RESULTS AND DISCUSSION
4.0 RESULTS AND DISCUSSION

Ramanathapuram district consists of 180 Marine fishing villages. Thiruvadanai is one of the Taluk Headquarters of Ramanathapuram District, Tamil Nadu, India. It consists of 98 Revenue villages of which 22 are fishery villages (Table - 1). The total population in Thiruvadanai taluk was recorded as 2,12,029. Of this, about 103,810 people are living in the urban area and about 1,08,219 are living in rural areas. More than 50% (151,921) of the population in this Taluk were literates of which males were 83,492 and females were 68,429. The working populations in the Taluk of Thiruvadanai were recorded as 99,155 of which 63,545 were males and 35,610 were females. Besides out of total working population, 71,604 were regular and 27,551 were irregular since, 27,551 were got job only for few days in a month. The unemployed population (112,874) includes students, house wives and children above 6 years including adults (Census Report, 2011). The fishery villages in this Taluk were located on the Palk Bay coast which lies is the middle portion of the coast between Nagapattinam and Rameswaram, almost closed, with two openings, one on the north into Bay of Bengal (PB) and another in the south into Gulf of Mannar (GOM). The water in this region is calm, quiet, and shallow, like a sprawling lake, divided by an International Boundary Line (IBL) between India and Sri Lanka.

The present investigation on the assessment of the Socio-economic status of traditional fishermen and Fishery resources were carried out in ten selected fishing villages chosen from 22 villages of Thiruvadanai Taluk namely, S.P.Pattinam, Pasipattinam, M.R.Pattinam, Thondi, P.V.Pattinam, Nambuthalai, Lanjiyadi, M.V.Pattinam @ Soliyakudi, Karankadu and Morepannai in the Palk Bay cost, Bay of Bengal along the southeast coast of India (Table - 1). In addition these, fish landing data have also been collected from Pasipattinam and M.V.Pattinam @ Soliyakudi for the period of one year (2012 - 2013). The labour participation of the marine fishermen is being influenced by many socio-demographic factors like age, literacy, religion, caste, housing condition, sanitation, health, social habits,
occupation, and availability of crafts and gears, income, expenditure, savings, investments
and indebtedness. Conversely, the socio-demographic characteristics determine the level of
the fishing activities too. The data on all the above aspects have been collected for two
consecutive years such as, April 2012 to March 2013 and April 2013 to March 2014.
4.1. SOCIO- ECONOMIC STATUS AND FISHERY RESOURCES OF S.P.PATTINAM

4.1.1. Description and of the fishing village

S.P.Pattinam @ Sundarapandiypattinam is a hamlet under the jurisdiction of Marungur Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate - 1) and located at 58 Km North to Ramanathapuram.

4.1.2. Common Facilities available in the village

This village has Panchayat Union Primary School, Anganvadi, Health Sub Centre, Post Office, Sea shore light facility and Ration Shop. However, the essential facilities like Banks, Auction hall, Net making shed, Fish drying platform, Cyclone shelter, Diesel bunk, Electricity board office, and Ice plant and Railway station were not available in this village. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities which are essential for the fishery activities and its impact on the socio-economic condition of the fishermen population. The results of present study were in close agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj, (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.1.3. Socio-economic Status of the Fishermen population

4.1.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 242 & 237 from 112 families and 256 & 248 from 119 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (25) was noticed during the period of 2013 - 2014 (479) than in 2012 - 2013 (504), and the average family size was recorded as 4.3 and 4.2 during the years 2012-2013 and 2013-2014 respectively. The data obtained were also indicated that, male members were more when compared to female members (Table - 2 and Figure-1).
Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21-40 years were more (184) and followed by 0-20 (164), 41-60 (107) and above 60 years (24) were recorded during the year 2012-2013. It has been inferred that, 61% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Whereas, during year 2013 – 2014, the individuals in the age group 21-40 were more (191) which was followed by 0-20 (164), 41-60 (126), and above 60 years (23). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 62%. (Table - 3 and Figure - 2).

In S.P.Pattinam, among the adults, the number of male individuals (176 & 186) was slightly more when compared to females (173 & 180). Mostly, the male adults were getting involved in the fishing and allied activities whereas, female adults were mostly engaged in household management and they were not involved regularly in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 61%, the improvement in the economic status of the fishermen population was not noticed in the present study, this may probably be due to lack of basic essential facilities in the village for fishery activities. The results were corroborated with the reports of Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.1.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, all the fishermen in this village were belonging to Muslim religion and backward community (Table – 154,173). Mostly Muslims alone were getting involved in the fishery activities in this village and hence the problems between the fishermen community were very lesser and further, they work co-operatively in their task.
4.1.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (242), only 13% of males have obtained Biometric card, whereas, out of total male and females (479), only 57% and 31% of the individuals have obtained EPIC card and FSM cards respectively. Likewise, out of total number of families (112), all the families were possessing family card besides, 78 (70%) and 72 (64%) families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (13% to 34%) besides, other identity cards, were not yet issued to the newly added families and individuals of this village (Tables – 4,5 and Figure - 3).

As per the data observed the awareness among the fishermen with regard to utility of Biometric card, Tamil Nadu Fishermen Welfare Board (TNFWB) card and Fishermen society membership card have been observed as very low during the study period which indicated their less interest towards fishery activities as well as they failed to utilize the financial assistance provided by the society which leads to the failure in the improvement of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.1.3.4. Residential status of fisherfolk population

A total of 112 houses were recorded during the year 2012 - 2013, whereas, the numbers of houses were found to increase from 112 to 119 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen.
During the year 2012 - 2013, it was observed that, out of the 112 respondent families, 85% families have got own houses. Out of own houses, 35% houses were constructed by the Central and State Government (both free houses and Tsunami houses). Out of the total number of 112, houses the titled houses, concrete houses, thatched houses and liter roofed houses were recorded as 56%, 39%, 4% and 1% respectively. Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (6%) whereas, about 62% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 32% have two rooms (a living room and a bed room). Besides, 69 fishermen families (62%) were living in houses with three rooms, of which 33 houses (48%) were built under Government Schemes. Similarly, 82% of the respondents have got own house in the year 2013 - 2014. Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 6). There were no remarkable variations in the data recorded during the study periods (2013-2014 and 2012 – 2013) except increase in the number of concrete houses (from 44 to 49), titled (from 63 to 65) and also the houses with two rooms (from 36 to 43) (Table - 6 and Figure - 4).

Above 80% of the fisherfolk population have own houses in this fishing village. Only 6% per cent of them have found to possess more than three rooms in their houses, whereas, 62% of families were living in houses with three rooms. In recent years, under the housing schemes provided by State and Central Governments, houses with three rooms have been constructed for fisherfoks. Though, majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their poor economic status. This condition has been reported in many parts of our country by many workers and observations of the present study were corroborating with the reports of Panikkar and Alagarraja, (1981); Rahman, (1993), Thomson et al., (1993), and Seenivasan and Ramadas (2014).
4.1.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified during the years, 2012 - 2013 and 2013 - 2014 (Table - 7). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 112 houses, 44 (39 %) were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table - 7). Besides, the recorded have also inferred that, for drinking purpose all the households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu (Table - 7).

Electricity is supposed to be indispensable for modern living and hence, electricity also one of the indicators of the level of economic status of the fisherfolks. It is obvious that all the fishermen houses were electrified. Generally a sizable number of households in all the coastal villages of Ramanathapuram district do not have any household toilets. The data collected in the study area during the two years of study period have indicated that, only 39% of houses were provided with toilet facilities, whereas, 61% fishermen families were using common toilet provided by the Government of Tamil Nadu. The open defecation by the fishermen population in the areas nearby their residence forms the basic reason for the spread of infectious diseases among fisherfolk population in turn, which also weakened their economic condition by affecting their health. The results were in close agreement with the reports of Panikkar and Alagarraja, (1981) and Seenivasan and Ramadas (2014).

In the marine sector, even though, the fishing hamlets are provided with protected water supply, the salinity of ground water is very high. The data obtained during the study
periods have indicated that, the percentage of people using well water and bore-well water for drinking purpose was very meager and 88% households were using public water taps provided by the Government of Tamil Nadu in the streets of the village. The presence of basic amenities in the village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994); Narayankumaret et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.1.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 77% of the respondents were literates and remaining were belonging to illiterate (20%) and below 5 years (3%) categories (Table - 8 and Figure - 5). It was observed that the fishermen populations have a positive attitude towards education. Even though, 77% were literates, large numbers of fishery workers were in the lower educational categories (56% of the respondents have studied primary level of education and 25% were studied at middle school level only). H.Sc qualified (5%) and Graduates (2%) were lesser in numbers. But they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table - 9 and Figure - 6).

Education is the level of development in any society. A greater percentage of the fishery workers are either illiterate or educated at primary or middle school level. Even though, 77% were literates, H.Sc qualified (5%) and Graduates (2%) were lesser in numbers and out of 77% about 70% were in the lower educational categories. Thus, the educational status has been observed as very low which forms the major hurdle for improvement of economic status of fisherfolk. Besides, their poor economic condition they could not provide financial support to their child education. The occurrence of similar trend was
reported in other fishery villages of Ramanathapuram District by Hanna King (1989); Narayanakumaret al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.1.3.7. Employment status: Classification of fishermen population based on their Occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 479 fisherfolk in S.P.Pattinam 168 (35%) were employed and 311 (65%) were unemployed. Out of 168 employed individuals 164 (98%) were men and 4 (2%) were women. (Table - 10 and Figure - 7). Among the 168 employed respondents, 88% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 2% were self employed and 5% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table -11 and Figure -8).

As per data recorded, it was clearly evident that, the majority of the fisherfolk family members were unemployed. Moreover majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. Most of the women living in this village were involved only in household works except as fresh fish and dry fish vendors and not in any major fishery activities, hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported in other fishery villages of Ramanathapuram District by King (1989); Narayanakumaret al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.1.3.8. Fisheries and Economic condition of fishermen families

4.1.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of only 16 crafts were recorded in this village. (11 wooden Vallam and 5 motorized FRP Vallam). Only two major types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 84 gears were available, out of which, 76 (90%) were Gill nets and 8 (10%) were Trawl nets (Table - 12 and Figure - 9). The local names of various type of Gill nets and Trawl nets are KumulaValai (Drift Gill Net), Mural Valai (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or IraalValai (Bottom Set Trawl Net), KanavaiThoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 16). Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no much remarkable differences (Table – 12).

The observation revealed that, all the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in close agreement with the similar reports of CMFRI (1985); Sreenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

4.1.3.8.2. Fishery Resources

The commercially important fishes like Mackerel (Kumula) (Rastrelliger spp.), Carangids (Parai) (Carangoides spp., Caranx spp.), Mullet (Madavai or Manali) (Liza spp., Mugil spp.), Sardines (Choodai) (Sardinella spp.), Wolf herrings (Vallai) (Chirocentrus
spp.), Goat fishes (Nagarai) (*Upeneus* spp.), Breams (Villa meen) (*Lethrinus* spp.), Half Beak (Mural) (*Hemiramphus* spp.), Mojarras (Oodagam) (*Gerres* spp.), Silverbellis (Karal) (*Gazza* spp. and *Leiognathus* spp.), Crabs (KadalNandu) (*Portunusspp. Charybdis* spp. and *Scylla* spp.), Prawns (Iraal) (*Penaeus* spp.) and Cuttle fishes and Squids (Kanava) (*Sepia* spp., *Loligo* spp.) were recorded in the landing centre of S.P.Pattinam (Table - 16).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of S.P.Pattinam. The lesser variety of fish catch in SP.Pattinam might probably be due to the non-availability of modern fishing equipments, mechanised boats and essential facilities pertaining to their fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.1.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 112 families, 35 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 54%, 32% and 14% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 13). Regarding investment the data recorded during the year 2012 - 2013 have indicated that, out of 112 families only 35 families have invested on fishing crafts and gears of which, 17% of families have invested less than ₹.25,000/- towards purchase of crafts and gears, whereas, 37%, 32%, and 14% families have invested ₹.25,001 to ₹.50, 000, ₹.50, 001 to ₹.1, 00,000 and above ₹.1lakh respectively. The same status was also observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in the number of families (from 116 to 120).

As no one had invested on mechanized boats, the investment of above 1 lakh on crafts and gears by fisher folk was very low (Table - 13 and Figure - 10).
Based on the data collected, only 31% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Thus, the economic status remains unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman, (1981); Durairaj (1981); Narayanakumaret al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.1.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 112 families 42 (38%) families have received the credit from various sources, among those families, 27 (64%) have obtained loan under the category of up to ₹.25,000. Whereas 9 (21%), 4 (10%) and 2 (5%) families have received the loan amount in the range of ₹.25001 to ₹.50000, of ₹.50001/ to 1 lakh and above 1 lakh respectively. Similar trend was observed during the year 2013 - 2014 (Table – 166,185).

With reference to the data collected during the year 2012 – 2013, out of 42 (38%) families who have received loans, only 2 (5%) families have utilized the credited amount on the purchase of crafts and gears and 21 (50%) families have utilized it for maintenance of crafts and gears and rest of the families (19) spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 14 and Figure - 11).

Fishing families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Out of
42 families who received loan from credit sources only 23 families have utilized it for purchase and maintenance of crafts and gears only and rest of the families have invested for various other purposes. Any valuable step taken by the fishermen families with reference to the improvement of their economic status through investment on the crafts and gears have not been noticed in this village. Lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate of interest 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.1.3.8.5. Earning members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 112 families, 80 (71%), 28 (25%) and 4 (4%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not revealed much difference (Table – 169,188).

Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 4%, 61%, 25%, 6%, 3%, and 1% respectively. As per the data collected only 3% of fishermen families were belong to fifth category (₹1,60,001 to ₹2,00,000), whereas, only 1% were belong to the income category of ₹2,00,001 to ₹2,40,000 but, 61% were belonging to income category of ₹40,001 to ₹80,000. Altogether, the income level or the economic status of the fishermen population of the study area was observed as very low. The percentage of families under higher income group seemed to be low. When compare to the year 2012 – 2013, there was 1% increase in the income groups of
The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 - 2013, it was found that, 4 respondent families (4%) were having three earning members per family. Among the earning members, it was observed that, the Muslim community women were not usually as earning members. Similar status was also observed during the year 2013 – 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers, Sathiadas and Panikkar (1991); and Sivanesan (2014).

4.1.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 91 families (81%) and 91 (76%) families have benefited by the special allowance of ₹.4000, during the lean fishing season and 92 (82%) families and 92 (77%) families have benefited by the special allowance of ₹.2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170,189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹.1800/- was provided by the Government to 103 (22%) individuals in 2012 - 2013 and 103 (20%) individuals in 2013 - 2014 of the total population of the village (Table – 170,189).

The government has taken various steps to improve the socio-economic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with Rs. 4000/- per family and Rs.2000/- during ban period (from 15th April to 29th May) to meet out expenses of their family. More than 75% of fisherfolk families were benefitted by these schemes. Whereas only 20% of the individuals were benefitted by the National Fishermen Savings-cum-Relief Scheme.
(NFSRS), because in this village, as female were not involved in fishery activities, they were not registered as a member in the fishermen society. Non members of the fishermen society were not eligible to get benefit from the National Fishermen Savings-cum-Relief Scheme. This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 1. Fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 2. Age group-wise classification of fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 3. Individual-wise Identity Cards possessed by the fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 4. Housing Facilities of fisherfolk families in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure 5. Educational Status of fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure 6. Levels of Educational Status of fisherfolk (out of total literate) in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure 7. Employment Status of fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure 8. Occupational Status of individuals (out of total employed) in fisherfolk population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 9. Types and number of crafts available with fishermen population in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 10. Investment on crafts and gears by the fishermen families in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 11. Purpose of Credit Utilization of the fisher folk families in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 12. Annual Income range of fishermen families in S.P.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.2. SOCIO-ECONOMIC STATUS OF PASIPATTINAM FISHING VILLAGE

4.2.1. Description and of the fishing village

Pasipattinam is a hamlet under the jurisdiction of Kaliyanagari Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located at 55 Km North to Ramanathapuram.

4.2.2. Common facilities available in the fishing village

This village has Light house, Panchayat Union Primary School, Anganvadi, Sea shore light facility and Ration Shop. However, the essential facilities like Banks, Auction hall, Net making shed, Fish drying platform, Cyclone shelter, Diesel bunk, Electricity board office, and Ice plant and Railway station were not available in this village. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the significance of basic facilities for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.2.3. Socio-economic Status of the Fishermen population

4.2.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 1253 & 1047 from 481 families and 1267 & 1099 from 495 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (66) was noticed during the period of 2013 - 2014 (2300) than in 2012 - 2013 (2366), and the average family size was recorded as 4.2 in during the two years of the study period re. The data obtained were also indicated that, male members were more when compared to female (Table- 17 and Figure -13).

Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21- 40 years were more (900) and followed by 0-20 (734), 41-60 (429) and
above 60 years (237) were recorded during the year 2012-2013. It has been inferred that, 58% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Where during year 2013 – 2014, the individuals in the age group 21-40 were more (964) which was followed by 0-20 (725), 41-60 (438), and above 60 years (239). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 59%. (Table - 18 and Figure - 14).

In Pasipattinam there has been slight variation in the number of male individuals (1253 & 1267)) when compared to females (1047 & 1099). The male individuals were slightly more than females. Among adults, mostly the male adults were getting involved in the fishing and allied activities whereas; female adults were not regularly involved in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 58%, the improvement in the economic status of the fishermen population was not noticed in the present study at Pasipattinam. This may probably be due to lack of basic facilities for fishery activities as well as lack of their interest towards fishing. The results were corroborated with reports of Senthilathiban and Selvaraj (1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.2.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, 60% of the fishermen were belong to Hindus and 40% were Muslims, and 48% the fishermen population were belong to backward community and 52% were belong to most backward community (Table – 154,173).

4.2.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during
the year 2012 - 2013, out of the total male individuals (1253), only 16% of males have obtained Biometric card, whereas, out of total male and females (2300), only 66% and 64% of the individuals have obtained EPIC card and FSM cards respectively. Likewise, out of total number of families (481), 99% of families were possessing family card besides, 398 (83%) and 461 (96%) families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (16% to 28%) besides, other identity cards, were not yet issued to the newly added families and individuals of this village (Tables - 19,20 and Figure -15 )

As per the data observed, the awareness among the fishermen with regard to utility of Biometric card, Tamil Nadu Fishermen Welfare Board (TNFWB) card and Fishermen society membership card have been observed as very low during the study period, which indicated that, they are not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided by the society which leads to the failure in the improvement of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.2.3.4. Residential Status of fishermen population

A total of 481 houses were recorded during the year 2012 - 2013, whereas, the numbers of houses were found to increase from 481 to 495 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 481 respondent families, 95% families have got own houses. Out of own houses, 49% houses were constructed by the Central and State Government (both free houses and Tsunami houses). Out of the total number of 481 houses, the concrete houses, tiled houses, thatched houses and liter roofed
houses were recorded as 75%, 23%, 1% and 1% respectively. Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (10%) whereas, about 77% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 32% have two rooms (a living room and a bed room). Besides, 370 fishermen families (77%) were living in houses with three rooms, of which 222 houses (55%) were built under Government Schemes. Similarly, 93% of the respondents have got own house in the year 2013 - 2014. Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 21). There were no remarkable variations in the data recorded during 2013-14 when compared to the data recorded during the year 2012 - 2013 except increase the number of titled houses (from 111 to 125) and increase in the number of houses with two rooms, i.e., from 63 to 75 and house with 3 rooms from 370 to 372 (Table – 21 and Figure - 16).

Above 95% of the fisherfolk population have own houses in this fishing village. Only about 9% of houses have been recorded to possess more than three rooms. In recent years, under the housing schemes provided by State and Central governments, houses with three rooms have been constructed for fisherfolks. Though, majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their poor economic status. This condition has been reported in many parts of our country by many workers. The results were corroborates with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.2.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the years 2012 - 2013 and 2013 - 2014 (Table - 30). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 481 houses, 298 (62 %) were provided with toilet facilities. The remaining
families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. Besides the data recorded have also inferred that, 10% (48 out of 481 households) of the people were using well water and bore well water for drinking purpose. The remaining 90% households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 – 2014 (Table - 22).

Electricity is supposed to be indispensable for modern living and hence electricity also one of the indicators of the level of economic condition of the fisherfolks. It is obvious that, all the fishermen houses were electrified. Generally a sizable number of households in all the coastal villages of Ramanathapuram district have not provided with toilet facility. The data collected at Passipattinam during the two years of study period have indicated that, about 62 % houses provided with toilet facilities, whereas, 38% fishermen families were using common toilet provided by the Government of Tamil Nadu. The open defecation by the fishermen population in the areas nearby their residence forms the basic reason for the spread of infectious diseases among fisherfolk population in turn, which also weakened their economic condition by affecting their normal health. The results were in close agreement with the reports of Panikkar and Alagarraja (1981) and Seenivasan and Ramadas (2014).

In the marine sector, even though, the fishing hamlets are provided with protected water supply, the salinity of ground water is very high. The data obtained during the study period have indicated that, the percentage of people using well water for drinking purpose was very meager, whereas, about 90% of households were using public water taps in the streets of the village provided by the Government of Tamil Nadu. The presence of basic amenities in the village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also been reported by Nuruzzaman (1990); Hussain (1994), Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).
4.2.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 83% of the respondents are literates and remaining were belonging to illiterate (13%) and below 5 years (4%) categories (Table – 23 and Figure – 17). Even though, 77% were literates, among them, large numbers of fishery workers were in the lower educational categories (59% of the respondents have studied primary level of education and 27% were studied at middle school level only). H.Sc qualified (1%) and Graduates (1%) were lesser in numbers. It was observed that the fishermen populations have a positive attitude towards education and they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table -24 and Figure-18).

Education is the level of development in any society. As per the data collected during the year 2012 – 2013, it was clearly indicated that, nearly 83% of the respondents were literates. A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 83% were literates, among them majority (81%) were in the lower educational categories (Primary and Secondary level of education), besides H.Sc qualified (1%) and Graduates (1%) were lesser in numbers. Thus, the educational status has been observed as very low which forms the major hurdle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar trend was reported various fishery villages by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.2.3.7. Employment status: Classification of fishermen population based on their Occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 2300 fisherfolk in Pasipattinam 1116 (49%) were employed and 1184 (51%) were unemployed. Out of 1116 employed individuals 768 (69%) were men and 348 (31%) were women. (Table -25 and Figure -19). Among the 1116 employed respondents, 77% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 7% were self employed and 12% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 26 and Figure - 20).

As per the data recorded, it was clearly evident that, the majority of the fisherfolk family members were unemployed. Moreover majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. The women of fisherfolk families living in this village were mostly involved in household works and not involved in regular fishery activities. Even though they were engaged in fish curing, fresh and dried fish trade, they usually sold low value small size fishes, which fetched poor profit margin and hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson et al., (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.2.3.8. Fisheries and Economic condition of fishermen families
4.2.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of 191 crafts were recorded in this village. (37 wooden Vallam and 154 motorized FRP Vallam) (Table – 27
and Figure - 21). Only two types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 512 gears were available, out of which, 424 (83%) were Gill nets and 88 (17%) were Trawl nets (Table - 27). The local name of various types of Gill nets and Trawl nets are Choodai Valai, Kumula Valai (Drift Gill Net), Mural Valai(Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 31) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no much remarkable differences (Table - 27).

The observation revealed that, all the fishermen families of the village were not provided with crafts and gears, hence they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period in this village. The results were in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.2.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) (Sadinella spp.), Mackerel (Kumula) (Rastrelliger spp.), Carangids (Parai) (Carangoides spp., Caranx spp.), Mullet (Madavai or Manali) (Liza spp., Mugil spp.), Sea Perch (Chenganni) (Psammoperca spp.), Breams (Ville meen) (Lethinus spp.), Thread fin breams (Sankara) (Nemipterus spp.), Wolfherrings (Vallai) (Chirocentrus spp.), Half Beak (Mural) (Hemiramphus spp.), Full Beak (Mural) (Strongulura spp.), Spine foots (Ora) (Siganus spp.), Thryssa(Poruva) Ribbon fish (Savalai) (Trichiurus spp.), Goat fishes (Nagarai) (Upeneus spp.), Mojarras (Oodagam)
Gerres spp.), Barrcudas (Ooli) (Sphyraena spp.), Silverwhitings (Kilangan) (Silago spp.) Silverbellis (Karal) (Gazza spp., Leiognathus spp.), Anchovies (Nethili) (Stolephorus spp.), Silver Pomfrets (Vella vayal) (Pampus spp.), Black Pomfrets (Karu Vaval) (Formio spp.), Seer fises (Seela or Vancheeram) (Scomberomorus spp.), Shark (Sorrah) (Scoliodon spp.), Ray (Thirukkai) (Dasyatis spp.), Cat fish (Keluthi) (Arius spp.), Lizard fish (Thumibili) (Saurdia spp.), Crabs (Kadal Nandu Portunus spp. Charybdis spp. and Scylla spp.), Prawns (Iraal Penaeus spp.), Cuttle fishes and Squids (Kanava) (Sepia spp., Loligo spp.) were recorded in the landing centre of Pasipattinam (Table - 31).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of Pasipattinam (Table - 39a and 39b). The lesser important variety of fish catches in Pasipattinam might probably be due to the non-availability of modern fishing equipments, mechanized boats and essential facilities pertaining to fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

4.2.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 481 families, 277 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 31%, 40% and 29% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 36). Regarding investment, the data recorded during the year 2012 - 2013 have indicated that, out of 481 families only 277 families have invested on fishing crafts and gears of which, 29%, 40%, and 29% families have invested ₹25, 001/- to ₹50, 000, ₹50, 001/- to ₹1, 00,000/- and above ₹1lakh respectively whereas, only 2% of families have invested less than ₹25, 000/- on crafts and gears. The same status was also observed with regard to the investment on the
fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in
the number of families (from 484 to 495) (Table - 28 and Figure - 22).

