AN OVERVIEW OF MARINE FISHERIES OF INDIA AND COASTAL KARNATAKA: ITS PRESENT STATUS

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ABSTRACT

This Paper provides an overview of the marine fisheries of India and coastal Karnataka. It covers the main fisheries resources, present social-economic profile production and export trends and fisheries gears in India and coastal Karnataka. The study has been reliant on secondary data and same has been considered and analyzed by using percentage and graphical method. The marine fisheries sector in India is viewed as a million dollar business. This sector in the country and state has experienced remarkable developments in terms of production, employment, export earnings and infrastructure development. The result of study reveal that the GDP and GSDP from fisheries shows increasing trends. India is the largest producer of fish in the world. The fish production of India and coastal Karnataka shows fluctuating trends. The marine fish product exports performance shows increasing trends both in terms of quantity and value. The marine fisheries sector in India has registered a phenomenal growth during the last five decades both quantitatively and qualitatively. Marine fisheries are sunrise sector of our country. At present it emerged as an important commercial activity from its tradition role as subsistence supplementary activity of large number of coastal population.

Keywords: Marine Fisheries; Coastal Karnataka; Fisheries Resources; Socio-Economic Profile

INTRODUCTION

Food, Clothing and Shelter (Roti, Kapada Aur Makan) are the basic physiological needs of human life. If we refer to the pages of the history of human civilization it speaks, that fish has been one of the major sources of food and to get this food: fishing activity was undertaken from oceans, lakes and rivers. Man has known fishing since times immemorial. Fishing is older than agriculture. Fishery is considered as one of the allied activities of agriculture. Fish provides an excellent source of protein, vitamins, fat, minerals and carbohydrates, the essential ingredients of a balanced diet. Fish is one of the most highly traded food products in the world market. In India marine fisheries sector is viewed as a million dollar business. As a source of food, fisheries stand almost at par with agriculture and animal husbandry.

Fishing and Aquaculture in India has a long history. Kautilyas Arthashastra (321-300B.C) and king Someswara’s manasottara (1127 A.D.) each refers to fish culture.(1) Fish has certain Mythological importance in India. The very first of ten incarnations of God called “MATHSYA VATHARA” is believed to have taken the form of fish. For centuries, India has had a traditional practice of fish
culture in small ponds in eastern India. Fish culture received notable attention in Tamil Nadu (formerly the state of Madras) as early as 1911, subsequently, states such as West Bengal, Punjab, Uttar Pradesh, Gujarat, Karnataka and Andhra Pradesh initiated fish culture through the establishment of Fisheries Departments. (2) Fishing was practiced even in pre-historic Karnataka, as can be seen from a copper fish hook at, the Brahmagiri, excavation. A vachanakara, a contemporary of Basaveswara called Galada Kannappa is known, gala being hook. (3) India is predominantly a rural country. According to the 2011 Census of India the total population of Indian is 12201 crore people with 68.84% of the population living in rural areas. (4) Karnataka State (erstwhile Mysore State) emerged as a maritime State in 1956 with the States Reorganization Act. It is the 8th largest state in the country having an area of 191,791 Sq. Kms (6.25% of India’s total area of 3,065,027 Sq. Kms.). As per the Census of 2011, the State has a total population of 6.10 crores accounting for 5.05 per cent of the country’s total population of 122.1 crores. The rate of growth of population in the State has declined considerably from 17.25% in 2001 to 15.60% in 2011. 61.33% of the total population resides in rural areas, whose main occupation is Agriculture and allied activities. (5)

OBJECTIVES OF THE STUDY
The main objectives of the present study are:
1. To review the present status of marine fisheries resources of India & Karnataka.
2. To examine the present socio-economic profile (characteristics) of the Marine fisheries of India and Karnataka.
3. To analyze the production and exports trends in marine fisheries of India and Karnataka.
4. To provide valuable suggestions for the betterment of fishermen and the development of marine fisheries sector.

RESEARCH METHODOLOGY
Scope of the Study
This study has been undertaken mainly to review the marine fisheries resources and to analyze and assess the present socio-economic characteristics, production and export trends in marine fisheries of India and Karnataka during the study period from 2001-02 to 2012-13.

Nature and Sources Of Data
This article has been prepared mainly from the primary data collected and compiled by the Government of Karnataka, Directorate of fisheries, Statistical Bulletin of Fisheries and data from Marine Fisheries Census compiled by Central Marine fisheries Research Institute (CMFRI) on behalf of Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India, and the Hand Book of Fisheries Statistics published by Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India. Besides the Secondary data collected by referring the various other publications in different journals, Magazines and collected information through open source in the internet.

Method of Data Analysis and Interpretation
The collected data has been analyzed and assessed by using simple statistical tools such as an average simple percentage, ratio and trend analysis, comparative analysis etc.

