162	13.749	19.365	24.717	13.809	802.193	5.477
123	*Macrognathus pancalus*	*Guchi*	2.434	0.761	2.943	0.526	4.925	0.487	–	17.187	16.224	33.151	2.894	4.701	1.589	4.983	4.508	2.266	3.863	0.534	4.019	594.941	4.062
83	*Glossogobius giurus*	*Bailla*	3.702	0.974	1.087	5.970	0.656	0.835	7.456	–	–	4.327	2.201	5.609	5.243	3.063	4.252	1.567	8.891	1.643	–	573.490	3.916
175	*Puntius conchonius*	*Canchan puti*	–	0.007	1.517	1.996	26.949	1.809	5.875	0.309	–	20.349	9.815	6.912	2.069	1.863	7.645	2.534	3.804	2.984	1.612	557.625	3.807
48	*Cirrhinus reba*	*Raik*	0.903	0.447	0.618	0.072	–	–	–	–	–	–	–	0.218	1.222	4.917	1.221	0.004	–	–	–	370.342	2.529
110	*Lepidocephalus guntea*	*Gutum*	0.731	2.377	2.663	6.387	4.486	4.339	1.199	8.520	15.833	1.179	1.090	1.933	0.272	0.893	4.159	4.537	7.018	1.179	12.432	280.530	1.915
55	*Colisa fasciatus*	*Khalisha*	0.552	2.414	1.986	1.531	–	15.136	5.823	4.097	6.599	–	2.985	0.794	0.712	1.152	3.642	2.652	4.233	0.774	22.670	267.276	1.825
137	*Mystus vittatus*	*Tengra*	1.855	2.601	8.378	6.393	13.151	13.811	–	2.225	–	–	8.103	2.116	1.034	0.792	2.829	0.912	3.509	10.263	1.419	236.464	1.615
102	*Labeo calbasu*	*Kalbaus*	0.290	0.313	–	–	–	–	–	–	–	–	–	0.240	2.027	1.823	–	0.006	–	–	–	172.870	1.180
75	*Esomus danricus*	*Darkina*	7.105	1.416	2.440	0.054	–	–	5.125	48.869	5.341	4.921	0.757	4.993	0.365	0.356	1.080	0.175	5.081	0.435	9.709	165.825	1.132
212	*Puntius ticto*	*Tit puti*	1.686	0.706	1.092	0.056	1.421	–	–	–	2.148	–	1.567	0.697	0.800	0.728	0.379	9.060	9.376	1.575	–	160.709	1.097
37	*Chanda ranga*	*Lal chanda*	1.228	0.435	1.146	0.388	–	0.094	3.412	–	–	–	1.397	1.087	1.300	0.639	1.319	0.765	0.713	1.359	–	145.156	0.991
122	*Mastacembelus armatus*	*Baral baim*	0.572	0.034	–	–	–	–	–	–	–	–	3.318	0.057	0.251	1.425	0.847	2.439	–	–	–	143.892	0.982
36	*Chanda nama*	*Nama Chanda*	0.670	0.181	0.330	0.479	–	0.680	–	–	–	–	0.228	2.832	1.968	0.357	0.421	0.396	0.897	0.272	–	126.639	0.865
189	*Salmostoma phulo*	*Fulchela*	7.566	3.928	0.091	0.027	–	–	–	–	–	–	0.541	2.824	1.748	0.397	0.305	–	0.897	–	–	115.490	0.789
210	*Xenentodon cancila*	*Kaikka*	0.343	0.898	0.176	0.594	6.373	–	–	–	–	–	0.338	0.820	0.572	0.473	1.207	0.870	2.172	2.920	–	107.556	0.734
5	*Amblypharygodon mola*	*Mola*	4.517	0.802	–	–	–	0.130	–	–	8.011	–	6.653	2.143	1.325	0.250	0.379	–	0.633	–	–	103.800	0.709
2	*Ailia coila*	*Kajuli*	0.010	0.014	0.003	–	–	–	–	–	–	–	–	0.123	2.049	0.222	0.054	–	–	–	–	81.727	0.558
56	*Colisa lalia*	*Lal Khalisha*	–	0.034	1.010	0.005	–	–	–	–	–	–	5.653	0.140	0.314	0.038	1.256	0.540	1.266	0.489	–	75.555	0.516
6	*Anabas testudineus*	*Koi*	0.114	0.389	0.059	0.018	–	–	7.509	–	–	–	–	0.215	1.520	0.207	0.187	–	0.952	–	–	70.491	0.481
91	*Hypophthalmichthys molitrix*	*Silver carp*	–	–	–	–	–	–	–	–	–	–	–	–	1.963	–	–	–	–	–	–	63.113	0.431
169	*Pseudeutropius atherinoides*	*Batasi*	0.070	0.106	0.010	–	–	–	–	–	–	–	0.172	0.039	1.535	0.093	–	0.002	–	–	–	55.403	0.378
86	*Gudusia chapra*	*Chapila*	0.174	0.103	0.505	–	–	–	–	–	–	–	0.377	0.497	1.344	0.036	0.090	–	–	–	–	53.397	0.365
178	*Puntius phutunio*	*Phutani puti*	–	0.027	–	–	–	–	–	–	–	–	0.611	0.086	0.384	0.050	0.938	0.038	–	0.544	–	51.808	0.354
131	*Mystus bleekeri*	*Golsha tengra*	–	–	1.737	–	–	2.815	–	–	–	–	0.245	1.440	0.020	0.319	0.362	–	–	6.599	–	50.570	0.345
121	*Macrognathus aculeatus*	*Tara baim*	0.573	0.526	3.347	0.218	–	–	–	–	17.981	–	2.102	0.751	0.528	0.083	0.264	–	–	–	–	44.841	0.306
211	*Colisa labiosus*	*Khalisha*	–	–	–	–	–	–	–	–	–	–	5.048	0.805	0.125	0.138	0.401	–	–	–	–	43.192	0.295
209	*Wallagu attu*	*Boal*	2.075	0.482	–	–	–	–	–	–	–	–	–	0.085	0.411	0.489	–	–	–	–	–	42.267	0.289
136	*Mystus tengara*	*Bajari tengra*	14.076	4.075	0.003	1.070	1.801	0.187	–	–	–	–	0.163	0.187	0.402	0.039	0.574	–	–	–	–	37.837	0.258
16	*Bagarius bagarius*	*Baghair*	0.108	0.017	–	–	–	–	–	–	–	–	–	–	–	0.617	–	–	–	–	–	35.762	0.244
100	*Labeo bata*	*Bata*	0.472	2.949	4.537	0.280	–	–	–	–	–	–	–	–	–	0.615	–	–	–	–	–	35.657	0.243
81	*Gagata youssoufi*	*Gang tengra*	0.054	0.057	0.124	–	–	–	–	–	–	–	0.241	0.695	0.529	0.155	0.047	–	–	–	–	33.864	0.231
188	*Salmostoma bacaila*	*Katari*	0.039	0.518	0.075	0.151	–	–	–	–	–	–	–	0.728	0.722	0.078	–	–	–	–	–	33.681	0.230
88	*Heteropneustes fossilis*	*Shingi*	0.472	0.129	1.456	–	–	1.610	1.713	4.764	–	–	1.031	0.693	0.160	0.225	0.056	0.028	–	0.472	2.344	33.023	0.225
28	*Botia dario*	*Rani*	0.062	0.150	–	–	–	–	–	–	–	–	–	0.298	0.298	0.234	0.055	–	–	–	–	27.539	0.188
132	*Mystus cavasius*	*Kabashi*	–	0.073	–	0.243	0.407	–	–	–	–	–	–	0.038	0.389	0.205	0.046	–	–	–	–	26.354	0.180
15	*Badis badis*	*Napit koi*	–	0.003	0.008	–	–	–	–	–	0.919	–	0.064	0.361	0.081	0.287	0.016	–	0.449	1.074	–	24.601	0.168
59	*Crossocheilus latius*	*Kalabata*	0.001	0.130	0.545	–	–	–	–	–	–	–	–	–	0.082	0.247	–	–	–	–	–	16.952	0.116
25	*Batasio tengana*	*Tengra*	–	–	–	–	–	–	–	–	–	–	–	–	0.001	0.285	–	–	–	–	–	16.572	0.113
130	*Aorichthys aor*	*Ayre*	0.595	0.152	–	–	–	–	–	–	–	–	–	0.154	0.471	–	–	–	–	–	–	16.396	0.112
101	*Labeo boga*	*Bhangan*	–	0.034	–	–	–	–	–	–	–	–	–	–	0.353	0.069	–	–	–	–	–	15.340	0.105
13	*Aspidoparia morar*	*Morari*	–	0.246	0.024	–	–	–	–	–	–	–	–	–	0.409	0.020	–	–	–	–	–	14.269	0.097
49	*Clarias batrachus*	*Magur*	–	–	–	–	–	2.020	–	–	–	–	–	–	0.137	0.148	–	–	–	–	–	12.984	0.089
120	*Macrobrachium rosenbergii*	*Golda*	–	–	–	–	–	1.777	–	–	–	–	–	–	–	0.183	–	–	–	–	–	10.588	0.072
139	*Nemacheilus botia*	*Balichata*	0.373	0.179	0.003	–	–	–	–	–	–	–	1.431	0.169	0.000	0.082	0.006	–	–	–	–	9.247	0.063
40	*Channa orientalis*	*Cheng*	–	–	–	–	–	–	–	–	–	–	0.562	0.230	0.159	–	–	–	–	–	–	8.107	0.055

Table 5.7 Percentage total monthly catch by species: canals outside CPP (Cont.)

Species	Species name		Year: 1992					Year: 1993												Year: 1994		Total anuual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
51	Clupisoma garua	Ghaura	0.365	0.784	–	–	–	–	–	–	–	–	–	0.054	0.115	0.068	–	–	–	–	–	8.079	0.055
9	Aplocheilus panchax	Kanpona	0.052	–	–	–	–	–	–	–	–	–	–	0.031	0.194	0.013	0.012	–	–	–	–	7.715	0.053
203	Tetraodon cutcutia	Potka	–	–	–	–	–	–	–	–	–	–	–	–	–	0.018	0.151	0.043	–	–	–	6.813	0.047
104	Labeo gonius	Goni	–	–	–	–	–	–	–	–	–	–	–	–	0.208	–	–	–	–	–	–	6.676	0.046
145	Notopterus notopterus	Foli	–	0.006	–	–	–	–	–	–	–	–	–	–	0.188	–	–	–	–	–	–	6.049	0.041
176	Puntius gelius	Giliputi	–	–	0.010	0.018	–	–	–	–	–	–	0.683	0.133	0.015	–	0.072	–	–	–	–	5.549	0.038
174	Puntius chola	Chala puti	–	0.141	–	–	–	–	–	–	–	–	2.191	0.058	–	–	–	–	–	–	–	4.866	0.033
198	Somileptes gongota	Gharpoia	0.150	–	–	–	–	–	–	–	–	–	–	0.054	–	0.064	–	–	–	–	–	4.158	0.028
163	Pisodonophis boro	Kharu	–	–	–	–	–	–	–	–	–	–	–	0.199	–	0.016	–	–	–	–	–	2.564	0.018
29	Botia lohachata	Putul	–	–	–	–	–	–	–	–	–	–	–	–	0.054	0.009	0.001	–	–	–	–	2.284	0.016
57	Colisa sota	Khalisha	0.024	1.405	1.645	0.018	–	0.352	–	–	–	–	–	–	–	0.003	–	–	–	1.697	0.522	1.843	0.013
154	Securicula gora	Chora chela	0.286	0.055	–	–	–	–	–	–	–	–	–	–	–	0.031	–	–	–	–	–	1.797	0.012
181	Puntius terio	Teri punti	–	0.627	1.934	4.720	–	–	–	–	–	–	0.821	–	–	–	0.004	–	–	–	–	1.778	0.012
33	Chaca chaca	Cheka	0.012	0.000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.949	–	–	1.116	0.008
68	Danio devario	Chebli	–	0.010	–	–	–	–	–	–	–	–	–	–	0.014	0.007	–	–	–	–	–	0.850	0.006
218	Barilius evezardi		–	–	–	–	–	–	–	–	–	–	–	–	–	0.011	–	–	–	–	–	0.642	0.004
58	Corica soborna	Kachki	–	0.661	–	–	–	–	–	–	–	–	–	–	–	0.007	–	–	–	–	–	0.385	0.003
109	Lepidocephalus berdmorei	Puiya	–	–	–	–	–	–	–	–	–	–	0.183	0.001	–	–	–	–	–	–	–	0.376	0.003
42	Channa striatus	Shol	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.055	–	–	–	0.350	0.002
69	Brachydanio rerio	Anju	–	–	–	–	–	–	–	–	–	0.849	–	0.001	–	–	–	–	–	–	–	0.276	0.002
214	Oryzias melastigma	Kanpona	–	–	–	–	–	–	–	–	–	–	–	–	0.008	–	–	–	–	–	–	0.265	0.002
30	Brachygobius nunus	Nunabailla	–	–	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	–	0.257	0.002
923	Sicamugil cascasia		–	–	–	–	–	–	–	–	–	–	–	0.028	–	0.057	–	–	–	–	–	0.233	0.002
39	Channa marulius	Gajar	–	–	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	–	0.219	0.001
76	Eutropiichthys vacha	Bacha	0.001	0.003	–	–	–	–	–	–	–	–	–	0.016	–	–	–	–	–	–	–	0.128	0.001
135	Aorichthys seenghala	Guizza	–	–	–	–	–	–	–	–	–	–	–	0.012	–	–	–	–	–	–	–	0.101	0.001
35	Chanda baculis	Chanda	–	–	0.007	–	–	–	–	–	–	–	0.045	–	–	–	–	–	–	–	–	0.090	0.001
77	Gagata cenia	Kauwa	–	–	–	–	–	–	–	–	–	–	–	0.002	0.001	–	–	–	–	–	–	0.044	0.0003
173	Puntius cosuatis	Kosuati	–	–	0.258	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
79	Gagata nangra	Gang tengra	0.002	0.003	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
187	Osteobrama cotio cotio	Keti	0.002	0.002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
128	Liza parsia	Bata	0.004	0.000	0.003	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
182	Rasbora daniconius	Darkina	0.164	0.060	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
127	Liza melinoptera	Bata	–	0.028	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
179	Puntius sarana	Sarputi	–	0.035	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
117	Machrobrachium styliferus	Gura icha	–	–	0.068	0.181	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
133	Mystus gulio	Nuna tengra	–	0.017	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
114	Machrobrachium lammariei	Kunchu icha	–	–	0.091	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
184	Rasbora rasbora	Leuzza darkina	–	0.163	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	Ailia punctata	Kajuli	–	0.142	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
148	Ompok pabda	Madhu pabda	0.033	0.024	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
193	Setipinna phasa	Phasa	–	0.113	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
43	Chela cachius	Chep Chela	0.078	0.002	0.003	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
939	Puntius sp.		9.723	1.501	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
940	Awaous sp		13.504	2.085	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	14645.507	100.000

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Table 5.8 Percentage total monthly catch by species: canals inside CPP

