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An account of Ichthyofauna of Digha coast, West Bengal

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Abstract

An account of the ichthyofaunal diversity along the Digha coast has been studied. A total of 340 species belonging to 210 genera, 107 families and 19 orders were reported both from earlier literatures and current study all together. In total 48 species were added for the first time from Digha coast.

Keywords: Fishes, Digha, West Bengal, New records

Introduction

Digha (Lat 21°36' Long 87°30') is a famous seaside resort town in the district of Purba Medinipur of the state of West Bengal and situated at the northern end of Bay of Bengal. Also, this place is located near the Gangetic mouth, provides most peculiar habitat of shallow muddy beach with lot of sedimentation load coming from Ganga riverine system. It is also one of the major marine fish landing stations as well as famous beach destination of east cost of India. Numerous studies have already been made to inventories the ichthyological faunal diversity of Digha coast by Manna and Goswami (1985), Goswami (1992), Talwar et al. (1992), Chatterjee et. al. (2000). In recent times, the studies made by Yennawar and Tudu (2010), Yennawar et al. (2011a, 2011b, 2012a, 2012b, 2012c, 2012d), Mohapatra et. al. (2012a, 2012b, 2013a, 2013b, 2013c, 2015a, 2016), Ray et. al. (2012a, 2012b, 2013, 2014, 2015a, 2015b, 2015c, 2015d, 2016), Ray and Mohapatra (2013, 2015a, 2015b, 2016a, 2016b, 2016c) added many more fishes to the list of Digha coast. During the routine efforts of maintain diversity of public aquarium in this Centre, around 103 species added to the existing species list of the area. The previous compilation of ichthyofauna of the region contributed 212 species from 145 genera and 88 families (Chatterjee et al., 2000) and 238 species from 72 families (Manna and Goswami, 1985; Goswami, 1992). The present study provides most

updated list of ichthyofaunal diversity of Digha coast and 48 species are first time record to Digha locality and totalling the updated list to 340 species from the region. The present study gives updated checklist of ichthyofauna of the coast which may be helpful in conservation of local fauna and mass awareness among tourists visiting Digha as well as local administration.

Study Area

Digha beach is situated close to the Gangetic mouths on the east coast of India facing the Bay of Bengal. The sea is quite shallow with very little wave action on the beach and an extensive area about 250m of the intertidal zone is exposed during low tides. The beach slope is very low upto the low water mark. The shore is subjected to considerable erosion in the recent past and the bank is presently protected with the construction of a sloping sea-wall. Three distinct seasons, summer from March to June with high temperature, monsoon from July to October with heavy rainfall and winter from November to February with low temperature, are experienced in the region.

All the samples of fishes were collected from the fish landing centre as well as beach trawling operation sites around Digha coast, West Bengal. All the freshly collected specimens were taken photographs. After collection, the preliminary observation of morphometric

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characters the specimens were carried out. The specimen after identification preserved in 10% formaldehyde which were kept in the museum of Marine Aquarium and Regional Centre of Zoological Survey of India, Digha. The present study was conducted at five different locations viz. 1-Talsari, 2-Udaipore, 3-Digha, 4-Mohana & 5-Shankarpur (Figure 1).



Figure 1. A map showing study locations around Digha coast.

Results

In total 340 species belonging to 210 genera, 107 families and 19 orders of ichthyofauna reported so far on the Digha coast. This study updates the earlier report with 103 species from literature available and 48 species are first time record to Digha locality. The families reported from the coasts are Carangidae, Engraulidae, Clupeidae, Lutjanidae, Serranidae, Mullidae etc. Major ornamental fishes were reported from the families like Balistidae, Acanthuridae, Scorpaenidae, Holocentridae, Pomacanthidae, Gymnouridae, Tetraodontidae etc. Some of the deep sea fishes like Naso reticulatus, Lethrinus lentjan, Acropoma argentistigma etc. are also reported during the study. The detail family-wise list is presented in the following checklist:

Checklist of Fishes of Digha Coast

Class: Chondrichthyes Order: Orectolobiformes

Family: **Hemiscylliidae** (Bamboo shark)

1. Chiloscyllium griseum Muller & Henle, 1838

Chiloscyllium indicum Gmelin, 1789 Family: Stegostomatidae (Zebra shark)

Stegostoma fasciatum (Hermann, 1783) Family: Rhinocontidae (Whale Shark)

4. Rhincodon typus Smith, 1828

Order: Carcharhiniformes

Family: **Proscyllidae** (Finback sharks)

Eridancis radcliffei Smith, 1913 Family: Carcharhinidae (Requiem sharks)

- 6. Carcharhinus dussumieiri Valenciences, 1839
- 7. Carcharhinus limbatus (Muller & Henle, 1839)
- Galeocerdo cuvier (Peron & le Sueur, 1822) 8.
- 9. Glyphis gangeticus (Muller & Henle. 1839)
- 10. Rhizoprionodon acutus (Ruppell, 1837)
- 11. Scoliodon laticaudatus Muller & Henle, 1838 Family: **Carchrinidae** (Hammerhead shark)
- 12. Eusphyra blochii (Cuvier, 1816)

Order: Rajiformes

Family: **Pristidae** (Sawfishes)

- 13. Anoxipristis cuspidatus (Latham, 1794)
- 14. Pristis microdon Latham, 1794 Family: Narcinicae (Electric ray)
- 15. Naeke diptrigia (Bloch & Schneider, 1801)
- 16. Narcine brunnea Annandale, 1909 Family: **Rhinobaticae** (Guitar fish)
- 17. Rhina ancylostoma Bloch & Schneider, 1801
- 18. Rhinobatos annandalei Norman, 1926
- Rhynchobatus djeddensis (Forsskal, 1775)
- 20. Rhinobatus grannulatus (Cuvier, 1829)
- 21. Rhinobatus lionotus Norman, 1926
- 22. Rhina obtusus Muller & Henle, 1841 Family: **Dasyatoidae** (Sting ray)
- 23. Dasyatis zugei (Muller & Henle, 1841)
- 24. Himantura bleekeri (Blyth, 1861)
- 25. Himantura gerrardi (Gray, 1851)
- 26. Himantura imbricata (Bloch & Schneider, 1801)
- 27. Himantura uarnak (Gmelin, 1789) Family: **Gymnuridae** (Buttfly ray)
- 28. Gymnura tentaclata Muller & Henle, 1841
- 29. Gymnura japonica (Temminck & Schlegel, 1850)
- 30. Gymnura poecilura (Shaw, 1804) Family: Myliobatidae (Eagle rays)
- 31. Aetobatus narinari (Euphrasen, 1790)
- 32. Aetomylaeus nichofill (Bloch & Schneider, 1801) Family: **Sphyrnidae** (Hammer headed shark)
- 33. Sphyrna lewini (Griffith & Smith, 1834)

Class: Actinopterigii Order: Elopiformes

Family: **Megalopidae** (Tarpons)

34. Megalops cypricides (Broussonet, 1782)

Order: Anguilliformes

Family: Anguillidae

- 35. Anguilla bengalensis bengalensis (Gray,1831)
- 36. Anguilla bicolor bicolor McClelland, 1844

Family: Moringuidae (Worm eel)

- 37. *Moringua raitaborua* (Hamilton, 1822) Family: **Muraenidae** (Muray eels)
- 38. Echidna nebulosa Ahl, 1789
- 39. Echidna zebra (Shaw, 1797)
- 40. Gymnothorax dorsalis Seale, 1917
- 41. Gymnothorax favagineus Bloch & Schneider, 1801
- 42. *Gymnothorax indicus* Mohapatra, Ray, Smith & Mishra, 2016
- 43. Gymnothorax javanicus (Bleeker, 1859)
- 44. Gymnothorax melearis (Shaw, 1795)
- 45. Gymnothorax mishrai Ray, Mohapatra & Smith, 2015
- 46. Gymnothorax prolatus Sasaki & Amaoka, 1991
- 47. Gymnothorax reticularis Bloch, 1795
- 48. *Gymnothorax tile* (Hamilton, 1822)
- 49. Sideria picta (Ahl, 1789)
- 50. Strophidon sathete (Hamilton, 1822)
- 51. *Thyrsoidea macrura* (Bleeker, 1854) Family: **Ophichthidae** (Snake eels)
- 52. Lamnostoma orientalis McClelland
- 53. Neenchelys buitendijki Weber and de Beaufort, 1916
- 54. Neenchelys cheni (Chen and Weng, 1967)
- 55. Ophichthus lithinus (Jordan et Richardson, 1908)
- 56. Psiodonophis boro (Hamilton, 1822)
- 57. *Psiodonophis cancrivorus* (Richardson, 1848) Family: **Muraenesocidae** (Pike congers)
- 58. Corgresox talabon (Cuvier, 1829)
- 59. Corgresox talabonoides (Bleeker, 1853)
- 60. Muraenesox bagio (Hamilton, 1822)
- 61. Muraenesox cinereus (Forsskal, 1775)

Order: Clupeiformes

Family: Clupeidae (Shads & Herings)