REVIEW OF THE STATUS OF MARINE FISHERIES RESOURCES
India is endowed with a continental shelf of 0.53 million km. After declaration of the Exclusive Economic Zone (EEZ) in the year 1977, an area of 2.02 million km (comprising 0.86 million km on the west coast, 0.56 million km on the east coast and 0.60 million km around the Andaman and Nicobar Islands) including 0.5 million km of continental shelf has come under the jurisdiction of the
Republic of India, with absolute right of exploring, exploiting and natural utilization of leaving resources as falling within it.\(^{(6)}\) India has a long coastline of 8118 kilometers (km) distributed between West-Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Pondicherry on the East Coast and Kerala, Karnataka, Goa, Maharashtra, Gujarat on the West Coast, besides the islands of Andaman & Nicobar, Daman & Diu and Lakshadweep and an equal large area under estuaries, backwaters, lagoons etc., conducive for developing capture as well as culture fisheries. Gujarat State has the longest continental shelf of 184000Sq kms.\(^{(5)}\)

Karnataka has 300 km long coast line stretches from Majali (Karwar) in the north to Ullal (Mangalore) in the south covering the three coastal districts via Uttar Kannada (160kms), Udupi (98kms) and Dakshina Kannada (Mangalore taluk 42Kms) bordered by the high Western Ghats in the east and Arabian Sea to west. The 27000sq km of continental shelf and 87000 sq km of Exclusive Economic Zone area which is rich in pelagic fishes like sardines and mackerels and traditionally Karnataka Coast is known as “Mackerel Coast”.\(^{(8)}\)

As regards marine resources of India, the Fishery Survey of India (FSI) with its headquarters at Mumbai, a wing of Ministry of Agriculture, is responsible for survey and assessment of marine fishery resources in the Indian EEZ. It undertakes exploratory surveys for charting of fishing grounds, assessment of fish stocks in the Indian EEZ including adjoining high seas resources. FSI also re-validates periodically the potential of fishery resources in Indian EEZ. It is given the responsibility to monitor fishery resources for the purpose of regulation and management, maintenance of Data Bank and dissemination of information on fishery resources.\(^{(7)(9)}\)

### Table 1. Marine Fisheries Resources: - Coastal States and Union Territories of India

<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>App. Length of Coast Line (Kms.)</th>
<th>Continental Shelf (‘000Sq. Kms.)</th>
<th>Number of Landing Centre</th>
<th>Number of Fishing Villages</th>
<th>No. of fishermen families</th>
<th>Fisher folk population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>974</td>
<td>33</td>
<td>353</td>
<td>555</td>
<td>163427</td>
<td>605428</td>
</tr>
<tr>
<td>Goa</td>
<td>104</td>
<td>10</td>
<td>33</td>
<td>39</td>
<td>2189</td>
<td>10545</td>
</tr>
<tr>
<td>Gujarat</td>
<td>1600</td>
<td>184</td>
<td>121</td>
<td>247</td>
<td>62231</td>
<td>336181</td>
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<tr>
<td>Karnataka</td>
<td>300</td>
<td>27</td>
<td>96</td>
<td>144</td>
<td>30713</td>
<td>167429</td>
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<tr>
<td>Kerala</td>
<td>590</td>
<td>40</td>
<td>187</td>
<td>222</td>
<td>118937</td>
<td>610165</td>
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<td>720</td>
<td>112</td>
<td>152</td>
<td>456</td>
<td>81492</td>
<td>386259</td>
</tr>
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<td>Odisha</td>
<td>480</td>
<td>26</td>
<td>73</td>
<td>813</td>
<td>114238</td>
<td>605514</td>
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<td>Tamil Nadu</td>
<td>1076</td>
<td>41</td>
<td>407</td>
<td>573</td>
<td>192697</td>
<td>802912</td>
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<tr>
<td>West Bengal</td>
<td>158</td>
<td>17</td>
<td>59</td>
<td>188</td>
<td>76981</td>
<td>380138</td>
</tr>
<tr>
<td>A &amp; N Islands</td>
<td>1912</td>
<td>35</td>
<td>16</td>
<td>134</td>
<td>4861</td>
<td>22188</td>
</tr>
<tr>
<td>Daman &amp; Diu</td>
<td>27</td>
<td>-</td>
<td>5</td>
<td>11</td>
<td>7374</td>
<td>40016</td>
</tr>
<tr>
<td>Lakshadweep</td>
<td>132</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>5338</td>
<td>34811</td>
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<tr>
<td>Pondicherry</td>
<td>45</td>
<td>1</td>
<td>25</td>
<td>40</td>
<td>14271</td>
<td>54627</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8118</td>
<td>530</td>
<td>1537</td>
<td>3432</td>
<td>874749</td>
<td>874749</td>
</tr>
</tbody>
</table>

