

# **STUDY ON FISHERMEN'S PERCEPTION TOWARDS THE GOVERNMENT SCHEMES IN KANYAKUMARI DISTRICT**

Submitted in partial fulfillment of the requirements for the award of

**Master of Business Administration**

by

**ARUL NEGILAN G**

**Register No. 39410024**



**SCHOOL OF BUSINESS ADMINISTRATION**

# **SATHYABAMA**

**INSTITUTE OF SCIENCE AND TECHNOLOGY  
(DEEMED TO BE UNIVERSITY)**

Accredited with "A" grade by NAAC | 12B Status by UGC | Approved by AICTE  
Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai – 600 119  
[www.sathyabama.ac.in](http://www.sathyabama.ac.in)

**April - 2021**



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## **SCHOOL OF BUSINESS ADMINISTRATION**

### **BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the bonafide work of **ARUL NEGILAN G (39410024)** who have done the project entitled "**Study on fishermen's perception towards the government schemes in Kanyakumari district**" under my supervision from December 2020 to February 2021.

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**Dr. BHUVANESWARI G.**  
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Submitted for Viva voce Examination held on \_\_\_\_\_

**Internal Examiner**

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## **DECLARATION**

I, **ARUL NEGILAN G (Register No. 39410024)**, hereby declare that the Project Report entitled **“Study on fishermen’s perception towards the government schemes in Kanyakumari district”** done by me under the guidance of **Dr. TR. KALAI LAKSHMI M.A., M.B.A., M.Phil., Ph.D.**, is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

**DATE:**

**PLACE:**

**ARUL NEGILAN G**

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I convey my thanks to **Dr. BHUVANESWARI G.**, Dean, School of Management Studies and **Dr. PALANI A.**, Head of the Department, Dept. of Management Studies for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my Project Guide **Dr.TR. KALAI LAKSHMI.**, for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work.

I wish to express my thanks to all Teaching and Non-teaching staff members of the School of Business Administration who were helpful in many ways for the completion of the project.

**ARUL NEGILAN G**

## **ABSTRACT**

Indian marine fisheries have expanded four-fold in the last 50 years in the form of open-access commons. Although studies predict that fish stocks are on the decline there is little evidence that these declines are being countered by changes in either fishing regulations or fishing practices. Fishermen rarely comply with regulations, instead operationalizing and directing the fishery on their own. In these circumstances understanding how fishermen perceive and use resources has significant management and policy implications. Our study examined fishermen's perceptions about the state of fish stocks and documents current fishing practice and management strategies in India. We surveyed 342 fishermen in two states, Tamil Nadu and Maharashtra. We found that 86% of fishermen perceived a decline in catch and 69% perceived a decline in bycatch. Fishermen adapt to these declines by increasing fishing area and time spent, changing their gear, and overlapping in fishing zones. The convoluted interactions between ineffective community and state regulations guiding their actions has prevented fishermen from developing successful models of sustainable fisheries management. We identified non-compliance with regulations and government incentives as an important livelihood opportunity. Non-compliance drives change in fishing practice by giving fishermen the flexibility to respond to perceived fish catch dynamics by modifying their practices. We recommend strengthening local fishing communities by enabling them to enforce fishing regulations locally and by scaling back of existing government incentives, to protect the sustainability of these fisheries.

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# **CHAPTER I**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

During 19th century, the fisheries was the only source of sustenance for a segment of the population living in the coastal region, and on the s banks of rivers, lakes and canals in India. Fishing in general was a hereditary profession carried on from generation to generation with almost all the members of the family taking part in it to varying degree. The socio-economic condition of fishermen was very poor. The fishermen belonged to the lowest stratum of society and fishing was generally regarded as one of the meanest of all trades and profession.

### **1.2 INDUSTRY PROFILE**

The coastal belt of Kanyakumari district in tile southern State of Tamil Nadu is highly important from the fisheries point of view. There are 39 villages along the 68 kill coastline with a population of about 135 000 fishermen of whom some 48 000 arc active fishermen. Tile characteristic multi-species and multi-gear fishery of the region is tapped by three distinct categories of fishermen— who operate traditional katamarams, vallams and mechanised boats. However, due to a shrinking resource size and limitations in tile area available for fishing, inter-group conflicts often break out at sea and on the shore.

## **MARINE GEOGRAPHY OF INDIA**

India lies on the Indian Plateau, the northern portion of the Indo-Australian Plate, whose continental crust forms the Indian subcontinent. India is the seventh largest country in the world with 3,287,263 square kilometers of total area, from north to south measures 3,214 km from east to west measures 2,933 km. It has a land frontier of 15,200 km and a coastline of 8118 km. The Indian Ocean is bounded in the south, the Arabian Sea on the west, Lakshadweep Sea to the southwest, the Bay of Bengal on the east. India's territorial waters extend into the sea to a distance of 12 nautical miles or 22.2 km from the coast baseline.

India has a coastline spanning 8118 kilometers, forming one of the biggest peninsulas in the world. According to the Ministry of Shipping, around 95 percent of India's trading by volume and 70 percentage by value is done through maritime transport. It is serviced by 12 major ports, 200 notified minor and intermediate ports. The total 200 non-major ports are in the following States:- Maharashtra (48), Gujarat (42), Kerala (17), Tamil Nadu

(15), Odisha (13), Andhra Pradesh (12), Karnataka (10), Goa (5), Lakshadweep (10), West Bengal (1), Daman and Diu (2), Pondicherry (2), and Andaman & Nicobar (23). The ports and shipping industry in India plays an important and vital role to sustain economic growth in the country's trade and commerce. The Indian Government has allowed Foreign Direct Investment (FDI) of up to 100 percent under the automatic route for port and harbour construction and maintenance projects. The government has also initiated the National Maritime Development Programme (NMDP), an initiative to develop the maritime sector with a planned outlay of US\$ 11.8 billion.

Seawater covers more than 70% of the earth's surface and many common materials and alloys are attacked by seawater or mist-laden sea air. Seawater is a complex, delicately balanced solution of many salts containing living matter, suspended slit, dissolved gases, etc. and such the individual effect of each of these factors affecting the corrosion behaviour is not readily separable, A sea is a large body of salt water that is surrounded in whole or in part by land.

## **FISHING IN INDIA**

The Length of the coastline in India is about 8118 km which includes 6024 km mainland and 2094 km Island Territories. The total area is 3,287,263 km<sup>2</sup>, area of the continental shelf is 372,424 km<sup>2</sup>, and Territorial sea up to 12 nautical miles is 193,834 km<sup>2</sup> and Exclusive Economic Zone 2.02 million km<sup>2</sup>.

There are totally 29 states in India among these 9 states are coastal states start from Gujarat to West Bengal, 2 union territories and 2 Island Territories. The states Gujarat, Maharastra, Goa, Karnataka, Kerala and some part of Kanyakumari district from Tamilnadu is situated in the Arabian Sea, Some part of Kanyakumari district from Tamilnadu is situated in the Indian Ocean, Some part of Kanyakumari district from Tamilnadu, Andhra Pradesh, Odisha, and West Bengal Situated in the Bay of Bengal. The Union Territories Diu & Daman is situated in the Arabian Sea and Puducherry in the Bay of Bengal. The Island Territories Andaman & Nicobar is situated in Bay of Bengal and Lakshadweep in the Arabian Sea. There are 66 coastal districts in the mainland, 3 in Andaman & Nicobar and 1 in Lakshadweep. The coastline affected by erosion is 1624.435km in mainland and 132km in Islands as per CPDAC.

**Table: Coastal Morphology of Mainland**

| <b>Coastal Geomorphology (Mainland)</b> |      |
|-----------------------------------------|------|
| Sandy Beach                             | 43 % |
| Rocky Coast                             | 11%  |
| Muddy Flats                             | 36%  |
| Marshy Coast                            | 10%  |

The Total Population of India is 1.324 billion in 2016, 1.339 billion in 2017 and 1.354 billion in 2018. Among this population in the Coastal States and union territories contain 560million,Island,Territories,contains 0.44 million. All the districts in coastal states are not included in coastal, So Total Population in coastal districts is 171 million. The percentage of the population in the coastal district is 14.2% in India. The Number of Marine Fishing Villages are 3422 comprising 874,749 families as per CMFRI. The Major ports in India are 13, major Fishing Harbours is 6 and Minor is 40. The fish Landing Centers is 1511. The Estimated Marine Fish Landing is 3.63 Million tonnes in 2017 and increased by 0.23 Million compare with 2016, stands second in the world while China stands first. Among this Gujarat stands first with 7.74 Lakh tonnes followed by Tamilnadu 7.07 Lakh tonnes, Karnataka 5.23 Lakh tonnes, Kerala 5.16 Lakh tonnes. There are 199,141 crafts were used for fishing and 37% is mechanized boat, 37% motorized boat and 26% Non-motorized boat. The Contribution of Fisheries to GDP in India is 1.07% and stands 3<sup>rd</sup> place Global Position in fisheries and 2<sup>nd</sup> in Aquaculture. In India using this crafts 2546 species of Fishes were caught by the fishermen.

**Table: Coastal Division in India**

|  | S.No. | Name         | Geographical Area (km <sup>2</sup> ) | Coastline (km) | Coastal District |
|--|-------|--------------|--------------------------------------|----------------|------------------|
|  | 1     | Gujarat      | 196024                               | 1600           | 14               |
|  | 2     | Maharastra   | 307713                               | 720            | 7                |
|  | 3     | Goa          | 3702                                 | 131            | 2                |
|  | 4     | Karnataka    | 191791                               | 300            | 3                |
|  | 5     | Kerala       | 38863                                | 590            | 9                |
|  | 6     | Tamilnadu    | 130058                               | 1076           | 12               |
|  | 7     | Andrapradesh | 275069                               | 972            | 9                |

|  |  |    |                          |         |      |   |
|--|--|----|--------------------------|---------|------|---|
|  |  | 8  | Odisha                   | 1555707 | 480  | 7 |
|  |  | 9  | West Bengal              | 87853   | 158  | 3 |
|  |  | 10 | Daman & Diu              | 112     | 57   | 2 |
|  |  | 11 | Puducherry               | 562     | 40   | 4 |
|  |  | 12 | Andaman & Nicobar Island | 8249    | 5423 | 3 |
|  |  | 13 | Lakshadweep              | 4200    | 2094 | 1 |



**Figure: Coastal States of India**

## MARINE STRUCTURES

Marine structures were made up of wood, composites, metals, etc. It is used for fishing, transportation, navy, etc. The various types of Marine fishing structures were categorized into three (i) Mechanized Boat (ii) Motorized Boat and (iii) Non-Mechanized Boat. Nowadays we utilized the first two categories and mostly the Mechanized boat is in real practice. Some the Marine fishing structures are Fishing vessels, Crab boat, Viking boat, Trawler, purse seiner, line vessels, squid jigger, lobster boat, log fishing canoe, fishing junk, fishing kayaks, pontoons, charters, trap and potters boat, etc.

Traditionally Used Marine fishing structures made up of wood in India as

follows:

1. Tamilnadu: Catamaran, Canoe(Vallam), Tuticorin boat, Adhirampatnam Canoe, Kilakaral boat, etc.
2. Kerala: Masula boat, Raft Catamaran, Plank-built Canoes, etc.
3. Maharastra: Bombay Machwa, Salpati type, Versova boat, RathnagiriMachwa, etc.
4. Gujarat: Porbandarmachwa, Malia boat, Dugout Canoe, Madhwadwahan, etc.
5. Andhra Pradesh: Catamaran, Masula, Nava, etc.
6. Odisha: Botali, Catamaran, etc.
7. West Bengal: Batchari Boat, Chot, etc.
8. Andaman & Nicobar Island: Dugout, Outrigger, Canoe, etc.
9. Lakshadweep Island: Raft Catamaran

## **TRADITIONAL FISHING BOATS IN VARIOUS STATES**

### **Fishing Boats in Tamilnadu**

Colachel to Cape Comorin is a surf-beaten coast where boat catamarans are popular. In the Gulf of Mannar, boat canoe, boat catamaran, Tuticorin and Kilakarai boats are in operation. Popular craft in Palk Bay is a fishing canoe, Adirampatnam canoe, three-masted plank-built canoe, and kalladhoni. In Coromandel coast catamarans and flexible, masula boats are predominant.

#### **Boat catamaran**

It is made of three logs, the center one fitted at a lower level than the other two giving it a boat shape. The logs are held using two blocks of wood on either end and secured by coir ropes passing through the grooves on the side of the logs. Size varies from 6.5 – 7.5m small triangular sail is used. Usually operated in pairs for boat seiners.

#### **Boat canoe (Vallam)**

Similar to Malabar dugout but spread by wedges and heightened by flared 22-25 cm wash strakes. Length varies from 9-13 m. Single mast at amidships with lug sail. In larger ones, the mizzen mast is also carried. The Large rudder is fitted

which descends much below the round bottom.

### **Tuticorin boat**

It measures 9.6 x 2.0 x 0.9 m. Long, relatively narrow with a nearly vertical stem and stern. Sheer line is almost straight. Single mast with lug sail. Frames are not carried up to the gunwale but cut away at the sheer plank. The uppermost planks are framed with a separate short piece not fastened to the main frame.

### **Adirampatnam fishing canoe**

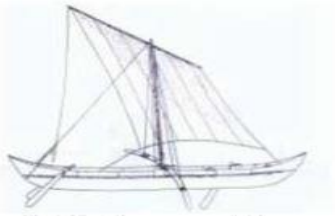
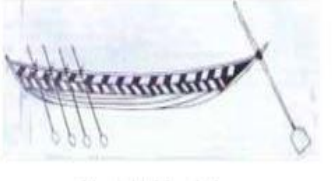
Hull is a dugout canoe with wash strakes. There is a pair of quarter steering boards instead of a fixed rudder. Single mast, occasionally three masts are used. For steering the boat, quarter boards are manipulated with feet by steer man. The balance board is exceptionally long.

### **Kilakaral boat**

It is similar to Malabar dugout with additional vertical stakes. Provided with either one or two outriggers for stability. Single mast with lug sail. Uses temporary rudder fixed at the sharply curved stern by Orthodox pintle and gudgeon.

**Table: Fishing Boats in Tamilnadu**

| Sl.No | Boat Type             | Figure                                                                               |
|-------|-----------------------|--------------------------------------------------------------------------------------|
| 1     | <b>Boat Catamaran</b> |  |
| 2     | Boat canoe (Vallam)   |  |
| 3     | Tuticorin boat        |  |

|   |                            |                                                                                    |
|---|----------------------------|------------------------------------------------------------------------------------|
| 4 | Adirampatnam fishing canoe |  |
| 5 | Kilakaral boat             |  |
| 6 | Masula boat                |  |

### Masula boat

Size measures 9 x 2.4 x 1.2 m. Open boats without ribs. Planks are sewn with coir rope and interspace is filled with dry straw. Stem and stern are raked, keel narrow. High freeboard. No mast or sail, long paddles are used. Used for operation of shore seiners.

### Fishing Boats in Kerala

**Table: Fishing Boats in Kerala**

| Sl.No | Boat Type | Figure                                                                               |
|-------|-----------|--------------------------------------------------------------------------------------|
| 1     | Dugout    |  |

|   |                    |                                                                                    |
|---|--------------------|------------------------------------------------------------------------------------|
| 2 | Plank-built canoes |  |
| 3 | Raft catamaran     |  |

### **Dugout**

Single logs of trees like mango and aini are scooped for its construction. Three types of dugouts are found to be in operation. They are Large ones are known as Odam – 11.6 m length. Medium ones are known as Thonies – 8 m length. Smaller ones are known as Beputhoni – 7.5 m length. They are propelled by paddles and sails. Sails are either square or sprit type. No rudder is used. Steering is utilizing big paddle one-quarter side. Larger ones operate boat seines and smaller one's gill nets and lines.

### **Plank-built canoes**

Built with planks which are sewn with coir ropes. Propelled employing paddles and occasionally sails. Two types are distinguished i.e. Larger one– 12 x 1.5 x 0.8 m, Smaller one 7 x 1 x 0.6 m. Used for operation of shore seines and gill nets.

### **Raft catamaran**

It is constructed by tying 3-5 logs of softwood with coir ropes. Propelled by split bamboo oars and sails. Used in pairs to operate boat seines and individually to operate gill nets and long lines.

## **HISTORY AND DEVELOPMENT OF MECHANIZED FISHING CRAFT**

According to Mr. Gurtner, mechanization means the simple addition of motive power to the otherwise unchanged indigenous boat. The propulsion power would

be in the form of an outboard or an inboard marine engine. On the other hand, Mr. Paul B Zeiner has defined mechanization as installation of engine for propulsion and mechanical devices for handling of fishing gear.

### **Fishing Boat Mechanization in India**

Till 1945, the traditional craft with sails and oars were the mainstay of the fishermen. The mechanization was initiated by the erstwhile Madras presidency by constructing 6m hard chine open boat powered by a single cylinder 5 HP diesel engine. The Government of India took a decision to develop fisheries on modern lines at the national level in the early fifties. National and International agencies actively involved in this programme were Central Institute of Fisheries Technology, The Fisheries Department of some of the maritime states, FAO and INP (Indo–Norwegian project). Initially, the mechanized fishing vessels were used mainly for the operation of gill nets. Subsequently, with the location of rich shrimp grounds along the south-western coast, larger and more powerful stern trawlers were developed. The mechanization of fishing boats in India followed a step by step approach keeping in view the traditional attitude of the fishermen. Starting from a base (country craft) four stages can be identified in the mechanization programme.

- First stage – Mechanization of country craft
- Second stage – Introduction of simple small mechanized boats
- Third stage–Improvement of newly designed boats and the introduction of bigger specialized boats
- The fourth stage – Broadening into a fishing fleet

Hornell (1920) has investigated and published a detailed account of indigenous boats in the memoirs of the Asiatic Society of Bengal. Technical aspects of these boats were studied by Paul B Ziener, FAO expert who had been in India during 1953-1958. The suitability of mechanization was studied and the types of boats amenable to mechanization identified.

#### **a) First stage – mechanization of country craft:**

A few indigenous boats were found suitable for mechanization with a little modification. They were mechanized successfully under the supervision and guidance of Paul B Ziener and K. Rasumsson, FAO experts. The fishing boats of Gujarat and Maharastra especially were found ideally suited for mechanization. The boats to be mechanized under the programme were,

- Lodhiyas and machwas of Saurashtra coast
- Versova/Satpati boats of Maharashtra
- Tuticorin boats of Tamil Nadu
- Kakinada Navas of Andhra Pradesh
- Batchari boats of West Bengal

By the end of 1969, about 3,000 indigenous boats were mechanized.

**b) Second stage – Introduction of simple small mechanized boats**

Some of the states like Kerala, Karnataka, and Orissa did not have a suitable indigenous craft for mechanization. Secondly, the country craft which was mechanized in the first stage were found suitable mainly for gill netting and long lining. Moreover, its operational range has not increased considerably beyond inshore water. Under these circumstances, it was found necessary to introduce simple small mechanized boats.

Under this programme, a few new types were introduced as well as the certain stable craft were developed for full mechanization. Both yielded encouraging response, many of the country crafts were redesigned by FAO experts. During 1955-58, about 10 new designs 7.5m Pablo boat was found to be popular and successful.

**c) Third stage - Improvement of the newly designed boat and introduction of bigger specialized boats**

Large sized specialized boats were introduced to meet the demand of the industry and to extend the operations in deeper waters. Some of the new designs introduced in the second stage of development were designed on the basis of operational performance to suit local conditions. Large commercial designs of advanced countries were studied carefully by the experts and were modified according to Indian requirements. The U.S.A. designs and construction methods were found most suitable for Indian conditions and hence were adopted with certain modifications. This programme was initiated by FAO followed by INP which developed 14 m design and C.I.F.T. which developed 15.5 m design. The next step was the introduction of offshore vessel. During the fourth five year plan, 17.5 m steel trawlers were introduced to conduct exploratory surveys and commercial fishing in the offshore waters. The experience gained in operating these vessels paved the way to the next generation of large trawlers. During the fifth five year plan the Government of India gave permission to private entrepreneurs to import 30 Mexican double rig shrimp trawlers on the condition that an equal number of the craft will be constructed in India. The double rig-Mexican trawlers were found extremely successful for the capture of shrimps. The deep-sea fishing fleet has increased

after the declaration of EEZ up to 200 miles in August 1976. Industrial fishery surveys were carried out by large imported deep sea vessels. Besides this private entrepreneurs were encouraged to charter and import vessels to carry out commercial operations. Some of the important mechanized and deep sea fishing boats introduced during various stages of mechanization programme in India.

**d) Fourth stage–Broadening into a fishing fleet**

After successful mechanized fishing in inshore, offshore and deep sea waters in EEZ, efforts were made by the Government of India to increase the number of fishing vessels and broaden as fleet to exploit the available marine resources. At the end of the eighth five-year plan, the strength of mechanized boats and deep-sea vessels stood at 47,000 and 180 respectively.

**TYPES OF MECHANIZED BOAT**

Mechanization of the fishing boat means an installation of engine for propulsion and mechanical devices for handling fishing gears.

**Trawlers**

The trawler means any vessel that pulls a bag net through the water. There are many types of trawlers varying in size from open boats, powered by outboard engines to huge factory ships, which can fish in the most distant waters. Two requirements are common to all trawlers. One is the need for towing power and the other for a winch or mechanical hauling system. In order to have a good towing power, a trawler should have a reasonable draft or, displacement and should have a large slow-turning propeller. Many trawlers are fitted with propeller nozzles to give them more towing power. The winch or hauling mechanism is the next important requirement for a trawler. Hauling or pulling power is usually expressed in tonnes, kgs. per speed (feet or meters per minute) for bare drum, or full drum. There are many types of trawlers such as stern, shrimp and beam.

**Scallop Draggers**

In many ways, scallop draggers resemble beam trawlers. The scallop draggers are small steel beam trawls with a metal ring instead of netting on the underside. They scrape up scallops and other shellfish from the sea bed. Large scallop draggers may work three dredges, on each side, from booms as on double rigged beam trawlers.

## **Ring Net Boats**

Ring nets or lamparas are small surround nets, which if they are rigged with purse rings, only have a few of them located usually at the central bunt. Lampara nets are tapered towards the wings ends and have relatively long wings. Both ring netting and lampara fishing have been largely displaced by purse seining. Ring net boats are small and lightly powered. Most ring net boats work on two-boat system, which is much handier when the net has to be towed. Both ring netters and lampara boats tow their gear some length before closing.

## **Line Boats**

Lines are still used effectively today to catch tuna, skipjack, mackerel, squid, snapper, cod and dogfish. There are many methods of line fishing, such as tuna long lines, bottom set long lines, pole and line gear for skipjack, trolling lines, squid jigs, mackerel jigs. Line fishing involves lots of labor as fish are hooked, one by one and lines need to be baited, cleaned, untangled and recoiled for setting as well as to be attended during fishing as in case of jigs and hand lines. Most line boats are small, but some measure over 200 tonnes with over 500 h.p. engines.

