Chapter One
The antiquity of fisheries management is traced back to the primitive man who strained his energy to capture fish with barely no equipment. The ancient Hindu scriptures like the epics, puranas and shastras mention about the fish stock and its protection. Kautilyas Arthasastra written between 321 and 300 BC refers to fishing operations, fish eating habits of the population and the governance of the fishery. The Iron Pillar Edicts of emperor Ashoka the great dating back to 246 BC are reported to contain rules barring the killing of fish during certain phases of the moon. The Chinese are considered to be pioneers in the field of fish culture and its management, its history extending back to 1766 BC. The ancient Romans had their fish ponds and fabulous sums were spent on their upkeep. In European countries in the middle ages, every monastery and every manor had its own fish pond. In Central and Southern Europe large farms and estates and even hotel gardens still retained their fish ponds. In Germany fish culture is practiced on a very large scale and farms are run on commercial basis. Some of these fish farms may be as much as six or seven thousand acres in extent. In Austria a derelict canal bed is used by the largest establishment for its ponds. In Italy the controlled waters of an eel farm are many miles in length.
Fisheries Management

Fisheries management in the modern context had its origin in Europe. Earlier the fisheries management was mainly a matter of restrictive regulations introduced to minimize the harmful effects of too much of the wrong kind of fishing. C.L. Dawson points out, historically fishery management has focused primarily on the biological aspects of the fisheries and concerned primarily with the protection and conservation of fish stocks. Dawson further states that if fisheries are to make their fullest contribution to society social, economic, political and environmental factors must be incorporated into the management process. Greater consideration of the people involved in or affected by the fishery from boat builders and fishermen to fish merchants and consumers is necessary Gulland has given a wider connotation to the fisheries management. He contends that fishery management may be considered as any control or adjustment of fishing operations to optimize the use of natural resource. This includes not only restrictive measures like closed seasons associated with management in the narrower sense, but also development plans and activities that take into the limitations set by the resources. A R Taussing perceives management in the fisheries concerns governmental actions deliberately taken to influence (i) the physical yields from wild fish stocks (ii) their economic yields and (iii) the distribution of these yields for some years among persons, groups or nations.
T Panayotu comprehends fishery management as the pursuit of certain objectives through the direct and indirect control of effective fishing effort or some of its components and fishery development as the expansion of effective effort through a set of assistance programmes again for the purpose of attaining certain objectives. D L Alversion and G J Paulik maintained that fisheries management includes everything done to maintain or improve fisheries resources and their utilization. J C Marr has distinguished fisheries management from fisheries development. He perceives fisheries development as utilization of fishery resources to meet the objectives of the government concerned while management is the organization of the course of development to meet the socio-economic objectives of resource utilization policy of government and to deal with allocation of common use resources.

**Potentials and Problems Of Fisheries**

Huge potentials exist for both production and marketing of India's fisheries industry. Lack of adequate exploitation of the marine resources for the huge domestic and export markets has been the major problem area at national as well as regional levels. With the declaration of Exclusive Economic Zone in 1977 the area available for India's marine fisheries has gone up to 2.02 million sq. km. on the east and west coast and around the Andaman and Nicobar Islands. The harvestable potential of marine fisheries resources in the EEZ has been estimated at about 3.921 million tonnes.
While inshore waters have been largely exploited to the sustainable levels, the contribution from deep sea has been insignificant. The current annual fish production is estimated at 6.180 million tones from marine sector as against a potential of 3.934 mt, and 3.20 mt from inland sector against a potential of 4.5 mt. The growth of marine fisheries is slow at 2.19 percent during 1991-92 to 1999-2000 compared to inland fisheries at 6.55 percent.

Presently only 25 percent of production is by the artisanal sector and 74 percent is from small motorized boats and only one percent is from deep sea fishing vessels. Fishing effort is currently concentrated in the 0 to 80-90 m depth zone. Approximately 99 percent of the landings are obtained from this zone.

The open access nature of marine capture fisheries is one of the major reasons for depletion, economic waste and conflict among user groups.

Post harvest infrastructure and marketing are the major weakness in our fisheries trade. Inadequate storage, preservation and prompt disposal or transport services have been major marketing problems of fisheries. The consequence of these problems is the high level of wastage in the fishery due to spoilage. This is particularly acute during monsoon when upto 30 percent of the catch would be lost. There is need for strengthening post harvest infrastructure such as storage facilities, ice plant, cold chains, roads and transportation etc. Effective marketing is another important imperative.
Inadequate harbour management is another problem area in the fisheries management. The hygiene and sanitation conditions are poor at harbour centres.

