Assessment and exploitation of the pomfret fishery by the industrial fishing fleets in Bangladesh

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In this study, pomfret fishery data were collected from the 93 commercial fishing trawlers from July 2008 to June 2009 in Bangladesh. Total fish production of these fishing trawlers was 30191.071 Metric Tons (MT). Among them, the estimated catch of pomfret was 305.466 MT of which caught within total 18651961.05 hours and an average catch per hour of pomfret was 0.016 kilogram (kg). Three species of pomfret were recorded under the family stromateidae and carangidae. The average tow duration of per trawler per day was 16.25 hours. The percentage contribution by weight showed that, the highest catch of percentage was 1.88 and the lowest was 0.38; and the average catch percentage of pomfret was 1.01 of the total fish production in the trawl fishing. The highest landing of pomfret was recorded 65.460 MT in the month of November, 2008 and lowest was 1.146 MT in July, 2008 at the same study period.

Keywords: Pomfret fishery, production, commercial trawl, current status, Bangladesh.

INTRODUCTION

The Bay of Bengal is situated in the South of Bangladesh between latitude 20°34’ and 26°38’ North and longitude 88° 01’ and 92° 41’ East. It has a coastline of 710 Kilometer (Km) and an Exclusive Economic Zone (EEZ) is about 1,66.000 square km and continental shelf covered with an area 44 percent (Rahman, 1994). During 2008-2009 total fish production in Bangladesh was 2.70 Million MT of which marine fisheries contribute around 0.515 Million MT (19.05%). In marine fisheries sector the industrial fisheries accounts for 313.00 MT. or 6.88% only (DoF, 2008-09).

In Bangladesh, Marine fisheries are a multi gear and multi species and operating almost round the year. About 93 fishing trawlers are engaged in fishing. Three species of pomfret such as White pomfret- *Pampus argenteus*, Chinese pomfret- *Pampus chinensis* and Black pomfret- *Parastromateus niger* which is member of family carangidae and rest of the stromatidae found in the Bay of Bengal (Rahman, 1995).

Pomfret are schooling, pelagic and medium sized fishes inhabiting in shallow waters, caught with fishing trawl and occasionally with gill nets and Maine Set Bag net (MSBN) and incidentally harvested by the shrimp trawl, trammel nets and other nets as a by catch.

Zobaidy (Family- Stromateidae), Widely Spread throughout the Indo-Western Pacific region, supports valuable fisheries along the coast of India (Kagwade, 1988) the eastern part of China, the Western and Southwestern Korean Peninsula (Cho, 1989).

Locally (Pomfret) Zobaidy are considered the most dominant and commercially important species (Husaini, 2000). This species constituted on average 25 percent of the 1991 to 1994 fish catches landed at Kuwait fish markets (CSO 2001), While most of the supply came from imports in 1985 to 1989 during the Iran-Iraq war (KISR, 1988). It accounted for only 4.3 percent of the total landings from Kuwait’s catches in these years (Lee, 1990). But few studies have been done on the pomfret landing in Bangladesh. The main objectives of the study were:-

i. To make a reasonable estimate of the total production of pomfret fishery harvested by fishing trawlers fleet with and seasonal and spatial variations in the marine water area of Bangladesh.

ii. To estimate production catch per unite effort (CPUE) with the variation of tow duration of commercial trawler.

MATERIALS AND METHODS

The data were collected month wise from 93 commercial fishing trawlers operated in Bay of Bangal waters during 2008 to June 2009, in Bangladesh. The data were collected on the board of the trawlers through a prescribed
Table 1. Total landing of Pomfret by different fishing Trawler during July 2008 to June 2009