**Source:** Marine Fisheries Census, 2010

**Potential of Fishery Resources In The Indian Exclusive Economic Zone:**

India has vast potential of resources in marine sector. Apart from the marine fisheries resources the country is endowed with vast inland fishery resources also. The marine fisheries resource according to their living habits are broadly distinguished in to three categories i.e., Demersal, Neritic Pelagic, Oceanic Pelagic
Table 2. Potential Of Fisheries Resources In The Indian EEZ

<table>
<thead>
<tr>
<th>Depth range (mts)</th>
<th>0-100</th>
<th>100-200</th>
<th>200-500</th>
<th>Oceanic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>Demersal</td>
<td>1.82</td>
<td>0.21</td>
<td>0.10</td>
<td>-</td>
<td>2.13</td>
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<tr>
<td>Neretic Pelagic</td>
<td>2.00</td>
<td>0.05</td>
<td>0.01</td>
<td>-</td>
<td>2.06</td>
</tr>
<tr>
<td>Oceanic Pelagic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.22</td>
<td>0.22</td>
</tr>
<tr>
<td>Total</td>
<td>3.82</td>
<td>0.26</td>
<td>0.11</td>
<td>0.22</td>
<td>4.41</td>
</tr>
<tr>
<td>Percent to total</td>
<td>86.62</td>
<td>5.87</td>
<td>2.60</td>
<td>4.91</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Report of the working group for revalidating the potential of Fishery Resources in the Indian EEZ.

Fishery survey of India (FSI)

According to the report of the working group for revalidating the potential of fishery resources in the Indian EEZ Fishery Survey of India (FSI) the estimated fishery potential of the EEZ is about 4.41 mts of which 3.82 mts are from the shelf area between 0-100 meter depth, 0.26 mts, from the shelf area between 100-200 meters depth and 0.11 mts from the shelf area between 200-500 meters depth and the rest of 0.22 million tonnes are from the area beyond 500 meters depth zone i.e. from oceanic zone. The present level of exploitation was 3.23 mts.

The shelf of Karnataka has an average width of 80 km and depth of shelf break is between 90 and 120 meters. Unlike the west coast of India the coastal stretch of Karnataka has no major delta formations. The marine fisheries resource Potential of the state has been estimated at 4.25 lakh metric tonnes, of which 2.25 lakh metric tonnes from inshore areas up to depth of 70 mtrs and remaining 2.0 lakh metric tonnes from the off shore deep sea zone.

Socio-Economic Profile of Coastal Fishers Of India And Karnataka

Fishing Villages and Landing Centers- There are 3,288 numbers of marine fishing villages distributed among the nine maritime states and union territories of India, out of which 813 numbers (24.07%) are in Odisha and 573 numbers (17.04%) are in Tamil Nadu and 555 (16.9%) are in Andhra Pradesh. In Coastal Karnataka 144 marine fishing villages are there where fishermen residing. The maximum number are in Uttara Kannada district (86) and minimum are in Dakshina Kannada district (17) and rest 41 are there in Udupi district.

Out of 1511 marine fishing landing centre of India, Tamil Nadu has the highest number of 407 (26.9%), 353 (23.3%) in Andhra Pradesh and 187 (12.3%) in Kerala. In Coastal Karnataka, 96 (6.3%) numbers landing centre exist, of which 51 belonged to Uttara Kannada district, 31 belonged to Udupi district and the remaining 14 are in Dakshina Kannada district.

Population- There are 8,64,550 marine fishermen families in India, in which Tamil Nadu has the highest among all the state with 192,697 numbers (22.2%), 163,427 numbers (18.9%) in Andhra Pradesh and 1,18,937 (13.7%) in Kerala. Among the marine fishermen families 7,89,679 (91.3%) are belonged to traditional fisherman families. The total marine fisher folk population in India is 3,999,214 with Tamil Nadu, Kerala and Odisha accounting for 20.1%, 15.3% and 15.1% respectively. Adults males constituted 33.6%, adult females 31.9% and Children 28.9% of the marine fisher folk population in India. The Female to Male ratio is 928 for 1000 males. The average family size for fishermen households is 4.63 with maximum of 5.45 for Karnataka and minimum of 3.70 for Andhra Pradesh.

There are 30,713(3.5%) fisherman families in coastal Karnataka. The maximum numbers of fisherman families are in Uttara Kannada 16,236 (52.8%), the next highest in Udupi 9,907 (32.2%) followed by Dakshin Kannada 4,570 (15.%). The total marine fisherfolk population in Karnataka is 1,67,429 out of which 78,692(47%) are in Uttara Kannada, 61949 number (37%) in Udupi, and 26788 number(16%) in Dakshina Kannada district. It is noticed that 93% fishermen families belonged to traditional fishermen. The average family size is 5.5 with a maximum of 6.2 in Udupi, 6 in Dakshina Kannada...
and 4.8 in Uttar Kannada district. Adult males constitute 38%, adult females 35% and Children 27% of the marine fisher folk population in coastal Karnataka. Women form 48% of population and the female to male ratio is 916 per 1000 males.\(^{(12)}\)

**Figure 1.** Fisher folk population in Costal States during 2010

**Figure 2.** Fishing Crafts– Coastal States and UT’s

**Source:** Handbook of Fisheries Statistics 2014

**Poverty-** It is observed that around 61% of the marine fishermen families (523,691) are falling under Bellow Poverty Line (BPL) category in India.\(^{(11)}\) In Karnataka 23624 (77%) of the families are Bellow Poverty Line. Among the three districts, the largest Proportion of fishermen families below poverty line are found in Uttar Kannada (89%) and Udupi (77%)\(^{(12)}\).