## **Tuna Long Liners**

These are mostly large vessels, ranging from 90 feet (27 meters) 400 HP to around 180 feet (55 meters) 1500 h.p which traverse the ocean in search of the migratory tuna. Because of the long distances they must travel, the catch needs to be frozen and the vessel requires large fuel and water capacities. Tuna lines are the "longest" long lines in the world. Many miles of the line may be set with the baited hooks hanging from 100 or even 150 fathoms below the surface. The line hauler on the deck coupled with a coiler is used to coil mainlines. The types of Longliners are Bottom set longline vessels, Trollers, Hand line and jigging line boats.

## **Lift-Net Boats**

Lift nets and stick-held dip nets are used to catch sardine, anchovy, and baitfish, where lights are used to attract fish to the surface. The lamps are hung from booms, which can swing out over the dip net. The net is held by strong bamboo poles, which are made secure on the vessel and have tackle lines

extending from the outer ends up to a block on each mast. The net is a stocking shaped bag attached to an iron ring and pole. The hoop is passed through the fish and taken up on deck. The end of the stocking bag is lifted up and the fish slide out through the ring on the deck.

### **Trap Boats and Potters**

Small fish traps are used to catch lobsters, crabs shrimp, octopus, eels and all kinds of reef fish. A small vessel using 20 or 30 traps and landing 20 to 30 kgs of fish or shellfish per day may make a profitable living. Traps are always baited with flesh or artificial baits. The traps are set on the bottom in series with a small anchor buoy at each end.

### **1.3 OUTBREAK OF FISHING DURING COVID-19**

The outbreak of COVID-19 and the resultant total lockdown in India has greatly affected the livelihoods of fishing communities across India. The total lockdown may help arrest the spread of corona virus; however, quick and effective intervention is required for fishers to minimize the disruptive effect on the livelihoods of vulnerable population particularly on food systems, storage and market chains, both locally and regionally.

Fisheries in India are an important sector of food and nutritional security. More than nine million active fishers directly depend on fisheries for their livelihood of which 80% are small scale fishers. It employs over 14 million people and contributes to 1.1 per cent of the Indian GDP.

The east coast of India covers 4 maritime states Tamil Nadu, Andhra Pradesh, Odisha and West Bengal and the Union Territories of Puducherry and Andaman and Nicobar islands. Fishing is mainly carried out with traditional fishing crafts, motorized boats and small mechanized crafts. Overall the east coast region produces 25 per cent of total Indian marine landings.

Small scale fishers in India have issues in three areas: pricing, marketing and organization. Many of these are long term needs but there are a few that are immediate and related to the coronavirus.

- Complete lockdown in the harbor's and the landing centers has greatly affected the fisher-folks' day-to-day earnings in all coastal districts. Small scale fisheries especially are responsible for providing fish as a significant source of protein at low cost for

consumers. This is particularly important for marginalized communities and lack of fish in the diet will have considerable impact on nutrition security of these people.

- In some villages near Chennai, small scale fishers fishing near shore areas are struggling to market their catch. Due to physical distancing norms, only few fisherwomen are able to buy fish from the fishermen in the landing centers. Since the time allotted to sell the fish is very short, they are forced to sell their catch at a low price. For example, if the fish rate was INR 500 per kilogram before COVID-19 lock down, the rate now is just INR 300 to 350.
- Women fish vendors are considerably affected due to the lockdown as there is no fishing activity and, in some places, only limited boats are fishing. The low catch brought to the landing center is subjected to high demand. Even when few women purchase affordable number of fish from the landing center for street vending, due to the pandemic, people are not purchasing the fish. Customers are also seen bargaining for lower price. Due to this, their income has totally reduced and they are facing difficulty to manage their families
- The laborers engaged in the sector are severely affected. Usually fishing laborers take an advance from boat owners during the lean/ban fishing period. But now boat owners too are facing financial problems due to the lockdown. So, Laboure's are finding it difficult to meet family expenses. Those who had migrated from Tamil Nadu to other states like Kerala and Karnataka for fishing activities, are now without work due to the national lockdown. Some fishers have informed that their family is having only one meal per day.
- The trawler fishers who ventured out into fishing before the lockdown (before 20th of March) for multi-days fishing have now returned to the shore. Due to lockdown restrictions, they are facing difficulties in market their fish. The fishermen equipped with storage facilities are able to preserve their catch and they have possibilities of marketing their harvested fishes later on. There is another section of fishers who suffer due to lack of storage facilities in marketing their catch and are severely affected. It may be pointed out that a huge quantity of Tuna fish was discarded last week, in Chennai because of unavailability or lack of storage facilities.
- The export market is on standby and because of this, the entire fishing sector, along with its allied sectors, is affected adversely. Since the lockdown from March 25<sup>th</sup>, fish

traders aren't allowed to procure fish and so the export marketing of fish has declined to a great extent. Only fishers are allowed to enter the harbor and that also for a short duration of time (not more than half an hour).

- The supply chain is highly disrupted. Ice-plant workers, diesel workers and youth are jobless. The daily loss is anywhere between INR 500 to INR 2,000.
- The lockdown has affected other fish allied activities like net mending, regular maintenance of boat and engine. This also causes huge damage to the high-cost assets like fishing crafts and gears.
- Many fishing families have expressed that besides income loss; the lockdown has seriously disturbed planned activities such as boat and net repair, construction of boats and also in repaying the loans taken for varied fishing purposes.

#### **1.4 IMPACTS ON FISHERS**

India's fishing sector was already dealing with challenges such as environmental degradation, climatic uncertainties and impacts of large-scale development projects. These challenges were exacerbated due to the unplanned lockdown. The pandemic dealt a heavy blow to the small-scale and traditional fishers who were trying to protect themselves from imminent threats of displacement and defend their livelihood rights. Impacts could be seen across the sector for both, marine and inland fisheries on fishers, fish vendors, suppliers and transport workers, because of disruptions in fish supply chains. The report prepared by the ICAR- Central Institute of Fisheries Technology, Kochi on the 26th of April, 2020 estimated that the pandemic and the lockdown have resulted in large scale disruptions in the value chain of marine capture fisheries in India. Due to financial distress, households reduced their spending which in turn led to decreased consumer demand for fish.

The lockdown has also brought to public attention the plight of migrant fish workers. In the last ten years, traditional fishers have migrated to large harbors in their own or other states in search of work. This is mainly because fish catches have decreased sharply in the last decade because of several reasons, like climate change and increase in infrastructure projects in the coasts. These migrant fish workers were usually employed as crew in mechanized fleets or engaged in fish processing, net-making and boat-repair. Immediately after the imposition of the lockdowns, the migrant fish workers were stranded just like other migrant workers in the country. For more than two months, they had to survive without any

relief/assistance from the government. In many places they had to live in the cramped cabins of their boats. The Central Government did not intervene to give them better accommodations. These fish workers even lacked basic necessities like water to wash their hands as advised by the government to prevent infection. After staying in such deplorable living conditions for almost two months the fish workers were in no state of mind to restart fishing activities and were desperate to get back to their native villages.

The stranded fish workers also faced severe nutritional deficits. In most areas, the government asked the boat owners to provide food and water to the stranded fish workers. Although some boat owners provided the workers with food for the first few days, with their resources also depleting due to the halt in fishing activities, they could not continue to provide food for the workers. As the lockdowns extended, most boat owners refused to continue support to the workers, leaving workers completely without any financial support or food rations.

On 9 April, the Ministry of Home Affairs allowed fishing activities to be restarted under conditions of adequate physical distancing. However, the sector continued to face impacts of the pandemic, and national and area-based lockdowns. Although fish was declared as an essential commodity, it was almost impossible to supply fish to markets and consumers due to lack of transportation and closure of ice-storage facilities in most parts of the country (ice was not considered an essential item, making it difficult for fishers to get it for storage). The fishers had no other option but to dump their catch back into the sea since they were neither able to sell their catch, nor able to preserve it.

Stories of dumping catch were reported from many parts of the country. In Goa, seafood was dumped in the sea as fishers were unable to land fish due to closure of harbor's. In Raigad district of Maharashtra, huge amounts of sea-food was thrown back to the sea. In Chennai fish storage facilities were already operating at full capacity and therefore fishers could not preserve their full fish catches. In areas where fishers managed to sell their catch, they had to settle for as little as half or one-fourth of the market price.

Export markets also saw a sharp decline during this period. Seventy percent of India's seafood export earnings came from frozen shrimp. It was reported that there was a slump in demand for frozen shrimp from United States and Europe due to their own respective lockdowns. This negatively affected thousands of families working at the processing plants. Another concern has been the shortage of fish seed, fertilizer and inputs that would hamper production levels. India imported shrimp brood stock from the US that was stopped due to shortage in the industry, which will lead to 20-30 percent fall in shrimp production.

Unavailability of fish workers also affected production after lockdown restrictions were lifted from fisheries.

Women, especially single women, who constitute the majority of fish vendors (at markets, by the roadside, and by head loading for door-to-door sale), are among the hardest hit. Most of them could not access fish catch as landing centers were shut. Those who did succeed in getting some fish catch could not take it to the nearest markets due to lack of transportation. In most of the places, markets were not functioning as usual and vendors were not allowed to sell their fish in the markets. They also faced harassment from local authorities while trying to sell their fish in some states. There were reports of harassment of women fish workers in Kerala where the police prevented them from selling fish at markets because of lack of clarity regarding their status as essential workers.

In fisher families it is mostly men who venture out to sea while women are responsible for selling the catch in the markets. They are often the sole income earners of their households and do not have any other sources of income. In addition to their very important role in the fisheries sector, women are care-givers and are responsible for managing household income of the family. The loss in daily income made it extremely difficult for women to manage household expenses, which directly impacted the food security of fisher families.

### **Inadequate Relief Measures by the Government**

Every year there is a two-month annual fishing ban that commences in April on the east coast and in June on the west coast. But this year, restrictions on fishing due to the COVID-19 lockdowns added to the no-fishing days. Fishers lost 20 days of active fishing due to the lockdown on the east coast in addition to the annual bans.

The government considered including the initial 21 days lockdown in the annual ban time, which would mean that fishers would be able to start fishing early. This reduction in the annual fishing ban from 61 days to 47 days was claimed to be in lieu of lost fishing days, but it most likely also helped absolve the government from any responsibilities related to financial compensation. This amendment to the annual fishing ban is only for 2020, and it does little to solve current problems. The lifting of restrictions on mechanized and motorized fishing has actually exacerbated the struggles of India's small-scale (non-mechanized) fishers and migrant workers, who are the most vulnerable sections of India's diverse fishing population. Not only has this increased competition and unnecessarily risked fishers' lives during rough seas in order to supply to non-existent markets, it has also increased the likelihood of indebted fisher migrants being forced into bonded labor. These unfavorable aspects

undermine the potential benefits of the ban, the decades of negotiations that led to its past achievements, as well as the protection it offers to India's dwindling marine resources.

An economic package was announced by the Finance Minister on the 15th of May, 2020, estimated at Rs.200,000 million to be allocated for the fisheries sector through Pradhan Mantri Matsya Sampada Yojana (PMMSY). This was mainly funds that were supposed to be announced during the annual budget session but were now announced in the stimulus package. This scheme, which will run for a period of five years from 2020-21 to 2024-25, seeks to develop marine and inland fisheries and to fill critical gaps in the fisheries value chain. Out of this, Rs. 110,000 million will be allocated for activities in marine, inland fisheries and aquaculture and Rs. 90,000 million for infrastructure, including fishing harbors, cold chain, markets, etc., which are expected to lead to additional fish production of 7 million tonnes over 5 years, employment to over 5.5 million persons, and doubling of exports to Rs. 1,000,000 million.

However, in the report of the Standing Committee on Agriculture (2019-2020), while analyzing the 'Demand for Grants (2020-21)', the Expenditure Finance Committee (EFC) had approved the PMMSY at a total cost of Rs. 200,500 million comprising of (a) Central share of Rs. 94,070 million; (ii) State share of Rs. 48,800 million, and; (c) beneficiary share of Rs. 57,630 million for its implementation over a period of 5 years with effect from 2020-21 to 2024-25 in all States/Union Territories. But the Standing Committee recommendations were bypassed and the allocation of funds was directed more towards infrastructure development and industrialized fishing. This would also have serious repercussions on the livelihoods of fishers.

The PMMSY also replaced the CSS 'Blue Revolution: Integrated Development and Management of Fisheries' which included the National Scheme on Welfare of Fishermen, relief for the fishermen, provision of Housing for the fishermen, other basic amenities like drinking water facility, construction of community hall with sanitation, water supply and electrification facility, group accident Insurance for active fisherman in convergence with PMSBY and grant in aid to the National Federation of Fishers Cooperatives Ltd. (FISHCOPFED). Many organizations like the National Fish workers Forum (NFF) have expressed their concerns regarding PMMSY touted by the Government as a relief measure, when in reality it will actually destroy livelihood of small-scale fishers.

However, some states have tried to address the concerns of fishers by bringing new sets of laws and regulations in the context of COVID-19. For example, the state government in Odisha has tried to facilitate continuation of fish sales while enforcing physical distancing

measures by drawing circles on the ground at markets. The Kerala government has provided a sum of INR 2000 (\$26) every month which is a meagre amount and free food ration to fishers. The Andhra Pradesh government has attempted to set the minimum price for shrimp at INR 180 (\$2.4) per kilogram. But the traders have refused to purchase shrimp at this rate. Hence, in spite of policies existing on paper, it has not been able to bring relief to the small-scale fisher communities.

In the middle of the pandemic, the Government introduced the Draft National Fisheries Policy 2020, that claims to integrate all components, including marine and inland, capture and culture, and post-harvest in a single document, and create an environment to increase investments in the sector, double exports, and incomes of fishers and fish farmers. The policy is export-oriented, production-driven, and based on capital investments, which will strip small scale fishers of their rights of access to commons, and also damage the environment in the long run. In addition, the policy does not address the needs of women and is silent on the existing inequalities of caste and class. It does not recognise the fact that the fishing communities in India are not homogenous. They have distinct social governance structures and traditional practices and cultures, depending on where they live on the coast. The policy is neither in favor of small-scale fishing communities, nor for protecting oceans and the coast. The policy facilitates capture fisheries and production in artificial ways through intensive culture fisheries. There are two other aspects in the policy that need to be examined. One is the need for upfront capital to be able to conduct and undertake these activities, and the second is introduction of more intensive technologies. These will usher in new private actors—corporations—into the sector, which will further marginalize and eliminate small scale fishers and people engaged in the sector.

**(i) How are communities, solidarity movements, constituencies reacting to these impacts?**

In the wake of COVID-19, fisher/fish worker unions and organizations have extended all possible support to the small-scale fishers – including mobilizing funds – while the state remained apathetic to the troubles of fisher communities. At the same time, they have been raising demands regarding relief for the fishers, both at the state and central levels. The NFF made concrete demands to the Department of Fisheries to compensate the loss of livelihoods for marine and Inland fishers and fish workers. However, none of these have been addressed by the government.

When the government announced the PMMSY, the NFF immediately pointed out to the

government that the beneficiary amount was only 28 percent of the sum-amount of the total scheme and it would not address the existing concerns and issues of fishers and fish workers.

In the immediate aftermath of the lockdown, fisher/fish worker unions and organizations came across several cases of stranded migrants. Several organizations have come together and provided food and water supplies to the migrant fish workers and helped them to go back to their native villages. While the state had shown complete apathy to the problems faced by migrant fish workers and placed the onus of providing relief on boat owners, it was the civil society organizations (CSOs) and unions who stepped up and provided relief to them. Migrant fish workers also faced high levels of anxiety which was exacerbated by the inhumane living conditions for two months. Fish worker unions and organizations also tried to provide emotional and psychological support to the stranded fish workers.

Traditional and small-scale fishers have been responsible for bringing protein in the form of fish to the homes of Indians, but faced hunger and malnutrition during the lockdown. The central Government had announced free distribution of 5 kgs of rice or wheat every month for every poor family as a measure to arrest hunger. But this measure was not sufficient for fisher families where the average family size was more than four people. Many fishers could not even avail this relief package because they did not have identification cards necessary for claiming relief. Several organizations and unions continue to demand for universalization of the Public Distribution System (PDS) that could guarantee food security for every marginalized community.

**(ii) Emerging public policy proposals and processes for building more equitable and resilient food systems and defending the right to food and nutrition.**

The COVID-19 pandemic has exposed the fault-lines of the present system. The Fisheries sector saw major disruptions in the value chains which has led to the loss of incomes for thousands of fisher families. Therefore, the fish worker organizations and unions have now started to point out the importance and sustainability of localized value chains. They argue that localized food systems would have the capacity to sustain livelihoods of communities, thereby guaranteeing their food security. The NFF raised several demands at the Jante Parliament which was organized by numerous people's movements, social movements and CSOs to discuss urgent COVID related policy measures in the absence of a functioning Indian Parliament.

The following are the set of policy demands raised by NFF:

1. There should be an economic package announced for the fishing community. They demanded that a monthly allowance of INR 15,000/- up to three months be provided in advance and this should be actually given to the fishers and those engaged in allied activities.
2. They also demanded that this relief package should be developed for the sector in consultation with fish worker organizations and individuals in the following three stages.
  - a. **Short- term with a horizon period of 3 weeks** until the end of the lockdown period, where there should be loan payment deferrals to a period of six months keeping in mind the ban period during the monsoon period too in the eastern and western coasts.
  - b. **Mid- term with a horizon period** encompassing the ban period from 15 April to 14 June 2020 on the East coast and from 1 June to 3 July 2020 on the West coast.
  - c. **Long- term with a horizon period** until the end of the next financial year on 31 March 2021 by revisiting the recommendations made by the Standing Committee on Agriculture in the budget session.
3. The Draft Fisheries Policy 2020 should be immediately withdrawn and consultations should be resumed with the stakeholders
4. The Draft policy should be translated in all the vernacular languages before any sort of consultations.
5. The PMMSY Scheme should be reviewed keeping in mind the Standing Committee's recommendations.

There have been similar policy demands by other fisher/fish worker groups and communities. Several of them have suggested that the government devise new ways of functioning of the sector. The entire process of fish landing and auctioning makes crowding inevitable. This would pose a severe health threats to thousands of fishers and fish workers, but complete banning of these activities would threaten the livelihoods of the fishers, workers and vendors. Therefore, the government needs to urgently rethink how fish marketing is conducted. One way to do this would be to decentralize landing and auctioning that will enable more local handling of fishing activities, thereby limiting crowds and facilitating physical distancing.

In an opinion piece, John Kurian has laid down several policy suggestions that could be implemented in consultation with local fishing communities. He has recommended ways in which fishing can be conducted following physical distancing. He argues that with the decrease in demand, fishing can be restricted and this can be done in a way where it must be restricted at the level of each fishing village/center by instituting a rotation system. A fraction of the fishers can go fishing every day and this can be arranged by a collective and

transparent rota or lottery system. He also suggests that fishing should be restricted to a maximum of an 8–12-hour cycle, during the day. He argued that these restrictions would prove to be beneficial for the fishers as lower supply caused by the smaller harvest will ensure that the prices do not fall. Local fishing center can also be linked to the local level community kitchen. This would ensure that local fish would be supplied for local consumption.

## **1.5 OBJECTIVES OF THE STUDY**

### **Primary objective:**

To study on challenges faced by fishermen in Kanyakumari district- Post Covid 19.

### **Secondary objective:**

- To study the life pattern of fishermen in Kanyakumari district.
- To analyses the factors affecting the livelihood of fishermen in Kanyakumari district.
- To analyses the awareness toward the government schemes provided.
- To understand the training needs of fishermen to improve their business.
- To provide suggestions to improve the livelihood of fishermen.

## **1.6 NEED FOR THE STUDY**

- To determine the present role and status of fishermen.
- To identify the factors that influence the status of fishermen.
- To study the fishermen's fishing time period.
- To study the source of benefits for fishermen.
- To study the day today problems faced while fishing by the fishermen.

## **1.7 SCOPE OF THE STUDY**

- The study examines the lively hood of fishermen in Kanyakumari coastal region.
- Understanding the problems faces while fishing by the fishermen in coastal region of Kanyakumari district.
- And to give suggestion for improving the lively hood of fishermen in Kanyakumari coastal regions.

### **1.8 LIMITATIONS OF THE STUDY**

- The study has collected the data from the people located in the coastal regions of Kanyakumari district.
- Due to time constrict only 120 responses were collected from the fishermen of Kanyakumari district.
- The analysis the results are based on the information provided by the respondents.

## CHAPTER II

### REVIEW OF LITERATURE

#### 2.1 REVIEW OF LITERATURE

**Jena Derakhshani Hamadani et.al (2021)** COVID-19 lockdowns raise major economic, psychosocial, and physical threats to the health of women and their families across economic strata in rural Bangladesh. Apart from helping just the worthiest, Aid is needed for all affected families, regardless of their socioeconomic status. We randomly selected and invited the mothers of 3016 children to participate in the study between May 19 and June 18, 2020, and 2424 of them accepted. 2414 (99.9%, 95 percent CI 99.6–999) of 2417 mothers were aware of the stay-at-home guidance and pursued it. Of the 2417 mothers surveyed, 2321 (96%) (952–967) registered a decrease in their child's weight. Act for the family that pays. The proportion of families earning less than \$190 per day increased from five (02%, 00–05) in 2422 to 992 (473%, 452–495) in 2096 (p00001). Stay-at-home orders to ameliorate transmission of COVID-19 exert a substantial economic and social cost to family welfare, family nutritional status, and to women's mental wellbeing and safety. If future lockdowns are required to control transmission of COVID-19 or another pathogen, a comprehensive public health response must underwrite economic circumstances and incorporate solutions that ensure the wellbeing of families and, in particular, women.

**Abu Sayeed et.al (2020)** During the COVID-19 pandemic, a high prevalence of depression symptoms, anxiety & stress symptoms among students was observed in this study. The findings also reported that students' age, gender, income, location of residence, and family size are associated with mental health difficulties. Negative perceptions on the effect of the pandemic on life events, mental health, disruptions in education, health care system, existing physical health conditions, and COVID-19 like symptoms were significantly associated with poor mental outcomes. It is suggested that students' mental health difficulties should be monitored carefully to provide adequate support during this ongoing pandemic. We will echo suggested, improving the delivery of low intensity psychological intervention, especially community-based, aligning with the clinical field of the health system should be the key. Additionally, educating youth on COVID-19 may improve the perception of this group to fight against a global threat in these trying times.

**Danilo Buonsenso et.al (2020)** Economical and psychological consequences of the lockdown in low-resource setting in rural Africa are unknown. We drafted a survey in order to

address the social impact of COVID-19 lockdown on a rural village in Sierra Leone. The survey developed by the study group and translated in the local language, distributed to the householders of the village on April 13th and responses collected on April 14th, when Sierra Leone was on day 11 of lockdown. The questions aimed to assess in the community the following items: age group, main activities before lockdown, change in income and ability to feed the family during lockdown, anxiety during lockdown. 78 householders (100% of Bureh Town) replied. All, except one, declared a 51 \_80% (19.2%) to 81 \_100% (79.4%) reduction of weekly income compared with the pre-lockdown period, declaring difficulties in providing food for the family members (82%), and anxiety (60%). Our analyses showed that people lost their jobs and have difficulties in providing food for their families.

