CHAPTER 3
PROLIFERATION OF TRAWLERS IN KERALA FISHERY

The significant events in the evolution of the trawl fishery were discussed in chapter two. In the present chapter the proliferation of the number of trawlers from 1980 to 2009 (30 years) is dealt with. The re-registration of all fishing crafts including the mechanized vessels is taking place in Kerala as per the central Marine Fisheries Regulation Act 2009 (CMFRA, 2009), the data for 30 years i.e, from 1980 to 2009 have been collected from the maritime district fisheries offices, where the registrations of the trawlers have been taking place from January 2005 onwards. Prior to 2005, the registrations of the trawlers in Kerala were done by Marine Products Export Development Authority (MPEDA), Kollam Port office, Cochin Port office and Alappuzha port office. Thus the data of the registration of trawlers have been collected from the afore mentioned sources.

The trawl fishery on an industrial footing was introduced by mid sixties (Government of Kerala, 1980). The establishment of export market for shrimp and its accelerated expansion triggered for the exploration of new shrimp fishery grounds in Kerala and thus giving a boost to progressive addition of mechanized vessels especially the popularization of bottom trawling. As trawl fishing proved to be very efficient in the exploration of shrimps and fetched high returns when compared to investment, the proliferation of these units were noticed during the seventies and the eighties as a result of heavy investment made by the investors from different walks of life in the field of fisheries (Expert committee, 2007). This led to the development of this sector in a tremendous way.

The year 1980 was a year of modernization in Kerala Fishery (Government of Kerala, 1982). Modernization of the traditional crafts using outboard engines started in 1980 in Kerala which facilitated growth of the vessels in fishery. Along the same year a new type of fishing gear called the ring seine was introduced to the fishery sector to harvest the pelagic shoaling fishes (Government of Kerala, 1986). The Kerala Marine Fisheries Regulation Act (KMFRA) came into existence in the year 1980 based on the recommendations of the Manjumdar Commission appointed by the
government of India (Government of Kerala, 1981). As mentioned in chapter two, section 2.7, this Act empowers for regulation, restriction and prohibition of fishing within specified areas, using specified crafts and gear, demarcation of fishing grounds for mechanized and non-mechanized fishing sectors of Kerala (KMFRA, 1981). Modernization in trawl fishery too took place from 1980 onwards. Improvement in size, endurance, installed engine power, winch capacities of mechanized trawls enabled multiday fishing since mid 1980s (Report of the Expert Committee, 2007). Adoption of modern technologies such as echo sounder and GPS in a wider scale took place over the last two decades. The Government of Kerala since 1980s started constituting expert committees to study the fisheries sector from time to time. (Government of Kerala, 1986). Thus in the history of Kerala fishery, the year 1980 has a special space. We have chosen the year 1980, as the starting year of collecting the secondary data because of the reasons mentioned above.

3.2 Total number of Trawlers in Kerala Fishery

According to the estimates by Kurup and Rajasree (2007), during 2001 a total of 4960 trawlers operated in Kerala fishery. The different types included are less than 20 feet (6.1m), 21-30 feet (6.4 – 9.1m), 31-40 feet (9.4 – 12.2m) 41 – 50 feet (12.5 – 15.2 m), 51-60 feet (15.5 – 18.3m) and above 60 feet (18.3m). The 41-50 feet class dominated in number forming 38 per cent of trawlers followed by 31-40 feet class accounting 29.77 per cent. The 21 – 30 feet represented 12 per cent. Large vessels coming under 51-60 feet length represented 12 per cent and above 60 feet, 29 per cent. Trawlers above 61 feet were the most modern vessels in 2001 and they were mainly based in Munambam and suitable enough to conduct multiday deep sea fishing beyond 300 m. Of the total 4960 trawlers by about 50 per cent were based at Kollam followed by Ernakulam and Kozhikode with 31.25 per cent and 11.29 per cent respectively and 4.03 per cent were based at Malappuram. The percentage representation of Kannur, Alappuzha, Thiruvananthapuram, Thrissur and Kasargode were very small (CMFRI, 2007).