**Education-** Out of the total Indian marine fisher folk, 57.8% are educated with different levels of education. Among the fisherfolks nearly 15.0% of the males and 13.9% of the female have primary level of education. About 13.2% of the males and 10.9% of the females have higher secondary level of education. Nearly 2.7% of the males and 2.0% of the females have above higher secondary level of education. Among the fisherfolks about 42.2% are unschooled of which 21.0% are males and 21.2% females. Nearly 44.2% of the females and 40.4% of the males are unschooled.\(^{(11)}\) In Karnataka 64% (excluding children below 5 years) of fisherfolk are educated with different levels of education. about 28% of the fisher folk have primary level of education, 27% have secondary, 9% have above secondary level of education and the rest 36% of the population are unschooled.\(^{(12)}\)

**Occupation-** In India 37.8% of the total marine fisher population are actively engaged in fishing activities 83.4% of them are fully engaged while 2.4% are engaged in fish seed collection of which 54.4% are fulltime and 45.6% part time. Formal female employment in fishing is almost nonexistent, however women informal employment in marketing, distribution, processing and salting of the fish found. As far as maritime states are concerned, Tamil Nadu accounted the highest number of active fishermen (21.6%) followed by Odisha (16.4%). 61.1% of the total marine fishers of India are engaged in fishing allied activities. Out of them 36.5% are engaged in marketing of fish, 32.6% are working as laborers and 14.2% are engaged in making and repairing of net. Among the fishermen who are engaged in marketing of fish, 81.8% are women. 88.1% of the fisher folk engaged in curing and processing are women. 57.4% of fishermen engaged in fish seed collection are females and 42.6% are males.\(^{(11)}\)

In Karnataka there are 40,756 active fishermen of whom 32,037 are full time fishermen, 6,657 part-time and the rest engaged in fish seed collection. About 62% of fisher folk excluding children are occupied with active fishing (34%) and fishing allied activities (28%). There are 34,277 fisher folk engaged in fishing allied activities such as marketing (43%), labourers (41%), making/reparing net (5%), curing/processing (4%) and peeling (3%). Women outweighed men in fishing allied activities accounting about 67%. Among the major fishing allied activities, women dominated in curing processing (90%), peeling (88%) and marketing (83%). Among the different districts, largest number fisher folk engaged in fishing allied activities belonged to Uttar Kannada (40%) followed by Dakshina Kannada (32%) and Udupi (28%). Nearly 51% of those engaged in marketing of fish belonged to Uttar
Kannada followed by Dakshina Kannada (27%). Almost 75% of those involved in making/repairing net belonged to Uttara Kannada. Major share of the fisherfolk involved in peeling (77%) and curing/processing (50%) belonged to Udupi district.\\(12\\)

**Religion**- India is a secular and democratic country, its marine fishermen families are also diverse as far as religion is concerned. While Hindus constitute the major population among them with 75.47% Christians and Muslims constitute 15.21% and 9.28% respectively. The overall percentage of SC/ST among the marine fishermen households is 16.6%.\\(11\\) In Karnataka majority of the fisherman families are Hindu (87%) followed by Muslims (11%) and Christians (2%). Only 7% of the fishermen families belonged to SC/ST.\\(12\\)

**Craft and Gear and Infrastructure in Fishing Village**- In the marine fisheries sector of India, there are 1,94,490 numbers crafts. Out of these 72,559 numbers (37.3%) are mechanized, 71,313 numbers (36.71%) are motorized and 50618 numbers (26.00%) are non-motorized or traditional crafts. It is also observed that 1, 67,957 numbers of crafts are owned by fisher folk. 52.6% of them are non-motorized, 24.2% are motorized and 23.1% are mechanized. From the mechanized crafts owned by fishermen, 28.9% are trawlers, 42.8% gillnetters and 19.1% dolnetar.\\(11\\) In Karnataka there are 14,023 crafts in the fishery of which 3643 numbers (15.9%) are mechanized, 7518 numbers (53.6%) motorized and 2682 numbers (20.40%) forms the non-motorized. Trawlers (78%), purse seiners (12%) and gillnetters (5%) are the main crafts of the mechanized sector. There are 6800 crafts owned by fisher folk of which 1,045 are mechanized 1,211 motorized and 4,544 non-motorized.\\(12\\)