Statement Of The Problem And Need For The Study

The focus of the government policies and the fisheries export organization has been on the development and more and more exploitation of the resources. Management and marketing aspects in the fisheries sector have not received the necessary attention with the result that the potential markets for Indian seafood have remained unexploited largely. Greater market potentials exist in the US and Europe. The US market alone is worth $ 10 billion and India has potential to step up exports and emerge as a big player. India has the potential capacity to meet world demand for fisheries. It can produce what the global market needs: ready to eat, easy to use, and attractively packed consumer product. Exporters need to explore, exploit and penetrate new markets.

There is an urgent need for value addition to our exports of fisheries. At present the bulk of Indian supplies consists of block frozen materials that are used for processing into consumer products at the importing end. Here after the focus should be on shipping value added products to all major markets including Europe.

Fishermen in the study area are poor and lack marketing infrastructure. They do not have adequate storage facilities and lack knowledge of grading and processing. Their weak financial position compels them to sell their catch
almost immediately to the agents from whom they obtain money in advance. Fishermen's share in the consumers' rupee is very small because of their marketing incompetence and inadequate post harvest infrastructure. The present study is undertaken to assess the magnitude of the marketing inadequacies of the fisheries trade on the coastal areas of the Uttara Kannada District of Karnataka state and to formulate suitable policies for development of fisheries in the area.

Hence the problem of the research is;

"Marketing Strategies for Fisheries Development In Coastal Karnataka- A Case study of Karwar Coastal Belt"

**Scope Of The Study**

The study covers the major areas of marketing of fisheries in the study area viz collection of fisheries assembling and storage, processing and grading, packaging, channels of distribution, transport, marketing finance and marketing cost, pricing and exporting, the role of fisheries cooperative marketing societies and the role of intermediaries etc. The study is based on primary and secondary data. Primary data is collected through well structured questionnaire schedules addressed to fishermen, intermediaries and the fisheries cooperative societies. Secondary data is collected from various publications on the subject.

A comprehensive review of existing literature is done to provide the researcher a good insight into the issue of fisheries production and marketing
Objectives of the study

The research study is conducted with the following objectives.

1. To study the present marketing system of the fisheries industry in the coastal areas of Uttara Kannada District.

2. To examine the institutional network operating in the marketing organization of fisheries in the area.

3. To identify the socio-economic background of the fishermen and their involvement in production and marketing of fisheries.

4. To study the present dimensions of infrastructure available for the fisheries industry in the study area.

5. To identify the problems in the various functional areas of marketing of fisheries such as assembling, storage and warehousing, processing, grading, branding, insurance, transporting and sales organization etc.

6. To identify and assess the role of intermediaries in the marketing of fisheries.

7. To assess the market and export potentials of the fisheries in the study area.

8. To estimate the marketing costs and marketing finance of the fisheries in the study area.

9. To suggest suitable measures for improving the marketing efficiency of fisheries industry.
Hypotheses

The following hypothesis have been tested by the research study

1. Cooperative marketing of fisheries has been a success in the study area.
2. High cost of marketing infrastructure of fisheries has resulted in limiting the role of intermediaries in the marketing operations.
3. Fishermen in the study area have been the price takers due to their financial weakness and lack of infrastructure.
4. The post harvest marketing infrastructure for the fisheries trade in the study area is not adequate.
5. Majority of fishermen did not depend on outside sources of finance for meeting their marketing cost.
6. Fisheries cooperative societies did not resort to credit sales of the fish.

Limitations Of The Study

Some physical and technical difficulties are encountered in every research work thereby limiting the coverage of study or limiting the time period. Limitations may also arise due to inadequacies of statistical data from the respondents end. The present study has been carried out with the following limitations.

1. The data collected relates to a time period of only 5 years due to nonavailability of the required data from the relevant sources.
2. The area of fishing is limited to cover only selected locations due to feasibility problem.

3. The data collected from fishermen is subject to their personal memory as they do not maintain proper records of their operations. Accuracy of data provided by them is subject to corrections.

**Methodology Of Data Collection**

The present study is an empirical survey. The data is collected both from primary and secondary sources. Primary data was collected from fishermen, intermediaries and fisheries cooperative societies. Secondary data was collected from publications of government and non-government sources. Personal discussions were also held with fishermen, intermediaries, officials of fisheries cooperative societies, government and other officials connected directly or indirectly with the fisheries trade.

