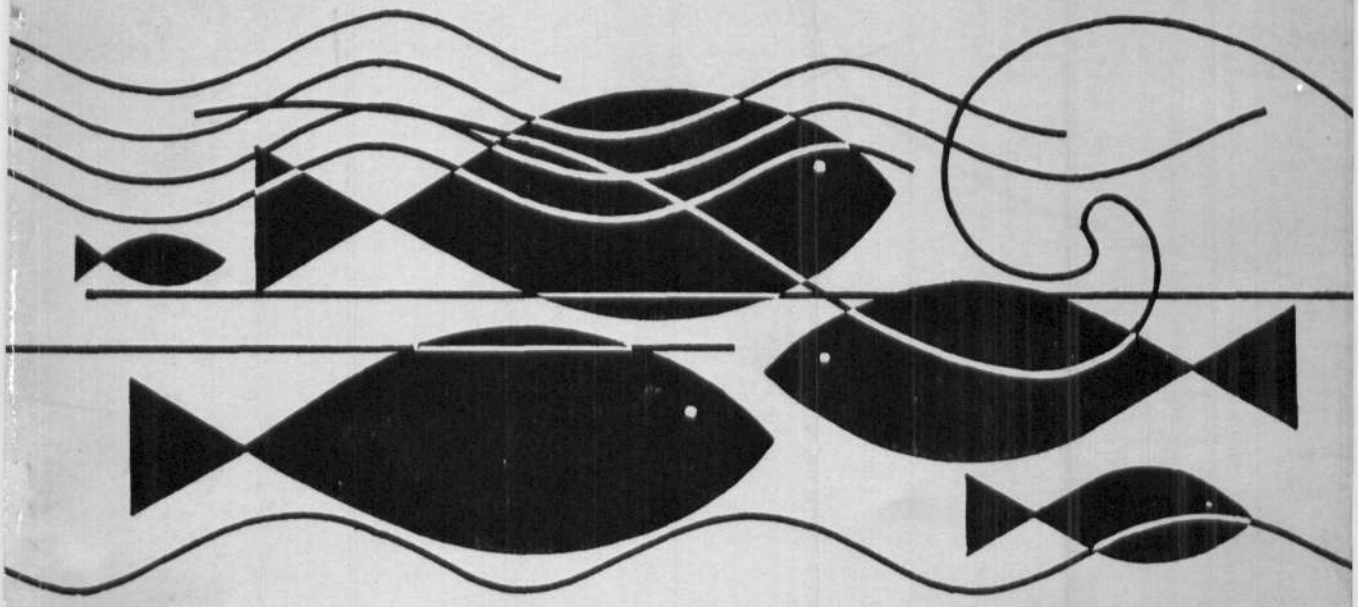
Central Marine Fisheries Research Institute
40
YEARS
1947-1987

CMFRI
Special Publication
Number 33

an appraisal of the marine fisheries of andhra pradesh



Issued in connection with the 40th Anniversary Celebrations of
Central Marine Fisheries Research Institute
P. B. No. 2704, E. R. G. Road, Cochin 682 031, India
Indian Council of Agricultural Research
September 16–18, 1987

AN APPRAISAL OF THE MARINE FISHERIES IN ANDHRA PRADESH

K. ALAGARAJA, K. C. YOHANNAN, P. L. AMMINI AND P. P. PAVITHRAN

CMFRI Special Publication
Number 33

Issued in connection with the 40th Anniversary Celebrations of
Central Marine Fisheries Research Institute
P. B. No. 2704, E. R. G. Road, Cochin-682 031, India
(*Indian Council of Agricultural Research*)
September 16-18, 1987.

Limited Circulation

Published by

Dr. P. S. B. R. JAMES
Director
Central Marine Fisheries
Research Institute
P. B. 2704
E. R. G. Road
Cochin-682 031
India

Cover drawing by Shri K. K. Sankaran
Artist
CMFRI, Cochin

CONTENTS

PRINTED AT: S. K. ENTERPRISES, COCHIN 18

PREFACE

The Central Marine Fisheries Research Institute, Cochin, is the premier organisation in the country conducting research in marine fisheries, leading to rational exploitation, management, development and conservation of living marine resources. The Institute, ever since its early days of inception, has been collecting data on the catch and effort along with biological information on the exploited marine fisheries resources of the country, using a standardised, stratified, multistage random-sampling method. In addition to making use for biological studies, including assessment of stocks, these data have been processed and utilised to furnish estimates of annual marine fish production in different states over the past 38 years.

With the changed objectives and functions of the Institute in recent times, greater emphasis has been laid on the assessment of stocks for better management of the exploited stocks and to indicate the possible sources of additional production in the context of modern technological innovations in fishing practices and consequent increase in the capability of fishing of both traditional and mechanised sectors.

With the continued increase in fishing effort and intense exploitation of certain resources in different parts of the country, a need arose to examine critically the present status of exploited stocks, the fishing intensity, the number of boats and types of gear, the infrastructural facilities for handling, storage, transportation and marketing of catches, the status of the under exploited resources, and the new or additional resources available beyond the presently exploited areas of each maritime state to provide necessary technical advice to the respective governments to manage and conserve the resources.

It is with this in view that the data relating to each maritime state for the period 1975-84 are consolidated and processed and presented as a separate Special Publication. This Number gives the appraisal of the marine fisheries of Andhra Pradesh, highlighting the status of the exploited resources and the level of exploitation. It also gives guidelines for increasing the catches by proper development, management and conservation of resources.

Dr. K. Alagaraja, Shri. K. C. Yohannan, Smt. P. L. Ammini and Shri. P. P. Pavithran had shown keen interest and spared no efforts to analyse the data for the preparation of this report. I have great pleasure to place on record my appreciation of their efforts to bring out this publication. Shri. C. V. Seshagiri Rao, Shri. K. V. S. Seshagiri Rao, Shri. P. Ananda Rao, Shri. G. C. Lakshmiah, Shri. A. Hanumantha Rao, Shri. K. Chittibabu, Shri. T. Chandrasekhara Rao, Shri. S. Satya Rao, Shri. V. Achutha Rao, Shri. M. Chandrasekhar and Shri. M. Radhakrishnan collected the catch and other details which form the basic data for this report. I deeply appreciate the earnest efforts put in by them to collect these data.

P. S. B. R. James
Director
C. M. F. R. Institute.
Cochin

AN APPRAISAL OF THE MARINE FISHERIES IN ANDHRA PRADESH

K. Alagaraja, K. C. Yohannan, P. L. Ammini and P. P. Pavithran

INTRODUCTION

With a coastline of about 980 km, Andhra Pradesh has a rich marine fishery resource and, producing on an average 1,21,000 t of marine fish, it ranks fifth among the maritime States. The vast segment of the continental shelf, of nearly 31,000 sq km, bordering nine coastal districts, receives copious rains from both the monsoons, aside from the mighty discharge of two great rivers, the Godavary and the Krishna, thus greatly enriching its flora and fauna. Nevertheless, it is subject to extreme climatic vicissitudes. Whereas the coast is caressed by gentle waves during January-April, it is liable to be hit by devastating cyclones during October-November, such as the one that had occurred in the N. E. monsoon of 1977 and caused an infernal misery, which is still fresh in the mind of the coastal people. Well-developed coastal roads and shelters are, however, now constructed in order to save lives and property during cyclones.

Andhra Pradesh has 453 marine fishing villages and 280 landing centres, distributed among nine coastal districts, namely Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Prakasam and Nellore. (See Fig 1; Appendix)

In this publication an appraisal of the marine fisheries in Andhra Pradesh as on the data collected by Central Marine Fisheries Research Institute is given. The census of fishermen population and craft and gear owned by them, as well as their educational status, are given talukwise. Information on the

infrastructure facilities such as provision for landing fish, the approach roads and ice factories, the housing and schooling facilities and the availability of electricity and drinking water etc are also given talukwise. However, details on different aspects of marine fisheries are given for the state as a whole for the period 1975-'84 and district-wise details are given for the period 1980-84. Special reference is made to the two important fishery harbours of the state, namely Kakinada and Visakhapatnam, which handle the bulk of the states' mechanized fleet. A number of tables and figures are appended for ready reference.

This publication also aims at assessing the exploitation potential of the marine fishery resources of this coast. The assessment is handicapped to the extent of non-availability of data on marine fishery resources exploited by large trawlers operating off Andhra coast. Lack of these data naturally restricts the scope of assessment to the area of exploitation by the indigenous crafts and small mechanized vessels of size ranging 9-10 m length.

BIBLIOGRAPHY

ANON, 1973. Proceedings of the Symposium of the Seas around India, *Cent. Mar. Fish. Res. Inst. Cochin*: pp 748.

ANON, 1977. Souvenir. Integrated Fishries Project. *Silver Jubilee celebrations· Cochin*: pp 147.

ANON, 1978. All India Marine Fisheries Census, Frame Survey, 1973-77. *Mar. Fish. Infor. Serv. T & E Ser. 3*: pp 2-8.

ANON, 1980. Industrial Fisheries of Visakhapatnam coast based on exploratory surveys during 1972-78. *Ibid 15*: pp 1-16.

ANON, 1981. All India Census of Marine Fisheries, craft and gear 1980. *Ibid 30* – pp 2-32.

ANON, 1981. Commercial trawal fisheries off Kakinada during 1969-78. *Ibid* 31: pp 1-6.

ANON, 1982. Trends in marine fish production in India-'81. *Ibid 41*: pp 1-33.