**Bijal A. Parikh et.al (2021)** SARS-CoV-2 is an RNA beta coronavirus that is responsible for the current COVID-19 pandemic. Laboratory evaluation for diagnosis and surveillance has been rapidly developed to assist treatment public health efforts to prevent its spread. However, with the heightened awareness that laboratory testing is crucial for this function, hundreds of platforms have been made available in a relatively short period of time. Many of these platforms have distinct advantages to offer, including turnaround time, sensitivity, types of specimens accepted, ease of use, availability, and cost. False-negative results can occur due to a number of factors. These can be analytical and also pre-analytical, before the specimen even arrives in the laboratory. Molecular-based testing is the only diagnostic assay format authorized by the FDA, but it is still only qualitative, and can vary greatly in assay sensitivity.

**Hario Megatsari et.al (2020)** Restricting community mobility during COVID-19 can potentially trigger anxiety, depression and stress in the community. The study aims to analyze variables associated with the community psychosocial burden (anxiety level) during the COVID-19 pandemic in Indonesia. This study collected data (n = 8,031) online. Psychosocial burden was measured based on the anxiety level which include 5 aspects, such as economic, religious, educational, employment, and social issues. Each question used a Likert scale. Six independents were examined, such as age, gender, religion, marital, education, and employment. In the final stage, a multivariate test was performed using a multinomial logistic regression. Someone older experienced less high anxiety. The age group of 20–29 years was 4,330 times likely to. This study concluded that four variables affected the community psychosocial burden during the COVID-19 pandemic in Indonesia. These include age,

gender, education, and employment. The results of this study are expected to encourage the Indonesian government to develop mental health programs during the COVID-19 pandemic.

**Hao Chen et.al (2020)** The study contributes to our understanding that front-line HCWs have high risk of developing psychological problems. Therefore, our study suggests that all front-line HCWs should acquire psychological counselling to reduce their working stress caused by disease outbreaks, so they can provide excellent treatment for patients. Considerable researches should be carried out to determine the long-term psychological effects of HHCW after the COVID-19 epidemic.

**Hongyi Zhang et.al (2021)** This study highlighted several important findings. First, we found significant rates of probable PTSD (20.65%) in HCWs at the Central Hospital of Wuhan, about six months after the first local outbreak of COVID-19. Second, high levels of psychiatric and somatic illness and insomnia were associated with probable PTSD. Lastly, the HCWs with negative COVID-19 tests, those whose family members tested negative, and those with high social support were less likely to have probable PTSD. These factors must be understood in order to develop a theoretical account of PTSD in this population and to organize prevention programs that can help these HCWs to cope with future epidemics.

**JasmineTurna et.al (2021)** The current study suggests that the COVID-19 pandemic is taking a clear toll on the population's mental well-being. The present sample exhibited significant levels of anxiety, depression, and stress, with female sex, younger age and prior MH treatment as significant predictors. Specifically, older adults (>60 years) revealed lower risk for MH problems during the COVID-19 pandemic compared to younger adults (<35 years). These results suggest that older adults may be exhibiting better adjustment to the COVID-19 pandemic, though findings may have been influenced by pre-existing age differences and MH epidemiology. Nonetheless, findings from the present study provide an important anchor point for changes to come in the aftermath of the COVID-19 pandemic. More importantly, findings highlight the importance of further exploring relations between MH status and behavioral alterations in the context of the COVID-19 pandemic.

**Jansen et.al (2021)** suggest that during the first wave of the COVID-19 pandemic, parents experienced increased levels of stress, and this stress was associated with the way they interacted with their children around food. Specifically, parents reporting higher pandemic-

associated stress reported more use of food to manage their children's emotions (coercive) but also more efforts to plan and create routines around meals or snacks (structure), and more positive interactions in terms of eating and engaging with their children around mealtime (autonomy support). Children's intake of sweet and savoury snacks was higher when parents reported greater pandemic-associated stress, and was associated with snack parenting practices. Support and guidance for parents is therefore warranted, to protect children's nutritional health during the pandemic.

**Jenna R. Cummings et.al (2021)** the current study did not find evidence that average levels of eating to cope and food addiction symptoms increased among U.S. adults after the emergence of the COVID-19 pandemic; however, there was small evidence that U.S. adults ate more added sugars. Additionally, results suggest that, for U.S. adults who eat/drink to cope or who have food addiction symptoms, stress from the pandemic may exacerbate these tendencies and symptoms. Certain U.S. adults—in particular, individuals with higher perceived infectability, younger adults, Republicans, and men—might especially use some maladaptive coping strategies in response to stress from the pandemic. Future longitudinal research will shed light on the long-term impact of the COVID-19 pandemic on eating and drinking behaviours.

**Venkatesh, S (2011)** This study analyses the livelihoods of marine fishing communities in the Indian coastal state of Orissa using the Sustainable Livelihoods Approach (SLA). It investigates the relationships between livelihoods and coastal poverty and seeks to develop simple qualitative indicators to monitor the changes in these relationships over time. The key trends affecting the livelihoods of the poor in the coastal fishing communities in Orissa range across the whole spectrum of “assets” – i.e., the natural, physical, social, human and financial – and contribute to changes in terms of availability as well as access to the assets for the poorer stakeholders. Thus, the overall decline in availability of fish from the coastal waters is also accompanied by a declining access of the poor to the fish resources as a result of changes in fishing technology and in market supply chains. The shift in fishing methods from subsistence-based artisanal activities to sophisticated modern technologies has rendered redundant the traditional skills, knowledge and manual labour abilities of the poor, while also increasing risks and leading to a dependence upon external sources of credit. As fish are sold directly to the traders at the point of landing, fishermen no longer depend on the women to sell them, so the women find themselves marginalized. Apart from the factors having a

direct bearing upon fisheries-based livelihoods, there have also been changes affecting the quality of life generally, which contribute to, or arise out of, changes in the livelihood patterns and span across the social, political, cultural and economic spheres of life. “Social capital”, which is the glue that held together the traditional fishing communities and provided some sort of social security to the vulnerable groups (the aged, widows), has become much weakened. There is evidence that food insecurity is growing in the fishing villages and, coupled with the weakening of the welfare state policies, leading to increasing deprivation. Apart from the various trends, this paper examines the impact of seasonality and shocks upon the fisheries-based livelihoods and the importance and the influence of various policies, institutions and processes in addressing the fishers’ need to cope with their vulnerability context in a meaningful manner. It summarizes the various factors having an impact upon the livelihoods of the fishers and develops them into simple indicators relevant in assessing the changing patterns of poverty in fishing communities of Orissa.

**Kekula, E. (2009)** A livelihoods analysis of coastal fisheries communities in Liberia. The fisheries sector, both marine and inland (including aquaculture), in Liberia, has a significant potential to make substantial contribution to national socio-economic development, economic revitalization and reduction of poverty in the short, medium and long term. Over 80 percent of the population depends on fish for animal protein and there is an urgent need to improve fish production, preservation and distribution. Unfortunately, the potential cannot be effectively harnessed without financial, physical and human assets, and institutional and political environment required to manage fisheries on a sustainable basis to benefit present and future generations of Liberians. Actually, as a result of the 14-year civil war, the legal fisheries instruments and institutions were often reduced to a symbolic presence. Human resources and enforcement capacity are almost non-existent. There has been no government fisheries policy for over a decade and the lame institutions and staffs were not able to guarantee resource conservation. As part of the Fisheries Action Plan, a livelihood study was conducted using sustainable livelihoods approach (SLA) in Liberian fishing communities with the objective of getting relevant information on the livelihoods of the fisheries communities to support the process of decision-making in the sector. FAO’s main work was in the preparatory stage; the training and design of the livelihood survey. The field team consisted of Bureau of National Fisheries (BNF) staff and enumerators hired by BNF which was trained in SLA and participatory rapid appraisal (PRA). This holistic analysis of the livelihoods of the fisheries communities along the coast of Liberia.

**Edward H. Allison (June 2008)** Diversification is a process by which households engage in multiple income generating activities. It is widely seen in the academic literature and international development arena as a strategy for spreading risk and reducing vulnerability. The formulation of policies promoting diversification is thus encouraged at national levels to alleviate poverty. However, such policies involve delicate choices and trade-offs between government objectives of development, e.g., intensification of agriculture and increase in agricultural outputs to satisfy export markets, versus increased household well-being and resilience to adversity through the promotion of small-scale, household-based, activities. In the context of fisheries, diversification is promoted as a means for reducing dependence on the resource, making restrictive management easier and less controversial for those affected by such measures. This often interprets diversification as job-substitution (stop fishing, do something else) rather than adding other activities to an income-portfolio. With the tendency for increasing pressure on fishery resources, it becomes ever more necessary to address in a coherent way diversification and its links with both poverty reduction and responsible fisheries. Implications of the development of alternative or complementary activities alongside a main, resource-dependent activity such as fishing, may echo those experienced by sectors such as agriculture and pastoralism. However, many characteristics of the fishing activity and of those who engage in it are particular to the sector. General poverty alleviation policies and fisheries management schemes have been found to lack the necessary differentiation and to fail to cater for the specific needs of fishing communities (Smith et al. 2005).

**Andi Chahaya (2015)** The absolute poverty phenomenon has globally spawned the poverty reduction movement, which is characterized by the Millennium Declaration which gave birth to the millennium development goals. The millennium development goals will substantively reduce the total number of absolute poverties in gradual and sustainable way (Shaffril, Samah, D'Silva, and Yassin, 2013). Indonesia with a huge population the percentage of poor people was significant compared to the total population (Cuesta, and Meyer, 2014). This proves that there is a decrease in the poverty rate (Gertler, Levine, and Moretti, 2006). The phenomenon of poverty in Indonesia as previously described implies the birth of various poverty alleviation programs including poverty alleviation programs in urban, rural and coastal areas with people whose livelihoods are mostly fishermen (Akala, 2011). The Poverty Alleviation Program in the governing regime has various nomenclatures like the President's Instruction for Helping Underdeveloped Villages (IDT), Infrastructure Development Program

for Disadvantaged Rural Areas (P3DT), Community Empowerment Program for Urban and Rural Areas (P2MPP), Social Safety Net (JPS). The government is currently struggling to reduce the poverty rate through several programs, such as National Program for People Empowerment (PNPM) for rural and urban areas, Regional Economic Infrastructure Development (Pesewa), Public Health Security (Jenkems), Direct Cash Grant (BLT) which was substituted with Wishful Family Program (PKH). Those programs are implemented in provinces and regencies, including Bone Regency with support of poverty alleviation programs due to characteristics and situation of local society (Mair, 2013). Based on the background, the main problem of this research is poverty among fishing community. The problem, then, is deliberated in the following research questions: how is the family orientation of poor fishermen in the coastal areas of Bone related problems of poverty itself.

**Swathi.R (2018)** Kerala state in South India has an elongated coastal line of 590 km on the western part of the state sharing the border with Arabian Sea and decorated with world famous beaches. This area, known as the low-lying areas or coastal areas is situated 10 m below sea level. The coastal Kerala is gifted with a wide network of backwaters, ponds, natural lakes, streams, rivers and canals. Kerala has two separate monsoon seasons (rainfall seasons) ensuing in near waterlogged circumstances in nearly 20% of the whole geographic region of the state as wetlands. Kerala has an overall of 217 wetland areas. The coastal areas are thoroughly known for growing of coconut trees in the farmhouse and paddy fields in the low-lying regions and customary fisheries and aquaculture are the major sources of livelihoods of the communities. The coastal waters have been well known for its fishery wealth, with a large mixture of fishes like pearl spot, shrimp, cattle, mullet, catfish etc. They also maintain a variety of economic actions which in numerous places have led to an elevated rate of inhabitants' growth and economic enlargement.

**Shanmugarajah Srikanthan (2013)** This study analyses the impact of climate change on fishermen livelihood development. Climate change is defined a change in the statistical properties of the climate system in particular region when considered over long periods of time, regardless of cause. However, it is classified into two categories namely predictable and unpredictable climate change based on the discussion with village dwellers. In this paper, those climate change or weather condition that may occur in coming times could be predicated in advance is defined as predictable climate changes for example cyclone and those climate change or weather condition could not be predictable in advance is defined as

unpredictable climate changes for example changing water current. This study focuses on the impact of unpredictable climate change on the fishermen livelihood development. It has gained a few attentions from the social science researches. The data for this study were collected through informant case studies from fishing village of Pommaiyar Palaiyam located in Coromandel Coast, Tamil Nadu, India during the intensive fieldwork period of doctoral research, and the qualitative approaches are used for analysing the data. The finding of this study explores the correlation between the unpredictable climate change and multi-dimensional paradigm of poverty of the proposed study village as follows: (1) the climate change of the village from the last two years, (2) the impact of unpredictable climate change on fishermen livelihood development activities: occupation uncertainty, income disorganization, damages, loses of fishing equipment and psycho-social problems, and (3) the suggestions and recommendations from this issue. This study analysed their social problem especially multidimensional poverty with the concept of vicious circle which is a key factor for their prolonged poverty and psycho-social problem which is a barrier for livelihood development activities uplifting of this village and suggests that the measures to be taken to reduce the present scenario of the people.

**Hayler G (2003)** Wild-harvest fisheries for live reef fish are largely over-exploited or unsustainable because of over-fishing and the widespread use of destructive fishing practices such as blast and cyanide fishing. Sustainable aquaculture – such as that of groupers – is one option for meeting the strong demand for reef fish, as well as potentially maintaining or improving the livelihoods of coastal communities. This report from a short study by the STREAM Initiative draws on secondary literature, media sources and four diverse case studies from at-risk reef fisheries, to frame a strategy for encouraging sustainable aquaculture as an alternative to destructive fishing practices. It was undertaken as a component of the APEC-funded project Collaborative Grouper Research and Development Network (FWG/01/2001) to better understand how recent technical advances in grouper culture and other complementary work – including that of the Asia-Pacific Marine Finfish Aquaculture Network (APMFAN) hosted by NACA – could better support the livelihoods of poor coastal communities.

**Sunny AR (2017)** Anadromous and widely distributed fish and occurs in the freshwater rivers, estuaries, coastal and marine waters [1]. The high nutritional value, taste and culinary properties of hilsa makes it macher raja (king of fish) in Bangladesh [1-3]. There are three

types of hilsa species in the Bay of Bengal named as *Tenualosa ilisha*, *Tenualosa toil* and *Hilsa kale*. *Tenualosa ilisha* is recognized as the national fish of Bangladesh as majority of Hilsa fish captured in Bangladesh is *Tenualosa ilisha* [1,3,4]. Among the total Hilsa catch most of the hilsa (60%) has been caught from Bangladesh, 15% from India, 20% from Myanmar and remaining from some other countries [3,5]. Hilsa contributes 11% of total national production (394, 951 MT) and constitutes 1% of the Gross Domestic Product (GDP) of Bangladesh [1,6]. Hilsa fishery also support livelihood of a large number (4 million) of people of Bangladesh directly or indirectly [7,8]. Approximately 1 million fishers directly depend on hilsa for their livelihood another 3 million people indirectly depend on hilsa fishery through trading, transportation, marketing and processing [7,8]. Any negative fluctuation of hilsa catch put adverse impact on the livelihoods of hilsa dependent community as well as in country's economy [8-10].

**Shyam S (2013)** Indian fisheries and aquaculture constitute an integral component of agriculture, providing employment, food and nutritional security to people, particularly to the rural poor. Globally, capture fisheries and aquaculture produced 134 million tonnes (Mt) of fish during 2010 with per-capita food fish supply of 17.2 kg. In 2012, India contributed 5.33 per cent of the world total fish production (4.57% of total capture fish production and 6.63% of aquaculture production). India is ranked, second after China, in the world aquaculture production. Though India is one of the largest consumers of fish in the world, the annual per-capita consumption of fish, at 4.78 kg, is one of the lowest in the world (Salim and Narayana Kumar, 2012). The general awareness about fish as a healthy protein-rich food and health concerns has greatly influenced the consumption of fish in the country. The demand for fish and fishery products is increasing considerably in both domestic and export markets.

**Yograj Gautam (2016)** Diversification of livelihoods is a commonly applied strategy for coping with economic and environmental shocks and instrumental in poverty reduction. In this paper, we have assessed the role of livelihood diversification in household well-being in Humla, a remote mountain district in west Nepal. Employing the data produced from household surveys, we developed a composite household well-being index incorporating four components and 15 indicators, and measured the effect of diversification on it. Results suggested a uniform pattern of diversification in terms of the number of activities undertaken for livelihoods but a highly varying degree of resultant well-being across households. Analysis showed that well-being was not associated with diversification *per se* but rather on a households' involvement in 'high return sectors' such as trade or salaried job. Because

involvement in these remunerative sectors is determined by various financial, social and human capitals, poor households were unable to combat the entry barrier and were prevented from getting access to them. In this way, livelihood diversification was found to have a highly skewed effect leading to inequality of income and well-being. This, in turn, is likely to risk depriving the poor households from exploiting new economic opportunities even in the future.

**Edward H. Allison, Frank Ellis (2001)** Most studies of small-scale fisheries in developing countries in the last 25 years have tended to emphasise small-scale fisherfolks' resource dependence and the open-access nature of fisheries that together lead to resource degradation, poverty and marginalisation. Small-scale fisheries are frequently characterised as 'the occupation of last resort' and fisherfolk as "the poorest of the poor" [1,10–13]. The solutions advocated to the problems of poverty and resource degradation have centred on the necessity to make small-scale fisheries more economically efficient, while finding means to conserve fish stocks through a combination of management to limit access and incentives for current participants to leave the fishery. These policy prescriptions have typically been based on fisheries-sector analyses that have not addressed the role of fisheries in the wider coastal economy. They are also based on an 'equilibrium' view of fisheries resources, where fishing capacity is matched to the productive capacity of their source, with the objective of achieving a maximum sustainable yield or relates targets that include economic and social objectives.

**Keith M. Martin-Smith (2004)** New forms of collaborative management are becoming essential as fisheries resources decline around the world [1]. Fisheries are in crisis, with failures apparent in sustainable utilization, economic efficiency and equity in access to resources [2,3]. Global catches have been declining since the late 1980s [1] and, for marine capture fisheries, about half of the world's stocks are considered to be fully exploited, further 15–18% overexploited and 10% depleted or recovering from depletion [4]. Overfishing is considered to be one of the three most significant threats to coral reef ecosystems [5]. Extensive overexploitation is worrisome given the socio-economic importance of fisheries: FAO estimated that, in 2000, marine capture fisheries provided more than 16% of the animal protein for the world's population and employed approximately 23 million people worldwide [4]. An estimated 12 million of these fishers are directly employed in small-scale, artisanal fisheries [6]. Although capture for food represents the bulk of fisheries exploitation, there are also significant fisheries for non-food purposes including fishmeal production [4,8], the marine

aquarium trade [9,10], marine medicinal, and curios [11,12]. For example, the global trade in seahorses and their relatives as medicinal, ornamentals and curios in 2000 was estimated to amount to at least 56 tonnes of dried animals.<sup>1</sup>In some areas these can be a considerable source of income to artisanal fishers [13]. Involving stakeholders in decisions affecting the fishery is increasingly considered essential for successful fisheries management [14–16]. Management and conservation of resources in artisanal fisheries remain an enormous challenge, with few alternatives to fishing for food and/or income and few data with which to formulate management decisions [17–19]. Furthermore, many of the fisheries catch a wide range of species and are spatially dispersed [20]. Yet, declines in resources and threats to populations or even species mean that management measures have to be instituted. Where it is impractical to collect data for all species, we often focus conservation and management on particular species [21].

**Indramani Jayaweara (January 2010)** The aim of this study is to understand the existing livelihood Diversification and Income generation patterns in order to introduce sustainable enterprise in future. Jesse Verebalavu<sup>1</sup> (2009) in her paper even though artisanal fisherwomen have never been educated about basic business management, they have learned a lot about it first hand over the years by selling at the markets. They have also gained knowledge about the importance of keeping their resources as clean and hygienic as possible for the market. Hygiene is illustrated in the type of preservation and packaging of their resources. Income generated from artisanal fisherwomen, small businessowners, and female employees of the two fishing companies has a multiplier effect on their families and communities.

**Gupta (2006)** In this work on “Challenges in sustaining and increasing fish production to combat Hunger and poverty in Asia” has concluded that while there are ample opportunities for fish and fisheries to make a major contribution to food and nutritional security and to contribution to the eradication of the poverty, the number of challenges that need to be addressed, their requirements and that political will, policy change and effective and efficient implementation. Our fight against hunger is a long process and we need patients, endurance and great commitment.

**Verduijin (2000)** had conducted a survey in Kanyakumari District to find the basic needs of coastal fishing communities, which inhabit the 68 km stretch of the coast. Over the years, the

intensity of fishing has increased partly on account of the increase in the active fishing population, partly due to the lack of alternative income generating opportunities and partly due to motorisation and mechanisation of fishing crafts. The resource has not kept up with the increase of effort, which results in a sharp reduction in catch per unit effort.

**Freeda Chandrasekaran (1979)** In his study attempted to examine the role in the district of Chengalpattu. The study identified that the role of women in fishing activities is confined to repairing fish nets, marketing of fish, processing drying and salt curing of fish.

**Narayanakumar et al. (2000)** In their study have examined the socio-economic conditions of marine fisherwomen. The study could identify that the marine fisherwomen are socially and economically weaker. The study could conclude that improvement in fishing technology has increased the fish yield and as a result, the women vendors are able to get more fish for sales resulting in higher revenue of the women fish seller.

**Diana Tempelman (1987)** Attempted to examine the socio-economic status of the fisherwomen in the coastal villages of Vishakhapatnam District, Andhra Pradesh. The study could identify that the women get themselves engaged in marketing of fish for 7-10 hours a day. They generally, carry this for sales in the mover heads. For them, to cover a longer distance, buses are the major mode of transportation. For selling within the town's limits, bicycles and auto rickshaws are important means of transport.

**Radhakrishnan and Sellammalle (2000)** In their study have examined the role of fisherwomen in Pondicherry. The study could come out with the conclusion that the entry of women in fish sales has reduced the entry of middlemen resulting in higher revenue to the fishermen. The earnings of the fisherwomen, has helped to gain empowerment in their society. The study has also provided the conclusion that the earnings of fisherwomen is higher than the fishermen. The study identified that the average value of assets of the fisherwomen has increased.

**Venkatesh Salagrama (2014)** The overarching goal of the Coastal and Marine Protected Areas Project is to improve conservation and management of biodiversity in a number of existing, or eventually to be created, marine protected areas, with the aim of supporting the livelihoods of those on them. A starting point for any new initiative with a conservation management agenda will be to assess the livelihoods context of the resource-dependent people as much as to assess the health of the ecosystems and the natural resources therein.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

#### **3.1 RESEARCH DESIGN**

Research design is the specification of the method and procedure for Acquiring the information needed to solve the problem.

##### **Sources of data:**

- The two sources of data collection are namely primary & secondary.

##### **Primary Data:**

- Primary data are collected through Questionnaires direct survey was conducted fishermen.