**Selection Of The Area**

The coastal talukas of Karwar, Ankola, Kumta, Honavar and Bhatkal of Uttara Kannada district constitute the study area of the present research work. The fishing towns on the coast line of these talukas were selected for obtaining the responses of the selected fishermen. The coastal area of Uttara Kannada district is one of the three districts areas along with the coastal areas of Udupi and Mangalore on the westcoast of Karnataka. The selected towns for an intensive study of fisheries are important centers of the fishing industry in the
Uttara Kannada district. Each of selected centres have been provided with the necessary port facilities for fishing vessels and other infrastructure.

**Selection Of The Fishermen**

A total number of 831 fishermen have been selected for personal interview. The selection of the fishermen at each centre has been made on a random sample basis taking 5 percent of the total in each category. The fishermen were approached personally and data on various aspects of marketing their fish collection was obtained as per the pretested questionnaire schedules.

**Data Base**

The data has been collected from both primary and secondary sources.

Primary data has been collected from

(i) Fishermen selected for personal interviews

(ii) Intermediaries operating in the areas covered by the study

(iii) Fisheries Cooperative Marketing Societies operating in the study area.

Primary data has been collected through personal interviews with the above respondents as per the pretested questionnaire schedules prepared separately for the above three type of respondents. In addition to the data collected as per questionnaire personal discussions were also held with others related to the fisheries industries and their views have been recorded separately.

Secondary data has been collected from the following sources
Data Analysis

The primary and secondary data collected from the relevant sources have been compiled and tabulated in well structured statistical tables. The data in the statistical tables have been interpreted accordingly and appropriate inferences have been derived to arrive at useful conclusions. Simple statistical tools like averages, percentages and ratios have been used for arriving at conclusions useful for the study. Growth trends and other statistical tools have been used wherever necessary and useful for the study. Graphical representations have been provided with regard to some parameters to highlight their significance.
Review Of Literature

A good number of studies have been made on the production aspects of marine fisheries in the country and elsewhere. However, literature on marketing aspect of fisheries is scanty and inadequate. Some of the available studies on different aspects of fisheries have been reviewed here. The reviews have given a good insight into the fisheries industry and trade.

Ramakrishnam Korakandy 9

In his work on Economics of Fisheries Management "A critique in Third World Perspective", Dr. Korakandy has made an attempt to review, classify and discuss the theory and practice of fisheries management on a global basis with a special emphasis on the third world perspective. Beginning with an introduction and progressing through a delineation of the various theories, objectives, techniques and criteria of fisheries management and management institutions the book finds an element of contemplation on the part of the developed countries and their protégé international organizations to manipulate the management theory, institutions and practices to suit the interest of developed world. The book has kept a critical watch on this aspect of fisheries management theory as propagated by the FAO and its coterie international organizations and the third world of its consequences.

Mahesh V Joshi 10

' Economics Of Fisheries ' by Mahesh V Joshi is an attempt to throw light on the different aspects of fisheries industry in Saurashtra region of
Gujarat state. The author has made a good study on various aspects of production and marketing of fisheries in the areas of his study. He has explained in detail the wide channels of distribution and the intermediaries in the marketing of fisheries. The examination of this aspect of marketing is very revealing. Mr. Joshi has observed that the channel of intermediaries between fishermen and consumers is much wider resulting in a lower share of fishermen in the consumers' rupee accounting for a bare 10 to 15 percent. The author's study of 200 fishermen has revealed that the cold storage facilities are inadequate and they are forced to sell their fish immediately after the catch due to inadequate cold storage. The inadequate market information of the fishermen on demand, price and quality etc has also been revealed by Mr. Joshi's study. The author has strongly pleaded for cooperative marketing of fisheries for solving the problems of fishermen.

U. K. Shrivastava, M. Dharmareddy, B. Subramanayam and V. K. Gupta

The authors in their work "Management of Marine Fishing Industry" have studied the impact of mechanization on small fishermen. They have divided their study into two periods, viz pre-mechanisation (1956-69) and post mechanization (1970-81) periods. The authors have concluded that despite the mechanisation of small shrimp trawlers after the mid-sixties the growth rate of fish production has decelerated during the post mechanisation period. The total fishing efforts during the 1970-71 increased at the rate of 4.58 percent per annum. The actual fish production has increased at the rate of 2.32 percent per
annum during this period, increase in productivity per unit effort accounted for over 400 percent of the fish production. The authors observed that there was a marked deceleration in the growth rate of productivity. The authors have further observed that the states showing a higher growth rate of fish production during the post mechanisation period are the ones where the level of mechanisation is low.