Based on the data collected, only 58% of fishing families have invested money on
crafts and gears and others were working for wages only and their salary will not enough
even to run their day to day life. Thus, the economic status remains unaltered for many years
even throughout their life time. The results were in accordance with the reports of Sathiadas
and Venkatraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and
Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.2.3.8.4. Details of sources of credit for fishermen population and purpose of credit
utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from
the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat
owners, banks and other sources. During the year 2012 - 2013, out of 481 families 147
(31%) families have received the credit from various sources, among those families, 100
(68%) have obtained loan under the category of up to ₹25,000. Whereas 29 (19%), 14
(10%) and 4 (3%) families have received the loan amount in the range of ₹25001 to
₹50000, of ₹50001/ to ₹1 lakh and above ₹1 lakh respectively. Similar status was observed
during the year 2013 - 2014 (Table – 166,185)

With reference to the data collected during the year 2012 – 2013, out of 147 (31%) families who have received loans, 39 (27%) families have utilized the credited amount on
the purchase of crafts and gears and 35 (24%) families have utilized it for maintenance of
crafts and gears and rest of the families (73) have spent for various other purposes like
family expenditure, construction and repairing of houses, marriages, social functions and
miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 -
2014 have showed no difference in the credit utilization by the fishermen population in this
village (Table - 29 and Figure - 23).
Fisherfok families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Out of 147 families who received loan from credit sources, out of 147, only 74 families have utilized it for maintenance of crafts and gears and rest of the families have invested the loan amount for various other purposes. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate of interest of 10% per month or even more. Though, they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for their unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.2.3.8.5. Earning Members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 481 families, 249 (52%), 151 (31%) and 81 (17%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not revealed much difference (Table – 169,188).

Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 3%, 42%, 35%, 15%, 4%, and 1% respectively. As per the data collected, out of 481 families, 199 families were belonging to the income range of ₹40,000 to ₹80,000 and 169 families were belonging to the income range of ₹80,000 to ₹1,20,000. Only 4% of fishermen families were belong to fifth category (1, 60,001 to 2, 00,000), and 1% were belonging to the income category of 2, 00,001 to 2, 40,000. Altogether, the income level or the economic status of the fishermen population of the
village was observed as low and the percentage of families under higher income group also seemed to be very low. There were no much differences in the data collected regarding the annual income of fishermen families during the year 2013 – 2014 (Table -30 and Figure -24)

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 – 2013, it was found that, 81 families (17%) were having three earning members per family. Among the earning members, it was observed that the women were not regular earning members. Similar status was also observed during the year 2013 - 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers (Sathiadas and Panikkar, 1991 and Sivanesan, 2014).

4.2.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

The government has taken various steps to improve the socioeconomic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with ₹.4000/- per family and ₹.2000/- during ban period (15th April to 29th May) to meet out the expenses of their family. As per field survey data, 452 families (94%) and 458 (93%) families have benefited by the special allowance of ₹.4000, during the lean fishing season and 452 (94%) families and 458 (93%) families have benefited by the special allowance of ₹.2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively. Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹.1800/- was provided by the Government to 1129 (49%) individuals in 2012 - 2013 and 1141 (48%) individuals in 2013 - 2014 of the total population of the village (Table – 170,189). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 13. Fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure - 14. Age group-wise classification of fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure – 15. Individual-wise Identity Cards possessed by the fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure- 16. Housing Facilities of fisherfolk families in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
Educational Status of fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Levels of Educational Status of fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Employment Status of fisher folk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Occupational Status of individuals (out of total employed) in fisherfolk population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
Figure – 21. Types and Number of Crafts available with fishermen population in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 22. Investment on Fishing crafts and Gears by the fishermen families in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 23. Purpose of Credit Utilization of the fisher folk families in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 24. Annual Income range of fishermen families in Pasipattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.3. SOCIO-ECONOMIC STATUS OF M.R.PATTINAM FISHING VILLAGE

4.3.1. Description and of the fishing village

M.R.Pattinam is a hamlet under the jurisdiction of Thondi Town Panchayat in Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located at 50 Km North to District head quarters Ramanathapuram.

4.3.2. Common facilities available in the fishing village

This village has a Ration Shop but the essential facilities like School, Anganvadi, Health Sub Centre, Veterinary sub centre, Post Office, Banks, Auction hall, Net making shed, Fish drying platform, Cyclone shelter, Diesel bunk, Electricity board office, Ice plant and Railway station were not available in this village. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the significance of basic facilities which are essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were in close agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.3.3. Socio-economic Status of the Fishermen population

4.3.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 124 & 136 from 63 families and 121 & 130 from 61 families during the years 2012-2013 and 2013-2014 respectively. The data obtained were also indicated that, female members were more when compared to male. As two families were migrated from this village during the year 2013-2014 a little decrease in the total fisherfolk population (9) was noticed during the period of 2013 - 2014 (251) than in 2012 - 2013 (260) and the average family size was recorded as 4.1 during the study period (Table - 32 and Figure - 25).
Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21-40 years were more (103) and followed by 0-20 (82), 41-60 (73) and above 60 years (2) were recorded during the year 2012-2013. It has been inferred that, 67% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Whereas during year 2013 – 2014, the individuals in the age group 21-40 were more (102) which was followed by 0-20 (79), 41-60 (67), and above 60 years (3). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 68%. (Table - 33 and Figure - 26).

In M.R.Pattinam village, among the adults there were no remarkable variation in the number of male individuals (88 & 84) when compared to females (92 & 86). Mostly, the adults were getting involved in the fishing and allied activities whereas, female adults were mostly engaged in household management and they were not regularly involved regularly in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 67%, and 68% (2012 – 2013 and 2013 – 2014), and the improvement in the economic status of the fishermen population was not noticed in the in the village, this may probably be due to lack of basic facilities for fishery activities as well as their lack of interest. These results were corroborated with the reports of Senthilathiban and Selvaraj (1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.3.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, 59% of the fishermen were belong to Hindu and 41% were Muslims and 84% the fishermen population were belong to backward community and 16% were belong to scheduled caste community (Table – 154,173).
4.3.3.3. *Identity card holder of fishermen population*

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (124), only 31% of males have obtained Biometric card, whereas, out of total male and females (260), only 65% and 64% of the individuals have obtained EPIC card and FSM cards respectively. Likewise, out of total number of families (63), 97% of families possessing family card besides, 61 (97%) families were possessing TNFWB card and Government Insurance Scheme card respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (31% to 50%) besides; all the families and individuals of this village possessed other identity cards (Tables – 34, 35 and Figure -27).

The data recorded showed that, the awareness among the fishermen with regard to utility of various ID cards have been observed as very low in the M.R Pattinam, which indicated that, they were not much interested in doing fishery activities as well as they failed to utilize the financial assistance provided by the fishermen society which leads to the failure in the improvement of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.3.3.4. *Residential Status of fishermen population*

A total of 63 and 61 houses were recorded during the years 2012 – 2013 and 2013 - 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 63 respondent families, 97% of the respondents in have got own houses, while, 3% were residing in rented houses. Out of 61 own houses, 7 (11%) houses were constructed by the Central and State
Government (both free houses and Tsunami houses). Out of the total number of 63 houses, the titled houses, concrete houses and thatched houses were recorded as 82%, 13% and 5% respectively (Table – 36 and Figure - 28). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bedroom and a kitchen) were found as very less (5%) whereas, about 25% houses have three rooms (a small living room, a bedroom and a kitchen) and remaining 70% have two rooms (a living room and a bedroom). Besides, 16 fishermen families (25%) were living in houses with three rooms, of which 11 houses (69%) were built under Government Schemes. All the respondents have got own house in the year 2013 - 2014... There were no remarkable variations in the data recorded during the study periods (2013-2014 and 2012 – 2013) except two damaged and unused titled and thatched houses. It was also inferred that, the fishermen living in thatched and with two rooms houses have poor standard of living (from 36 to 43) (Table - 36).

Above 90% of the fisherfolk families have own houses in this fishing village. Only 5% per cent of them found to possess more than three rooms. In recent years, under the housing schemes provided by State and Central Governments, houses with three rooms have been constructed for fisherfolks. Though, majority of the houses of fisherfolk families were small in size with lesser number of rooms which indicated their poor economic status. This condition has been reported in many parts of our country by many workers. This results were corroborates with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.3.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per data recorded during the years 2012 - 2013 and 2013 - 2014 (Table - 37). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated
that, out of 63 houses, 8 (13 %) houses were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table - 37). Besides, the data recorded have also inferred that, for drinking purpose all the households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu (Table - 37).

The electricity is indispensable for modern living and it is also one of the indicators of the level of economic conditions of the fisherfolks. It is obvious that all the fishermen houses were electrified in the village. The lack of sanitary facilities is commonly seen in most of the coastal areas in India. Most of the households in majority of the coastal villages of Ramanathapuram district were not provided with latrines or toilets. The data collected in the study area during the year 2012 - 2013 have indicated that, out of 63 houses, only 8 houses were provided with toilet facilities whereas, 87% fishermen families were using common toilet provided by the Government of Tamil Nadu. The open defecation by the fishermen population in the areas nearby their residence forms the basic reason for the spread of infectious diseases among fisherfolk population in turn which also weakened their economic condition by affecting their health. Similar trend was also been observed during the year 2013 - 2014. The results were in close agreement with the reports of Panikkar and Alagarraja (1981) and Seenivasan and Ramadas (2014).

In the coastal region, the salinity of ground water is very high. The data obtained during the study periods have indicated that, all the households were using public water taps provided by the Government of Tamil Nadu in the streets of the village for drinking purpose. The presence of basic amenities in this village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions
have also reported by Nuruzzaman (1990); Hussain (1994); Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.3.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 85% of the respondents are literates and remaining were belonging to illiterate (11%) and below 5 years (4%) categories (Table -38 and Figure -29). Even though, 77% were literates, among literates large numbers of fishery workers were in the lower educational categories (53% of the respondents have studied primary level of education and 21% were studied at middle school level only). H.Sc qualified (5%) and Graduates (1%) were lesser in numbers. It was observed that the fishermen populations have a positive attitude towards education. But they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table – 39 and Figure - 30).

As the education is the level of development in any society, a greater percentage of the fishery workers were educated at primary or middle school level. Out of 85% literates about 74% were in the lower educational categories, H.Sc qualified (5%) and Graduates (1%) were lesser in numbers. Thus, the educational status was observed as very low which forms the major obstacle to improve their economic status and hence they could not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.3.3.7. Employment status of fishermen population

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 260 fisherfolk in M.R.Pattinam 124 (48%) were employed and 136 (52%) were unemployed. Out of 124 employed individuals 76 (61%) were men and 48 (39%) were women. (Table - 40 and Figure - 31). Among the 124 employed respondents, 82% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 4% were self employed and 4% were coolie. Majority of the fishing workers were not having any subsidiary occupation. Besides, there were no remarkable differences in the data obtained during both the years (2012 - 2013 and 2013 – 2014) (Table - 41 and Figure - 32).

As per the data recorded, it was clearly evident that the majority of the fisherfolk family members were unemployed. Further, most of the fishing workers in this village were not having any subsidiary occupation and thereby they unable to earn any income for their households apart from fishing activities. Most of the women living in this village were involved mostly in household works and they were not regularly involved in fishery activities except in fish vending and hence no significant improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.3.3.8. Fisheries and Economic condition of fishermen families

4.3.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of only 16 crafts were recorded in this village (11 wooden Vallam and 5 motorized FRP Vallam) (Table – 42 and Figure – 33). Only two major types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 24 gears were available, out of which,
20 (90%) were Gill nets and 8 (10%) were Trawl nets (Table - 42). The fisherfolk were using various types of Gill nets and Trawl nets. Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 46) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no differences (Table - 42).

Since, all the fishermen families of the village were not provided with crafts and gears hence, they were forced to work on daily wages basis to nearby fishery villages which could not fetch adequate money for their family. This resulted to remain in poor economic condition forever. The results were in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981); Narayankumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

### 4.3.3.8.2. Fishery Resources

The commercially important fishes like Mackerel (Kumula) (*Rastrelliger* spp.), Carangids (Parai) (*Carangoides* spp., *Caranx* spp.), Mullet (Madavai or Manali) (*Liza* spp., *Mugil* spp.), Sardines (Choodai) (*Sardinella* spp.), Wolf herrings (Vallai) (*Chirocentrus* spp.), Goat fishes (Nagarai) (*Upeneus* spp.), Breams (Villa meen) (*Lethrinus* spp.), Half Beak (Mural) (*Hemiramphus* spp.), Mojarras (Oodagam) (*Gerres* spp.), Silverbellis (Karal) (*Gazza* spp. and *Leiognathus* spp.), Crabs (Kadal Nandu) (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.), Prawns (Iraal) (*Penaeus* spp.), Cuttle fishes and Squids (Kanava): (*Sepia* spp., *Loligo* spp.) were recorded in the landing centre of M.R.Pattinam (Table - 46).

The commercially important fish species of many groups as stated above were recorded in the landing centre of M.R.Pattinam. The variety of fish catch in M.R.Pattinam was very low and which might be due to the non-availability of modern fishing equipments, mechanized boats and essential facilities pertaining to their fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).
4.3.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 63 families, 24 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 79%, 17% and 4% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 43). Regarding investment the data recorded during the year 2012 - 2013 have indicated that, out of 63 families only 24 families have invested on fishing crafts and gears of which, 38% of families have invested less than ₹25,000/- towards purchase of crafts and gears. Whereas, 42%, 12%, and 8% families have invested ₹25,001/- to ₹50,000, ₹50,001/- to ₹1,00,000/- and above ₹1lakh respectively. The same status was also observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014. As no one had invested on mechanized boats, the investment of above 1 laky on crafts and gears by fisher folk was very low (Table - 43 and Figure - 34).

Based on the data collected, only 38% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Thus the economic status remains unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.3.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 63 families 22 (35%) families have received the credit from various sources, among those families, 20 (91%) have obtained
loan under the category of up to ₹25,000. and about 2 families (9%) have received loan amount in the range of ₹25,001 to ₹50,000. There were no families have been credited above ₹50000. Similar trend was also observed during the year 2013 - 2014. (Table – 166,185).

With reference to the data collected during the year 2012 – 2013, out of 22 (35%) families who have received loans, only 2 (9%) families utilized the credited amount on the purchase of crafts and gears and 11 (50%) families have utilized it for maintenance of crafts and gears and rest of the families (9) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table – 44 and Figure - 35).

Fisherfolk families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Out of 22 families who received loan from credit sources, only 13 families have utilized it for the purchase and maintenance of crafts and gears and rest of the families have invested for various other purposes. Due Lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them and which may be the primary reason for their unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.3.3.8.5. Earning Members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that,
among 63 families, 42 (67%), 17 (27%) and 4 (6%) families were having one, two and three
earning members per family respectively. It was observed that, among the earning members,
the women were not regular earning members and the data collected during the years 2012 -
2013 and 2013 - 2014 have not indicated much difference (Table -169,188 ).

Out of six categories of income range the percentage of families under each category
during 2012 - 2013 was recorded as 65%, 19%, 8%, 3%, and 0% respectively. As per data
collected, only 3% of fishermen families were belong to fifth category (₹1,60,001to
₹2,00,000), whereas, it was observed that, the annual income of families in this village have
not recorded above ₹2,00,001 but, 65% were belonging to income category of ₹40,001 to
₹80,000/. Altogether, the income level or the economic status of the fishermen population
of the study area was observed as low. The percentage of families under higher income
group seemed to be very low. There was no remarkable difference in the data collected
regarding the annual income of fishermen families during the year 2013 - 2014. (Table - 45
and Figure - 36).

The number of earning members in the fishermen families vary from a minimum of
one to a maximum of three. During 2012 – 2013, it was observed that, only 4 families (6%)
were consisted of three earning members per family. Among the earning members, the
women were not regular earning members. Similar status was also observed during the year
2013 – 2014. The number of earning members plays a key role of the family income. The
occurrence of similar condition in most of the fishery villages of Tamil Nadu and Indian
coast have been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan
(2014).

4.3.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 42 families (67%) and 42 (69%) families have benefited by
the special allowance of ₹4000, during the lean fishing season and ₹2000/- during the
fishing ban period from Tamil Nadu Government to mitigate their suffering for those
periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170,189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹ 1800/- was provided by the Government to 103 (56%) individuals during the study period out of the total population of the village (Table – 170,189).

The Central and State Governments have taken various steps to improve the socioeconomic conditions of the fisherfolk. They suffered lot due to various reasons during lean fishery season (October to December) they were provided with ₹ 4000/- per family and ₹ 2000/- during ban period (15\textsuperscript{th} April to 29\textsuperscript{th} May) to meet out expenses of their family. About 67% of fisherfolk were benefitted by these schemes and 56% of the individuals were also benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 25. Fisherfolk population in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 26. Age group-wise classification of fisherfolk population in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 27. Individual-wise Identity Cards possessed by the fisherfolk population in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 28. Housing Facilities of fisherfolk families in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014
Educational Status of fisherfolk population in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Levels of Educational Status of fisherfolk (out of total literate) in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.


Figure – 33. Types and Number of Crafts available with fishermen population in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 34. Investment on Fishing crafts and Gears by the fishermen families in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 35. Purpose of Credit Utilization of the fisherfolk families in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 36. Annual Income range of fishermen families in M.R.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.4. SOCIO-ECONOMIC STATUS OF THONDI FISHING VILLAGE

4.4.1. Description and of the fishing village

Thondi is a Town Panchayat of Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located about at 47Km North to Ramanathapuram.

4.4.2. Common Facilities available in the fishing village

This village has Panchayat Union Primary School, Government Higher secondary school, College, Anganvadi, Health Sub Centre, Post Office, Police Station, Ration Shop, Banks, Auction hall, Net making shed, Fish drying platform, Sea shore light facility, Cyclone shelter, Diesel bunk, Electricity board office, Ice plant, Fish selling market and Jetty. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities and its impact on the socioeconomic condition of the fishermen population. The results of the study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.4.3. Socio-economic Status of the Fishermen population

4.4.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 805 & 797 from 346 families and 840 & 816 from 360 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (54) was noticed during the period of 2013 - 2014 (1656) than in 2012 - 2013 (1602), and the average family size was recorded as 4.6 during the study period. The data obtained were also indicated that, male members were more when compared to female (Table- 47- and Figure -37).

Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21- 40 years were more (638) and followed by 0-20 (502), 41-60 (397) and above 60 years (65) were recorded in the year 2012-2013. It has been inferred that, 65% of
the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Where during year 2013 – 2014, the individuals in the age group 21- 40 were more (658) followed by 0-20 (535), 41-60 (408), and above 60 years (55). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 65%. (Table - 48 and Figure - 38).

In Thondi, the male individuals were slightly more than females. Mostly, the adults were getting involved in the fishing and allied activities whereas; female adults were not regularly involved in such activities. However, the percentage of working class people (21-40 years & 41-60 years) was observed as 65%, there was no significant improvement in the economic status of the fishermen population. this may probably be due to lack of basic facilities for fishery activities as well as lack of their interest towards fishing. The results were corroborates with the reports of Senthilathiban and selvaraj (1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.4.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the year 2012 - 2013 have indicated that, 88% of the fishermen were belong to Hindus and 12% were Muslims and 88% the fishermen population were belonging to most backward community and 12% were belonging to most backward community. There was no remarkable difference in the data between the two years except, a slight increase in the number of fishermen families (from 346 to 360) during the year 2013 - 2014 (Table – 154,173).

4.4.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (805), only 19% of males have
obtained Biometric card, whereas, out of total male and females (1602), only 66% and 64% of the individuals have obtained EPIC card and FSM cards respectively. All families (346) were possessing family card besides, 322 (93%) and 308 (89%) families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (19% to 35%) in this village (Tables - 49, 50 and Figure - 39).

Awareness among the fishermen with reference to utility of Biometric card, Tamil Nadu Fishermen Welfare Board (TNFWB) card and Fishermen society membership card have been observed as very low, which showed that, they are not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided by the fishermen society which leads to the failure in the improvement of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.4.3.4. Residential Status of fishermen population

A total of 346 houses were recorded during the year 2012 - 2013, whereas, the number of houses was found to increase from 346 to 360 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 346 respondent families, 91% families have got own houses. Out of own houses, 23% houses were constructed by the Central and State Government (both free houses and Tsunami houses). Out of the total number of 481 houses the concrete houses, thatched houses, titled houses and lite roofed houses were recorded as 36%, 33%, 26% and 5% respectively (Table-51 and figure-40). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (20%) whereas, about 38% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 42% have two rooms
(a living room and a bed room). Besides, 131 fishermen families (38%) were living in houses with three rooms, of which 74 houses (56%) were built under Government Schemes. Similarly, 89% of the respondents have got own house in the year 2013 - 2014. Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 51). Whereas, the data collected during the year 2013 - 2014, have indicated that, there was an increase in the number of concrete houses and increase in the number of houses with 2 rooms and 3 rooms corresponding to the increase in the number of families from 346 to 360 (Table -51).

Above 95% of the fisherfolk population have own houses in this village, only 20% of them have found to possess more than three rooms. Majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their poor economic status. Similar status was reported in many parts of our country by many workers. This results were corroborated with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.4.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the study years 2012 - 2013 and 2013 - 2014 (Table - 52). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 346 houses, 114 (33 %) houses were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. Only 5% (18 out of 346 households) of the people were using well water and bore well water for drinking purpose. The remaining 95% households in this village were using public water taps provided in the streets of the village by the Government of Tamil Nadu. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table -52).
It is obvious that all the fishermen houses in the village were electrified and the electricity is considered as one of the indicators of the level of economic conditions of the fisherfolks. A sizable number of households in all the coastal villages of Ramanathapuram district were not provided with any toilets. The data collected in the study area during the study period have indicated that, about 33% houses were provided with toilet facilities, whereas, about 67% fishermen families were using common toilet provided by the Government of Tamil Nadu. Lack of sanitary facility causes infectious diseases among fisherfolk families which lead to considerable economic loss. The results were in close agreement with the reports of Panikkar and Alagarraja, (1981) and Seenivasan and Ramadas (2014).

The data obtained during the study period have indicated that, the percentage of people using well water for drinking purpose was very meager and about 95% of households were using public water taps provided by the Government of Tamil Nadu in the streets of the village. The presence of basic amenities in this village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994), Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.4.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have indicated that, nearly 72% of the respondents are literates and remaining were belonging to illiterate (23%) and below 5 years (5%) categories (Table -53 and Figure – 41). Even though, 72% were literates, among them, large numbers of fishery workers were in the lower educational categories (59% of the respondents have studied primary level of education and 27% were studied at middle school level only). H.Sc qualified (1%) and Graduates (1%) were lesser in numbers. It was observed that the
fishermen populations have a positive attitude towards education and they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table -54 and Figure – 42).

Education is the level of development in any society. A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 72% were literates, among them 71% were in the lower educational categories and H.Sc qualified (1%) and Graduates (1%) were lesser in numbers. Thus, the educational status has been observed as very low which forms the major hurdle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989); Narayankumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.4.3.7. Employment status of fisherfolk population

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 1602 fisherfolk in Thondi 925 (58%) were employed and 677 (42%) were unemployed. Out of 925 employed individuals, 544 (59%) were men and 381 (41%) were women. (Table - 55 and Figure - 43). Among the 925 employed respondents, 94% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 1% were self employed and 3% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 56 and Figure - 44).

The majority of the fisherfolk family members in the village were unemployed. In addition, majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities.
Most of the women living in this village were involved mostly in household works and they were not involved in regular fishery activities except in fish vending. Even though they were engaged in fish curing, fresh and tried fish trade, they usually sold low value small size fishes, which fetched poor profit margin and hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.4.3.8. Fisheries and Economic condition of fishermen families

4.4.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, the data obtained during the years 2012 – 2013 revealed that, a total number of 145 crafts were recorded by fisherfolk in this village (8 wooden Vallam, 128 FRP vallam and 9 mechanized boats.) (Table - 57 and Figure - 45). There were only two major types of gears available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 366 gears were available, out of which, 240 (66%) were Gill nets and 126 (34%) were Trawl nets (Table - 57). The local names of various type of Gill nets and Trawl nets are Choodai Valai, Kumula Valai (Drift Gill Net), Oozhi(Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and being used to catch particular type of fishes (Table - 61) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no differences (Table - 57).

All the fishermen families of the village were not provided with crafts and gears; hence they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor economic condition forever. There
has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in close agreement with the similar reports of CMFRI (1985); Sreenivasan (1981); Narayankumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.4.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) \((Sadina\)\ussp), Mackerel (Kumula) \((Rastriliger\)\ussp), Carangids (Parai) \((Carangoides\)\ussp, \(Caranx\)\ussp), Mullet (Madavai or Manali) \((Liza\)\ussp, \(Mugil\)\ussp), Sea Perch (Chenganni) \((Psammoperca\)\ussp), Breams (Villa meen) \((Lethrinus\)\ussp), Thread fin breams (Sankara) \((Nemipterus\)\ussp), Wolfherrings (Vallai) \((Chirocentrus\)\ussp), Half Beak (Mural) \((Hemiramphus\)\ussp), Full Beak (Mural) \((Strongulura\)\ussp), Ribbon fish (Savalai) \((Trichiurus\)\ussp), Goat fishes (Nagarai) \((Upeneus\)\ussp), Mojarras (Oodagam) \((Gerres\)\ussp), Barrcudas (Ooli) \((Sphyraena\)\ussp), Silverwhitings (Kilangan) \((Silago\)\ussp) Silverbellis (Karal) \((Gazza\)\ussp, \(Leiognathus\)\ussp), Anchovies (Nethili) \((Stolephorus\)\ussp), Silver Pomfrets (Vella vayal) \((Pampus\)\ussp), Black Pomfrets (Karu Vaval) \((Formio\)\ussp), Seer fises (Seela or Vancheeram) \((Scomberomorus\)\ussp), Shark (Sorrah) \((Scoliodon\)\ussp), Ray (Thirukkai), Cat fish (Keluthi) \((Arius\)\ussp), Lizard fish (Thumibili) \((Saurdia\)\ussp), Crabs (Kadal Nandu) \((Portunus\)\ussp, \(Charybdis\)\ussp, and \(Scylla\)\ussp), Prawns (Iraal) \((Penaeus\)\ussp.) Cuttle fishes and Squids (Kanava) \((Sepia\)\ussp), \(Loligo\)\ussp were recorded in the landing centre of Thondi (Table – 61).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of Thondi. The lesser commercially importance variety of fish catches in Thondi may be due to the non-availability of modern fishing equipments, mechanized boats and essential facilities pertaining to thier fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a & b) and Seenivasan and Ramadas (2014).
4.4.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 346 families, 201 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 28%, 44% and 28% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 58).