##### **Secondary Data:**

- Secondary data are collected from the books, Journals

#### **3.2 SAMPLING TECHNIQUE**

##### **Population**

Population describes whole universe of the study. In this study the population is all the livelihood of fishermen.

##### **Target Respondents**

The target respondents for this study are the livelihood of fishermen.

##### **Sampling Methods & Type**

Convenient sampling method is adopted to collect samples for questionnaire from respondents.

#### **3.3 SOURCES OF DATA**

**Primary Data:** Primary data is a fresh data collected for the first time using a research instrument. In this report, the primary data is collected with a Questionnaire. A detailed questionnaire was prepared and data would be collected from 120 respondents from fishermen in Kanyakumari district.

**Secondary Data:** Secondary data is collected from existing data sources like books, articles, journals and internet.

### **3.4 STRUCTURE OF QUESTIONNAIRE**

The questionnaire basically has two main types of questions and they are open ended or open questions and closed ended or closed questions.

### **3.5 SAMPLE SIZE**

120 samples were collected from the fishermen working (fishing) in Kanyakumari costal region.

### **3.6 PERIOD OF STUDY**

The period of study is from December 2020 to February 2021.

### **3.7 TOOLS FOR THE STUDY**

The following tests and statistical tools were used for the analysis of the data.

#### **Descriptive Analysis**

- ✓ Percentage analysis method

#### **Inferential Analysis:**

- ✓ Chi-square method
- ✓ One Way ANOVA

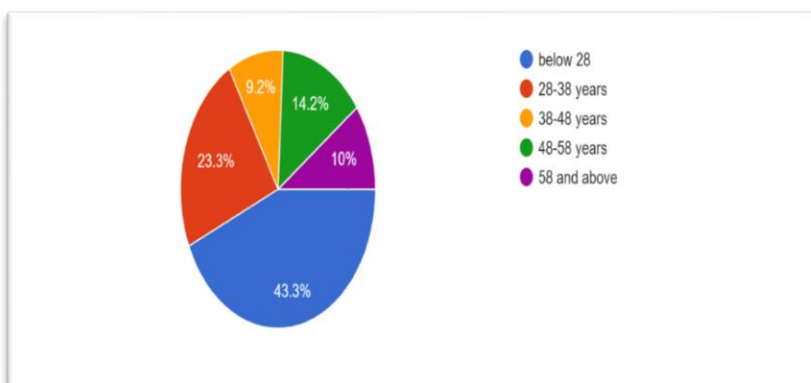
## CHAPTER IV

### DATA ANALYSIS AND INTERPRETATION

#### 4.1 PERCENTAGE ANALYSIS

**Table 4.1.1 Age of respondents**

| Age of Respondents | Frequency | Percentage |
|--------------------|-----------|------------|
| Below 28           | 52        | 43.3       |
| 28-38 years        | 28        | 23.3       |
| 38-48 years        | 11        | 9.2        |
| 48-58 years        | 17        | 14.2       |
| 58 and above       | 12        | 10.0       |
| Total              | 120       | 100.0      |



**Chart 4.1.1 Age of respondents**

#### **INTERPRETATION:**

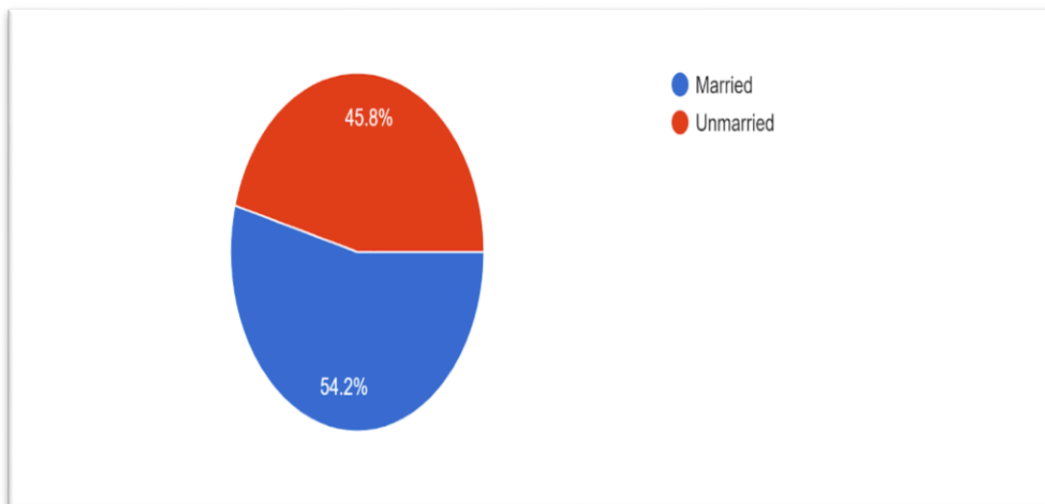
From the above table its interpreted that the number of respondents below 28 years of age is 43.3%, 28-38 years is 23.3%, 38-48 years is 9.2%, 48-58 years is 14.2%, above 58 years is 10.0%.

#### **INFERENCE:**

Majority (43.3%) of the respondents are below 28 years of age.

**Table 4.1.2 Marital status**

| Marital status | Frequency | Percentage |
|----------------|-----------|------------|
| Married        | 65        | 54.2       |
| Unmarried      | 55        | 45.8       |
| Total          | 120       | 100.0      |



**Chart 4.1.2 Marital status**

**INTERPRETATION:**

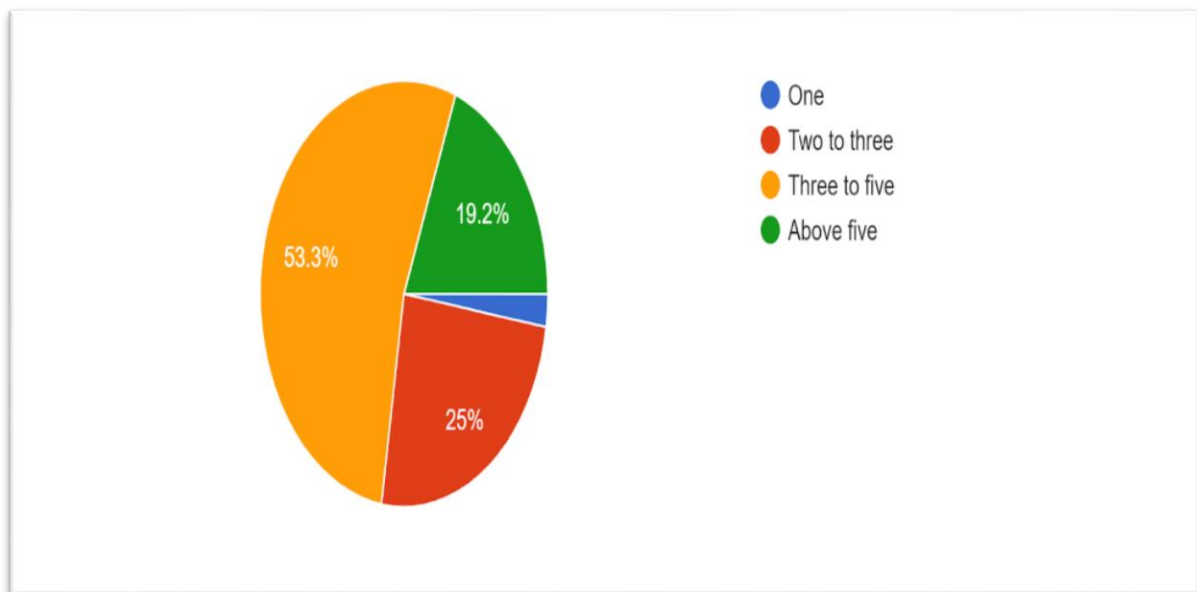
From the above table it's interpreted that the number of married respondents is 54.2% and the number of unmarried respondents is 45.8%.

**INFERENCE:**

Majority (54.2%) of the respondents are married people.

**Table 4.1.3 Number of People in a family**

| Particulars   | Frequency | Percentage |
|---------------|-----------|------------|
| Above five    | 23        | 19.2       |
| One           | 3         | 2.5        |
| Three to five | 64        | 53.3       |
| Two to three  | 30        | 25.0       |
| Total         | 120       | 100.0      |



**Chart 4.1.3 Number of People in a family**

**INTERPRETATION:**

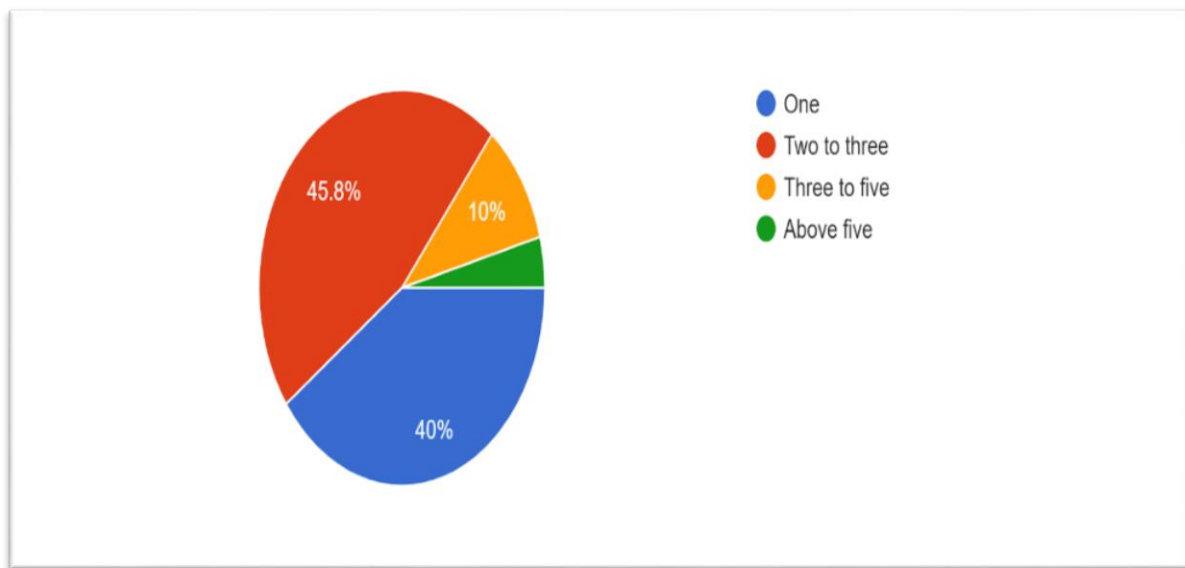
From the above table its interpreted that 19.2% of respondents are above five people, 40.0% of respondents of one people, 53.3% of respondents of three to five people, 45.8% of respondents of two to three people.

**INFERENCE:**

Majority (53.3%) of the respondents are three to five people.

**Table 4.1.4 Number of People Earning in a family**

| Particulars   | Frequency | Percentage |
|---------------|-----------|------------|
| Above five    | 5         | 4.2        |
| One           | 48        | 40.0       |
| Three to five | 12        | 10.0       |
| Two to three  | 55        | 45.8       |
| Total         | 120       | 100.0      |



**Chart 4.1.4 Number of People Earning in a family**

**INTERPRETATION:**

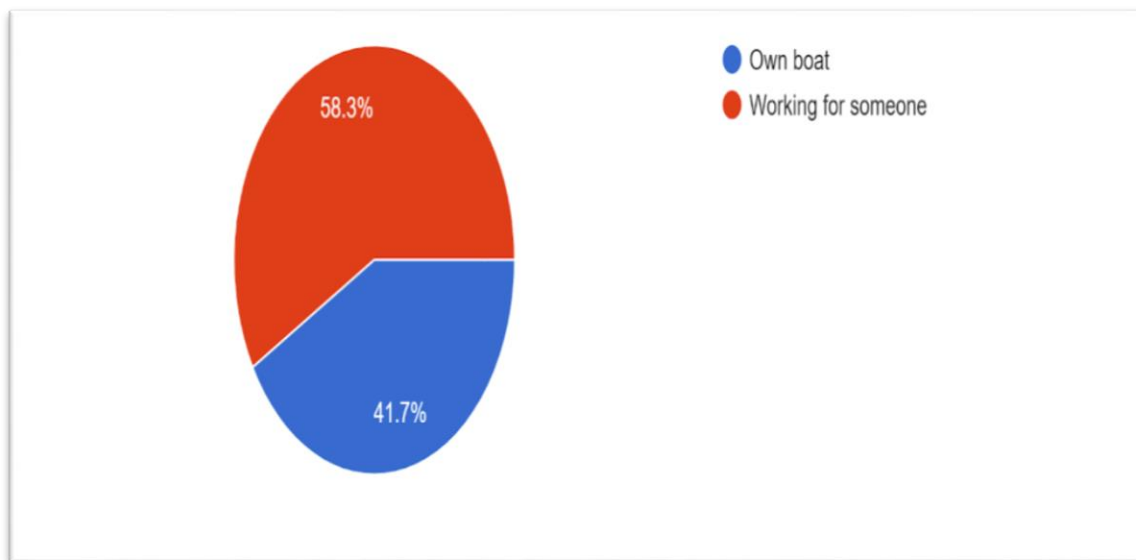
From the above table its interpreted that 4.2% of respondents are above five people, 40.0% of respondents of one people, 10.0% of respondents of three to five people, 45.8% of respondents of two to three people.

**INFERENCE:**

Majority (45.8%) of the respondents are two to three people.

**Table 4.1.5 Type of boat Respondents**

| Particulars         | Frequency | Percentage |
|---------------------|-----------|------------|
| Own boat            | 50        | 41.7       |
| Working for someone | 70        | 58.3       |
| Total               | 120       | 100.0      |



**Chart 4.1.5 Type of boat Respondents**

**INTERPRETATION:**

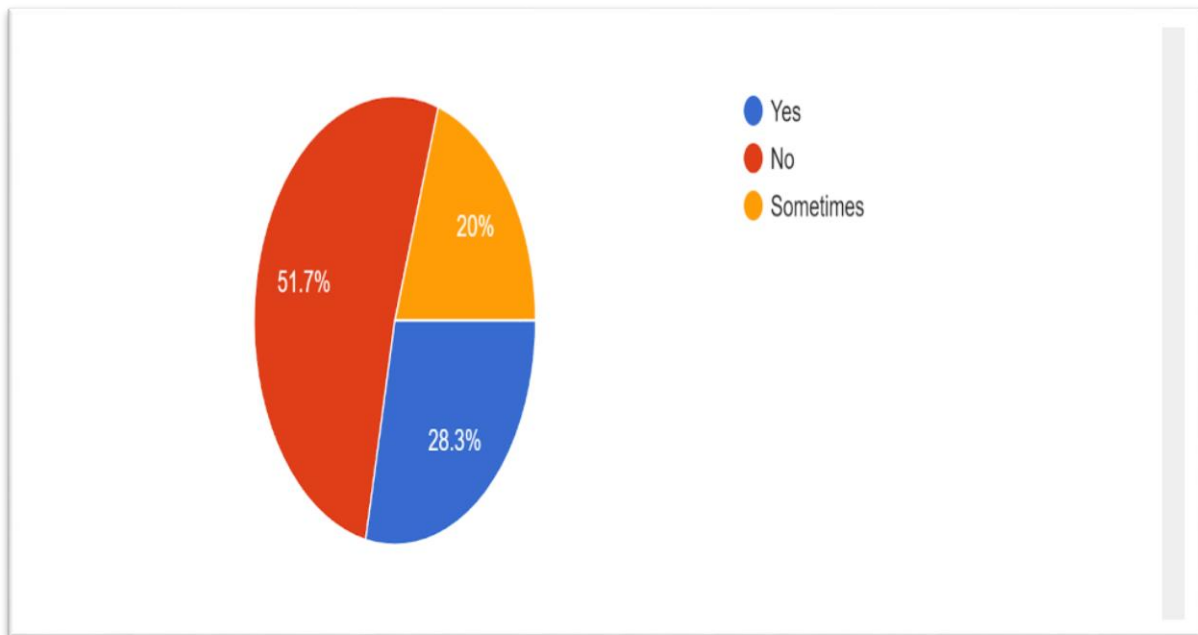
From the above table its interpreted that 41.7% of respondents are own boat, 58.3% of respondents of working for someone.

**INFERENCE:**

Majority (58.3%) of the respondents are working for someone.

**Table 4.1.6 Work for other boats of Respondents**

| Particulars | Frequency | Percentage |
|-------------|-----------|------------|
| No          | 62        | 51.7       |
| Sometimes   | 24        | 20.0       |
| Yes         | 34        | 28.3       |
| Total       | 120       | 100.0      |



**Chart 4.1.6 Work for other boats of Respondents**

**INTERPRETATION:**

From the above table its interpreted that 51.7% of No respondents are work for other boats, 20.0% of respondents sometimes work for other boats, 28.3% of respondents of yes work for other boats.

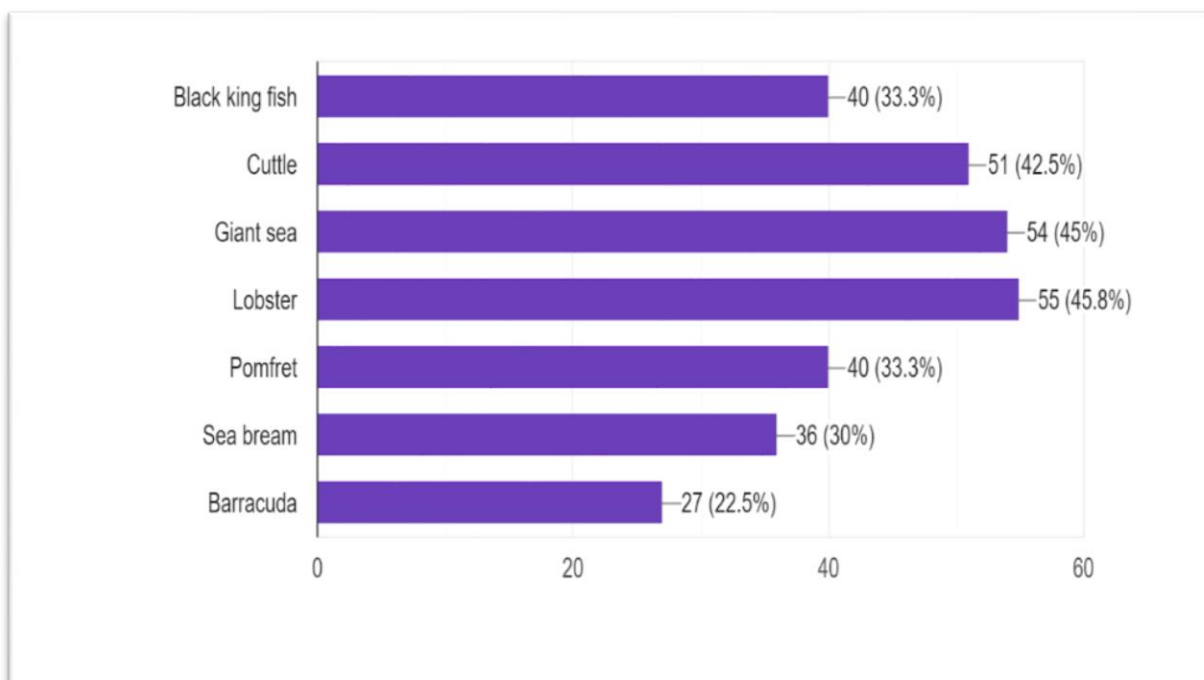
**INFERENCE:**

Majority (51.7%) of the No respondents are work for other boats.

**Table 4.1.7 Verities of Fish**

| <b>Particulars</b>                                                         | <b>Frequency</b> | <b>Percentage</b> |
|----------------------------------------------------------------------------|------------------|-------------------|
| Barracuda                                                                  | 2                | 1.7               |
| Black king fish                                                            | 8                | 6.7               |
| Black king fish, Cuttle, ,Giant sea                                        | 1                | 8                 |
| Black king fish, Cuttle, Giant sea, Lobster                                | 1                | 8                 |
| Black king fish, Cuttle, Giant sea, Lobster, Pomfret                       | 2                | 1.7               |
| Black king fish, Cuttle, Giant sea, Lobster, Pomfret, Sea bream            | 1                | 8                 |
| Black king fish, Cuttle, Giant sea, Lobster, Pomfret, Sea bream, Barracuda | 12               | 10.0              |
| Black king fish, Cuttle, Giant sea, Pomfret, Barracuda                     | 1                | .8                |
| Black king fish, Cuttle, Giant sea, Pomfret, Sea bream                     | 1                | .8                |
| Black king fish, Black Cuttle, Lobster                                     | 1                | .8                |
| Black king fish, Cuttle, Lobster, Barracuda                                | 2                | 1.7               |
| Black king fish, Cuttle, Lobster, Pomfret, Sea bream, Barracuda            | 1                | .8                |
| Black king fish, Cuttle, Pomfret                                           | 1                | .8                |
| Black king fish, Cuttle, Pomfret, Sea bream                                | 1                | .8                |
| Black king fish, Cuttle, Pomfret, Sea bream, Barracuda                     | 1                | .8                |
| Black king fish, Giant sea, Lobster, Sea bream                             | 1                | .8                |
| Black king fish, Giant sea, Lobster, Sea bream,                            | 1                | .8                |

|                                                           |     |       |
|-----------------------------------------------------------|-----|-------|
| Barracuda                                                 |     |       |
| Black king fish, Giant sea, Pomfret                       | 1   | .8    |
| Black king fish, Lobster, Pomfret                         | 1   | .8    |
| Black king fish, Lobster, Pomfret, Sea bream, Barracuda   | 1   | .8    |
| Black king fish, Lobster, Sea bream, Barracuda            | 1   | .8    |
| Cuttle                                                    | 13  | 10.8  |
| Cuttle, Giant sea                                         | 1   | .8    |
| Cuttle, Giant sea, Lobster                                | 3   | 2.5   |
| Cuttle, Giant sea, Lobster, Pomfret, Sea bream, Barracuda | 1   | .8    |
| Cuttle, Giant sea, Pomfret, Sea bream                     | 1   | .8    |
| Cuttle, Lobster, Pomfret                                  | 1   | .8    |
| Cuttle, Lobster, Pomfret, Sea bream                       | 1   | .8    |
| Cuttle, Lobster, Sea bream, Barracuda                     | 2   | 1.7   |
| Cuttle, Pomfret                                           | 1   | .8    |
| Cuttle, Pomfret, Barracuda                                | 1   | .8    |
| Giant sea                                                 | 20  | 16.7  |
| Giant sea, Lobster, Pomfret, Sea bream                    | 2   | 1.7   |
| Giant sea, Lobster, Pomfret, Sea bream, Barracuda         | 1   | .8    |
| Giant sea, Lobster, Sea bream                             | 1   | .8    |
| Giant sea, Pomfret                                        | 2   | 1.7   |
| Lobster                                                   | 16  | 13.3  |
| Lobster, Pomfret                                          | 2   | 1.7   |
| Pomfret                                                   | 3   | 2.5   |
| Sea bream                                                 | 6   | 5.0   |
| Total                                                     | 120 | 100.0 |



**Chart 4.1.7 Verities of Fish**

**INTERPRETATION:**

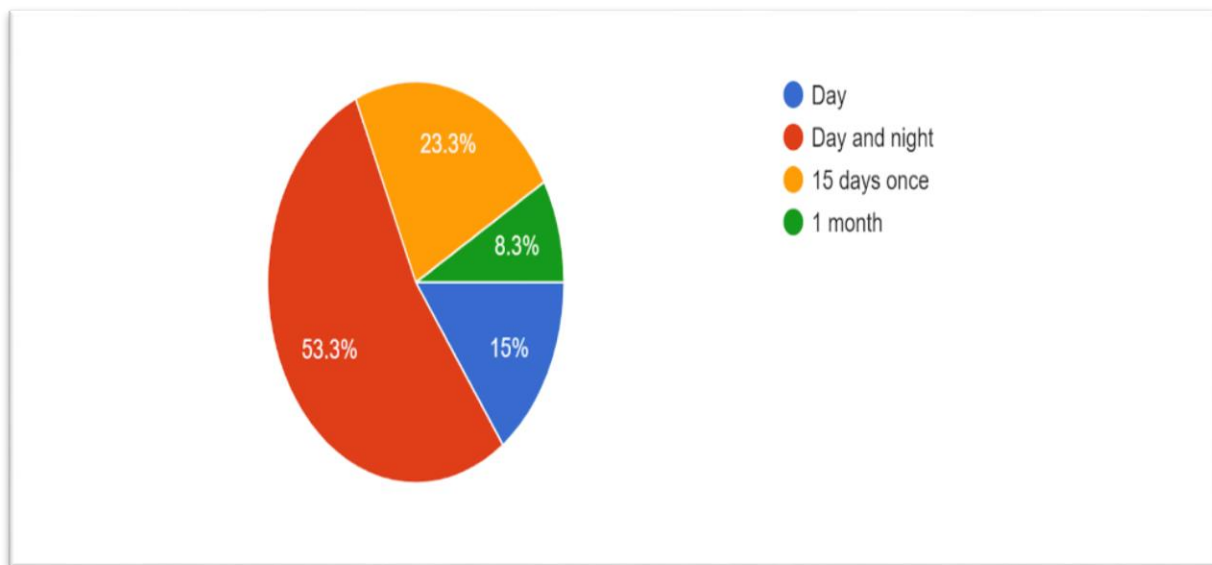
From the above table its interpreted that 33.3% of respondents are get black king fish, 42.5% of respondents are get cuttle, 45.0% of respondents are get giant sea, 45.8% of respondents are get lobster, 33.3% of respondents are get pomfret, 30% of respondents are get sea bream, 22.5% of respondents are get barracuda.