Frederick W. Bell

The author in his work; "Food from the sea: The Economics and Politics of ocean Fisheries" has indicated the higher level of fish consumption and greater demand for the same in developed countries. He observes "...the major fish consumers are affluent not developing countries ....the per capita distribution of the major fishery products does not provide the developing countries with fish protein. What fish protein they are able to get is largely through labour intensive (i.e. small vessels or boats with large crew) coastal and fresh water fishing. He further observes that if anything the fishery resources of the world may be analogous to the oil situation: the flow is from developing to developed countries. The international markets are competitive for fishery products... indicate....the flow of a valuable fishery resources to countries with the ability to pay. The author says although the United States is more than self sufficient in food, its citizens are willing to pay the price for the massive fish imports that now supply around 75 percent of domestic
consumption. The fishery resources of the sea are polarizing the nations of the world into those that have abundant food and those that do not.

**Kurien and Mathew** 13

In their study on "Technological change in Fishing - Its Impact on Fishermen" have analysed the impact of technological change in fishing. The authors have concluded that there are wide regional variations in the species - mix of the marine resource in the country. Observing that the nutritive value of all species of fish are almost the same the authors have concluded that there are different type of market demand and prices for various species. They have concluded that there is direct impact of mechanisation on fish production in quantitative as well as qualitative nature.

**Richard Pollnac** 14

Pollnac in his study "Socio-Cultural Aspects of Technological and Institutional Change Among Small Scale Fishermen" has offered a concise study of the peculiarities of fishing communities and their relevance of development design. He has identified social and cultural characteristics which are rooted in fishermen mode of production. He examined the issue of incremental income distribution in small scale fishing communities. The author contends that frequently only wealthy fishermen or others who are already well off, can afford the costly new technology to increase production. He opines that this new technology gives them a further advantage over the poorer fishermen. The author has examined the trade offs between increased technological
efficiency and adverse social effects such as unemployment and greater social dissatisfaction. He has stressed the role of cooperatives in fishery development projects.

Paul Alexander  

Paul Alexander has studied the economics of mechanisation of fisheries of Sri Lanka in his work 'Introduction in a Cultural Vacuum: The Mechanisation of Sri Lanka Fisheries'. He contends that the adoption of new fishing technology is far costly and hence the government has to introduce a hire purchase scheme. The author has maintained that the amount of loan obtained by the fishermen is not sufficient and therefore fishermen had to go to the private moneylenders for additional funds. During off season the repayment of loans may exceed income of the fishermen. Further the author has maintained that the fishing boats were allocated only to experienced deep sea fishermen.

FAO  

The Expert Consultation Report noted “upto now fisheries development” has stressed the aspect of increasing production and tended to ignore the more global approach of national development — the Report defined fisheries development as a constant improvement of the well being of the entire population on the basis of their full participation in the process of this development and a fair distribution of the benefits deriving from them. The Report further maintains that fisheries planning and management are essential to achieve such desirable ends. Fisheries planning entails the definition of
objectives, the setting up of priorities, the selection of strategies and the allocation of financial resources. Fisheries management on the other hand deals with the tools needed to achieve and maintain the planned goals by paying special attention to the fishery resource itself. Taken together they form the twin components of fisheries development.

RPB Devies and K. Sakamoto

The authors have summarized 'Report of the First Open World Conference on Cooperative Fisheries' They have concluded that cooperatives were the agencies best suited for fisheries development and the aid to fishermen should be channeled through cooperative organization.

Udhis Narkeswasdi

Narkeshwasdi has evaluated Kaula Linggi Fishermen's Cooperative Credit and Marketing Society of Kaula Lumpur. The author has observed that in one fishery development project in Malaysia for example, the source of credit for the fishermen was a Government sponsored cooperative. Many of the fishermen in the region reasoned that it is duty of the government to help them. However the loan is just like subsidy or charity and did not have to be repaid. As a result of the fishermen's approach neither the loans nor the equipment provided were treated as a scare resource and the project encountered serious difficulties.
Platten, Jean and Phillippe

The authors have studied the technology, credit and indebtedness in marine fishing in relation to three fishing villages in Kerala. The study has tried to throw light on changes of fishing work and dynamics of change to which they were possibly subjected.