- 62. *Anodontostoma chacunda* (Hamilton & Buchanon., 1822)
- 63. Escumosa thoracata (Valenciennes, 1847)
- 64. Herklotsichtys quadrimaculatus (Ruppell, 1837)
- 65. Hilsa kelee Cuvier, 1829
- 66. Nematalosa nasus (Bloch, 1795)
- 67. *Ophisthopterus tardoore* (Cuvier, 1829)
- 68. Raconda russeliana Gray, 1831
- 69. Sardinella brachysoma Bleeker, 1852
- 70. Sardinella fimbriata (Valenciennes, 1847)
- 71. Sardinella gibbosa (Bleeker, 1849)
- 72. Sardinella longiceps Valenciennes, 1847

- 73. Tenualosa ilisha (Hamilton & .Buchanan., 1822)
- Tenualosa toli (Valenciennes, 1847)
 Family: Pristigasteridae (Ilishas, Pellonas)
- 75. Ilisha kampeni (Weber & de Beaufort, 1913)
- 76. Ilisha megaloptera (Swainson, 1839)
- 77. Ilisha melastoma (Bloch & Schneider, 1801)
- 78. *Pellona ditchela* Valenciennes, 1847 Family: **Engraulidae** (Anchovies)
- 79. Coilia dussumieri Valenciennes, 1848
- 80. Coilia neglecta Whitehead, 1968
- 81. Coilia ramcarati (Hamilton, 1822)
- 82. Coilia reynaldi Valenciennes, 1848
- 83. Setipinna phasa (Hamilton, 1822)
- 84. Setipinna taty (Valenciennes, 1848)
- 85. Setipinna tenuifilis (Valenciennes, 1848)
- 86. Stolephorus commersoni Lacepede 1803
- 87. Stolephorus heterolobus Ruppell
- 88. Stolephorus indicus (van Hasselt, 1823)
- 89. Thryssa dussumieri (Valenciennes, 1848)
- 90. Thryssa hamiltonii (Gray, 1835)
- 91. Thryssa malabarica (Bloch, 1795)
- 92. Thryssa purava (Hamilton, 1822)

Family: **Chirocentridae** (Wolf Herrings)

93. Chirocentrus nudus Swainson, 1839.

Order: Siluriformes

Family: Ariidae (Sea catfishes)

- 94. Arius arius (Hamilton, 1822)
- 95. Arius jella Day, 1877
- 96. Arius maculatus (Thunberg, 1792)
- 97. Hexanematichthys sagor (Hamilton, 1822)
- 98. Netuma thalassina (Rüppell, 1837)
- 99. Plicofollis tenuispinis (Day, 1877)
- 100. Sciades sona (Hamilton, 1822)

Family: Plosidae (Eeltail catfishes)

- 101. Plotossus canius Hamilton Buchanan, 1822
- 102. Plotossus lineatus (Thunberg, 1787)

Order: Aulopiformes

Family: **Synodontidae** (Lizardfish)

- 103. Saurida tumbil (Bloch, 1745)
- 104. Saurida undosquamis (Richardson, 1848)
- 105. Trachinocephalus myops (Forster, 1801)

Family: Harpadontidae (Bombay duck)

106. Harpadon nehereus (Hamilton, 1822)

Order: Gadiformes

Family: Bregmacerotidae (Codlets, codlings.

107. Bregmaceros mcclellandi Thompson, 1840

Order: Batrachoidiformes

Family: Batrachoididae (Toadfishes)

108. Allenbatrachus grunniens (Linnaeus, 1758)

Order: Bericiformes

Family: Holocentridae (Soldierfish, Squirrelfish)

109. Myripristis botche Cuvier, 1829

110. Myripristis murdjan (Forsskal, 1757)

111. Ostichthys acanthorhinus Randall, Shimizu & Yamakawa, 1982

112. Sargocentron praslin (Lacepede, 1801)

Order: Cyprinodontiformes

Family: Exocoetidae (Flying fishes)

113. Cypselurus poecilopterus (Valenciennes, 1846)

114. Exocoetus volitans Linnaeus, 1758

Family: **Hemiramphidae** (Halfbeaks)

115. Hemiramphus far (Forsskal, 1775)

116. Hemiramphus lutkei (Valenciennes, 1846)

117. Hyporamphus limbatus (Valenciennes, 1846)

118. Rhynchorhamphus georgii (Valenciennes, 1847) Family: Beloniidae (Needlefishes)

119. Strongylura leiura (Bleeker, 1850)

120. Strongylura strongylura (Van Hasselt, 1823)

121. Tylosurus crocodiles (Peron & Le Sueur, 1821)

Order: Syngnathiformes

Family: Syngnathidea (Sea horses, pipe fishes)

122. Hippichthys specifer (Ruppell, 1838)

123. *Ichthyocampus carce* (Hamilton, 1822)

Family: Fistularidae (Cornetfishes)

124. Fistularia petimba Lacepede, 1803

Order: Lophiformes

Family: Antennariidae (Frogfish)

125. Antennarius hispidus (Bloch, 1801)

Family: **Ogcocephalidae** (Batfish)

126. Halieutaea stellata (Vahl, 1797)

Order: Scorpaeniformes

Family: Scorpaenidae (Scorpion fishes)

127. Brachypterois serrulata (Richardson, 1846)

128. Pterois russelli Bennett, 1831

129. Pterois volitans (Linnaeus, 1758)

130. Scorpaenopsis ramaraoi Randall and Eschmeyer, 2001

Family: **Synanceiidae** (Flatheads)

131. *Trachicephalus uranoscopus* (Bloch & Scneider, 1801)

Family: Platycephalidae (Spiny flatheads)

132. Grammoplites scaber (Linnaeus, 1758)

133. Platycephalus indicus (Linnaeus, 1758)

134. Sorsogona tuberculata (Cuvier, 1829)

Family: Triglidae

135. Pterygotrigla arabica (Boulenger, 1888)

136. Pterygotrigla hemisticta (Temminck and Schlegel, 1843)

Order: Perciformes

Family: Ambassidae (Perchlets)

137. Ambassis nalua (Hamilton, 1822)

Family: **Centropomidae** (Sea Pearches)

138. Lates calcariifer (Bloch, 1790)

Family: **Serraniidae** (Grouper)

139. Epinephelus coioides (Hamilton, 1822)

140. Epinephelus lanceolatus (Bloch, 1790)

141. Epinephelus latifasciatus (Temminck & Schlegel, 1842)

142. Epinephelus malabaricus (Bloch & Schneider, 1801)

143. Epinephelus tauvina (Forsskal, 1775)

Family: **Terapontidae** (Terapon perches, terapons).

144. *Terapon jarbua* (Forsskal, 1775)

145. Terapon puta (Cuvier, 1829)

146. Terapon threaps (Cuvier, 1829)

Family: **Kyphosidae**

147. Kyphosus vaigiensis (Quoy and Gaimard, 1825)

Family: **Hapalogenyidae**

148. Hapalogenys bengalensis Mohapatra, Ray and Kumar, 2013

Family: **Priacanthidae** (Bigeyes)

149. Priacanthus tayenus Richardson, 1846

Family: Pinguipedidae

150. Parapercis ommatura Jordan et Snyder, 1902

151. Parapercis diplospilus Gomon, 1981

Family: Apogonidae (Cardinalfishes)

152. Apogon lateralis Valenciennes, 1832

Family: Sillaginidae (Sillagos/ Whitings)

153. Sillaginopsis panijus (Hamilton-Buchanan, 1822)

154. Sillago sihama (Forsskal, 1775)

Family: Lactariidae (False trevallies)

155. Lactarius lactarius (Bloch & Schneider, 1801)

Family: **Echeneidae** (Remoras, Sharksucker)

156. Echeneis naucrates Linnaeus, 1758

157. Remora remora (Linnaeus, 1758)

Family: Carangidae (Jacks, Trevallies, Dart, pompano)

158. Alectes cilliaris (Bloch, 1788)

159. Alectis indica (Ruppell, 1830)

160. Alepes djedaba (Forsskal, 1775)

161. Atropus atropos (Bloch & Schneider, 1801)

162. Carangoides ferdau (Forsskal, 1775)

163. Carangoides malabaricus (Bloch & Schneider, 1801)

164. Caranx hippos (Linnaeus, 1758)

165. Caranx sexfasciatus (Quoy & Gaimard, 1824)

- 166. Decapterus russelli (Ruppell, 1830)
- 167. Elagatis bipinnaulata (Quoy & Gaimard, 1824)
- 168. Megalaspis cordyla (Linnaeus, 1758)
- 169. Naucrates ductor (Linnaeus, 1758)
- 170. Parastromateus niger (Bloch, 1795)
- 171. Scomberoides commersonianus (Lacepede, 1802)
- 172. Selar crumenophthalmus (Bloch, 1793)
- 173. Selaroides leptolepis (Cuvier, 1833)
- 174. Trachinotus blochi (Lacepede, 1801)

Family: Coryphaenidae (Dolphinfish)