Species Code	Species name: Scientific	Species name: Bengali	Year: 1992 Aug	Sep	Oct	Nov	Dec	Year: 1993 Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year: 1994 Jan	Feb	Total annual catch (Mar'93 – Feb'94) Kg	%
180	*Puntius sophore*	*Puti*	12.414	18.056	40.429	45.099	37.823	0.196	6.714	3.576	4.574	16.251	17.293	8.574	10.676	17.316	37.318	28.043	16.782	36.006	1752.167	19.814
931	Prawn spp.	Prawn	15.468	0.832	8.238	2.808	1.483	7.690	4.874	3.016	6.362	3.443	6.873	30.833	9.275	20.292	10.349	8.690	24.910	5.062	1294.830	14.643
210	*Xenentodon cancila*	*Kaikla*	1.583	5.782	6.926	1.349	1.131	–	0.605	–	–	1.823	1.231	7.549	7.861	14.310	2.295	1.374	4.937	2.472	751.908	8.503
41	*Channa punctatus*	*Taki*	3.783	4.384	5.616	26.004	9.857	13.683	22.387	15.018	19.621	3.441	4.284	1.590	3.993	5.224	8.856	22.249	13.669	14.955	593.458	6.711
83	*Glossogobius giurus*	*Bailla*	2.391	1.075	1.807	0.283	0.826	–	3.599	1.669	0.955	2.443	2.654	6.459	8.225	2.062	4.899	1.743	9.044	2.034	385.010	4.354
137	*Mystus vittatus*	*Tengra*	2.460	2.428	6.351	3.129	20.844	0.432	10.098	2.145	21.896	13.217	9.770	3.119	2.222	2.273	6.839	7.235	2.692	9.448	367.200	4.152
123	*Macrognathus pancalus*	*Guchi*	9.293	5.536	2.508	3.393	0.116	3.276	8.195	28.689	10.059	3.872	5.638	2.465	4.007	4.791	2.685	2.133	6.097	2.235	362.547	4.100
110	*Lepidocephalus guntea*	*Gutum*	1.802	2.076	2.539	4.236	2.650	60.235	6.428	6.234	9.930	2.943	2.146	2.145	1.584	4.163	6.014	2.226	3.447	0.958	320.063	3.619
175	*Puntius conchonius*	*Canchan puti*	–	–	2.140	2.296	0.393	–	0.245	–	3.773	9.186	19.216	2.017	1.268	5.077	2.323	1.372	2.159	0.101	309.421	3.499
107	*Labeo rohita*	*Rui*	1.659	7.284	–	–	–	–	–	–	–	–	–	5.214	12.378	0.182	–	–	–	–	276.824	3.130
55	*Colisa fasciatus*	*Khalisha*	2.593	4.544	3.226	4.400	7.438	0.245	5.668	0.715	1.405	7.280	8.115	0.422	1.492	2.615	3.210	1.887	4.964	4.820	243.409	2.753
203	*Tetraodon cutcutia*	*Potka*	–	0.339	0.290	–	0.046	–	0.106	–	–	–	–	0.027	2.415	4.533	2.112	0.224	–	–	241.313	2.729
88	*Heteropneustes fossilis*	*Shingi*	1.066	0.639	0.704	1.015	3.630	6.641	22.065	28.266	–	1.208	0.622	1.128	0.615	2.175	–	1.141	–	13.409	191.567	2.166
75	*Esomus danricus*	*Darkina*	0.062	0.497	1.308	0.878	–	1.648	0.211	0.715	4.349	6.057	0.775	2.297	5.599	0.370	1.569	0.344	–	0.233	175.579	1.986
32	*Catla catla*	*Catla*	6.915	10.426	0.822	–	–	–	–	–	–	–	0.510	0.147	5.474	0.306	–	–	–	–	122.348	1.384
121	*Macrognathus aculeatus*	*Tara baim*	3.468	0.117	0.593	0.321	–	–	0.222	6.436	–	4.279	0.881	–	0.959	2.245	0.203	0.301	–	0.379	113.337	1.282
42	*Channa striatus*	*Shol*	–	0.062	–	–	5.204	–	–	–	–	–	–	–	–	0.087	5.371	–	–	1.517	95.765	1.083
212	*Puntius ticto*	*Tit puti*	1.314	2.193	0.012	–	1.160	–	0.426	–	–	0.344	1.000	0.256	0.372	1.550	0.728	1.108	–	0.171	80.260	0.908
37	*Chanda ranga*	*Lal chanda*	0.561	0.321	2.456	0.262	0.138	–	0.220	0.358	5.690	3.570	2.353	2.652	0.978	0.697	0.433	0.750	0.075	0.606	78.599	0.889
5	*Amblypharygodon mola*	*Mola*	0.112	0.839	0.038	0.007	–	–	–	–	0.747	0.240	3.956	2.039	1.199	0.478	0.364	0.222	4.928	0.646	74.492	0.842
6	*Anabas testudineus*	*Koi*	0.266	0.531	0.692	0.869	–	2.933	–	–	0.300	0.057	0.447	1.335	0.070	1.738	0.056	–	–	–	69.440	0.785
182	*Rasbora daniconius*	*Darkina*	0.051	2.074	0.026	–	2.073	–	–	–	–	1.248	–	–	0.626	0.090	3.029	0.043	–	0.199	67.666	0.765
33	*Chaca chaca*	*Cheka*	–	–	–	–	–	–	–	2.449	–	3.586	–	–	1.667	0.763	–	–	–	–	66.695	0.754
56	*Colisa lalia*	*Lal Khalisha*	–	0.183	0.016	–	–	–	0.486	–	0.634	1.078	0.666	0.685	0.983	0.962	0.042	0.938	1.862	0.059	65.965	0.746
40	*Channa orientalis*	*Cheng*	–	–	–	0.304	–	–	–	–	8.958	1.722	–	0.046	2.637	0.039	0.053	–	–	–	61.038	0.690
211	*Colisa labiosus*	*Khalisha*	–	0.177	0.026	–	–	–	0.083	0.715	–	3.994	3.681	0.411	0.819	0.658	0.022	–	–	0.015	55.784	0.631
47	*Cirrhinus mrigala*	*Mrigel*	0.038	4.404	–	–	–	–	–	–	–	–	–	–	2.571	0.083	–	–	–	–	54.610	0.618
51	*Clupisoma garua*	*Ghaura*	–	–	–	–	–	–	–	–	–	–	0.910	10.024	0.448	0.036	–	–	–	–	53.433	0.604
62	*Cyprinus carpio*	*Karfu*	–	–	–	–	–	–	–	–	–	–	0.355	–	–	0.170	0.882	15.627	–	–	49.825	0.563
48	*Cirrhinus reba*	*Raik*	1.272	2.029	0.276	–	–	–	–	–	–	–	–	–	1.656	0.405	–	–	–	–	47.430	0.536
136	*Mystus tengara*	*Bajari tengra*	13.826	6.198	3.278	0.696	1.281	–	0.475	–	–	2.861	0.510	–	–	1.127	–	0.220	–	0.047	46.533	0.526
36	*Chanda nama*	*Nama Chanda*	2.604	2.258	0.801	0.187	0.161	–	0.030	–	0.747	0.297	4.878	1.571	0.375	0.342	0.231	0.197	1.196	0.309	43.479	0.492
130	*Aorichthys aor*	*Ayre*	–	–	0.039	–	–	–	–	–	–	–	–	–	0.974	0.545	–	–	–	–	38.576	0.436
181	*Puntius terio*	*Teri punti*	4.840	4.335	4.290	0.982	–	–	–	–	–	–	–	–	0.605	0.568	–	–	0.165	0.011	32.294	0.365
102	*Labeo calbasu*	*Kalbaus*	0.009	0.659	–	–	–	–	–	–	–	–	–	–	1.128	0.274	–	–	–	–	32.242	0.365
178	*Puntius phutunio*	*Phutani puti*	–	–	0.125	0.028	–	–	–	–	–	0.390	0.730	4.352	0.309	0.114	–	–	0.113	–	30.427	0.344
131	*Mystus bleekeri*	*Golsha tengra*	–	–	–	0.052	–	–	0.233	–	–	1.115	–	–	0.314	0.234	–	0.258	0.220	2.711	28.278	0.320
189	*Salmostoma phulo*	*Fulchela*	0.239	0.199	0.755	–	–	–	–	–	–	0.418	–	0.050	0.232	0.478	0.004	0.287	1.753	–	25.743	0.291
145	*Notopterus notopterus*	*Foli*	–	–	–	–	–	–	–	–	–	–	–	–	0.740	0.010	–	–	–	–	15.231	0.172
49	*Clarias batrachus*	*Magur*	–	0.423	0.084	–	–	–	1.473	–	–	–	–	–	0.298	–	–	–	–	1.469	14.178	0.160
35	*Chanda baculis*	*Chanda*	–	–	–	0.028	–	–	–	–	–	0.827	–	0.598	0.481	–	–	–	–	0.059	13.794	0.156
209	*Wallagu attu*	*Boal*	–	5.187	–	–	–	–	4.754	–	–	–	–	–	0.221	–	–	–	–	–	12.139	0.137
198	*Somileptes gongota*	*Gharpoia*	–	–	–	–	–	–	–	–	–	1.931	–	–	0.383	–	–	–	–	–	11.034	0.125
15	*Badis badis*	*Napit koi*	0.333	0.204	0.113	0.036	–	2.197	–	–	–	–	0.266	0.490	0.181	0.047	0.005	0.568	0.263	0.047	9.577	0.108

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Table 5.8 Percentage total monthly catch by species: canals inside CPP(Cont.)

Species	Species name		Year: 1992					Year: 1993											Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
101	*Labeo boga*	*Bhangan*	0.077	–	–	–	–	–	–	–	–	–	–	–	–	0.204	–	–	–	–	7.123	0.081
122	*Mastacembelus armatus*	*Baral baim*	4.001	1.479	0.025	0.130	2.360	–	–	–	–	–	–	–	0.199	0.078	–	–	–	–	6.715	0.076
81	*Gagata youssoufi*	*Gang tengra*	0.923	–	–	–	–	–	–	–	–	–	0.064	0.157	0.244	–	–	–	–	–	5.670	0.064
100	*Labeo bata*	*Bata*	–	0.518	0.620	–	–	–	–	–	–	–	–	–	0.229	–	–	–	–	–	4.598	0.052
28	*Botia dario*	*Rani*	0.005	–	0.035	–	–	–	–	–	–	–	–	–	0.154	0.032	–	–	–	–	4.199	0.047
176	*Puntius gelius*	*Giliputi*	–	0.013	0.126	0.028	–	–	–	–	–	0.052	0.175	0.104	0.010	0.062	0.056	–	–	0.006	4.159	0.047
174	*Puntius chola*	*Chala puti*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.104	–	–	–	–	3.622	0.041
9	*Aplocheilus panchax*	*Kanpona*	–	–	–	–	0.101	0.824	0.017	–	–	0.314	–	0.014	0.105	0.001	0.011	0.100	–	0.017	3.172	0.036
76	*Eutropiichthys vacha*	*Bacha*	–	–	–	–	–	–	–	–	–	–	–	–	0.149	–	–	–	–	–	3.004	0.034
151	*Oreochromis nilotica*	*Nilotica*	–	–	–	–	–	–	–	–	–	–	–	0.390	–	–	–	–	0.669	–	2.714	0.031
68	*Danio devario*	*Chebli*	–	–	–	–	–	–	–	–	–	–	–	–	0.124	–	–	–	–	–	2.496	0.028
2	*Ailia coila*	*Kajuli*	1.030	0.196	–	–	–	–	–	–	–	–	–	0.131	0.096	–	–	–	–	–	2.468	0.028
169	*Pseudeutropius atherinoides*	*Batasi*	0.246	0.117	0.121	–	–	–	–	–	–	–	–	0.005	–	0.050	–	–	–	–	1.766	0.020
945	*Crab sp*	*Kakra*	–	–	–	–	–	–	–	–	–	–	–	–	0.084	–	–	–	–	–	1.680	0.019
188	*Salmostoma bacaila*	*Katari*	0.734	0.384	–	–	–	–	0.036	–	–	–	–	0.182	0.040	–	–	–	–	–	1.607	0.018
91	*Hypophthalmichthys molitrix*	*Silver carp*	–	–	–	–	–	–	–	–	–	–	–	0.381	–	–	–	–	–	–	1.573	0.018
86	*Gudusia chapra*	*Chapila*	0.002	–	–	–	–	–	–	–	–	–	–	0.143	0.046	–	–	–	–	–	1.509	0.017
7	*Anguilla bengalensis*	*Bamosh*	–	–	–	–	–	–	–	–	–	–	–	–	0.070	–	–	–	–	–	1.401	0.016
132	*Mystus cavasius*	*Kabashi*	–	0.044	0.308	–	–	–	–	–	–	–	–	–	0.065	–	–	–	–	–	1.310	0.015
150	*Oreochromis mossambica*	*Tilapia*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.641	–	–	1.188	0.013
57	*Colisa sota*	*Khalisha*	0.413	0.206	1.632	0.688	0.230	–	–	–	–	0.024	–	–	–	0.008	0.042	–	0.055	–	1.088	0.012
69	*Brachydanio rerio*	*Anju*	–	–	–	–	–	–	–	–	–	0.048	–	–	0.043	–	–	–	–	–	0.957	0.011
139	*Nemacheilus botia*	*Balichata*	0.013	–	–	–	–	–	–	–	–	0.057	–	–	–	0.019	–	–	–	–	0.743	0.008
109	*Lepidocephalus berdmorei*	*Puiya*	–	–	–	–	–	–	0.017	–	–	0.383	–	–	–	–	–	–	–	–	0.686	0.008
214	*Oryzias melastigma*	*Kanpona*	–	–	–	–	–	–	–	–	–	–	–	–	0.010	0.012	–	–	–	–	0.619	0.007
13	*Aspidoparia morar*	*Morari*	–	–	–	–	–	–	–	–	–	–	–	–	0.018	–	–	–	–	–	0.367	0.004
148	*Ompok pabda*	*Madhu pabda*	0.073	0.196	–	–	–	–	0.176	–	–	–	–	–	–	–	–	0.038	–	–	0.356	0.004
138	*Nandus nandus*	*Bheda*	0.146	0.017	0.063	0.371	0.275	–	0.157	–	–	–	–	–	–	–	–	–	–	–	0.255	0.003
191	*Scatophagus argus*	*Bishtara*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	0.137	0.002
59	*Crossocheilus latius*	*Kalabata*	–	–	–	–	–	–	–	–	–	–	–	–	0.006	–	–	–	–	–	0.123	0.001
133	*Mystus gulio*	*Nuna tengra*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.041	–	–	0.076	0.001
199	*Arius gagora*	*Gagla*	1.153	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
43	*Chela cachius*	*Chep Chela*	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
142	*Nemacheilus scaturigina*	*Dari*	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	*Botia lohachata*	*Putul*	–	0.025	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
184	*Rasbora rasbora*	*Leuzza darkina*	–	0.408	0.002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
183	*Rasbora elanga*	*Sephatia*	–	–	0.125	0.028	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
45	*Chelonodon fluviatilis*	*Potka*	–	–	–	–	0.781	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
54	*Coilia ramcarati*	*Olua*	0.262	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
170	*Pseudapocryptes lanceolatus*	*Chewa*	–	0.108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	*Bagarius bagarius*	*Baghair*	0.352	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
154	*Securicula gora*	*Chora chela*	0.130	–	0.418	0.093	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	8842.889	100

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Table 5.9 Percentage Contribution of Dominant Species to the total Canal Catch Inside and Outside the Tangail CPP, August 1992 - February 1994

Species Name	Outside	Inside
Prawn spp.	13.4	11.4
Puntius sophore	13.4	24.4
Catla catla	10.5	2.0
Labeo rohita	9.8	2.7
Cirrhinus mrigala	8.0	<1
Channa punctatus	5.1	9.2
Glossogobius giurus	3.4	3.3
Macrognathus pancalus	3.4	4.2
Puntius conchonius	2.9	2.8
Mystus vittatus	2.3	4.1
Lepidocephalus guntea	2.0	3.5
Cirrhinus reba	2.0	<1
Mystus tengara	2.0	1.7
Colisa fasciatus	1.9	3.2
Salmostoma phulo	1.7	<1
Esomus danricus	1.7	1.6
Puntius ticto	1.1	<1
Amblypharygodon mola	1.0	<1
Chanda ranga	1.0	<1
Xenentodon cancila	<1	6.8
Tetraodon cutcutia	<1	1.9
Heteropneustes fossilis	<1	1.8
Puntius terio	<1	1.1
Macrognathus aculeatus	<1	1.1

6. FLOODPLAIN FISHERIES

6.1 Total Catch

6.1.1 Pattern of catch

Seasonal trends in catch were generally similar at paired sites inside and outside the CPP (Figs. 6.1 - 6.3). The small depression-type beels and associated floodplain supported little or no fishing during the winter and pre-monsoon periods (December - May) either inside or outside the CPP (Fig. 6.1). Catches gradually increased during the monsoon before rising very sharply during and immediately following the drawdown when fish were concentrated into the remaining small area of water in the beel.

In the larger baor-type beel, substantial catches extended into the dry season principally because of katha fishing. Peak catches were again observed during the flood drawdown both inside and outside the CPP.

The lower-lying floodplain sites associated with baor-type beel supported more fishing during the winter and pre-monsoon seasons (Fig. 6.3) than the floodplains on higher land (Figs. 6.1 and 6.4). Catches during this time remained low and rather variable, but increased dramatically during the September flood drawdown both inside and outside the CPP. Yields remained high during October within the CPP while dropping sharply outside it, and catches rose again in December due to katha and kua fishing both inside and outside the CPP.

The floodplain site at the highest land elevation hardly flooded at all during the dry year of 1992, resulting in very low catches (Fig. 6.4). The following year catches here fluctuated more than at other sites during the rising floods and exhibited only a modest rise during the flood drawdown before the land dried out again in February 1994. The baor like beel associated with this higher floodplain showed the usual catch increases in September of both years, but supported little fishing during the winter and pre-monsoon (Fig. 6.4).

When the catches from all sites are combined together, some slight differences between inside and outside the CPP emerge (Fig. 6.5). Compared with sites outside, catches observed within the CPP showed little initial increase during the monsoon months of July and August, but remained higher after the drawdown and during the winter months of December and February.

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Figure 6.1 Catch per unit area (kg/ha) from floodplains/beel inside and outside the Tangail CPP

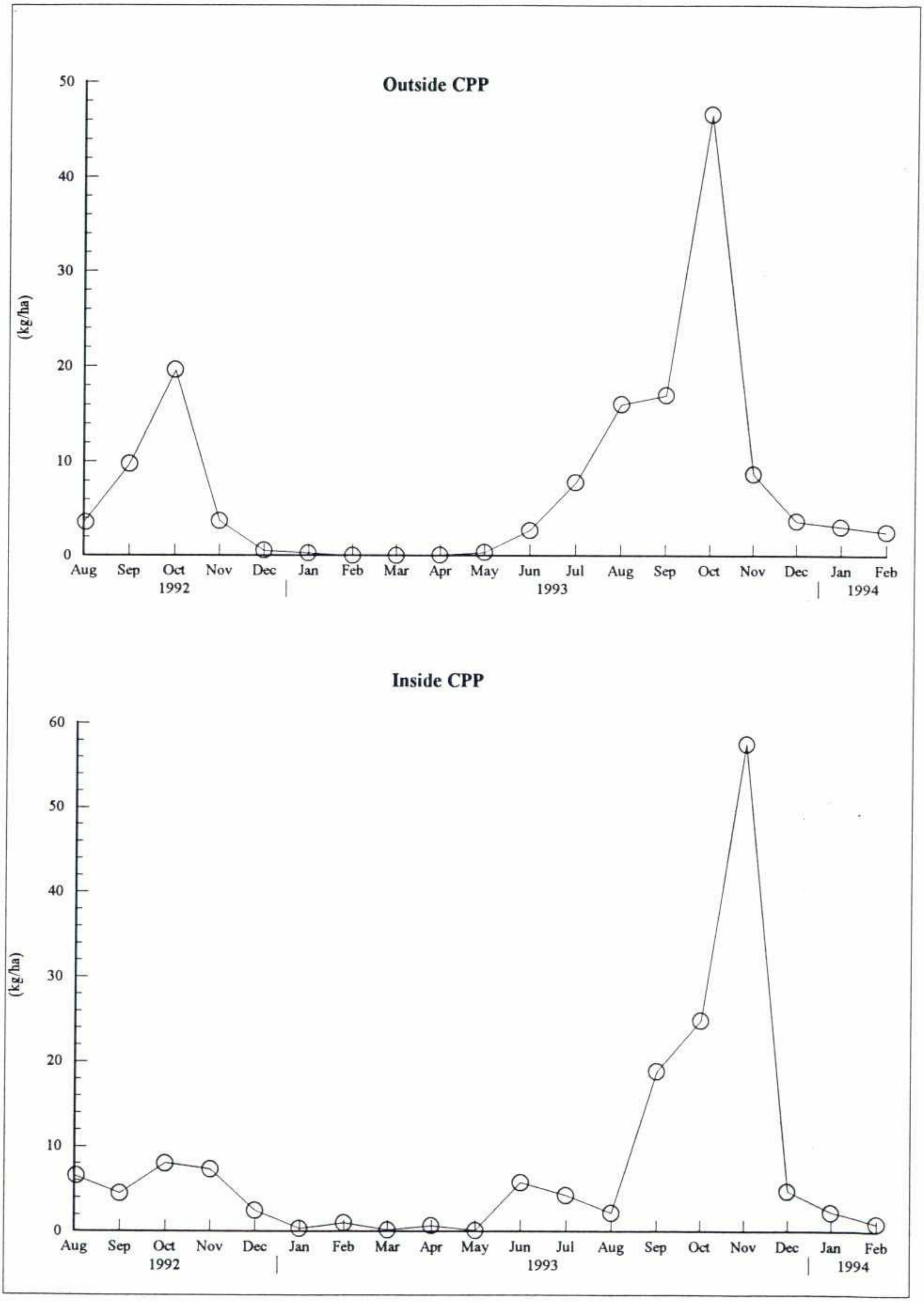

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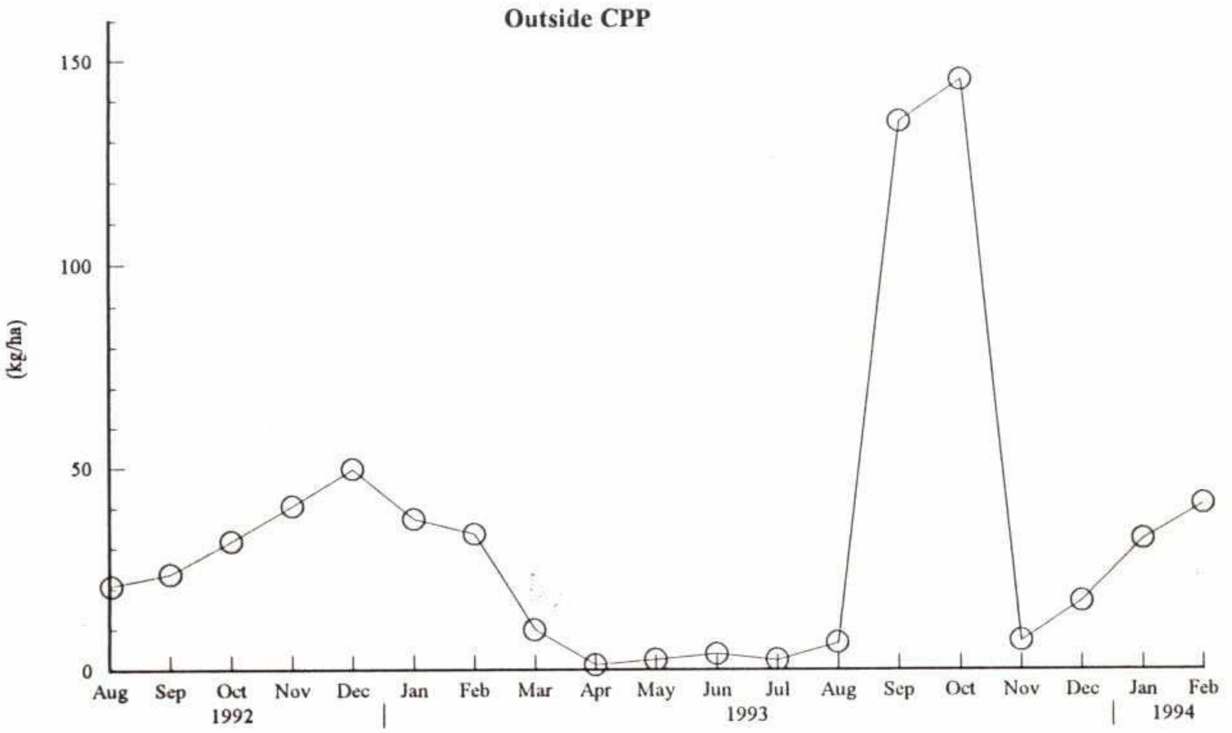
Figure 6.2 Catch per unit area (kg/ha) from baor-like beel inside and outside the Tangail CPP