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the month</th>
<th>Total number of Trawler</th>
<th>Active fishing days</th>
<th>Slanded fishing days</th>
<th>Total duration (Hour)</th>
<th>Tow Total Pomfret landing (MT)</th>
<th>Catch per hour (Kg)</th>
<th>Catch per Trawler per Hour (gm)</th>
<th>Catch per day (Kg)</th>
<th>Catch per day per trawler (Kg)</th>
<th>Trand total fish landing (MT)</th>
<th>Catch percentage (%) of the total fish landing</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>July/08</td>
<td>12</td>
<td>67</td>
<td>105</td>
<td>11296.20</td>
<td>1.146</td>
<td>0.101</td>
<td>8.45</td>
<td>10.91</td>
<td>0.910</td>
<td>258.102</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>August/08</td>
<td>30</td>
<td>301</td>
<td>471</td>
<td>129580.50</td>
<td>2.170</td>
<td>0.017</td>
<td>0.56</td>
<td>4.607</td>
<td>0.154</td>
<td>1315.495</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Sep/08</td>
<td>79</td>
<td>943</td>
<td>1475</td>
<td>1199402.10</td>
<td>26.754</td>
<td>0.022</td>
<td>0.28</td>
<td>18.138</td>
<td>0.230</td>
<td>2450.567</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Oct/08</td>
<td>84</td>
<td>1301</td>
<td>2035</td>
<td>1781329.20</td>
<td>38.400</td>
<td>0.022</td>
<td>0.26</td>
<td>21.533</td>
<td>0.242</td>
<td>3478.808</td>
<td>1.88</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Nov/08</td>
<td>89</td>
<td>1943</td>
<td>3040</td>
<td>2836003.20</td>
<td>65.460</td>
<td>0.023</td>
<td>0.26</td>
<td>21.533</td>
<td>0.242</td>
<td>3478.808</td>
<td>1.88</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Dec/08</td>
<td>86</td>
<td>1594</td>
<td>2494</td>
<td>2371553.20</td>
<td>43.269</td>
<td>0.018</td>
<td>0.21</td>
<td>17.349</td>
<td>0.202</td>
<td>2657.159</td>
<td>1.63</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Jan/09</td>
<td>93</td>
<td>1939</td>
<td>3033</td>
<td>3146706.15</td>
<td>44.664</td>
<td>0.014</td>
<td>0.15</td>
<td>14.726</td>
<td>0.158</td>
<td>3888.292</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Feb/09</td>
<td>90</td>
<td>1744</td>
<td>2728</td>
<td>2566296.00</td>
<td>32.029</td>
<td>0.012</td>
<td>0.14</td>
<td>11.741</td>
<td>0.130</td>
<td>3886.760</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>March/09</td>
<td>89</td>
<td>1799</td>
<td>2814</td>
<td>2609809.30</td>
<td>282.263</td>
<td>0.011</td>
<td>0.12</td>
<td>10.044</td>
<td>0.113</td>
<td>3988.873</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>April/09</td>
<td>77</td>
<td>1012</td>
<td>1583</td>
<td>1168860.00</td>
<td>11.210</td>
<td>0.010</td>
<td>0.12</td>
<td>7.081</td>
<td>0.092</td>
<td>2167.073</td>
<td>0.52</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>May/09</td>
<td>60</td>
<td>839</td>
<td>1313</td>
<td>765168.00</td>
<td>8.164</td>
<td>0.011</td>
<td>0.18</td>
<td>6.218</td>
<td>0.104</td>
<td>2135.638</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>June/09</td>
<td>21</td>
<td>208</td>
<td>325</td>
<td>65957.20</td>
<td>3.937</td>
<td>0.060</td>
<td>2.84</td>
<td>12.114</td>
<td>0.575</td>
<td>340.500</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>810</td>
<td>3690</td>
<td>21416</td>
<td>18651961.05</td>
<td>305.466</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30191.071</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The form filled up by the Skipper in the board. The forms were brought to the Marine Fisheries Survey Management Unit Office at Chittagong where the data were analyzed both manually and computer.

The average head rope length of the trawl net recorded from the daily fishing log sheet.

The number of active vessels between 25 meters to 35 meters length totaled 93. The main engine power varies in between 400 break horse power (BHP) to 1200 BHP. The trawl net is a cone or funnel shaped with wings extending forward to guide fish back into the funnel and ultimately the cod-end with mesh size being 60 millimeter.

RESULT

The data analysis shows that the average number of fishing trawler in the operation was 68 per month. The highest number of trawlers 93 operated in the month of January 2009 and the lowest was 12 in July 2008 (Table 1).

The average fishing days per trawler per month was 17, of which average standard fishing days was 26. The maximum standard fishing days was 3033 in the month of January 2009 and the minimum in July 2008 was 105 days.

The average trawl net head rope length was found 39.11 meters (m) and the average Tow Duration per trawler per day was 16.25 hours.