- 175. Coryphaena hippurus Linnaeus, 1758
 - Family: Rachycentridae (Cobias)
- 176. Rachycentron canadum (Linnaeus, 1766)

Family: **Parastromateidae** (Black pomfrets)

- 177. Parastromatus niger (Bloch, 1795)
 - Family: Menidae (Moonfishes).
- 178. Mene maculata (Bloch & Schneider, 1801)

Family: **Leiognathidae** (Ponyfishes, Slipmouths, Toothponies)

- 179. Leiognathus daura (Cuvier, 1829)
- 180. Leiognathus equulus (Forsskal, 1775)
- 181. Leiognathus fasciatus (Lacepede, 1803)
- 182. Leiognathus splendens (Cuvier, 1829)
- 183. Nauchequula blochii (Valenciennes, 1835)
- 184. Photopectoralis bindus (Valenciennes, 1835)
- 185. Secutor insidiator (Bloch, 1797)
- 186. Secutor ruconius (Hamilton-Buchanan, 1822)

Family: Lutjanidae (Snappers)

- 187. Lutjanus argentimaculatus (Forsskal, 1775)
- 188. Lutjanus bengalensis (Bloch, 1790)
- 189. Lutjanus johnii (Bloch, 1792)
- 190. Lutjanus lutjanus Bloch, 1790
- 191. Lutjanus malabaricus Bloch & Schneider, 1801
- 192. Lutjanus russelli (Bleeker, 1849)

Family: Lobotidae (Tripletails)

- 193. Datnioides polota (Hamilton, 1822)
- 194. Lobotes surinamensis (Bloch, 1790)

Family: Gerreidae (Silverbiddies, Mojarras)

- 195. Gerres erythrourus (Bloch, 1791)
- 196. Gerres filamentosus (Cuvier, 1829)
- 197. Gerres longirostris (Lacepède, 1801)
- 198. Gerres oyena (Cuvier, 1829)
- 199. Gerres setifer (Hamilton, 1822)

Family: Haemulidae (Sweetlips & Grunts)

- 200. Pomadasys maculatum (Bloch, 1797)
 - Family: Sparidae (Seabreams)
- 201. Acanthopagrus berda (Forsskal, 1775)
- 202. Acanthopagrus latus (Houttuyn, 1782)

- 203. Argyrops spinifer (Forsskal, 1775)
- 204. Rhabdosargus sarba (Forsskal, 1775)

Family: Nemipteridae (Threadfin breams)

- 205. Nemipterus bipunctatus (Valenciennes, 1830)
- 206. Nemipterus japonicas (Bloch, 1791)
- 207. Nemipterus nematophorus (Bleeker, 1853)
- 208. Nemipterus peronii (Valenciennes, 1830)
- 209. Nemipterus randalli Russell, 1986
- 210. Parascolopsis aspinosa (Rao & Rao, 1981)
- 211. Sclopsis vosmeri (Bloch, 1792)

Family: Sciaenidae (Crokers, Drums)

- 212. Johnius belangerii (Cuvier, 1830)
- 213. Johnius borneensis (Bleeker, 1851)
- 214. Johnius carouna (Cuvier, 1830)
- 215. Johnius carutta Bloch,1793
- 216. Johnius dussumieri (Cuvier, 1830)
- 217. Macrospinosa cuja (Hamilton, 1822)
- 218. Nibea maculata (Schneider, 1801)
- 219. Otolithoides pama (Hamilton, 1822)
- 220. Otolitoides ruber (Bloch, 1801)
- 221. Panna microdon (Bleeker, 1849)
- 222. Pennahia anea (Bloch, 1793)
- 223. Protonibea diacanthus (Lacepéde, 1802)
- 224. *Pterotolithus maculatus* (Cuvier, 1830) Family: **Mullidae** (Goatfish, red mullet.
- 225. Parupeneus heptacanthus (Lacepede, 1802)
- 226. Parupeneus indicus (Shaw, 1803)
- 227. Upeneus guttatus (Day, 1868)
- 228. Upeneus luzonius Jordon and Seale, 1907
- 229. Upeneus moluccensis (Bleeker, 1855)
- 230. Upeneus sulphureus Cuvier, 1829
- 231. Upeneus sundaicus (Bleeker, 1855)
- 232. Upeneus taeniopterus Cuvier, 1829
- 233. Upeneus tragula, Richardson, 1846
- 234. Upeneus vittatus (Forsskal, 1775)

Family: Monodactylidae (Silver batfish)

235. Monodactylus argenteus Linnaeus

Family: Taxotidae (Archer fish)

- 236. Toxotes chatareus (Hamilton, 1822)
- 237. Toxotes jaculator (Pallas, 1767)

Family: Ephippidae (Spadefish)

238. Ephippus orbis (Bloch, 1787)

Family: **Drepaenidae** (Sicklefishes)

- 239. Drepane longimana (Bloch & Schneider, 1801)
- 240. Drepane punctata (Linnaeus, 1758)

Family: Platicidae (Batfishes)

- 241. Platax pinnatus (Linaeus, 1758)
- 242. Platax tiera (Forsskal, 1775)

Family: Scatophagidae (Spotted scat)

243. Scatophagus argus (Bloch, 1758)

Family: **Sphyraenidae** (Barracudas)

244. Sphyraena forsteri Cuvier, 1829

245. Sphyraena jello Cuvier, 1829

246. Sphyraena obtusata Cuvier, 1829

Family: Polynemidae (Threadfins)

247. Eleutheronema tetradactylum (Shaw, 1804)

248. Polynemus indicus Shaw, 1804

249. Polynemus longipectoralis Weber & de Beaufort, 1922

250. Polynemus paradiseus (Linnaeus, 1758)

251. Polynemus plebeius Broussonet, 1782

252. Polynemus sextarius Bloch & Schneider, 1801

Family: **Pseudrichromidae** (Eel-like blennies).

253. Halidesmus thomaseni (Nielson, 1961) Family: **Uranoscopidae** (Stargazer)

254. Ichthyscopus lebeck (Bloch & Schneider, 1801)

255. Uranoscopus cognatus Cantor, 1849

Family: Callynymidae (Dragnets)

256. Callionymus belcheri Richardson, 1844

257. Callionymus sagitta Pallas, 1770

258. Eleutherochir opercularis (Valenciennes, 1837)

Family: **Eleotridae** (Sleepers)

259. Butis melanostigma (Bleeker, 1849)

260. Eleotris fusca (Forster, 1801)

261. Eleotris melanosoma (Bleeker, 1852)

Family: Gobied (Gobies)

262. Apocryptes bato (Hamilton, 1822)

263. Apocryptodon madurensis (Bleeker, 1849)

264. Bathygobius fuscus (Ruppell, 1830)

265. Boleopthalus boddarti (Pallas, 1770)

266. Glossogobius giuris (Hamilton, 1822)

267. Odontamblyopus rubicundus (Hamilton, 1822)

268. Parachaeturichthys polynema (Bleeker, 1853)

269. Periopthalmus pearsei Eggert, 1935

270. Pseudapocrypts lanceolatus (Bloch & Schneider, 1801)

271. Scartelaos histophorus (Valenciennes, 1837)

272. Trypauchen vagina (Bloch & Schneider, 1801)

Family: Opistognathidae

273. Opistognathus macrolepis Peters, 1866

274. Opistognathus rosenbergii Bleeker, 1856

Family: **Kurtidae** (Humphead)

275. Kurtus indicus Bloch, 1786

Family: Siganidae (Spinefoots, Rabbitfish)

276. Siganus canaliculatus (Park, 1797)

277. Siganus javus (Linnaeus, 1766)

278. Siganus vermiculatus (Valenciennes, 1835)

Family: Trichiuridae (Ribbonfishes)

279. Eupleurogrammus glossodon (Bleeker, 1860)

280. Eupleurogrammus muticus (Gray, 1831)

281. Eupleurogrammus pantuluvi Gupta, 1966

282. Lepturacanthus savala (Cuvier, 1829)

283. Trichiurus gangeticus Gupta, 1966

284. Trichiurus lepturus Linnaeus, 1758

Family: **Scombridae** (Mackerels).