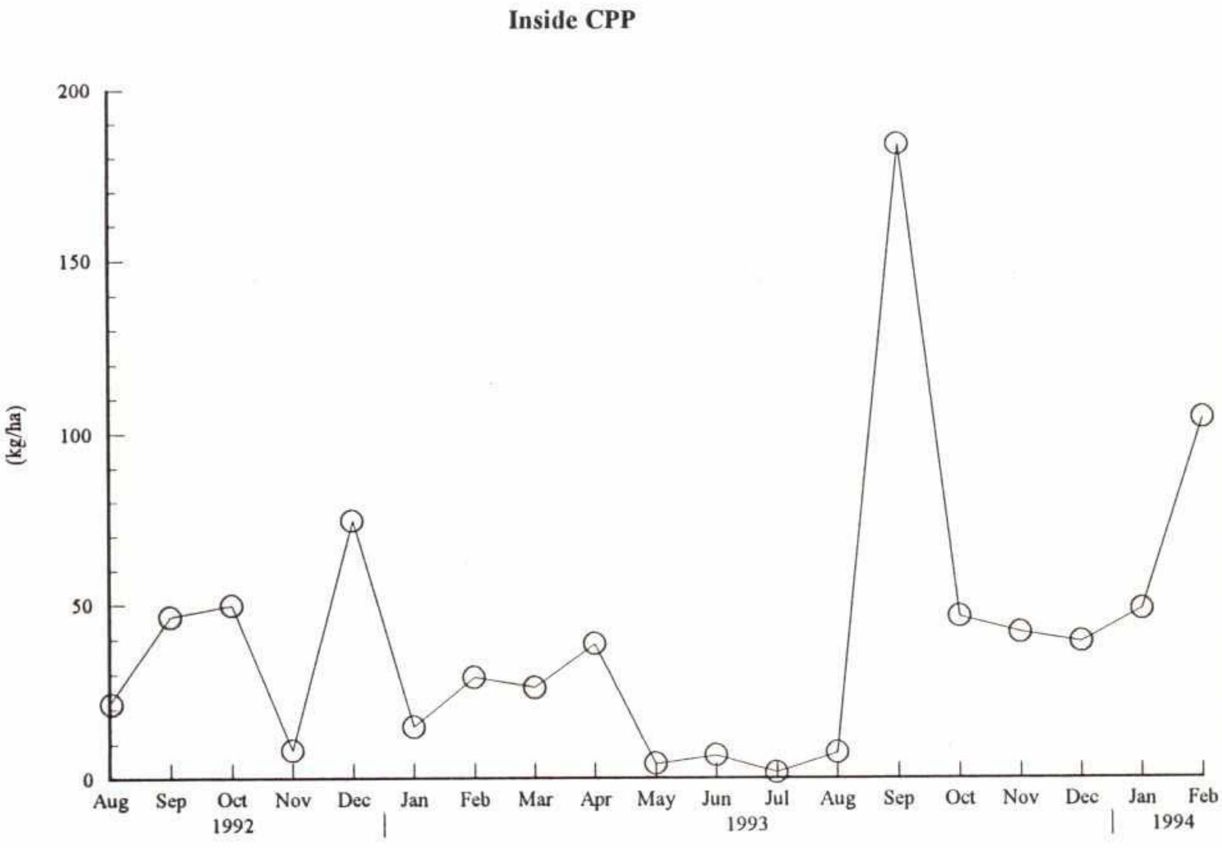


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Figure 6.3 Catch per unit area (kg/ha) from lower-lying floodplains inside and outside the Tangail CPP

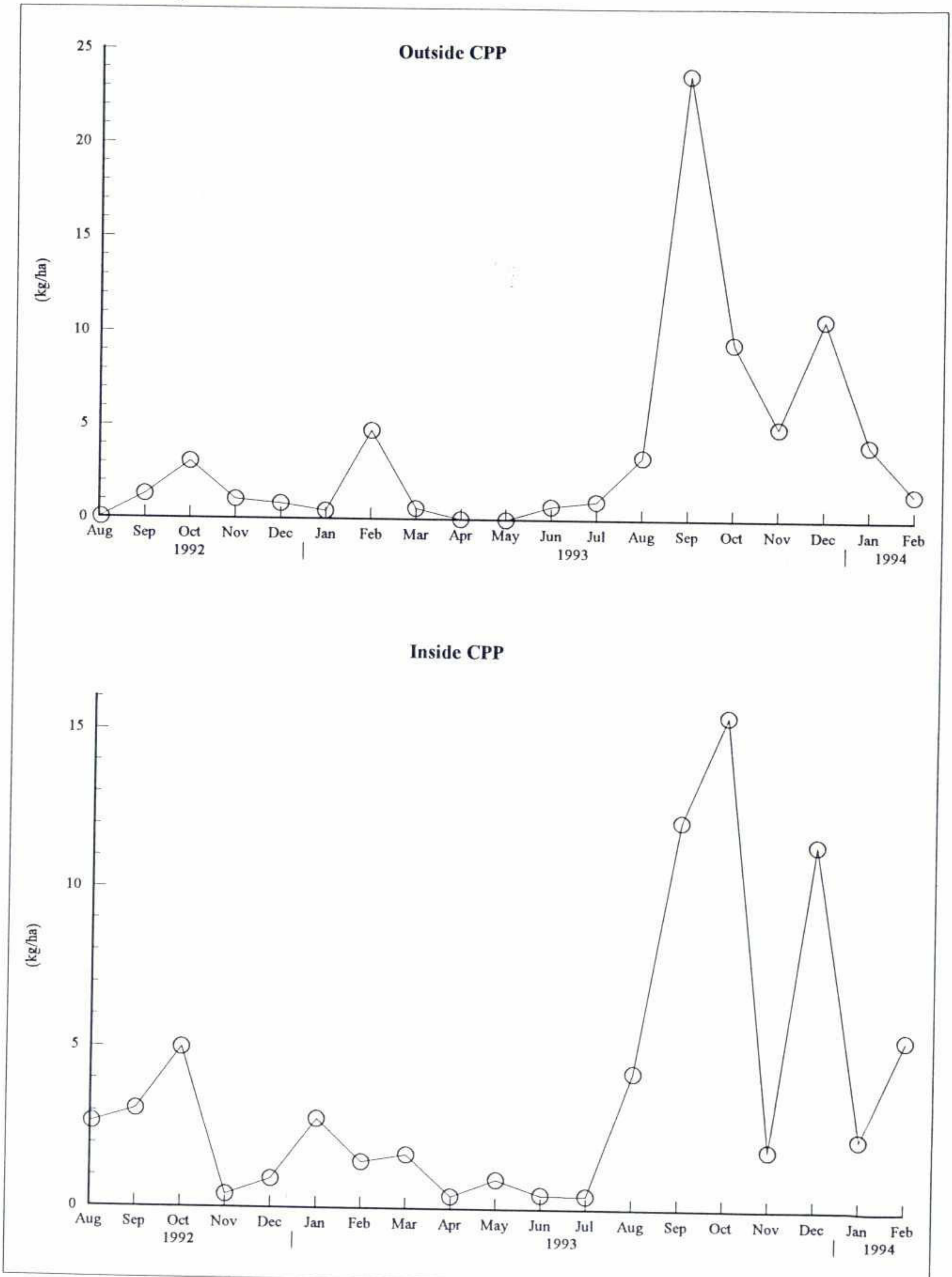
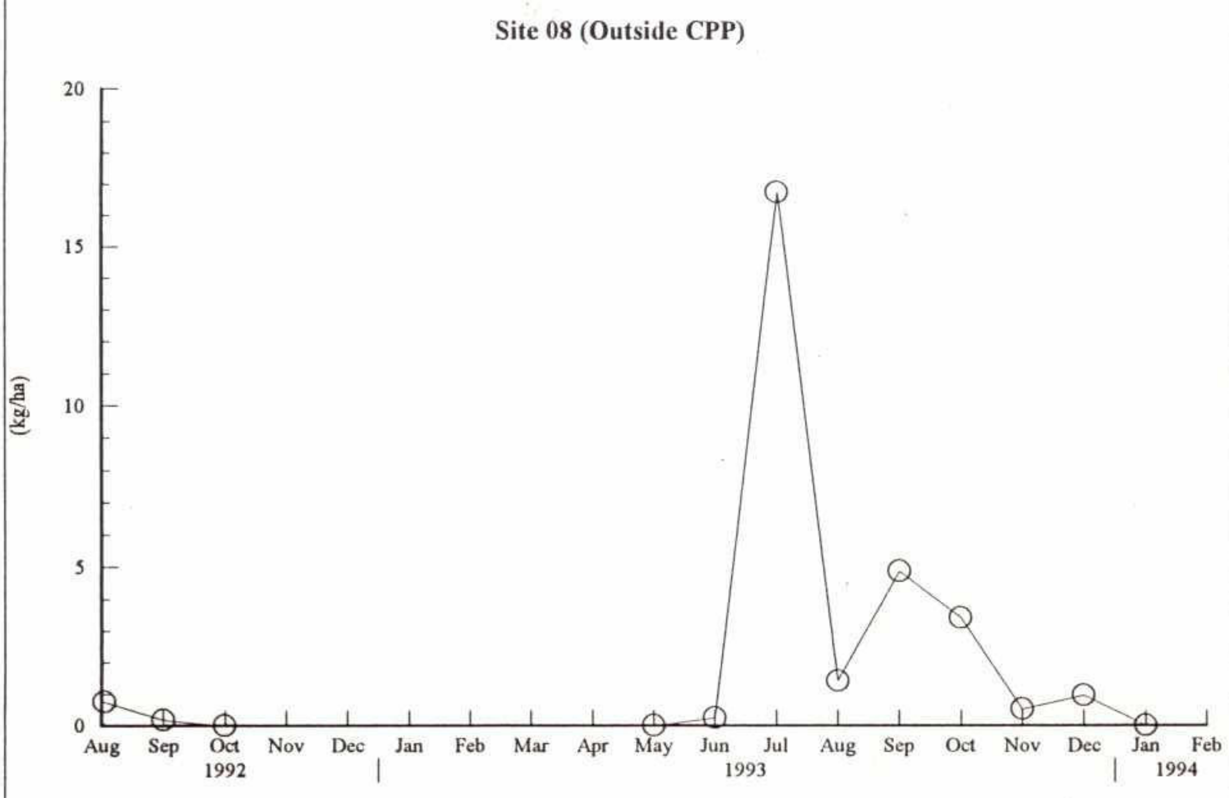


Figure 6.4 Catch per unit area (kg/ha) from higher elevation floodplains and beel outside the Tangail CPP



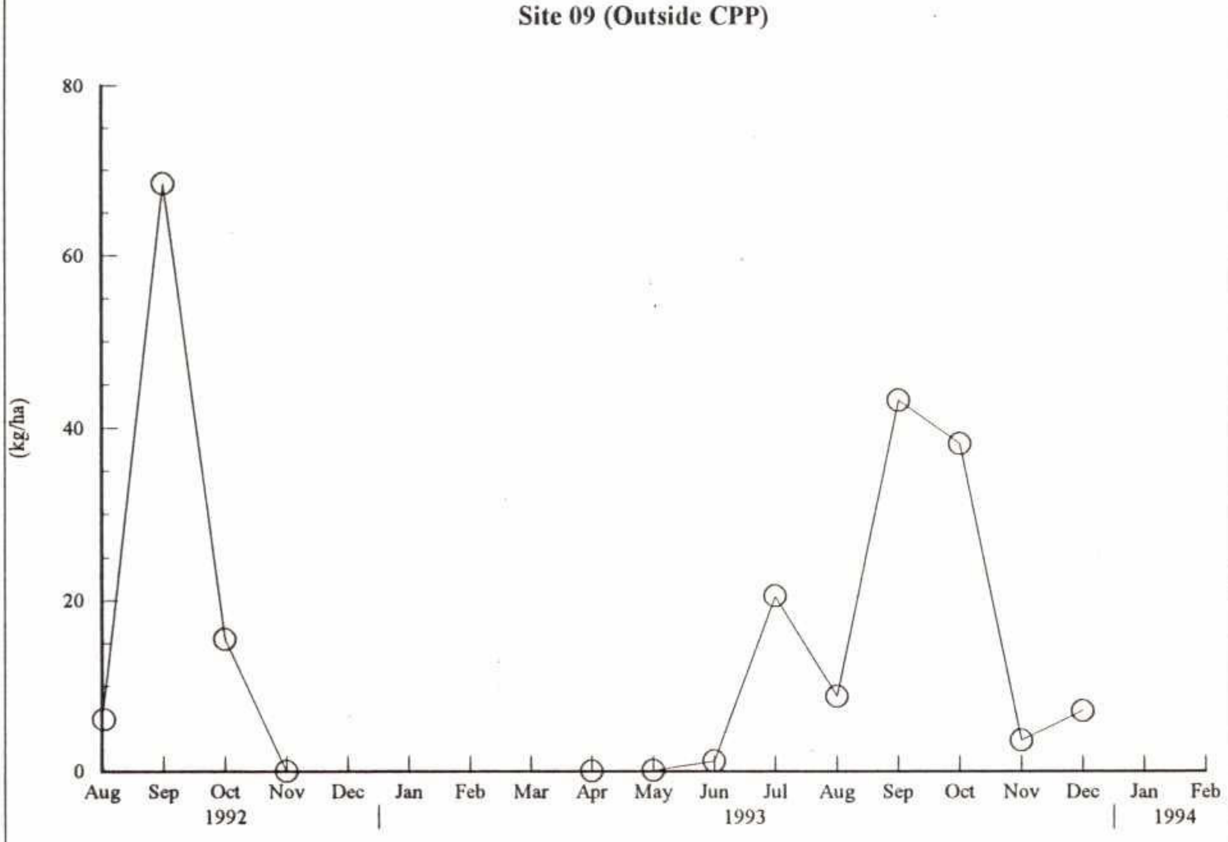
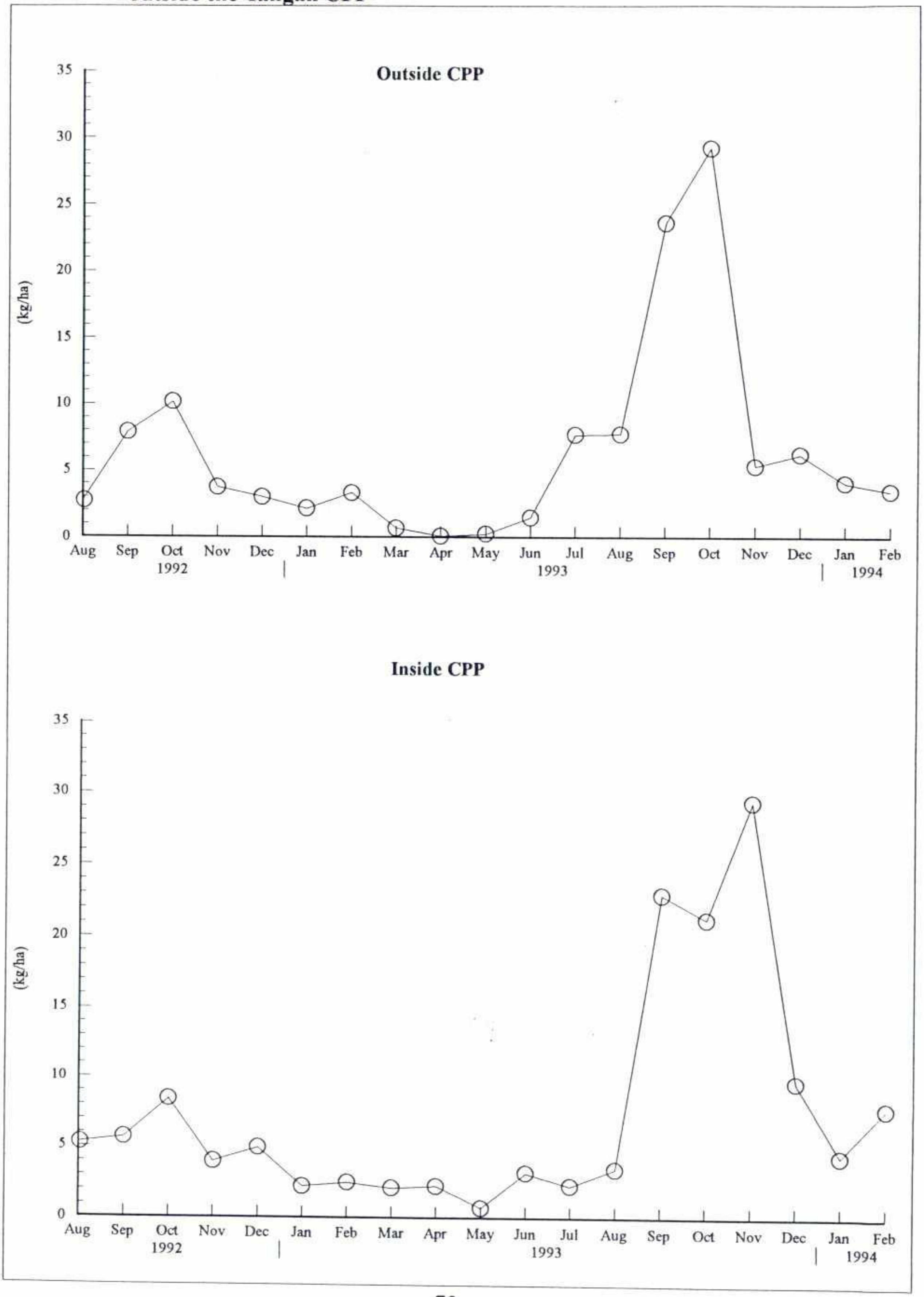


Figure 6.5 Catch per unit area (kg/ha) from all floodplain/beel sites combined, inside and outside the Tangail CPP



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6.1.2 Size of catch

Annual catches from floodplains and beel were similar inside and outside the CPP (Table 6.1). However, the catch from the baor-like beel inside the CPP, Atia beel, was substantially higher than that from Mailjani beel, a comparable water body outside the embankment. Catch rates of dominant gears pooled across sites indicated somewhat higher productivity within the CPP, but the difference in combined catches was not statistically significant (see Section 6.2.3).