Regarding the Investment, the data recorded during the year 2012 - 2013 have indicated that, out of 346 families only 201 families have invested on fishing crafts and gears of which, 19%, 53%, and 24% families have invested ₹25, 001/- to ₹50, 000, ₹50, 001/- to ₹1, 00,000/- and above ₹1lakh respectively. Whereas, only 4% of families have invested less than ₹25,000 on crafts and gears. The same status was also observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in the number of families (from 484 to 495) (Table - 58 and Figure - 46).

Based on the data collected in the village, only 58% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Therefore the economic status remains unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.4.3.8.4. Details of sources of credit and of purpose of credit utilization by the fishermen population for fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 346 families 168 (49%) families have received the credit from various sources, among those families, 136 (81%) have obtained loan under the category of up to ₹25,000. Whereas, 22 (13%), (3%) and
5 (3%) families have received the loan amount in the range of ₹25001 to ₹50000, of ₹50001/ to ₹1 lakh and above ₹1 lakh respectively. Similar trend was also observed during the year 2013 - 2014 (Table – 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 168 (49%) families who have received loans, 61 (36%) families have utilized the credited amount on the purchase of crafts and gears and 52 (31%) families have utilized it for maintenance of crafts and gears and rest of the families (55) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 59 and Figure - 47).

Out of 168 families who received loan from credit sources only 113 families have utilized it for purchase, maintenance of crafts and gears only and rest of the families have invested for various other purposes. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate of interest 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the major reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayananakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson et al., (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

**4.4.3.8.5. Earning Members and Annual income range of Fisherfolk Family**

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 346 families, 194 (56%), 107 (31%) and 45 (17%) families were having one, two and three earning members per family respectively. It was observed that, among the earning
members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not indicated much difference (Table – 169, 188).

Out of six categories of income range, the percentage of families under each category was recorded as 5%, 43%, 27%, 18%, 5%, and 2% respectively. As per the data collected, out of total of 346 families, only 19 (5%) and 7 (2%) of fishermen families were belong to income categories of ₹1,60,001 to ₹2,00,000 and ₹2,00,001 to ₹2,40,000 respectively. But, 149 (43%) and 62 (27%) were belonging to income categories of ₹40,001 to ₹80,000 and ₹80,001 to ₹1,20,000 respectively. Altogether, the income level or the economic status of the fishermen population of the study area was observed as low. When compared to the year 2012-2013, there was 1% of increase in the income group ₹2, 00,001 to ₹2,40,000 and 1% of decrease in the income group up to ₹40,000 were recorded during the year 2013 – 2014 (Table - 60 and Figure - 48).

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 – 2013, it was found that, only 45 families (13%) were having three earning members per family. Among the earning members, the women of the fisherfolk families were not regular earning members. Similar status was also observed during the year 2013 - 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in the same range has been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.4.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 315 families (91%) and 319 (89%) families have benefited by the special allowance of ₹4000, during the lean fishing season and 317 (92%) families and 321 (89%) families have benefited by the special allowance of ₹2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170, 189). Under
the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹1800/- was provided by the Government to 940 (59%) individuals in 2012 - 2013 and 948 (57%) individuals in 2013 - 2014 of the total population of the village (Table – 170, 189).

The Central and State Government have taken various steps to improve the socioeconomic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with ₹4000/- per family and ₹2000/ during ban period (15th April to 29th May) to meet out expenses of their family. More than 89% of fisherfolk were benefitted by these schemes whereas, 59% of the individuals benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 37. Fisherfolk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 38. Age group-wise classification of fisherfolk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 39. Individual-wise Identity Cards possessed by the fisherfolk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 40. Housing Facilities of fisherfolk families in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 41. Educational Status of fisherfolk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 42. Levels of Educational Status of fisherfolk (out of total literate) in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 43. Employment Status of fisher folk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 44. Occupational Status of individuals (out of total employed) in fisher folk population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure 45: Types and Number of Crafts available with fishermen population in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure 46: Investment on Fishing crafts and Gears by the fishermen families in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure 47: Purpose of Credit Utilization of the fisherfolk families in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure 48: Annual Income range of fishermen families in Thondi during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.5. SOCIO-ECONOMIC STATUS OF P.V.PATTINAM FISHING VILLAGE

4.5.1. Description and of the fishing village

P.V.Pattinam is a hamlet under the jurisdiction of Thondi Town Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located at 50 Km North to Ramanathapuram.

4.5.2. Common facilities available in the fishing village

This village has a Ration Shop. The essential facilities like School, Anganvadi, Health Sub Centre, Veterinary sub centre, Post Office, Sea shore light Banking facility, Auction hall, Net making shed, Fish drying platform, Cyclone shelter, Diesel bunk, Electricity board office, Ice plant and Railway station were not available in this village. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.5.3. Socio-economic Status of the Fishermen population

4.5.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 249 & 227 and 252 & 232 from 109 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (8) was noticed during the period of 2013 - 2014 (484) than in 2012 - 2013 (476) and the average family size was recorded as 4.4 in during the two years of the study period The data obtained were also indicated that, male members were slightly more when compared to female (Table - 62 and Figure - 49)

The analysis of age-wise composition of fisherfolk population have indicated that, during the year 2012 - 2013 the individuals in the age group of 21- 40 years were more (201)
and followed by 0-20 (130), 41-60 (117) and above 60 years (28). It has been inferred that, 67% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. The data obtained during year 2013 - 2014 have indicated that, the individuals in the age group 21-40 were more (205) and which was followed by 0-20 (131), 41-60 (121), and above 60 years (27). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 67% (Table - 63 and Figure -50).

Mostly, the adults were getting involved in the fishing and allied activities whereas; female adults were not regularly involved in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 67%, the enhancement in the economic status of the fishermen population was not noticed in the village, this may be due to lack of basic facilities in the village. Similar studies have been carried out and reported by Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.5.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, 35% of the fishermen were belong to Hindu and 65% were Muslims and 65% the fishermen population were belong to backward community and 35% were belong to most backward community. (Table – 154, 173).

4.5.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (249), only 24% of males have obtained Biometric card, whereas, out of total male and females (476), only 71% and 63% of the individuals have obtained EPIC card and FSM card respectively. Likewise, out of total
number of families (109), about 98% of families were possessing family card besides, 88 (81%) and 96 (88%) families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (24% to 33%) besides, percentage of other identity cards, were not yet issued to the newly added families and individuals of this village (Tables – 64, 65 and Figure -51 )

Awareness among the fishermen with regard to utility of Biometric card, Tamil Nadu Fishermen Welfare Board (TNFWB) card and Fishermen society membership card have been observed as very low during in the village, which indicated that, they were not at all interested in doing fishery activities as well as they failed to make use of the financial assistance provided by the society which leads to the failure in the progress of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.5.3.4. Residential Status of fishermen population

A total of 109 houses were recorded during the years 2012 –2013 and 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the study period, it was observed that, out of the 109 respondent families, 92% families have got own houses. Out of own houses, 19% houses were constructed by the Central and State Government (both free houses and Tsunami houses) (Table – 66). Out of the total number of 109 houses, the titled houses, concrete houses, lite roofed and thatched houses were recorded as 53%, 41%, 5% and 1% respectively (Table – 66 and Figure - 52). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bedroom and a kitchen) were found as very less (6%) whereas, about 40% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 54% have two rooms.
(a living room and a bed room). Besides, 44 fishermen families (40%) were living in houses with three rooms, of which 19 houses (43%) were built under Government Schemes. Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table – 66).

Above 90% of fisherfolk population have own houses in this fishing village. Only 6% of them have recorded to possess more than three rooms. Majority of the houses of fishermen family were small in size with lesser number of rooms which implied their economic status. This condition has been reported in many parts of our country by many workers. This results were corroborated with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.5.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the study period (Table - 67). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 109 houses, 19 (17 %) houses were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table - 67). Besides, the data recorded have also inferred that, 2% of families were using bore well water for drinking purpose; remaining 98% of the households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu (Table - 67).

The houses with electricity connection are also one of the indicators of the level of economic conditions of the fisherfolks. It is obvious that almost all the fishermen houses were electrified. The data collected in the study area during the two years of study period have indicated that, out of 109 houses, only 19 houses were provided with toilet facilities.
Whereas, 83% fishermen families were using common toilet provided by the Government of Tamil Nadu. Moreover, the lack of toilet facility caused many health problems to fisherfolks in the village which in turn caused considerable economic loss. The results were in close agreement with the reports of Panikkar and Alagarraja (1981) and Seenivasan and Ramadas (2014).

The data obtained during the study periods have indicated that, the percentage of people using well water and bore-well water for drinking purpose was very meager and 88% households were using public water taps provided by the Government of Tamil Nadu in the streets of the village. The presence of basic amenities in this village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain 1994; Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.5.3.6. Educational Status of fisherfolk population

Illiteracy was the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 84% of the respondents were literates and remaining were belonging to illiterate (13%) and below 5 years (3%) categories (Table – 68 and Figure -53). It was observed that the fishermen populations have a positive attitude towards education. Even though, 77% were literates, large numbers of fishery workers were in the lower educational categories out of 77% literates, 56% of the respondents have studied primary level of education and 25% were studied at middle school level. H.Sc qualified (5%) and Graduates (2%) were lesser in numbers. But they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table - 69 and Figure - 54).

Thus, the educational status has been observed as very low which forms the major barrier to improve their economic status. Besides, their poor economic condition, they could
not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.5.3.7. Employment status of fisherfolk population

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 479 fisherfolk in P.V.Pattinam 307 (64%) were employed and 169 (36%) were unemployed. Out of 307 employed individuals 187 (61%) were men and 120 (39%) were women (Table - 70 and Figure - 55). Among the 307 employed respondents, 85% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 4% were self employed and 4% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 71 and Figure - 56).

The data recorded indicated that, the majority of the fisherfolk family members were unemployed and greater part of the fishing workers in this village was not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. Majority of the women of fisherfok families in this village were involved mostly in household works and they were not regularly involved in fishery activities except in fish vending and hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.5.3.8. Fisheries and Economic condition of fishermen families

4.5.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, only 19 crafts were recorded in this village, (11 wooden Vallam and 5 motorized FRP Vallam) (Table – 72 and Figure - 57). Only two major types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 68 gears were available, out of which, 48 (71%) were Gill nets and 20 (29%) were Trawl nets (Table – 72). The local names of various type of Gill nets and Trawl nets are Kumula Valai (Drift Gill Net), Mural Valai(Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 76) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no much remarkable differences (Table - 72).

The observation revealed that, all the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to continue in poor economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

4.5.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) (Sadinella spp.), Mackerel (Kumula) (Rastrelliger spp.),Carangids (Parai) (Carangoides spp., Caranx spp.), Mullet (Madavai or Manali) (Liza spp., Mugil spp.), Breams (Vela meen) (1Lethrinus spp.),
Half Beaks (Mural) (Hemiramphus spp.), Barrcudas (Ooli) (Sphyraena spp.), Wolfherrings (Vallai) (Chirocentrus spp.), Goat fishes (Nagarai) (Upeneus spp.), Silverbellis (Karal) (Gazza spp., Leiognathus spp.), Crabs (Kadal Nandu) (Portunus spp. Charybdis spp., and Scylla spp.), Prawns (Iraal) (Penaeus spp.) and Cuttle fishes and Squids (Kanava) (Sepia spp., Loligo spp.) were recorded in the landing centre of P.V.Pattinam (Table – 76).

The commercially important representative fish species of the groups as mentioned above were recorded in the landing centre of P.V.Pattinam. The lesser variety of fish catch in P.V.Pattinam may be due to the non-availability of modern fishing equipments, mechanised boats and essential facilities pertaining to fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a & b) and Seenivasan and Ramadas (2014).

4.5.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 showed that, out of 109 families, 32 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 41%, 22% and 37% respectively. Whereas; during the year 2013 - 2014 there was no remarkable change in the data (Table - 73).

Regarding the investment the data recorded during the year 2012 - 2013 have indicated that, out of 109 families only 32 families have invested on fishing crafts and gears of which, 40% of families have invested less than ₹ 25,000/- towards purchase of crafts and gears. Whereas, 19% of families have invested ₹ 25,001/- to ₹ 50,000, 32% of families have invested ₹ 50,001 to ₹ 1,00,000 and 9% of families have invested above ₹ 1 lakh. The same status was observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014. As no one had invested on mechanized boats, the investment of above ₹ 1 lakh on crafts and gears by fisherfolk is very low (Table - 73 and Figure - 58).
In P.V.Pattinam, only 29% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Thus the economic status remains unchanged for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.5.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 109 families only 39 (36%) families have received the credit from various sources, among those families, 35 (90%) families obtained loan under the category of up to ₹25,000/-. Whereas 2 families (5%) have received loan amount in the range of ₹25,001 to ₹50000 and ₹50,001 to ₹1,00,000. It was noted that families in this village have not received loan amount above ₹1 lakh. Similar trend have also been observed during the year 2013 – 2014 (Table–166,185).

With reference to the data collected during the year 2012 – 2013, out of 39 (36%) families who have received loans, 15 (38%) families have utilized the credited amount on the purchase of crafts and gears and 17 (43%) families have utilized it for maintenance of crafts and gears and rest of the families (7) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 74 and Figure - 59)
Out of 39 families who received loan from credit sources, 32 families have utilized it for purchase, maintenance of crafts and gears only and rest of the families have invested for various other purposes. Any valuable step taken by the fishermen families with reference to the improvement of their economic status through investment on the crafts and gears have not been noticed in this village. This may be the most important reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.5.3.8.5. Earning Members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 109 families, 72 (66%), 30 (28%) and 7 (6%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not showed much difference (Table – 169, 188).

Out of six categories of income range the percentage of families under each category was recorded during 2012 - 2013 as 5%, 55%, 27%, 7%, 5%, and 1% respectively. As per the data collected, only 5% of fishermen families were belong to fifth category (₹1,60,001 to ₹2,00,000), whereas, only 1% were belong to the income category of ₹2,00,001 to ₹2,40,000 but, 55% were belonging to income category of ₹40,001 to ₹80,000. Altogether, the income level or the economic status of the fishermen population of the study area was observed as low. The percentage of families under higher income group seemed to be low. When compare to the year 2012-2013, there was 2% of decrease in the income group of ₹40,001 to ₹80,000 and 1% of increase in the income groups of ₹. 80,001 to ₹1,20,000 and ₹1,20,001 to ₹1,60,000 were recorded during the year 2013 – 2014 (Table - 75 and Figure - 60).
During 2012 - 2013, it was found that, 7 families (6%) were having three earning members per family. Usually women were not as a earning members and they involved mostly in household activities. Similar status was also observed during the year 2013 – 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.5.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

The government has taken various steps to improve the socioeconomic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with ₹4000/- per family and ₹2000/- during ban period (15th April to 29th May) to meet out the expenses of their family. As per field survey data, 104 families (95%) families have benefited by the special allowance of ₹4000/- during the lean fishing season and 102 families (94%) benefited by financial assistance of ₹2,000/- for fishing ban period during the study period. Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), a financial assistance of Rs.1800/- was provided by the Government to 285 individuals during the study period, which constituted about 60% and 59% of the total fisherfolk population of the village were benefited during the period of 2012-2013 and 2013-2014 respectively (Table – 170, 189). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 49. Fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 50. Age group-wise classification of fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 51. Individual-wise Identity Cards possessed by the fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 52. Housing Facilities of fisherfolk families in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

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Figure - 53. Educational Status of fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 54. Levels of Educational Status of fisherfolk (out of total literate) in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 55. Employment Status of fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 56. Occupational Status of individuals (out of total employed) in fisherfolk population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 57. Types and Number of Crafts available with fishermen population in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 58. Investment on Fishing crafts and Gears by the fishermen families in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 59. Purpose of Credit Utilization of the fisher folk families in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 60. Annual Income range of fishermen families in P.V.Pattinam during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.6. SOCIO-ECONOMIC STATUS OF NAMBUTHALAI FISHING VILLAGE

4.6.1. Description and of the fishing village

Nambuthalai is a village Panchayat of Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located at about 42 Km North to Ramanathapuram.

4.6.2. Common Facilities available in the fishing village

This village has Panchayat Union Primary School, Anganvadi, Bank and Ration Shop. However, the essential facilities like Auction hall, Fish drying platform, Cyclone shelter, Diesel bunk, Health Sub Centre, Ice plant and Railway station were not available in this village (Table- ). These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.6.3. Socio-economic Status of the Fishermen population

4.6.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 1243 & 1221 from 548 families and 1273 & 1245 from 561 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (54) was noticed during the period of 2013 - 2014 (2518) than in 2012 - 2013 (2464), and the average family size was recorded as 4.5 in during the two years of the study period. The data obtained were also indicated that, male members were more when compared to female (Table - 77 and Figure - 61).

Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21- 40 years were more (1005) and followed by 41-60 (762), 0-20 (660), and above 60 years (37) were recorded during the year 2012 – 2013. It has been inferred that,
71% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years and 29% belonged to the age groups of 0-20 years and above 60 years, whereas, 2% were in the age group of above 60 years. Where during year 2013-2014, the individuals in the age group 21-40 were more (1032) and followed by 0-20 (681), 41-60 (768), and above 60 years (37). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 72% (Table -78 and Figure -62).

4.6.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, 78% of the fishermen were belong to Hindus and 22% were Muslims and 78% the fishermen population were belonging to most backward community and 22% were belonging to backward community (Table – 154, 173).

In Nambuthalai, among the adults there has been no much variation in the number of male individuals (920 & 941)) when compared to females (911 & 924). Mostly, the male adults were getting involved in the fishing and allied activities whereas, female adults were engaged in household management and they were not involved regularly in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 71% and 72% during the study periods such as 2012 – 2013 and 2013 – 2014 respectively, the improvement in the economic status of the fishermen population was not noticed in the present study, this may probably be due to lack of basic facilities for fishery activities as well as their lack of interest. Similar studies have been carried out and reported by Senthilathiban and selvaraj (1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.6.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been
issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (1243), only 22% of males have obtained Biometric card, whereas, out of total male and females (2464), 73% and 67% of the individuals have obtained EPIC card and FSM card respectively. Likewise, out of total number of families (548), 99% of families were possessing family card besides, 97% and 76% families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (22% to 34%) besides, other identity cards, were not yet issued to the newly added families and individuals of this village (Tables – 79, 80 and Figure - 63)

As per the data observed the awareness among the fishermen with regard to utility of Biometric card, Tamil Nadu Fishermen Welfare Board (TNFWB) card and Fishermen society membership (FSM) card have been observed as low during the study period which indicated that, they were not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided the society which leads to the failure in the improvement of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.6.3.4. Residential Status of fishermen population

A total of 548 houses were recorded during the year 2012 - 2013, whereas, the number of houses were found to increase from 548 to 561 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 548 respondent families, 84% families have got own houses. Out of own houses, 34% houses were constructed by the Central and State Government (both free houses and Tsunami houses) (Table -81). Out of
the total number of 548 houses the concrete houses, tiled houses and thatched houses were recorded as 41%, 32%, and 27% (Table - 81 and Figure - 64). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (12%) whereas, about 43% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 45% have two rooms (a living room and a bed room). Besides, 237 fishermen families (43%) were living in houses with three rooms, of which 155 houses (65%) were built under Government Schemes. Similarly, 83% of the respondents have got own house in the year 2013 - 2014. Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 81). There were no remarkable variations in the data recorded during 2013-14 when compared to the data recorded during the year 2012 - 2013 except increase in the number of concrete houses and titled houses and in the increase in the number of houses with two rooms and house with 3 rooms with corresponding increase of total houses (Table -81).

Above 80% of the fisherfolk population have own houses in this fishing village, only 12% of them have recorded to possess more than three rooms. During two years of study period. Majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their economic status. This condition has been reported in many parts of our country by many workers. The results were corroborated with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.6.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

It was recorded that almost all the fisherfolk houses were electrified during the years 2012 - 2013 and 2013 - 2014 (Table - 82). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 548 houses, 201 (37 %) were provided with toilet facilities. The remaining
families were using common toilet provided by the Government of Tamil Nadu and open
defecation was also noticed. The data recorded have inferred that, only 8% of the households
were using well water and bore well water for drinking purpose. The remaining 90%
households in this village were using public water taps in the streets of the village provided
by the Government of Tamil Nadu. There were no much variations in the data obtained
between the years 2012 – 2013 and 2013 - 2014 (Table - 82).

Electricity is supposed to be indispensable for modern living and hence electricity
also one of the indicators of the level of economic conditions of the fisher folks. It is obvious
that all the fishermen houses were electrified. Generally a sizable number of households in
all the coastal villages of Ramanathapuram district do not have any latrines or toilets. The
data collected in the study area during the study period have indicated that, out of 548
houses, 201 (37%) houses were provided with toilet facilities. Whereas, 63% fishermen
families were using common toilet provided by the Government of Tamil Nadu. The open
defecation by the fishermen population in the areas nearby their residence forms the basic
reason for the spread of infectious diseases among fisherfolk population in turn which also
weakened their economic condition by affecting their health. The results were in
close agreement with the reports of Panikkar and Alagarraja (1981) and Seenivasan and
Ramadas (2014).

In the coastal region the salinity of ground water is very high. The data obtained
during the study period have indicated that, the percentage of people using bore- well and
open well water for drinking purpose is very meager and 92% of households were using
public water taps provided by the Government of Tamil Nadu in the streets of the village.
The presence of basic amenities in the village will also contribute to the health of the
fisherfolk and which seemed to be the indicator of their economic status. Similar
conditions have also reported by Nuruzzaman (1990); Hussain (1994); Narayanakumar et
4.6.3.6. Educational Status of fisherfolk population

Illiteracy was the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 66% of the respondents are literates and remaining were belonging to illiterate (27%) and below 5 years (7%) categories (Table – 83 and Figure -65). Even though, 66% were literates, among them, large numbers of fishery workers were in the lower educational categories (63% of the respondents have studied primary level of education and 22% were studied at middle school level only). H.Sc qualified (1%) and Graduates (1%) were lesser in numbers. It was observed that the fishermen populations have a positive attitude towards education and they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table - 84 and Figure -66).

Education is the level of development in any society. A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 66% were literates, H.Sc qualified (3%) and Graduates (2%) were lesser in numbers and out of 66% about 85% were in the lower educational categories. Thus, the educational status has been observed as very low which forms the major hurdle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar status have been reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.6.3.7. Employment status: Classification of fishermen population based on their occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 2464 fisherfolk in Nambuthalai 1491 (61%) were employed and 1513 (60%) were unemployed. Out of 1491 employed individuals 954 (64%) were men and 537 (36%) were women (Table - 85 and Figure - 67). Among the 1491 employed respondents, 74% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 7% were self employed and 7% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 86 and Figure - 68).

As per data recorded that clearly evident that, the majority of fisherfolk family members were unemployed. Moreover most of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. The women living in this village were involved mostly in household works and they were not involved in regular fishery activities. Even though they were engaged in fish curing, fresh and tried fish trade, they usually sold low valued small size fishes, which fetched poor profit margin and hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar status have been reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson et al., (1993); (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.6.3.8. Fisheries and Economic condition of fishermen families

4.6.3.8.1. Craft and Gears

Regarding the availability of crafts and gears during the study period, 2012 – 2013 and 2013 - 2014, a total number of 163 crafts were recorded in this village. (39 wooden
There were only two major types of gears available with the fishermen population such as Gill net and Trawl net. Altogether, a total of 670 gears were available, out of which, 585 (87%) were Gill nets and 85 (13%) were Trawl nets (Table - 87). The local names of various type of Gill nets and Trawl nets are Choodai Valai (Drift Gill Net), Kumula Valai (Drift Gill Net), Oozhi Valai (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil and Madi valai or Illuppu valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 91).

The observation revealed that, all the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in close agreement with the similar reports of CMFRI (1985); Sreenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

4.6.3.8.2. Fishery Resources

(Pampus spp.), Black Pomfrets (Karu Vaval) (Formio spp.), Seer fisies (Seela or Vancheeram) (Scomberomorus spp.), Shark (Sorrah) (Scoliodon spp.), Cat fish (Keluthi) (Arius spp.), Lizard fish (Thumibili) (Saurdia spp.), Crabs (Kadal Nandu) (Portunus spp. Charybdis spp. and Scylla spp.), Prawns (Iraal) (Penaeus spp.) and Cuttle fishes and Squids (Kanava) (Sepia spp., Loligo spp). were recorded in the landing centre of Nambuthalai (Table - 91).