**INFERENCE:**

Majority (45.8%) of the respondents are get lobster.

**Table 4.1.8 Fishing time period**

| Particulars   | Frequency | Percentage |
|---------------|-----------|------------|
| 1 month       | 10        | 8.3        |
| 15 days once  | 28        | 23.3       |
| Day           | 18        | 15.0       |
| Day and night | 64        | 53.3       |
| Total         | 120       | 100.0      |



**Chart 4.1.8 Fishing time period**

**INTERPRETATION:**

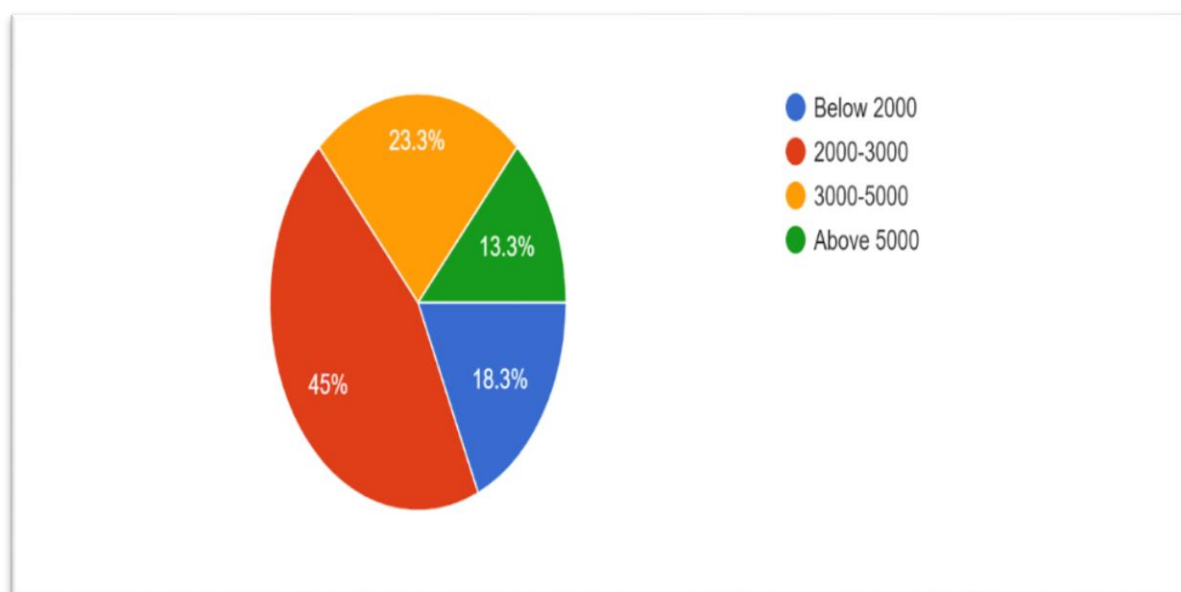
From the above table its interpreted that 8.3% of respondents are above 1 month fishing time period, 23.3% of respondents of 15 days once fishing time period, 15.0% of respondents of day fishing time period, 53.3% of respondents of day and night fishing time period.

**INFERENCE:**

Majority (53.3%) of the respondents are day and night fishing time period.

**Table 4.1.9 Value of fish you get for day and night fishing for per day**

| Particulars | Frequency | Percentage |
|-------------|-----------|------------|
| 2000-3000   | 54        | 45.0       |
| 3000-5000   | 28        | 23.3       |
| Above 5000  | 16        | 13.3       |
| Below 2000  | 22        | 18.3       |
| Total       | 120       | 100.0      |



**Chart 4.1.9 Value of fish you get for day and night fishing for per day**

**INTERPRETATION:**

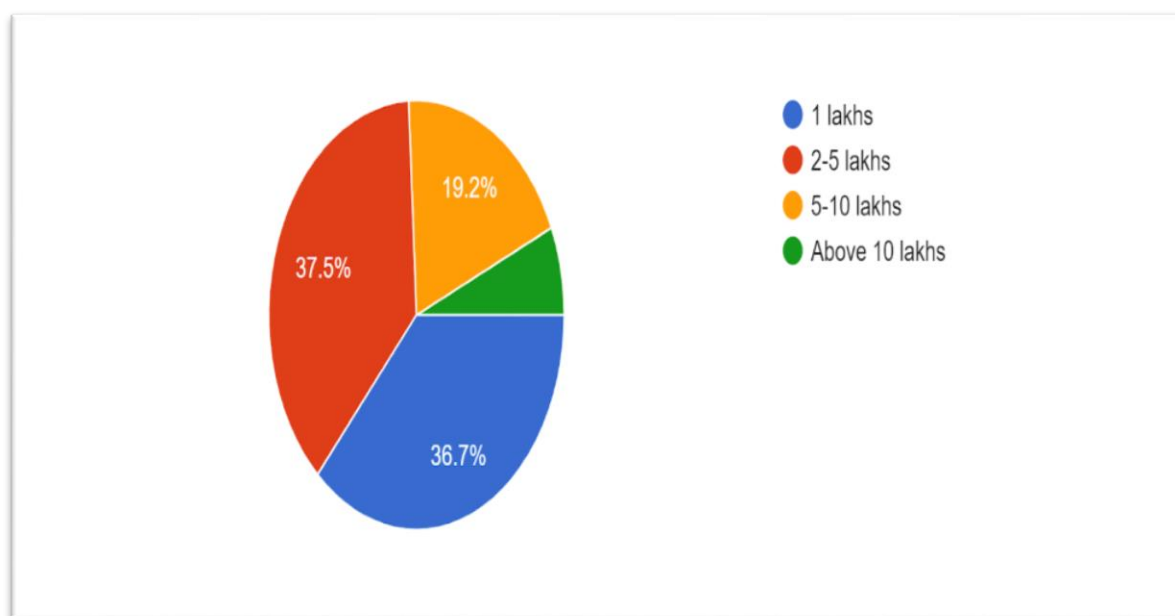
From the above table its interpreted that 45.0% of respondents are above 2000-3000 get value of fish, 23.3% of respondents of 3000-5000 get value of fish, 13.3% of respondents of above 5000 get value of fish, 18.3% of respondents of below 2000 get value of fish.

**INFERENCE:**

Majority (45.0%) of the respondents are 2000-3000 get value of fish.

**Table 4.1.10 Value of fish you get for monthly fishing**

| Particulars    | Frequency | Percentage |
|----------------|-----------|------------|
| 1 lakh         | 44        | 36.7       |
| 2-5 lakhs      | 45        | 37.5       |
| 5-10 lakhs     | 23        | 19.2       |
| Above 10 lakhs | 8         | 6.7        |
| Total          | 120       | 100.0      |



**Chart 4.1.10 Value of fish you get for monthly fishing**

**INTERPRETATION:**

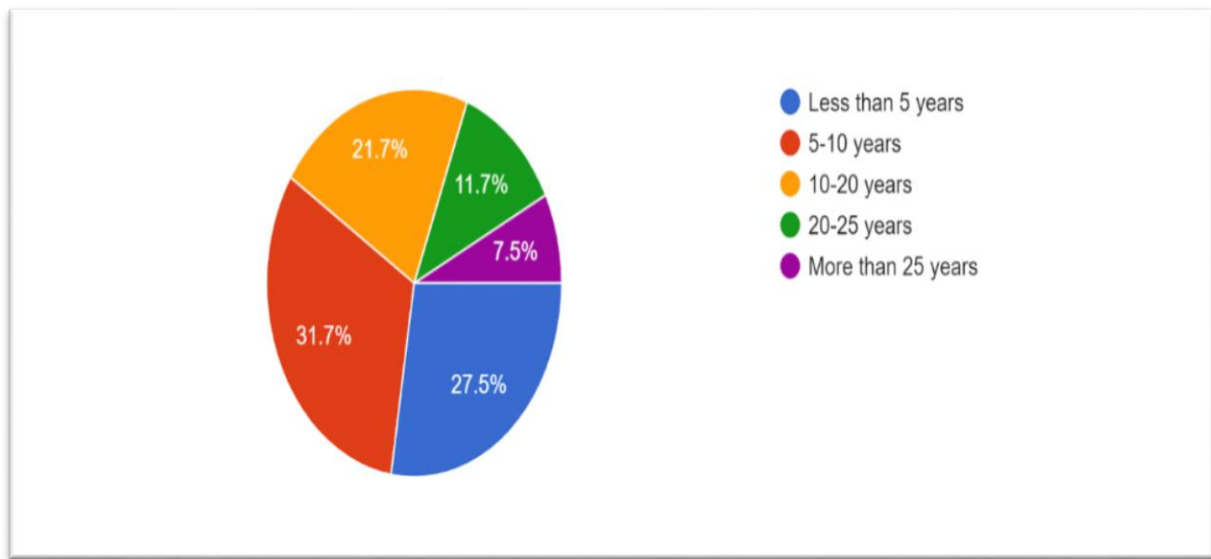
From the above table its interpreted that 36.7% of respondents are 1 lakh get value of fish, 37.5% of respondents of 2-5 lakhs get value of fish, 19.2% of respondents of 5-10 lakhs get value of fish, 6.7% of respondents of above 10 lakhs get value of fish.

**INFERENCE:**

Majority (37.5%) of the respondents are 2-5 lakhs get value of fish.

**Table 4.1.11 Years of experience in fishing**

| Particulars        | Frequency | Percentage |
|--------------------|-----------|------------|
| 10-20 years        | 26        | 21.7       |
| 20-25 years        | 14        | 11.7       |
| 5-10 years         | 38        | 31.7       |
| Less than 5 years  | 33        | 27.5       |
| More than 25 years | 9         | 7.5        |
| Total              | 120       | 100.0      |



**Chart 4.1.11 Years of experience in fishing**

**INTERPRETATION:**

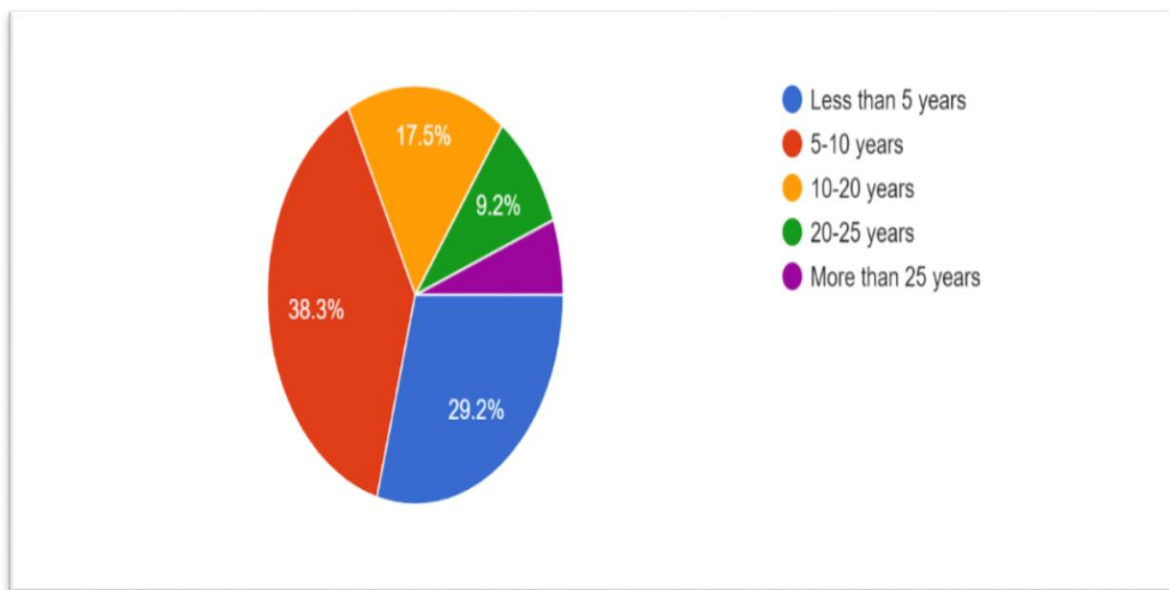
From the above table its interpreted that 21.7% of respondents are above 10-20 years of experience, 11.7% of respondents of 20-25 years of experience, 31.7% of respondents of 5-10 years of experience, 27.5% of respondents of less than 5 years of experience, 7.5% of respondents of more than 25 years of experience.

**INFERENCE:**

Majority (31.7%) of the respondents are 5-10 years of experience.

**Table 4.1.12 Years of having fisherman ID**

| Particulars        | Frequency | Percentage |
|--------------------|-----------|------------|
| 10-20 years        | 21        | 17.5       |
| 20-25 years        | 11        | 9.2        |
| 5-10 years         | 46        | 38.3       |
| Less than 5 years  | 35        | 29.2       |
| More than 25 years | 7         | 5.8        |
| Total              | 120       | 100.0      |



**Chart 4.1.12 Years of having fisherman ID**

**INTERPRETATION:**

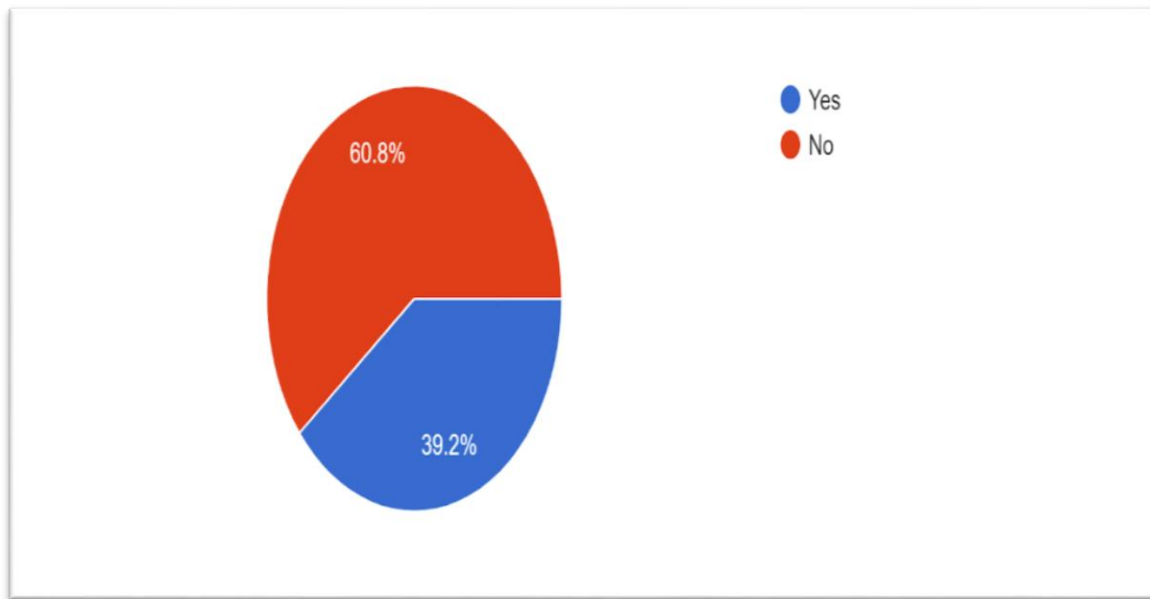
From the above table its interpreted that 17.5% of respondents are above 10-20 years of having fisherman ID, 9.2% of respondents of 20-25 years of having fisherman ID, 38.3% of respondents of 5-10 years of having fisherman ID, 29.2% of respondents of less than 5 years of having fisherman ID, 5,8% of respondents of more than 25 years of having fisherman ID.

**INFERENCE:**

Majority (38.3%) of the respondents are 5-10 years of having fisherman ID.

**Table 4.1.13 Cage culture training of respondents**

| Particulars | Frequency | Percentage |
|-------------|-----------|------------|
| No          | 73        | 60.8       |
| Yes         | 47        | 39.2       |
| Total       | 120       | 100.0      |



**Chart 4.1.13 Cage culture training of respondents.**

**INTERPRETATION:**

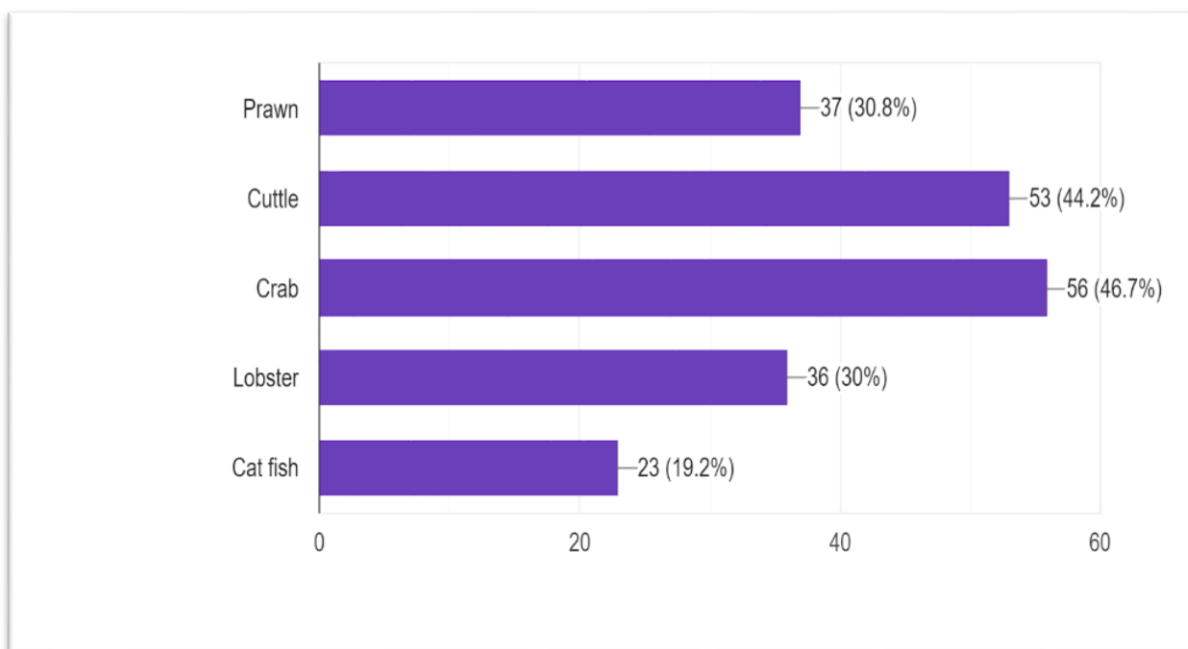
From the above table its interpreted that 60.8% of respondents are interested, 39.2% of respondents are Not interested.

**INFERENCE:**

Majority (60.8%) of the respondents are Not interested.

**Table 4.1.14 Verities of cage culture you are interested**

| <b>Particulars</b>                     | <b>Frequency</b> | <b>Percentage</b> |
|----------------------------------------|------------------|-------------------|
| Cat fish                               | 6                | 5.0               |
| Crab                                   | 28               | 23.3              |
| Crab, Lobster                          | 1                | .8                |
| Cuttle                                 | 27               | 22.5              |
| Cuttle, Crab                           | 1                | .8                |
| Cuttle, Crab, Lobster                  | 2                | 1.7               |
| Cuttle, Crab, Lobster, Cat fish        | 1                | .8                |
| Cuttle, Lobster                        | 2                | 1.7               |
| Lobster                                | 14               | 11.7              |
| Lobster, Cat fish                      | 1                | .8                |
| Prawn                                  | 9                | 7.5               |
| Prawn, Cat fish                        | 1                | .8                |
| Prawn, Crab                            | 1                | .8                |
| Prawn, Crab, Cat fish                  | 2                | 1.7               |
| Prawn, Crab, Lobster                   | 2                | 1.7               |
| Prawn, Crab, Lobster, Cat fish         | 2                | 1.7               |
| Prawn, Cuttle                          | 2                | 1.7               |
| Prawn, Cuttle, Cat fish                | 1                | .8                |
| Prawn, Cuttle, Crab                    | 4                | 3.3               |
| Prawn, Cuttle, Crab, Cat fish          | 2                | 1.7               |
| Prawn, Cuttle, Crab, Lobster           | 4                | 3.3               |
| Prawn, Cuttle, Crab, Lobster, Cat fish | 6                | 5.0               |
| Prawn, Cuttle, Lobster, Cat fish       | 1                | .8                |
| Total                                  | 120              | 100.0             |



**Chart 4.1.14 Verities of cage culture you are interested**

**INTERPRETATION:**

From the above table its interpreted that 30.8% of respondents are interested in prawn, 44.2% of respondents are interested in cuttle, 46.7% of respondents are interested in crab, 30% of respondents are interested in lobster, 19.2% of respondents are interested in cat fish.