**Caste and Communities**- Fishing community in India, are not homogenous as they belong to different castes. These communities have their distinct social, cultural governance structures and traditional practices, depending on the coast, where they inhabit. At least 2-3 castes are exclusively involved in marine fishing in each maritime state, and are not related to the mainstream agrarian system. Some of the important fishing castes state-wise include:\\(13\\)

Andhra Pradesh: Vadabalijas, Jalariats, Pattapu, and palles
Gujarat: Kharvas, Kolis and macchiyaras
Karnataka: Mogavereas
Kerala: Mukkuvar, Anjootty, Dheevera and Pooislan.
Maharashtra: Kolis
Orissa: Jalariats, Vadabalijas, Kaibartas, Khandayats, and Rajbhansis
Tamil Nadu: Pattinavars, Mukkuvars, and paravas
West Bengal: Kaibartas,

The fishermen population of Karnataka is distributed in to several castes. Mogers, Kharvis, Harikanthas, Gabits and Daljis are mainly found in Utara Kannada district and Moghevers, Bhoirs, Bestas, Ambigas, Moples etc. are found in Udupi & Dakshina kannada districts.\\(14\\)

**Membership in Co-Operatives**- In India, 32% of the adult fishermen have memberships in co-operatives societies among which 22.1% are member of fisheries co-operatives and 9.9% are member of other co-operatives.\\(11\\) While in Karnataka there are 530 Fishermen Co-operative Societies and out of which, 476 are functioning and 54 are defunct. One State Level Co-operative Fisheries Federation and two District Co-operative Fish Marketing Federations are functioning in the State. To assist the activities of these Co-operatives, share capital, fishery requisites loan and managerial subsidy are being provided. There are 1,77,436 members in all FCS. 36% of the adult fishermen have membership in co-operative societies of which 69% are members in fisheries co-operative societies.\\(12\\) The fishermen use fisheries co-operatives as a platform for several fisheries related activities like growing fish, marketing of fish and in marine sector sale of fuel and for other services. Certain benefits of fishermen welfare programmes are also executed through fishermen co-operative societies.
Housing & Other Infrastructure- Housing is one of the most important yardsticks to measure socio-economic status. It is observed that in India near about 556710 fishermen families are residing in Pucca houses and 2,97,840 fisherman are residing in Kutcha houses. Besides, 5,820 primary schools, 1635 secondary schools, 331 colleges and 210 technical institutions are there in the fishing villages. 2901 (88.2%) of fishing villages are electrified, 1915 (58.2%) of the villages are having bus stop/bus stand and 2991 (60.9%) villages have cell phone coverage. As surveyed, 1227 ice factories, 405 boat yards, 541 curing yards, 317 peeling sheds, 409 cold storages and 195 freezing plants, 189 processing plants, 85 fish meal plants, 44 extraction plants are there in India.\(^\text{(11)}\) In Coastal Karnataka near about 88% houses of the fishermen are pucca. 12% of the fishermen houses are Kutcha (Huts). There are 721 primary schools, 188 secondary schools, 63 colleges and 12 technical institutions in the fishing villages of which 97% of fishing villages have electrified, 88% have bus stop/stand and 97% of the fishing villages have cell phone coverage. There are 206 ice factories, 52 boat yards, 36 cold storages, 32 fish meal plants, 23 extraction plants, 16 processing plants and 10 freezing plants located in Karnataka.\(^\text{(12)}\)

Economic Significance of Fisheries Sector- Fisheries sector is an integral part of the Indian economy with its consistent contribution to the country GDP and its potential to provide the livelihood and nutritional security to about 40 million populations. The analysis reveals that in terms of share of fisheries in total GDP over the years an increase was noted from 1.05 percent in 2001-02 to 1.07 percent in 2002-03 that gradually dropped out in the later period. The trend of GDP from fisheries as percentage of total GDP growth rate fluctuating and it has reached to 0.83 percent in the year 2012-13. Contribution of fisheries sector to GDP of the country is presented in the Table. 3

<table>
<thead>
<tr>
<th>Year</th>
<th>Total GDP</th>
<th>GDP from Agriculture, Forestry &amp; Fishing</th>
<th>GDP from Fisheries</th>
<th>GDP from fisheries as % of Total GDP</th>
<th>GDP from Agriculture, Forestry &amp; Fishing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2001-02</td>
<td>2167745</td>
<td>498620</td>
<td>22818</td>
<td>1.05</td>
<td>4.58</td>
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Table 4. Contribution of Fisheries to AGDP (GSDP at current prices) Rs. in lakhs