The maximum pomfret catch was 65.460 MT in November 2008 and minimum catch in July 2008 was 1.146 MT.

The average catch per hour was 0.016 Kilogram (Kg) and the highest catch per hour was 0.101 Kg in July 2008 and the lowest in the month of April 2009 was 0.010 Kg.

The average catch per trawler per hour was 0.02 gram (gm). The maximum catch per trawler per hour was 8.45 gm in the month of July 2008 and the minimum was 0.12 gm in the month of March 2009 and April 2009 each.

The average pomfret catch per day was 14.260 Kg. And the average catch per day per trawler was 0.018 Kg. The highest pomfret catch per day per trawler was 0.910 Kg. in the month of July 2008 and the lowest in April 2009 was 0.092 Kg.

Total landing amounts of fish by all fishing trawlers was 30191.071 MT of which the quantity of total pomfret catch was 305.466 MT (1.01%). The highest and lowest catch percentage of pomfret was 1.88% or (65.460 MT) and 0.38% (8.164 MT) in the month of November 2008 and May 2009 respectively (Table 1).

DISCUSSION AND CONCLUSION

Two types of trawler are operating in the Bay of Bengal and they are shrimp trawlers and fish trawlers. Data sheet were collected and analyzed...
only from fish trawlers in each month during the study period. The contribution of pomfrets in shrimp trawl and fish trawl were 0.31% and 1.95% (Mustafa, 2000). Fish trawl shows higher contributed for pomfret. White pomfret and Chinese pomfret are caught in all depth although the highest density was found in 21-50 meter (m) depth zone. Black pomfret are rarely encountered (White, 1985).

The survey cruise conducted by R.V. Anusandhani from January 1985 to December 1985. A total of eight fish cruise of 212 stations were consider in this study. Group wise catch composition (percentage) of the total catch were shown that the *Pampus aregenteus*, *Pampus chinensis* and *Parastromateus niger* are 0.595%, 0.182% and 0.512% respectively. Figure 1, 2, 3.

During July 2008 to June 2009 total landing of Pomfret (Rup. Hail and Foli chanda) from Bangladesh marine fleet was 46643.00 MT, of which captured by the trawl fishing was 313.00 MT (0.67%), gillnet fishing 18244.00 MT (39.11%), Set bag net fishing 27394.00 MT (58.73%), Trammel net fishing 484.00 MT (1.04%) and others gear fishing 208.00 MT (0.45%) also (DoF, 2008-2009).

*Pampus aregenteus* found in coastal waters of Indian and east ward to China but not to New Guinea or Australia, take in Kerala from June to September.

Abundance varies from year to year but never present in great number (FAO-1984).

The contribution of pomfret was 1.73% of the grand total of fish production and 9.06% of the total marine fish production of Bangladesh.

But in our observation record 305.466 MT of pomfret by fish trawl, which contributed only 0.01% of the grand total fish production and 0.06% of the total marine fish production of Bangladesh.

It was seen from the above discussion that the quantity of the pomfret harvested by the fishing trawlers was low and the month wise landing data show that the pomfret catch were in zigzag condition.

The main fishing seasons of pomfret in Bangladesh marine territory were in November to February although small quantities of pomfret were landed during May to August by the fish trawl.

Pomfret exploitation in the Bay of Bengal is increasing rapidly due to market demand, so the individual body size and weight is decreasing simultaneously. The standing biomass, seasonal abundance, migration patterns and other basic biological parameters are necessary for management. For its high demand in the international markets need a single fishery management plan?

During July 2008 to June 2009 the total marine fish production was 514644.00 MT. of which the total harvested
of pomfret was 46643.00MT (9.06%) in artisanal and marine sector. But in our survey work found only 305.466 MT of pomfret which contributed only 0.66% of the total pomfret landing and these quantities captured by the 93 fishing trawlers between 18651961.05 hours from the Bay of Bengal at the same period.

**Literature cited**


Mustafa MG (2000). Demersal Fish Assemblage of the Bengal, Bangladesh Sustainable Management of Coastal Fish Stock in Asia (ADB-RETA 5766 Project), Bangladesh Marine Fisheries Research Institute, Marine Fisheries and Technology Station, Cox's Bazar, Bangladesh, 2-21 Pp.