The commercially important representative fish species of above stated groups were recorded in the landing centre of Nambuthalai (Table - 39a and 39b). The lesser commercially importance variety of fish catch in Nambuthalai might probably be due to the non-availability of modern fishing equipments, mechanized boats and essential facilities pertaining to their fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

4.6.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 showed that, out of 548 families, 251 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 35%, 36% and 29% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 88).

Regarding the investment, the data recorded the data recorded during the year 2012 - 2013 have indicated that, out of 548 families only 251 families have invested on fishing crafts and gears of which, only 12% of families have invested less than ₹25,000/- towards purchase of crafts and gears. Whereas, 18%, 13% and 57% families have invested ₹25, 001 to ₹50, 000, ₹ 50,001 to ₹1,00,000 and above ₹1lakh respectively. The same status was observed with regard to the investment on the fishing crafts and gears by the fisherfolk.
during the year 2013-2014, except an increase in the number of families (from 548 to 561). (Table - 88 and Figure - 70).

Based on the data collected, only 46% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. The proportion of owner operators were less because of more capital requirement for possessing motorized and mechanized fishing units. Thus, the economic status remain unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman., (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.6.3.8.4. Details of sources of credit for fisherfolk population and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. Based on the data collected during the year 2012 - 2013, out of 548 families only 189 (34%) families have received the credit from various sources, among those families, the number of fishermen families who have obtained loan under the category of up to ₹25,000 were more 131 (69%) when compared to remaining categories. About 51 (27%),5 (3%) and only 2 (1%) families have received loan amount in the range of ₹25001/- to ₹50000/-, ₹50001/ to ₹1 lakh and above ₹1 lakh from credit sources respectively. Similar trend was observed during the year 2013 - 2014 (Table – 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 147 (31%) families who have received loans, 39 (27%) families have utilized the credited amount on the purchase of crafts and gears and 35 (24%) families have utilized it for maintenance of crafts and gears and rest of the families (73) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and
miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 89 and Figure - 71).

Fishing families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Out of 189 families who received loan from credit sources only 138 families have utilized it for maintenance of crafts and gears only and rest of the families have invested for various other purposes. Any valuable step taken by the fishermen families with reference to the improvement of their economic status through investment on the crafts and gears have not been noticed in this village. Lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.6.3.8.5. Earning Members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 548 families, 312 (57%), 160 (29%) and 76 (14%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not revealed much difference (Table 169, 188).

Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 3%, 41%,31%, 18%, 4%, and 3% respectively. As per the data collected, only 4% and 3% of fishermen families were belong to the income
categories of ₹1,60,001 to ₹2,00,000 and ₹2,00,001 to ₹2,40,000 respectively but, 41% and 31% of families were belonging to income categories of ₹40,001 to ₹80,000 and ₹80,001 to ₹1,20,000. Altogether, the income level or the economic status of the fishermen population of the study area was observed as low and in the middle range. The percentage of families under higher income group seemed to be very low. There was no much difference in the data collected regarding the Annual Income of fishermen families during the years 2013 - 2014 and 2013 - 2014 (Table – 90 and Figure - 72).

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 – 2013, it was found that, only 76 families (14%) were having three earning members per family. Among the earning members, it was observed that the women were not regular earning members. Similar status was observed during the year 2013 - 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.6.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 510 families (93%) and 510 (93%) families have benefited by the special allowance of ₹4000, during the lean fishing season and 508 (93%) families and 510 (91%) families have benefited by the special allowance of ₹2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170, 189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹1800/- was provided by the Government to 1454 (49%) individuals in 2012 - 2013 and 1462 (48%) individuals in 2013 - 2014 of the total population of the village (Table – 170, 189).
The government has taken steps various steps to improve the socioeconomic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with Rs. 4000/- per family and Rs.2000/- during ban period (15th April to 29th May) to meet out expenses of their family. More than 90% of fisherfolk were benefitted by these schemes. Whereas 59% of the individuals benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 61. Fisherfolk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 62. Age group-wise classification of fisherfolk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 63. Individual-wise Identity Cards possessed by the fisherfolk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 64. Housing Facilities of fisherfolk families in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 65. Educational Status of fisherfolk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 66. Levels of Educational Status of fisherfolk (out of total literate) in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 67. Employment Status of fisher folk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 68. Occupational Status of individuals (out of total employed) in fisher folk population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 69. Types and Number of Crafts available with fishermen population in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 70. Investment on Fishing crafts and Gears by the fishermen families in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 71. Purpose of Credit Utilization of the fisherfolk families in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 72. Annual Income range of fishermen families in Nambuthalai during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.7. SOCIO-ECONOMIC STATUS OF LANJIYADI FISHING VILLAGE

4.7.1. Description and of the fishing village

Lanjiyadi is a hamlet under the jurisdiction of Mugulthagam Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate -1) and located at 39 Km North to District head quarters Ramanathapuram.

4.7.2. Common facilities available in the fishing village

This village has a Ration Shop. The essential facilities like School, Anganvadi, Health Sub Centre, Veterinary sub centre, Post Office, Sea shore light Banking facility, Auction hall, Fish drying platform, Cyclone shelter, Diesel bunk, Ice plant and Railway station were not available in this village (Table ). These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.7.3. Socio-economic Status of the Fishermen population

4.7.3.1. Gender-wise and Age-wise Composition of fishermen population

The male members were more than female were recorded as 161 & 150 from 61 families and 163 & 153 from 61 families during the year 2012 - 2013 and 2013 - 2014 respectively. A little (5) increase in the total fisherfolk population was noticed during the period 2013 - 2014 (316) than 2012 - 2013 (311). The average family size was recorded as 5 in 2012 - 2013 and 5.1 in 2013 - 2014 (Table - 92 and Figure - 73).

Based on the age-wise composition of the fishermen population, the individuals in the age group 0-20 were more (129) followed by 21-40 (116), 41-60 (60), and above 60 years (6) were recorded during the year 2012 - 2013. It has been inferred that 57% of the fishing workers engaged in various fishing activities belong to the age groups of 21-40 years.
and 41-60 years. Whereas during the year 2013 – 2014, the individuals in the age group 0- 20 were more (131) which was followed by 21-40 (119), 41-60 (60), and above 60 years (6). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 57% (Table - 93 and Figure - 74).

In Lanjiyai, mostly, the male adults were getting involved in the fishing and allied activities whereas, female adults were engaged in household management and they were not involved regularly in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 57%, the improvement in the economic status of the fishermen population was not noticed in the present study, this may probably be due to lack of basic facilities for fishery activities as well as their lack of interest. The results were corroborates with the reports of out and reported by Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.7.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, all the fishermen in this village were belonging to Hindu religion and scheduled caste community. (Table – 154, 173).

4.7.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (161), only 20% of males have obtained Biometric card, whereas, out of total male and females (311), only 57% and 53 % of the individuals have obtained EPIC card and FSM cards respectively. Likewise, out of total number of families (62), only 56 (90%) families were family card holders besides, 54
(87%) and 54(87%) families were possessing TNFWB and Government Insurance Scheme cards respectively. There were no much variations in the data obtained regarding identity cards, between the years 2012 – 2013 and 2013 - 2014 except, there was a slight increase of Biometric card holders (20% to 29%) of this village (Tables – 94, 95 and Figure -75).

As per the data observed the awareness among the fishermen with regard to utility of have been observed as very low during the study period which indicated that, they are not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided the society which leads to the failure in the improvement of their economic status.

The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.7.3.4. Residential Status of fishermen population

A total of 62 houses were recorded during the study periods, 2012 – 2013 and 2013 – 2014. Ownership of the house was one of the indicators of socio-economic conditions of fishermen. During the both the years of the study period, it was observed that, out of the 62 respondent families, 98% families have got own houses (Table – 96). Out of the total number of 62 houses, the thatched houses, titled houses, and lite roofed houses were recorded as 77%, 21% and 1% respectively (Table – 96 and Figure – 76). The lands in this village were sandy and many legal problems persist regarding the lands in the village. So no permanent concrete houses were constructed by the fishermen and also Central and State Governments (both free houses and Tsunami houses). Likewise, 65% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 35% have two rooms (a living room and a bed room). Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 96).
About 97% of the fisherfolk population have own houses in the fishing village. Only 35% of houses have three rooms. Majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their poor economic status. This condition has been reported in many parts of our country by many workers. This results were corroborates with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.7.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

It was recorded that almost all the fisherfolk houses were electrified during the years 2012 - 2013 and 2013 - 2014 (Table - 97). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the both the years of the study period, out of 62 houses, only 8 (13%) houses were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. The data obtained regarding amenities during the study period have inferred that, for drinking purpose all the households in this village were using public water taps in the streets of the village by provided the Government of Tamil Nadu (Table -97).

The electricity is also one of the indicators of the level of economic conditions of the fisherfolks. It is obvious that about 95% the fishermen houses were electrified. Generally a sizable number of households in all the coastal villages of Ramanathapuram district do not have any household toilets. The data collected have indicated that, out of 62 houses, only 8 houses were provided with toilet facilities. Whereas, 87% fishermen families were using common toilet facility provided by the Government of Tamil Nadu. The open defecation by the fishermen population in the areas nearby their residence forms the basic reason for the spread of infectious diseases among fisherfolk population in turn which also weakened their
economic condition by affecting their health. The results were in close agreement with the reports of Panikkar and Alagarraja, (1981) and Seenivasan and Ramadas (2014).

All the households were using public water taps provided by the Government of Tamil Nadu in the streets of the village for drinking purpose during the study period. The presence of basic amenities in this village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994); Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.7.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 77% of the respondents are literates and remaining were belonging to illiterate (17%) and below 5 years (6%) categories (Table - 98 and Figure -77). It was observed that the fishermen populations have a positive attitude towards education. Even though, 77% were literates, large numbers of fishery workers were in the lower educational categories (32% of the respondents have studied primary level of education and 20% were studied at middle school level only). H.Sc qualified (3%) and Graduates (8%) were lesser in numbers. But they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table - 99 and Figure -78).

Education is the level of progress in any society. A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 77% were literates, H.Sc qualified (3%) and Graduates (8%) were lesser in numbers and out of 77% about 52% were in the lower educational categories. Thus, the educational status has been observed as very low which forms the major hurdle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The
occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.7.3.7. Employment status: Classification of fishermen population based on their Occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 311 fisherfolk in Lanjiyadi 136 (44%) were employed and 175 (56%) were unemployed. Out of 136 employed individuals 77 (57%) were men and 59 (43%) were women. (Table - 100 and Figure - 79). Among the 136 employed respondents, 87% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 8% were self employed and 3% were coolie. Majority of the fishing workers are not having any subsidiary occupation. There were no much differences in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 101 and Figure - 80).

It was clearly evident that, the majority of the fisherfolk family members were unemployed. Furthermore, majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. Most of the women living in this village were involved mostly in household works and they were not involved in regular fishery activities. Even though they were engaged in fish curing, fresh and tried fish trade, they usually sold low value small size fishes, which fetched poor profit margin and hence there has been no remarkable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).
4.7.3.8. Fisheries and Economic condition of fishermen families

4.7.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, 33 mechanized boats and two major types of gears such as, Gill net and Trawl net were available for their fishing activities in this village. Altogether, a total of 82 gears were available, out of which, 12 (15%) were Gill nets and 70 (85%) were Trawl nets (Table – 102). The local names of various type of Gill nets and Trawl nets are Kumula Valai (Drift Gill Net), Oozhi Valai (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 106) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no differences except in increase of two FRP vallams (Table - 102).

All the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in agreement with the similar reports of CMFRI (1985); Sreenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

4.7.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) (Sadinella spp.), Mackerel (Kumula) (Rastrelliger spp.), Carangids (Parai) (Carangoides spp., Caranx spp.), Mullet (Madavai or Manali) (Liza spp., Mugil spp.), Sea Perch (Chenganni) (Psammoperca spp.), Breams (Villa meen) (Lethrinus spp.), Thread fin breams (Sankara) (Nemipterus spp.), Wolfherrings (Vallai) (Chirocentrus spp.), Half Beak (Mural) (Hemiramphus spp.), Full
Beak (Mural) (*Strongulura* spp.), Spine foots (Ora) (*Siganus* spp.), Thryssa (Poruva) Ribbon fish (Savalai) (*Trichiurus* spp.), Goat fishes (Nagarai) (*Upeneus* spp.), Mojarras (Oodagam) (*Gerres* spp.), Barrcudas (Ooli) (*Sphyraena* spp.), Silverwhitings (Kilangan) (*Silago* spp.) Silverbellis (Karal) (*Gazza* spp., *Leiognathus* spp.), Anchovies (Nethili) (*Stolephorus* spp.), Silver Pomfrets (Vella vayal) (*Pampus* spp.), Black Pomfrets (Karu Vaval) (*Formio* spp.), Seer fises (Seela or Vancheeram) (*Scomberomorus* spp.), Shark (Sorrah) (*Scoliodon* spp.), Ray (Thirukkai) (*Dasyatis* spp.), Cat fish (Keluthi) (*Arius* spp.), Lizard fish (Thumibili) (*Saurdia* spp.), Crabs (Kadal Nandu) (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.), Prawns (Iraal) (*Penaeus* spp.) Cuttle fishes and Squids (Kanava) (*Sepia* spp., *Loligo* spp.) were recorded in the landing centre of Pasipattinam (Table - 106).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of Lanjiyadi. The variety of fishes with less commercial importance were dominant in the fish catch of Lanjiyadi fishery village may be due to the non-availability of important facilities pertaining to their fishing activities. The results were also close in agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

**4.7.3.8.3. Details of ownership and investments on fishing Crafts and Gears**

The data recorded during the year 2012 - 2013 have indicated that, out of 62 families only 35 families have owned crafts and gears, among those families the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 6%, 77% and 17% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data (Table - 103).

Regarding investment, the data recorded during the year 2012 - 2013 have indicated that, out of 62 families only 35 families have invested on fishing crafts and gears of which, only 6% of families have invested less than ₹ 25,000/- towards purchase of crafts and gears. The remaining 94% families have invested above 1 lakh towards purchase of fishing
equipments. Data recorded regarding the investment on the fishing crafts and gears by the fisherfolk during the year 2013 - 2014 have no remarkable variation (Table – 103 and Figure - 81). It was inferred that, all the boats in this village were mechanized boats so the investment for fishery equipments was seemed to be very high.

As per the data collected, only 56% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. The proportion of owner operators was less because of more capital requirement for possessing motorized and mechanized fishing units. Thus the economic status remains unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman., (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.7.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by fishermen population

The data have been collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks, and other sources. The data collected during the year 2012 - 2013, out of 62 families, only 54 (87%) families have received the credit from various sources, among those families, 17 (31%), 22 (41%), 13 (24%) and 2 (4%) families have obtained loan under the category of up to ₹25,000, ₹25001/- to ₹50000, ₹50001- ₹1 lakh and above ₹1 lakh respectively. Similar trend have also been observed during the year 2013 - 2014 (Table – 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 54 (87%) families who have received loans, only 3 (6%) families have utilized the credited amount on the purchase of crafts and gears. 17 (31%) families have utilized it for maintenance of crafts and gears and rest of the families have invested for various other purposes like family
expenses, construction and repairing of houses, marriage and social functions and miscellaneous expenditure. Whereas data collected during the year 2012 - 2013 and 2013 – 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 104 and Figure - 82).

Out of 54 families who received loan from credit sources only 20 families have utilized it for purchase and repairs of crafts and gears only and rest of the families have invested for various other purposes. Any valuable step taken by the fishermen families with reference to the development of their economic status through investment on the crafts and gears have not been noticed in this village. Though most of the fishermen families have owned the mechanized boats, they gave boats for lease or chair to some other non-fishermen due to high operational and maintenance cost and hence, the fisherfolk could not get the entire benefit out of fishing in this region. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981), Narayananakumar et al., (2000); Panikkar and Alagarraj (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

### 4.7.3.8.5. Earning Members and Annual income range of fisherfolk family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 62 families, 15 (24%), 40 (65%) and 07 (11%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not revealed much difference (Table – 169, 188).
Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 6%, 29%, 8%, 3%, 25%, and 29% respectively. As per the data collected, 25% and 29% of the families were belonging to the incoming categories of ₹160001 to ₹200000 and ₹200001 to ₹240000 respectively. Altogether, the income level or the economic status of the majority of fishermen population of the village was observed as in the higher income categories because, about 50% families were possessing mechanized boats. When compare to the year 2012-2013, there was 2% of increase in the income groups of ₹80,001 to ₹1, 20,000 and ₹2, 00,001 to ₹2, 40,000 respectively, were recorded during 2013 – 2014 (Table - 105 and Figure - 83).

The data observed have indicated that, the number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 – 2013, it was found that, only 7 (11%) respondent families have three earning members per family. Among the earning members, it was observed that the women were not regular earning members. Similar status was observed during the year 2013 – 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast in this range alone and which has been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.7.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 42 families (68%) families have benefited by the special allowance of ₹4000, during the lean fishing season and ₹2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the study periods, 2012 - 2013 and 2013 - 2014 (Table – 170, 189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹1800/- was provided by the Government to 141 (45%) individuals in 2012 - 2013 and 2013 - 2014 of the total population of the village.
The Central and State Governments have taken steps various steps to improve the socioeconomic conditions of the fisherfolk. Fishermen were suffered lot due to various reasons during lean fishery season (October to December) they were provided with ₹4000/- per family and ₹2000/ during ban period (15th April to 29th May) to meet out expenses of their family. About 42% of fisherfolk families were benefitted by these schemes. Whereas 45% of the individuals benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS) during the study period. This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure – 73. Fisherfolk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 74. Age group-wise classification of fisherfolk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 75. Individual-wise Identity Cards possessed by the fisherfolk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure – 76. Housing Facilities of fisherfolk families in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 77. Educational Status of fisherfolk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 78. Levels of Educational Status of fisherfolk (out of total literate) in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 79. Employment Status of fisher folk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 80. Occupational Status of individuals (out of total employed) in fisher folk population in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure – 81. Investment on Fishing crafts and Gears by the fishermen families in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure – 82. Purpose of Credit Utilization of the fisher folk families in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014.

Figure - 83 Annual Income range of fishermen families in Lanjiyadi during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.8. SOCIO-ECONOMIC STATUS OF M.V.PATTINAM @ SOLIYAKUDI FISHING VILLAGE

4.8.1. Description of the fishing village

M.V.Pattinam @ Soliyakudi is a hamlet under the jurisdiction of Mugulthagam Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate -1) and located at 39 Km North to Ramanathapuram.

4.8.2. Common facilities

In this village, Panchyat Union Primary School, Anganvadi, Marine Police Station, Ration Shop, Auction Hall, Sea Shore Light Facility, Diesel Bunk, Ice Plant and Jetty are available in this village. However, this village has no Banking facility, Health Sub Centre, Post Office, Cyclone shelter and Railway station. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. This results were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.8.3. Socio-economic Status of the Fishermen population

4.8.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 284 & 245 from 116 families and 288 & 256 from 120 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (15) was noticed during the period of 2013 -2014 (529) than in 2012-2013 (544), and the average family size was recorded as 4.6 and 4.5 during the years 2012-2013 and 2013-2014 respectively. The data obtained were also indicated that, male members were more when compared to female(Table-107 and Figure 84).

Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21-40 years were more (198) and followed by 0-20 (189), 41-60 (99) and
above 60 years (43) were recorded during the year 2012-2013. It has been inferred that, 56% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Where during year 2013 – 2014, the individuals in the age group 21-40 were more (203) and which was followed by 0-20 (193), 41-60 (408), and above 60 years (44) were observed. On a whole, the percentage of working class people (21-40 years & 41-60 years) was observed as 65% (Table - 108 and Figure - 85).

In M.V. Pattinam @ Soliyakudi, among the adults, the number of male individuals (190 & 192) was slightly more when compared to females (154 & 163). Mostly, the male adults were getting involved in the fishing and allied activities and female adults were engaged in house hold management and they were not involved regularly in fishery and allied activities. Though, the percentage of working class people (21-40 years & 41-60 years) was observed as 56%, the progress in the economic status of the fishermen population was not noticed in the present study, this may be due to lack of basic facilities for fishery activities as well as their lack of interest. The results were corroborated with the reports of Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.8.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, all the fishermen in this village were belonging to Hindu religion and backward community. (Table – 154, 173).

4.8.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (284), only 16% of males have
obtained Biometric card, whereas, out of total male and females (529), only 62% and 57% of the individuals have obtained EPIC card and FSM cards respectively. Likewise, out of total number of families (116), only 112 (97%) families were family card holders besides, 96 (83%) and 101(87%) families were possessing TNFWB and Government Insurance Scheme cards respectively. The data recorded during the year 2013 - 2014, have indicated that, there was a slight increase of Biometric card holders (16% to 33%) besides, other identity cards, were not yet issued to the newly added families and members of this village (Tables – 109, 110 and Figure - 86).

The awareness among the fishermen with regard to utility of various ID cards have been observed as very low in the village, this showed that, their less interest in doing fishery activities as well as they failed to utilize the financial assistance provided by the society which leads to the failure in the upgrading of their economic status. The unawareness of the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

4.8.3.4. Residential Status of fishermen population

A total of 116 houses were recorded during the year 2012 - 2013, whereas, the number of houses were found to increase from 116 to 120 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 116 respondent families, 95% families have got own houses. Out of own houses, 63% houses were constructed by the Central and State Government (both free houses and Tsunami houses) (Table - 111).Out of the total number of 116 houses, the concrete houses, titled houses, thatched houses and liter roofed houses were recorded as 62%, 25%, 11% and 2% respectively (Table - 111 and Figure - 87). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (14%) whereas, about 69% houses
have three rooms (a small living room, a bed room and a kitchen) and remaining 17% have
two rooms (a living room and a bed room). Besides, 80 fishermen families (69%) were
living in houses with three rooms, of which 69 houses (86%) were built under Government
Schemes. Similarly, 93% of the respondents have got own house in the year 2013 - 2014.
Further, it was also recorded that, the majority of fishing workers are living in their own
houses (Table - 111). There were no remarkable variations in the data recorded during the
study periods (2013-2014 and 2012 – 2013) except increase in the number of concrete
houses (from 72 to 74), titled (from 29 to 31) and also the houses with two rooms (from 20
to 24) (Table - 111).

In M.V. Pattinam @ Soliyakudi, more than 90% of the fisherfolk population have
own houses in this fishing village. Only 14% and 13% of them have more than three rooms.
In recent years, under the housing schemes provided by State and Central Governments,
houses with three rooms have been constructed for fisherfolks. Though, majority of the
houses of fishermen family were small in size with lesser number of rooms which indicated
their poor economic status. This condition has been reported in many parts of our country by
many workers. These results were corroborating with the reports of Panikkar and Alagarraja
(1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.8.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the
years 2012 - 2013 and 2013 - 2014 (Table - 112). Even though, Swatch Bharath Mission
was introduced in India, sanitary facilities were lacking in most of the coastal areas of
Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated
that, out of 116 houses, 76 (66 %) were provided with toilet facilities. The remaining
families were using common toilet provided by the Government of Tamil Nadu and open
defecation was also noticed. There were no much variations in the data obtained between the
years 2012 – 2013 and 2013 - 2014 (Table - 112). Besides, the data recorded have also
inferred that, for drinking purpose all the households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu (Table - 112).

It is obvious that about 98% the fishermen houses were electrified. The data collected in the study area during the two years of study period have indicated that, out of 116 houses, 76 were provided with toilet facilities. Whereas, 33% fishermen families were using common toilet facility provided by the Government of Tamil Nadu. The open defecation by the fishermen population was predominant in this village which in the spread of infectious diseases among fisherfolk population in turn which also weakened their economic condition by affecting their health. The results were in close agreement with the reports of Panikkar and Alagarraja, (1981) and Seenivasan and Ramadas (2014).

In the marine sector, even though, the fishing hamlets are provided with protected water supply, the salinity of ground water is very high. All the households were using public water taps provided by the Government of Tamil Nadu in the streets of the village for drinking purpose during the study period. The presence of basic amenities in the village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994); Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.8.3.6. Educational Status of fisherfolk population

Illiteracy was the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have clearly indicated that, nearly 82% of the respondents are literates and remaining were belonging to illiterate (13%) and below 5 years (5%) categories (Table - 113 and Figure - 88). It was observed that the fishermen populations have a positive attitude towards education. Even though, 82% were literates, large numbers of fishery workers were in the lower educational categories (54% of the respondents have studied primary level of education and 21% were studied at middle school level only). H.Sc qualified (9%) and
Graduates (5%) were lesser in numbers. But they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013 - 2014 (Table - 114 and Figure - 89).

Education is the level of development in any society. A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 82% were literates, H.Sc qualified (9%) and Graduates (5%) were lesser in numbers and out of 82% about 75% were in the lower educational categories. Thus, the educational status has been observed as very low which forms the major obstacle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.8.3.7. Employment status: Classification of fishermen population based on their occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 529 fisherfolk in M.V.Pattinam @ Soliyakudi 300 (57%) were employed and 229 (43%) were unemployed. Out of 300 employed individuals 172 (57%) were men and 128 (43%) were women. (Table –115 and Figure - 90). Among the 300 employed respondents, 92% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 1% were self employed and 3% were coolie. Majority of the fishing workers are not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 116 and Figure - 91).

The majority of the fisherfolk family members in the village were unemployed. In addition a greater part of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities.
and most of the women living in this village were involved mostly in household works and they were not involved in regular fishery activities. Even though they were engaged in fish curing, fresh and tried fish trade, they usually sold low value small size fishes, which fetched poor profit margin and hence there has been no notable improvement in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.8.3.8. Fisheries and Economic condition of fishermen families

4.8.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of 55 crafts were recorded in this village. (4 wooden vallam, 18 motorized FRP vallam and 33 mechanized boats) (Table - 117 and Figure - 92). Only two major types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 451 gears are available, out of which, 382 (85%) were Gill nets and 69 (15%) were Trawl nets (Table - 102). The local name of various type of Gill nets and Trawl nets are Kumula Valai (Drift Gill Net), Mural Valai(Drift Gill Net), Oozhi Valai (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Vala i (Bottom Set Trawl Net), Kanavai Thoondil and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 121) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no differences except in increase of two FRP vallams (Table - 117).