ANON, 1982. Synopsis of marine prawn fishery of India, 1981. *Ibid 43*: pp 8–23.

ANON, 1983. Trends in marine fish production in India, 1982-83. *Ibid 52*: pp 1-21.

ANON, 1984. Statistics of marine products exports. Mar. Pro. Exp. Devel. Authority, Cochin: pp 1-267.

ANON, 1986. Marine Fish production in India 1983-84 and 1984-85. *Mar, Fish. Infor Ser. T & E Ser 67* pp 1-79.

ALAGARAJA, K. K. NARAYANA KURUP, M. SRINATH AND G. BALAKRISHNAN 1982. Analysis of marine fish landings in India——— A new approach. *Cent. Mar. Fish Res. Inst. Spl. Publn.* No. 10: pp 42.

ALAGARAJA, K, 1984. Simple methods for estimation of Parameters for assessing exploited fish stocks. *Indian J. Fish. 31* (2) : 177-208.

APPA RAO, T. 1978. Relative abundance of sciaenids along Andhra—Orissa coasts. *Inpian J. Fish 23* (1&2) :201-212.

APPANNA SASTRY, Y. 1969. A note on an unusually heavy catch of fish in a shore seine in the Andhara coast. *J. Mar. biol. Ass. India. 10* (1): 169–170.

———————— 1969. On occurrence of the juveniles of the Indian mackerel *Rastrelliger kanagurta* (cuvier) in the inshore waters of Kakinada *Ibid 10* (1). 179-181.

———————— 1981. Ribbon fish fishery of Kakinada during 1974-76. *Indian. J. Fish 27* (1&2) : 145-154,

———————— 1984. Ribbon fish fishery of Kakinada area during 1977-80. *Ibid. 31* (3) : 337-344.

ARORA, H. L. AND S. K. BANERJI 1957. Flying fish fishery along Coromondal coast. *Ibid. 4* (1) 80-91.

BANERJI S. K. 1973. An assessment of the exploited pelagic fisheries of the Indian Seas. *Proc. Symp. Living Resources of the seas around India C M F R I* Publn: pp 114-136.

DHARMARAJA, S. K. AND VARUGHESE PHILIPOSE 1977. Trends in the yields of major exploited fisheries of the east coast of India *Indian J. Fish, 22* (1&2) : pp 187-197.

JACOB, T., K. ALAGARAJA AND K. N. KURUP. 1983. The present status of marine living resources statistics in India *Mar. Fish. Infov. Serv. T & E Ser. 46* : pp 6-11

KRISHNAMOORTHY, B. 1973. An assessment of *Nemipterus* fishery off Andhra Orissa coasts based on exploratory fishing. *Proc. Symp. Living Resources of the seas around India C M F R I Spl* Publn pp 495–516.

———————— 1976. An assessment of the demersal fishery resources off the Andhra-Orissa coast based on exploratory trawling, *Indian. J. Fish 21* (2) pp 557-565.

MUTHU, M. S., K. A. NARASIMHAM, G. SUDHAKARA RAO, Y. APPANNA SASTRY AND P. RAMALINGAM 1977. On the commercial trawl fisheries off Kakinada during 1967-70. *Idid* 22 (1&2): 171-186.

NARASIMHAM, K. A. 1972. Occurrence of the early juveniles of ribbon fish *Trichiurus lepturus* Linnaeus. *Ibid, 17* (1&2) : 90-96,

———————— 1983. Some observations on the fishery and biology of the ribbon fish. *Eupleurogrammus glossodon* (Bleeker). *Ibid.*, 30(2): 269-277.

NARASIMHAM, K. A., G. SUDHAKARA RAO, Y. APPANNA SASTRY AND W. VENUGOPALAM 1981. Demersal Fishery Resources off Kakinada with a note on economics of commercial trawling *Ibid. 26* (1&2) : 90–100.

RADHAKRISHNA, K, S. REUBEN AND M. V. SOMARAJU 1981. Unusually heavy catches of ribbon fish close to shore at Visakhapatnam. *Mar. Fish. Inf. Ser. T & E Ser. 31* 15-16.

RAO, G. SUDHAKARA. 1975. Observations on the summer fishery for the Indian mackerel *Rastrelliger kanagurta* (cuvier) in the Godavary estuary *Indian J. Fish.* 26. 302-305.

RAO, G. SUDHAKARA. C. SUSEELAN AND S. LALITHADEVI 1980 Impact of mesh size reduction of trawl net on the prawns fishery of Kakinada in Andhra Pradesh., Mar. Fish. Infor Serv, T & E Ser. *Indian J. Fish. 21* (1) : *21* 1-6

RAO,G. SUDHAKARA. 1981. Observation on the marine prawn fishery by shore seine at Kakinada. *Indian J. Fish. 26* (1 & 2) : 52-64

RAO, K. VENKATASUBBA, V. RAMAMOHANA RAO, P. MOJUMDAR, T. APPA RAO, S. REUBEN, S. S DAN AND B. NARAYANA RAO. 1981. Pelagic fishery resources of Lawson's Bay, Waltair. *Indian. J. Fish. 27* (1 & 2) : 35-53

SEKHARAN, K.V, 1973. On the cat fish resources of the coasts of Andhra Pradesh, Orissa and West Bengal. *Proc. Symp. Living Resources of the Seas around India Spl. Publn* CMFRI : pp 517-536.

SILAS E. G , T. JACOB, K. C. GEORGE AND M. J. GEORGE. 1980. Status paper on costal fishery resources along the east coast. Report on the consultation on stock assessment of small scale fisheries in the Bay of Bengal BOBP/ REP., 10.2 : 23-77

SRIRAMACHANDRAMURTHY V. 1983. Estimates of mortality, population size and yield per recruit of *Nemiptersus japonicus* (Bloch) in the trawling grounds off Kakinada. *Indian J. Fish 30* (2) : 255-260

———————————1984. Observations on the fisheries of threadfin breams *(Nemepteridae)* and on the biology of *Nemipterus japonicus* (Bloch) from Kakinada. *Ibid* 30(2) : pp 255-260

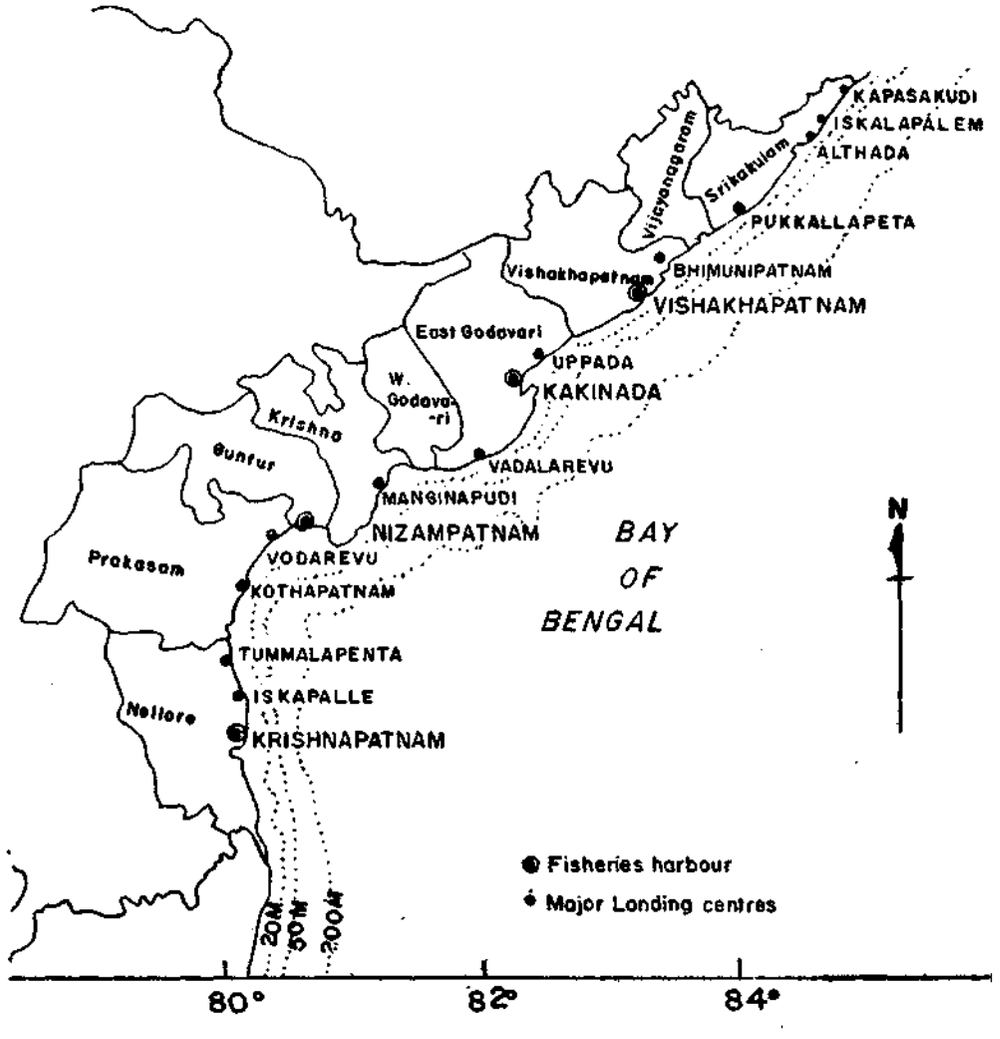
VENKATARAMAN, G. AND K. ALAGARAJA 1980 Cyclones and Fisheries. Aftermath of four cyclones in Andhara Pradesh during 1976-1979; *Mar. Fish. Infor. Ser.* T & E Ser. *16*: 1-11.