285. Rastrelliger kanagurta (Cuvier, 1817)

286. Scomberomorus commerson (Lacepède, 1801)

287. Scomberomorus guttatus (Bloch & Schneider, 1801)

Family: **Istiophoridae** (Billfishes)

288. Istiophurus platypterus (Shaw, 1792)

Family: Stromateidae (Pomfrets)

289. Pampus argenteus (Euphrasen, 1788)

290. Pampus chinensis (Euphrasen, 1788)

Family: Acanthuridae (Surgeonfish, Tang, Unicorn-

fish)

291. Acanthurus auranticavus Randall, 1956

292. Acanthurus bariene Lesson, 1831

293. Acanthurus lineatus (Linnaeus, 1758)

294. Acanthurus mata (Cuvier, 1829)

295. Acanthurus tristis Randall, 1993

296. Ctenochaetus striatus (Quoy and Gaimard, 1825)

Family: **Pomacanthidae** (Angelfish)

297. Pomacanthus annularis (Bloch, 1787)

298. Pomacanthus imperator (Bloch, 1787)

299. Pomacnthus semicirculatus (Cuvier, 1831)

Family: Pomacentridae (Damselfishes, Sergeantfishes)

300. Abudefduf vaigiensis (Quoy & Gaimard, 1825)

Family: Chaetodontidae (Butterflyfish, Bannerfish)

301. Haeniochus acuminatus (Linnaeus, 1758)

Family: Scaridae (Parrotfish)

302. Scarus ghobban Forsskal, 1775

Family: Ariommatidae (Driftfish)

303. Ariomma indica (Day, 1870)

Family: Acropomatidae (Lanternbellies)

304. Acropoma argentistigma Okamoto & Ida, 2002

Order: Rugiliformes

Family: Mugilidae (Mullets)

305. Liza macrolepis (Smith, 1849)

306. Liza parsia (Hamilton, 1822)

307. Liza subviridis (Valenciennes, 1836)

308. Liza tade (Forsskal, 1775)

309. Mugil cephalus Linnaeus, 1755

310. Rhinomugil corsula (Hamilton, 1822)

311. Valamugil cunnesius (Valenciennes, 1836)

Order: Puronectiformes

Family: Paralichthyidae (Large tooth flounders)

312. Pseudorhombus arsius (Hamilton, 1822)

313. Pseudorhombus javanicus (Bleeker, 1853)

Family: Cynoglossidae (Tongue fish)

314. Cynoglossus cynoglossus (Hamilton Buchanan, 1822)

315. Cynoglossus lingua Hamilton-Buchanan, 1822

316. Cynoglossus macrostomus Norman, 1928

317. Cynoglossus puncticeps (Richardson, 1846)

318. Cynoglossus semifasciatus Day, 1877

319. Paraplagusia bilineata (Bloch, 1784)

Family: Citharidae

320. Brachypleura novaezeelandiaae Gunther, 1862 Family: Soleidae (Soles)

321. Euryglossa orientalis (Bloch & Schneider, 1801)

322. Solea elongata Day, 1877

323. Synaptura commersoniana (Lacepéde, 1802)

324. Zebrias altipinnis (Alcock, 1890)

325. Zebrias quqgga Kaup, 1858

Family: Psettodidae (Indian Halibuts)

326. Psettodes erumei (Bloch & Schneider, 1801)

Order: Tetraodontiformes

Family: **Triacanthidae** (Triplespines, Tripodfishes)

327. Triacanthus biaculeatus (Bloch, 1786)

Family: Tetraodontidae (Puffers)

328. Arothron stellatus (Blach & Schneider, 1801)

329. Arthrodon immaculatus (Bloch & Schneider, 1801)

330. Arthrodon nigropuctatus (Bloch & Schneider, 1801)

331. Chelonodon fluviatilis (Hamilton, 1822)

332. Chelonodon patoca (Hamilton, 1822)

333. Lagocephalus inermis (Temminck & Schlegel, 1847)

334. Lagocephalus lunaris (Bloch & Schneider, 1801)

335. Lagocephalus sceleratus (Gemlin, 1789)

336. Takifugu oblongus (Bloch, 1786)

Family: Balistidae (Triggerfish)

337. Abalistes stellatus (Lacepède, 1798)

Family: Ostraciidae (Boxfish)

338. Ostraceon cubicus Linnaeus, 1758

Family: Monacanthidae (Filefishes, Leatherjackets)

339. *Alutera monoceros* (Linnaeus, 1758)

Family: **Diodontidae** (Porcupinefish)

340. Diodon hystrix Linnaeus, 1758

New Site Records

As the Ichthyofauna of Digha was already covered in the previous studies, only the new distributional records to State and Indian waters observed during the study are given below in details:

Class: Chondrichthyes

Order: Carcharhiniformes

Family: Carcharhinidae

Galeocerdo cuvier (Peron & le Sueur, 1822) Tiger shark (Figure 2)

Material examined: 1 ex.; 22.07.11; Mohana, MARC/ZSI/ F3719.

Description: Body fusiform; head, thorax and abdomen stout. A huge, vertical tiger-striped shark with a broad, bluntly rounded snout, long upper labial furrows, and a big mouth with large, saw-edged, cockscomb-shaped teeth; spiracles present; caudal keels low. Grey above with vertical dark grey to black bars and spots which appear faded in adults, white below.

Distribution: It has a worldwide distribution in tropical and warm temperate seas. Atlantic, Indian Ocean; Pacific.

IUCN Status: Near Threatened (NT).

Remarks: The fish has good fishery value. Size: 9 m.

Family: Dasyatidae

2. Himantura gerrardi (Gray, 1851) Whitespotted Whipray (Figure 3)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3720.

Description: Disc wider than long; tail longer than disc length; snout forming widely obtuse angle; midline of back with three enlarged tubercles; disc naked; tail whip like without cutaenius folds, a strong spines on its dorsal surface.

Distribution: Widespread in the eastern Indian Ocean and Western Pacific, but distribution is poorly defined. Eastern Indian Ocean: occurs from India, Sri Lanka and east to Myanmar.

IUCN Status: Vulnerable (V).

Remarks: The fish has minor fishery value. Attains 200 cm. Found in shallow reef areas.

Class: Actinopterigii Order: Clupeiformes Family: **Clupeidae**

Escumosa thoracata (Valenciennes, 1847) White sardine (Figure 4)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3721.

Description: Body fusiform, moderately deep, compressed; belly with a distinct keel of scutes. Mouth

small, 2nd supramaxilla rectangular; gill opening smoothly rounded. Dorsal fin at about mid-point of body; pelvic fins below dorsal fin origin, 7 pelvic fin rays; anal fin short, its origin behind dorsal fin base. Colour back pale grey, a double pigment line along back, from head to caudal fin base; flanks with a diffuse silver band, belly pale.

Distribution: Western coast of India, Elsewhere, eastward to Southeast Asia, the northeast and northwest coast of Australia.

Remarks: The fish is commercially important.

Family: Engraulidae

4. Setipinna tenuifilis (Valenciennes, 1848) Common hairfin anchovy (Figure 5)

Material examined: 1 ex.; 20.09.2005; Shankarpur; Reg. No. MARC/ZSI/F1627.

Description: Body fusiform, strongly compressed; abdomen sharply keeled with 17 to 21 pre-pelvic and 6 or 7 post-pelvic scutes. Back greenish black, flanks silvery dashed with gold. Dorsal and caudal fin margins dusky.

Distribution: Eastern Indian Ocean: northern and eastern Bay of Bengal coasts, including the Andaman Islands; perhaps southward from the Godavari river. Western Pacific: northern coast of Australia, Arafura Sea, Gulf of Papua, Sarawak, presumably the Philippines and Hong Kong; China from Taiwan north to Yellow Sea and southern part of Sea of Japan.

Remarks: The fish is minor commercial. Size: 22 cm.

Order: Aulopiformes Family: Synodontidae

5. Saurida undosquamis (Richardson, 1848) Brushtooth lizardfish (Figure 6)

Materials examined: 1ex, 18.11.11, Reg. No. MARC/ZSI/ F2343.

Description: Body elongate and tubular; head and caudal peduncle somewhat depressed. Back and sides brown, belly pale or silvery. Eight to 10 bars often visible along lateral line. Distal parts of dorsal, pectoral and particularly caudal fin dusky. Second dorsal fin ray and upper caudal fin ray with a series of about 8 dark spots; fins otherwise without markings.

Distribution: Eastern Indian Ocean, Malay Peninsula, southern Philippines, northern Java, Arafura Sea, Louisiade Archipelago, and northern half and southwestern Australia.

Remarks: The fish is minor commercial important. Size: 45 cm.

6. Trachinocephalus myops (Forster, 1801) Bluntnose lizardfish (Figure 7)

Material examined: 1 ex, 10.02.12, Mohana, Reg. No. MARC/ZSI/F2287.

Description: Body elongate and tubular. Mouth very oblique; snout short. A series of longitudinal stripes, alternating blue and yellow cover back and sides; belly pale yellow or gold. A large, dark, oblique spot at upper corner of gill cover. Distal parts of dorsal and caudal fins dusky; other fins pale yellowish.

Distribution: Worldwide in tropical and warm temperate waters with the exception of the eastern Pacific and the northeast Atlantic north of Cape Blanc, Africa.

Remarks: The fish is minor commercial important. Size: 40 cm.

Order: Beloniformes Family: Hemiramphidae

7. Hemiramphus lutkei (Valenciennes, 1846) Lutke's halfbeak (Figure 8)

Material examined: 1 ex., 09.01.1993; Mohana, Digha; Reg. No. MARC/ZSI/F1752.

Description: An elongate fish with a greatly prolonged, beak-like lower jaw; upper jaw short, triangular and scaleless; preorbital ridge absent. Pectoral fins long, reaching beyond anterior margin of nasal pit when folded forward. Dark bluish above, silvery white below, with no spots or vertical bars on sides. Beak dark with a bright red fleshy tip; upper lobe of caudal fin bluish.