Based on the observation it is evident that, all the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch sufficient money for their family. This resulted to remain in poor
economic condition forever. There has been no remarkable change in the possession of crafts and gears by the fishermen families during the two years of study period. The results were in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); and Seenivasan and Ramadas (2014).

4.8.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) (*Sadinella* spp.), Mackerel (Kumula) (*Rastrelliger* spp.), Carangids (Parai) (*Carangoides* spp., *Caranx* spp.), Mullet (Madavai or Manali) (*Liza* spp., *Mugil* spp.), Sea Perch (Chenganni) (*Psammoperca* spp.), Brems (Villa meen) (*Lethinus* spp.), Thread fin brems (Sankara) (*Nemipterus* spp.), Wolfherrings (Vallai) (*Chirocentrus* spp.), Half Beak (Mural) (*Hemiramphus* spp.), Full Beak (Mural) (*Strongulura* spp.), Spine foots (Ora) (*Siganus* spp.), Thryssa(Poruva) Ribbon fish (Savalai) (*Trichiurus* spp.), Goat fishes (Nagarai) (*Upeneus* spp.), Mojarras (Oodagam) (*Gerres* spp.), Barrcudas (Ooli) (*Sphyraena* spp.), Silverwhitings (Kilangan) (*Silago* spp.), Silverbellis (Karal) (*Gazza* spp., *Leiognathus* spp.), Anchovies (Nethili) (*Stolephorus* spp), Silver Pomfrets (Vella vayal) (*Pampus* spp.), Black Pomfrets (Karu Vaval) (*Formio* spp.), Seer fisies (Seela or Vancheeram) (*Scomberomorus* spp.), Shark (Sorrah) (*Scoliodon* spp.), Ray (Thirukkai) (*Dasyatis* spp.), Cat fish (Keluthi) (*Arius* spp.), Lizard fish (Thumibili) (*Saurdia* spp.), Crabs (Kadal Nandu) (*Portunus* spp. *Charybdis* spp.) and (*Scylla* spp.), Prawns (Iraal) (*Penaeus* spp.) Cuttle fishes and Squids (Kanava) (*Sepia* spp., *Loligo* spp.) were recorded in the landing centre of Pasipattinam (Table - 121).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of M.V.Pattinam @ Soliyakudi (Table - 39a and 39b). The variety of fishes with less commercial importance were dominant in the fish catch of M.V.Pattinam @ Soliyakudi fishery village may be due to the non-availability of indispensable facilities pertaining to their fishing activities. The results were also in close
agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

**4.8.3.8.3. Details of ownership and investments on fishing Crafts and Gears**

The data obtained during the year 2012 - 2013 have showed that, out of 116 families, 63 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 13%, 35% and 52% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 118).

Regarding investment, the data recorded during the year 2012 - 2013 have indicated that, out of 116 families only 63 families have invested on fishing crafts and gears of which, only 5% of families have invested less than ₹25,000/- towards purchase of crafts and gears. Whereas, 8%, 35%, and 52% families have invested ₹25, 001/- to ₹50, 000, ₹50, 001/- to ₹1, 00,000/- and above ₹1lakh respectively. The same status was also observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in the number of families (from 116 to 120). As 33 mechanized boats were available in this village, the investment of over and above ₹1 lakh on crafts and gears by fisherfolk was found to be more. (Table - 118 and Figure - 93).

In M.V.Pattinam @ Soliyakudi, only 54% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Thus, the economic status remains unchanged for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj 1981); Narayanakumar et al., (2000); Panikkar and Alagararraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).
4.8.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 116 families 80 (68%) families have received the credit from various sources, among those families, 59 (74%) have obtained loan under the category of up to ₹25,000. Whereas 19 (24%) and 2 families (2%) have received the loan amount in the range of ₹25001/- to ₹50000/- and of ₹50001/- to ₹1 lakh respectively. Similar trend was observed during the year 2013 - 2014 (Table– 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 80 (68%) families who have received loans, only 22 (27%) families have utilized the credited amount on the purchase of crafts and gears and 29 (36%) families have utilized it for maintenance of crafts and gears and rest of the families (29) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. The same status was observed with regard to purpose of credit utilization by the fisher folk during the year 2013-2014, (Table - 119 and Figure - 94).

In M.V.Pattinam @ Soliyakudi out of 80 families who received loan from credit sources only 51 families have utilized it for maintenance of crafts and gears only and rest of the families have invested for various other purposes. Any valuable step taken by the fishermen families with reference to the improvement of their economic status through investment on the crafts and gears have not been noticed in this village. Though most of the fishermen families have owned the mechanized boats, they gave boats for lease or chair to some other non-fishermen due to high operational and maintenance cost and hence, the fisherfolk could not get the entire benefit out of fishing in this region. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate of interest (10% per month or even more). Though they
work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981), Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.8.3.8.5. Earning Members and Annual income range of fishermen family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 116 families, 60 (52%), 52 (32%) and 19 (16%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have not revealed much difference (Table – 169, 188).

Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 4%, 37%, 21%, 10%, 9%, and 19% respectively. As per the data collected, only 9% and 19% of fishermen families were belong to fifth category, ₹1,60,001 to ₹2,00,000 and sixth income category of ₹2,00,001 to ₹2,40,000 but, 37% and 21% of fishermen families were belonging to income categories of ₹40,001 to ₹80,000 and ₹80,001 to ₹1,20,000 respectively. Altogether, the income level or the economic status of the majority of fishermen population of the study area was observed as low and in the middle range but 28% of the fisherfolk families in the higher income categories. When compare to the year 2012-2013, there was 1% of increase in the income groups of ₹1, 60, 001to ₹2, 00,000 and ₹2, 00,001 to ₹2, 40,000 were recorded during the year 2013 – 2014 (Table - 120 and Figure - 95).

During 2012 – 2013, it was found that, only 19 (16%) families provided with three earning members. Among the earning members, the women were not regular earning
members. Similar status was also observed during the year 2013 – 2014. The number of earning members play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.8.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 102 families (88%) and 102 (85%) families have benefited by the special allowance of ₹4000, during the lean fishing season and 99 (85%) families and 99 (83%) families have benefited by the special allowance of ₹2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170, 189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹1800/- was provided by the Government to 278 (53%) individuals in 2012 - 2013 and 282 (53%) individuals in 2013 - 2014 of the total population of the village (Table – 170, 189).

Fishermen were suffered lot due to various reasons during lean fishery season (October to December) and the government has taken various steps to develop the socioeconomic conditions of the fisherfolk and they were provided with ₹4000/- per family and ₹2000/ during ban period (15th April to 29th May) to meet out expenses of their family. More than 83% of fisherfolk were benefitted by these schemes. Whereas 53% of the individuals benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS). This has also been reported by many workers in various coastal region Suyambulingam, (2011) and Sivanesan (2014).
Figure - 84. Fisherfolk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 85. Age group-wise classification of fisherfolk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 86. Individual-wise Identity Cards possessed by the fisherfolk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 87. Housing Facilities of fisherfolk families in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 88. Educational Status of fisherfolk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 89. Levels of Educational Status of fisherfolk (out of total literate) in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 90. Employment Status of fisher folk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 91. Occupational Status of individuals (out of total employed) in fisher folk population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 92. Types and number of crafts available with fishermen population in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 93. Investment on crafts and gears by the fishermen families in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 94. Purpose of Credit Utilization of the fisher folk families in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 95. Annual Income range of fishermen families in M.V.Pattinam @ Soliyakudi during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.9. SOCIO-ECONOMIC STATUS OF KARANKADU FISHING VILLAGE

4.9.1. Description and of the fishing village

Karankadu is a Panchayat Village in Thiruvadanai Taluk, Ramanathapuram District of Tamil Nadu State, and India. It is located at 34Km North to Ramanathapuram.

4.9.2. Common facilities available in the fishing village

This village has Panchayat Union Primary School, Anganvadi and Ration Shop. However, the essential facilities like Post Office, Police Station, Banks, Auction hall, Ice plant, Cyclone shelter Diesel bunk, and Seashore light facility and Railway station were not available in this village. These facilities will play a major role in the upgrading of their economic conditions. Many authors have studied and reported on the availability of basic facilities essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were close in agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.9.3. Socio-economic Status of the Fishermen population

4.9.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 752 & 736 from 327 families and 758 & 741 from 330 families respectively. A little increase in the total fisherfolk population (11) was noticed during the period 2013 - 2014 (1488) than 2012 - 2013 (1499). Besides, the average family size was recorded as 4.6 in 2012 - 2013 and 4.5 in 2013 - 2014. The data obtained were also indicated that, male members were more when compared to female (Table - 122 and Figure - 96).

Based on the age-wise composition of the fisherfolk, the individuals in the age group 21- 40 were more (747) followed by 41-60 (419), 0-20(198) and above 60 years (52) were recorded during the year 2012 – 2013. It has been inferred that 83% of the fishing workers engaged in various fishing activities belong to the age groups of 21-40 years and 41-60.
Whereas during the year 2013 – 2014, the individuals in the age group 21- 40 were more (738) and which was followed by 41-60 (489), 0-20 (225), and above 60 years (47). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 82% (Table - 123 and Figure - 97).

In Karankadu, the male and female individuals were almost equal in proportion. Mostly, the male adults were getting involved in the fishing and allied activities whereas, female adults were mostly engaged in household management and they were not involved regularly in such activities. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 83%, the improvement in the economic status of the fishermen population was not noticed in the village, this may be due to lack of basic facilities for fishery activities as well as their lack of interest. The results were corroborated with the reports of by Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.9.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the both the years of study period have indicated that, 99% of the fishermen were Christian and 1% was Hindu. All the fishermen population was belonging to Backward Community (Table – 154,173).

4.9.3.3. Identity card holder of fishermen population

The various types of identity cards (Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (752), only 23% of males have obtained Biometric card, whereas, out of total male and females (1488), only 83% and 79% of the individuals have obtained EPIC card and FSM cards respectively (Table - 173 and Figure - 98). Majority of the families 321, (98%) were possessing family card besides, 316
(97%) and 306 (94%) families were possessing TNFWB and Government Insurance Scheme cards respectively. There were no much differences in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table – 124, 125 and Figure - 98).

The awareness among the fishermen with regard to utility of various ID cards have been observed as very low during the study period which indicated that, they are not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided by the society which leads to the failure in the enhancement of their economic status. The lack of knowledge about the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagaraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

**4.9.3.4. Residential Status of fishermen population**

A total of 327 houses were recorded during the year 2012 - 2013, whereas, the number of houses was found to increase from 327 to 330 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 327 respondent families, 96% families have got own houses. Out of own houses, 58% houses were constructed by the Central and State Government (both free houses and Tsunami houses) (Table - 126). Out of the total number of 327 houses, the concrete houses, lite roofed houses, tiled houses and thatched houses were recorded as 77%, 11%, 10% and 2% respectively (Table - 126 and Figure - 99). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (9%) whereas, about 77% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 14% have two rooms (a living room and a bed room). Besides, 251 fishermen families (77%) were living in houses with three rooms, of which 181 houses (72%) were built under Government Schemes. Similarly, 96% of the respondents have got own house in the year 2013 - 2014.
Further, it was also recorded that, the majority of fishing workers are living in their own houses (Table - 126). Whereas, the data collected during the year 2013 - 2014, have indicated that, there was an increase the number of concrete and tilled houses as well as increase the number of houses with 2 rooms corresponding to the increase in the number of families from 327 to 330 (Table - 126).

More than 95% of fisherfolk population have own houses in this village. Only about 9% of them have more than three rooms. In recent years, under the housing schemes provided by state and central governments, houses with three rooms have been constructed for the fisherfolk. Though, majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their economic status. This condition has been reported in many parts of our country by many workers. This results were corroborating with the reports Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.9.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the study period (Table - 127). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 327 houses, 181 (55 %) were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. Besides, the data recorded have also inferred that, for drinking purpose, only 2% (8 out of 327 households) of the people were using well water and bore well water whereas the remaining 98% households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table - 127).
It is obvious that all the fishermen houses were electrified. The data collected in the study area during the two years of study period have indicated that, out of 327 houses, 181 (55%) were provided with toilet facilities. Whereas, 45% fishermen families were using common toilet provided by the Government of Tamil Nadu. The non-availability of toilet facilities weakened their economic condition by affecting their health. The results were in close agreement with the reports of Panikkar and Alagarraja, (1981) and Seenivasan and Ramadas (2014).

The data obtained during in the village have indicated that, the percentage of people using well water for drinking purpose was very meager and about 97% of households were using public water taps provided by the Government of Tamil Nadu in the streets of the village. The presence of basic amenities in the village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994), Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.9.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012-2013 have indicated that, nearly 69% of the respondents are literates and remaining were belonging to illiterate (29%) and below 5 years (2%) categories (Table - 128 and Figure - 100). Even though, 69% were literates, among them, large numbers of fishery workers were in the lower educational categories (67% of the respondents have studied primary level of education and 14% were studied at middle school level only). H.Sc qualified (4%) and Graduates (6%) were lesser in numbers. It was observed that the fishermen populations have a positive attitude towards education and they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013-2014(Table-129 and Figure-101).
A greater percentage of the fishery workers were either illiterate or educated at primary or middle school level. Even though, 69% were literates, HSc qualified (4%), Graduates (6%) and Technical education (3%) were lesser in numbers and out of 69% about 81% were in the lower educational categories. Thus, the educational status has been observed as very low which forms the major impediment to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas(2014) and Seenivasan and Ramadas(2014).

4.9.3.7. Employment status: Classification of fishermen population based on their occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 1488 fisherfolk in Karankadu 791 (53%) were employed and 697 (47%) were unemployed. Out of 791 employed individuals, 560 (71%) were men and 231 (29%) were women. (Table - 130 and Figure - 102). Among the 791 employed respondents, 85% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 3% were self employed and 5% were coolie. Majority of the fishing workers were not having any subsidiary occupation. There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 131 and Figure - 103).

The majority of the fisherfolk family members were unemployed. In addition, the majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. The women of the fisherfolk families were not involved regular fishery activities. Even though they were worked in a private crab processing unit in this village as labour but they earned poor wages and hence there has been no remarkable progress in the economic status
was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson et al., (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.9.3.8. Fisheries and Economic condition of fishermen families

4.9.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of 82 crafts were recorded by fisherfolk in this village (8 were wooden vallam and 74 were FRP Vallam) (Table - 132 and Figure - 104). There were only two major types of gears available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 344 gears were available, out of which, 330 (96%) were Gill nets and 14 (4%) were Trawl nets (Table - 132). The local names of various type of Gill nets and Trawl nets are Kumula Valai (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraa l Valai (Bottom Set Trawl Net) . Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 136) Whereas, data recorded regarding the fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no much differences (Table - 132).

All the fishermen families of the village were not provided with crafts and gears hence, they were required to work on daily wages basis which could not fetch enough money for their family. This resulted to remain in poor economic condition forever. There has been no notable change in the possession of crafts and gears by the fishermen families during the two years of study period. The result were in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).
4.9.3.8.2. Fishery Resources

It was observed that majority of fishermen in Karankadu village were involved only in crab fishing. The commercially important Crabs (Kadal Nandu) (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.) were recorded in the landing centre of Karankadu. The fishes like Half Beak (Mural) (*Hemiramphus* spp.), Barrcudas (Ooli) (*Sphyraena* spp.), and Silverwhitings (Kilangan) (*Silago* spp.) Crabs (Kadal Nandu) (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.) and Prawns (Iraal) (*Penaeus* spp.) were also recorded in the landing centre of Karankadu. (Table - 136).

Majority of the fishermen were used to catch the crabs than fin fishes. The lesser variety of fish catch in Karankadu may be due to the non-availability of essential facilities pertaining to their fishing activities. (Table -). The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

4.9.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 327 families, 128 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 36%, 59% and 5% respectively. Whereas, during the year 2013 - 2014, there was no remarkable change in the data except in the total number of families (Table - 133).

Regarding investment, the data recorded during the year 2012 - 2013 have indicated that, out of 327 families only 128 families have invested on fishing crafts and gears of which, 13%, 23%, 45% and 19% families have invested less than ₹.25, 001, ₹.25, 001 to ₹.50, 000, ₹.50, 001 to ₹.1, 00,000 and above ₹.1lakh respectively. The same status also was observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in the number of families (from 327 to 330) (Table - 133 and Figure - 105).
In Karankadu, only 39% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. The proportions of owner operators were less because of more capital requirement for possessing motorized and mechanized fishing units. Thus, the economic status remains unaltered for many years even throughout their lifetime. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagaraja(1981); Rahman(1993) and Seenivasan and Ramadas (2014).

4.9.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 327 families 92 (28%) families have received the credit from various sources, among those families, majority of fishermen families, 72 (78%) have obtained loan under the category of up to ₹25,000. Whereas 10 (11%) families have received the loan amount in the range of ₹25001 to ₹50000 and ₹50001/ to ₹1 lakh respectively. Similar trend was observed during the year 2013 - 2014 (Table – 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 92 (28%) families who have received loans, 21 (23%) families have utilized the credited amount on the purchase of crafts and gears and 39 (42%) families have utilized it for maintenance of crafts and gears and rest of the families (32) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 134 and Figure - 106).
Out of 92 families who received loan from credit sources, only 60 families have utilized it for purchase and maintenance of crafts and gears only and rest of the families have invested for various other purposes. Data recorded during the year 2013–2014 have no significant variation. Any valuable step taken by the fishermen families with reference to the progress of their economic status through investment on the crafts and gears have not been noticed in this village. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually private money lenders at very high rate 10% per month or even more. Though they work hard in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.9.3.8.5. Earning Members and Annual income range of fishermen family

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012–2013 showed that, among 327 families, 185 (57%), 96 (29%) and 46 (14%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012–2013 and 2013–2014 have not showed much difference (Table – 169, 188).

Out of six categories of income ranges, the percentage of families under each category was recorded as 2%, 44%, 36%, 13%, 4%, and 2% respectively. As per the data collected, only 12 (4%) of fishermen families were belong to fifth category (₹1,60,001 to ₹2,00,000), whereas, only 6 (2%) were belong to the income category of ₹2,00,001 to ₹2,40,000. But 146 (44%) and 114 (35%) families were belonging to income category of ₹40,001 to ₹80,000 and ₹80,001 to ₹1,20,000 respectively. Altogether, the income level or the economic status of the fishermen population of the study area was observed as low. The
percentage of families under higher income group seemed to be very low. When compare to the year 2012-2013, there was 1% of increase in the income group of ₹80,001 to ₹1,20,000, and 1% of decrease in the income group of ₹40,001 to ₹80,000, were recorded during year 2013 – 2014 (Table - 135 and Figure - 107).

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. During 2012 – 2013, it was found that, only 46 families (14%) were having three earning members per family. Among the earning members, it was observed that the women were not regular earning members. Similar status was also observed during the year 2013 - 2014. The number of earning members play key role of the family income. Similar status has been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.9.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 278 families (85%) and 279 (85%) families have benefited by the special allowance of ₹4000, during the lean fishing season and ₹2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170, 189). Whereas, under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹1800/- was provided by the Government to 1088 (73%) and 1090 (73%) individuals during the year 2012 - 2013 and 2013 - 2014 respectively, of the total population of the village (Table – 170, 189). About 85% of fisherfolk were benefitted by the special allowances during the lean fishing season and fishing ban period. Whereas, 73% of the individuals benefitted by the National Fishermen Savings-cum-Relief Scheme (NFSRS) out of total population. This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 96. Fisherfolk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 97. Age group-wise classification of fisherfolk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 98. Individual-wise Identity Cards possessed by the fisherfolk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 99. Housing Facilities of fisherfolk families in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 100. Educational Status of fisherfolk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 101. Levels of Educational Status of fisherfolk (out of total literate) in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 102. Employment Status of fisher folk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 103. Occupational Status of individuals (out of total employed) in fisher folk population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 104. Types and number of crafts available with fishermen population in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 105. Investment on crafts and gears by the fishermen families in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 106. Purpose of Credit Utilization of the fisherfolk families in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 107. Annual Income range of fishermen families in Karankadu during the periods from April-2012 to March-2013 and April-2013 to March-2014.
4.10. SOCIO-ECONOMIC STATUS OF MOREPANNAI FISHING VILLAGE

4.10.1. Description and of the fishing village

Morepannai is a hamlet under the jurisdiction of Uppoor Panchayat, Thiruvadanai Taluk in Ramanathapuram District of Tamil Nadu State, India (Plate-1) and located at 32 Km North to Ramanathapuram.

4.10.2. Common facilities available in the fishing village

This village has Panchayat Union Middle School, Anganvadi, and Ration Shop. However, the essential facilities like Banks, Auction hall, Fish drying platform, Cyclone shelter, Diesel bunk, Ice plant and Railway station were not available in this village. These facilities will play a major role in the improvement of their economic conditions. Many authors have studied and reported on the availability of basic facilities essential for the fishery activities and its impact on the socioeconomic condition of the fishermen population. The results of the present study were in close agreement with the reports of CMFRI (1977); Panikkar and Alagarraja (1981); Senthilathiban and Selvaraj (1989); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.10.3. Socio-economic Status of the Fishermen population

4.10.3.1. Gender-wise and Age-wise Composition of fishermen population

The male and female members were recorded as 1199 & 1157 from 474 families and 1212 & 1164 from 482 families during the years 2012-2013 and 2013-2014 respectively. A little increase in the total fisherfolk population (20) was noticed during the period of 2013 - 2014 (2356) than in 2012 - 2013 (2376), and the average family size was recorded as 4.6 and 4.5 during the years 2012-2013 and 2013-2014 respectively. The data obtained were also indicated that, male members were more when compared to female (Table-137, Figure-108).

Based on the age-wise composition of fisherfolk population, the individuals in the age group of 21- 40 years were more (944) and followed by 0-20 (728), 41-60 (570) and above 60 years (114) were recorded during the year 2012 - 2013. It has been inferred that,
64% of the fishing workers engaged in various fishing activities belonged to the age groups of 21-40 years and 41-60 years. Whereas during the year 2013 - 2014, the individuals in the age group 21-40 were more (957) Which was followed by 0-20 (735), 41-60 (574), and above 60 years (110). Whereas the percentage of working class people (21-40 years & 41-60 years) was observed as 64% (Table - 138 and Figure - 109).

In Morepannai, the most of male adults were get involved in the fishing and allied activities whereas, female adults were not regularly get involved in such activities and always engaged in house hold management. Even though, the percentage of working class people (21-40 years & 41-60 years) was observed as 64%, the progress in the economic status of the fishermen population was not noticed in the village, this may probably be due to lack of basic facilities for fishery activities as well as their lack of interest. The results were corroborates with the reports of Senthilathiban and selvaraj.(1989); Thomson (1993); Seenivasan and Ramadas (2014) and Mohamed Rabeek Raja and Ramadas (2014).

4.10.3.2. Religion and community-wise distribution of the fishermen population

The religion and community system is an important indicator of socio-economic conditions of fishermen community. The data collected during the study period have indicated that, 99% of the fishermen were belong to Hindus and 1% was Muslims, and 99% the fishermen population were belong to scheduled caste community and 1% was belong to backward community (Table – 154, 173).

4.10.3.3. Identity card holder of fishermen population

The various types of identity cards like Biometric, EPIC card, Fishermen Society membership (FSM) and Tamil Nadu Fishermen Welfare Board (TNFWB) cards have been issued to fishermen population for their betterment of life. As per the data collected during the year 2012 - 2013, out of the total male individuals (1157), only 17% of males have obtained Biometric card, whereas, out of total male and females (2356), only 66% and 61% of the individuals have obtained EPIC card and FSM cards respectively (Table – 139 and
Likewise, out of total number of families (474), 99% of families were possessing family card besides, 402 (85%) and 395 (83%) families were possessing TNFWB and Government Insurance Scheme cards respectively. There were no remarkable variations in the data recorded regarding the identity cards during 2013-14 when compared to the data recorded during the year 2012 – 2013 (Table – 139, 140).

The awareness among the fishermen with regard to utility of various ID cards have been observed as very low during the study period which indicated that, they are not at all interested in doing fishery activities as well as they failed to utilize the financial assistance provided by the society which leads to the failure in the improvement of their economic status. The lack of knowledge about the significance of various identity and membership cards and ensuing benefits of the same have been reported by Panikkar and Alagarraja (1981); Chidambaram and Soundarajan (1990); Thomson (1993) and Seenivasan and Ramadas (2014).

**4.10.3.4. Residential Status of fishermen population**

A total of 474 houses were recorded during the year 2012 - 2013, whereas, the number of houses was found to increase from 474 to 482 during the year 2013 – 2014. Ownership of the house is one of the indicators of socio-economic conditions of fishermen. During the year 2012 - 2013, it was observed that, out of the 474 respondent families, 97% families have got own houses. Out of own houses, 35% houses were constructed by the Central and State Government (both free houses and Tsunami houses) (Table - 141). Out of the total number of 474 houses, the concrete houses, titled houses, lite roofed houses and thatched houses were recorded as 50%, 36%, 10% and 4% respectively (Table - 141 and Figure - 111). Likewise, the houses of fisherfolk with more than three rooms (a small living room, a bed room and a kitchen) were found as very less (12%) whereas, about 45% houses have three rooms (a small living room, a bed room and a kitchen) and remaining 43% have two rooms (a living room and a bed room). Besides, 212 fishermen families (45%) were
living in houses with three rooms, of which 161 houses (76%) were built under Government Schemes. Similarly, 97% of the respondents have got their own house in the year 2013 - 2014. Further, it was also recorded that, the majority of fishing workers are living in their own houses. There were no remarkable variations in the data recorded during 2013-14 when compared to the data recorded during the year 2012 - 2013 except the increase in the number of concrete houses (from 238 to 242), number of tiled houses (from 169 to 173) and the increase in the number of houses with two rooms, i.e., from 205 to 210 and house with 3 rooms from 212 to 215 (Table - 141).