Table 6.1 Comparison of the Annual Catch Per Unit Area (kg/ha) of Paired Floodplain and Beel Sites Inside and Outside the Tangail CPP, March 1993 - February 1994.

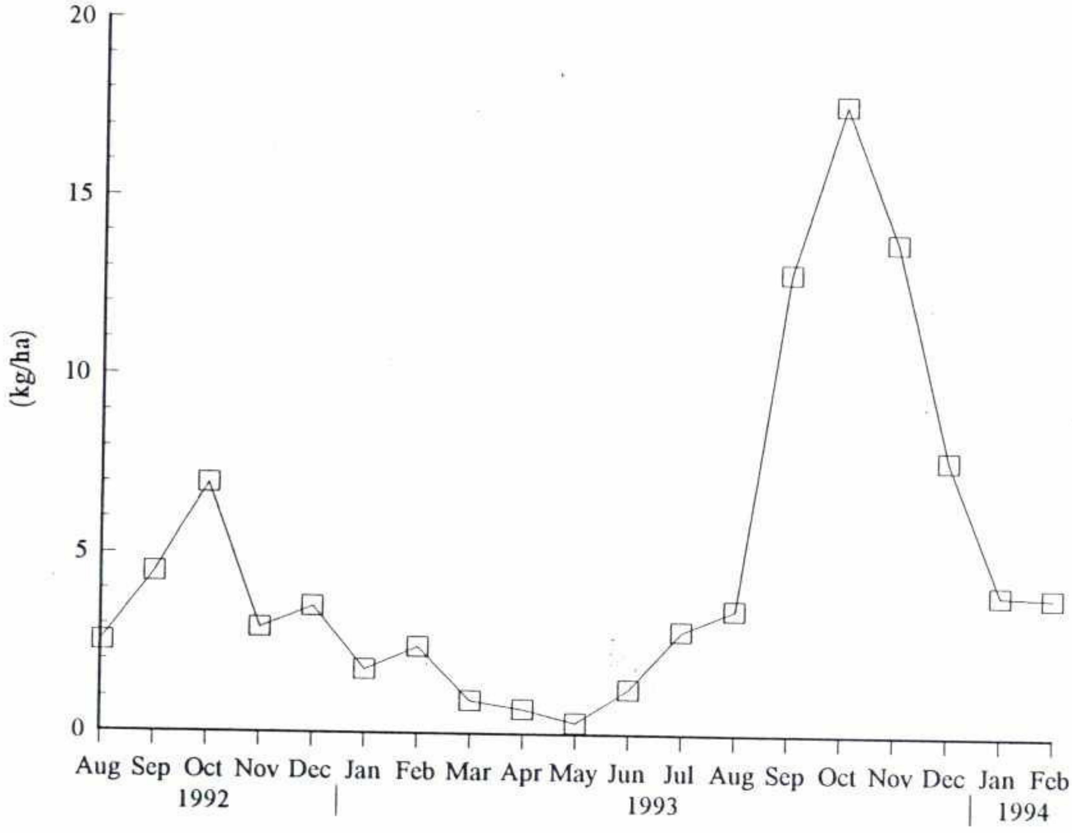
Site Comparisons	Habitat	Inside	Outside
Site 04/05 vs 11	Beel depression floodplain (intermediate elevation)	123	108
Site 19 vs 15	Baor-like beel	550	404
Site 18 vs 14	Floodplain (low elevation)	57	60
Site 9	Seasonal baor-like beel	-	123
Site 8	Floodplain (high-elevation)	-	28

Inter-annual variations in catch were clearly identified at all sites inside and outside the CPP and at other sites sampled in the North Central Region which were not associated with the Tangail study (Fig. 6.6). Comparison of the total catch over a seven month period (August to February) in 1992/93 and 1993/94 revealed substantially higher catches both inside the CPP (197% higher) and outside it (135% higher) during the wetter 1993/94 flood season than in the dry year of 1992/93 (Table 6.2).

Table 6.2 Comparison of Total Catch (kg/ha) From Floodplains/Beel Inside and Outside the Tangail CPP Between Different Years.

	August 1992 - February 1993	August 1993 - February 1994	Percentage Increase
Inside	33	98	197
Outside	34	80	135
All FP/beels sampled in NCR	25	64	156

Figure 6.6 Catch per unit area (kg/ha) from all floodplain/beel sites sampled in the North Central Region, August 1992 - February 1994



Analysis of the catch from all floodplain/beel sites sampled in the North Central Region, including those of the Tangail study, revealed an increase in the 1993/94 catch of 156% compared with the drier year of 1992/93. The increased catches observed in 1993/94 were a function of increased effort by some dominant gears (thella and current jal) but not others (jhaki jal, ber jal, and dharma jal) and increased catch rates of all but ber jal (Fig. 6.7). Increases in catch rate were quite marked for certain gears, e.g. dharma jal and jhaki. For current jal and thella jal increases were fairly modest, but they occurred during periods of peak catch and therefore substantially increased the overall total catch. Increased catch rates in 1993/94 indicate generally higher fish densities, despite the potential dilution effect of a greater volume of floodwaters in this year. This confirms the pattern of increased fish densities observed in canals and rivers of the North Central Region.

Although epizootic fish disease was more prevalent in 1992 than 1993, the disease did not appear until mid-November, after the bulk of the 7 month catch had already been taken. Therefore, the major factor responsible for such large inter-annual catch variations is likely to be the extent and duration of flooding. As mentioned previously (Section 5.1.2), there would appear to be a differential impact of inter-annual variation in flood extent and magnitude on fish populations in different habitats, with the greatest changes occurring in floodplain/beel catches (156% increase in NCR, 1993) followed by canal catches (140% increase) and then rivers (77%). This agrees with the expected direction of differential impact due to changes in flooding.

6.2 Pattern of fishing

6.2.1 Catch by gear

The types of gears used outside and inside the CPP were similar (Tables 6.3 and 6.4). A total of 24 gear types was found inside and 27 outside the embankment. The thella jal predominated both in and out of the CPP, catching 34% and 39% of the total catch respectively (Table 6.5). The only difference in the composition of dominant gears in and out of the scheme was the greater relative catch by ber jal outside and by hand fishing and katha inside the CPP. Katha were particularly important to local farmers living adjacent to Atia beel, while hand fishing and dewatering was a regular annual village event on Indrabelta floodplain.

Figure 6.7 Inter-annual variation in total monthly fishing effort and catch rate (CPUE) of dominant gears: all sampled floodplain/beels in NCR, August 1992 - February 1994

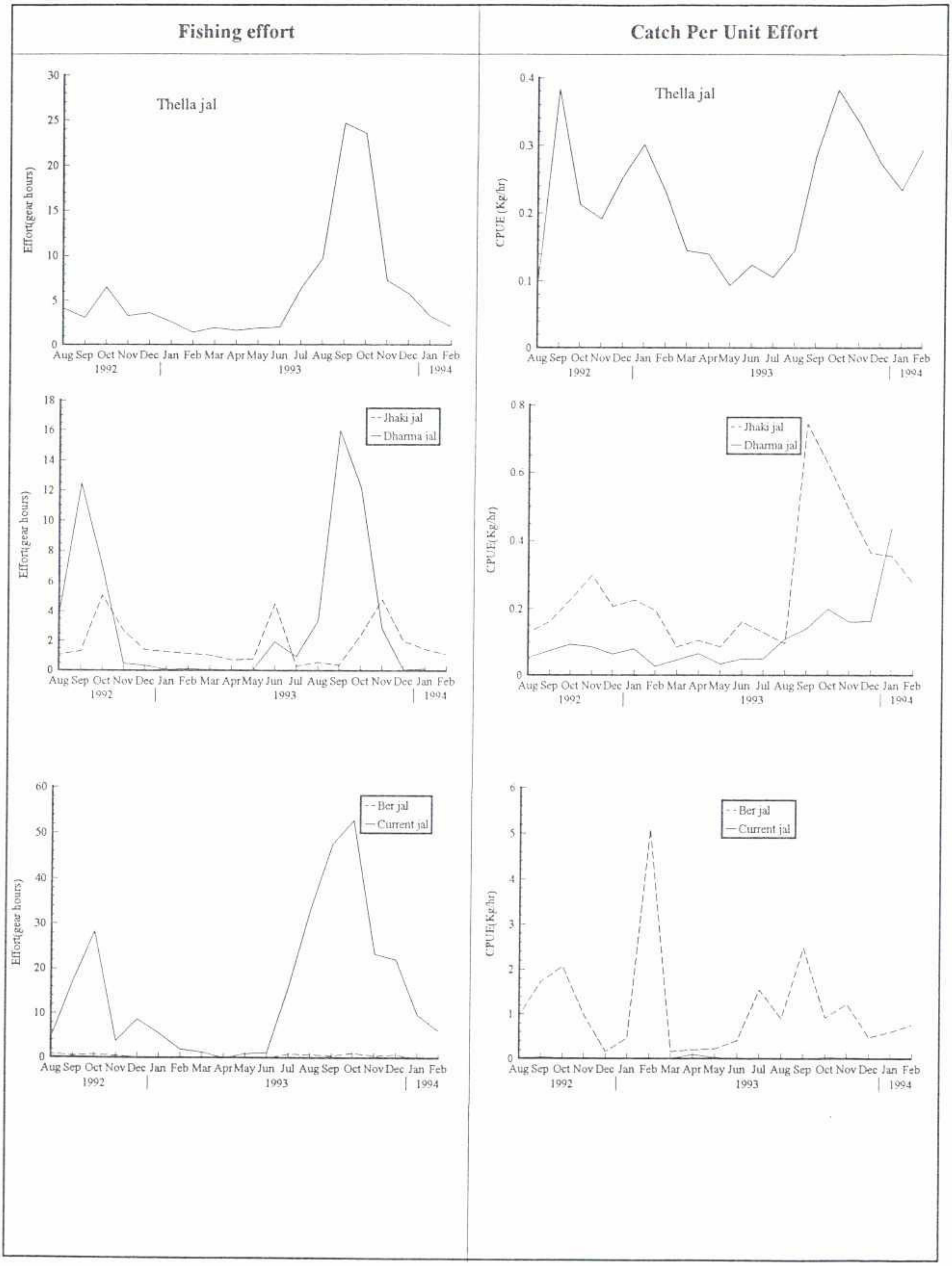


Table 6.3 Percentage total monthly catch by gear type: floodplains/beel outside CPP

Gear		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Gear name(Bengali)	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
255	Thella jal	32.915	12.844	35.448	25.161	77.033	76.592	7.318	35.120	37.392	48.804	46.088	27.251	47.497	50.102	44.716	33.619	26.816	46.869	13.893	13263.927	41.836
45	Ber jal	15.131	37.158	1.606	–	–	–	–	–	–	–	–	55.287	24.076	17.178	6.242	–	–	–	–	4231.162	13.346
164	Jhaki jal	7.981	4.110	28.083	22.060	11.245	9.425	7.445	6.040	58.453	21.784	37.483	1.742	1.824	5.188	14.827	20.367	13.762	23.044	19.406	3561.780	11.234
105	Dharma jal	16.379	8.619	14.880	1.911	1.441	–	–	–	–	–	0.387	–	1.328	20.820	7.397	3.136	0.752	6.604	–	2703.318	8.527
89	Dhor jal	–	0.136	–	2.648	0.670	–	–	3.122	–	–	6.605	2.289	0.646	–	4.956	0.783	19.634	–	1.736	1100.286	3.470
88	Current jal	0.727	19.929	2.788	9.149	6.233	2.417	–	0.498	–	–	0.799	2.877	5.463	1.300	5.910	2.639	0.909	4.766	0.114	1088.837	3.434
307	Hand fishing	–	–	–	1.124	–	–	–	4.913	–	–	–	–	–	–	5.833	10.095	6.625	–	1.400	965.647	3.046
270	Katha	–	–	1.820	0.928	–	–	38.826	32.431	–	–	–	–	–	–	–	8.448	3.407	–	40.156	803.826	2.535
30	Sip	8.436	0.147	8.005	32.912	0.146	0.016	–	–	4.155	0.564	5.657	0.187	0.446	1.225	5.538	1.180	0.843	2.160	–	792.740	2.500
302	Kua	–	–	–	–	–	–	44.960	–	–	–	–	–	–	–	–	8.248	21.534	–	6.585	709.700	2.238
298	Akra	–	–	–	3.475	3.231	–	–	0.697	–	–	–	–	–	–	–	8.626	4.581	12.350	10.325	568.786	1.794
277	Kachitana	17.803	2.076	4.677	–	–	–	–	–	–	–	–	6.621	13.110	–	–	–	–	–	–	537.850	1.696
266	Veshal	–	–	–	–	–	–	–	–	–	–	–	0.241	–	3.642	0.557	–	–	–	–	367.048	1.158
175	Kathi jal	–	–	–	–	–	–	–	–	–	7.826	–	2.806	1.752	–	0.428	–	–	–	–	175.203	0.553
272	Daun	0.629	9.582	1.299	0.633	–	–	–	–	–	10.441	2.981	0.287	1.027	0.410	0.606	–	–	–	–	157.443	0.497
170	Juti	–	–	–	–	–	–	–	–	–	–	–	–	–	0.081	0.940	–	–	–	2.276	131.215	0.414
278	Nol barsi	–	5.399	1.396	–	–	–	–	–	–	1.483	–	0.121	2.833	–	0.277	–	0.874	–	–	129.761	0.409
296	Tukri	–	–	–	–	–	–	–	15.050	–	9.100	–	–	–	0.054	0.157	0.658	–	0.437	1.430	102.296	0.323
291	Urani	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.877	–	–	–	–	90.232	0.285
202	Moi jal	–	–	–	–	–	10.122	1.155	0.904	–	–	–	–	–	–	–	–	–	3.560	2.197	80.272	0.253
123	Koi jal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.344	0.198	0.244	–	–	44.514	0.140
263	Ucha	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.352	–	–	–	–	36.208	0.114
97	By hand + dewatering	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.685	–	–	–	31.760	0.100
314	Boat katha	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.318	0.019	0.210	0.481	15.296	0.048
95	Doiar trap	–	–	–	–	–	1.428	–	–	–	–	–	0.290	–	–	0.043	–	–	–	–	12.341	0.039
149	Horga	–	–	–	–	–	–	0.296	1.224	–	–	–	–	–	–	–	–	–	–	–	3.038	0.010
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	31704.4	100

Table 6.4 Percentage total monthly catch by gear type: floodplains/beel inside CPP

Gear Code	Gear name(Bengali)	Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
255	Thella jal	20.214	5.497	16.379	9.625	12.249	57.447	37.337	31.113	31.776	67.558	9.185	33.208	47.183	68.537	64.393	10.938	26.374	18.495	23.986	16959.162	38.759
270	Katha	–	–	2.674	18.704	75.413	–	19.277	37.960	43.137	–	–	–	–	–	–	12.066	29.619	52.189	61.042	6075.713	13.885
164	Jhaki jal	7.268	4.404	17.011	38.474	4.950	29.790	23.037	3.129	7.174	1.645	73.634	1.455	1.622	0.159	6.049	16.004	18.082	15.800	6.321	4649.922	10.627
307	Hand fishing	–	–	–	2.977	–	–	1.677	6.050	11.927	–	–	–	–	–	0.218	34.909	6.769	0.652	0.363	4565.164	10.433
88	Current jal	0.204	7.528	5.383	1.471	4.818	7.214	6.954	3.966	–	17.614	0.952	33.242	16.646	7.563	9.538	2.864	10.996	9.553	3.253	3162.542	7.228
105	Dharma jal	2.009	43.073	9.517	1.687	0.443	1.388	0.531	–	0.273	0.922	6.446	5.210	26.100	11.973	8.533	2.779	0.093	–	–	2652.854	6.063
95	Doiar trap	9.070	5.047	5.329	2.490	0.184	0.747	0.128	–	–	–	7.977	10.412	1.327	0.846	3.085	8.566	1.919	0.490	–	1644.337	3.758
175	Kathi jal	–	–	–	3.780	–	–	–	–	2.781	–	–	–	–	–	2.502	5.137	–	–	1.390	885.101	2.023
45	Ber jal	39.867	15.900	7.593	14.314	0.720	–	–	–	–	–	–	–	2.493	7.889	0.795	–	–	–	–	827.103	1.890
291	Urani	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3.078	–	–	–	361.815	0.827
302	Kua	–	–	–	–	–	–	–	16.044	–	–	–	–	–	–	–	1.157	–	–	2.482	348.150	0.796
123	Koi jal	–	–	0.313	–	0.127	2.511	–	–	–	–	–	–	0.019	0.389	0.923	1.480	0.847	–	–	321.197	0.734
266	Veshal	1.380	1.604	0.892	–	–	–	–	–	–	–	1.373	1.238	0.335	0.798	1.731	0.169	–	–	–	273.774	0.626
30	Sip	19.987	13.691	28.015	2.881	0.663	0.904	–	–	2.163	8.611	–	0.528	2.435	0.956	0.607	0.273	0.062	–	0.076	259.031	0.592
170	Juti	–	–	–	–	–	–	–	–	–	–	–	–	–	0.182	1.119	–	2.904	1.002	0.291	250.345	0.572
278	Nol barsi	–	–	–	–	0.433	–	–	–	–	3.649	0.433	14.707	1.839	–	0.303	–	–	–	–	200.734	0.459
89	Dhor jal	–	–	–	–	–	–	–	–	–	–	–	–	–	0.617	–	–	1.529	–	–	115.680	0.264
272	Daun	–	3.257	6.894	3.599	–	–	–	–	–	–	–	–	–	0.091	0.204	0.254	–	–	–	55.662	0.127
222	Polo	–	–	–	–	–	–	11.060	–	–	–	–	–	–	–	–	0.150	0.551	–	0.129	42.844	0.098
296	Tukri	–	–	–	–	–	–	–	1.737	0.768	–	–	–	–	–	–	–	–	–	0.667	42.313	0.097
97	By hand + dewatering	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.178	0.255	–	–	30.734	0.070
298	Akra	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1.758	–	30.587	0.070
314	Boat katha	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.061	–	1.067	0.002
		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	43755.8	100

Table 6.5 **Percentage Contribution to the Total Catch by Dominant Gears Used on Floodplains and Beel Inside and Outside the Tangail CPP, August 1992 - February 1994.**

Gear Name	Outside	Inside	All Floodplains/beel Sampled in NCR
Thella jal	39.3	33.9	32.0
Ber jal	12.6	4.4	9.4
Jhaki jal	12.3	11.7	10.5
Dharma jal	8.5	7.1	5.3
Current jal	4.5	6.6	6.1
Sip	3.7	4.0	2.9
Katha	3.1	14.3	7.0
Kua	2.8	<1	7.8
Dhor jal	2.6	<1	1.7
Hatani (Hand fishing)	2.3	8.1	4.8
Doiar trap	<1	3.8	1.9
Veshal	<1	<1	2.7
Total Number of Gear Types	27	24	30

Note: The dominant gears listed above caught 92% of the total catch outside and 94% inside the CPP.

6.2.2 Catch by gear by month

Thella jal operated on floodplains and beel outside the CPP throughout the year, but became particularly important during the flood recession when peak catches were made (Fig. 6.8).

Other gears which predominated during periods of peak catch included the dharma jal and the ber jal of professional fishermen. Peak catches were a function of increased fishing effort (Fig. 6.9) and increased catch rates (Fig. 6.10) of dominant gears.