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<td>Agriculture</td>
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<td>4128883</td>
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<td>6205700</td>
<td>6854800</td>
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<td>Fodder and logging</td>
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<td>227335</td>
<td>240301</td>
<td>274955</td>
<td>306633</td>
<td>88330</td>
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<td>112440</td>
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<td>Fishing</td>
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<td>94182</td>
<td>91134</td>
<td>149603</td>
<td>159602</td>
<td>210913</td>
<td>230645</td>
<td>286273</td>
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<td>Agri and allied</td>
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<td>3304489</td>
<td>3765229</td>
<td>4347937</td>
<td>4596118</td>
<td>6009343</td>
<td>6333803</td>
<td>7053313</td>
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<td>TOTAL GSDP</td>
<td>18379562</td>
<td>20578406</td>
<td>24006235</td>
<td>27069652</td>
<td>29846508</td>
<td>40647000</td>
<td>46324300</td>
<td>57492000</td>
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Percentage contribution to AGDP (Fiseries)

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<tr>
<td></td>
<td>2.3</td>
<td>2.85</td>
<td>2.42</td>
<td>3.44</td>
<td>3.47</td>
<td>3.46</td>
<td>3.53</td>
<td>4.06</td>
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Percentage contribution to TOTAL GSDP (Fiseries)

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<tbody>
<tr>
<td></td>
<td>0.45</td>
<td>0.46</td>
<td>0.38</td>
<td>0.55</td>
<td>0.53</td>
<td>0.52</td>
<td>0.50</td>
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Source: GOK, Dept. of Fisheries Statistical Bulletin of Fisheries 2012-13

Marine fisheries play an important role in the coastal economy of Karnataka. The pioneering attempts of the state in mechanization and motorization led to significant achievements in the fisheries sector. The percentage contribution of fishery sector to AGDP shows fluctuating position between 2.3 percent and 4.06 percent establishing the significance of this promising sector. The percentage contribution of fisheries sector to GSDP of the state showed a fluctuating trend from 0.45 percent in 2005 to 0.54 percent during the year 2012-13. Though there is absolute value of fisheries sector has almost increased more than threefold over the years. The contribution of fisheries sector to GSDP at current prices during 1993-94 was Rs 16,316 lakhs and it has increased to Rs 286273 lakh in 2012-13.

Karnataka is one of the important maritime provincial states of India extends from longitude 11° 30’ to 18° 23’ N, latitude from 74°05’ to 78°35’ E on the western Coast of India. The Coastal Karnataka is also known as ‘Canara’ or ‘Canara’. Kanara forms the southern part of the Konkan coast. The length of this region from north to south is around 300km and width varies from 30km to 110km. According to Historian Severino da Silva in his book History of Christianity in Canara vol. I, he mentioned that ancient names for this region are Kol Kannam (Tamil: no man’s land) or Parashuram Srashti (Creation of Parashuram). According to Mr. Severine Silva, a former advocate at Karwar and Stephen Fuchs author of the work The Marriage Customs of the Christians in South Canara, India The name Canara is the invention of European traders (Portuguese, Dutch and English) who for the purpose of trade came to this tract from the early 16th century onwards. The Bednore Dynasty, under whose rule this tract was at that time, was known to them as the Kannada Dynasty, i.e., the dynasty speaking the Kannada language. The letter ‘d’ being always pronounced like ‘r’ by the Europeans, the district was named by them Kanara (or Kannada). This name was retained by the British after their occupation of the district in 1799, and ever since this name has remained.

Fish Production Trends Of India And Karnataka

Fish Production Trends Of India- Fish production in the country mainly arises from marine and inland fisheries which includes both capture and culture fisheries. India is the second largest producer of fish in the world contributing to 5.68 of global fish production. India is also a major producer of fish through aquaculture and ranks seconds in the world after China. As a result of modernization, the Indian fisheries sector has been witnessing a steady growth since the first five year plan launched in 1951. The total fish production during 2013-14(P) is at 9.58 million metric tonnes with a contribution of 6.14 million metric tonnes from inland sector and 3.44 million metric tonnes from marine sector respectively, which was a significant improvement over the 0.75 million tonnes in 1950-51. The
overall growth in fish production in 2013-14 has been 5.9%, which has been mainly due to 7.3% growth in inland fish production. The growth in marine fish production has been 3.7%.

The negative growth rate -1.51% in marine fish production has been witnessed during the year 2012-13. Marine fish production increased from 0.53 million tonnes in 1950-51 to a peak of 2.8 million metric tonnes in 2000-01, but the marine fish production has been shown a fluctuating and negative trend during the year 2003-04, 2004-05, 2007-08 and 2012-13 respectively. Gujarat is the highest marine fish producer in the year 2013-14. The contribution of the inland sector to the overall production of fish has increased at higher rate than that of the marine sector, from 0.218 million tonnes during 1950-51 to 6.13 million tonnes in 2013-14.

Figure 3. Fish Production in India During Recent Years

Source: Handbook on Fisheries Statistics 2014

Figure 4. Fish Production in Karnataka During Recent Years


The Marine sub-sector accounts for approximately 36 percent of the total fish harvest in India with inland fishing making up 64 percent. This reflects a remarkable shift in 1950-51, marine fishing accounted for 71 percent and inland fishing accounted for just 29 percent of total fish production. It is expected that the inland sectors importance will continue to grow in the coming years.