Subbarao N.

In his work 'Economics of Fisheries' subbarao has studied mechanisation and marine fisheries in the context of Vishakhapatnam. The author has made comparative study of mechanical and traditional boats. He has examined the effect of mechanisation on fish production and also on socio-economic condition of fishermen. Subbarao has explained the merits as well as the negative effects of mechanisation.

Vedapalli Satyanarayana

The author in his book "Fish Culture" has examined in detail a comprehensive inland fish farming. He has provided detailed analysis of the history of pisciculture and its importance in the Indian context. He has examined the nutritional value of fish and the importance of planning and development of pisciculture. The narration of different class of fish and their identification is very informative. The details of construction of fish ponds, sources of water supply viz tanks, canals, ponds, wells, paddy fields etc. He has also explained the type of fish foods and methods of increasing productivity etc. The author has also examined the different aspects of
marketing of fish such as storage, and transportation etc. The book is a good reference work on inland fisheries.

S L Shanubag and S M Shivaprakash 22

The authors in their book 'Matsya Vignana' (edited) have provided a comprehensive details of the varied aspects of fisheries. The details relate to such aspects as the body structure of the fish, fish varieties of Karnataka, inland fisheries, marine fisheries, fisheries equipments fish production and productivity, fish food and fish diseases, canning of fish, different type of sea food, the development of fisheries on the Karnataka coastal areas, and the problems and prospects of fisheries industry. The authors have examined the various aspects of fisheries industry in a very comprehensive way. This is a very good reference work based on research studies conducted by individual researchers of the fisheries college of the University of Agricultural Sciences at Mangalore.

K. Venkiteswaran 23

The author in his work "Seafood – Thrust On Value Addition" has suggested that with a major perceived shift in consumer preference from red meat to white meat marine products will be in great demand. One of the major thrust of the authors argument is in favour of seeking out newer markets in view of the shrinking traditional market like Japan for our sea food exports. Another plea of the author is for value addition to our seafood exports and broad basing of aquaculture. The author has stressed quality as the key
mantra for the export community in view of the stringent quality control in importing countries especially in the European Union.

The author has referred to the policy of Marine Products Export Development Authority towards the reduction of over dependence on a single market and to focus attention on broad basing of export products of fisheries such as squid, cuttle fish and fin fish. The MPEDA is stressing the need for extending the market for India's seafood exports to USA, EU and South East Asia etc. The author has emphasized the rapid expansion of production through shrimp farming and introduction of resource specific vessels to increase marine fish landings. The industry is competent to produce what the global market needs: ready to eat, easy to use and attractively packed consumer products. This potential according to the author should be fully exploited and exporters should explore, exploit and penetrate new markets. Quoting the MPEDA the author says that the US market itself is worth $ 10 billion.

Presently the bulk of Indian supplies consists of block frozen materials that are used for processing into consumer products at the importing end. The author maintains that here after the focus will be on shipping value added products to all major markets including Europe.

Y.S.Yadava 24

The author in his paper 'Exploiting Deep-sea Avenue' has maintained that the major fishing activities in India are still concentrated in the areas within
0 to 70-80 meter depth zone. He has observed that as compared to the west coast concentration of traditional craft (including motorized) is more on the east coast (about 57 percent of the total). In the case of mechanized vessels the trend is reverse. The scale of mechanisation is also reflected in the total fish landings of the two coasts.

Dr Yadava maintains that in India while inshore waters have been almost exploited to the sustainable levels the contribution from deep sea has been insignificant. The author has observed that Penaeid shrimps which dominate export front are at their optimum exploitation levels, whereas tuna and cephalopods are the two least exploited fisheries owing to limited operational range of majority of the present fishing fleet and also lack of suitable technology.

The catches and earnings of fisher folk have been declining. Open access nature of marine capture fisheries is one of the reasons for depletion, economic waste and conflict among user groups. The author has stressed the need for adequate control over access. He has suggested for encouraging small travelers to diversify into fishing activities that can be practiced further offshore in order to reduce over crowding in inshore waters and reduce pressure on the fish stocks.