Within the CPP, the thella jal again dominated the gears used during the peak catches of the 1993 flood drawdown, taking 64-68% of total catch, but other methods such as hand-fishing and jhaki jal contributed more to the high catch of November 1993 (Fig. 6.11). Again peak catches resulted not only from increased fishing effort (Fig. 6.12) but also increased catch rates of dominant gears (Fig. 6.13).

Figure 6.8 Percentage of the monthly catch taken by dominant gears: floodplain/beels outside the Tangail CPP

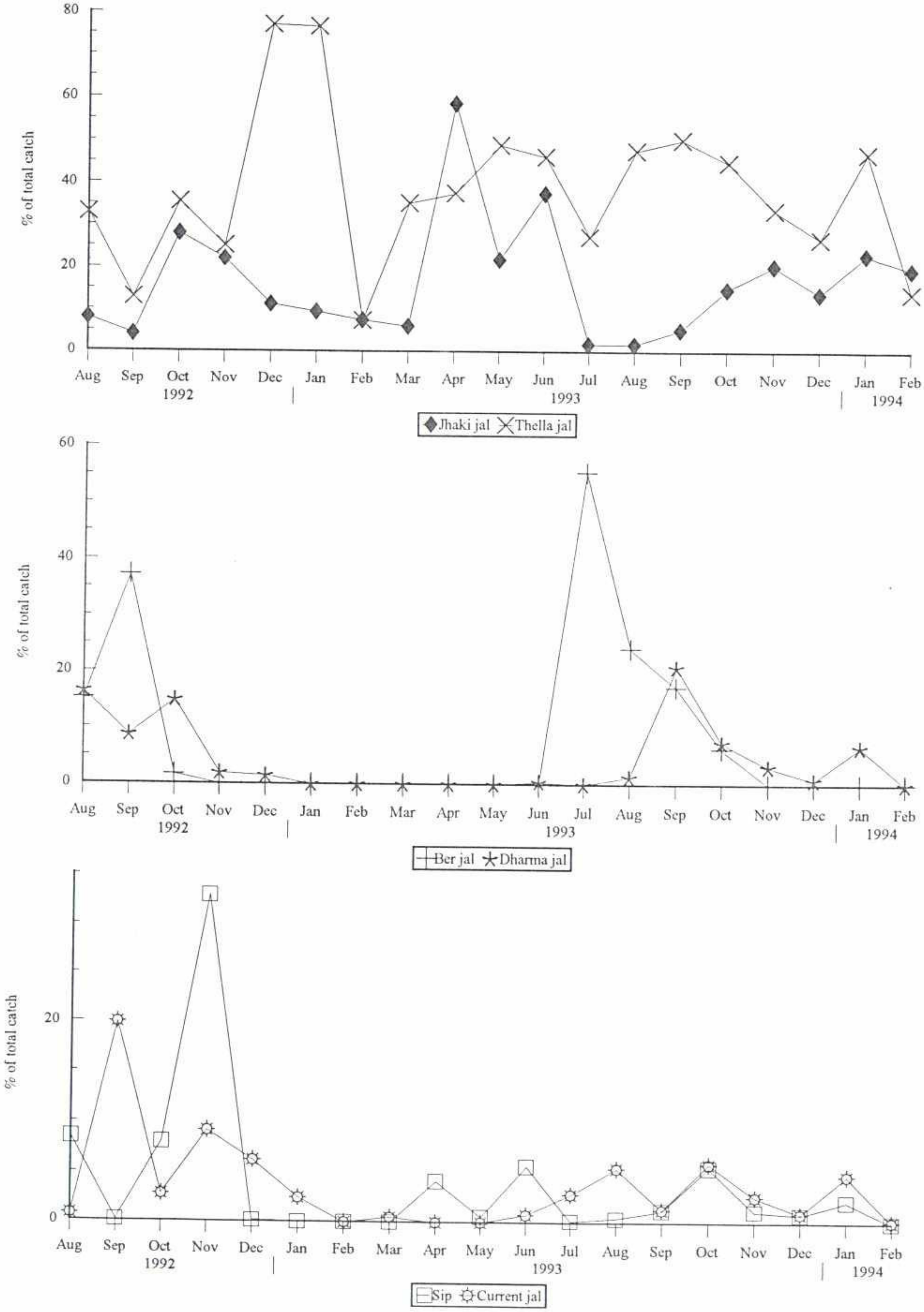


Figure 6.9 Total monthly fishing effort of dominant gears: floodplains/beel outside the Tangail CPP

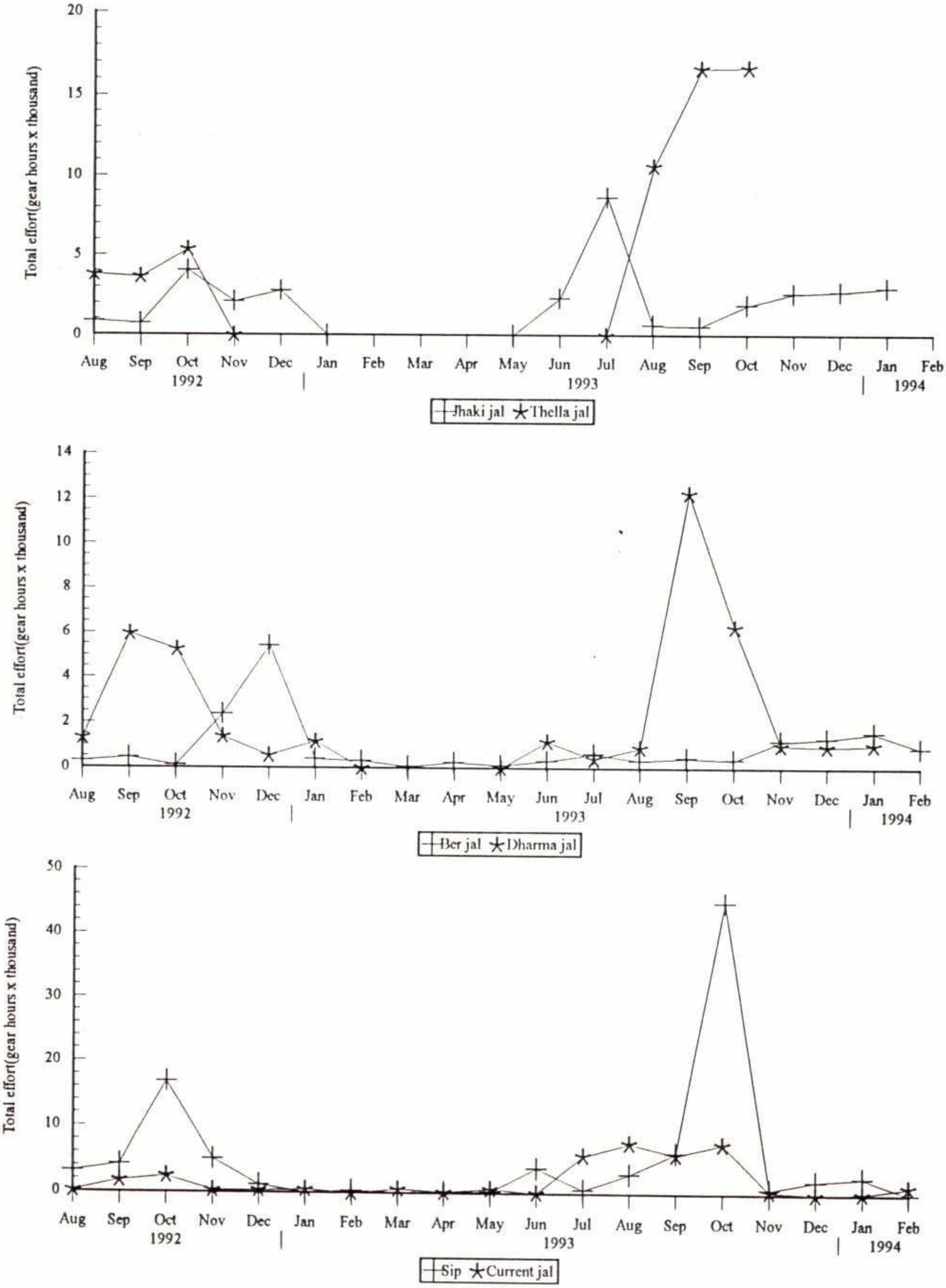
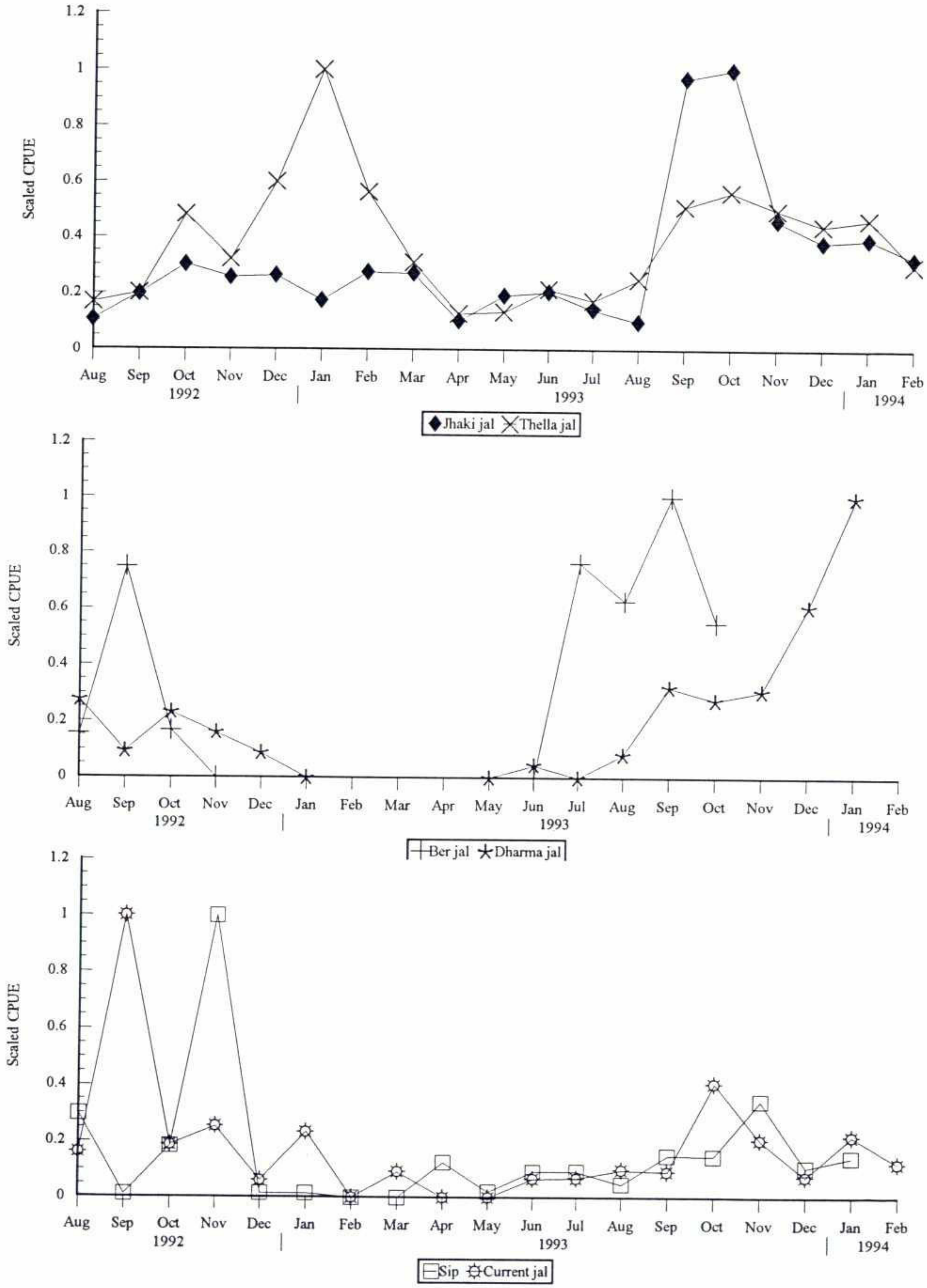


Figure 6.10 Catch rates (Scaled CPUE) of dominant gears: floodplains/beel outside CPP



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

Figure 6.11 Percentage of the total monthly catch taken by dominant gears: floodplains/beel inside the Tangail CPP

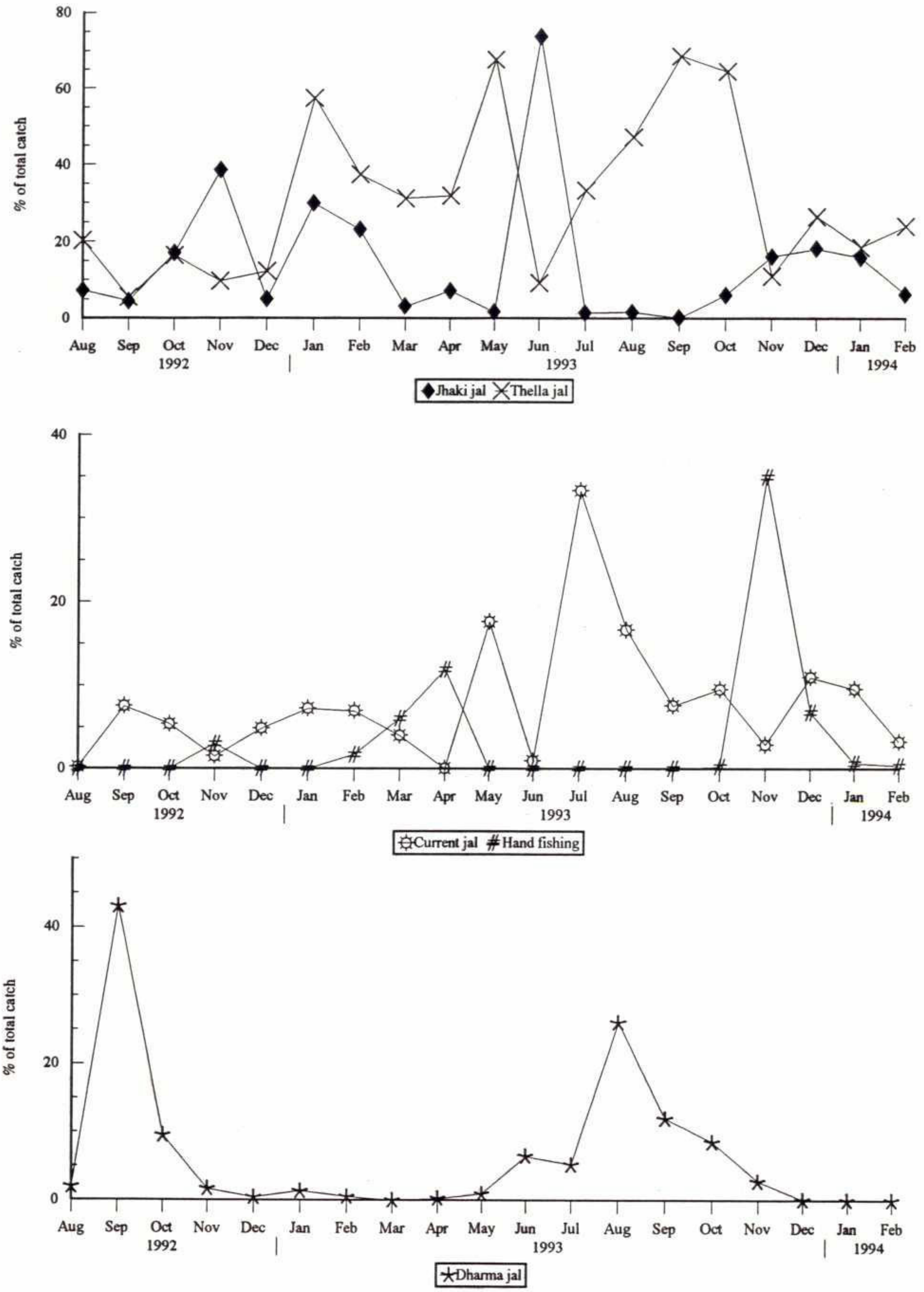


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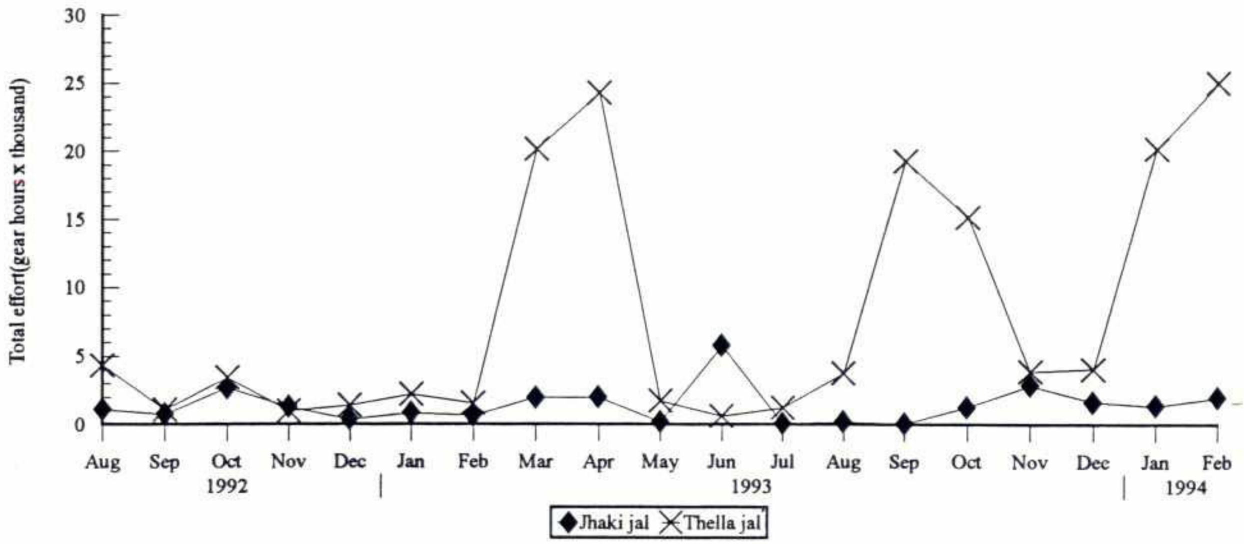
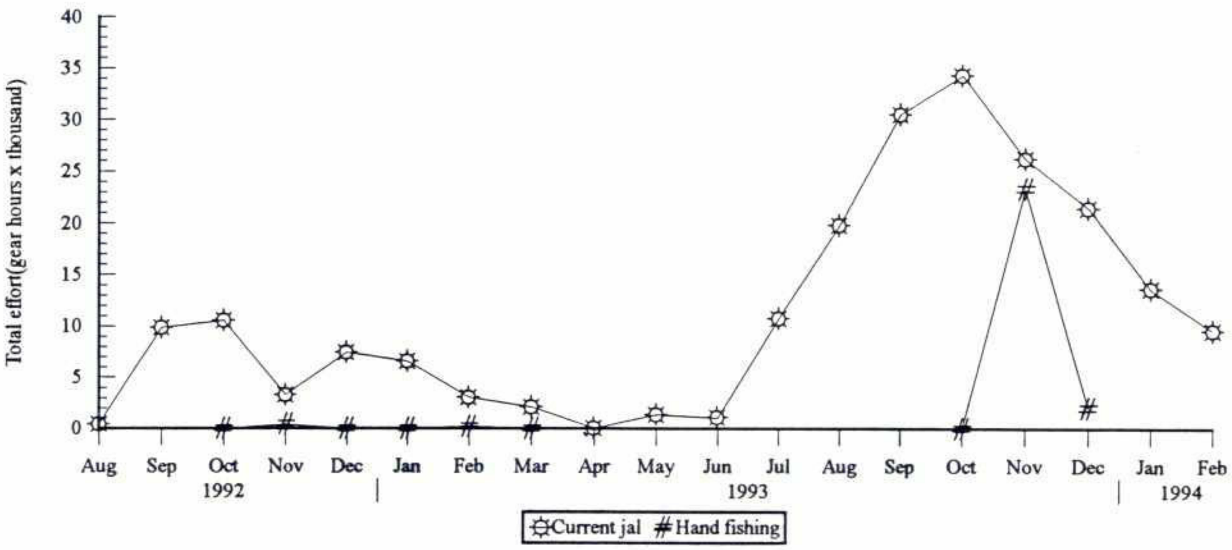
Figure 6.12 Total monthly fishing effort of dominant gears: floodplains/beel inside the CPP