According to the Marine Census of CMFRI 2005, the number of trawlers in Kerala is 3982. A quick touch and count survey of the anchored and hauled up vessels conducted during the trawl ban period in 2006 by the Project Management Cell Department of Fisheries gives the number of trawlers in the state as 3099, with the
maximum number in Kollam (1150) followed by Ernakulam (951), Kozhikode (639) Kannur (108), Kasargode (105), Malappuram (77) and Thrissur (69) (DOF, 2006). The Marine Statistics (2009) published by the department of fisheries Kerala gives the total number of trawlers as 3982 (Marine Statistics, 2009). In the present study the official data published by the department of fisheries is relied upon and this data matches with the registrations in the book of registrations of MPEDA, Kollam Port Office, Alappuzha Port Office, Cochin Port Office, Regional Fisheries Offices of Kollam, Ernakulam and Kozhikode and the fisheries offices of the concerned districts.

3.3 Growth in the Number of Trawlers in Kerala Fishery Since 1980

As mentioned in section 3.2, modernization on a vast scale took place in the trawl fishery from 1980 onwards. The wooden vessels slowly gave way to new steel vessels made in the different boat building yards in Kerala. According to the census of the mechanized fishing boats in Kerala, there were 2961 boats of various types using different gears (ring seine, purse seine and trawl net) in Kerala by 1982 and private boat building yard constructed a major part of boats. (Government of Kerala, 1980). This information when juxtaposed with the availability of marine diesel engine drives home the reality that trawlers of any size could be manufactured by private boat builders in Kerala in the eighties. From the unofficial information received from the pioneer trawler owners in Neendakara – Shakthikulangara who got trained from the INP that majority of the old wooden vessels of 22-32 feet from the Neendakara – Shakthikulangara belt were sold out to the fishermen investors from other states especially from Kanyakumari and Thuthukudi in Tamil Nadu and the investors from Mangalore. With the advent of the decade 1980, the investors both fishermen and others started to buy new trawlers with modern equipments thereby enabling themselves for modernization (Report, Expert Committee, 2007).

The registration of trawlers from 1980 onwards is set forth in table 3.1. The number of trawlers registered in 1980 is 34. Only the two maritime districts of Kollam and Ernakulam had new registrations.
Table 3.1

Growth of Trawlers in Kerala from 1980 to 2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (KL)</th>
<th>TVM</th>
<th>KLM</th>
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<th>MLP</th>
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<td>11</td>
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</table>

Source: Unpublished data from MPEDA and Fisheries Offices of all maritime districts (2010)


In 1981, the number of registrations in the districts of Kollam and Ernakulam were just one each and the district of Kozhikode had 11 new registrations. In 1982, 17 trawlers were registered and two fishermen owners from Thiruvananthapuram for the first time bought two trawlers and registered them in the port office of Kollam (Government of Kerala, 1983). New registrations were taking place year after year adding to the size of the fleet of trawlers in Kerala. Figure 3.1 explains the trend of the growth of trawlers in Kerala. The number of registrations varies from year to year. During the year 1998 comparatively high registrations (309) were noticed and the contribution is mainly made by Ernakulam, Kozhikode and Malappuram districts and particularly by the contribution made by the registrations in Ernakulam district. This is due to the fact that, attracted by the catch of haul pink prawns; new investors came
forward to invest in trawl fishery in Munambam (Nandakumar G, 1999). During the same period, multiday or stay over fishing took place and modern vessels above 61 feet were introduced in Kerala Fishery. This was also started by the investors in Munambam. The investors in Neendakara – Shakthikulangara copied the same in the later years particularly in the year 2003. The All Kerala Registrations went up to 408 in the year 2003 which is mainly contributed by Kollam and Kozhikode districts. During the years 2007, 2008 and 2009 the registrations were comparatively high in Neendakara – Shakthikulangara, since by then new trawlers were acquired by the investors in Neendakara - Shakthikulangara. This trend is depicted in figure 3.1

**Figure 3.1**

**Growth of Trawlers in Kerala**

Source: MPDEA and Fisheries offices of Maritime Districts (2010).