CENSUS OF MARINE FISHERMEN, CRAFT AND GEAR AND INFRASTRUCTURE FACILITIES IN ANDHRA PRADESH

Census data on the marine fishermen population, and crafts and gears in the coastal districts of Andhra Pradesh have already been published in the M. F. I. S. No. 30. (Anon, 1981). The purpose of this chapter is to give a

ANDHRAPRADESH

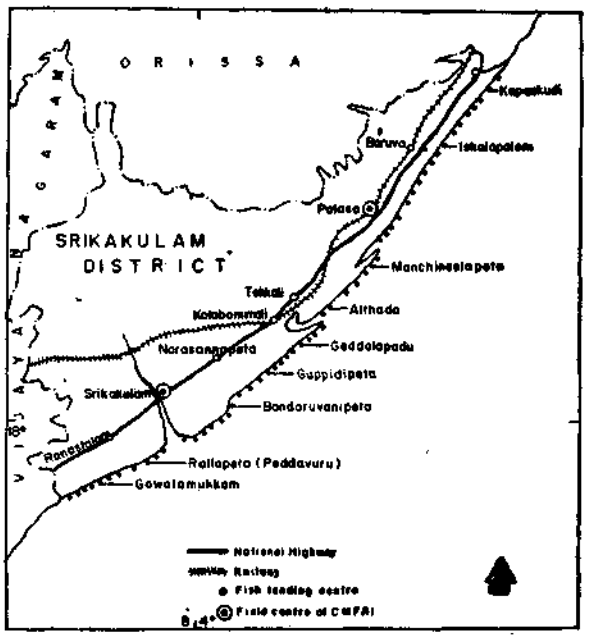
COASTAL DISTRICTS AND MAJOR LANDING CENTRES



taluk-wise picture of marine fishing activities in terms of census of fisherfolk and categorisation of their involvement in the profession along with their educational status. In addition, the items such as type of fishermen houses, availability of electricity, drinking water and its source, presence of educational institutions at different levels, co-operative societies, hospitals, jetty facilities, ice factories and cold storage and petrol bunks have also been included here so as to give an idea on the socio-economic status of the fishermen in the coastal taluks of Andhra Pradesh. While bringing out these aspects care is taken to see that the information on number of landing centres is updated and that on fisherfolk, crafts and gears etc is improved.

Srikakulam District

Census: There are 9 coastal taluks in the district of Srikakulam. Among them Kotabommali has the maximum number of marine fishing villages (22) and landing centres (12), followed by Sompeta with 18 villages and 7 landing centres (1. c), Ranasthalam with 16 villages and 8 l.c, Srikakulam with 15 villages and 6 l.c and Ichapuram with 13 villages and 8 l.c. The rest of the taluks have each less than 10 villages. Regarding the no. of households and fishermen population



Sompeta tops the list with 3548 house holds and a population of 16109. In educational status also this taluk comes first followed by Srikakulam and palasa. However, taking the category above primary level, Palasa tops the list. Regarding the number (given in brackets) of fishermen engaged in actual fishing, the taluks

Srikakulam (2281) Sompeta (2280) and Ranastalam (2248) take the lead followed by Tekkali (2063), Kotabommali (1589), Ichapuram (1559), Palasa (1416), Ponduru (438) and Narasannapeta (235).

TABLE-I

Talukwise figures of Marine fishing village and fishermen population in Srikakulam District

Sl. No	Item	Narasannapeta	Tekkali	Sompeta	Srikakulam	Ichapura	Ponduru	Kotabommali	Palasa	Rangsthalam	Total
1.	No. of fishing Villages	4	6	18	15	13	4	22	7	16	105
2.	No. of landing centres	1	6	7	6	8	3	12	4	8	55
3.	No. of fishermen house holds	241	2073	3548	2511	1567	422	2054	1924	1686	16026
4.	Fishermen population										
	a. Adults										
	Male	267	2893	4413	2973	2186	548	3020	2812	2250	21362
	Female	308	3080	4979	3327	2479	567	3228	3043	2280	23291
	b. Children	470	4221	6717	5720	2598	908	3822	3889	3232	31577
	Total	1045	10194	16109	12020	7263	2023	10070	9744	7762	76230
5.	Educational status										
	a. Primary	50	444	1959	1296	388	34	523	1105	175	5974
	b. Secondary	5	129	445	437	63	20	143	525	12	1779
	c. Above Secondary	2	8	48	62	13	1	12	53	2	201
	Total	57	581	2452	1795	464	55	678	1683	189	7954
6.	No. of fishermen engaged in Actual fishing										
	Full time	235	2028	1668	1992	1315	398	1449	1137	2057	12279
	Part time	—	20	65	34	81	1	50	114	62	427
	Occasional	—	15	547	255	163	39	90	165	126	1400
	Total	235	2063	2280	2281	1559	438	1589	1416	2245	14106

Craft owned by fishermen: In this district mechanised boats were not found operating during the 1980 census. Among the non-mechanised units catamarans are operated in large numbers (7555) followed by plank-built boats (898). Tekkali (1368) and Srikakulam (1363) taluks account for about one third of the total catamarans available in the district followed by Kotabommali (1024), Sompeta

(980), Ranasthalam (922) Ichapuram (781), Palasa (703) Ponduru (276) and Narasannapeta (138). However, Tekkali (169) Ichapuram (166), Ranasthalam (166) and Kotabommali (163) have the major concentration of plank-built boats. Table-2.

Gear owned by fishermen: Tekkali has more number of drift/gill nets (2882) followed by Sompeta (2354), Kotabommali (2227), Ichapuram (1810), Palasa (1160), Ranasthalam (989), Srikakulam (961), Ponduru (466) and Narasannapetta (211). Tekkali also has more number of boat seines (655) followed by Ranasthalam (649) Kotabommali (441), Sompeta (385) Srikakulam (291), Ichapuram (262), Palasa (70) and Ponduru (68). Regarding shore seines, Ichapuram ranks first (186) followed by Kotabommali (169), Tekkali (165), Sompeta (123) and Srikakulam (113) with the rest of taluks having less than 100 units. Presence of fixed bag nets is noted in only three taluks namely Palasa (727), Srikakulam (54) and Sompeta (49).

TABLE-2

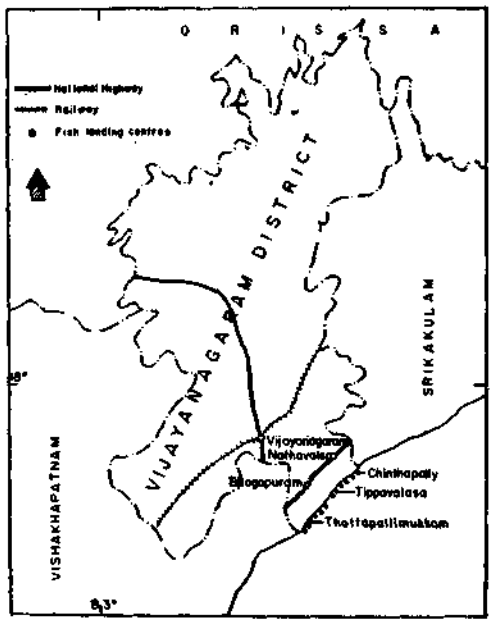
Talukwise figures of marine fishing craft and gear owned by fishermen in Srikakulam District

Sl. No.	Items	Taluk	Narasannapeta	Tekkali	Sompeta	Srikakulam	Ichapuram	Ponduru	Kotabommali	Palasa	Ranasthalan	Total
1.	No of fishing crafts											
	a) Mechanised											
	Trawlers											
	Gill netters											
	Total		—	—	—	—	—	—	—	—	—	—
	b) Non-mechanised											
	Plank built boats		1	169	119	18	166	6	163	90	166	898
	Dugout canoes		—	—	—	66	1	—	—	1	217	285
	Catamarans		138	1368	980	1363	781	276	1024	703	922	7555
	Others		—	—	—	—	—	2	—	—	—	2
	Total		139	1537	1099	1447	948	284	1187	794	1305	8740
2.	No. of fishing gears											
	Trawl nets		—	—	—	—	—	—	—	—	—	—
	Drift/gill nets		211	2882	2354	961	1810	466	2227	1160	989	13060
	Boat seines		—	655	385	291	262	68	441	70	649	2821
	Fixed bag nets		—	—	49	54	—	—	—	—	727	830
	Hooks & Lines		199	417	685	604	563	208	298	581	1214	4769
	Shore seines		—	165	123	113	186	2	169	78	90	926
	Traps		—	—	—	—	—	—	—	—	—	—
	Scoop nets		—	—	—	24	—	—	—	27	4	55
	Others		—	444	459	312	637	119	153	723	981	3828

Other details including infrastructure facilities: In the Srikakulam District there are about 15000 Kutcha and 750 Pucca houses belonging to fishermen. Sompeta (2931), Srikakulam (2364), Kotabommali (2095) and Tekkali (2030) have more than 2000 'Kutcha' houses of fishermen the rest having less than 2000. Regarding 'Pucca' houses of fishermen, Palasa is having more than the rest of the taluks. All the taluks have drinking water facilities mainly from wells. Tap water facilities are available in some villages of Kotabommali and Palasa taluks. Electricity facilities are available in 11 villages spread over Palasa, Srikakulam, Tekkali and Sompeta taluks. Among the 105 coastal villages, only 25 are connected by roads. Primary school facilities are available in 68 villages. Among them four have secondary schools and two have colleges. The colleges are in Srikakulam Taluk only. In four villages medical facilities are available. There are 58 villages having cooperative societies with 14 of them in Srikakulam Taluk alone. Fifteen villages in total have post offices and 12 have community centres. There are as many as 89 villages having liquor shops. Though this taluk is not having much mechanised fishing activities, in a few landing centres, mostly in Kotabommali and Ponduru taluks, fish landings by mechanised boats take place in a very low key and there are fish-curing yeards in 5 villages. (See Appendix).