Fish Production Trends In Karnataka

Karnataka is one of the important maritime states in west coast comprising of three (03) coastal districts, namely Dakshina Kannada, Udupi and Uttara Kannada. Use of mechanized fishing boat has shown appreciable increase in the landing of marine fish catches and a large number of mechanized boats are profitably used for catching shrimps and pelagic fishes.

The fish production in Karnataka was around 2.0 lakh tonnes in early eighties and reached to a peak of over 3.0 lakh tonnes in mid nineties. The average fish production in the last 5 years is about 3.0 lakh tonnes with the contribution of Marine sector being 68% and Inland sector 32% for the year 2012-13. The total fish production of the state contribute 5.55 lakh tonnes which is about 5.8% of India’s total fish production for the year 2013-14. The current level of per-capita fish availability in the state is around 6.8 kg.

The growth rate of fish in Karnataka from 2000-01 to 2012-13 show significant trends. According to studies conducted by Muthiah et al (2000), the peak catch over the last 20 years from the state was 222, 779 tonnes in the year 1996-97, as against estimated maximum sustainable yield of 152000 tonnes. In the last 10 years the lowest production of 128416 tonnes was witnessed during 2001-02. Over the last 06 years the total marine fish catch however, remained almost the same. The trend indicates that the annual catch is getting stabilized around estimated maximum sustainable yield. From the year 2008-09 up-to 2012-13 the marine fish production showed an increasing trend as against an estimated maximum sustainable yield of 152000 tonnes. Value of the fish catch has also shown the similar trend.
Karnataka marine fish growth in terms of quantity between 2000-01 to 2013-14 shows significant trends, except the year 2001-02, 2004-05 and 2006-07 respectively, which shows a negative growth trend. The growth rate in terms of value of Marine fish has been positive from 2000-01 to 2012-13 except the year 2001-02 and 2007-08, which shows a negative growth rate of -20% and -6.03% respectively. The minimum growth rate was 5% in 2000-2001 and the maximum was 69% in 2002-03. The relation position of production and value indicates that the contribution of marine fish in the total output of fish in Karnataka is much larger.

During 2011-12 and 2012-13, Dakshina Kannada district accounted for 39.57% & 38.66% of the total marine fish production, followed by Udupi district, 34.59% and 35.02%, whereas Uttara Kannada district only 25.84% and 26.32% respectively. During the year 2012-13, 96% of the total fish landings are by mechanized boats, while non-mechanized boats contributed only 4%. Among the mechanized boats, 54% of total fish catch was harvested by trawlers, 22% by other mechanized boats and 20% by purse seiners.

**Figure 7.** District Wise Marine Fish Production

**Figure 8.** Disposition of Marine Fish Catch (2012-13)

**Source:** GOK, Dept of Fisheries, Statistical Bulletin of Fisheries 2012-13.

During 2012-13, 48% of the catch was marketed fresh, followed by curing (19%), fish manure (5%), freezing (10%) and canning (8%) and fish meal production (8%). Misc (1%) and unspecified (1%) About 1.64 lakh metric tonnes of marine was used for fresh consumption in the state.

**Marine Product Exports**

**Marine Product Export of India**

Fisheries sector plays an important role as a foreign exchange earner, in addition to contribution to food and nutritional security. Fish products from India are well received by almost half of words countries creating export driven employment opportunities in India and greater food security for the world.

Marine fish and fishery product exports have increased rapidly since the 2002-03. In the year 2002-03 the value to the extent of US $ 1425 Million fishery products were exported. During the financial year 2013-14, Exports of marine products reached an all-time high of Rs.5007.70 Million crores. Marine product exports, crossed all previous records in quantity, rupee value and US$ terms. Exports aggregated to 9,83,756 M.T valued at Rs.30213.26 crores and US$ 5007.70 million. Compared to the previous year, seafood exports recorded a growth of 5.98% in quantity, 60.23% in rupee and 42.6% growth in US$ earnings respectively. Frozen shrimp continued to be the major export value item accounting for a share of 64.12% of the total US$ earnings. Shrimp exports during the period increased by 31.85%, 99.54% and 78.06% in quantity, rupee value and US$ value respectively. There was all time high growth in unit value realization of frozen shrimp at 35.05%.
Marine Product Export of Karnataka

The quantity and value of export of marine fish products of Karnataka from the 2000-01 to 2013-14 shows fluctuating trends the minimum quantity growth rate of 4% was noticed during the year 2002-03 and maximum quantity growth rate of 3% during the year 2003-04 and the minimum value growth of 3% was notice during the year 2003-04 and the maximum value growth rate of 76% was noticed in the year 2010-11. The unit value of export also shows fluctuating trends. During the year 2012-13 0.96 lakhs metric tonnes of marine products worth Rs.854 crore were exported from the state.