Mr Yadava has opined that of the many options to harness the deep sea fishery resources diversification of the existing deep sea fishing fleet and introduction of resource specific vessels for long lining purse seining and squid
jigging is absolutely necessary in the present circumstances. The author has suggested that it is necessary to strengthen post harvest infrastructure such as storage facilities, ice plants, cold chains, roads and transportation etc as well as effective marketing system in identified areas.

Mr. Yadava has mentioned that to sustain Indian fisheries in the third millennium, the quality technical skills and management of fisheries manpower will have to improve in consonance with the rapidly changing needs of our society both nationally and internationally.

S. Ayyappan and R S Biradar

The authors have asserted that by raising productivity and quality of fish produce to international standards surges in imports can be reduced. In their paper 'Enhancing Global Competition Ayyappan and Biradar have observed that structure of fish production in India has undergone drastic changes. During the seventies and eighties the share of inland fisheries was just above one third of the total and gradually increased to reach 40 percent to 1990-91 and about 50 percent in 2000-2001. The changes were due to deceleration in growth of marine fish production and a policy shift in favour of land fisheries especially aquaculture.

The authors have pleaded for reduction of production costs, raising the productivity and quality of fish produce to international standards besides reducing post harvest losses. These measures would enhance the competitiveness in the global market. This would also help in increasing
exports and to ensure affordable food to our households. Ayyappan and Biradar have pleaded for encouraging export of processed and high value fish products. Diversification of export product range as well as exploration of new markets should get priority. A favourable support mechanism including marketing intelligence harmonization of quality standards, simplification of export procedures, export incentives through infrastructure development are required to be taken periodically.

R. K. Jana and R. K. Sena

The authors in their paper 'Overwhelming Growth' have maintained that with the present production of over 6.1 million tonnes of finfish and shellfish from capture fisheries and aquaculture, Indian fisheries has made a long leap of over eight fold increase in the last five decades not only contributing immensely to the animal protein deficit of the country but also playing an important role in global trade.

The authors maintained that considering the increasing gap of demand and supply of fish and stagnation of production from sea and inland open water resources the inland fisheries development in India must depend mainly on aquaculture and culture based fisheries in reservoirs and flood plain wet lands. They further maintain that culture based fisheries through proper species and stock enhancement approaches need to be brought into action for harnessing the potential of these water bodies in coming years. Increasing fish production
from fresh water aquaculture in the country requires both horizontal and vertical growth as key strategies.

The authors have suggested that strengthening of the marketing structure including storage facilities, ice plants, cold chains, roads and transportation in identified aquaculture areas would ensure higher profit margins to the producers enabling faster aquaculture development.

C. L. Yap 27

The author has studied impact of trawling on employment in the context of west coast of Peninsula Malaysia. He concluded that improved technology brought about a reduction in the greater size and significant unemployment among fishermen who had no alternative occupations.

Kathleen Norr and James L. Norr 28

In their work on "Environmental and Technical Factors Influencing Power in Work Organisation : Ocean Fishing in Peasant Society " the authors have examined the environmental and technical factors influencing power in work organization with reference to fishing in peasant society. They have suggested that the need for coordination within fishing crews combined with the marine environment increases both the need for interdependence and the importance of each worker. The authors felt that due to rapid depreciation of machines, this type of cooperation decreases the distance between owners and labourers.
Mr Schaefer in his work "Some Aspects of the Dynamics of Populations Important to the Management of Commercial Marine Fisheries" has formulated a formal theory of fisheries management based on biological parameters. The Schaefer model presents the relationship between sustainable yield, population and fishing effort. It postulates that the biomass of an unexploited fish-stock increases at various rates depending on its initial weight, recruitment, individual growth and mortality rates, the last being a negative factor. Here the catch responds to changes in population and fishing effort. But it recognizes that changes in population are caused by changes in fishing effort as the latter variable affects population by taking more or less fish from the original stock. The author maintains that if the objective of management is to maximize the catch it should regulate fishing effort at such levels where it can reap the maximum net addition to the stock. Maintaining effort at such levels ensures the protection of stock as well.

K K Balachandran

In his book "Fish Canning- Principles and Practices" has observed that canned shrimp, were important processed seafood exported from India in the 1960s and early 1970s. The author has opined that the high cost of cans made out of imported tin plate together with the fear of rejection at the importer's end, coupled with the lack of technical and scientific know-how on the part of the personnel, involved in processing gradually made canning a commercially
unviable proposition. However the share of canned products in international market is still great. Canning is widely employed for long term preservation of a wide variety of food material both of vegetable and animal origin.