The figure 3.1 explains the trend of the growth of trawlers in Kerala fishery. The trend line fitted through the growth curve of trawlers shows that there is increase in the number of trawlers in Kerala. The trend line in general shows an upward trend. From the year 1998, there is fluctuations in the growth of trawlers. A peak is experienced in registrations in the year 1998 and in the next year a fall is recorded in registrations. This increase is mainly contributed by Ernakulam district. The same
trend of the year 1999 is repeated in the year 2003 and immediately after that a fall in registrations is recorded. Now this is contributed by Kollam district and thereafter the all Kerala registrations are mainly contributed by Kollam district. The reasons for the fluctuations as explained by the executives of the Deep Sea Boat Operators’ Associations and the experts are as follows; (a) Investment cannot take place continuously, naturally there can be fluctuations. (b) Investment in new vessels are made depending on the catch and profit that the owners get during the previous years. (c) Increased availability of Haul Pink Prawns and Tiger Prawns and other high valued species during the years 1998 and 2002. (d) Movement of Prawn beds from one place to another which causes abundance of resources in certain areas during different seasons. Thus, the investments in trawlers are likely to be high in those areas where the harvest is high. According to the registrations there are 4225 trawlers in the year 2010 in Kerala. While counter checking the number of trawlers in operation in Kerala, with the All Kerala Deep Sea Boat Operators Associations that 243 trawler boats are not in active operation. Thus the number (3982) matches with the statistics of trawlers provided by the department of fisheries of Kerala (2009).

3.4 District wise Growth rate of Trawlers during the period from 1980 – 2009

An analysis of growth of trawlers from 1980-2009 is done by using the following equation\textsuperscript{13}.

\begin{equation}
    y = ab^t e^t \quad \ldots \ldots \ldots (1)
\end{equation}

\( y \) = The dependent variable for which growth rate was estimated
\( a \) = Intercept
\( b \) = regression co-efficient
\( t \) = Time variable
\( e \) = error term

The compound growth rate was obtained for the logarithmic form of the equation (i) is given below.

\textsuperscript{13} The equation used here is in the exponential growth function.
In \( y = Lna + Lnb \) …………… (2)

The compound growth rate \( (r) \) was computed by using the relationship;

\[ R = (\text{Antilog of } b - 1) \times 100 \] …………….. (3)

The compound growth rates were tested for their significance by the statistics given by

\[ t = \frac{r}{\text{SE} (r)} \] ………. (4)

Where \( \text{SE} (r) = \left[ 100 \cdot b \times \text{SE} (\text{Lnb}) \right] \cdot \text{Lne} \) ………. (5)

\((\text{SE} = \text{Standard Error})\)

**Table 3.2**

**Compound Annual Growth Rate of Trawlers From 1980 – 2009**

<table>
<thead>
<tr>
<th>District</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
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<td>-.05</td>
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<tr>
<td>Kollam</td>
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<td>Alappuzha</td>
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<tr>
<td>Kasargode</td>
<td>.28</td>
</tr>
<tr>
<td>Kerala</td>
<td>8.91</td>
</tr>
</tbody>
</table>

Source: Computed from the data obtained from MPEDA and Fisheries Offices of the Maritime Districts (2010).
The table 3.2 reveals that out of the nine maritime districts only two districts (Thiruvananthapuram and Alappuzha) have negative growth rate of trawlers. Kollam district has the highest growth rate followed by Ernakulam and Kozhikode. These districts have positive growth rate of trawlers due to the fact that they have well developed harbours and landing centres. The inspiration from the INP trained fisherman in Kollam and Ernakulam could be one of the reasons of more trawlers entering into the business of trawl fishing. It is to be noted here that all the trawlers operating in a particular district are not owned by the natives of the place.

3.5 Decadal Growth of Trawlers in Kerala

The entire study period from 1980 to 2009 is divided into three decades; 1980 to 1990, 1990 to 2000 and 2001 to 2009. Figure 3.2 gives information about the decadal growth of trawlers in Kerala fishery.