Vizianagaram District

Census: Bhogapuram is the coastal taluk in the district having 16 fishing villages and 20 landing centres. These 16 villages have 2195 fishermen households consisting of about 3700 males, 3000 females and 4500 children. Among them



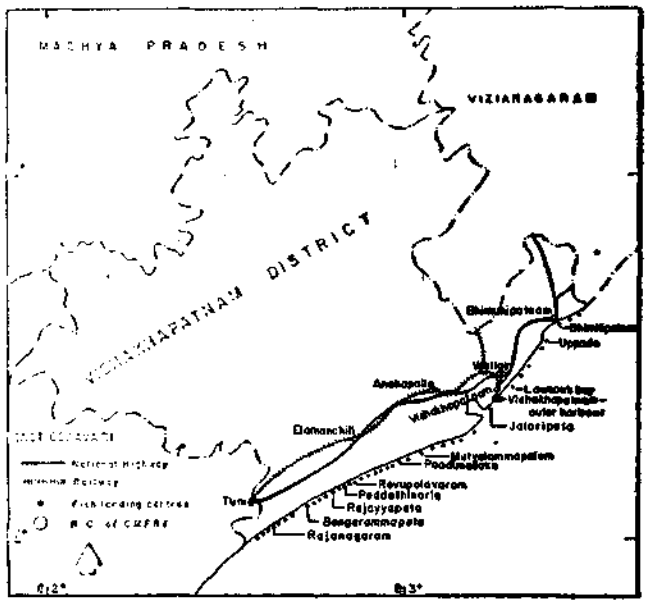
about 100 alone have primary levels education. There are about 3160 fishermen engaged in full fishing, 300 in part time and 140 in occasional fishing activities.

Craft and gear owned by fishermen: There are about 630 plank built boats and 370 catamarans. Major gear is the drift/gill net followed by boat-seines and shore-seines.

Other details including infrastructure facilities: Among the 1852 fishermen houses only 20 are 'Pucca'. Drinking water facilities are available in all the villages, the source being well water. Four villages have electricity facilities and six are connected by roads. Eight villages enjoy primary school facilities and one among them with that of secondary school. In five villages there are cooperative societies, in one a post office, in three there are liquor shops and in one a fish curing yard. (see Appendix).

Visakhapatnam District

Census: There are five coastal taluks in this district. One of the leading fishery harbours in Andhra Pradesh, namely Visakhapatnam Fisheries Harbour, is in this district. Among the taluks Nakkapalli has maximum number of fishing



villages (18) followed by Bheemunipatnam (17), Yellamanchili (12), Visakhapatnam (11) and Anakapalli (4). There are 16 landing centres in Nakkapalli, 8 in Yellamanchili, 7 in Visakhapatnam, 5 in Bheemunipatnam and 3 in Anakapalli. In respect of fishermen households also, Nakkapalli taluk leads other taluks, having 3451 households followed by Visakhapatnam (3168), Yellamanchili (2387), Bheemunipatnam (1957) and Anakapalli (509). Regarding fishermen population also Nakkapalli taluk is having maximum (17239), Visakhapatnam (16934) stand second followed by Yellamanchili (12205), Bheemunipetnam (11087) and

Anakapalli (2680). However, in educational status, Visakhapatnam taluk tops the list with 809 persons having primary and above level of education followed by Bheemunipatnam (744), Yellamanchili (324), Nakkapalli (239) and Anakapalli (147). Visakhapatnam taluk also leads other taluks in the number of fishermen engaged in actual fishing having 4981 persons under this category. Next comes Nakkapalli taluk (4452) followed by Yellamanchili (3439), Bheemunipatnam (2469) and Anakapalli (709).

TABLE-3

Talukwise figures of marine fishing villages and fishermen population in Vishakapatnam District

Sl. No	Items	Visakhapatnam	Nakkapalli	Anakapalli	Yellam anchili	Bheemuni patnam	Total
1.	No. of fishing villages	11	18	4	12	17	62
2.	No. of landing centres	7	16	3	8	5	39
3.	No. of fishermen household	3168	3451	509	2387	1957	11472
4.	Fishermen population						
	a. Adults						
	Male	5470	4731	778	3624	3058	17661
	Female	5256	4705	806	3497	3251	17515
	b. Children	6208	7803	1096	5084	4778	24969
	Total	16934	17239	2680	12205	11087	60145
5.	Educational status						
	a. Primary	626	229	147	307	695	2004
	b. Secondary	177	10	—	15	37	239
	c. Above Secondary	6	—	—	2	12	20
	Total	809	239	147	324	744	2263
6.	No. of fishermen engaged in Actual fishing						
	Full time	4148	4264	547	3310	2447	14716
	Part time	377	14	1	108	—	500
	Occasional	456	174	161	21	22	834
	Total	4981	4452	709	3439	2469	16050

Craft owned by fishermen: It is reported that only one trawler is owned by fishermen in this district in Visakhapatnam taluk. This taluk dominates others, having 1825 catamarans and 1192 plank built boats. In respect of catamarans Nakkapalli comes second with 1738 numbers followed by Yellamanchili (1344), Anakapalli (151) and Bheemunipatnam (105), whereas Bheemunipatnam (552) comes second in the case of plank built boats followed by Nakkapalli (260) Anakappali (120) and Yellamanchili (56) (Table-4).

Gear owned by fishermen: In this district also the dominating gear happens to be drift/gill nets. Visakhapatnam taluk has the maximum number (4888)

accounting for about 45% of the nets in the district. Regarding boat seines (1317) and shore seines (374) also Visakhapatnam taluk leads. Nakkapalli with 2166 drift/gill nets, 554 boat seines comes second in the order followed by Yellamanchili (1980), Bheemunipatnam (1370) and Anakapalli (414) in the case of gill/drift nets and Bheemunipatnam (494), Yellamanchili (174) and Anakapalli (109) in the case of boat seines respectively.

TABLE-4

Talukwise figures of marine fishing craft and gear owned by fishermen in Vishakapatnam District

Sl. No.	Items	Bheemuni-patnam	Visakha-patnam	Anakka-palli	Yellaman-chili	Nakkapalli	Total
1.	No. of fishing crafts						
	a) Mechanised						
	Trawlers	—	1	—	—	—	1
	Gill netters	—	—	—	—	—	—
	Total	—	1	—	—	—	1
	b) Non-mechanised						
	Plank built boats	552	1192	120	56	260	2180
	Dugout canoes	1	57	—	65	—	123
	Catamarans	105	1825	151	1344	1738	5163
	Others	58	—	10	—	40	108
	Total	716	3074	281	1465	2038	7574
2.	No. of fishing gears						
	Trawl nets	—	2	—	—	—	2
	Drift/gill nets	1370	4888	414	1980	2166	10818
	Boat seines	494	1317	109	174	554	2648
	Fixed bagnets	—	140	—	119	29	288
	Hooks & lines	187	1727	58	568	331	2871
	Shore seines	228	374	40	164	101	907
	Traps	—	51	—	74	—	125
	Scoop nets	—	208	—	37	31	276
	Others	75	1006	—	715	654	2450

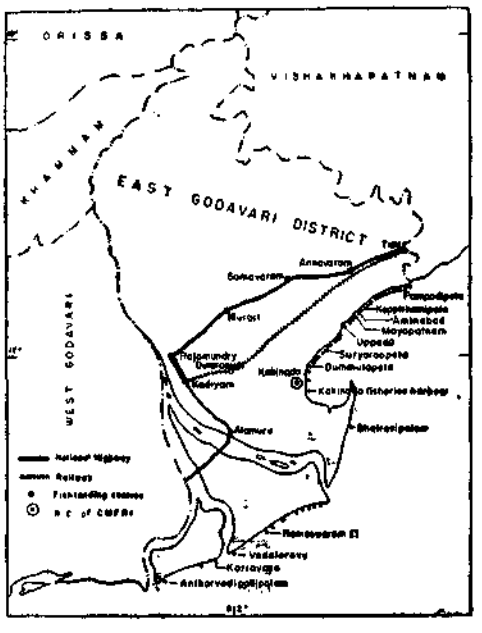
Other details including infrastructure facilities: In this district there are about 10100 'Kutcha' and 645 'Pucca' houses belonging to fishermen. Visakhapatnam taluk has more numbers with 2852 'Kutcha' and 260 'Pucca' houses, followed by Nakkapalli taluk with 2778' Kutcha and 170 'Pucca' houses. Yellamanchili taluk with 2261 'Kutcha' and 23'Pucca' houses, Bheemunipatnam with 1735'Kutcha'and 191' Pucca' houses, and Anakapalli with 508 'Kutcha' houses and a single 'Pucca' house. Among the 62 villages 9 alone have been electrified, Visakhapatnam leading with 6 villages followed by Nakapalli (2) and Bheemunipatnam (1). In this district only 17 villages are not connected by roads. In Visakhapatnam and Anakapalli taluks all villages are connected by roads. There are 48 villages having primary schools, Nakappalli leading with 16 villages,followed by Bheemunipatnam (12), Visakhapatnam (11), Yellamanchili (7) and Anakapalli (2). Only two villages, one each in Visakhapatnam and Bheemunipatnam, have hospital/dispensary facilities. Two villages in Bheemunipatnam have banking facilities. Bheemuni-

patnam has maximum number of cooperative societies (13) followed by Nakkapalli (10), Visakhapatnam and Yellamanchili (6 each) and Anakapalli (2), Postal facilities are available in 14 villages distributed over all taluks. Only one village in Bheemunipatnam is reported to have a police station. Maximum number of community centres (8) are in Nakkapalli, Visakhapatnam having 5, Yellamanchili 3 and Bheemunipatnam 2. In this district there are more number of liquor shops (63) than the number of villages (62) Nakkapalli with 20 liquor shops followed by Bheemunipatnam (17), Visakhapatnam (12), Yellamanchili (10) and Anakapalli (4). See Appendix.