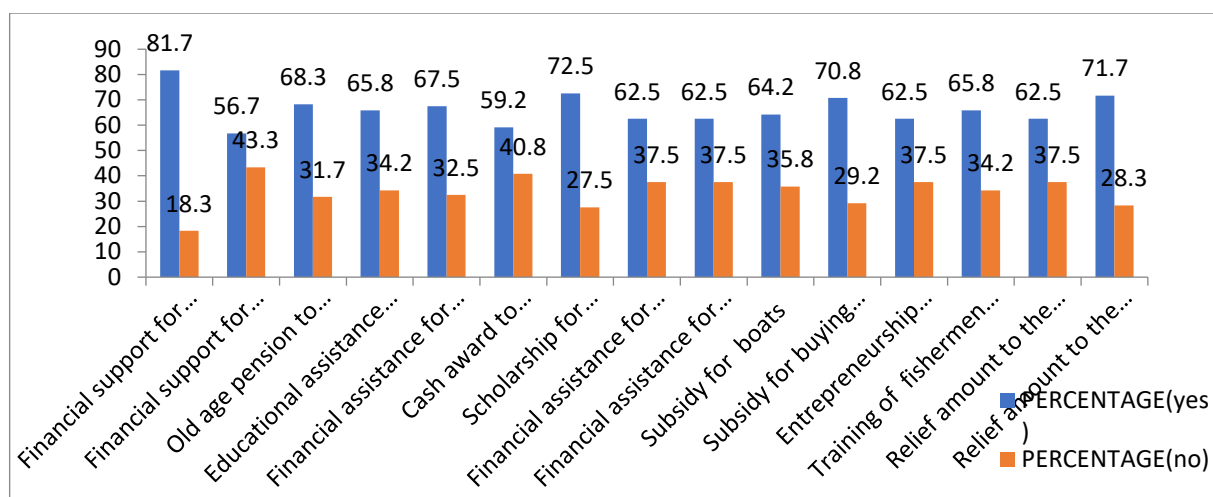
**INFERENCE:**

Majority (46.7%) of the respondents are interested in crab.

**Table 4.1.15 Benefits provided for fishermen by national fisherman savings relief scheme of Respondents**

| <b>SCHEMES</b>                                                                           | <b>NO.OF RESPONDANTS(Y ES)</b> | <b>PERCENTA GE</b> | <b>NO.OF RESPONDANTS( NO)</b> | <b>PERCENTA GE</b> |
|------------------------------------------------------------------------------------------|--------------------------------|--------------------|-------------------------------|--------------------|
| Financial support for ban period                                                         | 98                             | 81.7               | 22                            | 18.3               |
| Financial support for lean period                                                        | 68                             | 56.7               | 52                            | 43.3               |
| Old age pension to fishermen                                                             | 82                             | 68.3               | 38                            | 31.7               |
| Educational assistance fishermen's children studying from 10 <sup>th</sup> to graduation | 79                             | 65.8               | 41                            | 34.2               |
| Financial assistance for daughters and son's marriage                                    | 81                             | 67.5               | 39                            | 32.5               |
| Cash award to meritorious fishermen students                                             | 71                             | 59.2               | 49                            | 40.8               |
| Scholarship for technical education in marine                                            | 87                             | 72.5               | 33                            | 27.5               |
| Financial assistance for fisherwomen for maternity                                       | 75                             | 62.5               | 45                            | 37.5               |
| Financial assistance for fish farming                                                    | 75                             | 62.5               | 45                            | 37.5               |
| Subsidy for boats                                                                        | 77                             | 64.2               | 43                            | 35.8               |

|                                                                                                           |    |      |    |      |
|-----------------------------------------------------------------------------------------------------------|----|------|----|------|
| Subsidy for buying engine                                                                                 | 85 | 70.8 | 35 | 29.2 |
| Entrepreneurs hip training for fishermen and women to start business in the same field [fishing]          | 75 | 62.5 | 45 | 37.5 |
| Training of fishermen to improve their fishing activities                                                 | 79 | 65.8 | 41 | 34.2 |
| Relief amount to the family of the natural accidental death of the fishermen                              | 75 | 62.5 | 45 | 37.5 |
| Relief amount to the family after the declaration by the government for the missing fishermen in the sea. | 86 | 71.7 | 34 | 28.3 |



**Chart 4.1.15 Benefits provided for fishermen by national fisherman savings relief scheme of Respondents**

#### INTERPRETATION:

- From the above table its interpreted that 81.7% have opted yes and 18.3% have opted no for financial support for ban period.
- From the above table its interpreted that 56.7% have opted yes and 43.3% have opted no for financial support for lean period.
- From the above table its interpreted that 68.3% have opted yes and 31.7% have opted no for old age pension to fishermen.
- From the above table its interpreted that 65.8% have opted yes and 34.2% have opted no for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.
- From the above table its interpreted that 67.5% have opted yes and 32.5% have opted no for financial assistance for daughter's and son's marriage.
- From the above table its interpreted that 59.2% have opted yes and 40.8% have opted no for cash award to meritorious fishermen students.
- From the above table its interpreted that 72.5% have opted yes and 27.5% have opted no for scholarship for technical education in marine.
- From the above table its interpreted that 62.5% have opted yes and 37.5% have opted no for financial assistance for fisherwomen for maternity.
- From the above table its interpreted that 62.5% have opted yes and 37.5% have opted no for financial assistance for fish farming.
- From the above table its interpreted that 64.2% have opted yes and 35.8% have opted no for subsidy for boats.
- From the above table its interpreted that 70.8% have opted yes and 29.2% have opted no for subsidy for buying engine.
- From the above table its interpreted that 62.5% have opted yes and 37.5% have opted no for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- From the above table its interpreted that 65.8% have opted yes and 34.2% have opted no for training of fishermen to improve their fishing activities.

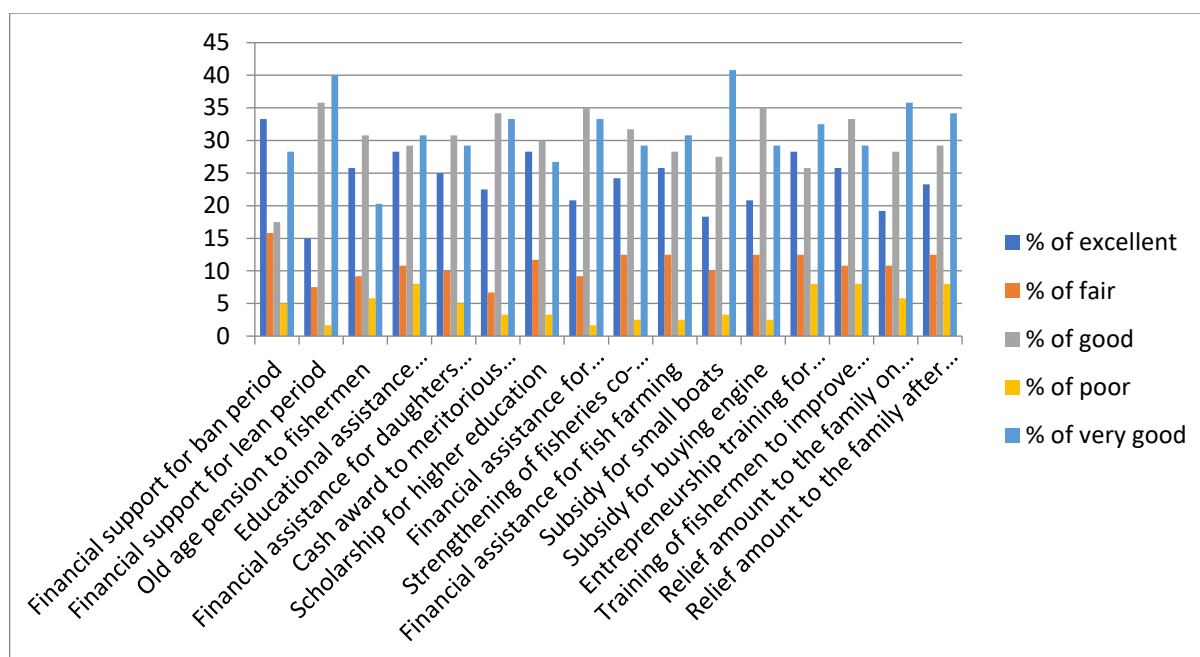
- From the above table its interpreted that 62.5% have opted yes and 37.5% have opted no for relief amount to the family natural accidental death of the fishermen.
- From the above table its interpreted that 71.7% have opted yes and 28.3% have opted no for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

#### **INFERENCE:**

- Majority 81.7% of the respondents have chosen yes for financial ban period.
- Majority 56.7% of the respondents have chosen yes for financial lean period.
- Majority 68.3% of the respondents have chosen yes for old age pension to fishermen.
- Majority 65.8% of the respondents have chosen yes for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.
- Majority 67.5% of the respondents have chosen yes for financial assistance for daughters and son's marriage.
- Majority 59.2% of the respondents have chosen yes for cash award to meritorious fishermen students.
- Majority 72.5% of the respondents have chosen yes for scholarship for technical education in marine.
- Majority 62.5% of the respondents have chosen yes for financial assistance for fisherwomen for maternity.
- Majority 62.5% of the respondents have chosen yes for financial assistance for fish farming.
- Majority 64.2% of the respondents have chosen yes for subsidy for boats.
- Majority 70.8% of the respondents have chosen yes for subsidy for buying engine.
- Majority 62.5% of the respondents have chosen yes for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- Majority 65.8% of the respondents have chosen yes for training of fishermen to improve their fishing activities.
- Majority 62.5% of the respondents have chosen yes for relief amount to the family natural accidental death of the fishermen.
- Majority 71.7% of the respondents have chosen yes for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

**Table 4.1.16 Government for improvement in the livelihood of fishermen**

| <b>SCHEMES</b>                                                                                           | <b>EXCELLENT</b> | <b>%</b> | <b>FAIR</b> | <b>%</b> | <b>GOOD</b> | <b>%</b> | <b>POOR</b> | <b>%</b> | <b>VERY GOOD</b> | <b>%</b> |
|----------------------------------------------------------------------------------------------------------|------------------|----------|-------------|----------|-------------|----------|-------------|----------|------------------|----------|
| Financial support for ban period                                                                         | 40               | 33.3     | 19          | 15.8     | 21          | 17.5     | 6           | 5.0      | 34               | 28.3     |
| Financial support for lean period                                                                        | 18               | 15.0     | 9           | 7.5      | 43          | 35.8     | 2           | 1.7      | 48               | 40.0     |
| Old age pension to fishermen                                                                             | 31               | 25.8     | 11          | 9.2      | 37          | 30.8     | 7           | 5.8      | 34               | 20.3     |
| Educational assistance fishermen's children studying from 10 the to graduation                           | 34               | 28.3     | 13          | 10.8     | 35          | 29.2     | 1           | 8        | 37               | 30.8     |
| Financial assistance for daughters and sons marriage                                                     | 30               | 25.0     | 12          | 10.0     | 37          | 30.8     | 6           | 5.0      | 35               | 29.2     |
| Cash award to meritorious fishermen students                                                             | 27               | 22.5     | 8           | 6.7      | 41          | 34.2     | 4           | 3.3      | 40               | 33.3     |
| Scholarship for higher education                                                                         | 34               | 28.3     | 14          | 11.7     | 36          | 30.0     | 4           | 3.3      | 32               | 26.7     |
| Financial assistance for fisherwomen for maternity                                                       | 25               | 20.8     | 11          | 9.2      | 42          | 35.0     | 2           | 1.7      | 40               | 33.3     |
| Strengthening of fisheries co-operative institutions                                                     | 29               | 24.2     | 15          | 12.5     | 38          | 31.7     | 3           | 2.5      | 35               | 29.2     |
| Financial assistance for fish farming                                                                    | 31               | 25.8     | 15          | 12.5     | 34          | 28.3     | 3           | 2.5      | 37               | 30.8     |
| Subsidy for small boats                                                                                  | 22               | 18.3     | 12          | 10.0     | 33          | 27.5     | 4           | 3.3      | 49               | 40.8     |
| Subsidy for buying engine                                                                                | 25               | 20.8     | 15          | 12.5     | 42          | 35.0     | 3           | 2.5      | 35               | 29.2     |
| Entrepreneurship training for fishermen and women to start business in the same field                    | 34               | 28.3     | 15          | 12.5     | 31          | 25.8     | 1           | 8        | 39               | 32.5     |
| Training of fishermen to improve their fishing activities                                                | 31               | 25.8     | 13          | 10.8     | 40          | 33.3     | 1           | 8        | 35               | 29.2     |
| Relief amount to the family on the natural accidental death of the fisherman                             | 23               | 19.2     | 13          | 10.8     | 34          | 28.3     | 7           | 5.8      | 43               | 35.8     |
| Relief amount to the family after the declaration by the government for the missing fishermen in the sea | 28               | 23.3     | 15          | 12.5     | 35          | 29.2     | 1           | 8        | 41               | 34.2     |



**Chart 4.1.16 Government for improvement in the livelihood of fishermen**

#### INTERPRETATION:

- From the above table its interpreted that 33.3% of the respondents have chosen excellent, 15.8% have chosen for fair, 17.5% have chosen good, 5.0% have chosen very good for financial support for ban period.
- From the above table its interpreted that 15.0% of the respondents have chosen excellent, 7.5% have chosen for fair, 35.8% have chosen good, 1.7% have chosen very good for financial support for lean period.
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 9.2% have chosen for fair, 30.8% have chosen good, 5.8% have chosen very good for old age pension to fishermen.
- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 10.8% have chosen for fair, 29.2% have chosen good, 0.8% have chosen very good for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.
- From the above table its interpreted that 25.0% of the respondents have chosen excellent, 10.0% have chosen for fair, 30.8% have chosen good, 5.0% have chosen very good for financial assistance for daughters and son's marriage.
- From the above table its interpreted that 22.5% of the respondents have chosen excellent, 6.7% have chosen for fair, 34.2% have chosen good, 3.3% have chosen very good for cash award meritorious fishermen students.
- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 11.7% have chosen for fair, 30.0% have chosen good, 3.3% have chosen very good for scholarship for higher education.

- From the above table its interpreted that 20.8% of the respondents have chosen excellent, 9.2% have chosen for fair, 35.0% have chosen good, 1.7% have chosen very good for financial assistance for fisherwomen for maternity.
- From the above table its interpreted that 24.2% of the respondents have chosen excellent, 12.5% have chosen for fair, 31.7% have chosen good, 2.5% have chosen very good for strengthening of fisheries co-operative institutions.
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 12.5% have chosen for fair, 28.3% have chosen good, 2.5% have chosen very good for financial assistance for fish farming.
- From the above table its interpreted that 18.3% of the respondents have chosen excellent, 10.0% have chosen for fair, 27.5% have chosen good, 3.3% have chosen very good for subsidy for small boats.
- From the above table its interpreted that 20.8% of the respondents have chosen excellent, 12.5% have chosen for fair, 35.0% have chosen good, 2.5% have chosen very good for subsidy for buying engine.
- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 12.5% have chosen for fair, 25.8% have chosen good, 0.8% have chosen very good for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 10.8% have chosen for fair, 33.3% have chosen good, 0.8% have chosen very good for training of fishermen to improve their fishing activities.
- From the above table its interpreted that 19.2% of the respondents have chosen excellent, 10.8% have chosen for fair, 28.3% have chosen good, 5.8% have chosen very good for relief amount to the family natural accidental death of the fishermen.
- From the above table its interpreted that 23.3% of the respondents have chosen excellent, 12.5% have chosen for fair, 29.2% have chosen good, 0.8% have chosen very good for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

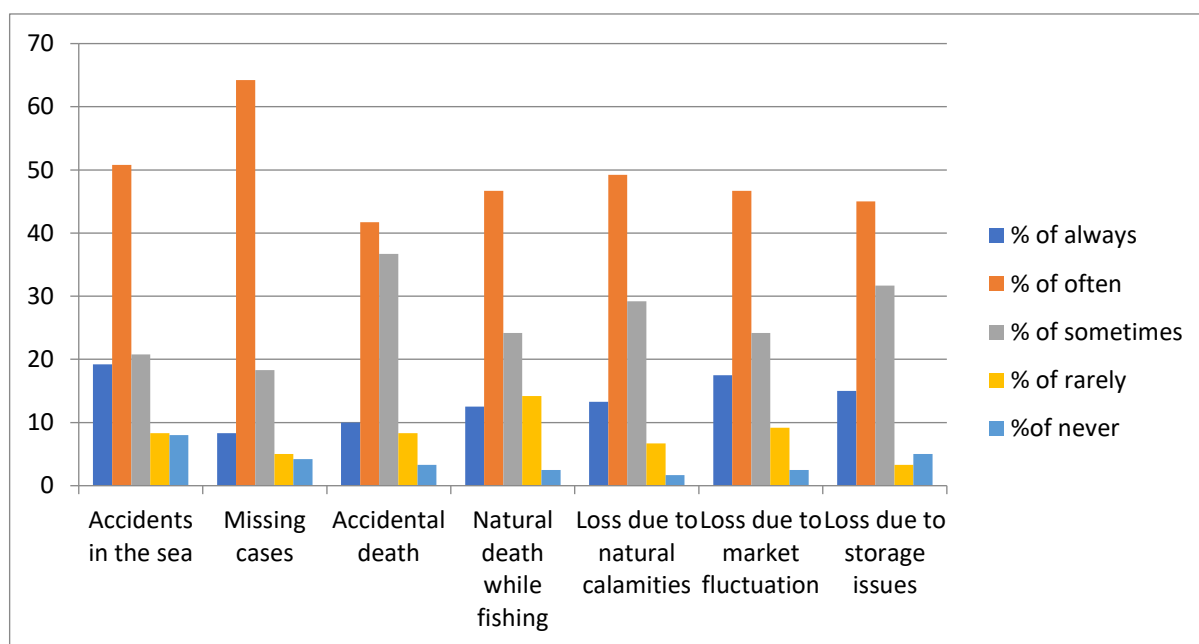
## **INFERENCE:**

- Majority 33.3% of the respondents have chosen excellent for financial support for ban period.
- Majority 35.8% of the respondents have chosen good for financial support for lean period.
- Majority 30.8% of the respondents have chosen good for old age pension to fishermen.
- Majority 29.2% of the respondents have chosen good for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.
- Majority 30.8% of the respondents have chosen good for financial assistance for daughters and son's marriage.

- Majority 34.2% of the respondents have chosen good for cash award meritorious fishermen students.
- Majority 30.0% of the respondents have chosen good for scholarship for higher education.
- Majority 35.0% of the respondents have chosen good for financial assistance for fisherwomen for maternity.
- Majority 31.7% of the respondents have chosen good for strengthening of fisheries co-operative institutions.
- Majority 28.3% of the respondents have chosen good for financial assistance for fish farming.
- Majority 27.5% of the respondents have chosen good for subsidy for small boats.
- Majority 35.0% of the respondents have chosen good for subsidy for buying engine.
- Majority 28.3% of the respondents have chosen excellent for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- Majority 33.3% of the respondents have chosen good for training of fishermen to improve their fishing activities.
- Majority 28.3% of the respondents have chosen good for relief amount to the family natural accidental death of the fishermen.
- Majority 29.2% of the respondents have chosen good for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

**Table 4.1.17 Problems faced while fishing of Respondents**

| PROBLEMS                       | ALWAYS | %    | OFTEN | %    | SOMETIMES | %    | RARELY | %    | NEVER | %   |
|--------------------------------|--------|------|-------|------|-----------|------|--------|------|-------|-----|
| Accidents in the sea           | 23     | 19.2 | 61    | 50.8 | 25        | 20.8 | 10     | 8.3  | 1     | 8   |
| Missing cases                  | 10     | 8.3  | 77    | 64.2 | 22        | 18.3 | 6      | 5.0  | 5     | 4.2 |
| Accidental death               | 12     | 10.0 | 50    | 41.7 | 44        | 36.7 | 10     | 8.3  | 4     | 3.3 |
| Natural death while fishing    | 15     | 12.5 | 56    | 46.7 | 29        | 24.2 | 17     | 14.2 | 3     | 2.5 |
| Loss due to natural calamities | 16     | 13.3 | 59    | 49.2 | 35        | 29.2 | 8      | 6.7  | 2     | 1.7 |
| Loss due to market fluctuation | 21     | 17.5 | 56    | 46.7 | 29        | 24.2 | 11     | 9.2  | 3     | 2.5 |
| Loss due to storage issues     | 18     | 15.0 | 54    | 45.0 | 38        | 31.7 | 4      | 3.3  | 6     | 5.0 |



**Chart 4.1.17 Problems faced while fishing of Respondents**

## **INTERPRETATION:**

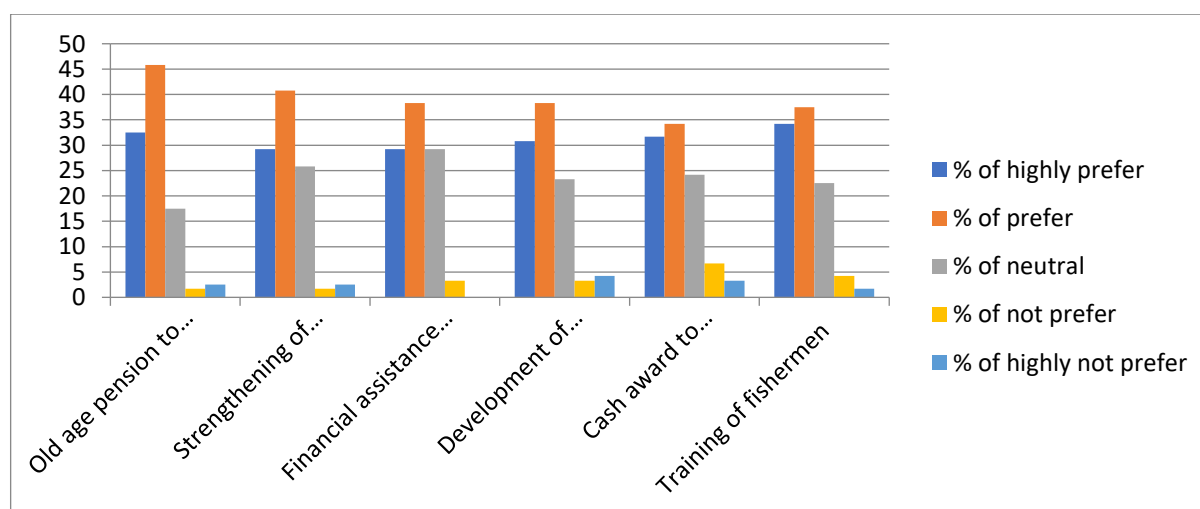
- From the above table its interpreted that 19.2% of the respondents have chosen always, 50.8% have chosen for often, 20.8% have chosen sometimes, 8.3% have chosen rarely, 0.8% have chosen never for accidents in the sea.
- From the above table its interpreted that 8.3% of the respondents have chosen always, 64.2% have chosen for often, 18.3% have chosen sometimes, 5.0% have chosen rarely, 4.2% have chosen never for missing cases.
- From the above table its interpreted that 10.0% of the respondents have chosen always, 41.7% have chosen for often, 36.7% have chosen sometimes, 8.3% have chosen rarely, 3.3% have chosen never for accidental death.
- From the above table its interpreted that 12.5% of the respondents have chosen always, 46.7% have chosen for often, 24.2% have chosen sometimes, 14.2% have chosen rarely, 2.5% have chosen never for natural death while fishing.
- From the above table its interpreted that 13.3% of the respondents have chosen always, 49.2% have chosen for often, 29.2% have chosen sometimes, 6.7% have chosen rarely, 1.7% have chosen never for loss due to natural calamities.
- From the above table its interpreted that 17.5% of the respondents have chosen always, 46.7% have chosen for often, 24.2% have chosen sometimes, 9.2% have chosen rarely, 2.5% have chosen never for loss due to market fluctuation.
- From the above table its interpreted that 15.0% of the respondents have chosen always, 45.0% have chosen for often, 31.7% have chosen sometimes, 3.3% have chosen rarely, 5.0% have chosen never for loss due to storage issues.