Distribution: Pacific Ocean: ranging eastward to the Gilbert Islands and Samoa, north to southern Japan.

Remarks: The fish is minor commercial.

Order: Syngnathiformes

Family: Fistulariidae

8. Fistularia petimba Lacepede, 1803 Red cornetfish (Figure 9)

Materials examined: 3ex.; 30.12.2011; Mohana, Digha; Reg. No. MARC/ZSI/F1828.

Description: Body elongate, fleshy and depressed. Mouth small, at the tip of tubular snout. Teeth small in jaws. Dorsal and anal fin opposite and short based. Lateral line arched and continuing posteriorly onto an elongate filament produced by the middle 2 caudal fin rays.

Distribution: Western & Eastern Atlantic, Indo-Pacific, north to southern Japan and the Ogasawara Islands, south to Victoria, Australia.

Remarks: The fish has subsistence fisheries.

Order: Lophiformes Family: Ogcocephalidae

9. Halieutaea stellata (Vahl, 1797) Starry handfish (Figure 10)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3723.

Description: Body very much depressed and flattened very much. Heads bordered and more strongly depressed. Gill opening around pectoral fin base. Body with well developed tuber like scales.

Distribution: Widespread in the western Pacific off Japan, Taiwan, South China Sea, the Philippines, Indonesia, New Caledonia, Australia and north New Zealand.

Remarks: The fish is commercial for ornamental.

Order: Scorpaeniformes Family: Scorpaenidae

10. Brachypterois serrulata (Richardson, 1846) Sawcheek scorpionfish (Figure 11)

Material examined: 1 ex., 22.07.11; Mohana, Reg. No. MARC/ZSI/F3724.

Description: Dorsal fin spines short; dorsal fin membtrane between spines moderately incised. Scales present on serrated mandible. Dorsal spines 13, rays 11; Anal spines 3, rays 6.

Distribution: Indo-West Pacific: Gulf of Oman to Philippines and Taiwan. Also reported from the Arafura

Remarks: The fish has no commercial value. Size: 35 cm.

Family: Platycephalidae

11. Grammoplites scaber (Linnaeus, 1758) Rough flathead (Figure 12)

Materials examined:, 2 ex.; 21.04.11, Udaypur, Digha, Reg No. MARC/ZSI/F1751.

Description: Body elongate, subcylindrical, anterior nostril with flap. Each lateral line scales with a backward directed spine that extends beyond rear margin of scale, especially along the caudal peduncle. Brown above and light below, about 4 dark vertical bands on dorsal side which extend to sides also. First dorsal with minute dark spots and black on distal half. Second dorsal, anal, caudal and pectoral with small spots; pelvic dark with minute black pigment spots.

Distribution: Indo-West Pacific: southern Arabian Sea and Bay of Bengal through Malaysia, Indonesia to Bali and Celebes, Gulf of Thailand, Viet Nam, Hong Kong and southern Philippines. Also reported from the Arafura Sea.

Remarks: The fish has minor commercial value. Size: 18 cm.

12. Sorsogona tuberculata (Cuvier, 1829) Tuberculated flathead (Figure 13)

Material examined: 1 ex.; 27.02.1992; Shankarpur; Reg. No. MARC/ZSI/F 1525.

Description: Top of head with bony tubercles and bony ridges bearing small spines or serrations; lower opercular spine bearing serrations along base; preocular spines usually 2, sometimes a 3rd tiny spine is present; preopercular spines usually 4 or more. Body brownish above, pale below, with 3 or 4 dark bands crossing back. Fins more or less dusky.

Distribution: Indo-West Pacific: Persian Gulf to Indonesia, Philippines and northern Australia.

Remarks: The fish has minor commercial value. Size: 14 cm.

Order: Perciformes Family: Epinephelidae

13. Epinephelus malabaricus (Bloch & Schneider, 1801) Malabar grouper (Figure 14)

Materials examined: 8 ex.; Mohana, Digha, 08.06.11; Reg. No, MARC/ZSI/F1913.

Description: Head and body brownish, covered with small, well separated, blackish brown spots which extend onto chest, lower jaw and gular area and roof of mouth; head and body also with scattered white spots and blotches; 5 irregular, oblique, dark brown bars (more or less interrupted by pale spots) often visible on body; fins with scattered small black spots. Caught with hook and lines and gill nets. Occur on protected reefs and creeks. Excellent food fish, marketed fresh.

Distribution: Indo-Pacific: Red Sea and East Africa to Tonga, north to Japan, south to Australia.

IUCN Status (2012): Near Threatened (NT).

Remarks: The fish has high commercial value in aquaculture & gamefish. Size: 100 cm.

Family: Carangidae

14. Alectes cilliaris (Bloch, 1788) African pompano (Figure 15)

Material examined: 1ex, Mohana, Digha; 13.10.11., Reg. No. MARC/ZSI/F1949.

Description: Body deep, becoming more elongate with growth, and very compressed. Profile of nape and head broadly rounded; anterior soft rays of dorsal and anal fins extremely long and filamentous in young; pectoral fins falcate, longer than head; pelvic fins elongate in young. Lateral line standard length anteriorly with a strong and moderately long arch, its posterior (straight) part with 12 to 30 scutes. Colour mostly silvery with a light metallic bluish tinge on upper third of body and head; juveniles with 5 chevron-shaped dark bars on body, and a black blotch at base of 3rd to 6th soft dorsal fin rays, filaments black distally.

Distribution: Worldwide in tropical seas. Western Atlantic, Eastern Atlantic, Western Indian Ocean, Eastern Pacific.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has minor commercial value, ornamental & gamefish. There is also reports of ciguatera poisoning. Size: 130 cm.

15. Alepes djedaba (Forsskal, 1775) Shrimp scad (Figure

Materials examined: 3 ex, Mohana, Digha; 16.03.12; Reg. No. MARC/ZSI/ F2458.

Description: Body oblong, compressed, with dorsal and ventral profiles almost evenly convex; snout pointed. Eye diameter about equal to snout length, with adipose eyelid well developed on posterior half of eye only; scales in curved part of lateral line 31 to 36; 0 to 3 scutes in curved part; straight part with 0 to 2 scales and 39 to 51 scutes. Colour greyish-green above, silvery to white below; a distinct black blotch on margin of opercle, bordered above by a smaller white spot. Spinous dorsal fin pale to dark dusky; dorsal-fin lobe dusky, pale distally. Caudal fin yellowish, except upper lobe often dusky to black distally; other fins pale.

Distribution: Indo-Pacific: Red Sea and East Africa to the Hawaiian Islands, north to Japan, south to Australia. Immigrant to the eastern Mediterranean through the Suez Canal.

Remarks: The fish has commercial value & gamefish. Size: 16 cm.

16. Decapterus russelli (Ruppell, 1830) Indian scad (Figure 17)

Materials examined: 6 ex.; 08.06.2011, Mohana, Digha, Reg No. MARC/ZSI/F1912.

Description: Body elongate, moderately slender and slightly compressed. Eye moderate, with adipose eyelid well developed, completely covering eye except for a vertical slit centred on pupil. Scales in curved part of lateral line 42 to 62; scutes in curved part 0 to 4; straight part with 0 to 4 scales, followed by 30 to 40 scutes. Tip of appressed pectoral fin extending to or nearly to a vertical line from second dorsal fin origin; Colour bluish-green above, silvery below; small black blotch on margin of opercle near upper edge. Caudal fin hyaline to dusky brown, second dorsal fin hyaline basally, light dusky distally; other fins mostly hyaline, except pelvic fins of adult males slightly dark.

Distribution: Indo-West Pacific: East Africa to Japan, the Arafura Sea and Australia.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has high commercial value. Size: 40 cm.

17. Elagatis bipinnaulata (Quoy & Gaimard, 1824) Rainbow runner (Figure 18)

Materials examined: 2 ex, 15.02.12, Reg. No. MARC/ZSI/ F2320.

Description: Body greatly elongate, almost fusiform. Head and snout pointed; mouth small, upper jaw ending distinctly before eye to below anterior margin of eye in. Caudal fin deeply forked. Lateral line with a slight anterior arch. No scutes; caudal peduncle grooves present. Colour dark olive-blue or green above and white below; 2 narrow light blue or bluish-white stripes along sides, with a broader olive or yellowish stripe between them; fins dark with an olive or yellow tint.

Distribution: Western Atlantic, Eastern Atlantic, throughout the Indo-Pacific, Eastern Pacific.

Remarks: The fish has high commercial value & gamefish. Reports of ciguatera poisoning. Size: 110 cm.

18. Parastromateus niger (Bloch, 1795) Black pompfret (Figure 19)

Materials examined: 1 ex., 16.04.2011; Mohana, Digha; Reg No. MARC/ZSI/F1764.