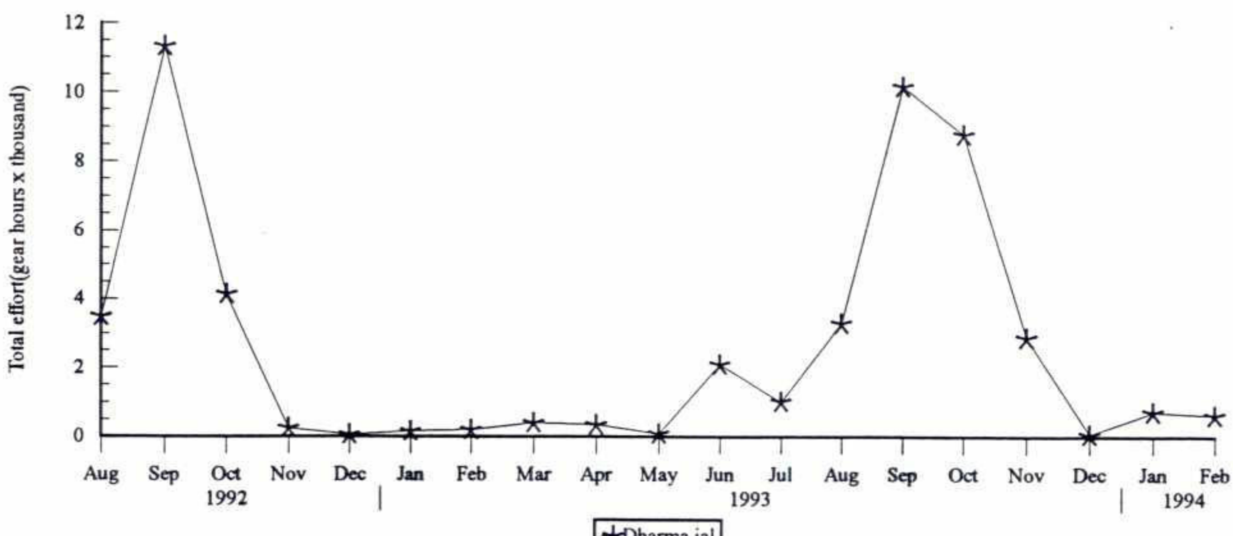
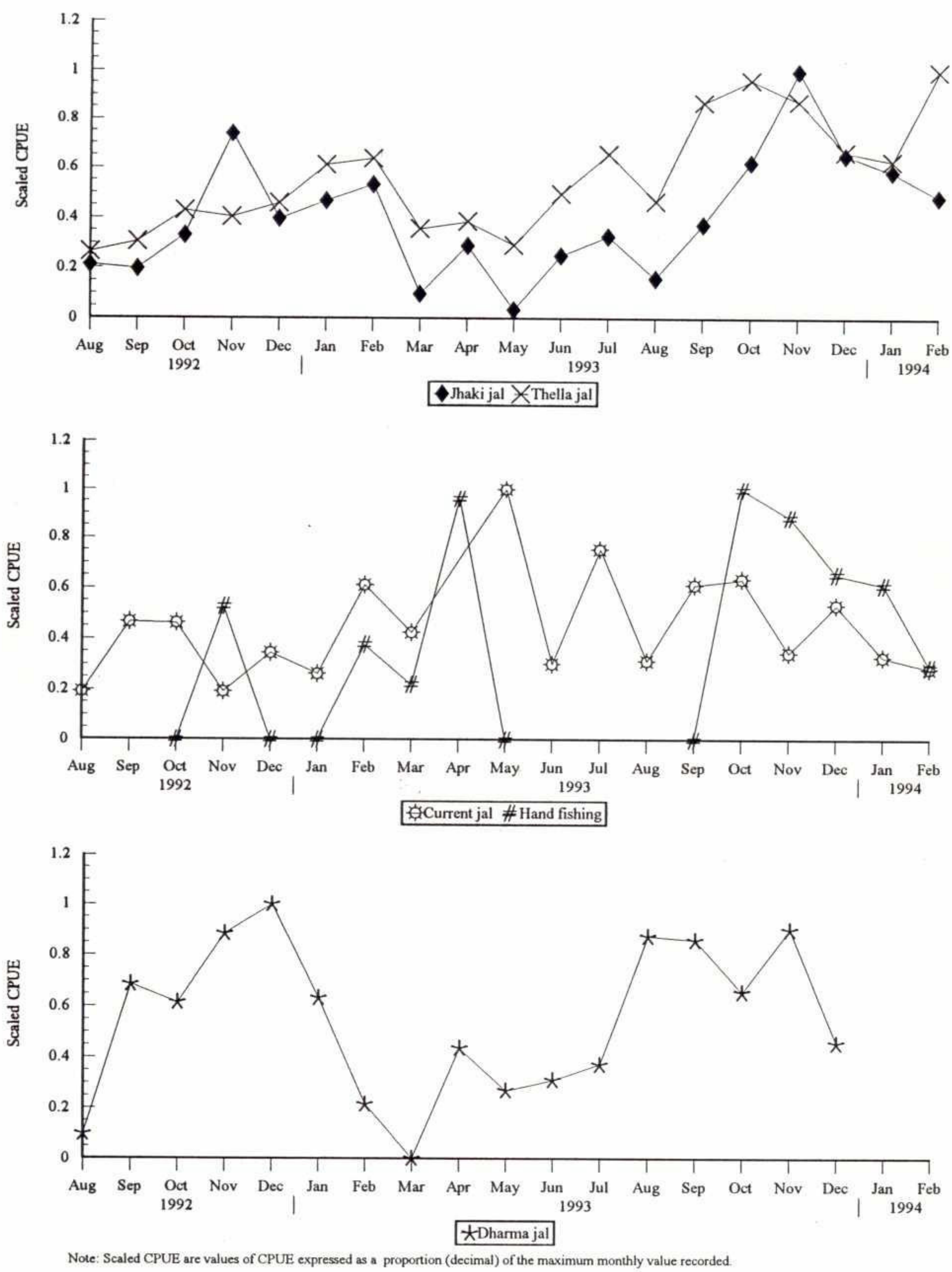


Figure 6.13 Catch rates (Scaled CPUE) of dominant gears: floodplains/beel inside the CPP



Note: Scaled CPUE are values of CPUE expressed as a proportion (decimal) of the maximum monthly value recorded.

6.2.3 Statistical comparison of catch rates

At the inside sites for this habitat type, over 90% of the total catch per hectare for the period March 1993 to February 1994, excluding katha and kua, was taken by 6 gears. In descending order of catch per hectare, these were: thella jal, jhaki jal, hand fishing and dewatering, current jal, dharma jal and doiar traps. At the outside sites, over 90% of the total catch per hectare over the same period was taken by 8 gears. These were: thella jal, ber jal, jhaki jal, dharma jal, dhor jal, current jal, hand fishing and dewatering, and sip. Five gears appeared in both lists: thella jal, jhaki jal, dharma jal, current jal, hand fishing and dewatering.

For each of these common gears, there were similar seasonal trends in catch rates at inside and outside sites, with the exception of current jal in season 4 and to a lesser extent in season 5. For this gear, the catch rates were much higher at outside sites than in the earlier seasons, whereas at inside sites the catch rates remained about the same throughout the year. There was also a single aberrant catch rate observation for dharma jal at inside sites in season 5, but this would have no effect on the statistical analysis. With the exceptions already noted, not only the seasonal patterns, but also the sizes of the catch rates were very similar at inside and outside sites for jhaki jal, dharma jal and current jal. However, in seasons 2, 3, 4 and 5 thella jal had consistently and substantially higher catch rates at inside sites than at outside sites. Despite this, statistical comparisons were attempted, but inspection of observed and predicted catch rates revealed that the discrepancies in trends and sizes of catch rates caused severe lack of fit in the model.

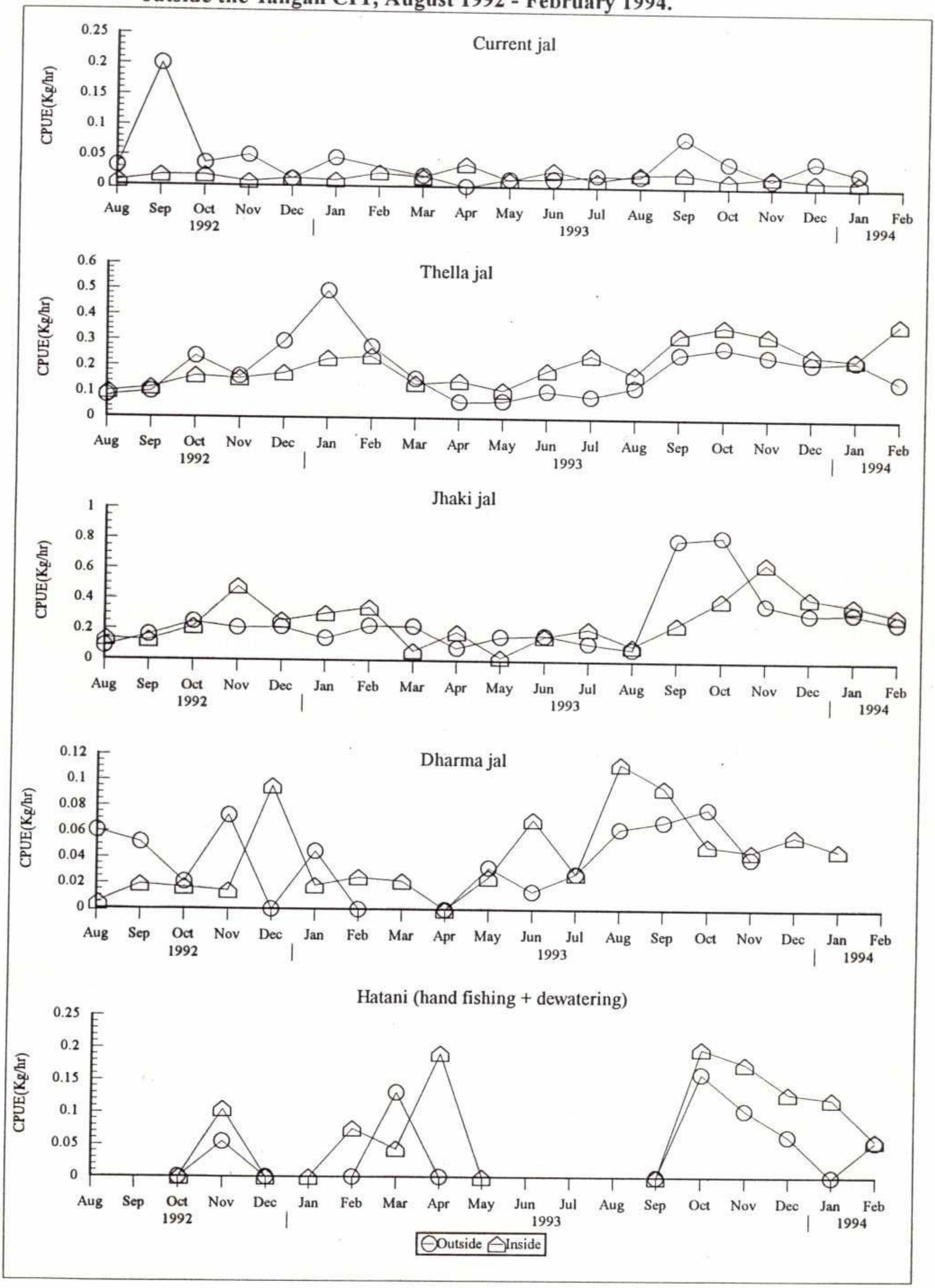
Summarising the trends in seasonally pooled catch rates, for three of the five common gears, there is little evidence of differences in catch rates at inside and outside sites. Larger catch rates were taken by current jal at outside sites in seasons 4 and 5, but thella jal had much higher catch rates at inside sites in seasons 2, 3, 4 and 5 (Fig. 6.14). This lack of consistency precludes valid statistical comparisons of fish densities.

6.3 Species Composition and Biodiversity

6.3.1 Species richness

The total number of species recorded inside the CPP (90) was almost the same as that outside (92) despite the fact that more sites were sampled outside and therefore the increased sampling

Figure 6.14 Comparison of catch rates of dominant gears from floodplains/beel inside and outside the Tangail CPP, August 1992 - February 1994.



effort might be expected to have yielded a higher number of species. The total number of species found in floodplains and beel was similar to those in canals and rivers around Tangail. This species richness is very high compared with the Southwest Region of Bangladesh.

Seasonal variations in the number of fish species found were fairly similar in and out of the CPP (Fig. 6.15). This pattern differed from that recorded in canals and rivers, in that quite high species richness was maintained throughout the winter and pre-monsoon seasons when normally substantial reductions in species number occur. The retention of high species diversity reveals the importance of the perennial waters, particularly the baor-type beel which are especially abundant in the Dhaleswari system.

6.3.2 Species composition

The species compositions (% of total catch by weight) for combined floodplain and beel sites outside and inside the CPP are presented in Tables 6.6 and 6.7. Those species dominating the total catch for the period August 1992 to February 1994 are listed in Table 6.8. These comprised 87% of the total catch outside the CPP and 88% inside it. Clearly, the compositions of dominant species were virtually identical at sites inside and outside the CPP. This degree of similarity is surprising given the preponderance of the major carps rui, catla and mrigel in canals outside the CPP (30% of catch) compared to within it (6%). Since most of the canal catch is taken during the flood drawdown when fish migrate from the floodplains, then a fairly close similarity in catch composition of canals and floodplains is to be expected. The reason for the disparity in the relative contribution made by major carp to canal and floodplain catches remains unclear. There are two possible explanations. Firstly, that major carp might occur on the floodplains at the same relative densities as in canals but for some reason are not captured at the same rate. This seems unlikely given the presence and operation of gears suitable for their capture e.g. ber jal, dharma jal, current jal etc. The second possibility is that juvenile major carps migrate from the floodplains at a greater rate than many other dominant species. The second explanation appears more likely in the Tangail area, where few large water bodies capable of supporting high carp densities remain in the dry season.

With the exception of the major carps, the only other migratory species appearing in the lists of dominant floodplain species are boal and fulchela. The former was equally abundant

Figure 6.15 Seasonal variation in the number of fish species recorded from floodplains/ beel inside and outside the Tangail CPP, August 1992 - February 1994

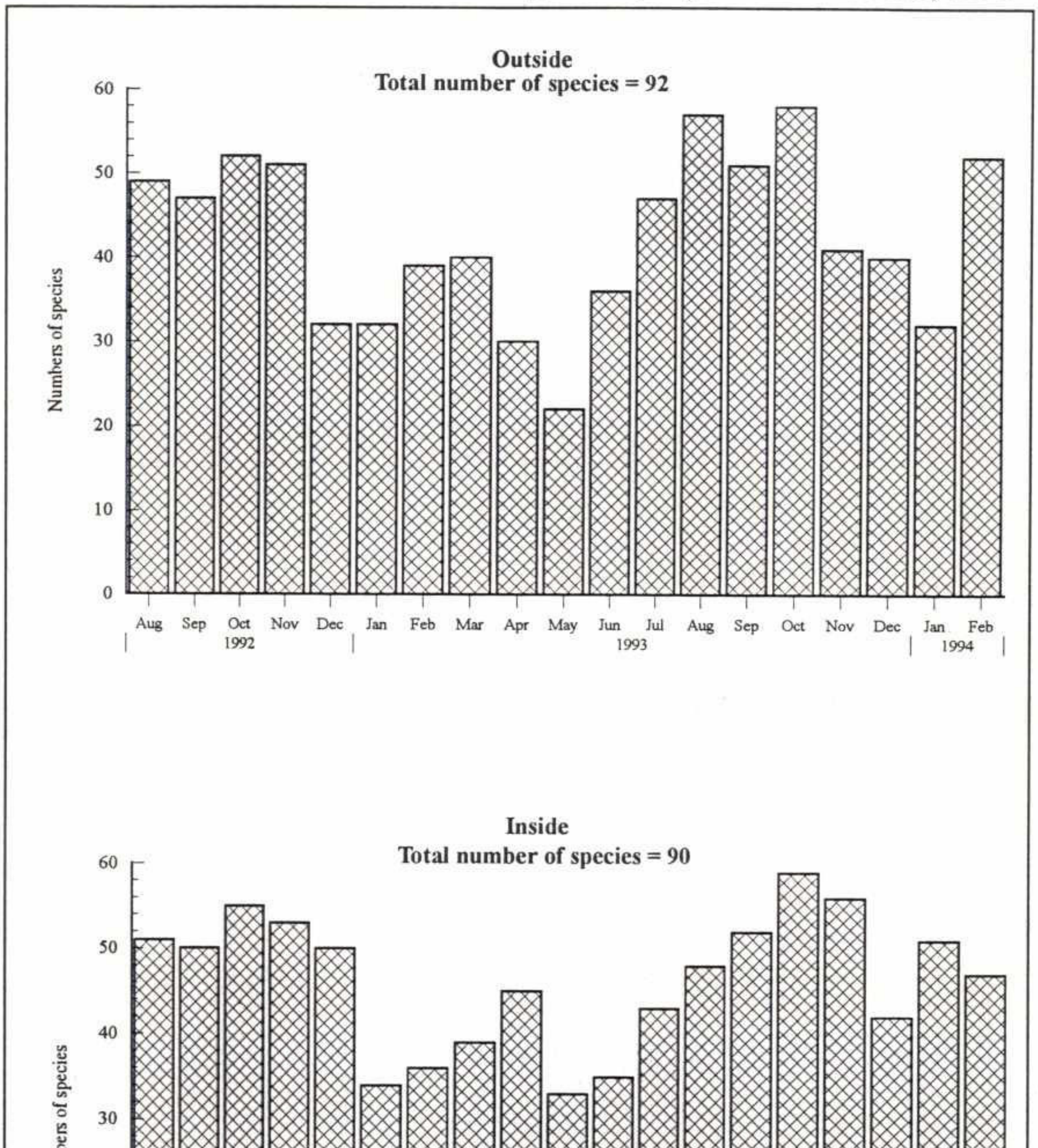


Table 6.6 Percentage total monthly catch by species: floodplains/beel outside CPP