**Figure 3.2**

Decadal Growth of Trawlers in Kerala Fishery (%)

Source: Computed from the data obtained from Directorate of Fisheries 2010

Figure 3.2 puts forth that the decade 2001-2009 has more growth of trawlers relative to other two decades (1980- 1990 and 1990-2000). The reason for such a
growth is the wide spread of investment in modern trawlers during the decade 2001-2009. It implies that investors were interested in acquiring most modern vessels with all high tech facilities during the decade 2001-2009.

3.6 Proliferation of the Number of Trawlers across the Maritime Districts of Kerala.

Since the growth rate of trawlers in the districts of Thiruvananthapuram and Alappuzha portrayed negative growth rate, these two districts are excluded from the analysis given below.

3.6.1 Growth of Trawlers in the District of Kollam

Throughout the 590 k.m Kerala coast starting with Bengara Manjeswar in Kasargode district in the north, there are nine maritime districts bordering the Arabian Sea. The district of Kollam is the most privileged among them as far as the industry of trawl fishery is concerned. Neendakara port is the pride of the place. The trawlers got introduced into the Kerala fishery through the INP (1953) at the twin villages of Shakthikulangara and Neendakara which fueled the engine of growth of trawlers in the district of Kollam (Achari, 1959). The total number of trawlers in operation in the district of Kollam during the study period (2010 – 2011) is 1222 (Hand book, Fisheries Office Neendakara, 2010). The trend of the growth of trawlers in Kollam is diagrammatically represented in the figure 3.3.
In section 3.4 it was found out that the district of Kollam has the highest growth rate of trawlers from 1980 to 2009. The trend line in figure 3.3 shows an upward movement in general. Though there are fluctuations in the curve the general movement is upward. The growth rate estimated is 4.34. The number of trawlers registered in the year 2009 is 220. As per the Marine Fisheries Statistics (2009), 30.68 per cent of the total number of fleet in Kerala is based in Kollam (Marine Statistics 2009). During the years 2003 and 2008 high registrations are recorded which is already explained in section 3.3.
3.6.2 Growth of Trawlers in Ernakulam District

Ernakulam, the commercial capital of Kerala, occupies a pride of place in the trawler fishery. Of the 590 km coastal area of the state, Ernakulam shares 46 km (Fisheries Hand Book, Ernakulam District, 2009). There are 1403 trawlers operating in the coastal waters of Ernakulam district (Kerala Marine Fisheries Statistics, 2009). Ernakulam occupies second place in the growth of trawlers in Kerala. The growth rate as estimated in the previous section is 2.42. In Ernakulam there are two main harbours and a trawl landing centre. The Cochin harbour, Munambam harbour and the Kalamukku landing centre.

Figure 3.4 gives us the trend of the growth of trawlers in Ernakulam District from 1980 to 2009. The number of trawlers registered has increased. By 2009, the total number of trawlers operating in Ernakulam district reached to 1403. The trawlers operating from Munambam is 770 (Fisheries Handbook, 2009).

Figure 3.4  
The growth of Trawlers in Ernakulam

Source: Directorate of Fisheries 2010.

The trend line fitted through the curve shows an increasing trend. The investment in trawlers have increased due to the attraction of the increased availability of haul pink prawns in the Kerala Coast (Nandakumar, 1999). Figure 3.4 substantiates
the findings of CMFRI that though there are wide fluctuations in the registrations of the number of trawlers in Ernakulam district after 1996 the trend is positive than the previous years. It is also opined by the experts and the Veteran members of the boat owners associations that the number of trawlers has increased in 1995 due to the increased availability of the high valued species especially the Haul Pink prawns and Tiger Prawns. In the year 1998, the largest number of trawlers registered in Ernakulam (221). The overall growth rate is positive in general and the estimated growth rate for Ernakulam district is 2.42.