As mentioned earlier, Visakhapatnam Fisheries Harbour is the only center having jetty facilities. Visakhapatnam taluk has ice factories, cold storage, freezing and curing plants and a fish curing yard. In Bheemunipatnam taluk also there are two ice factories one freezing plant and two fish curing yards (see Appendix).

East Godavari District

Census: Among the seven coastal taluks of the district, Kakinada has more number (29) of fishing villages with 10 landing centres. However, Tuni taluk with 16 fishing villages has 12 landing centres. There are 12 fishing villages and 3 landing centres in Razole taluk, 11 fishing villages and 4 landing centres in Mummidivaram taluk, 10 fishing villages and 9 landing centres in Pithapuram



taluk, 5 fishing villages and 4 landing centres in Amalapuram taluk and only one fishing village in Thallarevu taluk, Maximum number (8453) of fisherman

households are in Kakinada taluk followed by Mummidivaram (3562), Razole (2763), Pithapuram (2566). Tuni (1379), Amalapuram (1099) and Thallarevu (223). Regarding fishermen population Kakinada Taluk with 38405 persons accounts for more than 45% of the marine fishermen population in the district followed by Mummidivaram (14415), Pithapuram (10540), Razole (9345), Tuni (6767), Amalapuram (4681) and Thallarevu (1056). Among the 6190 persons who have primary and above level education in the district, more are from Kakinada (1942) followed by Razole (1721), Amalapuram (1044), Mummidivaram (507), Tuni (505), Pithapuram (294) and Thallarevu (177).

There are about 20400 fishermen engaged in actual fishing for full time in the district. In this case also Kakinada taluk ranks first with 9871 persons followed by Ptthapuram (2956), Mummidivaram (2424), Razole (2064), Tuni (1934), Amalapuram (24) and Thallarevu (195).

TABLE-5

Talukwise figures of marine fishing villages and fishermen population in East Godavari District

Sl. No.	Taluk / Items	Tuni	Rozole	Kakinada	Thallarevu	Pithapuram	Amalapuram	Mummidivaram	Tota
1.	No of fishing villages	16	12	29	1	10	5	11	84
2.	No of landing centres	12	3	10	—	9	4	4	42
3.	No. of fishermen house holds	1379	2763	8453	223	2566	1099	3562	20045
4.	Fishermen population								
	a. Adults								
	Male	1975	2837	11967	331	3136	1471	4095	25812
	Female	1869	3191	11071	348	3066	1484	3928	24957
	b. Children	2923	3318	15368	377	4338	1726	6392	34442
	Total	6767	9346	38406	1056	10540	4681	14415	85211
5.	Educational status								
	a. Primary	492	1615	1670	138	217	835	465	5432
	b. Secondary	13	88	251	36	66	194	35	683
	c. above secondary	—	18	21	3	11	15	7	75
	Total	505	1721	1942	177	294	1044	507	6190
6.	No. of fishermen engaged in actual fishing								
	Full time	1934	2064	9871	195	2956	924	2424	20368
	Part time	—	203	427	66	42	89	816	1643
	Occational	—	158	198	17	3	49	572	997
	Total	1934	2425	10496	278	3001	1062	3812	23008

Craft owned by fishermen: There are 114 mechanised boats owned by fishermen in this district. All of them are from Kakinada taluk only. Among these mechanised boats only one is operating gill net, the rest operating trawl nets.

Among the non-mechanised crafts, plank-built boats dominate, numbering about 5400 in the entire district. In this case also Kakinada taluk tops the list accounting for 2323 boats followed by Mummidivaram (1806) and the rest of the taluks having less than 500 boats each. Next dominant craft is the catamaran with 805 of them in Tuni, 696 in Pithapuram and 638 in Kakinada, rest of the taluks having less than 150 craft each. Razole taluk dominates in having maximum number (322) of dugout canoes, Kakinada following with 107.

TABLE-6

Taluk wise figures of marine fishing craft and gear owned by fishermen in East Godavari District

Sl. No.	Taluk / Items	Tuni	Razole	Kakinada	Thallerevu	Pithapuram	Amalapuram	Mummidivaram	Total
1	No of fishing crafts								
	a) Mechanised								
	Trawlers	—	—	113	—	—	—	—	113
	Gill netters	—	—	1	—	—	—	—	1
	Total	—	—	114	—	—	—	—	114
	b) Non-mechanised								
	Plank built boats	276	444	2323	76	337	125	1806	5387
	Dugout canoes	59	322	107	1	4	89	17	599
	Catamarans	805	111	638	—	696	8	82	2340
	Others	2	5	199	—	1	—	11	218
	Total	1142	882	3267	77	1038	222	1916	8544
2	No. of fishing gears								
	Trawl nets	—	—	265	—	—	—	—	265
	Drift/gill nets	1029	690	2196	56	817	113	852	5753
	Boat seines	353	546	662	17	260	—	115	1953
	Fixed bag nets	—	—	2089	212	85	—	2026	4412
	Hooks & Lines	4	—	325	4	1	—	7	341
	Shore seines	65	1	130	—	61	16	11	284
	Traps	—	—	—	—	—	—	—	—
	Scoopnets	—	66	121	1	—	1079	113	1380
	Others	105	4315	2712	781	482	653	80	9128

Gear owned by fishermen: Among the reported 265 trawl nets, all are from Kakinada. So also there are 2196 gill/drift nets from Kakinada taluk followed by Tuni (1029), Mummidivaram (852), Pithapuram (817), Razole (690), Amalapuram (113) and Thallarevu (56). Kakinada taluk also has maximum number of boat seines (772). Fixed bag nets (2089) and shore-seines (130). A good number (2026) of fixed bag nets is also recorded in Mummidivaram taluk. (Table-6).

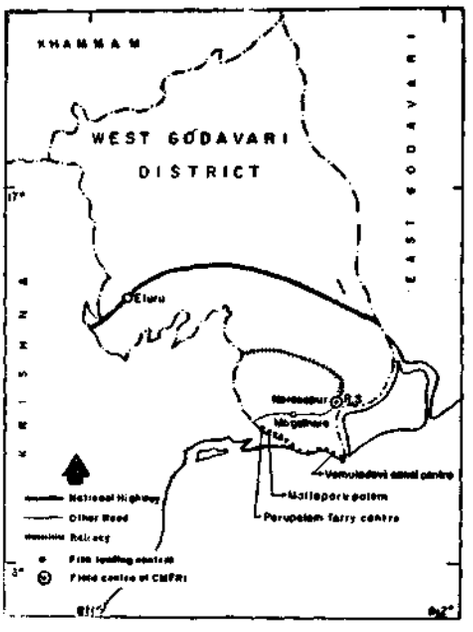
Other details including infrastructure facilities: There are about 11800 'Kutcha' and 1400 'Pucca' houses of fishermen in this district, out of which 3904 Kutcha and 392 pucca houses are reported to be in Kakinada taluk. Mummidivaram has 2563 'Kutcha' and 89 'Pukka houses. However, Pithapuram has larger number (421) of pucca houses with 1357 'Kutcha' houses, Razole following next with 307 'Pucca' and 1969 'Kutcha' houses Tuni with 998 'Kutcha' and 116 'Pucca' houses, Amalapuram with 820 'kutcha' and 37 'pucca' houses and Thallarevu with 154 'kutcha' and 29 'pucca' houses. Except in 3 villages which have tap facilities in Kakinada Taluk, almost all other villages use well water for drinking purposes. There are 54 villages electrified out of the total of 84, an impressive record and 40 villages connected by road. Kakinada Taluk is also leading with 20 villages electrified followed by Tuni and Pithapuram (10 each), Razole (9), Mummidivaram and Amalapuram (2 each) and Thallarevu (1). In 58 villages there are primary schools and only two of them have secondary grade schools. Hospital/dispensary facilities are available in 15 villages, 13 of them in Razole Taluk and one each in Pithapuram and Amalapuram. There are 12 villages having cooperative societies five in each of Mummidivaram and Kakinada and one each in Tuni and Pithapuram. Sixteen villages have postal facilities, Razole topping the list having 8 villages with these facilities. There are 87 villages having community centres. Maximum number of community centres (36) are in Kakinada Taluk. Liquor shops are in 78 vilages, maximum (22) being in Kakinada. Kakinada fisheries harbour with jetty facilities is coming up. In addition, Kakinada has boat building yard. Two places in Kakinada Taluk have ice factories with cold storage facilities and freezing and canning plants. Out of five villages having fish curing yards, 3 are in Tuni and 2 are in Pithapuram taluks. Oil extraction unit and Petrol/Diesal facilities are also available at Kakinada. (see Appendix).