Species	Species name		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
931	Prawn spp.	Prawn	14.385	9.461	4.849	9.032	6.929	32.112	22.753	19.685	14.521	15.631	6.734	11.821	34.724	39.413	21.003	6.724	4.399	12.902	7.378	7314.208	23.070
180	*Puntius sophore*	*Puti*	8.208	35.478	23.616	12.678	28.839	7.458	5.704	1.964	11.856	1.557	11.546	7.119	5.631	3.829	18.320	29.107	11.608	20.858	12.555	3879.603	12.237
41	*Channa punctatus*	*Taki*	2.097	5.934	13.198	11.884	13.855	4.469	4.114	5.496	15.057	5.839	17.082	1.981	6.931	2.897	10.482	16.674	26.961	15.109	9.972	2923.571	9.221
123	*Macrognathus pancalus*	*Guchi*	3.364	2.019	2.208	2.490	5.560	0.605	0.778	10.204	10.172	15.477	6.138	6.422	8.519	8.966	2.682	7.482	8.187	14.481	7.644	2127.328	6.710
110	*Lepidocephalus guntea*	*Gutum*	1.338	1.708	5.644	3.041	4.626	4.282	2.846	6.125	8.701	11.871	6.766	1.799	2.982	2.480	4.174	2.596	4.515	4.257	4.589	1096.229	3.458
55	*Colisa fasciatus*	*Khalisha*	0.645	0.816	8.793	5.260	14.623	13.525	3.226	9.809	2.736	2.892	3.429	2.822	2.012	1.134	3.819	8.372	4.464	3.970	2.236	1005.421	3.171
37	*Chanda ranga*	*Lal chanda*	4.672	1.717	0.851	0.546	0.907	3.354	2.577	0.841	1.616	0.616	1.747	16.231	4.724	1.579	2.278	0.371	0.156	1.251	0.616	984.026	3.104
32	*Catla catla*	*Catla*	19.442	0.351	–	–	–	–	3.518	–	–	–	–	0.363	0.267	9.864	0.931	0.172	–	–	2.450	967.075	3.050
107	*Labeo rohita*	*Rui*	1.069	0.856	0.169	3.150	0.805	–	6.564	–	–	–	–	4.997	1.155	5.045	2.720	0.179	0.615	–	3.043	921.101	2.905
175	*Puntius conchonius*	*Canchan puti*	–	1.064	1.523	0.189	0.035	3.164	0.113	0.141	0.493	–	1.575	5.812	3.058	0.575	5.113	1.822	0.677	1.364	1.020	905.478	2.856
83	*Glossogobius giurus*	*Bailla*	3.961	0.880	3.776	0.741	1.571	1.573	0.857	0.637	2.326	2.942	1.151	0.991	1.517	2.699	3.955	1.321	2.154	3.269	5.621	898.946	2.835
121	*Macrognathus aculeatus*	*Tara baim*	2.458	1.763	0.672	2.282	2.900	0.023	–	1.035	2.579	2.339	1.520	2.390	6.750	2.193	1.968	4.005	1.737	2.927	1.170	817.986	2.580
56	*Colisa lalia*	*Lal Khalisha*	–	0.001	0.400	1.296	0.146	–	2.150	0.322	0.080	0.504	5.046	0.815	2.263	1.470	4.093	1.021	1.759	2.496	–	749.161	2.363
137	*Mystus vittatus*	*Tengra*	2.640	1.202	9.695	3.057	2.892	1.434	0.719	0.328	5.099	2.549	1.740	1.573	3.022	0.966	0.560	4.144	2.293	1.258	4.172	474.804	1.498
122	*Mastacembelus armatus*	*Baral baim*	6.899	0.476	1.371	0.459	4.456	1.888	0.396	7.520	–	–	–	0.638	0.568	0.800	2.615	0.062	0.831	1.049	3.949	469.860	1.482
189	*Salmostoma phulo*	*Fulchela*	0.188	3.018	0.040	0.015	–	0.214	0.347	0.139	0.881	–	0.136	6.852	1.168	1.983	0.504	0.055	0.852	0.495	0.280	466.629	1.472
210	*Xenentodon cancila*	*Kaikka*	0.298	0.759	0.598	0.526	0.598	0.718	1.192	0.282	1.311	0.141	0.340	0.294	1.032	1.292	1.466	1.105	1.693	3.305	2.541	434.311	1.370
88	*Heteropneustes fossilis*	*Shingi*	1.307	0.033	1.649	1.706	1.163	0.604	3.774	8.285	–	5.878	7.799	0.568	0.797	0.076	0.838	4.987	4.667	0.579	2.177	428.182	1.351
47	*Cirrhinus mrigala*	*Mrigel*	0.743	1.202	0.050	0.730	–	–	8.623	–	–	–	–	–	0.352	3.629	0.650	–	–	–	0.202	381.042	1.202
75	*Esomus danricus*	*Darkina*	3.313	0.306	0.145	0.599	0.551	0.446	1.024	0.310	–	2.300	4.931	2.048	1.726	0.176	1.578	1.401	0.720	1.873	0.082	378.757	1.195
6	*Anabas testudineus*	*Koi*	0.237	1.939	0.618	1.979	5.564	0.496	5.700	0.270	–	–	1.623	0.145	1.608	0.044	0.511	1.705	6.173	0.161	2.624	315.565	0.995
36	*Chanda nama*	*Nama Chanda*	1.870	0.572	0.461	0.229	0.143	4.000	1.918	0.471	3.272	0.045	0.458	6.976	1.019	0.480	0.203	0.250	0.130	0.633	0.543	306.225	0.966
209	*Wallagu attu*	*Boal*	0.026	0.500	1.814	32.124	–	–	5.706	14.057	–	–	5.656	–	0.038	0.795	0.640	0.334	0.909	–	3.168	262.539	0.828
212	*Puntius ticto*	*Tit puti*	0.971	0.204	1.134	0.022	1.161	8.158	0.396	0.279	0.821	–	0.769	0.265	0.295	0.537	0.707	1.060	1.917	1.679	0.965	235.838	0.744
178	*Puntius phutunio*	*Phutani puti*	–	–	0.004	0.097	0.100	0.935	–	0.122	0.080	–	0.417	1.286	1.248	1.075	0.338	0.103	0.082	0.804	0.584	218.192	0.688
49	*Clarias batrachus*	*Magur*	–	0.298	0.668	–	0.856	–	1.647	–	–	–	0.312	0.047	0.269	–	–	2.722	6.347	–	1.245	216.464	0.683
203	*Tetraodon cutcutia*	*Potka*	–	–	0.004	0.037	0.095	2.007	–	–	–	–	0.265	–	0.028	0.924	1.187	0.116	0.058	0.679	0.092	215.592	0.680
144	*Notopterus chitala*	*Chital*	0.259	–	–	–	–	–	–	–	–	–	–	–	–	0.240	1.586	–	–	–	0.809	193.016	0.609
15	*Badis badis*	*Napit koi*	0.039	0.024	0.353	0.429	0.578	0.412	0.323	0.860	0.456	0.562	0.740	0.575	0.366	0.575	0.512	0.373	0.064	2.893	0.388	187.651	0.592
5	*Amblypharygodon mola*	*Mola*	2.333	0.337	0.049	0.083	0.318	1.147	3.602	0.585	4.554	6.069	1.312	1.174	1.281	0.643	0.147	0.001	0.355	0.195	1.126	175.267	0.553
48	*Cirrhinus reba*	*Raik*	1.099	4.656	0.004	–	–	0.056	–	–	–	6.407	–	–	0.311	1.251	0.017	0.229	0.464	0.124	1.397	153.466	0.484
13	*Aspidoparia morar*	*Morari*	–	–	–	–	–	–	–	–	–	–	–	5.576	–	0.024	–	–	–	–	–	153.413	0.484
40	*Channa orientalis*	*Cheng*	–	–	–	0.022	–	–	–	–	–	–	1.312	0.219	1.092	–	0.993	0.157	–	–	–	147.770	0.466
211	*Colisa labiosus*	*Khalisha*	–	–	0.042	0.166	–	–	0.461	2.697	0.473	5.036	3.680	1.015	0.905	0.489	0.165	0.058	0.255	0.021	–	147.704	0.466
130	*Aorichthys aor*	*Ayre*	0.609	1.375	0.013	0.140	–	–	–	0.376	4.338	–	–	–	0.130	–	0.753	0.111	0.244	–	3.287	130.944	0.413
86	*Gudusia chapra*	*Chapila*	2.509	0.600	0.001	0.075	0.022	0.414	1.353	0.538	–	–	–	2.331	0.060	0.114	0.061	–	–	–	0.708	90.662	0.286
42	*Channa striatus*	*Shol*	–	–	8.963	0.587	–	–	0.549	1.175	–	–	–	–	–	–	–	0.236	2.761	–	1.849	90.661	0.286
136	*Mystus tengara*	*Bajari tengra*	2.016	0.238	0.482	0.023	0.114	4.231	0.167	0.112	2.930	0.141	0.119	0.344	0.093	0.397	0.184	0.042	0.211	0.427	0.187	79.693	0.251
132	*Mystus cavasius*	*Kabashi*	–	2.553	0.048	0.196	–	0.056	0.888	0.320	3.340	–	–	0.083	0.039	0.005	0.628	0.119	0.031	–	0.398	78.104	0.246
131	*Mystus bleekeri*	*Golsha tengra*	–	–	0.073	0.166	–	–	–	0.289	–	–	1.246	0.025	0.310	0.009	0.163	0.191	0.176	0.103	1.409	59.961	0.189
39	*Channa marulius*	*Gajar*	–	–	0.182	–	–	–	–	1.316	–	10.440	3.379	0.238	0.015	–	–	–	–	–	1.797	59.180	0.187
62	*Cyprinus carpio*	*Karfu*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.153	0.341	–	3.513	53.169	0.168
176	*Puntius gelius*	*Giliputi*	–	0.016	0.355	0.028	0.093	1.021	0.317	0.042	0.060	–	0.515	0.190	0.155	0.152	0.172	–	0.101	0.323	0.110	50.783	0.160
101	*Labeo boga*	*Bhangan*	–	–	0.004	–	–	–	–	–	–	–	–	0.794	–	0.306	–	–	–	–	–	47.085	0.149
147	*Ompok bimaculatus*	*Kani pabda*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.006	0.433	–	–	–	0.068	45.854	0.145
148	*Ompok pabda*	*Madhu pabda*	0.110	1.453	0.161	0.225	0.082	0.211	–	0.118	–	–	–	–	–	0.381	–	–	0.205	0.084	0.022	37.982	0.120
145	*Notopterus notopterus*	*Foli*	–	0.123	–	–	–	–	0.305	0.501	–	–	–	–	0.194	–	0.089	0.078	0.580	–	0.322	33.874	0.107
102	*Labeo calbasu*	*Kalbaus*	0.490	0.372	0.056	1.023	–	–	1.630	–	–	–	–	0.376	0.082	0.112	–	–	–	–	0.570	28.735	0.091
57	*Colisa sota*	*Khalisha*	0.743	1.032	1.501	0.809	0.192	0.368	0.293	–	–	–	0.026	–	0.074	–	0.237	0.037	0.060	–	–	28.553	0.090

Table 6.6 Percentage total monthly catch by species: floodplains/beel outside CPP(Cont.)

Species Code	Species name		Year: 1992					Year: 1993												Year: 1994		Total annual catch (Mar'93 – Feb'94)	
Code	Scientific	Bengali	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Kg	%
188	*Salmostoma bacaila*	*Katari*	0.574	0.059	0.007	0.100	–	0.285	0.728	0.077	–	–	0.114	0.843	–	0.004	–	–	–	–	0.074	24.913	0.079
51	*Clupisoma garua*	*Ghaura*	–	–	–	–	–	–	–	–	–	–	–	–	0.383	0.136	–	–	–	–	–	21.765	0.069
170	*Pseudapocryptes lanceolatus*	*Chewa*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.209	–	–	–	–	21.470	0.068
28	*Botia dario*	*Rani*	0.652	–	–	–	–	–	–	–	–	–	–	0.254	0.255	0.074	0.010	–	–	–	0.004	21.122	0.067
9	*Aplocheilus panchax*	*Kanpona*	0.024	0.006	0.005	0.280	0.124	–	0.051	0.079	0.080	–	0.246	0.107	0.057	0.017	0.086	0.023	–	0.026	0.005	17.093	0.054
139	*Nemacheilus botia*	*Balichata*	0.138	0.365	0.004	0.071	–	0.154	–	–	0.351	–	–	–	–	–	0.012	0.272	0.182	–	0.472	16.276	0.051
135	*Aorichthys seenghala*	*Guizza*	–	–	–	–	–	–	–	2.303	–	–	–	–	–	–	0.065	0.028	–	–	–	12.941	0.041
81	*Gagata youssoufi*	*Gang tengra*	0.015	–	–	–	–	–	–	–	–	–	–	0.425	0.030	0.005	–	–	–	–	–	12.779	0.040
100	*Labeo bata*	*Bata*	0.004	9.378	0.024	–	–	–	–	–	–	–	–	–	0.099	0.089	0.023	–	–	–	–	12.447	0.039
59	*Crossocheilus latius*	*Kalabata*	–	0.066	–	–	–	–	–	–	–	–	–	0.418	–	–	0.005	–	–	–	–	11.895	0.038
939	*Puntius sp.*		–	–	–	–	–	–	–	–	–	–	–	0.372	–	–	–	–	–	–	–	10.100	0.032
85	*Gonialosa manmina*	*Goni chapila*	–	–	–	–	–	–	–	0.093	0.234	–	–	–	0.025	–	0.019	–	–	0.338	0.040	8.258	0.026
104	*Labeo gonius*	*Goni*	–	–	–	–	–	–	–	–	–	–	–	0.274	–	–	–	–	–	–	–	7.440	0.023
217	*Lepidocephalus thermalis*	*Puiya*	–	–	–	–	–	–	–	–	–	–	–	0.020	0.007	–	0.038	–	–	–	–	4.651	0.015
169	*Pseudeutropius atherinoides*	*Batasi*	0.338	0.004	0.021	0.049	0.059	–	2.631	0.171	0.117	–	0.026	0.024	0.023	0.011	0.012	–	–	–	0.036	4.470	0.014
174	*Puntius chola*	*Chala puti*	–	–	0.016	–	–	–	–	–	–	–	–	–	0.031	–	0.008	–	–	–	0.225	4.362	0.014
181	*Puntius terio*	*Teri punti*	1.803	0.421	3.633	1.302	–	–	–	–	–	–	–	0.003	0.070	–	0.004	–	–	0.068	0.010	3.545	0.011
60	*Ctenopharyngodon idellus*	*Gheso carp*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.234	2.850	0.009
2	*Ailia coila*	*Kajuli*	0.074	–	–	–	–	–	–	–	–	–	–	0.024	–	0.026	–	–	–	–	–	2.788	0.009
58	*Corica soborna*	*Kachki*	1.452	–	–	–	–	–	–	–	–	–	–	–	0.019	0.008	–	–	0.065	–	–	2.605	0.008
177	*Puntius guganio*	*Mola puti*	–	–	–	0.001	–	–	–	–	0.667	–	–	–	0.018	–	0.018	–	–	–	–	2.531	0.008
76	*Eutropiichthys vacha*	*Bacha*	–	–	–	–	–	–	–	–	–	–	–	–	0.093	–	–	–	–	–	–	2.529	0.008
33	*Chaca chaca*	*Cheka*	–	–	–	–	–	–	–	–	–	–	–	–	0.058	–	0.005	–	–	–	–	2.080	0.007
109	*Lepidocephalus berdmorei*	*Puiya*	–	–	0.009	–	–	–	–	–	0.157	–	–	0.034	–	–	0.001	–	–	–	–	1.038	0.003
35	*Chanda baculis*	*Chanda*	0.148	–	–	–	–	–	–	–	–	–	–	–	0.007	–	0.008	–	–	–	–	1.015	0.003
198	*Somileptes gongota*	*Gharpoia*	–	–	–	0.033	–	–	–	–	0.644	–	–	–	–	0.004	0.003	–	–	–	–	0.831	0.003
68	*Danio devario*	*Chebli*	–	0.011	–	0.012	–	0.090	–	0.023	–	–	–	0.008	–	–	0.002	–	–	–	0.022	0.780	0.002
182	*Rasbora daniconius*	*Darkina*	–	–	0.038	–	–	–	–	–	–	0.732	–	–	–	–	–	–	–	–	–	0.661	0.002
25	*Batasio tengana*	*Tengra*	–	–	–	0.007	–	–	–	–	–	–	–	–	–	0.006	–	–	–	–	–	0.521	0.002
69	*Brachydanio rerio*	*Anju*	–	–	–	0.001	–	–	–	–	–	0.034	0.062	–	–	–	–	–	–	–	–	0.357	0.001
29	*Botia lohachata*	*Putul*	0.328	–	–	–	–	–	–	–	–	–	–	–	0.013	–	–	–	–	–	–	0.353	0.001
214	*Oryzias melastigma*	*Kanpona*	–	–	0.001	–	–	–	–	–	–	–	0.042	–	–	–	–	–	–	–	–	0.218	0.001
922	*Liza sp*		–	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	–	–	0.102	0.0003
185	*Rhinomugil corsula*	*Khorsula*	–	0.066	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
173	*Puntius cosuatis*	*Kosuati*	–	–	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
134	*Mystus menoda*	*Ghagla*	–	4.222	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
187	*Osteobrama cotio cotio*	*Keti*	0.090	–	–	0.005	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	*Barilius barna*	*Bani Koksa*	0.024	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
120	*Macrobrachium rosenbergii*	*Golda*	–	–	–	–	–	0.087	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
157	*Pampus chinensis*	*Rup chanda*	–	–	–	–	0.042	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
184	*Rasbora rasbora*	*Leuzza darkina*	–	0.069	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
923	*Sicamugil cascasia*		0.051	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
43	*Chela cachius*	*Chep Chela*	3.723	–	–	–	–	–	0.050	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	*Anodontostoma chacunda*	*Koi puti*	0.055	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
138	*Nandus nandus*	*Bheda*	–	–	–	–	–	–	0.009	–	–	–	–	–	–	–	–	–	–	–	–	–	–
154	*Securicula gora*	*Chora chela*	0.172	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
20	*Raiamas bola*	*Bhol*	–	–	–	0.002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	31704.443	100

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Table 6.7 Percentage total monthly catch by species: floodplains/beel inside CPP