3.6.3 Growth in the Number of Trawlers in Thrissur

Thrissur has its own unique place in the history of Kerala fishery. The district shares a coast line of 54 km (fisheries handbook, Ernakulam Regional Office 2009). The Azhikode fishing division was inaugurated on 26th October 1957 by the then minister for Education and fisheries, Shri. Joseph Mundasseri. It was the first of its kind to be established outside the INP fold (besides Neendakara and Cochin) (Government of Kerala, 1980). The harbour in Munambam is a pride of Thrissur district too because majority of the trawlers from Thrissur land in Munambam harbour (Report Port Office, Munambam, 2007). In the fish landing centre Chettuva, a harbour is proposed to be constructed by the year 2015.

As per the Kerala Marine Fisheries Statistics (2009), the number of trawlers operating in Thrissur district is 47. The growth of trawlers from 1980 to 2009 is presented in table 3.1. As per the book of registrations, the total number of trawlers registered is 150. While counter checking the number with the members of the Deep Sea Boat owners Associations at Azhikode, Chettuva, Munambam and Chavakad the information received is that nearly 100 trawlers of the size 32 – 40 feet were sold out to the fishermen owners from Mangalore and seven trawlers from Thrissur district are operating and landing in Mangalore. Thus the number of trawlers in the district of Thrissur according to the Marine census 2009 matches with the number of trawlers operating from Thrissur. The trawlers operating from the coastal waters of Thrissur District fall in the category of 48-52 footers.
The number of trawlers has proliferated in Thrissur, though the increase is not that very significant. In the year 1983, 11 trawlers were registered in Thrissur. Thereafter the number of trawlers increased.

**Figure 3.5**

**Growth of Trawlers in Thrissur**

![Graph showing the growth of trawlers in Thrissur](image)

Source: Directorate of Fisheries 2010.

The trend line fitted through the growth curve of trawlers shows an increasing trend. The growth of trawlers during the years 1983, 1989, 2001 and 2003 are relatively higher than other years. The highest number of registrations took place in the year 2001. It implies that investment in trawlers in Thrissur has variations. This is owing to the reason that movement of prawn beds and other resources from one place to another and the investors face variations in catch. It is opined by the key informants that after the abundance in catch, the investment is likely to increase.

### 3.6.4 Growth of Trawlers in Malappuram

Malappuram is one of the northern maritime districts of Kerala. The most important fishing centre of the district is Ponnani which was established into the present status in March 1960 (Government of Kerala, 1980). The deputy director of fisheries had the additional charge of administering the centre. Three 25 feet boats equipped with 10 hp engines were issued to train fishermen in March 1960.
(Government of Kerala, 1961). The fishermen operated the boats from Cochin base. The boats allotted to this centre by the department of fisheries preferred to operate from Cochin and Azhikode as bar mouth was too shallow to permit free movement as well as for the lack of marketing facilities in Ponnani (Government of Kerala, 1961). New fishing centres at Malappuram, Tellicherry, Baliapattanam, Quilandy, Badagara, Thalayi and Pazhayangadi etc were also organized in the year 1960 (Government of Kerala, 1965). On account of the continuous movement of the prawn beds from one place to another, the boats had to migrate and depend mainly on the pioneering centres like Neendakara, Cochin and Azhikode (Government of Kerala, 1960). The fisheries department made four fishery divisions in the year 1970-71 and they are (1) Kannur (2) Kozhikode (3) Ernakulam and (4) Kollam. The Kozhikode division was spread over the three districts of Malappuram, Thriussur and Kozhikode.

As the number of fishing centres increased, trawler boats also started increasing in the district of Malappuram. In 1980 as per the record of book of registrations there were no new registrations. In 1982 there were five registrations. From 1987 onwards the number of registration started to increase though there are fluctuations in the registrations. Growth of trawlers in the district of Malappuram is given in table 3.1. The highest registration took place in the year 1998. The figure 3.6 narrates the growth of trawlers in the district of Malappuram.
Figure 3.6
Growth of Trawlers in Malappuram

![Graph showing the growth of trawlers in Malappuram from 1980 to 2009.](image)

Source: Directorate of Fisheries 2010.