West Godavari District

Census: Narasapur is the only coastal taluk in this district having 14 fishing villages and 10 landing centres. There are about 2300 fishermen households with a population of about 9100. Among them 1250 persons have got primary education 165 and 34 secondary and above secondary level education on respectively. There are about 1800 full time fishermen among 2530, engaged in actual fishing.

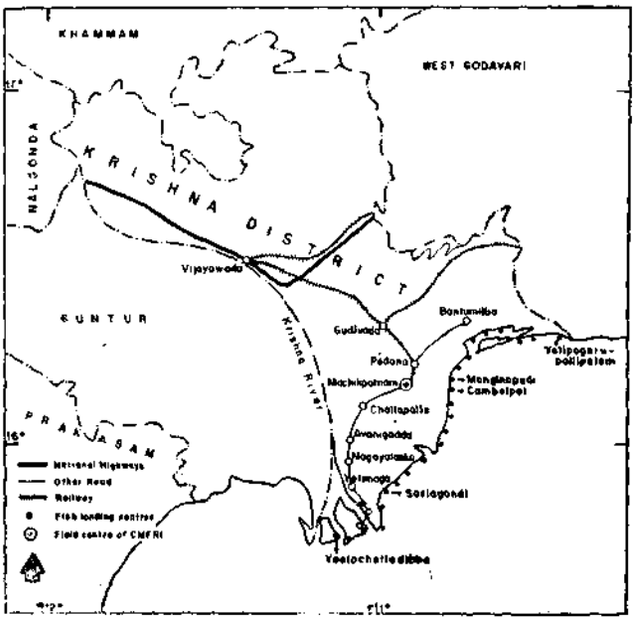
Craft and gear owned by fishermen: There are 144 plank built boats and 99 dugout canoes. There are 164 drift/gill nets 58 boat seines, 98 fixed bag nets and 21 shore seines.

Other details including infrastructure facilities: There are about 2000 and 35 'Kutcha' and 'Pucca' houses respectively in this taluk. One village has tap water facilities and 14 have wells for drinking water. Seven villages have electricity facilities. All 14 villages in this taluk are connected by road and have primary schools. One village has cooperative society, two have postal facilities, five have community centres and eleven have liquor shops. Other infrastructure facilities



are almost absent in this taluk. Relatively fish landings also are less in this district. (see Appendix).

Krishna District



Census: There are three coastal taluks namely Divi, Bantimilli and Bandar in this district having 11, 11 and 6 fishing villages respectively. Divi and Bantimilli have 9 landing centres each and Bandar has 4, thus totalling to 22 landing centres in this district. There are more number of fishermen households (2431) in Divi followed by Bandar (1175) and Bantimilli (1052). Divi leads other taluks in number of fisherfolk also, having 8657 persons followed by Bandar (5546) and Bantimilli (4251). However, in educational status, Bandar leads other taluks, in that there are 673 persons received education at primary level and above, followed by Divi (471) and Bantimilli (386). Above secondary level also maximum number are from Bandar. There are 2368 fishermen engaged in actual fishing in Divi taluk, 84% of them are engaged in full time fishing. Bandar and Bantimilli have respectively 1592 and 1530 fishermen engaged in actual fishing. 77% of them in Bantimilli belong to full time category whereas in Bandar this percentage is only 60.

TABLE-7

Talukwise figures of marine fishing villages and fishermen population in Krishna district

Items	Divi	Bantimilli	Bandar	Total
No. of fishing villages	11	11	6	28
No. of landing centres	9	9	4	22
No. of fishermen household	2431	1052	1175	4658
Fishermen population				
a. Adults				
Male	2863	1202	1856	5921
Female	2609	1270	1709	5588
b. Children	3185	1779	1981	6945
Total	8657	4251	5546	18454
Educational status				
a. Primary	407	362	516	1285
b. Secondary	59	24	137	220
c. Above secondary	5	—	20	25
Total	471	386	673	1530
No. of fishermen engaged in actual fishing				
Full time	1994	1178	953	4125
Part time	133	48	388	569
Occasional	241	304	251	796
Total	2368	1530	1592	5490

Craft and gear owned by fishermen: Out of 60 trawlers reported to have been owned by fishermen, 51 of them are in Bandar and the rest 9 are in Divi Taluk. Among 1226 plank built boats 52% are in Divi, followed by Bandar (28%) and Bantimilli (20%). Other types of boats are not many in this district. Out of 130 trawal nets 87% are in Bandar and the rest in Divi Taluk. Maximum number of gill nets (725) are from Bandar taluk followed by Divi (549) and Bantimilli (70). Regarding fixed bagnets, Divi (1919) leads, followed by Bandar (1430) and Bantimilli (832). Maximum number (15) of shore seines are from Divi taluk.

TABLE-8

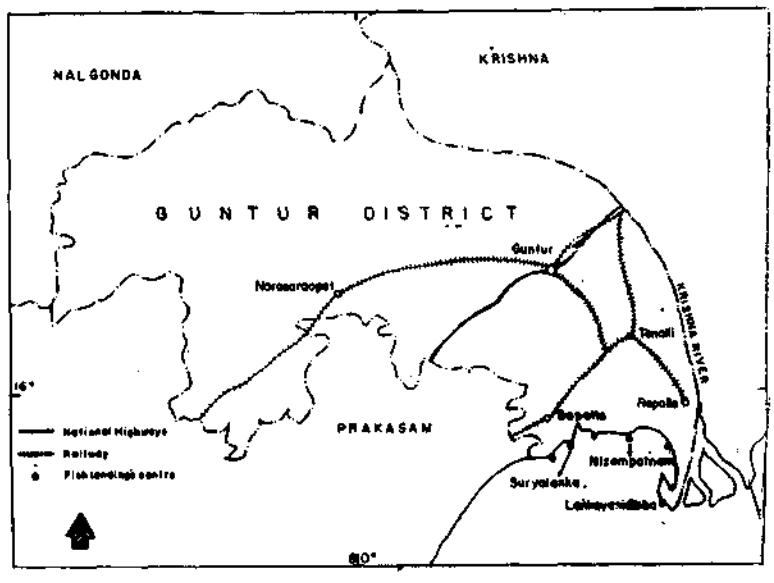
Talukwise figures of marine fishing craft and gear owned by fishermen in Krishna District

Items	Divi	Banti-milli	Bandar	Total
No. of fishing crafts				
a. Mechanised				
Trawlers	9	—	51	60
Gill netters	—	—	—	—
Others	—	—	—	—
Total	9	—	51	60
b. Non-Mechanised				
Plank built boats	639	249	338	1226
Dug out canoes	—	—	5	5
Catamarans	1	—	—	1
Others	2	—	—	2
Total	642	249	343	1234
No. of fishing gear				
Trawl net	17	—	113	130
Drift/gill nets	549	70	725	1344
Boat seine	—	—	—	—
Fixed bag nets	1919	832	1430	4181
Hooks and lines	31	212	59	302
Shore seines	15	9	—	24
Traps	—	—	5	5
Scoop nets	416	505	—	921
Others	3655	426	1404	5485

Other details including infrastructure facilities: Though the three taluks have more or less equal number of 'kutcha' houses, maximum number of pucca houses (1161) of fishermen are found in Divi taluk followed by Bandar (105) and Bantimili (49). Drinking water through taps is available in 2 villages in Divi taluk and in one village in Bandar taluk. Out of 13 villages electrified, the maximum (7) are in Divi taluk. Only 17 villages are connected by roads in this district, Divi topping the list having 9 villages under this category. Out of 18 villages having primary schools 9 are in Divi, 5 in Bandar and in 4 in Bantimilli. Two village in each of Divi and Bandar taluks have medical facilities. Only one village in Divi taluk has banking facility. Six villages have cooperative societies three of which are in Bandar taluk. Out of six villages having postal facilities four of them are in Divi and two in Bandar taluks. There is only one village in Divi taluk having police station. Out of 11 villages where community centres are available, 10 are in Divi taluk. Maximum number of villages (12) with liquor shops are in Divi taluk, followed by Bantimilli (10) and Bandar (6). One centre in each of Divi and Bandar taluks is a mechanised landing centre and Bandar has jetty and boat repairing facilities. (see Appendix).