## **INFERENCE:**

- Majority 50.8% of the respondents have chosen often for accidents in the sea.
- Majority 64.2% of the respondents have chosen often for missing cases.
- Majority 41.7% of the respondents have chosen often for accidental death.
- Majority 46.7% of the respondents have chosen often for natural death while fishing.
- Majority 49.2% of the respondents have chosen often for loss due to natural calamities.
- Majority 46.7% of the respondents have chosen often for loss due to market fluctuation.
- Majority 45.0% of the respondents have chosen often for loss due to storage issues.

**Table 4.1.18 Key benefits you prefer by the society**

| PARTICULAR                                           | HIGHLY PREFER | %    | PREFER | %    | NEUTRAL | %    | NOT PREFER | %   | HIGHLY NOT PREFER |
|------------------------------------------------------|---------------|------|--------|------|---------|------|------------|-----|-------------------|
| Old age pension to fishermen                         | 39            | 32.5 | 55     | 45.8 | 21      | 17.5 | 2          | 1.7 | 3                 |
| Strengthening of fisheries co-operative institutions | 35            | 29.2 | 49     | 40.8 | 31      | 25.8 | 2          | 1.7 | 3                 |
| Financial assistance during fishing ban period       | 35            | 29.2 | 46     | 38.3 | 35      | 29.2 | 4          | 3.3 | 0                 |
| Development of freshwater aquaculture                | 37            | 30.8 | 46     | 38.3 | 28      | 23.3 | 4          | 3.3 | 5                 |
| Cash award to meritorious fishermen students         | 38            | 31.7 | 41     | 34.2 | 29      | 24.2 | 8          | 6.7 | 4                 |
| Training of fishermen                                | 41            | 34.2 | 45     | 37.5 | 27      | 22.5 | 5          | 4.2 | 2                 |



**Chart 4.1.18 Key benefits you prefer by the society**

## **INTERPRETATION:**

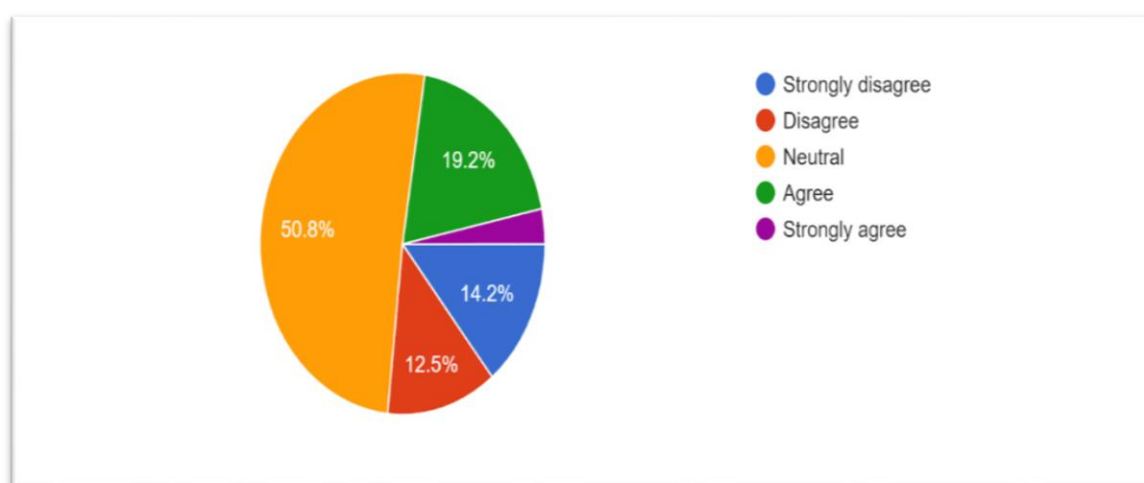
- From the above table its interpreted that 32.5% of the respondents have chosen highly prefer, 45.8% have chosen for prefer, 17.5% have chosen neutral, 1.7% have chosen not prefer, 2.5% have chosen highly not prefer for old age pension to fishermen.
- From the above table its interpreted that 29.2% of the respondents have chosen highly prefer, 40.8% have chosen for prefer, 25.8% have chosen neutral, 1.7% have chosen not prefer, 2.5% have chosen highly not prefer for strengthening of fisheries co-operative institutions.
- From the above table its interpreted that 29.2% of the respondents have chosen highly prefer, 38.3% have chosen for prefer, 29.2% have chosen neutral, 3.3% have chosen not prefer, 0.0% have chosen highly not prefer for financial assistance during fishing ban period.
- From the above table its interpreted that 30.8% of the respondents have chosen highly prefer, 38.3% have chosen for prefer, 23.3% have chosen neutral, 3.3% have chosen not prefer, 4.2% have chosen highly not prefer for development of fresh water aquaculture.
- From the above table its interpreted that 31.7% of the respondents have chosen highly prefer, 34.2% have chosen for prefer, 24.2% have chosen neutral, 6.7% have chosen not prefer, 3.3% have chosen highly not prefer for cash award to meritorious fishermen students.
- From the above table its interpreted that 34.2% of the respondents have chosen highly prefer, 37.5% have chosen for prefer, 22.5% have chosen neutral, 4.2% have chosen not prefer, 1.7% have chosen highly not prefer for training of fishermen.

## **INFERENCE:**

- Majority 45.8% of the respondents have chosen prefer for old age pension to fishermen.
- Majority 40.8% of the respondents have chosen prefer for strengthening of fisheries co-operative institutions.
- Majority 38.3% of the respondents have chosen prefer for financial assistance during fishing ban period.
- Majority 38.8% of the respondents have chosen prefer for development of freshwater aquaculture.
- Majority 34.2% of the respondents have chosen prefer for cash award to meritorious fishermen students.
- Majority 37.5% of the respondents have chosen prefer for training of fishermen.

**Table 4.1.19 Government schemes are extremely useful for the betterment of livelihood of fishermen**

| Particular        | Frequency | Percentage |
|-------------------|-----------|------------|
| Agree             | 23        | 19.2       |
| Disagree          | 15        | 12.5       |
| Neutral           | 61        | 50.8       |
| Strongly agree    | 4         | 3.3        |
| Strongly disagree | 17        | 14.2       |
| Total             | 120       | 100.0      |



**Chart 4.1.19 Government schemes are extremely useful for the betterment of livelihood of fishermen**

#### **INTERPRETATION:**

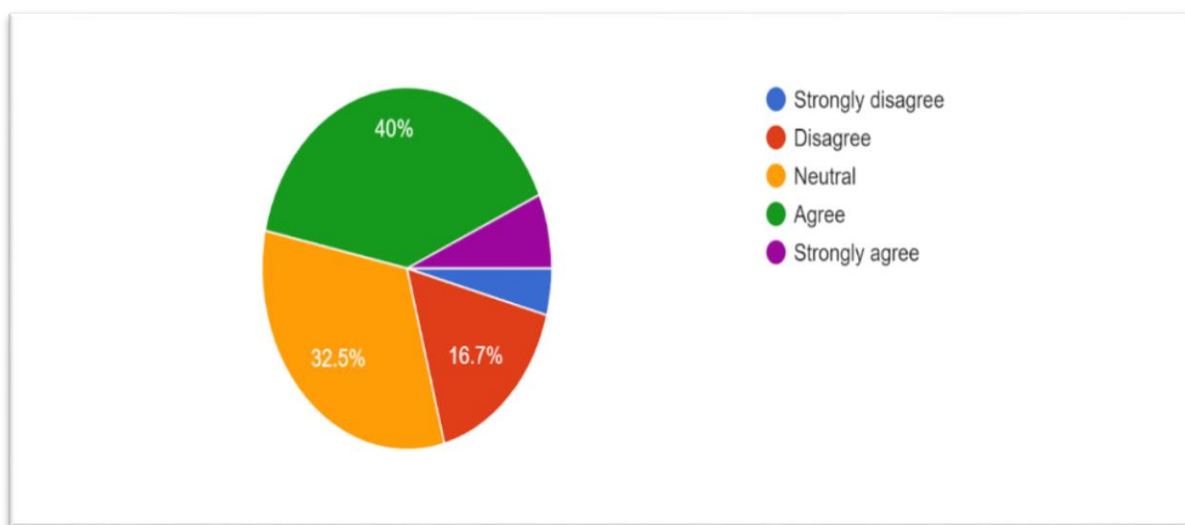
From the above table its interpreted that 19.2% of respondents of agree to government schemes are useful, 12.5% of respondents of disagree to government schemes are useful, 50.8% of respondents of neutral to government schemes are useful, 3.3% of respondents of strongly agree to government schemes are useful, 14.2% of respondents of strongly disagree to government schemes are useful.

#### **INFERENCE:**

Majority (50.8%) of the respondents of neutral to government schemes are useful.

**Table 4.1.20 Opportunities for value addition of fish products will improve the livelihood of fishermen**

| Particular        | Frequency | Percentage |
|-------------------|-----------|------------|
| Agree             | 48        | 40.0       |
| Disagree          | 20        | 16.7       |
| Neutral           | 39        | 32.5       |
| Strongly agree    | 8         | 6.7        |
| Strongly disagree | 5         | 4.2        |
| Total             | 120       | 100.0      |



**Chart 4.1.20 Opportunities for value addition of fish products will improve the livelihood of fishermen**

#### **INTERPRETATION:**

From the above table its interpreted that 40.0% of respondents of agree category to value of fish products, 16.7% of respondents of disagree to value of fish products, 32.5% of respondents of neutral to value of fish products, 6.7% of respondents of strongly agree to value of fish products, 4.2% of respondents of strongly disagree to value of fish products.

#### **INFERENCE:**

Majority (40.0%) of the respondents are agree to value of fish products.

## 4.21 CHI SQUARE TEST

**Age of the respondents**

**VS**

**Rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]**

**H<sub>0</sub> (Null hypothesis)** = There is no association between age of respondents and rating given by them towards the government schemes improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

**H<sub>1</sub> (Alternate hypothesis)** = There is a association between age of respondents and rating given by them towards the government schemes for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

### 3. Age \* 17. Rate the schemes by the govt for improvement in the livelihood of fishermen [Cash award to meritorious fishermen students] Crosstabulation

Expected Count

|        |              | 17. Rate the schemes by the govt for improvement in the livelihood of fishermen<br>[Cash award to meritorious fishermen students] |      |      |      |           |       |
|--------|--------------|-----------------------------------------------------------------------------------------------------------------------------------|------|------|------|-----------|-------|
|        |              | Excellent                                                                                                                         | Fair | Good | Poor | Very good | Total |
| 3. Age | 28-38 years  | 6.3                                                                                                                               | 1.9  | 9.6  | .9   | 9.3       | 28.0  |
|        | 38-48 years  | 2.5                                                                                                                               | .7   | 3.8  | .4   | 3.7       | 11.0  |
|        | 48-58 years  | 3.8                                                                                                                               | 1.1  | 5.8  | .6   | 5.7       | 17.0  |
|        | 58 and above | 2.7                                                                                                                               | .8   | 4.1  | .4   | 4.0       | 12.0  |
|        | below 28     | 11.7                                                                                                                              | 3.5  | 17.8 | 1.7  | 17.3      | 52.0  |
| Total  |              | 27.0                                                                                                                              | 8.0  | 41.0 | 4.0  | 40.0      | 120.0 |

## Chi-Square Tests

|                    | Value               | Df | Asymptotic<br>Significance<br>(2-sided) |
|--------------------|---------------------|----|-----------------------------------------|
| Pearson Chi-Square | 36.795 <sup>a</sup> | 16 | .002                                    |
| Likelihood Ratio   | 35.113              | 16 | .004                                    |
| N of Valid Cases   | 120                 |    |                                         |

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .37.

At 5% level of significance and df (16) the table value is 36.795

Calculated value = 0.37

Significance value ( $p=0.005$ ) < calculated value

$H_0$  is accepted.

#### INFERENCE:

The results of the "**Pearson Chi-Square**" say that  $\chi (16) = 36.795$ ,  $p = 0.37$ . This tells us that there is a statistically significant association between age of the respondents and the rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

#### 4.22 ONE WAY ANOVA TEST

##### Age of the respondents VS

**Opportunities for value addition of fish products will improve the livelihood of fishermen in your district**

##### Null Hypothesis:

$H_0$  = There is association between age of the respondents and their opportunities for value addition of fish products will improve the livelihood of fishermen in your district.

##### Alternate Hypothesis:

$H_1$  = There is no association between age of the respondents and their opportunities for value addition of fish products will improve the livelihood of fishermen in your district.

| Descriptives      |     |      |       |      |                                  |             |   |   |
|-------------------|-----|------|-------|------|----------------------------------|-------------|---|---|
| Age               |     |      |       |      |                                  |             |   |   |
|                   |     |      |       |      | 95% Confidence Interval for Mean |             |   |   |
|                   |     |      |       |      | Lower Bound                      | Upper Bound |   |   |
| Agree             | 48  | 3.44 | 1.687 | .244 | 2.95                             | 3.93        | 1 | 5 |
| Disagree          | 20  | 3.40 | 1.501 | .336 | 2.70                             | 4.10        | 1 | 5 |
| Neutral           | 39  | 3.72 | 1.701 | .272 | 3.17                             | 4.27        | 1 | 5 |
| Strongly agree    | 8   | 2.25 | 1.165 | .412 | 1.28                             | 3.22        | 1 | 4 |
| Strongly disagree | 5   | 2.60 | 1.517 | .678 | .72                              | 4.48        | 1 | 4 |
| Total             | 120 | 3.41 | 1.647 | .150 | 3.11                             | 3.71        | 1 | 5 |
| Agree             | 48  | 3.44 | 1.687 | .244 | 2.95                             | 3.93        | 1 | 5 |
| Disagree          | 20  | 3.40 | 1.501 | .336 | 2.70                             | 4.10        | 1 | 5 |
| Neutral           | 39  | 3.72 | 1.701 | .272 | 3.17                             | 4.27        | 1 | 5 |
| Strongly agree    | 8   | 2.25 | 1.165 | .412 | 1.28                             | 3.22        | 1 | 4 |
| Strongly disagree | 5   | 2.60 | 1.517 | .678 | .72                              | 4.48        | 1 | 4 |

| <b>ANOVA</b>   |                |     |             |       |      |
|----------------|----------------|-----|-------------|-------|------|
| Efficient      |                |     |             |       |      |
|                | Sum of Squares | Df  | Mean Square | F     | Sig. |
| Between Groups | 17.782         | 4   | 4.445       | 1.675 | .161 |
| Within Groups  | 305.210        | 115 | 2.654       |       |      |
| Total          | 322.992        | 119 |             |       |      |

#### **INTERPRETATION:**

This is the table that shows the output of the ANOVA analysis and we have a statistically significant difference between our group means. We can see that the significance level is 0.161, which is more than 0.005, therefore, there is a statistically significant relationship between age of the respondents and the opportunities for value addition of fish products will improve the livelihood of fishermen in your district

## CHAPTER V

### 5.1 FINDINGS

- Majority (43.3%) of the respondents are below 28 years of age.
- Majority (54.2%) of the respondents are married people.
- Majority (53.3%) of the respondents are three to five people.
- Majority (45.8%) of the respondents are two to three people.
- Majority (58.3%) of the respondents are working for someone.
- Majority (51.7%) of the No respondents are work for other boats.
- Majority (45.8%) of the respondents are get lobster.
- Majority (53.3%) of the respondents are day and night fishing time period.
- Majority (45.0%) of the respondents are 2000-3000 get value of fish.
- Majority (37.5%) of the respondents are 2-5 lakhs get value of fish.
- Majority (31.7%) of the respondents are 5-10 years of experience.
- Majority (38.3%) of the respondents are 5-10 years of having fisherman ID.
- Majority (60.8%) of the respondents are Not interested.
- Majority (46.7%) of the respondents are interested in crab.
- Majority 81.7% of the respondents have chosen yes for financial ban period
- Majority 56.7% of the respondents have chosen yes for financial lean period
- Majority 68.3% of the respondents have chosen yes for old age pension to fishermen
- Majority 65.8% of the respondents have chosen yes for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation
- Majority 67.5% of the respondents have chosen yes for financial assistance for daughters and son's marriage
- Majority 59.2% of the respondents have chosen yes for cash award to meritorious fishermen students
- Majority 72.5% of the respondents have chosen yes for scholarship for technical education in marine
- Majority 62.5% of the respondents have chosen yes for financial assistance for fisherwomen for maternity
- Majority 62.5% of the respondents have chosen yes for financial assistance for fish farming
- Majority 64.2% of the respondents have chosen yes for subsidy for boats
- Majority 70.8% of the respondents have chosen yes for subsidy for buying engine

- Majority 62.5% of the respondents have chosen yes for entrepreneurship training for fishermen and women to start business in the same field [fishing]
- Majority 65.8% of the respondents have chosen yes for training of fishermen to improve their fishing activities
- Majority 62.5% of the respondents have chosen yes for relief amount to the family natural accidental death of the fishermen
- Majority 71.7% of the respondents have chosen yes for relief amount to the family after the declaration by the government for the missing fishermen in the sea
- Majority 33.3% of the respondents have chosen excellent for financial support for ban period
- Majority 35.8% of the respondents have chosen good for financial support for lean period
- Majority 30.8% of the respondents have chosen good for old age pension to fishermen
- Majority 29.2% of the respondents have chosen good for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation
- Majority 30.8% of the respondents have chosen good for financial assistance for daughters and son's marriage
- Majority 34.2% of the respondents have chosen good for cash award meritorious fishermen students
- Majority 30.0% of the respondents have chosen good for scholarship for higher education
- Majority 35.0% of the respondents have chosen good for financial assistance for fisherwomen for maternity
- Majority 31.7% of the respondents have chosen good for strengthening of fisheries co-operative institutions
- Majority 28.3% of the respondents have chosen good for financial assistance for fish farming
- Majority 27.5% of the respondents have chosen good for subsidy for small boats
- Majority 35.0% of the respondents have chosen good for subsidy for buying engine
- Majority 28.3% of the respondents have chosen excellent for entrepreneurship training for fishermen and women to start business in the same field [fishing]
- Majority 33.3% of the respondents have chosen good for training of fishermen to improve their fishing activities

- Majority 28.3% of the respondents have chosen good for relief amount to the family natural accidental death of the fishermen
- Majority 29.2% of the respondents have chosen good for relief amount to the family after the declaration by the government for the missing fishermen in the sea
- Majority 50.8% of the respondents have chosen often for accidents in the sea
- Majority 64.2% of the respondents have chosen often for missing cases
- Majority 41.7% of the respondents have chosen often for accidental death
- Majority 46.7% of the respondents have chosen often for natural death while fishing
- Majority 49.2% of the respondents have chosen often for loss due to natural calamities.
- Majority 46.7% of the respondents have chosen often for loss due to market fluctuation.
- Majority 45.0% of the respondents have chosen often for loss due to storage issues.
- Majority 45.8% of the respondents have chosen prefer for old age pension to fishermen.
- Majority 40.8% of the respondents have chosen prefer for strengthening of fisheries co-operative institutions.
- Majority 38.3% of the respondents have chosen prefer for financial assistance during fishing ban period.
- Majority 38.8% of the respondents have chosen prefer for development of freshwater aquaculture.
- Majority 34.2% of the respondents have chosen prefer for cash award to meritorious fishermen students.
- Majority 37.5% of the respondents have chosen prefer for training of fishermen
- Majority (50.8%) of the respondents of neutral to government schemes are useful.
- Majority (40.0%) of the respondents are agree to value of fish product.

## **5.2 SUGGESTION**

- To provide life insurance.
- To provide construct a helipad in our district it's highly needed in fisherman society.
- To increase the number of graduates in the fisheries.
- To provide fishing equipment's.
- By introducing new schemes to fishermen which are more beneficial for them.
- Providing boat loans.
- To safe guard the fisherman while going for fishing.

## **5.3 CONCLUSION**

The objective of this paper was to provide a timely and indicative global overview of the fisheries as well as to share examples of good practice and collate suggestions for interventions that may inform and guide the development of mitigation measures. This was achieved through prompt responses to questionnaires distributed to the fishermen's working in Kanyakumari district.

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## QUESTIONNAIRE

1.Name:

2.Marital status

- Married
- Unmarried

3.Age

- Below 28
- 28-38 years
- 38-48 years
- 48-58 years
- 58 and above

4.Total number of people in your family?

- One
- Two to three
- Three to five
- Above five

5.Total number of people earning in your family?

- One
- Two to three
- Three to five
- Above five

6.Could you say what kind of boat you have?

- Own boat
- Working for someone

7.Do you work for other boats?

- Yes
- No
- Sometimes

8.What varieties of fish will you get while fishing?

- Black king fish
- Cuttle
- Giant sea
- Lobster
- Pomfret
- Sea bream
- Barracuda

9.What will be your fishing time period?

- Day
- Day and night
- 15 days once
- 1 month

10.What will be the value of fish you get for day and night fishing for per day?

- Below 2000
- 2000-3000
- 3000-5000
- Above 5000

11.What will be the value of fish you get for monthly fishing?

- 1 lakh
- 2-5 lakhs
- 5-10 lakhs
- Above 10 lakhs

12.How many years you are fishing?

- Less than 5 years
- 5-10 years
- 10-20 years
- 20-25 years
- More than 25 years
-

13. Since how many years you have fisherman ID?

- Less than 5 years
- 5-10 years
- 10-20 years
- 20-25 years
- More than 25 years

14. Are you interested in cage culture training given by fisheries department?

- Yes
- No
- Other

15. Which of the following varieties of cage culture you are interested in?

- Prawn
- Cuttle
- Crab
- Lobster
- Cat fish

16. As a fisherman have you availed the benefits provided for fishermen by National Fisherman Savings Relief Scheme (NS FRS).

