Current status of Gangetic tengra from the middle stretch of the Ganga river, India

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ABSTRACT

Freshwater fishing is a major source of income and protein for the riverine populations of most tropical and subtropical regions. During present investigation a total of 1006 specimens of Sperata aor and 966 specimens of S. seenghala were collected from the middle stretch of the Ganga river at Prayagraj, Uttar Pradesh. Size range of fishes varied from 12.2 to 136.4 cm and 11.8 to 129.7 cm for S. aor and S. seenghala, respectively in during the months from September 2015 to August 2017. The 80.1-90.0 cm size group fishes of S. aor was shared (16.10%) while 70.1 to 80.0 cm size group of S. seenghala was shared (19.77%) in exploited stock. Middle size group was maximum exploited compared to lower and higher size group of both species. The exploitation pattern was not systematic for heavy recruitment. The result also indicated that the fishing activities should be prohibited during the breeding season of these fishes.

INTRODUCTION

The Gangetic Tengra, Sperata aor and S. seenghala, the two commonest species abound in the Ganga river system with commercially exploited fish species (Gupta 2015, Khan et al. 2016, Dwivedi et al. 2016a) and hardly prefer riverine habitat. Both species have a high range of tolerance for temperature and salinity (Chondar 1999). Both constitutes the major component of the fishery in the middle and lower stretches of the river (Tripathi et al. 2017), also from sizeable fishery in the Yamuna river (Saigal 1982, Mayank and Dwivedi 2015a) and all the major river systems in India (Ramakrishniah 1992). These are a popular food fish due to its good taste and high nutritional value. Though almost the year round is the fishing season for S. aor and S. seenghala but the peak period of fishing in the Gangetic system is March to June and again September to February. Day fishing during winter and night fishing during summer months are done in the Ganga and Yamuna river. Both form a sizeable fishery of Hirakund, Rihand, Gandhisagar, Govindsagar and other big reservoirs and wetlands of India (Rahman et al. 2005, Alam et al. 2016, Priyanka et al. 2018). S. aor and S. seenghala may be 6 feet or 1828 mm long (Day 1878, Misra 1959). S. aor is more abundant than S. seenghala in the nature. Its natural distribution is in the freshwater of India, Pakistan, Nepal, Bangladesh and Burma (Chondar 1999, Afsarullah et al. 2015). S. aor and S. seenghala is a bottom and column feeder and adults and adults are piscivorous. At Kanpur, S. seenghala (15.76%) was dominated compared to C. garua (14.67%) and E. vacha (13.95%) through number (Dwivedi et al. 2016a). The objective of the present study was to give size composition and current status of the S. aor and S. seenghala from the Ganga river at Prayagraj section

MATERIALS AND METHODS

Climate

The climate of this region is marked by mild cold during winters and intensive heat during summers. The monsoon season is July to September. Sometimes winter rainfall is also recorded.

Sampling

The Ganga river is a mainstay for natural stock of fresh water fishes, India. S. aor and S. seenghala was collected using a variety of methods including drag netting (mahajal,
chaundi, darwari), cast netting, gill netting and hook and line. The 1006 and 966 fish samples of S. aor and S. seenghala were collected, respectively at random during the months September 2015 to August 2017 from the Teliearganj fish market, Prayagraj, India. This market represents the fishes of middle stretch of the Ganga river at Prayagraj. Sizes of fishes were measured by simple measuring scale. Total length (TL) of fish was measured from tip of the snout to the largest rays of caudal fin. Collected data were classified at 10 cm intervals and size composition varied from 192 to 136 cm size groups. The number of samples calculated according to size group then converted into percentage.

RESULTS AND DISCUSSION

Size composition of S. aor and S. seenghala varied from 12.2 to 136.4 cm and 11.8 to 129.7 cm size group, respectively from the middle stretch of the Ganga river at Prayagraj. In case of S. aor, the maximum exploitation was observed in 80.1-90.0 cm (16.10%) size groups while minimum exploitation was recorded with 0.50% in 130.1-140.0 cm size group (Fig. 1). The exploitation was observed 2.48% in 10.1-120.0 cm, 3.68% in 201.1-30.0 cm, 5.27% in 30.1-40.0 cm, 4.45% in 40.1-50.0 cm, 12.52% in 50.1-60.0 cm, 13.72% in 60.1-70.0 cm and 15.21% in 70.1-80.0 cm size groups. Overall, middle size group contributed maximum exploitation (57.55%) compared to higher size group (22.57%) and lower size group (19.88%).

In case of S. seenghala, the maximum exploitation was observed in 70.1-80.0 cm (19.77%) size groups while minimum exploitation was recorded with 0.83% in 120.1-130.0 cm size group (Fig. 3). The exploitation was recorded 2.17% in 10.1-120.0 cm, 4.76% in 201.1-30.0 cm, 6.52% in 30.1-40.0 cm, 9.21% in 40.1-50.0 cm, 12.11% in 50.1-60.0 cm and 14.80% in 60.1-70.0 cm size groups. Overall, middle size group contributed maximum exploitation (57.55%) compared to lower size group (22.66%) and higher size group (16.56%) (Fig. 2). In general, middle size groups of any commercially exploited fish species have more attractive to fishers and consumers (Imran et al. 2015, Mayank and Dwivedi 2015b).

The results also indicated that the exploitation was not systematic in middle size group to higher size group. If higher size group exploitation is not systematic then it is an alarming sign for future population of S. aor and S. seenghala because higher size group of fishes more experienced for heavy recruitment and healthy spawning. In collective, middle size group of fishes in case of riverine/natural stocks are more exploited than other size groups (Nikolskii 1980, Pathak et al. 2015, Tripathi et al. 2015).

The current water quality and water discharge of the Ganga river supports to the hardy fishes (example Cyprinus carpio, Oreochromis niloticus, S. aor, S. seenghala and other catfishes). Tiwari et al. (2016, 2017) and Dwivedi et al. (2018a) also reported similar findings from the Ganga river. The catfishes are the backbone of the Ganga river fishery (Mayank and Dwivedi 2015b). The water discharge of the river also interferes in the production of the culture pond of the surrounding river bank (Jha et al. 2015, Dwivedi et al. 2018b). Exploitation is an economic activity governed by social needs and pressures (Dwivedi et al. 2014, Mayank and Dwivedi 2016b). The water pollution, over exploitation and targeted fishing is the biggest problem of riverine fishery (Kumar et al., 2013, Jatan et al. 2014, Tiwari et al. 2016, Dwivedi et al. 2017, Muthmainnah and Gaffar 2017, Mayank et al. 2018).

CONCLUSION

It may be concluded that the exploitation of S. aor and S. seenghala were not systematic in middle size group to higher size group. The present size of both fishes was declined compared to earlier study. Both species was also struggle to Cyprinus carpio and Oreochromis niloticus for space and food in the Ganga river at Prayagraj, Uttar Pradesh.

REFERENCE