About 95% of fisherfolk population have own houses in this village. Only about 12% of them have recorded to possess more than three rooms. In recent years, under the housing schemes provided State and Central governments, houses with three rooms have been constructed for fisherfolks. Though, majority of the houses of fishermen family were small in size with lesser number of rooms which indicated their economic status. This condition has been reported in many parts of our country by many workers. This condition has been reported in many parts of our country by many workers. This results were corroborating with the reports of Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993) and Seenivasan and Ramadas (2014).

4.10.3.5. Basic Amenities (Electrification, Sanitary facility and Drinking water facility)

Almost all the fisherfolk houses were electrified as per the data recorded during the years 2012 - 2013 and 2013 - 2014 (Table - 142). Even though, Swatch Bharath Mission was introduced in India, sanitary facilities were lacking in most of the coastal areas of Ramanathapuram District. The data collected during the year 2012 - 2013 have indicated that, out of 474 houses, 202 (43 %) were provided with toilet facilities. The remaining families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. Besides, the data recorded have also inferred that, only 4% (18 out of 474 households) of the people were using well and bore well water
for drinking purpose. Whereas the remaining 96% households in this village were using public water taps in the streets of the village provided by the Government of Tamil Nadu. There were no much variations in the data obtained between the years 2012 – 2013 and 2013 - 2014 (Table - 142).

The presence of electricity facility is also one of the indicators of the level of economic conditions of the fisher folks. It is obvious that all the fishermen houses were electrified. Generally a sizable number of households in all the coastal villages of Ramanathapuram district do not have any toilets. About 43 % houses provided with toilet facilities, whereas, 57% of fishermen families were using common toilet provided by the Government of Tamil Nadu. The absence of toilet facility weakened their economic condition by affecting their health. The results observed in the village were in close agreement with the reports of Panikkar and Alagarraja,(1981) and Seenivasan and Ramadas (2014).

In the marine sector, even though, the fishing hamlets are provided with protected water supply, the salinity of ground water is very high. The percentage of people using well water for drinking purpose in the village was very meager and about 96% of households were using public water taps in the streets of the village provided by the Government of Tamil Nadu. In general the presence of basic amenities in the village will also contribute to the health of the fisherfolk and which seemed to be the indicator of their economic status. Similar conditions have also reported by Nuruzzaman (1990); Hussain (1994), Narayanakumar et al., (2000); Mohamad Kasim (2010) and Anon (2010).

4.10.3.6. Educational Status of fisherfolk population

Illiteracy is the main reason for any problem in any society. The data collected regarding the educational status of fishermen population in this fishing village during the year 2012 - 2013 have indicated that, nearly 63% of the respondents are literates and remaining were belonging to illiterate (33%) and below 5 years (4%) categories (Table - 143
and Figure - 112). Even though, 63% were literates, among them, large numbers of fishery workers were in the lower educational categories (42% of the respondents have studied primary level of education and 29% were studied at middle school level only). H.Sc qualified (8%) and Graduates (2%) were lesser in numbers. It was observed that the fishermen populations have a positive attitude towards education and they have awareness to educate their children to their maximum extent possible within their economic status. Similar educational status was also prevailed during the year 2013-2014(Table-144 and Figure- 113).

A greater percentage of the fishery workers were educated at primary or middle school level. Even though, 63% were literates, among them 71% were in the lower educational categories and H.Sc qualified (8%) and Graduates (2%) were lesser in numbers. Thus, the educational status has been observed as very low which forms the major impediment to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.10.3.7. Employment status: Classification of fishermen population based on their occupation

The data obtained in this regard during the year 2012 - 2013 have showed that, out of 2356 fisherfolk in Morepannai 1196 (51%) were employed and 1160 (51%) were unemployed. Out of 1116 employed individuals, 768 (69%) were men and 348 (49%) were women. (Table - 145 and Figure - 114). Among the 1196 employed respondents, 93% were engaged in marine fishing related activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting, 1% were self employed and 4% were coolie. Majority of the fishing workers were not having any subsidiary occupation.
There were no much difference in the data obtained during the years 2012 - 2013 and 2013 – 2014 (Table - 146 and Figure - 115).

The majority of the fisherfolk family members in the village were unemployed. In addition, the majority of the fishing workers in this village were not having any subsidiary occupation. They do not earn any income for their households apart from fishing activities. Most of the women living in this village were involved mostly in household works and they were not involved in regular fishery activities. Even though they were engaged in fish curing, fresh and tried fish trade, they usually sold low value small size fishes, which fetched poor profit margin and hence there has been no remarkable progress in the economic status was noticed in this fishing village. The occurrence of similar trend was reported by Hanna King (1989); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.10.3.8. Fisheries and Economic condition of fishermen families

4.10.3.8.1. Craft and Gears

Regarding the availability of crafts and gears, a total number of 156 crafts were recorded in this village (11 wooden Vallam and 145 motorized FRP Vallam) (Table - 147 and Figure - 116). Only two major types of gears were available with the fishermen population such as, Gill net and Trawl net. Altogether, a total of 455 gears were available, out of which, 369 (81%) were Gill nets and 86 (19%) were Trawl nets (Table - 147). The local names of various type of Gill nets and Trawl nets are Kumula Valai (Drift Gill Net), Oozhi Valli (Drift Gill Net), Crab Net or Nandu Valai (Bottom Set Gill Net), Prawn-Net or Iraal Valai (Bottom Set Trawl Net), Kanavai Thoondil, and Madi Valai or Illuppu Valai or Bag Net (Bottom Set Trawl Net). Each type of gear has its own mesh size, length, durability and which are being used to catch particular type of fishes (Table - 151). Whereas, data recorded regarding the
fishing crafts and gears during the years 2012 - 2013 and 2013 - 2014 have showed no much remarkable differences (Table – 147).

All the fishermen families of the village were not provided with crafts and gears; hence they were required to work on daily wages basis which could not fetch sufficient money for their family. This leads to the fisherfolk population to remain in poor economic condition forever. There has been no difference in the possession of crafts and gears by the fishermen families during the two years of study period. The results in close agreement with the similar reports of CMFRI (1985); Seenivasan (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.10.3.8.2. Fishery Resources

The commercially important fishes like Sardines (Choodai) (Sadinella spp.), Mackerel (Kumula) (Rastrelliger spp.), Carangids (Parai) (Carangoides spp., Caranx spp.), Mullet (Madavai or Manali) (Liza spp., Mugil spp.), Breams (Villa meen) (Lethrinus spp.), Thread fin breams (Sankara) (Nemipterus spp.), Wolfherrings (Vallai) (Chirocentrus spp.), Half Beak (Mural) (Hemiramphus spp.), Ribbon fish (Savalai) (Trichiurus spp.), Goat fishes (Nagarai) (Upeneus spp.), Mojarras (Oodagam) (Gerres spp.), Barrcudas (Ooli) (Sphyraena spp.), Silverwhitings (Kilangan) (Silago spp.), Silverbellis (Karal) (Gazza spp., Leiognathus spp.), Silver Pomfrets (Vella vayal) (Pampus spp.), Black Pomfrets (Karu Vaval) (Formio spp.), Seer fises (Seela or Vancheeram) (Scomberomorus spp.), Shark (Sorrah) (Scoliodon spp.), Ray (Thirukkai) (Dasyatis spp.), Cat fish (Keluthi) (Arius spp.), Lizard fish (Thumibili) (Saurdia spp.), Crabs (Kadal Nandu) (Portunus spp. Charybdis spp. and Scylla spp.), Prawns (Iraal) (Penaeus spp.), Cuttle fishes and Squids (Kanava) (Sepia spp., Loligo spp.) were recorded in the landing centre of Morepannai (Table - 151).

The commercially important representative fish species of many groups as stated above were recorded in the landing centre of Morepannai. The lesser commercially importance variety of fish catches in Morepannai may be due to the non-availability of
modern fishing equipments, mechanized boats and essential facilities pertaining to their fishing activities. The results were also in close agreement with reports of Librero (1985); Rahman (1993); Mohamed Rabeek Raja and Ramadas (2014a &b) and Seenivasan and Ramadas (2014).

4.10.3.8.3. Details of ownership and investments on fishing Crafts and Gears

The data obtained during the year 2012 - 2013 have showed that, out of 474 families, 200 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 22%, 48% and 30% respectively. Whereas, during the year 2013 - 2014, there were no remarkable change in the data except in the total number of families (Table - 148).

Regarding the investment, the data recorded during the year 2012 - 2013 have indicated that, out of 474 families only 200 families have invested on fishing crafts and gears of which, 13%, 40%, and 41% families have invested ₹.25, 001 to ₹.50, 000, ₹.50, 001 to ₹.1, 00,000 and above ₹.1lakh respectively. Whereas, only 6% of families have invested less than ₹.25, 000 on crafts and gears. The same status was observed with regard to the investment on the fishing crafts and gears by the fisher folk during the year 2013-2014, except an increase in the number of families (from 474 to 482) (Table-148 and Figure - 117).

In Morepannai, only 42% of fishing families have invested money on crafts and gears and others were working for wages only and their salary is not enough even to run their day to day life. Thus, the economic status remains unaltered for many years even throughout their life time. The results were in accordance with the reports of Sathiadas and Venketraman (1981); Durairaj (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).
4.10.3.8.4. Details of sources of credit for fisherfolk and purpose of credit utilization by the fishermen population

The data were collected under 4 categories based on the loan amount received from the credit sources by the fisherfolk families, such as, money lenders, fish traders, boat owners, banks and other sources. During the year 2012 - 2013, out of 474 families 130 (27%) families have received the credit from various sources, among those families, 112 (86%) have obtained loan under the category of up to ₹25,000. Whereas 17 (13%), have received the loan amount in the range of ₹25001 to ₹50000, and only 1% family have received the loan amount in the range of ₹50001/ to ₹1 lakh. There were no families credited above ₹1 lakh. Similar status was observed during the year 2013 - 2014 (Table – 166, 185).

With reference to the data collected during the year 2012 – 2013, out of 130 (27%) families who have received loans, 48 (37%) families have utilized the credited amount on the purchase of crafts and gears and 45 (34%) families have utilized it for maintenance of crafts and gears and rest of the families (37) have spent for various other purposes like family expenditure, construction and repairing of houses, marriages, social functions and miscellaneous expenses. Whereas, the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference in the credit utilization by the fishermen population in this village (Table - 149 and Figure - 118).

Fishing families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Out of 130 families who received loan from credit sources, 48 families have utilized for purchase of crafts and gears and 45 families have utilized it for maintenance of crafts and gears and rest of the families have invested for various other purposes. Due to lack of alternate employment in off-seasons, they were forced to borrow money usually from private money lenders at very high rate of interest (10% per month or even more). Though they work hard
in peak season they can hardly pay back the money, as it would have doubled by them. This might be the prime reason for the unchanged poor economic condition. Similar trend have been reported by Kurien (1981); Narayanakumar et al., (2000); Panikkar and Alagarraja (1981); Rahman (1993); Thomson (1993); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

**4.10.3.8.5. Earning Members and Annual income range of fishermen family**

The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 - 2013 showed that, among 474 families, 242 (51%), 151 (32%) and 81 (17%) families were having one, two and three earning members per family respectively. It was observed that, among the earning members, the women were not regular earning members and the data collected during the years 2012 - 2013 and 2013 - 2014 have showed no difference (Table – 169, 188).

Out of six categories of income range the percentage of families under each category during 2012 - 2013 was recorded as 4%, 45%, 37%, 9%, 4%, and 1% respectively. As per the data collected, only 4% of fishermen families were belong to fifth category (₹1,60,001 to ₹2,00,000), whereas, only 1% were belong to the income category of ₹2,00,001 to ₹2,40,000 but 45% and 37% were belonging to income category of ₹40,001 to ₹80,000/ and ₹80,001 to ₹1,20,000. Altogether, the income level or the economic status of the fishermen population of the study area was observed as very low. The percentage of families under higher income group seemed to be low. There was no much difference in the data collected regarding the annual income of fishermen families during the year 2013 – 2014 (Table - 150 and Figure - 119).

During 2012 – 2013, it was found that, 81 families (17%) were having three earning members per family. Among the earning members, it was observed that, the women were not regular earning members. The number of earning members play key role of family income. Similar status was observed during the year 2013 - 2014. The number of earning members
play key role of the family income. Most of the fishery villages of Tamil Nadu and Indian coast were in this range alone and which have been reported by many workers, Sathiadas and Panikkar (1991) and Sivanesan (2014).

4.10.3.8.6. Government Special Allowances and Welfare Schemes to fisherfolks

As per field survey data, 458 families (97%) and 460 (95%) families have benefited by the special allowance of ₹.4000, during the lean fishing season and 458 (97%) families and 466 (97%) families have benefited by the special allowance of ₹.2000/- during the fishing ban period from Tamil Nadu Government to mitigate their suffering for those periods, during the year 2012 - 2013 and 2013 - 2014 respectively (Table – 170, 189). Under the National Fishermen Savings-cum-Relief Scheme (NFSRS), financial assistance of ₹.1800/- was provided by the Government to 1357 (58%) individuals in 2012 - 2013 and 1365 (57%) individuals in 2013 - 2014 of the total population of the village (Table – 170, 189).

Fishermen were suffered lot due to various reasons during lean fishery season (October to December), the Central and State Governments have taken steps various steps to improve the socioeconomic conditions of the fisherfolk and they were provided with ₹.4000/- per family and ₹.2000/ during ban period (15th April to 29th May) to meet out expenses of their family. About 95% of fisherfolk families were benefitted by these schemes. Whereas 58% of the individuals benefited by the National Fishermen Savings-cum-Relief Scheme (NFSRS). This has also been reported by many workers in various coastal region, Suyambulingam (2011) and Sivanesan (2014).
Figure - 108. Fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 109. Age group-wise classification of fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 110. Individual-wise Identity Cards possessed by the fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 111. Housing Facilities of fisherfolk families in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 112. Educational Status of fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 113. Levels of Educational Status of fisherfolk (out of total literate) in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 114. Employment Status of fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

Figure - 115. Occupational Status of individuals (out of total employed) in fisherfolk population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014
Figure - 116. Types and Number of Crafts available with fishermen population in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

![Pie chart showing types and number of crafts available with fishermen population in Morepannai.]

Figure - 117. Investment on Fishing crafts and Gears by the fishermen families in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

![Pie chart showing investment on fishing crafts and gears by the fishermen families in Morepannai.]

Figure - 118. Purpose of Credit Utilization of the fisher folk families in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014

![Pie chart showing the purpose of credit utilization by the fisher folk families in Morepannai.]

Figure - 119. Annual Income range of fishermen families in Morepannai during the periods from April-2012 to March-2013 and April-2013 to March-2014.

![Bar chart showing the annual income range of fishermen families in Morepannai.]

<table>
<thead>
<tr>
<th>Annual Income Range</th>
<th>2012-2013</th>
<th>2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than ₹25000/</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>₹25001 to 50000</td>
<td>37%</td>
<td>34%</td>
</tr>
<tr>
<td>₹5001 to 1 lakh</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>₹1 lakh</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

- Wooden Vallam
- FRP Vallam
- 23% Purchase of craft and gear
- 37% Maintenance of craft and gear
- 4% Family expenditure
- 4% Construction and repairing of houses
- 4% Marriage and social functions
- 1% Miscellaneous
- 93% 2012-2013 and 2013-2014
- 7% 2012-2013 and 2013-2014
4.11. PROBLEMS OF FISHERMEN IN FISHERY VILLAGE OF THIRUVADANAI TALUK

The following were the important causes for the problems of fishermen in the fishing villages of Thiruvadanai Taluk.

4.11.1. Mechanized Boats: The domination of mechanized boats owned by fishermen of nearby fishery villages of Pudukottai and Ramanathapuram districts were the notable problem for the fisherfolk since, they could not compete with them by utilizing the non-mechanized boats for fishing.

4.11.2. Middlemen: The fishes caught with great effort and risk by fishermen had to be marketed by middlemen who acted as leeches. The money lenders also play an important role in marketing; they fetch the fishes for very low price which resulted in remarkable economic loss to fishermen community.

4.11.3. Lack of transport and icing facilities: The fishermen had to travel at least 5 to 10 km to Soliyakudi or Thondi, for the purchase of ice bars for preservation of fishes. Further, there is no railway facility for easy transportation of fishes to the nearby largest fish markets.

4.11.4. Unavailability of processing units: There are private prawn and fish processing units in the fishery villages Thondi and at Karankadu for crabs. Other fishery villages have no such facilities. There were no government processing units in this region. Hence, they need to transport fishes to nearby places for fish processing purposes, which fetch additional charges, leading to economic loss.

4.11.5. High cost of fishing equipments: As we all knew, the cost of fishing equipments and the maintenance charges had hiked up, the poor fishermen could not meet out by all means.

4.11.6. Leasing of boats: Though most of the fishermen families have owned the mechanized boats, they gave boats for lease or share the profit to some other non-fishermen
due to high operational and maintenance cost. Hence, the fisher folk could not get the entire benefit out of fishing in this region.

4.11.7. **Lack of trainings:** The needy fishermen were not given any training in handling latest techniques of fishing, processing, culturing and to maintain the crafts and gears.

4.11.8. **Lack of Technical persons for repairing engine and boat:** The availability of number of technical persons for repairing the boat and the engine were less among the fisher folk in the fishery villages of the study area.

4.11.9. **Unawareness of insurance and registration for boats:** This is a major drawback for fishermen, the majority of non-mechanized boats in these villages were not insured and the fishermen were unaware of insurance schemes. Moreover, they were not properly registered their crafts with the fishery department.

4.11.10. **Identity Cards:** The fisherfolk were unaware of the importance of Bio-metric card and which leads to the problem of proving their identity at the time of fishing in the sea to the Coast Guards, forest department and fishery department officials.

4.11.11. **Loans:** There is no a liberal credit policy or loan schemes provided by banks for fishermen in this area to purchase fishery equipments. Majority of the fishermen were not in a position to hypothecate anything valuable or to fulfill the usual terms and conditions of the banks. Moreover, the fishermen societies were not provided any loans to the fishermen except contributing the Government financial schemes.

4.11.12. **Availability of fuel:** The diesel bunks were available only in Thondi and Soliyakudi villages. The fishermen of other villages had to travel at least 4 to7 km to purchase fuel (diesel) for their boats. The diesel is being supplied with subsidy rate only to mechanized boats and other motorized boats in Thiruvadanai Taluk were not getting fuel (diesel) in subsidy rates.
4.11.13. Alcohol consumption: Most of the fishermen are having the habit of consumption of alcohol daily so, major portion of their income spent for this habit than their family expenditure as well as for fishery equipments.

4.11.14. Competition for fishing space: As per TNMFR Act of 1983, the country crafts (Wooden Vallam and FRP vallam) are permitted for fishing up to 3 to 4 nautical miles in the sea water. The fisheries department does not issue fishing token daily to all the wooden vallam and motorized FRP vessels except the mechanized boats. Almost all the motorized FRP vessels and wooden vallam go fishing daily in to the sea. So, the fishing area per boat becomes considerably low, resulting in increased competition for fishing space.

4.11.15. Troubled location: The study area was a troubled location for the mechanized boats fishing operations of Indian fishers. Most of the mechanized boats of Indian fishers were unaware of the boundary line between Indian and Sri Lankan waters and hence they unknowingly entered in to the Sri Lankan waters for fishing and thus the Indian fishers pose a grave threat to their lives.

4.11.16. Problem for construction of houses in Lanjiyadi: Many legal problems persist regarding lands in Lanjiyadi fishery village. Hence, no permanent concrete houses were constructed both by the fishermen and also by Central & State Governments (both free houses and Tsunami houses) in Lanjiyadi. Due to this, fishermen were invested their earnings in the nearby villages for construction of houses.

4.11.17. Medical Facility: There is only one Primary Health Centre in Thondi and a Health sub-center in S.P.Pattinam out of ten fishery villages selected for the study. But these hospitals lack facilities for specialized treatment, hence for any emergency or serious illness the fisher folks have to go to nearby town Devakottai, approximately at a distance of 22 Km from the fishery villages of study area. In order to get medical treatment for major diseases from a fully equipped Government hospital, they need to travel a distance of about 40 km to reach the nearest district headquarters Sivagangai. Hence, fisherfolk of study area, were
solely depend on private hospitals which contribute more facilities and services to the coastal peoples.

4.11.18. DISCUSSION

It is very rare to see the fishery villages in Tamil Nadu without problems with respect to fishery activities. Likewise, the fishery villages of Thiruvadanai Taluk also have many problems which found as major impediments for the improvement of socioeconomic status of fishermen population of these villages. In order to improve the socioeconomic status of fisherfolk, it is essential for introduction of mechanization of traditional fishery crafts which increases the fish catch for unit and also increases the price for the catch by arriving earlier. Role of middlemen should be curtailed and thereby enabling the fishermen to sale their catch at better price to the ultimate consumer and receive a handsome profit.

The essential facilities like transport, ice factory, processing units, modern fishing equipments, special training programme for use and maintenance of modern fishing equipments, insurance facility both for men and boats, awareness of significance of ID cards, bank loans and uninterrupted fuel supply should be provided will definitely improve the socioeconomic status of fisherfolk of in this area. Similar conditions have also been reported by Kumaraguru et al., (2000); Bavinck et al., (2006); Jyothis Sathyaplan et al., (2008 & 2011); Aswathy et al., (2012) and Sivanesan (2014).
4.12. COMPARATIVE ANALYSIS OF SOCIO-ECONOMIC STATUS IN THIRUVADANAI TALUK VILLAGES

In the present investigation, data on fishery resources have been collected and recorded in addition to socio-economic condition of the fishermen population in the ten selected fishery villages in Thiruvadanai Taluk.

4.12.1. Socio-economic Status of the Fishermen population

The major objective of this study is to analyze the economic activities and to assess the socio-demographic conditions of the marine fishermen in the selected fishery villages. The labour participation of these marine fishermen is being influenced by many socio-demographic factors which determine the level of the fishing activities too. The data have been collected for two consecutive years such as, 2012-2013 and 2013 – 2014, and many authors have studied on the various socio-demographic factors on the marine fishermen population in the different parts of the country (Gupta, 2006; Namasivayam, 2007; Rameshkumar et al., 2011)

4.12.1.1. Gender-wise details of fishermen population

Gender-wise details of fisherfolk population (12,265) in all the ten fishery villages of Thiruvadanai Taluk have been collected directly from individual fisherfolk families (2,638) using questionnaire method recorded. Male (6,312) and female (5,953) members of fisherfolk families have been segregated into two major groups based on their age such as, children (0-17 years) and adults (18 years and above). The average size of fishermen family was recorded as 4.6 during the two of study period. (Table - 152,171 and Figure - 120). As per the data recorded during the year 2013-2014, it was observed that out 10 fishery villages the childrens (0-17 years) were found to be more in Morepannai (714). Comparatively lowest number of children was recorded in M.R.Pattinam (80). More number of adults was recorded in Nambuthalai (1,831) whereas; the data recorded during the year 2013-2014 have showed no remarkable variations. It was inferred that, increased fishery activities in the
fishery villages were due to presence of more number of adults in the fishery villages. The same status has been reported by various authors in different parts of the country (Babaji, 1984; Sathiadhass Venketraman, 1988; and Hanna King, 1989).

4.12.1.2. Age-wise Composition of fishermen population

Age is one of the determining factors of employment. A family which contains more number of children and aged people will suffer since, their earning capacity is low. The analysis of age-wise composition recorded during the year 2012 – 2013, have indicated that, 66% of the working class people in the age group (21-40 & 41-60) and engaged in various fishery activities and 34 % belongs to the age groups of 0-20 years and above 60 years. Similarly, during the year 2013 – 2014, the data recorded have also indicated same status and there were no much variation in the data recorded. A total of 5056 individuals were recorded in the age group of 21-40 years, which is more compared to other age groups. This indicated that presence of young working group individuals in all the 10 fishing villages together and they contribute to the economic development of population (Table - 153,172). The similar trend has been reported by many authors (Sreenivasan, 1981; Bhavani, 1986 and Ayyakkannu, 1992).

4.12.1.3. Religion-wise distribution of the fishermen population

The data collected during the year 2012 – 2013 have indicated that, in most of the fishery villages in the study area, the Hindu population (66%) was seemed to be dominant which was followed by Muslims (22 %), and Christians (12%). But, there is no communal difference among the followers of these three main religions and exists marital relationship existed among these religious groups of fishermen. In S.P Pattinam village, all the fisherfolk population where belonging to Muslim community whereas, in Karankadu majority of the fisherfolk population (99%) were Christians. Likewise, the data recorded during the year 2013 – 2014 have showed no remarkable difference in this aspect (Table - 154,173). The roll
of religious activities on economic development has also been reported by many others like (Panikkar, 1980 and Kurien, 1981).

4.12.1.4. Social Class-wise distribution of the fishermen population

Like religion, the caste system also plays an important role in determining the socio-economic conditions of fishermen community. The data recorded during the year 2012 – 2013 have indicated that, the majority of the fishermen population belongs to BC (41%) and MBC (41%), which was followed by SC (21%). There were no other castes in the study area including FC and ST, whereas, the data collected during the year 2013 – 2014 have not indicated much variation in this regard (Table - 154,173). The role of community system on socio economic conditions of fishermen community has been reported by many authors (Veenakumari, 1998 and Narayanakumar et al., 2000).