Description: Body deep and compressed; dorsal and ventral profiles of body strongly and equally convex. Mouth terminal with upper jaw unrestricted dorsally and ending below and slightly before anterior margin of eye; both jaws with a single row of small conical teeth; gill openings unrestricted laterally and ventrally. Pelvic fins absent in specimens larger than about 10 cm fork length. Lateral line very weakly arched anteriorly, with junction of straight and curved parts below posterior third of dorsal fin; straight part of lateral line with 8 to 19 weak scutes, forming a slight keel on caudal peduncle; scales small and deciduous, and almost completely covering dorsal and anal fins. Colour uniformly silvery-grey to bluish-brown (yellowish-brown when deciduous scales are missing); fins with dark edges. Young with dark vertical bars and long black jugular pelvic fins.

Distribution: Indo-West Pacific: East Africa to southern Japan and Australia.

Remarks: The fish has high commercial value. Size: 55 cm.

19. Scomberoides commersonnianus (Lacepede, 1802) Talang queenfish (Figure 20)

Materials examined: 4 ex.; 18.04.2011; Mohana, Digha; Reg No. MARC/ZSI/F1773.

Description: Body oblong to elliptical, strongly compressed; dorsal and ventral profiles similar, snout blunt with dorsal profile of head and nape slightly convex. posterior soft dorsal- and anal- fin rays consisting of semidetached finlets; bases of anal and second dorsal fins about equal in length. Lateral line only slightly irregular, weakly to moderately convex above pectoral fin, becoming straight posteriorly. No scutes; scales on midbody below lateral line, partially embedded and broadly lanceolate. No caudal peduncle grooves. head and body dusky green to bluish dorsally, grey to silvery below, large individuals often golden, especially ventrally; sides of adults with 5 to 8 large, plumbeous blotches above or touching lateral line, first two may intersect lateral line. Dorsal and anal fins dusky to dark, uniformly pigmented; pectoral fins of adults frequently with a dusky blotch ventrally.

Distribution: Broadly distributed in tropical and subtropical coastal waters of Indo-West Pacific. It is common in waters around Taiwan, especially in western Taiwan. India Ocean to Australia.

Remarks: The fish has minor commercial value & gamefish. Size: 120 cm.

20. Selar crumenophthalmus (Bloch, 1793) Bigeye scad (Figure 21)

Materials examined: 4 ex.; 18.04.11; Mohana, Digha; Reg. No. MARC/ZSI/F1773.

Description: Body elongate and moderately compressed, with lower profile slightly more convex than upper. Eye very large, shorter than snout length and with a well developed adipose eyelid completely covering eye except for a vertical slit centred on pupil. Scales in curved part of lateral line 48 to 56; 0 to 4 scutes in curved part; straight part with 0 to 11 anterior scales and 29 to 42 scutes. Upper third of body and top of head metallic blue or bluish-green; tip of snout dusky orblackish; lower two thirds of body and head silvery or whitish; a narrow, yellowish stripe may be present from edge of opercle to upper part of caudal peduncle. First dorsal fin dusky on margins with rest of fin clear; second dorsal fin dusky over most of fin with dorsal lobe blackish; anal fin clear or slightly dusky along base; caudal fin dusky with tip of upper lobe dark; pectoral fins clear or slightly dusky near base and with a yellowish tint sometimes present; pelvic

Distribution: Circumtropical. Indo-Pacific, Eastern Pacific, Western Atlantic, Eastern Atlantic.

Remarks: The fish has highly commercial value & gamefish. Reports of ciguatera poisoning. Size: 35 cm.

21. Selaroides leptolepis (Cuvier, 1833) Yellowstripe scad (Figure 22)

Materials examined: 1 ex.; 18.04.2011; Mohana, Digha; Reg No. MARC/ZSI/F1772.

Description: Body elongate, oblong and compressed; dorsal and ventral profiles equally convex. Eye diameter about equal to slightly smaller than snout length, with adipose eyelid moderately developed on posterior half of eye; upper jaw strongly protractile with posterior end of jaw concave above, concave and reduced below. Lateral line anteriorly with a moderate regular arch, with junction of curved and straight parts below second dorsal fin between 10th to 12th soft rays; chord of curved part of lateral line longer than straight part of lateral line, straight part of lateral line with 13 to 25 scales followed by 24 to 29 relatively small scutes. Breast completely scaled. Colour metallic blue above, silvery white below, with a broad yellow stripe from upper margin of eye to caudal peduncle; prominent black opercular spot encroaching onto shoulder. Dorsal, arial and caudal fires pale to dusky yellow; pelvic fins white.

Distribution: Indo-West Pacific: Persian Gulf to the Philippines, north to Japan, south to the Arafura Sea and Australia.

Remarks: The fish has a commercial value. Size: 20 cm.

Family: Rachycentridae

22. Rachycentron canadum (Linnaeus, 1766) Cobia (Figure 23)

Materials examined: 4 ex., 26.06.2011; Mohana, Digha; Reg No. MARC/ZSI/F1849.

Description: D: VII, 26-33; A: II, 22-28. Head broad and depressed. First dorsal fin with short but strong isolated spines, not connected by a membrane. Caudal fin lunate in adults, upper lobe longer than lower. Back and sides dark brown, with 2 sharply defined narrow silvery bands.

Distribution: Worldwide in tropical and subtropical waters, Western Atlantic, Eastern Atlantic, Indo-West Pacific.

Remarks: The fish has minor commercial value & gamefish. Size: 200 cm.

Family: Leiognathidae

23. Nuchequula blochii (Valenciennes, 1835) Twoblotch ponyfish (Figure 24)

Materials examined: 7 ex.; 14.06.1996; Ongaria ghat, Digha; Reg. No. MARC/ZSI/F1713.

Description: D: VIII, 16; A: III, 14. Body deep and strongly compressed; mouth pointing forward when protracted. Body silvery with irregular dark stripes on back; a dark blotch on nape, and on distal half of spinous dorsal fin membrane; pectorals, pelvics and anal fin colourless; underside of pectoral fin base black; faint yellow on basal part of spinous anal fin membrane.

Distribution: Indo-West Pacific: Pakistan, India, and Thailand.

Remarks: The fish has minor commercial value. Size: 10 cm.

24. Leiognathus daura (Cuvier, 1829) Goldstripe ponyfish (Figure 25)

Material examined: 1 ex., 11.06.1992; New Digha; Reg. No. MARC/ZSI/F1711.

Description: D: VIII, 16; A: III, 14-15. Body rhomboid

and compressed, the dorsal and ventral profiles about equally convex; snout somewhat blunt; mouth pointing downward when protracted. Colour of back greygreenish, belly silvery; black dots all over ventral half of body; a golden hue on dorsal half of body and on head; tip of snout black. Distal half of membrane between 2nd and 6th dorsal spines jet-black, lined above by creamy white, a broad yellow band over the lateral line, which disappears gradually on preservation; distal half of anal fin golden yellow from 2nd spine onward; outer margin of lower caudal fin lobe also yellow.

Distribution: Indo-West Pacific: Gulf of Aden, along the coasts of India and Sri Lanka; including Pakistan, eastwards to the Philippines.

Remarks: The fish has a commercial value. Size: 14 cm.

Family: Lutjanidae

25. Lutjanus lutjanus Bloch, 1790 Bigeye snapper (Figure 26)

Materials examined: 6 ex., 09.06.11; Mohana, Digha; Reg No. MARC/ZSI/F1835.

Description: D: X, 12; A: III, 8. Dorsal profile of head gently sloped. Preorbital bone very narrow, much less than eye diameter. Preopercular notch and knob poorly developed. Scale rows on back rising obliquely above lateral line. Generally silvery white, with a broad yellow stripe running along the side from the eye to the caudal fin base. A series of faint narrow yellow horizontal lines is on the lower half of the body. The fins are pale yellow to whitish. Body depth 2.9-3.3 in SL. Body fusiform, dorsal profile of head gently sloped; Tongue with a patch of granular teeth; caudal fin slightly emarginated. Upper part of body golden yellow and ventral part silvery white; lower half of body with a series of yellow horizontal lines along scale rows; a broad yellow stripe runs from eye to caudal fin base. Caught mainly by handlines; common snapper; marketed fresh.

Distribution: Indo-West Pacific: East Africa to the Solomon Islands, north to southern Japan, south to Australia.

Remarks: The fish has highly commercial value. Size: 30 cm.

26. Lutjanus malabaricus Bloch & Schneider, 1801 Malabar red snapper (Figure 27)

Material examined: 1 ex., 08.06.2011, Mohana, Digha, Reg No. MARC/ZSI/F1829.

Description: D: 11; Dorsal soft rays (total): 12-14; Anal spines: 3; Anal soft rays: 8-9. Body relatively deep, dorsal profile of head steeply sloped; tongue smooth, without teeth; caudal fin truncate. Body red, pale in lower part; fins reddish; black band on caudal peduncle. Caught mainly by handlines, very common, commercially important and excellent food fish.

Distribution: Indo-West Pacific: Persian Gulf and Arabian Sea to Fiji, north to southern Japan, south to Australia.

Remarks: The fish is highly commercial, gamefish, ornamental. Size: 100 cm.

Family: Lobotidae

27. Lobotes surinamensis (Bloch, 1790) Tripletail (Figure 28)

Material examined: 1 ex, Mohana, Digha; 04.11.11, Reg. No. MARC/ZSI/F3342.