Guntur District

Census: There are two coastal taluks namely Rapalle and Bapatla in this district having 18 and 4 fishing villages and 4 and 3 landing centres respectively. Maximum number of fishermen households (87%) and fishermen population (88%) are



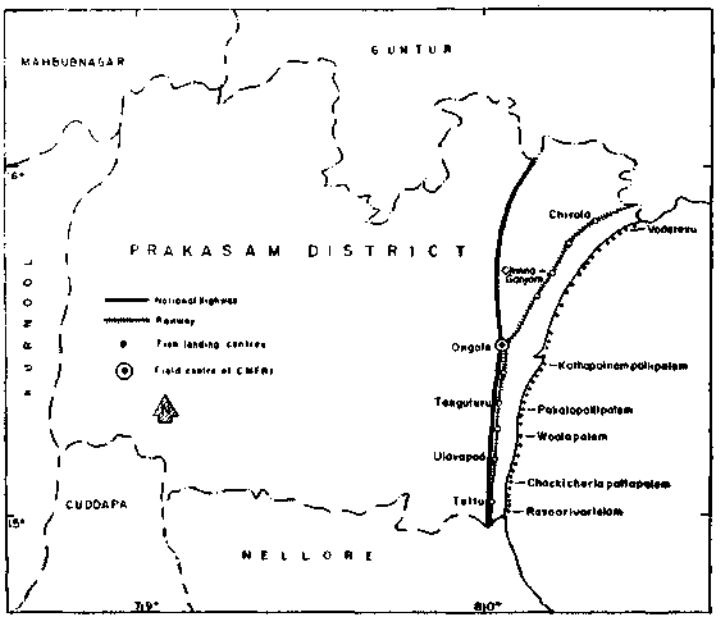
from Rapalle taluk. Out of 1167 persons having primary level education, 73% of them are from Rapalle taluk, with 88% in secondary and 86% in higher level of

education. Among the number of fishermen engaged in actual fishing 82% are from Rapalle taluk. Out of 3570 persons under fulltime fishing 85% are in Rapalle taluk.

Craft and gear owned by fishermen: There are 273 trawlers and 8 gill netters in this district, all from Rapalle taluk. Among 828 plank built boats and 159 dugout canoes, most of them (97% of plank built boats and 99% of dugout canoes) are from this taluk only. However, out of 323 catamarans, 92% are from Bapatla taluk. All trawl nets (425) and 87% of gill nets (out of 1510), 99% of fixed bagnets (out of 2852) and all shore seines (210) are from Rapalle taluk.

Other details including infrastructure facilities: Out of 3321 kutcha houses owned by fishermen 90% are in Rapalle taluk. All pucca houses (410) are also in this taluk. There are 18 villages with wells for drinking water purposes out of which 14 are in Rapalle taluk. Only one village in this taulk is having tap facilities, There are 13 electrified village, all of them in Rapalle taluk. Among 11 villages connected by road 10 are in this taluk. Out of 13 villages having primary schools 12 are in this taluk with one having secondary school. Two villages in Rapalle taluk are reported to have primary medical facilities, one having banking facility, 7 with cooperative societies, two with postal facilities, one with police station, six with community centres, 12 with liquor shops and two with petrol bunks, A fishery harbour is coming up at Nizampatnam in this taluk. (see Appendix).

Prakasam District



Census: Ongole, Kandukur and Chirala are three coastal taluks in this district with 18, 20 and 22 marine fishing villages and 12, 15 and 12 landing centres respectively. Number of fishermen are more or less equal in these taluks. However, out of 28475 fisherfolk, 38% are from Chirala taluk, the other two taluks sharing the rest more or less equally. Regarding educational status, Ongole tops the list with 58% of those of 1997 persons in the district having primary and above level education, followed by Kandukur (27%) and Chirala (15%). Among those engaged in full time fishing about 3000 are from Chirala followed by 2200 and 2050 in Kandukur and Ongole taluks respectively.

TABLE-9

Talukwise figures of Marine fishing villages and fishermen popu'ation in Prakasam District

	Kandu-kur	Ongole	Chirala	Total
No. of fishing villages	20	18	22	60
No. of landing centres	15	12	12	39
No. of fishermen households	2233	2126	2580	6939
Fishermen population				
a. Adults				
Male	2655	2721	3401	8777
Female	2475	2670	3180	8325
b. Children	3653	3416	4304	11373
Total	8783	8807	10885	28475
Educational status				
a. Primary	484	984	253	1721
b. Secondary	50	134	42	226
c. Above Secondary	9	39	2	50
Total	543	1157	297	1997
No. of fishermen engaged in actual fishing				
Full time	2214	2052	3007	7273
Part time	26	21	99	146
Occational	108	210	66	384
Total	2348	2283	3172	7803

Craft and gear owned by fishermen: Out of 3694 catamarans in this district, 44% are from Chirala, 33% from Kandukur and the rest from Ongole taluk. Among 291 dugout canoes 98% are from Ongole and Chirala taluks with equal numbers in each. Regarding gears, 43% of 3448 gill nets are from Kandukur taluk followed by Chirala (39%) and Ongole (18%). All fixed bag nets (413) are from Chirala taluk. Out of 281 shore seines 280 are from this taluk. Among 949 boat seines in the district 431 are from Chirala followed by 329 from Kandukur and 189 from Ongole taluks

TABLE-10

Talukwise figures of marine fishing craft and gear owned by fishermen in Prakasam District

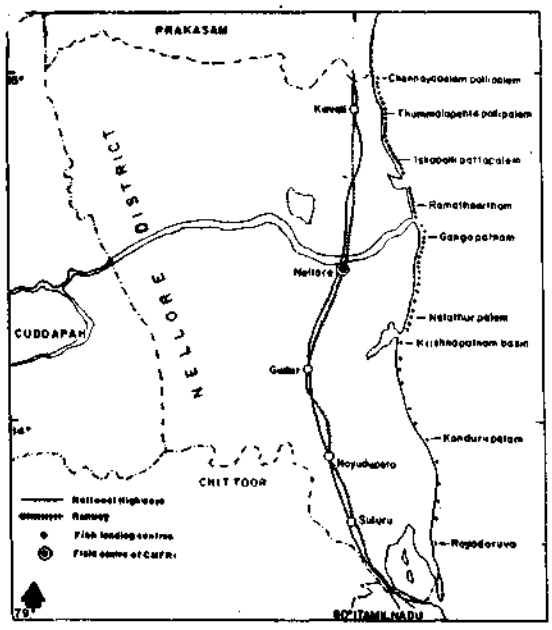
	Kandukur	Ongole	Chirala	Total
No. of fishing crafts				
a. Mechanised				
Trawlers	—	—	—	—
Gill netters	—	—	—	—
Total	—	—	—	—
b. Non-mechanised				
Plank built boats	14	—	—	14
Dug out canoes	7	141	143	291
Catamarans	1231	837	1626	3694
Others	3	106	83	192
Total	1255	1084	1852	4191
No. of fishing gears				
Trawl nets	—	—	—	—
Drift/gill nets	1496	608	1344	3448
Boat seines	329	189	431	949
Fixed bagnets	—	—	413	413
Hooks & Lines	94	135	935	1164
Shore seines	—	1	280	281
Traps	—	—	—	—
Scoop nets	—	—	19	19
Others	1055	1422	2151	4628

Other details including infrastructure facilities: Among 7651 kutcha houses belonging to fishermen, 38% are in Chirala taluk followed by 32% in Kandukur, and the rest in Ongole taluks. Regarding 137 pucca houses in the district, 75% are in Chirala taluk. Almost all the villages draw their drinking water from

wells. Only ten villages are electrified, out of which 8 are in Ongole taluk. Of the 30 villages connected by road, 11 are in Chirala, 10 in Kandukur and 9 in Ongole. Primary school facilities are available in 32 villages with 12 in Chirala, 12 in Ongole and 8 in Kandukur taluks. There are 11 villages with cooperative societies in Chirala taluk followed by Ongole (7) and Kandukur (2). One village in each of Ongole and Chirala taluks is reported to have postal facilities. Six villages in Chirala taluk have community centres. Out of 16 villages having liquor shops, 10 are in Chirala and the rest in Ongole taluk. (see Appendix).

Nellore District

Census. Among five coastal taluks in this district, Kavali (23) has maximum number of marine fishing villages followed by Kovur (12), Indukurpeta (12), Gudur (10) and Nellore (5). Regarding landing centres also the order is same with 22 landing centres in Kavali, 9 in Kovur, 8 each in Indukurpeta and Gudur and 7 in Nellore. Maximum number of fishermen households (2585) are



in Kavali taluk followed by Kovur (1817), Indukurpeta (982) Gudur (545) and Nellore (292). Same is the order in the case of fishermen population also, with 10249 fisherfolk in Kavali followed by Kovur (7729), Indukurpeta (3863), Gudur (2438) and Nellore (1277). However, in educational status, the number of persons having primary and higher levels of education is more in Kovur (830) followed by Kavali (604), Indukurpeta (341), Nellore (65) and Gudur (27).

Maximum number of fishermen engaged in full time fishing are also from Kavali Taluk (3163) followed by Kovur (2101), Gudur (704), Indukurpeta (542) and Nellore (310).

TABLE-11

Talukwise figures of marine fishing villages and fishermen population in Nellore District

	Gudur	Kavali	Kovur	Nellore	Indukur-peta	Total
No. of fishing villages	10	23	12	5	12	62
No. of landing centres	8	22	9	7	8	54
No. of fishermen households	545	2585	1817	292	982	6221
Fishermen population						
a. Adults						
Male	711	3002	2379	331	917	7340
Female	685	2932	2344	326	1076	7363
b. Children	1042	4315	3006	620	1870	10883
Total	2438	10249	7729	1277	3863	25556
Educational status						
a. Primary	23	565	800	65	315	1768
b. Secondary	4	37	29	—	23	93
c. Above secondary	—	2	1	—	3	6
Total	27	604	830	65	341	1867
No. of fishermen engaged in actual fishing						
Full time	704	3125	2077	307	525	6738
Part time	—	14	7	—	14	35
Occasional	—	24	17	3	3	47
Total	704	3163	2101	310	542	6820

Craft and gear owned by fishermen: Catamaran (3207) is the major craft used in this district. More than one third of them are from Kavali taluk, followed by Kovur (670) Gudur (538), Indukurpeta (455) and Nellore (234). Maximum number (212) of dugout canoes are in the Kovur taluk. Number of plank built boats is relatively small, maximum being in Kavali (39). Regarding drift/gill nets, boat seines and shore seines, Kavali tops the list with 1901, 361 and 65 units respectively. In the case of fixed bagnets, Kovur (759) leads followed by Kavali (651) (Table-12).