4.12.1.5. Identity card holder of fishermen population

As per the data collected during the year 2012 – 2013, about 89% fisherfolk families have obtained TNFWB card and 64% of fishermen population have obtained FSM card. Whereas, out of total male (6312) only (1577) 19% have obtained Biometric card. The awareness among the fishermen with regard to utility of Biometric card has been observed as very low. It was observed that highest percentage of FSM cards (79%) and EPIC cards (83%) in the Karankadu fishing village, whereas the lowest percentage these cards (FSM card, 31% and EPIC card 57 %) were recorded in S.P.Pattinam village. There were no remarkable variations in the data obtained during the year 2013 – 2014 (Table - 155,174 and Figure - 121). The awareness among the fishermen community regarding the identity card was recorded as very low. The significance of possession of these identity cards has been reported by many authors (Sathiadas and Venketraman 1989; Senthilathiban and selvaraj, 1989; and Sehara et al., 1992).
4.12.1.6. Residential Status of fishermen population


As the data collected total of 2638 and 2699 houses were analyzed in the present investigation during the years 2012 – 2013 and 2013 – 2014 respectively (Table - 156, 175). As per the details obtained from respondents during the year 2012 - 2013 a total of (2436) 92% of the respondents have got own houses whereas, 8% were residing in rented houses. Out of own houses, (923) 38% of houses were constructed by the Central and State Government (both free houses and Tsunami houses). It has been observed that majority (92%) of the fishing workers are living in their own houses. Among the 10 villages, Lanjayadi village 98% of fisherfolks have own houses. The data obtained during the year 2013 – 2014 have showed no distinctive variations (Table - 156, 175 and Figure - 122). The percentage of families with own houses where recorded as more this indicated the economic status of fisherfolk families. Similar studies have been carried out and reported by Chidambaram and Soundarajan (1997) and Sheela Immanuel (1997).

4.12.1.6.3. Housing Pattern-wise distribution of fishermen population

The data observed during the year 2012 – 2013 about the distributions of sample households in different housing pattern showed that, out of the 2,638 total houses, 52% of the respondents have got concrete houses, 28 % of the respondents are having tiled houses, 14 % have thatched houses and remaining 6% have lite roofed houses. Among the 2,638 houses of fishermen families, 923 houses (35%) have been constructed under the free housing schemes by both Central and State Government. It has been inferred that, the fishermen living in thatched and lite roofed houses have moderate standard of living. In the study area among 10 villages, about 77% of concrete houses where recorded in Karankadu village, whereas 75%, 62% and 50% of the concrete houses were recorded in Pasipattinam, M.V Pattianam @ Soliiyakudi and Morepannai respectively. Less than 50% of the concrete houses were recorded the remaining villages. During the year 2013 – 2014, the data recorded
showed no remarkable change (Table - 156, 175). Similar type of studies have been carried out and reported by Thomson (1993) and Seenivasan and Ramadas (2014).

4.12.1.6.4. Number of Rooms in the Houses-wise distribution

The number of rooms in a house is an indicator of the socio-economic order of fishermen. The data obtained during the year 2012 – 2013 have indicated that, out of total number of 2,638 houses 11% per cent of them have more than three rooms, 52% have three rooms (a living room and a bed room and kitchen) and remaining 37% have two rooms. It was inferred that majority (1,367) of the fishermen (52%) were living in houses with three rooms namely a small living room, bed room and a kitchen of which 923 houses (68%) were built under Government schemes. Similarly, the data collected during the year 2013- 2014 have also indicated the same status and there were no notable variations. Moreover, the majority of the houses of fisherfolk families were small in size, with lesser number of rooms and the concrete houses where seemed to be less, which indicated that, the lesser development of economic status of fisherfolk of this area (Table - 156, 175). The results were corroborated with reports of many authors Sathiadas and Venketraman 1989; Senthilathiban and Selvaraj 1989; Shanmugaraj et al., 1998; Balasubramaniyan, 2001; and Sehara et al., 1992

4.12.1.6.5. Electrification of fishermen Houses

Electricity is supposed to be indispensable for modern living, and hence electricity also represents the level of economic conditions of the fisherfolks. The data collected during the year 2012 – 2013 showed that, out of 2,622 houses were provided with electricity and only less than 2 % of houses used kerosene for lighting their houses. Whereas, during the year 2013 – 2014, out of 2699 houses, 2697 houses were electrified (Table - 157, 176). In recent years, most of the fishery villages have been provided with electricity, this is in close agreement with the reports of many authors (Senthilathiban and Selvaraj 1989; Balasubramaniyan, 2001; and Sehara et al., 1992)
4.12.1.6.6. Toilet and Bath Room facility of fishermen houses

The data collected during the year 2012 – 2013 have indicated that, out of 2,638 houses 1,151 (44%) houses were provided with toilet facilities. Whereas 1,487 (56%) families were using common toilet provided by the Government of Tamil Nadu and open defecation was also noticed. It was recorded that, among 10 villages, 66% of houses have toilet facilities in P.V. Pattinam @ Soliyakudi. It was inferred that most of the houses were not provided with toilet facilities. The open defeation by the fishermen population in the areas nearby their residence forms the basic reason for spread of infectious diseases among fisherfolk population in turn which also weakened their economic condition by affecting their health. Similarly, during the year 2013 – 2014, the data recorded have also indicated same status and there were no much variations in the data recorded (Table - 157, 176).

The presence of the basic amenities in the fishermen houses indicated that it their economic status. Only 44% of houses were provided with toilet facilities which may be due to unawareness of sanitation and health aspect or our poor economic condition to meet out the expenses towards construction of toilets and bathrooms or non availability of space for construction of the same in their houses has been reported by Ayyappan and Biradar, (2002)

4.12.1.6.7. Drinking water Facility

In the marine sector salinity of ground water is very high. People use either well or public tap for drinking and cooking purpose. Impure water is another hazard to health, many authors (Kalawar, 1981; and Panikkar et al., 1981) have reported that, a dearth of safe drinking water in all coastal villages of Ramanathapuram District. The data obtained during the year 2012 – 2013 have indicated that, only 5% of the households have own water facilities, like bore-well and well (148 out of 2638 of households) and it might be due the salinity of ground water is very high. The remaining 94% households were using public water taps in the streets of the villages provided by the Government of Tamil Nadu.
Whereas, during the year 2013 – 2014 the data showed that, there were no remarkable variations in the data (Table - 157, 176).

4.12.1.7. Educational Status of fishermen population

Education is the level of development in any society. A greater percentage of the fishery workers are either illiterate or educated at primary or middle school level. The data collected regarding the educational status of fishermen population from all the 10 fishing villages during the year 2012 – 2013 have clearly indicated that, nearly 72% of the respondents were literates (Table- 158, 177 and Figure - 123). It was also observed that, the fishermen population has a positive attitude towards education. However, 53% of the respondents have studied primary level of education, 25% of the respondents have studied middle school level of education. 23% of the respondents were illiterates (excluding children below 5 years) but they have some awareness to educate their children to the maximum extent possible. Among 10 villages the educational status of the fisherfolk population was more at M.R Pattinam (85%) which was followed by P.V Pattinam (84%) and Pasipattinam (83%). In rest of the villages it was recorded as below 83%. Thus, the level of educational status has been observed as very low which forms the major hurdle to improve their economic status. Besides, their poor economic condition, they could not provide financial support to their child education. There were no remarkable differences in the data obtained during the year 2013 – 2014 (Table- 159, 178). Similar trend have been reported by many authors (Desai and Baichawal, 1960, Selvaraj, 1975, Panikkar, 1980, Sathidhas and Panikkar, 1988 and Korakandy Ramakrishnana, 1994.) in different parts of the country.


Occupation and employment status indicated the nature of livelihood of a population as well as the social status that a particular community is bestowed with. In this study area a vast majority of the workforce is engaged in fishing related activities. Apart from fishing a sizeable number of fishermen and fisherwomen (in certain villages only) engaged in fishing-
allied activities like fish-vending, wholesale trade of dried and fresh fish, net making, and fish processing and coir-retting. Out of 10 fishery villages more number of employed population were recorded in P.V Pattinam (64%), and lesser at morepanni (51%). The reason is that the fisherfolk, especially those fishing, by virtue of their socio-economic status and occupation, do not have opportunities to mingle with non-fishing communities. This causes a sense of unwillingness to do any work other than fishing (Table - 160, 179 and Figure - 123). These results were in close agreement with reports of Saxena (1983, ); Mohamed Rabeek Raja and Ramadas (2014) and Seenivasan and Ramadas (2014).

4.12.1.9. Occupation-wise distribution

As per the data obtained during the year 2012 – 2013 it was clearly evident that, among the 6,554 total employed respondent, 82% were engaged in marine fishing related activity like fish-vending, wholesale trade of dried and fresh fish, net making, fish processing and coir-retting. Besides, 4% were self employed, the percentage of government employee was negligible, 2% were employed in abroad, 4% were private employee, 6% were coolie and 47% of the fishermen are unemployed. Majority of the fishing workers are not having any subsidiary occupation. It was recorded that, among 10 villages of the study area, 93% and 92% fisherfolk individuals were engaged in fishing and related activities in the villages of Morepannai and Thondi respectively. They do not earn any income for their households apart from fishing activities. The women living in this village were involved mostly in household works and they were not involved in regular fishery activities. There were no significant differences in the data obtained during the year 2013 – 2014 (Table - 161, 180). Similar occupational status has been reported by many authors (Devraj, et al., 1998) in different parts of country.

4.12.1.10. Number and ownership of Craft and Gears

The data obtained during the year 2012 – 2013 have indicated that, out of the total, 2638 respondents, 15% owned wooden vallam and 76% have owned FRP vallam whereas,
only 9% respondents were mechanized boat owners (Table - 162, 181). Among 10 villages more number of FRP Vallam was recorded in Pasipattinam (154), and lesser in Nambuthalai (124). The mechanized boats were recorded as 33 in Lanjayadi, 33 in M.V Pattinam @ Soliyakudi and 9 in Thondi during the study period. Among 10 villages more number of Gears was recorded in Nambuthalai (670) which was followed by Pasipattinam (512), Moreppanai (455) and M.V. Pattianm @ Soliyakudi (451) (Table - 163, 182). The data obtained during the year 2012 - 2013 have showed that, out of 2638 families, 1246 families have owned crafts and gears, among those families, the number of families having gears alone, boat with one type of gear and boat with two types of gear were recorded as 31%, 43% and 27% respectively. Comparatively more number of families having gears alone were recorded as 88 and 86 in the Nambuthalai and Pasipattinam respectively. The observation revealed that, all the fishermen families of the village were not provided with crafts and gears; hence they required to work on daily wages basis which could not fetch sufficient money for their family. The data collected during the year 2013- 2014 have indicated no much variation (Table - 164, 183). This is concordance with the reports of Saxena, (1983), Sathiadhas and Panikkar, (1988), and Panikkar and Alagarraja (1981)

4.12.1.11. Details of investments on fishing Crafts and Gears

The investment of fishing crafts and gears by the fisherfolk population were also recorded. The data recorded during the year 2012 – 2013 have indicated that, out of 2638 families only 1246 families have invested on fishing grafts and gears in which only 6% of families have invested ₹.25,000 towards purchase of Crafts and Gears. Among 10 villages, ₹.50, 001 to ₹.1 lakh and above ₹.1 lakh investments on the fishing grafts and gears were observed as more in Lanjiyadi (94%) which was followed by M.V.Pattinam @ Soliyakudi village (87%) and Thondi (77%). This may be due to the investment on more number of FRP boats and mechanized boats. Out of 2,638 families, only 47% of fishing families have invested money on the crafts and gears and others were working for wages only and their
salary is not enough even to run their day to day life. Thus, the economic status remains unaltered for many years and even throughout their life time. Only slight variations have been observed during the year 2013 – 2014 with regard to investment by the fishermen population (Table - 165, 184 and Figure - 124). Similar conditions have been reported by Saxena, (1983) Sathiadhas and Panikkar, (1988), Panikkar and Alagarraja (1981); Rahman (1993) and Seenivasan and Ramadas (2014).

4.12.1.12. Credit details for fisherfolk families

There are different sources lending money to the fishermen population on interest basis such as, money lender, Fish traders, Boat owner, Banks and other sources (relatives and friends). Based on the data collected during the year 2012 - 2013, in all the credit sources, the number of fishermen families who have obtained loan under the category of ₹ 25,000/- were more (73%) when compared to remaining categories. Majority of the families in the villages of the study area have availed loan in the categories of upto Rs.25,000/- and Rs.25,001/- to Rs.50,000/- only. The percentage of loan in the higher categories was seemed to be low because the fisher folk population has no valuable assets for mortgage to avail higher amount of loan for their fisher activities. Fishing families have received loan irrespective of their occupation and spent the money for various other purpose other than their fishery and fishery allied activities. Lack of alternate employment in off – seasons, they were forced to borrow money usually from private money lenders at very high rate of interest 10% per month or even more. This might be the prime reason for the unchanged poor economic condition. Similar trend have also been observed during the year 2013 -2014 (Table - 166, 185). This is concordance with the reports of Saxena, (1983) Sathiadhas and Panikkar, (1988), Panikkar and Alagarraja (1981).

4.12.1.13. Details of purpose of credit utilization by the fishermen population

The loan amount obtained from various credit sources by the fishermen families have been invested for the various purposes. The data collected during the year 2012 – 2013 have
indicated that, out of 963 credited families in the villages of study area, the number of families utilized the credited amount on the purchase of crafts and gears was 263 (27%) and 354 (37%) families utilized it for maintenance only and rest of the families have invested for various other purposes. Comparatively more number of families utilized the credited amount on purchase of crafts and gears was recorded as 61, 50 villages of Thondi, Nambuthalai. Any valuable step taken by the fishermen families with references to the improvement of their economic status through investment on the crafts and gears have not been noticed in this village. The data collected during the year 2012 – 2013 and 2013 - 2014 have not showed much difference in the credit utilization by the fishermen population in the study period (Table - 167, 186). The results were in close agreement with the reports of Saxena,(1983) Panikkar, 1988, Panikkar and Alagarraja (1981).

4.12.1.15. Annual income of fishermen families

The data obtained during the year 2012 – 2013 have indicated that, 5% of fishermen families were belong to the income range of ₹ 1, 60,001 to ₹ 2, 00,000, whereas, only 3% were belong in the income range of ₹ 2, 00,001 to ₹ 2, 40,000 and 44% belong to the income range of ₹ 40,001 to ₹ 80,000. The number of crafts and types of crafts which were used in the fishing activity play an important role in the family wise income. Though fishermen families have owned the mechanized boats, they gave boats for lease or share the profit to family members like sons or brothers or some other non-fishermen due to high operational and maintenance cost. Hence, the fisher folk could not get the entire benefit out of fishing in this region. Altogether the income or the economic status of the fishermen population of the study area was observed as very low. The percentage of families under higher income group seemed to be low. There was no much difference in the data collected during the year 2013 – 2014 (Table - 168, 187). This is in close agreement with reports of (Sinha, 1976, Rao, 1996, Suresh et al., 1992, Dalai and Das, 1992, Singh et al., 1995, Rao and Raju, 1998).
4.12.1.16. Earning Members in the Family-wise distribution

The number of earning members play vital key role of the family income. The number of earning members in the fishermen families vary from a minimum of one to a maximum of three. The data obtained during the year 2012 – 2013 have indicated that, among 2638 families, 1451 respondents families (55%) were having one earning member each. 817 respondents families (31%) were having two earning members each and 370 respondents families (14%) were having three earning members per family. Comparatively the percentage of three earning members per family was less in the study area. About 17% of three earning members per family were recorded in the villages of Pasipattinam and Morepannai in each. The data collected during the year 2012 – 2013 and 2013 – 2014 have not indicated much difference (Table - 169, 188). The results were in close agreement with the reports of Ghosh, (1979), Sathiadas and Panikkar (1991) and Sivanesan (2014)


Out of total families, 2638, about 91% of the families were availed by lean period and ban period benefits, whereas only 56% of individuals have received Rs.1800/- from the NFSR Scheme from total individuals of study area during the year 2012 – 2013. Among the 10 villages of the study area 97% of fisherfolk have received Rs.4000/- during the lean period in Morepannai. Likewise, more or less same number of families were received the amount Rs.2000/- during ban period. Only 60% and below 60% of families were benefitted from NFSR Scheme, by State and Central Government. It was noted that only 22% of individuals in S.P.Pattinam have received Rs.1800/- from the NFSR Scheme (Table - 170, 189). The results were in close agreement with the reports of Suyambulingam , (2011) Sivanesan (2014) and Tamil Nadu Government Policy Note (2013-2014.)
Figure – 120. Gender-wise details of Fisherfolk Population in the Fishery Villages of Thiruvadanai Taluk during the periods from 2012 - 2013 and 2013 - 2014

Figure – 121. Details of Identity card holders in the Fishery Villages of Thiruvadanai Taluk during the periods from 2012-2013 and 2013-2014
Figure – 122. Details of residential status of fisherfolk in the Fishery Villages of Thiruvadanai Taluk during the periods from 2012-2013 and 2013-2014

Figure – 123. Details of education and employment status of fisherfolk population in fishery villages of Thiruvadanai Taluk during the periods from 2012-2013 and 2013-2014
Figure 124. Percentage of families invested on fishing equipments in fishery villages of Thiruvadanai Taluk during the periods from 2012-2013 and 2013-2014.
4.13. FISHERIES – FISH LANDINGS

4.13.1. FISH LANDING DATA OF PASIPATTINAM LANDING CENTRE

The season-wise fish landings at Pasipattinam fishery village were recorded during the period from April 2012 – March 2013 (Plate - 2). As from 15th April to 29th May was the ban period for fishing, the data were not collected during this period. The total number of fishing days in this landing centre was recorded as 273 and effort expanded was 47950 boat trips with an average of 175.64 boat trips/day. This indicated the strenuous fishing effort made by fisherfolk of the village (Table – 190).

The fish landings data obtained during the period have revealed that, the different groups of fishes like pelagic fin fishes, demersal fin fishes, crustaceans, molluscs and miscellaneous items have contributed about 62.53%, 24.13.95%, 7.33%, 2.38% and 0.81% respectively to the total landings of 1479.18 tons ( Table – 195).

It was also inferred that, the total fish catch was more in the Pre-monsoon season (461.57 tons) followed by Post-monsoon (445.59 tons), Monsoon (309.15 tons) and summer (262.87tons) seasons. Fish landings were comparatively poor during summer season (April to June) due to ban period. The details of the fishing efforts made and quantity of fish landed with Catch Per Unit Effort (CPUE) for each group of fishes in all the four seasons were given in Table – 195 and Figure – 125.

4.13.1.1. Pelagic fin fishes

The fishes collected by the pelagic trawlers and gill netters constituted the major portion of pelagic fisheries. The major groups exploited include the sardines, mullet, carangids etc. Approximately 924.94 tons of pelagic fin fishes have been caught in Pasipatinam village during the period from April 2012 to March 2013, with a CPUE of 19.29 which, account about 62.53% of the total landings in Pasipattinam. Maximum quantity of fish landing was recorded during the pre-monsoon season (July to September).

The oil sardines, *Sardinella* spp., which forms a major fishery in the Pasipattinam
landing centre. The total landings of sardines were estimated as 1,83,343kg (CPUE 3.82) during the study period. It was around 19.82% of the total pelagic landings and found to be more abundant during the pre-monsoon season (65910 kg of CPUE 4.46). The mullet fishes (madavai or manali) comprised of *Liza* spp. and *Mugil* spp., which occupied of next to sardine fishery resources with an annual catch of 166335 kg with an average CPUE 3.47 and contributed 17.98% of annual total pelagic fin fishes. Half beak and full beak were landed throughout all seasons in Pasipattinam, recording 113577 kg and 67270 kg, with CPUE 2.37 and 1.40 respectively and they contributed 12.28% and 7.27% of total pelagic fishery resources. Half beak fishery was supported by the *Hemiraphus* spp. and the maximum catch was recorded during Pre-monsoon season (34835 kg, CPUE 2.36). The Full beaks fishery was formed by *Strongularia* spp. and *Tylosurus* spp. Their catch was found next to the half beaks and more catch was recorded during post-monsoon season (22681 kg, CPUE 1.67).

Carangids constituted a good percentage in the pelagic fish landings. It was supported by *Carangoides* spp. and *Caranx* spp. and total landing was recorded 94,551 kg (CPUE 1.97). It contributed 10.22% of pelagic fishery resources of Pasipattinam and maximum landings were recorded during the pre-monsoon season (32,763 kg, CPUE 2.22). As per the catch data collected, the quantity of the wolf herring (*Chirocentrus* spp.) and the barracuda (*Sphyraena* spp.) were recorded as 76,354kg (8.25% of pelagic fishery resources) and 49,929kg (5.41% of pelagic fishery resources) respectively. Maximum landing was recorded during post-monsoon season (January to March) for both categories of fishes.

The data obtained during the year 2012 - 2013 have revealed that, among the total of pelagic fin fishes landed, Indian mackerel (*Rastrelliger* sp.) and ribbon fishes (*Trichiurus* spp.) consisted of 29965kg/yr (3.24% of pelagic fishery resources) and 22,747kg/yr (2.46% of pelagic fishery resources) respectively. Likewise, the total landings of spine foots (*Signus* spp.), was 17,253 kg/yr which contributing 1.87% of total pelagic landings. The other groups like seer fishes (11,880 kg/yr), Anchovies, (2,545kg/yr), and thryssa (2,486kg per
year) were caught throughout the year, but their catch was comparatively very poor and occasional (Tables – 191 and Figure – 128).

4.13.1.2. Demersal finfishes

In the Pasipattinam coast the demersal fin fishes also contributed a major portion of the fishery. Demersal fishery was mainly constituted by the catches from bottom trawlers, which amounts to 398.66 tones with a CPUE of 8.3 kg/boat trip and around 26.95% of the total landings at Pasipattinam.

The goat fishes (*Upeneus* spp.) were abundant among the catch of demersal fin fishes and the total annual catch of goat fishes were recorded as 94124 kg with of CPUE 1.96, which formed 23.61% of total demersal landings. The maximum catch was recorded during pre-monsoon season (31705 kg, CPUE of 2.14)

The landings of the breams (65,228kg), thread fin breams (37,157kg) and the sea perches (36,483 Kg) were recorded next to goat fishes and they contributed 16.36%, 9.32% and 9.15% of total demersal catch respectively. The maximum catch of these fishes were recorded during pre-monsoon season.

The cat fish (*Arius* spp.) and lizard fish (*Saurdia* spp.) were available throughout the year, with good quantity with total annual landings of 31,323 kg and 37,460 kg which formed of 7.86% and 9.40% of total demersal resources respectively. The maximum catch of the cat fish and the lizard fish were recorded in the Post-monsoon season with a quantity of 9,530 kg (CPUE 0.70) and 13,536 kg (CPUE 1.00) respectively. Whereas landings of silver whitings (*Sillago* spp.) were recorded as 33,190kg and which contributed 8.33% of total demersal catch. The maximum landings were recorded during the post-monsoon season and lesser during the summer season.

Silver bellies (*Leiognathus* spp., *Gazza* spp.) were one of the important groups among the demersal fishery which showed the annual landings 18,533kg. Pomfrets were economically important and commercially valuable groups in the fishery. There are two
types of Pomfrets, silver Pomfrets (*Pampus* spp.) and black Pomfrets (*Formio* spp.) found in this landing centre throughout the year, but they contribute very lesser amount in demersal fisheries of Pasipattinam coast during the study period. The total annual landings of silver and black Pomfrets were recorded as 5,035kg (CPUE 0.11) and 5,643kg (CPUE 0.12) respectively.

Among the demersal fin fishes, even though, sharks (*Scoliodon* spp.) and rays (*Dasyatis* spp.) were found available throughout the year, their catch was comparatively low. The total annual catch of shark and ray were recorded as 16029 kg (CPUE 0.33) and ray was 18,452 kg (CPUE 0.38) respectively (Table – 192 and Figure – 128).

### 4.13.1.3. Crustaceans

The crustaceans have the highest commercial value, as it is a delicacy in international market. The fisherfolk at Pasipattinam have showed a special interest towards catching of prawns and crabs using special types of nets, crab net or nandu valai (bottom set gill net), prawn-net or iraal valai (bottom set trawl net). The crustacean fishery was supported by penaeid prawns and crabs in the Pasipattinam fishery with a total annual catch of 108.42 tonnes with CPUE of 2.26 kg/boat trip during the year 2012-2013 and this group contributed around 7.33% of total catch.

The major part of the crustaceans was constituted by the penaeid prawns (*Penaeus* *spp.*). The annual landing in 2012-2013 was recorded as 58,695kg and which contributed 54.13 % of total crustacean fishery. Maximum prawn landing was obtained during the Post-monsoon season in the study period.

The crabs (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.) also occupied the prime portion in the annual of crustacean fishery. The total annual landing of crab fishery was recorded as 49,729 kg with CPUE of 1.04 and maximum crab landings were recorded during the Post-monsoon season (Table – 193 and Figure – 128).
4.13.1.4. Molluscs

Cephalopods were only the major commercial item among the molluscs found in the fish landings and which constituted by cuttle fishes (Sepia spp.) and squids (Loligo spp.). It constituted a good fishery, around 2.38% of the total fish landings of Pasipattinam, with a total production of 35,215 kg and a CPUE of 0.73 and these were landed in good quantity throughout the year with a maximum in the Pre-monsoon (10,506 kg) and Post-monsoon (10,483 Kg) seasons (Table – 194 and Figure – 128).