Figure 3.6 explains the growth of trawlers in Malappuram from 1980 to 2009. The trend line fitted through the curve shows that there is an increasing trend in the number of trawlers from 1980 to 2009. It is to be noted that during the year 2006 no registration is done in Malappuram District. In general the number of trawlers has increased in the District of Malappuram.

3.6.5 Growth of Trawlers in Kozhikode

Kozhikode is an important northern coastal district of Kerala. The fishing ground of Kozhikode lies between 11° north and 11°45 south. The trawl nets being operated at 40 to 60 depth range where the bottom is muddy. The peak season for species of trawl fishery is from January to August in Kozhikode (Sarada, 2002). Generally trawling is carried out throughout the year except during south west monsoon (June to August). It is observed that most of the fishermen in Malabar Coast are semi-literate but when it comes to handling gadgets and devices of mechanized
trawlers they have a natural flair. Trawl boats in this part of the world are equipped with the latest fish finding equipment (Sagar, 2012).

The coast of Kozhikode has 71 km length (Hand book, Regional fisheries office, Kozhikode 2009). Out of the 1034 mechanised boats operating in Kozhikode 663 are trawlers. Of the total trawlers operating in Kerala coastal waters, 16.64 per cent are in Kozhikode district (Marine Fisheries census, 2009). The growth of trawlers from 1980 onward is presented in table 3.1. Though there are ups and downs in the increase in the number of trawlers the growth rate as estimated is positive (1.64). During the year 2003 more registrations are made in Kozhikode district. Figure 3.7 shows the trend in the growth of trawlers in Kozhikode district.

**Figure 3.7**

**Growth of Trawlers in Kozhikode**

![Growth of Trawlers in Kozhikode](image)

Source: Directorate of Fisheries 2010

The line fitted through the growth curve reveals that there is increase in the overall trend of the growth of trawlers from 1980 onwards. The highest number of registrations took place in the year 2003 in Kozhikode district.
3.6.6 Growth of Trawlers in Kannur District

Kannur has a coastal length of 82 km (Handbook fisheries office Kannur 2009). The total number of trawlers operating in Kannur district is 208. Out of the 226 mechanised boats only five of them have ring seine and 11 use purse seines. There are nine boat yards in the district of Kannur (Government of Kerala, 2004). The growth of trawlers in the district of Kannur is given in table 3.1. From the year 1984 onwards there is increase in the number of registrations. It is opined by the key informants that the majority of the trawlers landing in Mappila Bay have their registrations outside the state of Kerala like Mangalore port in Karnataka. It is to be noted here that 92 trawlers operating in Kannur have no registration at all. Inspite of the active involvement of the Department of Marine Enforcement and Vigilance, trawlers operate in the coastal waters of Kerala without proper registration. The actual number operating in Kannur is 208. As per registrations, there are only 116 trawlers (Fisheries Office Kannur, 2009). Figure 3.8 shows the trend of the growth of trawlers in Kannur district.

Figure 3.8

Growth of Trawlers in Kannur

Source: Fisheries Office Kannur, 2009
The figure 3.8 puts forth the overall trend. The growth rate as estimated for trawlers in Kannur district is 0.17. There are fluctuations in the growth curve. The trend line fitted shows a positive trend. From 1980 to 2009 the number of trawlers operating in the district have increased though the growth rate is insignificant compared to the other maritime districts of Kerala. In the year 1999 relatively higher registrations have taken place in Kannur. It is because of the wide spread application of the modernisation in trawl fishery.

3.6.7 The Growth of Trawlers in Kasargode District

Kasargode, the northern most district in Kerala has a coastal line of 70 km extending from Thrikaripur to Bengaramanjeshwaram. There are twelve west flowing rivers and 3174 backwater areas in the district of Kasargode (Anon 2001).

As per the registrations the number of trawlers from Kasargode district is 194. In table 3.1, the year wise registration of trawlers is given. In the years 1980 and 1981 there were no registrations in the district of Kasargode. After 1983, there is a continuous registration upto 2009 except in 2001 but the number of registrations is very few and not more than 13 registrations in any way. As opined by the key informants and members of the Deep Sea Boat owners Associations in Kannur\(^{14}\) district, there are trawlers operating in Kasargode district without proper registration and renewal of license. There are also trawlers landing in Mangalore harbour. Proper registrations and checking of the registration and periodic renewal are necessary especially in the northern districts of Kerala.