The book is a comprehensive publication on the subject particularly with special reference to fish. The author while introducing the principles of canning has elaborated the specific products relevant for canning. He has discussed the type of spoilage of canned fish and their causes in detail. The specific technological problems met with in canned fish and shell fish have been discussed with suggestions for overcoming them. Topics such as can-seam efficiency and seam examination have been dealt with in detail. Materials and methods of canning specific products including their flow chart, defects generally met with and corrective measures have been elaborated. Codex standards for canned fish and shell fish also have been dealt with.

Braj Mohan and Krishna Srinath

The authors have made an analysis of the structure and role of fishery cooperatives of Maharashtra. They have concentrated their study on the infrastructure available with the cooperatives for small scale fisheries development. The authors have examined the constraints involved in the management and operation of the societies and they have tried to make some useful suggestions for improvement of the working of the fisheries cooperatives in the state.
Inspite of a substantial growth of fisheries trade handled by these cooperatives the study has revealed some weaknesses to which small scale fisheries sector is exposed to. The study has revealed that increasing investment and operational cost have been faced by the small scale fisheries sector. The rates of interest on NCDC loans are high while the rate of subsidy for fisheries inputs is low. The small scale fisheries sector is faced with competition from large trawlers and foreign vessels. The findings suggest that there is a reduction in the total fish catch. The berthing facilities are inadequate for boats and pollution problem is faced by the fisheries trade of the centers. The fisheries cooperative societies have been striving to improve the fisheries industry in the state. They have been able to contribute to the development of small scale fisheries by providing the necessary infrastructure viz ice factories, cold storage, diesel pumps, fish requisites, fresh fish scale shops, prawn sale shops etc. they supply inputs for the fisheries units, credit and training and welfare programmes for members. The societies support the fish marketing and repairing facilities. The societies have provided insurance for boat and life of the members.

K. Ponnusamy

The author K. Ponnusamy in his paper "Socio-Economic Profile of Shrimp Entrepreneurs" has concluded that education, training and information source utilization coupled with decision making ability, management orientation
and problem recognition ability can play a positive role in influencing the entrepreneurs to venture into shrimp culture sector.

The author maintains that profitability of shrimp farming has led to several medium and small companies making investment and taking up the activity. The study has revealed that financial institutions provided funds to meet part of the investment as shrimp aquaculture is an important and proven foreign exchange earning activity. However the entrepreneur had not anticipated the problems of disease outbreak, environmental misapprehensions, limitations in the supply of quality seed and feed, cautious attitude of financial institutions in providing funds, non-cooperation of farmers in a locality, low market price etc.

Based on his study conducted in some part of Tamil Nadu the author has observed that “as shrimp farming is highly capital intensive innovative, risk oriented and market driven enterprise, the respondents with high entrepreneurial capability were seen to have taken this venture with the ambition of securing the returns within a short gestation period”.

Organisation of the study

The present study is organized into the following six chapters.

Chapter One: Introduction And Research Design

The chapter provides an introduction to the topic of research on Marketing of Fisheries in Coastal Karnataka with special reference to Uttara Kannada District. The details of the research design of the study have been
explained. Viz. The objectives of the study, hypotheses, limitations of the study, methodology of data collection and a review of present literature related to the study.

**Chapter Two: Growth Dimensions of Fisheries**

A National and Regional Perspectives.

The discussion in this chapter relates to the growth and development of fisheries in the Indian context and in Karnataka state.

**Chapter Three: Profiles of Fishermen and the Intermediaries covered by the study and the Economic Scenario of Uttara Kannada District.**

Details in this chapter relate to the fishermen in the coastal areas and their functioning and the economic background of the district having a bearing on the fisheries industry.

**Chapter Four: Production of Marine Fisheries and the Marketing Infrastructure for the Fisheries Trade.** Details of production of different type of fisheries in the study area in terms of their volume and value during the period covered by the study, the role of intermediaries and the fisheries cooperative marketing societies etc are discussed here. Marketing infrastructure like storage, weighing, grading, packing etc have been explained and evaluated. Other aspects of marketing of fisheries and major areas of marketing problems have been discussed.

**Chapter Five: Role of Fisheries Cooperatives in the marketing of Marine Fisheries in Uttara Kannada District.**
Chapter Six: Major Findings, Conclusions and Suggestions. This chapter contains a summary of major findings, conclusions and a few suggestions for improvement of marketing of fisheries.

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