Species Code	Species name: Scientific	Species name: Bengali	Year: 1992 Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year: 1994 Jan	Feb	Total annual catch (Mar'93 – Feb'94) Kg	%
								Year: 1993															
931	Prawn spp.	Prawn	10.709	6.394	5.634	6.829	5.789	9.817	17.054	19.287	14.091	39.768	22.192	7.851	21.762	46.241	37.079	8.386	12.136	9.785	14.569	10538.525	24.085
180	*Puntius sophore*	*Puti*	10.548	20.069	17.826	44.656	18.424	12.567	12.123	10.857	12.502	1.213	26.841	17.894	10.660	7.320	6.817	30.543	13.116	17.069	6.408	6705.668	15.325
41	*Channa punctatus*	*Taki*	3.745	6.049	8.659	5.241	9.347	18.767	10.272	4.643	8.810	10.467	4.719	15.442	4.093	3.944	9.361	13.507	29.418	13.744	12.503	4914.280	11.231
55	*Colisa fasciatus*	*Khalisha*	4.143	2.118	2.978	2.957	6.522	20.071	13.692	3.523	4.251	1.024	3.980	0.798	4.935	1.697	4.546	9.122	5.807	10.678	5.691	2399.047	5.483
123	*Macrognathus pancalus*	*Guchi*	3.043	1.808	3.841	2.585	0.347	0.603	1.477	6.973	7.364	1.862	3.057	2.988	5.369	6.029	4.652	4.985	1.817	3.113	1.594	1980.610	4.527
210	*Xenentodon cancila*	*Kaikka*	13.372	3.127	1.040	3.945	0.056	0.706	1.589	0.823	0.244	0.017	0.292	0.754	1.127	5.462	5.521	6.660	2.368	4.557	0.599	1978.924	4.523
88	*Heteropneustes fossilis*	*Shingi*	0.672	1.396	2.213	0.849	3.586	2.275	1.271	3.019	10.574	8.710	0.183	11.024	2.587	2.190	4.623	1.506	4.479	1.284	3.687	1365.242	3.120
110	*Lepidocephalus guntea*	*Gutum*	0.440	0.533	3.045	4.072	0.922	3.015	3.167	5.791	7.518	5.316	1.395	1.424	1.345	1.303	3.400	2.866	2.364	2.734	1.752	1120.283	2.560
107	*Labeo rohita*	*Rui*	3.475	12.234	1.026	0.083	0.165	0.084	–	0.418	2.813	–	–	0.320	2.424	2.798	2.593	1.760	1.458	2.597	7.507	1084.747	2.479
145	*Notopterus notopterus*	*Foli*	0.044	0.105	0.306	0.153	9.239	0.113	2.465	0.169	0.536	–	0.031	0.008	0.032	–	0.720	0.796	4.084	6.905	17.444	981.747	2.244
37	*Chanda ranga*	*Lal chanda*	3.020	0.922	1.182	0.318	0.405	0.406	3.833	5.407	0.619	0.268	6.049	4.330	5.139	2.064	1.938	0.732	0.562	2.031	0.744	760.301	1.738
137	*Mystus vittatus*	*Tengra*	1.058	3.161	1.374	5.481	3.657	1.841	3.719	6.640	3.783	4.855	6.474	2.900	2.990	1.083	0.571	1.255	1.241	5.771	1.990	760.055	1.737
62	*Cyprinus carpio*	*Karfu*	–	–	–	–	–	–	–	–	–	–	–	–	–	1.804	1.314	1.457	0.705	5.062	4.710	710.434	1.624
56	*Colisa lalia*	*Lal Khalisha*	0.042	0.027	0.146	0.277	0.646	11.553	–	0.849	1.030	0.077	2.492	2.512	1.071	1.641	1.784	1.751	0.700	2.029	0.782	681.081	1.557
42	*Channa striatus*	*Shol*	11.595	7.001	24.003	3.497	4.966	0.589	0.030	6.347	0.291	–	–	0.020	–	0.189	0.980	2.504	1.474	1.643	1.973	597.915	1.366
40	*Channa orientalis*	*Cheng*	–	–	–	0.056	–	–	–	–	–	–	0.029	14.444	0.570	2.565	0.401	1.462	0.111	–	–	585.319	1.338
6	*Anabas testudineus*	*Koi*	9.336	4.103	2.144	0.843	5.265	11.444	2.159	3.965	3.049	1.064	0.463	1.608	4.318	0.516	1.484	0.688	1.338	0.954	3.556	577.534	1.320
83	*Glossogobius giurus*	*Bailla*	1.478	0.450	1.050	1.077	0.192	0.309	1.469	1.598	1.864	0.894	0.199	1.280	2.318	1.306	0.975	1.062	1.535	0.962	1.093	516.888	1.181
32	*Catla catla*	*Catla*	3.047	13.036	2.000	1.032	–	–	–	–	1.293	–	–	1.950	12.531	0.688	0.428	0.716	1.682	0.364	0.287	467.280	1.068
175	*Puntius conchonius*	*Canchan puti*	–	0.202	0.218	0.142	1.591	1.547	1.025	0.738	0.261	0.297	8.888	1.395	0.767	0.674	0.688	0.497	0.705	1.070	0.716	393.055	0.898
178	*Puntius phutunio*	*Phutani puti*	0.013	0.005	0.106	0.100	0.171	0.048	0.001	0.819	0.154	0.111	0.275	0.933	2.436	2.428	0.767	0.216	0.356	0.571	0.034	392.806	0.898
49	*Clarias batrachus*	*Magur*	–	0.827	0.645	0.164	1.618	–	0.386	0.342	1.447	12.913	–	0.282	0.294	–	0.226	0.436	3.253	0.369	2.777	348.069	0.795
209	*Wallagu attu*	*Boal*	1.620	3.688	8.009	5.751	7.520	0.573	6.824	4.029	3.411	–	–	–	–	–	0.079	0.217	4.419	0.147	1.842	327.258	0.748
75	*Esomus danricus*	*Darkina*	0.338	0.314	0.091	0.136	0.286	0.205	1.616	1.056	0.287	1.176	2.409	0.492	0.154	0.164	1.400	0.610	0.422	0.692	0.173	291.624	0.666
211	*Colisa labiosus*	*Khalisha*	–	–	0.022	0.105	–	0.141	0.005	0.999	1.187	0.733	2.554	0.643	1.433	0.169	0.782	0.787	0.070	0.064	0.131	261.907	0.599
130	*Aorichthys aor*	*Ayre*	0.169	–	–	0.603	0.053	0.013	7.291	–	0.436	–	–	0.587	0.055	0.276	0.371	1.554	–	–	0.289	258.556	0.591
203	*Tetraodon cutcutia*	*Potka*	0.287	0.612	1.293	0.202	0.818	–	–	0.076	–	–	0.022	0.099	0.297	1.057	0.818	0.272	0.404	0.211	0.700	245.679	0.561
121	*Macrognathus aculeatus*	*Tara baim*	1.363	0.433	0.473	0.304	–	–	0.082	2.806	0.333	0.051	0.410	3.682	1.167	0.442	0.362	0.571	0.224	0.424	0.086	238.787	0.546
15	*Badis badis*	*Napit koi*	0.086	0.022	0.044	0.125	0.208	0.562	0.225	0.185	0.022	8.103	0.090	0.316	0.848	0.747	0.521	0.219	0.149	0.741	0.730	220.707	0.504
5	*Amblypharygodon mola*	*Mola*	2.276	0.803	0.513	0.048	0.678	–	0.051	0.059	0.150	0.013	3.311	0.786	0.165	0.091	0.571	0.052	1.785	0.684	0.340	207.928	0.475
150	*Oreochromis mossambica*	*Tilapia*	–	–	–	–	0.071	–	–	–	0.030	–	–	–	–	0.196	0.013	1.456	–	0.109	–	192.448	0.440
212	*Puntius ticto*	*Tit puti*	0.934	0.317	0.018	0.125	0.532	0.120	2.940	1.294	0.483	0.155	0.053	0.359	0.247	0.246	0.529	0.410	0.621	0.290	0.672	188.697	0.431
47	*Cirrhinus mrigala*	*Mrigel*	0.091	0.147	0.020	0.011	0.005	–	–	–	–	–	–	–	2.939	1.106	0.208	0.022	–	–	0.695	184.357	0.421
122	*Mastacembelus armatus*	*Baral baim*	0.013	0.120	1.110	0.448	0.655	–	0.751	0.979	0.345	–	–	–	0.630	0.599	0.648	0.091	0.592	0.006	0.285	172.705	0.395
36	*Chanda nama*	*Nama Chanda*	5.340	4.165	0.739	1.195	0.093	0.055	1.134	0.430	0.124	0.036	0.291	0.487	0.778	0.278	0.400	0.226	0.080	0.766	0.452	140.351	0.321
39	*Channa marulius*	*Gajar*	–	–	0.138	0.767	1.112	–	–	0.681	3.426	–	–	–	–	0.495	0.056	0.058	–	–	1.385	136.912	0.313
136	*Mystus tengara*	*Bajari tengra*	1.581	1.135	1.196	1.682	0.925	0.053	0.175	0.261	4.225	0.085	2.578	0.109	0.636	0.071	0.297	0.010	0.008	0.025	0.020	117.638	0.269
48	*Cirrhinus reba*	*Raik*	0.888	0.095	0.192	0.023	0.025	–	–	–	–	–	–	–	1.066	0.250	0.198	0.074	–	0.221	–	67.113	0.153
131	*Mystus bleekeri*	*Golsha tengra*	–	–	0.014	0.018	1.527	–	0.039	0.021	0.586	0.012	0.027	0.304	0.137	0.043	0.213	0.037	0.060	0.562	0.402	61.510	0.141
182	*Rasbora daniconius*	*Darkina*	0.220	0.025	0.636	0.240	0.007	–	–	–	0.464	0.142	0.044	–	–	0.252	0.146	0.014	0.048	0.097	0.480	60.793	0.139
176	*Puntius gelius*	*Giliputi*	–	0.031	0.002	0.159	0.079	0.078	0.012	1.048	0.016	0.082	0.101	0.103	0.579	0.283	0.096	0.020	0.006	0.170	0.023	59.930	0.137
189	*Salmostoma phulo*	*Fulchela*	0.614	0.720	0.051	0.156	–	–	0.021	–	–	0.051	–	0.109	0.268	0.196	0.230	0.035	0.094	0.349	0.019	56.877	0.130
33	*Chaca chaca*	*Cheka*	0.035	0.041	–	0.328	–	–	–	0.844	0.293	0.273	–	–	–	–	0.381	–	–	–	0.087	45.658	0.104
100	*Labeo bata*	*Bata*	0.017	0.265	0.039	–	–	–	–	–	–	–	–	–	–	0.435	0.034	–	–	–	–	42.865	0.098
151	*Oreochromis nilotica*	*Nilotica*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.294	0.017	0.082	–	0.389	42.229	0.097
148	*Ompok pabda*	*Madhu pabda*	0.029	0.018	0.144	0.064	0.765	0.011	0.656	0.050	0.047	0.018	–	–	0.021	–	0.093	0.004	–	0.314	0.340	25.583	0.058
169	*Pseudeutropius atherinoides*	*Batasi*	0.503	0.032	0.030	0.027	4.489	–	–	1.600	1.145	–	0.007	0.014	–	–	0.001	–	–	0.021	–	24.456	0.056
35	*Chanda baculis*	*Chanda*	0.157	–	–	–	0.007	–	–	–	–	–	–	0.017	0.145	0.147	0.023	0.047	–	0.023	0.002	23.638	0.054
132	*Mystus cavasius*	*Kabashi*	–	–	0.002	0.113	1.303	0.021	–	–	0.037	–	–	–	–	0.125	0.001	–	0.138	0.198	–	20.699	0.047

Table 6.7 Percentage total monthly catch by species: floodplains/beel inside CPP(Cont.)

Species Code	Species name: Scientific	Species name: Bengali	Year: 1992 Aug	Sep	Oct	Nov	Dec	Year: 1993 Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year: 1994 Jan	Feb	Total annual catch (Mar'93 – Feb'94) Kg	%
91	*Hypophthalmichthys molitrix*	*Silver carp*	–	–	–	–	–	–	–	–	–	–	–	1.051	0.641	–	0.001	–	–	–	–	18.556	0.042
188	*Salmostoma bacaila*	*Katari*	0.422	1.401	0.368	0.327	0.028	–	0.028	0.758	0.167	0.079	–	–	0.056	0.094	–	–	–	0.005	–	17.652	0.040
102	*Labeo calbasu*	*Kalbaus*	0.210	0.226	0.071	–	–	–	–	–	–	–	–	–	0.572	0.047	0.058	0.000	–	–	0.011	17.600	0.040
174	*Puntius chola*	*Chala puti*	–	–	0.018	0.001	–	–	–	–	0.018	–	–	0.372	–	–	0.080	–	–	0.379	–	16.936	0.039
181	*Puntius terio*	*Teri punti*	0.204	0.580	3.768	1.228	0.024	0.020	–	–	0.059	–	–	0.030	0.216	–	0.061	0.033	0.027	0.031	0.021	15.113	0.035
4	*Amblypharygodon microlepis*	*Mola*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.116	–	–	–	13.619	0.031
86	*Gudusia chapra*	*Chapila*	0.478	–	0.029	0.008	–	–	–	–	–	–	–	–	0.013	0.011	0.085	0.016	0.033	0.071	–	12.796	0.029
135	*Aorichthys seenghala*	*Guizza*	–	–	0.040	0.042	–	–	–	–	–	–	–	–	0.087	0.115	–	–	–	–	–	11.796	0.027
9	*Aplocheilus panchax*	*Kanpona*	0.029	–	0.009	0.018	0.208	0.059	0.034	0.035	0.177	–	0.083	0.131	0.031	–	0.005	0.049	0.003	0.005	0.003	11.132	0.025
57	*Colisa sota*	*Khalisha*	0.541	0.244	0.304	0.802	0.201	0.875	0.785	0.573	–	0.017	0.004	0.038	0.011	0.009	0.010	0.023	0.028	–	–	10.880	0.025
69	*Brachydanio rerio*	*Anju*	–	–	–	0.030	0.001	–	–	–	0.010	0.002	0.073	0.010	–	0.068	0.003	–	–	–	–	7.682	0.018
945	*Crab sp*	*Kakra*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.050	–	–	–	–	4.248	0.010
60	*Ctenopharyngodon idellus*	*Gheso carp*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.029	–	–	–	3.420	0.008
147	*Ompok bimaculatus*	*Kani pabda*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.005	0.013	–	0.025	–	2.380	0.005
109	*Lepidocephalus berdmorei*	*Puiya*	–	–	–	–	0.001	–	–	–	–	–	0.186	–	–	–	–	–	–	–	–	2.368	0.005
28	*Botia dario*	*Rani*	0.429	0.003	0.032	–	–	–	–	–	–	–	–	0.023	–	0.015	0.006	0.000	–	–	–	2.096	0.005
2	*Ailia coila*	*Kajuli*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.021	–	–	–	–	–	1.964	0.004
139	*Nemacheilus botia*	*Balichata*	0.003	0.003	–	–	–	–	–	0.011	–	0.119	0.081	–	–	–	0.004	–	–	–	0.005	1.939	0.004
198	*Somileptes gongota*	*Gharpoia*	–	–	–	–	–	–	–	–	–	–	0.119	–	–	–	–	–	–	–	–	1.523	0.003
51	*Clupisoma garua*	*Ghaura*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.012	–	–	–	1.387	0.003
89	*Hilsa ilisha*	*Ilish*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.051	–	0.883	0.002
217	*Lepidocephalus thermalis*	*Puiya*	–	–	–	–	–	0.266	–	–	–	–	–	0.084	–	–	–	–	–	–	–	0.763	0.002
68	*Danio devario*	*Chebli*	–	0.004	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.029	0.005	0.654	0.001
144	*Notopterus chitala*	*Chital*	0.007	0.001	–	–	–	–	–	–	–	–	–	–	–	0.004	–	–	–	–	–	0.327	0.001
81	*Gagata youssoufi*	*Gang tengra*	–	–	–	–	–	–	–	–	–	–	–	–	0.013	0.001	–	–	–	–	–	0.264	0.001
128	*Liza parsia*	*Bata*	–	–	–	–	–	–	–	–	0.026	–	–	–	–	–	–	–	–	–	–	0.239	0.001
923	*Sicamugil cascasia*		–	–	–	–	–	–	–	–	–	–	–	–	0.016	–	–	–	–	–	–	0.224	0.001
214	*Oryzias melastigma*	*Kanpona*	–	–	–	–	–	–	–	–	–	–	–	–	0.009	–	–	–	–	–	–	0.124	0.00028
193	*Setipinna phasa*	*Phasa*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.001	–	–	–	0.115	0.00026
59	*Crossocheilus latius*	*Kalabata*	–	–	–	–	–	–	–	–	–	–	–	–	–	0.000	–	–	–	–	–	0.029	0.00006
43	*Chela cachius*	*Chep Chela*	0.033	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0.000	–	–	–	0.022	0.00005
114	*Machrobrachium lammariei*	*Kunchu icha*	–	–	–	0.103	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
113	*Machrob. birmanicus*	*Chingri Thengua*	0.843	0.069	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
106	*Labeo pangusia*	*Longu*	–	–	–	–	–	–	0.026	–	–	–	–	–	–	–	–	–	–	–	–	–	–
173	*Puntius cosuatis*	*Kosuati*	–	–	–	–	0.057	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
101	*Labeo boga*	*Bhangan*	–	–	0.078	0.036	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
138	*Nandus nandus*	*Bheda*	0.312	0.641	0.513	0.299	4.991	1.024	1.576	–	–	–	–	–	–	–	–	–	–	–	–	–	–
58	*Corica soborna*	*Kachki*	0.080	–	–	–	0.014	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
124	*Monopterus cuchia*	*Kuchia*	–	–	0.351	–	0.371	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
50	*Clarias gariepinus*	*African magur*	–	–	–	–	0.038	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
117	*Machrobrachium styliferus*	*Gura icha*	–	–	–	0.120	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
45	*Chelonodon fluviatilis*	*Potka*	–	–	–	–	–	0.168	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
154	*Securicula gora*	*Chora chela*	0.006	–	0.039	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
12	*Aspidoparia jaya*	*Piali*	0.002	0.002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
207	*Trionyx gangeticus*	*Kachhim*	–	0.267	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
127	*Liza melinoptera*	*Bata*	–	0.006	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
183	Rasbora elanga	Sephatia	–	–	0.167	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
939	*Puntius sp.*		0.063	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	*Ailia punctata*	*Kajuli*	–	0.004	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	43755.445	100

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Table 6.8 **Percentage Contribution to the total Floodplain Catch by Dominant Species Inside and Outside the Tangail CPP, August 1992 - February 1994.**

Species Name	Outside	Inside	All floodplains/beel sites Sampled in NCR
Prawn spp.	19.8	20.3	19.6
Puntius sophore	14.7	16.3	15.2
Channa punctatus	9.2	10.5	11.4
Macrognathus pancalus	5.5	4.0	4.4
Colisa fasciatus	4.0	5.5	5.2
Lepidocephalus guntea	3.5	2.4	2.7
Catla catla	2.8	1.6	1.9
Chanda ranga	2.7	1.7	1.8
Glossogobius giurus	2.6	1.1	1.7
Labeo rohita	2.5	2.6	3.3
Puntius conchonius	2.3	<1	1.5
Macrognathus aculeatus	2.3	<1	1.3
Mystus vittatus	2.2	2.0	1.9
Wallagu attu	1.9	1.8	1.5
Colisa lalia	1.9	1.4	1.4
Mastacembelus armatus	1.5	<1	<1
Heteropneustes fossilis	1.3	2.8	2.8
Salmostoma phulo	1.3	<1	<1
Anabas testudineus	1.3	2.1	2.7
Cirrhinus mrigala	1.2	<1	<1
Xenentodon cancila	1.2	4.3	3.2
Esomus danricus	1.0	<1	<1
Channa striatus	<1	3.5	2.6
Notopterus notopterus	<1	2.1	<1
Cyprinus carpio	<1	1.2	<1
Channa orientalis	<1	1.1	<1

inside and outside the CPP, while the latter was relatively more abundant outside it (Table 6.8). The remaining dominant floodplain species are capable of surviving in small perennial water bodies during the dry season and are therefore categorised as floodplain residents. This pattern of species composition was also observed in several lower-lying and free-flooding sampling sites in the Manikgonj Thana to the south of Tangail and therefore appears to be typical of fisheries along the right bank of the Jamuna River and along the Dhaleswari-Kaliganga river system.

The single most important component of the annual catches everywhere consisted of small prawns comprising 20% of total catches. This study thus highlights the importance of this cheap, protein rich food resource which is captured by subsistence and professional fishermen alike.