Figure 3.9 presents the trend of the growth of trawlers in Kasargode district.

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\(^{14}\) In the district of Kasargode, there does not exist a Deep Sea Boat Owners Association. The boat owners of the district are members of the Deep Sea Boat Operators ‘ Association of Kannur.
The trend line fitted through the growth curve shows a positive trend. There are fluctuations in the growth curve. The estimated growth rate of the trawlers in Kasargode District is 0.28. This reveals that the proliferation is not as significant as compared to the districts of Kollam and Ernakulam.

From the present analysis it can be concluded that the number of trawlers has increased in each maritime district from the position in 1980s to the year 2009. The effective implementation of KMFRA is necessary for the control of the trawlers in Kerala fishery. The growth rate of trawlers in Kerala is estimated to be 8.91 from 1980 to 2009. It is imperative that the fishing capacity is reduced to an optimum level for the economic viability or long term sustainability of the trawler fishery of Kerala. The Government coming into power one after the other in Kerala, through the department of fisheries should endeavour to bring down the fleet size to optimum levels over a specified period of time schedule, deregistering and decommissioning vessels more than fifteen years old and by not permitting new additions for a few years.
3.6.8 Comparative Analysis of Districts

The growth of trawlers has taken place in all maritime districts except the districts of Thiruvananthapuram and Alappuzha. Table 3.1 informs that the contribution to the proliferation of trawlers in Kerala Fishery is mainly made by Kollam, Ernakulam and Kozhikode districts. All other maritime districts have below one per cent of compound annual growth rate. Districts of Kollam, Ernakulam and Kozhikode are blessed with the presence of harbours with international amenities. In Kollam and Ernakulam highly experienced and INP trained fishermen households have invested in the business of trawl fishing. Attracted by their sound economic conditions and good standard of living, other investors were also interested to invest in trawl fishing business.

3.7 Excess Fishing Capacity

At this juncture it is appropriate to have a discussion on the excess capacity of the fleet size in the trawler fishery in Kerala. Fishing capacity is the ability of a stock of inputs used in fisheries to produce output measured as either effort or catch over a period of time (FAO, 1998; 1999a, 2000 and 2001). Overfishing or over capacity may be defined as the capacity in excess of the desired stock of inputs that will produce a desired level of output and will achieve the objectives of a fishery management plan (FAO, 1999). Excess fishing capacity affects long term economic sustainability of fishing as a method of food production, the long term sustainability of resource bio diversity and environment (FAO, 1995).

FAO (1986), warns that excess fishing capacity threatens the world’s fishery resources and thus their ability to provide sustainable catches and benefits to the fishermen and consumers. It also recommended that the government should prevent overfishing and excess capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources (FAO, 1995). Excess capacity in general stems under free and open access fishery. Inspite of the existence of KMFRA (1980), the Kerala fishery is considered as an open access fishery wherein trawlers enter and exit as and when the owners desire.

Several attempts have been made to estimate the optimum fleet size of trawlers for harvesting marine fishery resources in Kerala. Kalawar Committee (1985)
recommended a fleet size of 1147 for mechanized trawlers (Report of the Expert Committee, 1985). Estimates of Kurup and Devaraj (2000) consisting of 2690 trawlers to catch the maximum sustainable yield (Kurup and Devaraj 2000). As per the Kalawar Committee estimation, to analyse the fleet size of the present number of trawlers i.e., 3982 (Kerala Marine Fisheries statistics, 2000) which is 2.5 times more than the recommended fleet size. The difference from the optimum is 2837 (Expert Committee, 2007). As per Kurup and Devaraj (2000), the excess capacity of trawlers in Kerala fishery is 1042. Both estimates confirm that there is proliferation in the number of trawlers in Kerala fishery.