FINDINGS

1. The various policies framed and formulated by both the union government of India and the state government of Karnataka, were not in many cases, properly and systematically formulated taking into account the socio- economics of the vulnerable group of the fishery sector, as these policies, remaining on paper without benefiting the fisherman’s community.

2. India’s Gross Domestic Product (GDP) from fisheries shows increasing trends, but GDP from fisheries as percentage of total GDP shows fluctuating trends. Karnataka’s Gross State Domestic Production (GSDP) from fisheries also shows increasing trends from 83343 lakh in the year 2005-06 to 2806273 lakhs during the year 2012-13. The share of fisheries sector in GDP is very low and fluctuating. It is evident that the percentage share of fisheries sector in GDP is less than even One percent. In Karnataka fisheries percentage contribution to AGDP and percentage contribution of fisheries to total GSDP shows the fluctuating trends.

3. India is the second largest producer of fish in the world contributing to 5.68% of global fish production. India is also a major producer of fish through aquaculture and ranks seconds in the world after China. Karnataka is the 7th largest producer of fish in India, which contributes 5.8% of the national fish Production. Karnataka is in 6th Position in marine fish production when compared to fish production in the country and 9th position in inland fish production.

4. The total fish production of India shows the increasing trend, except during the year 2004-05. The total fish production in Karnataka shows a fluctuating trend.

5. The marine fish production of India shows fluctuating trends. The marine fish production in Karnataka shows increasing trend except during the year 2003-04, 2007-08 & 2011-12, respectively.

6. The percentage share of marine fish harvest is decreasing. Percentage share of marine fish harvest was 71% during 1950-51, it has reached just 36% in the year 2013-14. The percentage...
share of marine fish harvest of Karnataka also decreasing. The percentage share of marine fish harvest was 80% during the year 1956-57, It has reached just 68% in the year 2012-13.

7. The marine fish product exports Performance of India shows the increasing trend both in terms of quantity and value. The sector through its consistent performance in the export front and domestic market contributes to the country’s GDP and has gained an important place in the Indian economy. Out of the total Indian exports, the share of marine products is significant and this sector is the fourth largest contributory of foreign exchange in the country. The Karnataka marine fish products exports performance shows fluctuating trends both in terms of quantity and value.

SUGGESTIONS

1. It is suggested that a uniform policy through interactive governance should be implemented for the wellbeing of the fisher folk.

2. Both the union government of India and the state government of Karnataka should come closer to work together for the welfare of marine fisheries development and maintenance of infrastructure for fishing landing, Preservation, processing and marketing for the improvement of the socio-economic conditions of fishermen community, so that the real development of fisheries sector shall be a reality.

3. It is suggested that there is scope for development of marine fisheries in India and Karnataka, with proper studies and understanding marine fisheries issues followed by the effective implementation of Government of India marine fishing policy, November 2004, which can enhance the contribution of marine fisheries to the national economy and augment the welfare of vast fishermen community.

4. Formulate management practices for sustainable marine fish production.

5. Both the governments must put more efforts to create awareness among fishermen to reduce juvenile fishing in marine fisheries to increase the share of marine fish harvest.

CONCLUSION

Fish and Fisheries is an important sector in most of the developing and developed countries of the world from the stand point of income and employment generation. The oceans cover about 70 percent of the planet’s surface, and they are a source of health and wealth for millions of people around the world. In addition to producing nutritious food, the oceans and coastal areas provide many socio-economic benefits in terms of employment, recreation and commerce as well as other crucial goods and services. More than ten percent of the world’s population depends on fisheries for their livelihoods and wellbeing.

The role of fisheries in Indian economy is gaining momentum as a result of introduction of advanced techniques to increases the yield per unit area of water and due to its role in earning foreign exchange. Fisheries has become an important sector for India with: (i) the potential to contribute not less than 4.75% to its Gross Domestic Product (GDP); (ii) the potential to be a source of substantially increased realized exports earning growth; (iii) the potential to substantially enhance protein consumption, notably for the poorer segments of the population, and (iv) the potential for continuing growth of personal income from small and medium size fisheries, benefiting if employment in value added activities from upstream and downstream linkages and dependents.

The marine fisheries sector in India has registered a phenomenal growth during the last five decades both quantitatively and qualitatively. Marine fisheries are sunrise sector of our country. At present it emerged as an important commercial activity from its tradition role as subsistence supplementary activity of large number of coastal population.
REFERENCES

2. Fishing in India : from Wikipedia, the Free Encyclopedia.
3. GOI, Karnataka State Gazetteer Part- I Government of Karnataka Publication 1982 P-743
15. From Wikipedia, the Free Encyclopaedia, Kanara.
18. India-An Ocean of Opportunities- The Marine Products Export Development Authority(MPEDA) (GOI)