List the benefits

| S.no | Schemes                                                                                  | Yes | No |
|------|------------------------------------------------------------------------------------------|-----|----|
| 1.   | Financial support for Ban period                                                         |     |    |
|      | Financial support for Lean period                                                        |     |    |
|      | Old age pension to fishermen                                                             |     |    |
| 4.   | Educational assistance fishermen's children studying from 10 <sup>th</sup> to graduation |     |    |
|      | Financial Assistance for daughter's/son's marriage                                       |     |    |
| 6.   | Cash award to meritorious fishermen students                                             |     |    |

|     |                                                                                                      |  |  |
|-----|------------------------------------------------------------------------------------------------------|--|--|
| 7.  | Scholarship for technical education in marine                                                        |  |  |
| 8.  | Financial assistance for fisherwomen for maternity                                                   |  |  |
| 9.  | Financial Assistance for fish farming                                                                |  |  |
|     | Subsidy for boats                                                                                    |  |  |
| 11  | Subsidy for buying engine                                                                            |  |  |
| 12  | Entrepreneurship training for fishermen/women to start business in the same field (fishing)          |  |  |
| 13  | Training of fishermen to improve their fishing activities.                                           |  |  |
| 14  | Relief amount to the family on the natural / accidental death of the fisherman                       |  |  |
| 15. | Relief amount to the family after the declaration by the govt. for the missing fishermen in the sea. |  |  |

17. Rate the schemes by the govt for improvement in the livelihood of fishermen.

| Schemes                                                                                  | Excellent | Very good | Good | fair | poor |
|------------------------------------------------------------------------------------------|-----------|-----------|------|------|------|
| Financial support for Ban period                                                         |           |           |      |      |      |
| Financial support for Lean period                                                        |           |           |      |      |      |
| Old age pension to fishermen                                                             |           |           |      |      |      |
| Educational assistance fishermen's children studying from 10 <sup>th</sup> to graduation |           |           |      |      |      |
| Financial Assistance for daughter's/son's marriage                                       |           |           |      |      |      |
| Cash award to meritorious fishermen students                                             |           |           |      |      |      |
| Scholarship for higher education                                                         |           |           |      |      |      |
| Financial assistance for fisherwomen for maternity                                       |           |           |      |      |      |
| Strengthening of fisheries co-operative                                                  |           |           |      |      |      |

|                                                                                                      |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| institutions                                                                                         |  |  |  |  |  |
| Financial Assistance for fish farming                                                                |  |  |  |  |  |
| Subsidy for small boats                                                                              |  |  |  |  |  |
| Subsidy for buying engine                                                                            |  |  |  |  |  |
| Entrepreneurship training for fishermen/women to start business in the same field                    |  |  |  |  |  |
| Training of fishermen to improve their fishing activities                                            |  |  |  |  |  |
| Relief amount to the family on the natural / accidental death of the fisherman                       |  |  |  |  |  |
| Relief amount to the family after the declaration by the govt. for the missing fishermen in the sea. |  |  |  |  |  |

18. What are the problems faced while fishing?

| Problems                       | always | often | sometimes | Rarely | Never |
|--------------------------------|--------|-------|-----------|--------|-------|
| Accidents in the sea           |        |       |           |        |       |
| Missing cases                  |        |       |           |        |       |
| Accidental death               |        |       |           |        |       |
| Natural death while fishing    |        |       |           |        |       |
| Loss due to natural calamities |        |       |           |        |       |
| Loss due to market fluctuation |        |       |           |        |       |
| Loss due to storage issues     |        |       |           |        |       |

19. What are the key benefits you prefer which given by the society?

| Particular                                           | Highly prefer | Prefer | Neutral | Not prefer | Highly not prefer |
|------------------------------------------------------|---------------|--------|---------|------------|-------------------|
| Old age pension to fishermen                         |               |        |         |            |                   |
| Strengthening of fisheries co-operative institutions |               |        |         |            |                   |
| Financial Assistance during fishing ban period       |               |        |         |            |                   |
| Development of freshwater                            |               |        |         |            |                   |

|                                                 |  |  |  |  |  |
|-------------------------------------------------|--|--|--|--|--|
| aquaculture                                     |  |  |  |  |  |
| Cash award to meritorious<br>fishermen students |  |  |  |  |  |
| Training of fishermen                           |  |  |  |  |  |

20.Do you agree that the government schemes are extremely useful for the betterment of livelihood of fishermen in your district.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

21.Do you agree that opportunities for value addition of fish products will improve the livelihood of fishermen in your district.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

22.Give your suggestion to improve the fishermen society in our district?

# **STUDY ON FISHERMEN'S PERCEPTION TOWARDS THE GOVERNMENT SCHEMES IN KANYAKUMARI DISTRICT**

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## **ABSTRACT**

Indian marine fisheries have expanded four-fold in the last 50 years in the form of open-access commons. Although studies predict that fish stocks are on the decline there is little evidence that these declines are being countered by changes in either fishing regulations or fishing practices. Fishermen rarely comply with regulations, instead operationalizing and directing the fishery on their own. In these circumstances understanding how fishermen perceive and use resources has significant management and policy implications. Our study examined fishermen's perceptions about the state of fish stocks and documents current fishing practice and management strategies in India. We surveyed 342 fishermen in two states, Tamil Nadu and Maharashtra. We found that 86% of fishermen perceived a decline in catch and 69% perceived a decline in bycatch. Fishermen adapt to these declines by increasing fishing area and time spent, changing their gear, and overlapping in fishing zones. The convoluted interactions between ineffective community and state regulations guiding their actions has prevented fishermen from developing successful models of sustainable fisheries management. We identified non-compliance with regulations and government incentives as an important livelihood opportunity. Non-compliance drives change in fishing practice by giving fishermen the flexibility to respond to perceived fish catch dynamics by modifying their practices. We recommend strengthening local fishing communities by enabling them to enforce fishing regulations locally and by scaling back of existing government incentives, to protect the sustainability of these fisheries.

## INTRODUCTION

During 19th century, the fisheries was the only source of sustenance for a segment of the population living in the coastal region, and on the s banks of rivers, lakes and canals in India. Fishing in general was a hereditary profession carried on from generation to generation with almost all the members of the family taking part in it to varying degree. The socio-economic condition of fishermen was very poor. The fishermen belonged to the lowest stratum of society and fishing was generally regarded as one of the meanest of all trades and profession.

## NEED FOR THE STUDY

- To determine the present role and status of fishermen.
- To identify the factors that influence the status of fishermen.
- To study the fishermen's fishing time period.
- To study the source of benefits for fishermen.
- To study the day today problems faced while fishing by the fishermen.

## OBJECTIVES OF THE STUDY

- To study on challenges faced by fishermen in Kanyakumari district- Post Covid 19.
- To study the life pattern of fishermen in Kanyakumari district.
- To analyses the factors affecting the livelihood of fishermen in Kanyakumari district.
- To analyses the awareness toward the government schemes provided.
- To understand the training needs of fishermen to improve their business.
- To provide suggestions to improve the livelihood of fishermen.

## REVIEW OF LITERATURE

**Jansen et.al (2021)** suggest that during the first wave of the COVID-19 pandemic, parents experienced increased levels of stress, and this stress was associated with the way they interacted with their children around food.

**Venkatesh, S (2011)** This study analyses the livelihoods of marine fishing communities in the Indian coastal state of Orissa using the Sustainable Livelihoods Approach (SLA).

**Kekula, E. (2009)** A livelihoods analysis of coastal fisheries communities in Liberia. The fisheries sector, both marine and inland (including aquaculture), in Liberia, has a significant potential to make substantial contribution to national socio-economic development, economic revitalization and reduction of poverty in the short, medium and long term.

**Swathi.R (2018)** Kerala state in South India has an elongated coastal line of 590 km on the western part of the state sharing the border with Arabian Sea and decorated with world famous beaches.

**Shanmugarajah Srikanthan (2013)** This study analyses the impact of climate change on fishermen livelihood development. Climate change is defined a change in the statistical properties of the climate system in particular region when considered over long periods of time, regardless of cause.

## **RESEARCH METHODOLOGY**

### **SAMPLING TECHNIQUE**

Population describes whole universe of the study. In this study the population is all the livelihood of fishermen. The target respondents for this study are the livelihood of fishermen. Convenient sampling method is adopted to collect samples for questionnaire from respondents.

### **SAMPLE SIZE**

120 samples were collected from the fishermen working (fishing) in Kanyakumari costal region.

### **PERIOD OF STUDY**

The period of study is from December 2020 to February 2021.

### **TOOLS FOR THE STUDY**

The following tests and statistical tools were used for the analysis of the data.

- ✓ Percentage analysis method
- ✓ Chi-square method
- ✓ One Way ANOVA

## PERCENTAGE ANALYSIS

Table 4.1.1 Age of respondents

| Age of Respondents | Frequency | Percentage |
|--------------------|-----------|------------|
| Below 28           | 52        | 43.3       |
| 28-38 years        | 28        | 23.3       |
| 38-48 years        | 11        | 9.2        |
| 48-58 years        | 17        | 14.2       |
| 58 and above       | 12        | 10.0       |
| Total              | 120       | 100.0      |

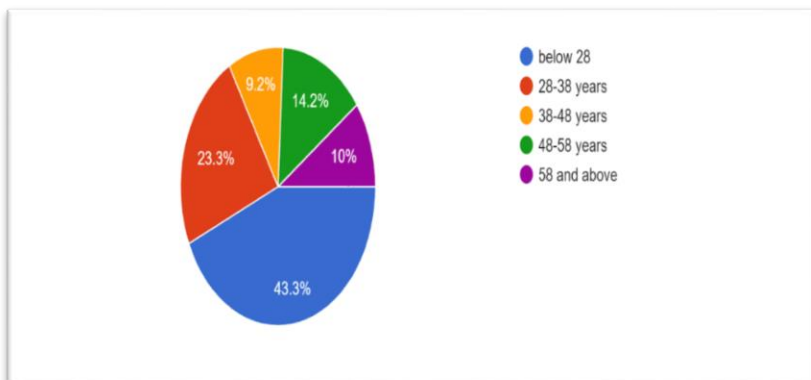


Chart 4.1.1 Age of respondents

### INTERPRETATION:

From the above table its interpreted that the number of respondents below 28 years of age is 43.3%, 28-38 years is 23.3%, 38-48 years is 9.2%, 48-58 years is 14.2%, above 58 years is 10.0%.

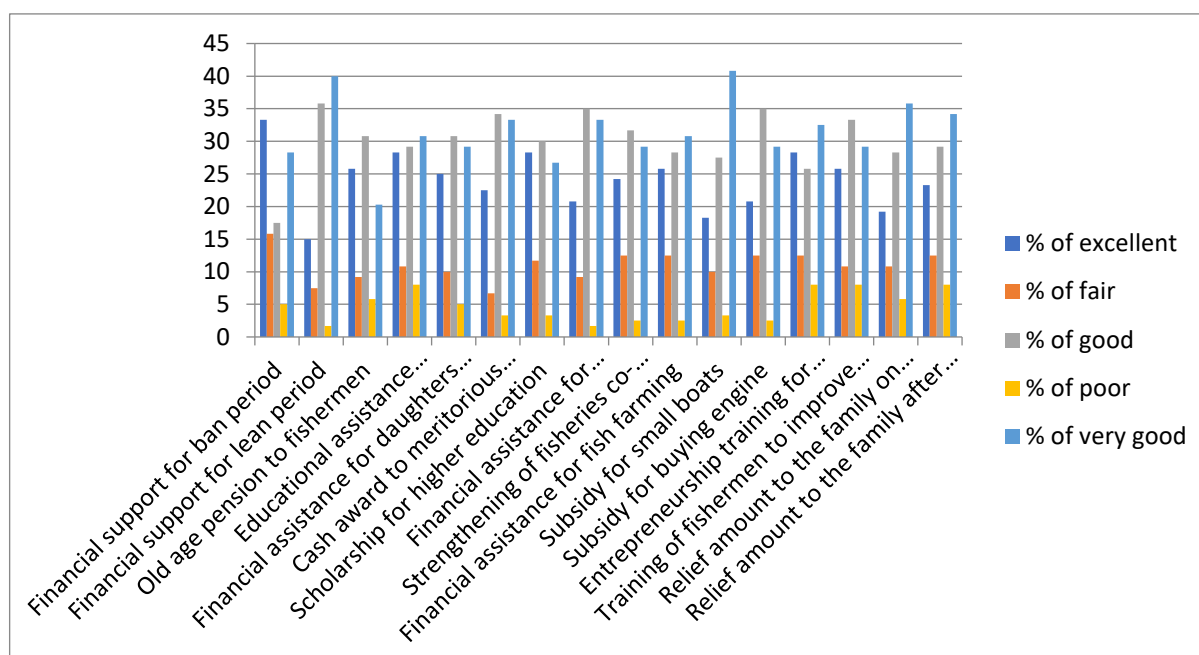
### INFERENCE:

Majority (43.3%) of the respondents are below 28 years of age.

**Table 4.1.16 Government for improvement in the livelihood of fishermen**

| <b>SCHEMES</b>                                                                        | <b>EXCELLENT</b> | <b>%</b> | <b>FAIR</b> | <b>%</b> | <b>GOOD</b> | <b>%</b> | <b>POOR</b> | <b>%</b> | <b>VERY GOOD</b> | <b>%</b> |
|---------------------------------------------------------------------------------------|------------------|----------|-------------|----------|-------------|----------|-------------|----------|------------------|----------|
| Financial support for ban period                                                      | 40               | 33.3     | 19          | 15.8     | 21          | 17.5     | 6           | 5.0      | 34               | 28.3     |
| Financial support for lean period                                                     | 18               | 15.0     | 9           | 7.5      | 43          | 35.8     | 2           | 1.7      | 48               | 40.0     |
| Old age pension to fishermen                                                          | 31               | 25.8     | 11          | 9.2      | 37          | 30.8     | 7           | 5.8      | 34               | 20.3     |
| Educational assistance fishermen's children studying from 10 the to graduation        | 34               | 28.3     | 13          | 10.8     | 35          | 29.2     | 1           | 8        | 37               | 30.8     |
| Financial assistance for daughters and sons marriage                                  | 30               | 25.0     | 12          | 10.0     | 37          | 30.8     | 6           | 5.0      | 35               | 29.2     |
| Cash award to meritorious fishermen students                                          | 27               | 22.5     | 8           | 6.7      | 41          | 34.2     | 4           | 3.3      | 40               | 33.3     |
| Scholarship for higher education                                                      | 34               | 28.3     | 14          | 11.7     | 36          | 30.0     | 4           | 3.3      | 32               | 26.7     |
| Financial assistance for fisherwomen for maternity                                    | 25               | 20.8     | 11          | 9.2      | 42          | 35.0     | 2           | 1.7      | 40               | 33.3     |
| Strengthening of fisheries co-operative institutions                                  | 29               | 24.2     | 15          | 12.5     | 38          | 31.7     | 3           | 2.5      | 35               | 29.2     |
| Financial assistance for fish farming                                                 | 31               | 25.8     | 15          | 12.5     | 34          | 28.3     | 3           | 2.5      | 37               | 30.8     |
| Subsidy for small boats                                                               | 22               | 18.3     | 12          | 10.0     | 33          | 27.5     | 4           | 3.3      | 49               | 40.8     |
| Subsidy for buying engine                                                             | 25               | 20.8     | 15          | 12.5     | 42          | 35.0     | 3           | 2.5      | 35               | 29.2     |
| Entrepreneurship training for fishermen and women to start business in the same field | 34               | 28.3     | 15          | 12.5     | 31          | 25.8     | 1           | 8        | 39               | 32.5     |
| Training of fishermen to improve their fishing activities                             | 31               | 25.8     | 13          | 10.8     | 40          | 33.3     | 1           | 8        | 35               | 29.2     |
| Relief amount to the family on the natural accidental death of the fisherman          | 23               | 19.2     | 13          | 10.8     | 34          | 28.3     | 7           | 5.8      | 43               | 35.8     |
| Relief amount to the family after the declaration by the                              | 28               | 23.3     | 15          | 12.5     | 35          | 29.2     | 1           | 8        | 41               | 34.2     |

|                                                 |  |  |  |  |  |  |  |  |  |  |
|-------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| government for the missing fishermen in the sea |  |  |  |  |  |  |  |  |  |  |
|-------------------------------------------------|--|--|--|--|--|--|--|--|--|--|



**Chart 4.1.16 Government for improvement in the livelihood of fishermen**

#### INTERPRETATION:

- From the above table its interpreted that 33.3% of the respondents have chosen excellent, 15.8% have chosen for fair, 17.5% have chosen good, 5.0% have chosen very good for financial support for ban period.
- From the above table its interpreted that 15.0% of the respondents have chosen excellent, 7.5% have chosen for fair, 35.8% have chosen good, 1.7% have chosen very good for financial support for lean period.
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 9.2% have chosen for fair, 30.8% have chosen good, 5.8% have chosen very good for old age pension to fishermen.
- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 10.8% have chosen for fair, 29.2% have chosen good, 0.8% have chosen very good for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.
- From the above table its interpreted that 25.0% of the respondents have chosen excellent, 10.0% have chosen for fair, 30.8% have chosen good, 5.0% have chosen very good for financial assistance for daughters and son's marriage.
- From the above table its interpreted that 22.5% of the respondents have chosen excellent, 6.7% have chosen for fair, 34.2% have chosen good, 3.3% have chosen very good for cash award meritorious fishermen students.

- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 11.7% have chosen for fair, 30.0% have chosen good, 3.3% have chosen very good for scholarship for higher education.
- From the above table its interpreted that 20.8% of the respondents have chosen excellent, 9.2% have chosen for fair, 35.0% have chosen good, 1.7% have chosen very good for financial assistance for fisherwomen for maternity.
- From the above table its interpreted that 24.2% of the respondents have chosen excellent, 12.5% have chosen for fair, 31.7% have chosen good, 2.5% have chosen very good for strengthening of fisheries co-operative institutions.
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 12.5% have chosen for fair, 28.3% have chosen good, 2.5% have chosen very good for financial assistance for fish farming.
- From the above table its interpreted that 18.3% of the respondents have chosen excellent, 10.0% have chosen for fair, 27.5% have chosen good, 3.3% have chosen very good for subsidy for small boats.
- From the above table its interpreted that 20.8% of the respondents have chosen excellent, 12.5% have chosen for fair, 35.0% have chosen good, 2.5% have chosen very good for subsidy for buying engine.
- From the above table its interpreted that 28.3% of the respondents have chosen excellent, 12.5% have chosen for fair, 25.8% have chosen good, 0.8% have chosen very good for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- From the above table its interpreted that 25.8% of the respondents have chosen excellent, 10.8% have chosen for fair, 33.3% have chosen good, 0.8% have chosen very good for training of fishermen to improve their fishing activities.
- From the above table its interpreted that 19.2% of the respondents have chosen excellent, 10.8% have chosen for fair, 28.3% have chosen good, 5.8% have chosen very good for relief amount to the family natural accidental death of the fishermen.
- From the above table its interpreted that 23.3% of the respondents have chosen excellent, 12.5% have chosen for fair, 29.2% have chosen good, 0.8% have chosen very good for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

## **INFERENCE:**

- Majority 33.3% of the respondents have chosen excellent for financial support for ban period.
- Majority 35.8% of the respondents have chosen good for financial support for lean period.
- Majority 30.8% of the respondents have chosen good for old age pension to fishermen.
- Majority 29.2% of the respondents have chosen good for educational assistance fishermen's children studying from 10<sup>th</sup> to graduation.

- Majority 30.8% of the respondents have chosen good for financial assistance for daughters and son's marriage.
- Majority 34.2% of the respondents have chosen good for cash award meritorious fishermen students.
- Majority 30.0% of the respondents have chosen good for scholarship for higher education.
- Majority 35.0% of the respondents have chosen good for financial assistance for fisherwomen for maternity.
- Majority 31.7% of the respondents have chosen good for strengthening of fisheries co-operative institutions.
- Majority 28.3% of the respondents have chosen good for financial assistance for fish farming.
- Majority 27.5% of the respondents have chosen good for subsidy for small boats.
- Majority 35.0% of the respondents have chosen good for subsidy for buying engine.
- Majority 28.3% of the respondents have chosen excellent for entrepreneurship training for fishermen and women to start business in the same field [fishing].
- Majority 33.3% of the respondents have chosen good for training of fishermen to improve their fishing activities.
- Majority 28.3% of the respondents have chosen good for relief amount to the family natural accidental death of the fishermen.
- Majority 29.2% of the respondents have chosen good for relief amount to the family after the declaration by the government for the missing fishermen in the sea.

## CHI SQUARE TEST

**Age of the respondents  
VS**

**Rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]**

**H<sub>0</sub> (Null hypothesis)** = There is no significant relationship between age of the respondents and the rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

**H<sub>1</sub> (Alternate hypothesis)** = There is a significant relationship between age of the respondents and the rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

### 3. Age \* 17. Rate the schemes by the govt for improvement in the livelihood of fishermen [Cash award to meritorious fishermen students] Crosstabulation

Expected Count

|        |              | 17. Rate the schemes by the govt for improvement in the livelihood of fishermen<br>[Cash award to meritorious fishermen students] |      |      |      |           |       |
|--------|--------------|-----------------------------------------------------------------------------------------------------------------------------------|------|------|------|-----------|-------|
|        |              | Excellent                                                                                                                         | Fair | Good | Poor | Very good | Total |
| 3. Age | 28-38 years  | 6.3                                                                                                                               | 1.9  | 9.6  | .9   | 9.3       | 28.0  |
|        | 38-48 years  | 2.5                                                                                                                               | .7   | 3.8  | .4   | 3.7       | 11.0  |
|        | 48-58 years  | 3.8                                                                                                                               | 1.1  | 5.8  | .6   | 5.7       | 17.0  |
|        | 58 and above | 2.7                                                                                                                               | .8   | 4.1  | .4   | 4.0       | 12.0  |
|        | below 28     | 11.7                                                                                                                              | 3.5  | 17.8 | 1.7  | 17.3      | 52.0  |
| Total  |              | 27.0                                                                                                                              | 8.0  | 41.0 | 4.0  | 40.0      | 120.0 |

### Chi-Square Tests

|                  |            | Value               | Df | Asymptotic<br>Significance<br>(2-sided) |
|------------------|------------|---------------------|----|-----------------------------------------|
| Pearson          | Chi-Square | 36.795 <sup>a</sup> | 16 | .002                                    |
| Likelihood Ratio |            | 35.113              | 16 | .004                                    |
| N of Valid Cases |            | 120                 |    |                                         |

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .37.

At 5% level of significance and df (16) the table value is 36.795

Calculated value = 0.37

Significance value ( $p=0.005$ ) < calculated value

$H_0$  is accepted.

### INFERENCE:

The results of the "Pearson Chi-Square" say that  $\chi^2(16) = 36.795$ ,  $p = 0.37$ . This tells us that there is a statistically significant association between age of the respondents and the rate the schemes by the government for improvement in the livelihood of fishermen [cash award to meritorious fishermen students]

### SUGGESTION

- To provide life insurance.
- To provide construct a helipad in our district it's highly needed in fisherman society.
- To increase the number of graduates in the fisheries.
- To provide fishing equipment's.

- By introducing new schemes to fishermen which are more beneficial for them.
- Providing boat loans.
- To safe guard the fisherman while going for fishing.

## CONCLUSION

The objective of this paper was to provide a timely and indicative global overview of the impacts of covid-19 on fisheries as well as to share examples of good practice and collate suggestions for interventions that may inform and guide the development of mitigation measures. This was achieved through prompt responses to questionnaires distributed to the fishermen's working in Kanyakumari district.

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