3.8 Factors behind the Proliferation of the Trawlers

Experts selected as key informants from academicians working in the field of fisheries, members of the trawl boat owners, government officials, NGOs and members of the crew of trawl boats through a semi structured interview expressed the reasons behind the proliferation of the trawl boats in Kerala and thus the reasons were formulated. The reasons thus formulated can be short listed as follows.

- Lucrative returns to capital especially in the initial stages owing to steep rise in the price of fish (1980 to 1990).
- Availability of institutional credit on liberal terms along with large amounts of subsidies and more financial institutions coming forward to finance the trawler owners. Eg: Loans issued by co-operative societies to the boat owners.
- Development of harbours in all maritime districts and more shore based facilities from the 70s onwards.
- High demand for fish even in the domestic markets from the 1990s onwards.
- Continuously expanding and diversifying export market for marine fish products.
- The presence of money lenders in each district ready to issue loans without proper security.
- The possibility of increased employment generation.
- To overcome the negative profit in the existing vessel, an attempt is made to acquire modern vessel with all technical advancement.
- Process of registration and licensing is rather easy.
- It is considered as a prestige to own a trawl boat among the fishermen.
- Application of the demonstration effect.
Availability of fishery equipment and requisites on subsidized rate.

Replacement of the existing boats keeping the same registration or the registrations of the old boats is not cancelled.

The old boats are sold out or exchanged without the permission of the department.

The Kerala Marine Fisheries Regulation Act (1980) is not implemented well in giving license and proper monitoring is not done by the department of fisheries.

The size and composition of the boat is expanded without the prior permission and proper monitoring is not done by the department of fisheries.

The old boats are sold out or exchanged without the permission of the department.

No checking on the increase in the number of boats.

Inspite of the active involvement of the Marine Enforcement and vigilance (MEV) in Kerala, malpractices are taking place in the case of registration, licensing and selling of boats.

Kerala fishery inspite of the existence of KMFRA (1980) is considered as an open access fishery wherein trawlers enter and exit.

Lack of proper checking of license and renewal of license.

3.9 Summary

In Kerala fishery, the year 1980 is a year of modernization. The introduction of the new gear called ring seine and modernization of the traditional crafts took place in the same year. The KMFRA came into existence along the same year. In trawler fishery modernization such as improvement in the size of the boat, increase in the engine power, fuel capacity etc, started during the same year. New technological adoptions like echo-sounder and GPS (global positioning system) in a wider scale were introduced along the same year and the government of Kerala started constituting expert committees to study the fisheries sector from to time.

The chapter touched upon the proliferation of the number of trawlers in Kerala fishery. Except the two maritime districts of Thiruvananthapuram and Alappuzha, all the districts have positive growth rate with Kollam having the highest growth rate followed by Ernakulam and Kozhikode. The all Kerala growth rate is 8.91 from 1980-2009.

The all Kerala analysis of the growth of trawlers shows that there is proliferation in the number of trawlers operating in Kerala from 1980-2009. The
district wise analysis depicts that three districts namely, Kollam, Ernakulam and Kozhikode have mainly contributed to the growth of trawlers in Kerala. In the year 1998, comparatively higher registration of trawlers is observed in Kerala and it is mainly due to the increase in the number of trawlers in the district of Ernakulam and Kozhikode. In the years 2003, 2008 and 2009 the district wise highest contribution is made by Kollam district.

The excess fishing capacity in trawler fishery is 2.5 times more than the recommended fleet size in Kerala.

The reasons for the proliferation of trawlers as found by the study would be summarised as, the lucrative returns to capital experienced from 1980 to 1990, the presence of money lenders ready to issue loans without proper security, availability of institutional credit on liberal terms, expanding and diversifying export market for marine fish products, to overcome the negative profit in the existing vessel, modern vessels with all technical advancement are bought and application of demonstration effect.

Having analyzed the growth of trawlers in Kerala fishing industry, it is worthwhile to look into the general profile of the boat owners of survey areas of Neendakara – Shakthikulangara belt of Kollam District and Munambam of Ernakulam district in the next chapter.