Description: Dorsal spines (total): 11-12; Dorsal soft rays (total): 15-16; Anal spines: 3; Anal soft rays: 11-12. Adults dark brown or greenish yellow above, silvery grey below; pectorals pale yellow, other fins darker than body; caudal fin with yellow margin. Rounded caudal fin that appear as single 3-lobed fin. Body deep, somewhat compressed the depth much greater than head length. Eye small, upper jaw slightly protrusible. Body colour dark brown, mottled with dark spots; juveniles yellow with darker spots. Very common in driftnet catches.

Distribution: Tropical and subtropical waters of all oceans.

Remarks: The fish is highly commercial, gamefish, ornamental. Size: 100 cm.

Family: Sparidae

28. Argyrops spinifer (Forsskal, 1775) King soldier bream (Figure 29)

Material examined: 1 ex, Mohana, Digha; 09.11.11, Reg. no. MARC/ZSI/F1971.

Description: Dorsal spines (total): 11-12; Dorsal soft rays (total): 10-11; Anal spines: 3; Anal soft rays: 8. Body deep, strongly compressed. Upper profile of head steep and almost straight from upper jaw to eye; eye large; caudal fin deeply emarginate to forked with pointed lobes; the first 2 spines very short, 3rd to 5th spines flattened and much elongated. Body mainly silvery pinkish, darker on head; usually dark red on margin of upper part of opercle; all fins red. Young fish with several vertical red bars on body.

Distribution: Indo-West Pacific: Red Sea and East Africa to the Indo-Malayan Archipelago and northern Australia.

Remarks: The fish has a commercial value. Size: 65 cm.

Family: **Nemipteridae**

29. Nemipterus nematophorus (Bleeker, 1853) Doublewhip threadfin (Figure 30)

Materials examined: 3 ex, SL 121-172 mm, Digha Mohana, 14.12.2010, Reg. No. MARC/ZSI/F749.

Description: D X+9, A III+7, P 17, V I+5, GR 12-14, LL 47-48, three rows of chick scales, Dorsal fin with first and second spines close together, almost fused and produced into a long filament which is the unique characteristics of the specimen, both pectoral and pelvic fins reach the level of anus, caudal fin forked and the upper lobe prolonged into a long filament. Body depth is 2.9 to 3.2 times in standard length and head length is 3.4 to 3.8 times in standard length. Upper part of the body pinkish to silvery white on ventral surface.

Distribution: Indo-West Pacific: including the Bay of Bengal, Andaman Sea, Strait of Malacca, Philippines, South China Sea, Gulf of Thailand and Indonesia.

Remarks: The fish has a minor commercial value.

Family: Sciaenidae

30. Johnius carutta Bloch, 1793 Karut croaker (Figure

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3728.

Description: D XI+26-29, A II+7. A small species with a rounded snout. Mouth small, low-set, nearly horizontal and inferior; no barbel on chin; caudal fin rhomboid. Chin & snout both with 5 pores. Upper two-thirds of body dark grey with a yellow or white streak along lateral line; upper two-thirds of first dorsal black. Caught with bottom trawls and bottom setnets.

Distribution: Indian Ocean: Pakistan eastward to the west coast of the Malay Peninsula.

Remarks: The fish has a commercial value. Size: 30 cm.

Family: **Ephippidae**

31. *Ephippus orbis* (Bloch, 1787) Orbfish (Figure 32)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3731.

Description: D: IX, 19-20; A: III,15-17. Body strongly compressed, rounded in shape. Body silvery with 4-5 vertical black bands from dorsal fin to belly. Head and body silvery blue-green. Fins dusky. Body orbicular and strongly compressed, its depth more than twice length of head. Eye above horizontal axis through mouth. Mouth small, the maxilla not reaching past vertical at front edge of eye. Jaws with bands of slender, incisiform teeth with a single lanceolate cusp. No teeth on palatines or vomer. Preopercle distinctly serrate, with a broad naked margin. Opercle without spines Margins of soft dorsal, anal, pelvic and caudal fins dusky black. Size: 25 cm.

Distribution: Indo-West Pacific: East Africa to New Caledonia, north to Japan.

Remarks: The fish has a commercial value. Ornamental.

Order: Mugiliformes

Family: Mugilidae

32. Liza macrolepis (Smith, 1849) Large scale mullet (Figure 33)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3732.

Description: D: IV-V,8-9; A: III,8-10. Body moderately robust, head wide, flattened above. First dorsal fin origin usually nearer to caudal fin base than to snout tip; adepose eyelid little developed. Colour greenish-grey above, silvery on sides and belly; fins dusky along margins.

Distribution: Indo-Pacific: east coast of Africa, including Madagascar, Seychelles, Rodriguez; north to Sri Lanka and India, Andaman and Nicobar Islands, east to Indonesia, China, the Philippines, Japan, Marshall and Tuamoto islands, Melanesia and Polynesia.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has a commercial value, Ornamental & gamefish. Size: 60 cm.

Family: Callionymidae

33. Callionymus sagitta Pallas, 1770 Arrow dragonet (Figure 34)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3733.

Description: D: IV,9; A: 9. Head and body sand yellow, covered with numerous small dark spots. Ventral sides whitish. Dorsal fin black, first membrane often (at least basally) whitish in females. Anal fin white. Second dorsal, caudal, pectoral, and pelvic fins spotted with brown.

Distribution: Indo-West Pacific: Arabian Peninsula to the Philippines.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has no commercial value.

Family: Eleotridae

34. Butis melanostigma (Bleeker, 1849) Black-spotted gudgeon (Figure 35)

Materials examined: 5 ex., 09.06.11, Reg. No. MARC/ZSI/ F2288.

Description: D: IV,9; A: 9. 7 thin longitudinal lines and irregular dark spots on body; black spot on pectoral base; caudal fin black.

Distribution: Indo-West Pacific: East Africa to New Guinea.

Remarks: The fish has no commercial value.

Family: Gobiidae

35. Apocryptodon madurensis (Bleeker, 1849) Madura goby (Figure 36)

Material examined: 1 ex.; 22.07.11; Mohana, Reg. No. MARC/ZSI/F3734.

Description: D: IV,9; A: 9. Whitish background colour on body with numerous small black spots on head and trunk; five large greenish brown blotches on each flank in a midlateral positions and 5 smaller ones dorso laterally.

Distribution: Indo-West Pacific: east coast of India to the Philippines, north to Japan, south to Australia.

Remarks: The fish has no commercial value.

36. Parachaeturichthys polynema (Bleeker, 1853) Taileyed goby (Figure 37)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3735.

Description: D: VII, 9-11; A: I, 9-10. Numerous barbells on ventral side of head. Caudal fin longer than head. Body greenish above and lighter below; upper base of caudal fin with a large black spot surrounded by yellow.

Distribution: Indo-West Pacific: south to Natal, South Africa; India and Japan.

Remarks: The fish has no commercial value. Poisonous.

Family: Siganidae

37. Siganus vermiculatus (Valenciennes, 1835)

Vermiculated spinefoot (Figure 38)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3737.

Description: D: XIII, 10; A: VII, 9. Body bluish white; head brown to brownish or golden yellow with irregular blue lines. Preopercular angle 91°-102°; strong overlapping scales cover cheeks; midline of thorax scaled, not pelvic ridges. Anterior nostril with low flange, broadened slightly posteriorly. Spines stout, blunt or pungent, and venomous. Body deep and compressed, its depth contained 1.9 to 2.2 times in standard length. Nape convex, interorbital space concave, snout convex, deep and blunt; a forward-directed spine present in front of dorsal fin, but imbedded in nape; caudal fin emarginated. head and body with a vermiculate pattern. Dark spots also present on soft parts of dorsal and anal fins, arranged in rows, the proximal row prominent; other parts of median fins dusky; pectoral fins hyaline; pelvic fins dusky and golden yellow.

Distribution: Indo-West Pacific: India, Sri Lanka, Andaman Islands, Thailand, Malaysia, Singapore, Indonesia, Philippines, Belau, Guam, New Guinea, Solomon Islands, Fiji, Vanuatu, New Caledonia, Western Australia, Pohnpei, Caroline Islands, Ebon Island and Marshall Islands.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has a commercial value. Ornamental & venomous. Size: 45 cm.

Family: Acanthuridae

38. Acanthurus lineatus (Linnaeus, 1758) Bluestriped surgeonfish (Figure 39)

Material examined: 1 ex, TL 207 mm, New Digha, Reg. no. MARC/ZSI/F568.

Description: D: IX, 27-30; A: III, 25-28. Body slightly oblong; caudal spine long; caudal fin lunate; dorsal fin spines 9; teeth in jaws fixed. Upper part of body and head with black-edged blue and yellow stripes on body and head; lower part pale lavender to bluish white; dorsal and anal fin dark blue; caudal fin bluish with a broad black area at base; pectoral fin hyaline; ventral fin yellowish orange.