4.13.1.5. Miscellaneous

Miscellaneous items were included the small sized low valued fishes and other trash fishes were landed around 11,945 Kg with a CPUE of 0.25, which formed 0.81% of the total landings (Table – 194 and Figure – 128).

4.13.1.6. Discussion

Tamil Nadu is contributing quite to the Indian fisheries. The estimate of All India Annual marine fish landings during the year 2013 is 3.78 million tons. Gujarat, Tamil Nadu and Kerala as the top three marine fish producing States since 2006, contributing 7.17, 6.88 and 6.71 lakh tons respectively (CMFRI, 2014).

The coastline in Tamil Nadu can be broadly divided into three fishing zones. They are (1) Pulicat Lake to Point calimer that lies in the Coromandal coast (2) Point calimere to Dhanushkodi that covers the Palk Bay and the Palk Strait and (3) Dhanushkodi to Kanyakumari which covers the Gulf of Mannar. Fishing in Palk Bay is based on multi-gear, multi-species and is carried out throughout the coast of mainland and the northern side of Pamban/ Rameswarm Island. There are 87 fish landing centers located along the Palk Bay coast south of point calimere and Pasipattinam is one among them (Kumaraguru, et al., 2008).

In the present study, out of total landings of 1,479.18 tons, the different group of fishes like the pelagic fin fishes, demersal fin fishes, crustaceans and molluscs have contributed
62.53%, 26.95%, 7.33% and 2.38% respectively. Whereas CMFRI (2014) reported that
during 2013-2014 Tamil Nadu contributed mainly by pelagic resources (56.5%) followed by
demersal (28.9%), crustacean (5.9%) and molluscs (3.8%). The report of the present study is
in close agreement with the CMFRI studies.

In the present investigation the results, revealed that, sardine fishes were the
dominant pelagic resource (19.82%) and it is coincided with the reports of CMFRI (2013 &
2014). Sathianandan et al., (2010 and 2014) who reported that sardines were dominant
group in landings among the marine fisheries of South- east coast of India. The same
findings were reported by Somy Kuriakose et al., (2010) from south west coast of India, by
of India. The other pelagic groups like mullets, carangids, mojarras, wolf-herrings, half
beaks, and barracudas showed slight variations in the landings when compared to CMFRI

CMFRI (2014) reports have indicated that, Ribbon fishes (*Trichiurus* spp.) and
Indian mackerel (*Rastrelliger* spp.) have comprised the major fisheries in India and they
were stood second and fourth place in the landings of India respectively. Similarly Tuna and
Silver bellies were formed the dominant groups of fisheries in India as reported by CMFRI
(2012, 2013 and 2014) and Sathianandan et al., (2010 and 2011). As per the landing data of
Pasipattinam landing centre, the catch of the ribbon fishes, Indian mackerel and silver bellies
found as very poor when compared to CMFRI records for all India landings.

Among demersal fin fish landings the goat fishes (23.61%), breams (16.36%), thread
fin breams (9.32%), sea perch (9.15%), lizard fish (9.40%), cat fish (7.86%) and silver
whiting (8.33%) have formed the important groups during 2012-2103. Similar studies have
been made and reported by Srinivasan et al., (2010) about fish landings in the South east
coast of India during 2005-2006. The reports of present study also coincided with the reports
of CMFRI Annual Reports (2010 to 2015).
The fishermen are mainly targeting the prawns and crabs grounds. Total annual production of penaeid prawns and crabs were recorded as 58,695Kg with CPUE of 1.22 and 49,729Kg with CPUE 1.04 during the year 2012-2013 respectively. These groups have contributed around 7.33% of the total fish landings at Pasipattinam. The crustaceans accounted for 13% to the total Indian marine fish during 2013 (CMFRI Annual Report (2013-2014) and 14.81% to the total Indian marine fish during 2008-2010 (Sathianandan et al., 2011). But, this group has contributed only 5.9% of the total marine fish production in Tamil Nadu during 2013 as reported by CMFRI (2014). Besides, Varadharajan et al., (2012) have reported similar landings in Pasipattinam in 2010.

Cephalopods were only group in Molluscs fishery, which constituted 2.38% of the total landings in Pasipattinam during 2012-2013. But at the all India level, it was 5% among total landings during 2012 and 2013 (CMFRI Annual Report 2012-2013 and 2013-2014). The trash fishes contributed 0.81% of the total fish landings in Pasipattinam. The captures of these trash varieties have little commercial importance.
Plate - 2. Fish Landing at Pasipattinam Landing centre.
4.13.2. FISH LANDING DATA OF M.V.PATTINAM @ SOLIYAKUDI LANDING CENTRE

The fish landing data of M.V.Pattinam @ Soliyakudi landing centre were collected for the period from April 2012 to March 2013 (Plate – 3). In M.V.Pattinam@Soliyakudi the data was collected on the basis of mechanized and non-mechanized boats separately. As the period from 15th April to 29th May was declared as ban period and the data was not collected during the ban period.

4.13.2.1. LANDINGS OF MECHANIZED BOATS

Total number of fishing days was recorded as 125 and the effort expended was 3,941 boat trips with an average of 31.53 boat trips per day (Table – 196). The overall catch per unit effort per boat was 318.33 kg. The total fish landings of mechanized boats were recorded as 1,254.52 tons and the pelagic fin fishes, demersal fin fishes, crustaceans, molluscs and miscellaneous catches were contributed as 47.49%, 33.33%, 12.84%, 2.55% and 3.78% to the total landings during the study period respectively. It was also inferred that, the total fish catch was more during the Pre-monsoon season (396.22 tons) followed by Post-monsoon (359.02 tons), Monsoon (323.81tons) and summer (175.47 tons) seasons. Fish landings were comparatively poor during summer season (April to June) due to ban period. The details of the mechanized fishing efforts and the amount of fish landed with CPUE for each group of fishes in all seasons were given in (Table – 201 and Figure – 126).

4.13.2.1.1. Pelagic fin fishes

The fishes collected by the pelagic trawl nets and gill nets constituted the major portion of pelagic fisheries. The major groups exploited include the sardines, mullet, carangids, wolf herrings, anchovies and half beaks fishes. About 5,95,932 Kg of pelagic fin fishes have been caught in M.V.Pattinam @ Soliyakudi village during the period from April 2012 to March 2013, with a CPUE of 151.21. It was around 47.49% of the total landings in M.V.Pattinam @ Soliyakudi during the years 2012 - 2013. The maximum quantity of fish
anding was recorded during the Pre-monsoon season.

The oil sardines, *Sardinella* spp., forms a major fishery in the M.V.Pattinam @ Soliyakudi landing centre. The total landings of sardines were estimated as 3, 03,029 kg (CPUE 76.89) during the study period. It was around 50.85% of the total pelagic landings and was found to be more abundant during the Pre-monsoon season (95,487 kg & CPUE 82.39). The mullet fishes (madavai or manali) comprised of *Liza* spp. and *Mugil* spp. This fishery occupied next to sardine fishery resources with an annual catch of 28,536 kg with CPUE 7.24 and contributed 4.79% of annual total pelagic fin fishes.

Carangids (*Carangoides* spp. and *Caranx* spp.) and wolf herrings (*Chirocentrus* spp.) were landed throughout all the season recorded as 37,955 kg and 27,785kg, with CPUE 9.63 and 7.05 respectively and they were contributed to 6.37% and 4.66% of total pelagic fishery resources. The maximum catch of Carangids was recorded during pre-monsoon (11,405 kg, CPUE 9.84). The catch of Wolf herrings was found next to Carangids and the maximum catch was recorded during pre-monsoon season (9,316kg, CPUE 8.04).

The half beak (*Hemiraphus* spp.) and full beak (*Strongulura* spp. and *Tylosurus* spp.) fishes were available throughout all the seasons with a total annual landings of 20,803kg (CPUE 5.28) and 32,034 kg (CPUE 8.13) respectively. Whereas, the maximum landing was recorded during pre-monsoon season for both categories of fishes. The total landing of anchovies, *Stolephorus* spp. was recorded as 42,809 kg (CPUE 10.86) and the maximum landing was recorded during pre-monsoon season.

The data obtained during the year 2012 - 2013 have revealed that, among the total of pelagic fin fishes landed, Indian mackerel (*Rastrelliger* sp.) and ribbon fishes (*Trichiurus* spp.) consisted of 18,507 kg/yr (CPUE 4.7) and 13149 kg/yr (CPUE 3.34) respectively. Likewise the total landings of spine foots (*Signus* spp.) was recorded as 6,898 kg/yr which contributing to 1.15% of total pelagic landings. The other groups like seer fishes (20,505kg/yr), barrcudas (25,873Kg/yr) thryssa (2972 kg/yr) and mojaarras (15,078 Kg/yr)
were caught throughout the year, but their catch were comparatively low (Table – 197 and Figure – 129).

4.13.2.1.2. Demersal finfishes

The demersal fishery was mainly constituted by the catches from bottom trawlers, which amounts to 418.130 tons with a CPUE of 106.09 kg/boat trip and around 33.33% of the total landings at M.V.Pattinam @ Soliyakudi.

The silver bellies (*Leiognathus* spp., *Gazza* spp.) was the dominant group among the demersal fishery and the total annual catch of silver bellies fishes were recorded as 2,28,998 kg with CPUE of 58.11, which formed 54.77% of total demersal landings and 18.25% of total fish landings. The maximum landing was recorded during the Pre-monsoon season (74,280 kg with CPUE of 64.09).

The lizard fish (*Saurdia* spp.) and cat fish (*Arius* spp.) were available throughout the year, with good quantity with total annual landings of 21,975 kg and 20,509 kg which formed of 5.26% and 4.90% of total demersal resources respectively. The maximum catch of lizard fish and cat fish were recorded in the Post-monsoon season with 7,270 kg (5.58 CPUE) and 6,395 kg (CPUE 5.61) respectively.

Among the demersal fin fishes, sharks (*Scoliodon* spp.) and rays (*Dasyatis* spp.) were found available throughout the year. The total catch of shark and ray were recorded as was 25,754 kg and 15,234 kg respectively.

The data obtained during the year 2012 - 2013 have revealed that, among the total of demersal fin fishes landed, the breams thread fin breams and the sea perches consisted of 21,287kg, 13,890 kg and 15,764 kg and which contributed to 5.09 %, 3.32% and 3.77% of total demersal catch respectively. The maximum catch of these categories of fishes were recorded during pre-monsoon season. The total annual catch of goat fishes (*Upeneus* spp.) was recorded as 16,895kg with CPUE 4.29 and which formed 4.04% of total demersal landings during the study period.
The annual catch of Indian whiting *Sillago* spp. were recorded as 9,649 kg with CPUE of 2.45, which contributed 2.31% of total demersal landings. The maximum catch was recorded during the Pre-monsoon season.

Pomfrets were economically important and commercially valuable groups in the fishery. There are two types of Pomfrets, silver Pomfrets (*Pampus* spp.) and black Pomfrets (*Formio* spp.) found in this landing centre throughout the year, but they contribute very lesser amount in demersal fisheries of M.V. Pattinam @ Soliyakudi coast during the study period. The total annual landings of silver and black Pomfrets were recorded as 8,758 kg (CPUE 2.22) and 7,605 kg (CPUE 1.93) respectively.

The Croakker (*Otolith* spp) and Tongussole (*Cynoglossus* spp.) were found in this landing center throughout all the seasons and their catch was comparatively low. The total annual catch of croakker and tongussole fishes was recorded as 6,433 Kg (CPUE 1.63) and 53,78 Kg (CPUE 1.36) respectively (Table – 198 and Figure – 129).

**4.13.2.1.3. Crustaceans**

The crustaceans have the highest commercial value, as it is a delicacy in international market. The fisherfolk at M.V. Pattinam @ Soliyakudi showed great interest towards prawns and crabs. The crustacean fishery was supported by penaeid prawns and crabs with a total annual catch of 161.042 tons with CPUE of 40.86 kg/boat trip during the year 2012-2013 and this group contributed around 12.84% of the total fishery.

The major part of the crustaceans was constituted by the penaeid prawns (*Penaeus* spp.). The annual landing in 2012-2013 was recorded as 1,04,333 Kg and contributed 65% of total crustacean fishery. Maximum prawn landing was obtained in Post-monsoon season during the study period. The crabs (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.) also occupied the prime portion in the annual of crustacean fishery. The total annual landing of crab fishery was recorded as 56,709 kg with CPUE 14.39 and the maximum crab landings were recorded during the Post-monsoon season (Table – 199 and Figure – 129).
4.13.2.1.4. Molluscs

Cephalopods were only the major commercial item among the molluscs found in the fish landings and which constituted by cuttle fishes (Sepia spp.) and squids (Loligo spp.). The total catch of cephalopods was recorded as 31,964 Kg (CPUE 8.11) which constituted 2.55% of total fish landings during 2012-2013 and these were landed in good quantity throughout the year with a maximum catch in post-monsoon (9,234 kg) and pre-monsoon (9,944 Kg) seasons respectively ((Table – 200 and Figure – 129).

4.13.2.1.5. Miscellaneous

Miscellaneous items including the small sized low valued fishes and other trash fishes landed were recorded around 47,454 Kg with CPUE of 12.04, which formed around 3.78% of the total landings (Table – 200 and Figure – 129).

4.13.2.2. LANDINGS OF NON - MECHANIZED BOATS

The fish landings of the non - mechanized boats in M.V Pattinam @ Soliyakudi were recorded during the period from April 2012 to March 2013. Total number of fishing days was recorded as 295 and the effort expended was 5,327 boat trips and average of 18.06 boat trips per day (Table – 202). The overall catch per unit effort per boat was 22.96 kg. The contribution of pelagic fin fishes, demersal fin fishes, crustacean, molluscs and miscellaneous catches were recorded as 59.77%, 28.14%, 8.42%, 2.74% and 0.93% respectively to the total landings of 122.31tons. The present study revealed that, the total fish catch was more in the pre–monsoon season (39,445 Kg) and landings were comparatively poor during summer season (20,128 Kg) due to implementation ban period. The details fishing efforts and the quantity of fish landed with CPUE for each group of fishes in all seasons from the non-mechanized boats were given in (Tables–207 and Figure –130).

In this landing centre the major groups of pelagic fin fishes consisted of the sardines, mullet, half beaks, wolf herrings, carangids, barrcudas and mojarras were contributed with
20.67%, 17.19%, 14.76 %, 9.46%, 9.14% ,6.49% and 6.25% out of total pelagic fish landings of 73.093 tons (CPUE 13.73) respectively (Table – 203 and Figure – 130).

Demersal fishery from the non mechanized boats was mainly constituted by the catches from bottom trawlers, which recorded as 34,431Kg with a CPUE of 6.46. The important categories of demersal fishes were goat fishes (22.44%), breams (18.13%), thread fin breams (10.24%), sea perches (10.09%), lizard fish (10.3%) and cat fish (5.08%) of total demersal landings during the study period (Table – 204 and Figure – 130).

Total annual catch of crustaceans were recorded as 10,300Kg with CPUE of 1.94 and this group contributed around 8.42% of the total fish landings. The major part of the crustacean fishery was constituted by the penaeid prawns (*Peanuts* spp.). The annual landing was recorded as 5,576Kg which contributing 54.13 % of total crustacean fishery. The crabs (*Portunus* spp. *Charybdis* spp. and *Scylla* spp.) also occupied the prime portion in the annual of crustacean fishery. The total annual catch of crab fishery was recorded as 4,724Kg, which contributing 45.87 % of total crustacean fishery in the year 2012-2013 (Table – 205 and Figure – 130).

Whereas, the annual landings of cephalopods (cuttle fishes, *Sepia* spp. and squids, *Loligo* spp.) were recorded as 3,345Kg (CPUE0.63) and that of miscellaneous items was negligible (Table – 206 and Figure – 130).

4.13.2.3. DISCUSSION

Out of 87 fish landing centers located along the Palk Bay coast south of point calimere, the M.V.Pattinam @ Soliyakudi is one among them and is provided with jetty for berthing boats (Kumaraguru, *et al.*, 2008).

In the present study, out of the total landings of mechanized boats in M.V.Pattinam @ Soliyakudi 1,254.522 tons, the different group of fishes like the pelagic fin fishes, demersal fin fishes, crustaceans, molluscs and miscellaneous have contributed 47.5%, 33.33%, 12.84%, 2.55% and 3.78% respectively. Whereas CMFRI (2014) reported that during 2013...
Tamil Nadu contributed mainly by the pelagic resources (56.5%) followed by demersal (28.9%), crustacean (5.9%) and molluscs (3.8%). CMFRI (2015) reported that, the marine fish production of India during 2014 was estimated at 6.61 lakh tons which was constituted by pelagic resources (46%) followed by demersal (24%), crustacean (4%) and molluscs (2%). The report of the present study is in close agreement with the CMFRI studies.

The present study, the results revealed that sardine fishes were the dominant pelagic resource (47.50% in 2012-13) and it is coincided with the reports of Sathianandan et al., (2010 and 2014) who reported that sardines were dominant group in landings among the marine fisheries of South- east coast of India. The same findings were reported by, Somy Kuriakose et al., (2010) from south west coast of India, by Jayasankar et al., (2010) from North west coast, Mini et al., (2010) north east coast of India and CMFRI (2013 & 2015).

It was recorded in the present study, among pelagic fisheries landings the other important groups comprised such as mullets 4.79%, carangids 6.37% and half beaks 3.49% of total pelagic resources in the year 2012-2013. The other pelagic groups like mojarras, wolf-herrings and barracudas contributed significant amount of landings during the study period. They showed slight variations in the landings when compared to Sathianandan et al., (2011 and 2012) and CMFRI Annual Reports (2013 and 2015).

CMFRI (2014) reports have revealed that Ribbon fishes (*Trichiurus* spp.) and Indian mackerel (*Rastrelliger* spp.) comprised major fisheries in India and they stood second and fourth place among the landings of India respectively. As per the landings data of M.V.Pattinam @ Soliyakudi landing centre the catch of the ribbon fishes and Indian mackerel found as very less.

The demersal fishery ranks next to the Pelagic fishery in M.V.Pattinam @ Soliyakudi landing centre. The silver bellies landings found are in highest quantities throughout the year in the demersal fin fish landings. This fishery formed a good potential in this region. It contributed 54.77% of total demersal landings and 18.25% of total fish
landings during 2012-2013. Similar, studies have been made and reported by Srinivasan *et al.*, (2009) about fish landing in the South East coast of India during 2005-2006, Sathianandan *et al.*, (2010) from South East region of India during 2008. The reports of present study also coincided with the reports of CMFRI Annual Reports (2010 to 2015).

In 2012-2013 among demersal fin fish landings, cat fish (4.90%), lizard fish (5.26%), shark (6.16%), rays (3.64%), breams (5.09%), thread fin breams (3.32%), sea perch (3.77%), goat fishes (4.04%), silver whiting (2.31%), silver Pomfrets (2.09%), and black pomfrets (1.82%) formed the important groups. Similar demersal fin fish groups were reported by Srinivasan *et al.*, (2010) in the fish landings in the South East coast of India during 2005-2006 and in CMFRI Annual Reports (2010 to 2015).

The fishermen are mainly targeting the prawns and crabs grounds and therefore catch of crustaceans were high during the entire year. Total annual catch of penaeid prawns and crabs were recorded as 161.041 tons with CPUE of 40.86 and this group contributed around 12.84% of the total fish landings. Crustaceans accounted for 13% to the total Indian marine fish during 2013 (CMFRI, 2014) and 14.81% during 2008-2010 (Sathianandan *et al.*, 2011). But this group contributed only 5.9% of the total marine fish production in Tamil Nadu during 2013 as reported by CMFRI (CMFRI Annual Report 2013-2014).

Cephalopods were only group in Mollusc fishery, which constituted 2.55% of the total landings in M.V.Pattinam @ Soliyakudi during 2012-2013. But in all India level, it was 5% among total landings during 2012 and 2013 (CMFRI, 2013 and 2014).

The trash fishes contributed 3.78% of the total fish landings in M.V.Pattinam @ Soliyakudi during 2012-2013. The increased trash fish catch is an indication of the depletion of commercially important resources in the wild. Due to the over exploitation of the important fishery resources, the stocks have been depleted and further efforts, will result in the capture of these trash varieties which are commercially not valuable.

It was inferred that, the fish landings of mechanized boats during the years 2012-
2013 have indicated the increase in total fish catch during the pre-monsoon season (July to September) might probably be due to fishing after a ban period (15th April to 29th May). Landings were comparatively poor during Summer season (April to June) due to ban period.

Apart from Mechanized boats, minimum number of (22) non-mechanized boats (wooden vallam and FRP vallam) were also used for fishing in M.V.Pattinam @ Soliyakudi. The grand total of mechanized and non mechanized landings were 1,376.828 tons in 2012-2013 and which contributed by the pelagic fin fishes (48.59%) demersal fin fishes (32.87%), crustaceans (12.45%), molluscs (2.56%) and miscellaneous (3.53%). The landings from mechanized boats constituted 91.12% of total landings and that of non-mechanized was 8.88%.

The catches of each day per each boat showed a wide variation. It could be attributed to the number of boats deployed for fishing, area of netting, hours spent and more over the fortune of the crew. The technology should be improved to fish in deeper waters so that the production could be increased. The introduction of multi-day trawlers should be encouraged to enable the deeper water fishing.

4.13.3. COSTS AND RETURNS

The costs and returns of mechanized and non-mechanized fishing units from M.V.Pattinam @ Soliyakudi fish landing centre and the non-mechanized fishing units of Pasipattinam were collected during the year 2012-2013.

The mechanized category from M.V.Pattinam @ Soliyakudi fish landing centre included 33 mechanized boats and were the single day boats which were operated only for 125 days during 2012-2013. The total capital investment in of a mechanized boat amounted to nearly Eight lakh rupees. The average operating cost per trip was calculated as ₹9730/ and the average revenue realized was arrived to ₹17374/ per trip. The annual fixed cost was worked out from the capital costs and insurance charges. The capital cost included annual depreciation and opportunity cost of capital in terms of prevailing bank rate. An average
bank rate of 8% was taken as the opportunity cost of capital, and total fixed cost worked out as ₹1.73750/. With an average 125 days of operation in a year, the fixed cost per trip worked out to ₹1.1390/. The total cost of operation of a mechanized boat was calculated as ₹1.1120/ per trip. The average net income per single day trip boat was recorded as Rs.6254/- The average net income for each boat year was calculated as ₹781850/- (Table – 201).

The non-mechanized category from M.V. Pattinam @ Soliyakudi fish landing centre included 18 FRP vallam and they were the single day boats which were operated only for 295 days during 2012-2013. The total capital investment in a single day trawler amounted to nearly 3 lakh rupees. The average operating cost per trip was calculated as ₹856/ and the average revenue realized was ₹1.503/ per trip. The fuel cost accounted 18% of the average operating cost (₹. 180/trip). An average bank rate of 8% was taken as the opportunity cost of capital. The total fixed cost worked out was ₹35400/. With an average 295 days of operation in a year, the average fixed cost per trip worked out to ₹120/. The total cost of operation of a single day trawler was ₹976/- per trip. The average net income per single day trip boat was ₹526/-. The average net income for each boat / year was ₹155185/- (Table – 207).

The non-mechanized category from Pasipattinam fish landing centre included 154 FRP vallam and 37 wooden vallam and they were the single day boats which were operated only for 273 days during 2012-2013. The average operating cost per trip was ₹1151/- and the average revenue realized was ₹2020/- per trip. The fuel cost accounted 21% of the average operating cost (₹.242/trip). An average bank rate of 8% was taken as the opportunity cost of capital. The total fixed cost worked out was ₹44,226/. With an average 273 days of operation in a year, the average fixed cost per trip worked out to ₹162/-. The total cost of operation of a single day trawler was ₹1,313/ per trip. The average net income per single day trip boat was ₹2020/-. The average net income for each boat / year was ₹19,3011 /- (Table – 195)
The loss in labour days and income loss to the fish workers during fishing ban period was estimated based on an average of 44 fishing days during the ban period. Nearly 792 fishing Man days for non-mechanised boats and 1,452 mechanized fishing mandays in M.V.Pattinam @ Soliyakudi fish landing centre and 8404 man days for non-mechanised boats in Pasipattinam landing centre were lost during fishing ban period. The socioeconomics of fish workers during the fishing ban period revealed that considerable numbers of man days were lost during the period accounting to a loss to the labour income and majority of the loss occurs to the trawl fishing sector. Salim (2010) reported that, had in Maharashtra, the disparity arising in the income levels of labourers during the ban and the non-ban period was very high which make a substantial difference in their livelihood.

The mechanised workers are found employed in fishing in the traditional sector during the ban period and the incentives given by the trawl owners and public bodies are inadequate and many of the trawl workers are depending on private money lenders during this period. Similar trend have been reported by many authors (Sathiadas and Panikker 1989, Aswathy and Sathiadhas, 2005, Aswathy et al., 2011 and Maheswaran et al., 2014) in different parts of the country.
Plate - 1. Fish Landing at M V Pattinam @ Soliyakudi Landing centre.
Figure - 125. Landings of different groups of fishes from the Non-mechanized boats in the Pasipattinam landing centre during the year 2012-2013.

Figure - 126. Landings of different groups of fishes from the Mechanized boats in the M.V.Pattinam @ Soliyakudi landing centre during the year 2012-2013.

Figure - 127. Landings of different groups of fishes from the Non-mechanized boats in the M.V.Pattinam @ Soliyakudi landing centre during the year 2012-2013.
Figure - 128. Fish landing data from non-mechanized boats in the Pasipattinam Landing Centre in the year 2012-13
Figure – 129. Fish landing data from mechanized boats in the M.V. Pattinam @ Soliyakudi Landing Centre in the year 2012-13
Figure – 130. Fish landing data from non-mechanized boats in the M.V.Pattinam @ Solyakudi Landing Centre in the year 2012-13