Distribution: Indo-Pacific: East Africa, including the Mascarene Islands to the Hawaiian, Marquesan and Tuamoto islands, north to southern Japan, south to the Great Barrier Reef and New Caledonia.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has a commercial value. Ornamental & venomous. Size: 35 cm.

39. Acanthurus mata (Cuvier, 1829) Elongate surgeonfish (Figure 40)

Material examined: 1ex, TL 252mm, Digha Mohana, Reg. no. ZSI/MARC/F 769.

Description: D: IX, 24-26; A: III, 23-24. Body elongated and slightly deep; dorsal profile of head gradually sloping to snout; mouth small; caudal fin lunate. Dark brown with narrow longitudinal blue line on head and body; a yellow area behind eye; two yellow bands radiating anteriorly from eye. Capable of change colour to overall pale blue. A single, sharp, forward-pointing erectile spine which folds down into a horizontal groove on each side of the caudal peduncle; spine in white sheath. Gill rakers 13-15 in both anterior and posterior rows. Scales minute.

Distribution: Indo-Pacific: Red Sea south to Natal, South Africa and east to the Marquesan and Tuamoto islands, north to southern Japan, south to the southern Great Barrier Reef and New Caledonia.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has a commercial value. Ornamental & venomous. Size: 50 cm.

40. Acanthurus tristis Tickell, 1888 Indian Ocean mimic surgeonfish (Figure 41)

Materials examined: 3ex, TL 209-293mm, Reg. no. ZSI/ MARC/F 757, Digha Mohana.

Description: D: VIII, 233; A: III, 22-29. Body deep and compressed; Margin of caudal fin narrow and white. No orange area behind gill opening and extending ventrally behind base of pectoral fins. Occurs in shallow lagoon and seaward reefs, in areas of mixed coral, rock or sand.

Distribution: Indian Ocean: Bay of Bengal and the Andaman Sea west to Maldives and Chagos Archipelago, and east to islands of southern Indonesia at least to Bali.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has a commercial value. Ornamental.

Family: Ariommatidae

41. Ariomma indicum (Day, 1870) Indian driftfish (Figure 42)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3738.

Description: D: IX, 14-16; A: III, 13-15. Body moderately deep, compressed but thick; caudal peduncle short, not compressed, almost square in crosssection and with two very low and ill-defined fleshy keels at base of caudal fin; snout blunt and rounded. Colour silvery with a bluish tinge on back; may have a few darker and variable blotches on sides; inside of opercle black; eye with 2 golden crescents separated by a vertical dark region almost the width of the lens; large specimens may be uniformly dark.

Distribution: Indo-Pacific: South Africa to the Persian Gulf (but not in the Red Sea) east to the Indo-Malayan region, north to Japan.

Remarks: The fish has commercial value. Size: 23 cm.

Order: Pluronectiformes

Family: Cynoglossidae

42. Cynoglossus macrostomus Norman, 1928 Malabar tongue sole (Figure 43)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3739.

Description: Body flat and elongate, with dorsal and anal fins joined to caudal fin. Eyes on left side of body, with no space between them; snout short and obtusely pointed, rostral hook short, corner of mouth reaching well beyond lower eye, nearer to tip of snout than to gill opening. Two lateral lines on eyed side but none on blind side. Scales ctenoid (rough to touch) on both sides of body, moderately sized, 14 to 16 scale rows between lateral lines on eyed side. Colour light brown on eyed side with dark brown mottling forming diffuse, irregular crossbands; dorsal and anal fins grey.

Distribution: Indian ocean, restricted to coast of India. Remarks: The fish has a commercial value. Size: 15cm.

Family: Citharidae

43. Brachypleura novaezeelandiae Gunther, 1862 Yellow-dabbled flounder (Figure 44)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3741.

Description: D: 0, 65-77, A: 0, 41-50. Body oval and flat; dorsal fin extending onto head; dorsal fin without spine. Lower jaw prominent; vomarine teeth present. Ground color yellowish or yellowish brown; dorsal, anal and caudal fins paler than body with dark spots. Blind side whitish. Some anterior dorsal fin rays elongated in males, not in females, all rays except a few at posterior end of fin unbranched. Pectoral fin on eyed side with 11-13 rays, on blind side with 10-13 rays. Caudal fin with 13-14 branched rays and rounded margin

Distribution: Indo-West Pacific: India eastward to the Malay Archipelago and the South China Sea, southward to the Philippines and northwest Australia; eastward to New Guinea.

IUCN Status (2012): Least Concern (LC).

Remarks: The fish has minor commercial value.

Family: Soleidae

44. Brachirus orientalis (Bloch & Schneider, 1801) Oriental sole (Figure 45)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3748.

Description: Body oval and flat, both contours equally arched. Eyes on right side, separated by a scaly space; mouth small, curved, cleft reaching to below middle of lower eye. Dorsal and anal fins joined to caudal fin; pectoral fins well developed. Colour grey or brown with cloudy indistinct patches on eyed side, tinged yellow on blind side; pectoral fin on eyed side darker. Size: 24 cm.

Distribution: Indo-West Pacific: Red Sea and Persian Gulf, then off the west coast of India and Sri Lanka, eastward through the Malay Peninsula and Archipelago to China and northern Australia.

Remarks: The fish has a commercial value.

45. *Solea elongata* Day, 1877 Elongate sole (Figure 46)

Material examined: 1 ex.; 03.08.10; Mohana, Reg. No. MARC/ZSI/F1485.

Description: Body elongate and flat. Eyes on right side, small, separated by a scaly space, half the eye diameter; mouth small, curved, cleft reaching to below middle of lower eye. Dorsal and anal fins separated from caudal fin; pectoral fins well developed, symmetrical; pelvic fins short, symmetrical. Colour brownish or greyish, spotted or blotched darker; the markings are more distinct near the edge of the body, and often tend to form irregular vertical bands; a black blotch present on distal part of pectoral fin. Size: 30 cm.

Distribution: Western Indian Ocean: Red Sea and Persian Gulf to the west and east coast of India and Sri Lanka.

Remarks: The fish has a commercial value.

46. Zebrias altipinnis (Alcock, 1890) Alcock's zebra sole (Figure 47)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3742.

Description: Body elongate and flat. Eyes on right side, their diameter slightly longer than snout, close together, usually with a short tentacle each; mouth small, curved, cleft reaching third of the lower eye. Dorsal and anal fins confluent with caudal fin; pectoral fins well developed, asymmetrical, that on eyed side smaller; pelvic fins short.

Scales on both sides ctenoid (rough). Colour light brown with 14 darker unpair cross bands.

Distribution: Indo-West Pacific: east coast of India to Indonesia.

Remarks: The fish has a commercial value. Size: 20 cm.

Order: Tetraodontiformes

Family: **Balistidae**

47. Abalistes stellatus (Lacepède, 1798) Starry triggerfish (Figure 48)

Material examined: 1 ex., 09.06.2011, Mohana, Digha Reg No. MARC/ZSI/F1866,

Description: D: III, 25-27, A: 0, 24-25. Body deep and laterally compressed, with the large rectilinear scale plates of the thick skin forming regular rows, and the scales of the cheek in an even, relatively complete covering. Three prominent dorsal fin spines, the first capable of being locked erect by the second; caudal fin rays of adults prolonged above and below. Caudal peduncle depressed. Colour grey dashed with olive-green; 3 large white blotches on back, disappearing in large specimens; numerous small blue spots on body and 3 or 4 yellow lines from mouth to pectoral fin base; soft dorsal and anal fins with yellow, slightly oblique stripes; pectoral fins yellow.

Distribution: Indo-West Pacific: Red Sea and Persian Gulf to South Africa (also reported from West Africa), east to the western Pacific.

Remarks: The fish has no fisheries value. Size: 60 cm.

Family: **Diodontidae**

48. Diodon hystrix Linnaeus, 1758 Spot-fin porcupinefish (Figure 49)

Material examined: 1 ex.; 22.07.11; Shankarpur, Reg. No. MARC/ZSI/F3746.

Description: D: 0, 14-17, A: 0, 14-16. Body globular cover with strong, long spines; two small spines on dorsal side of caudal peduncle. Body green brown dorsally with black spots; ventral side white without spots. Body robust; teeth united in each jaw but without a central division; body covered with long, sharp spines, folded backwards when body not inflated; 16 to 20 spines between snout and dorsal fin; dorsal region of caudal peduncle spiny; back, flanks and fins light brown with numerous dark spots; belly spiny.

Distribution: Circumtropical. Eastern Pacific, Western Atlantic, Eastern Atlantic, Western Indian Ocean.

Remarks: The fish has a minor commercial value. Ornamental. Poisonous.

Summary

Fishes inhabiting the coastal waters of Digha are a treasured resource both in terms of their utility as food, ornamental and materials for scientific study. Digha is the largest fish-landing center of West Bengal. Digha area is surrounded with two adjacent landing sites within 40 km length. Its proximity to the metropolitan like Kolkata and other cities in West Bengal also helps in supplying these marine fishes to the markets of North Eastern states as well as other part of countries. The present study updates the earlier checklist with 340 species from 209 genera, 108 families and 19 orders.

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