TABLE-12

Talukwise figures of marine fishing craft and gear owned by fishermen in Nellore District

	Gudur	Kavali	Kovur	Nellore	Indu-kurrpeta	Total
No. of fishing craft						
a. Mechanised						
Trawlers						
Gill netters						
Total	—	—	—	—	—	—
b. Non-Mechanised						
Plank built boats	—	39	5	4	—	48
Dug out canoes	—	2	212	—	—	214
Catamarans	538	1310	670	234	455	3207
Others	41	67	16	—	—	124
Total	579	1418	903	238	455	3593
No. of fishing gear						
Trawlnets	—	—	—	—	—	—
Drift/gill nets	1425	1901	1012	380	447	5165
Boat seines	1	361	267	42	6	677
Fixed bag nets	—	651	757	125	14	1547
Hooks and lines	1	24	255	1	—	281
Shore seines	5	65	74	9	8	161
Traps	—	—	—	—	—	—
Scoopnets	—	225	1	—	—	226
Others	—	2413	—	7	—	2420

Other details including infrastructure facilities: There are about 8700 kutcha and 280 pucca houses belonging to fishermen in this district. In both these categories Kavali taluk tops the list with 4060 kutcha and 260 pucca houses. Kovur taluk comes next with 2138 kutcha and 5 pucca houses, followed by Indukurpet with 1212 kutcha and 15 pucca houses. The other two taluks Gudur and Nellore have 961 and 320 kutcha houses respectivelv. There are 27 villages with tap facilities and 32 villages with wells for drinking water purposes. Kovur has more villages (11) with tap facilities whereas Kavali has more villages (15) with wells when compared to other taluks. Among the 8 electrified villages in the district, 4 are in Kavali taluk. All the 7 villages, having road connections are also in this taluk. Out of 17 villages having primary schools, 7 are in Kavali. (see Appendix).

Overall Picture of the State

There are 453 marine fishing villages in the entire coast ot Andhra Pradesh with 280 fish landing centres. Srikakulam leads, having 24% of the marine fishing villages, followed by East Godavari (19%), Visakhapatnam (14%), Nellore (14%), Prakasam (13%), Krishna (6%), Guntur (5%), Vizianagaram and West Godavari (3% each). The maximum number of landing centres are in Srikakulam (55), followed by Nellore (54), East Godavari (42), Prakasam and Visakhapatnam (39 each). The rest of the districts have only less than 26 landing centres each. (See Appendix).

There are about 74000 fishermen families in this state. East Godavari district has the maximum (27%), followed by Srikakulam (22%), Visakhapatnam (16%), Prakasam and Nellore (5%each), Krishna (6%), Guntur (5%), West Godavari and Vizianagaram (3% each). On an average, there are about 160 families per village. However, in East Godavari and Guntur, average number of fishermen families per village exceeds 200, having 238 and 233 families respectively, lowest (83) being in Nellore district. The average family size is 4. 5.

The total fishermen population is 3. 30 lakhs. Among them, adult males and females form 30% each and children 40%. In the total population, East Godavari accounts for 26% followed by Srikakulam (23%), Visakhapatnam (18)%, Prakasam (9%), Nellore (8%), Krishna and Guntur (5% each), Vizianagaram and West Godavari (3% each). The average number of persons per village is 720. (See Appendix).

In the state, 6% of the fishermen population have completed primary standard of education 1% secondary and less than 1% beyond secondary standard. (See (Appendix.

There are about 84,000 fishermen engaged in actual fishing in the nine coastal districts of Andhra Pradesh, forming 26% of the total marine fishermen population. Of these, 88% fall under full time category followed by part time and occasional, 6% each. The percentage of fishermen engaged in full time fishing varies from 71 to 99 in the various districts of the State. (See Appendix).

There are about 580 trawlers operating in the Andhra coast in the districts of Visakhapatnam (204), East Godavari (160), Krishna (52), Guntur (80) and Nellore (84). However, there are 447 trawlers and 9 gill netters owned by the fishermen of the state. The maximum number of mechanised craft is observed in Guntur, (62%), followed by East Godavari (25%) and Krishna (13%), trawlers being the major fishing craft (see Appendix).

There are about 36,000 non-mechanised boats in the different districts of the State. Catamaran (62%) dominates, followed by plank-built boats (31%) and dug-out canoes (5%). Among the districts, Srikakulam and East Godavari have the largest number of non-mechanised craft (24% and 23% respectively) followed by Visakhapatnam (21%), Prakasam (12%), Nellore (10%), Guntur (4%), Krishna (3%), Vizanagaram (3%) and West Godavari (1%). (See Appendix).

In the districts of Nellore, Prakasam, Srikakulam and Visakhapatnam, catamarans form the major craft (89%, 88%, 86% and 68% respectively). Plank-built boats (10% and 29% respectively) form the next major craft in Srikakulam and Visakhapatnam. In the districts of Vizianagaram, East Godavari, West Godavari, Krishna and Guntur, plank built boat is the dominant craft. (See Appendix).

There are about 800 trawl nets in the state, the maximum number being in Guntur (52%) followed by East Godavari (32%) and Krishna (16%). Of the remaining gears, drift/gill nets are maximum followed by fixed bag nets, hooks& lines, boat seines, shore seines and scoop nets.

Drift/gill nets form the major gear in all the districts of Andhra Pradesh except in Krishna and Guntur, where the major gear is fixed bag net. Hooks & lines form the second major gear in the districts of Srikakulam, Vizianagaram and Visakhapatnam. Boat seines form the third important gear in the districts of Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari and Nellore (See Appendix).

Visakhapatnam Fisheries Harbour has infrastructure facilities catering to the needs of small and large mechanised fishing vessels. The other harbours at Kakinada, Nizampatnam and Krishnapatnam are coming up. Poor marketing facility existing in some of the landing centres for want of proper roads hampers marine fishing activities of this state. Over all improvement in the infrastructure facilities such as roads would hence go a long way to improve the fishery in this coast.

EXPLOITED MARINE FISHERY RESOURCES IN ANDHRA PRADESH

Average annual marine fish landings in Andhra Pradesh during the decade 1975-84 is estimated at 1.21 lakh tonnes. Contribution from the pelagic groups has accounted for 64,000 tonnes (53%) against 57,000 tonnes (47%) from the demersal (Table-13). Data on the catches of mechanised and non-mechanised units available from 1977 onwards indicate that the contribution from non-mechanised units dominated throughout the period, accounting for about 74% (Table-14). East coast is rich in variety of species, and Andhra Pradesh is no exception. However, among the 31 major groups which contribute to the marine fish landings of this state, ten have their share totalling to more than 70%. The group clupeoids tops the list with a contribution of 30%. Among these lesser sardines form 13%, followed by *Stolephorus* 7% and other clupeids (4%). Ribbonfishes and croakers are the other major groups, contributing 8% each, followed by penaeid prawns (7%) elasmobranchs (6%), silverbellies (5%), perches and catfishes (4% each) and pomfrets, mackerel and non-penaeid prawns (3% each).

Total Landings

During the ten-year period, viz. 1975-84, the total marine fish landings in Andhra Pradesh ranged from 82,000 (1978) to 156,000 t (1975). During the years 1977 and 78-79, due to the devastating cyclones, the landings were not more than one lakh tonnes. After 1979 the landings started picking up, reaching to 1.50 lakh t in 1983 (Table 13). Mechanised units contributed more during the later part of the period under review. A similar trend is noticed in the case of non-mechanised units also (Table 14). During 1977-84, Contribution from mechanised units varied from 17000 (1978) to 47,000 t (1983) averaging to 30 000 t. In the case of non-mechanised units, the contribution was minimum (62,000 t) in 1979 and maximum (113,000 t) in 1984. In all the years except in 1975, landings in the first quarter were more. Even in this year 1st quarter ranked second among the quarters. As a whole, it may be safely said that landings in first quarter were more, followed by third, fourth and second quarters.

Contribution from pelagic/demersal groups: The contribution from pelagics to the total marine fish landings was more in the years 1975, 76, 80, 81, & 84. During these years it is interesting to note that total annual landings in Andhra

TABLE-13

Annual contributions (tonnes) of pelagic (P) and demersal (D) groups in the marine fish landings of Andhra Pradesh during 1975-1984.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
P	81523	78281	48286	39941	42049	70709	63663	58347	77133	79678
D	74115	53040	52470	42175	49377	45304	52480	59687	74351	67016
Total	155638	131321	100756	82116	91426	116013	116143	118034	151484	146694

TABLE-14

Annual contribution of marine fish landings (tonnes) by mechanised and non-mechanised units in Andhra Pradesh during 1977-1984.

	1977	1978	1979	1980	1981	1982	1983	1984
Mechanised								
Catch	26951	17147	28929	20017	26507	36094	46902	34046
Effort (in units operation in'000s)	87	98	139	91	112	124	122	118
Non-mechanised								
Catch	73805	64969	62497	95996	89636	81940	104582	112648
Effort (in units operation in'000s)	1959	1966	2418	2811	2356	2535	2642	2308
Total catch ('0001)	101	82	91	116	116	118	151	147

TABLE-15

Annual contributions of pelagic and demersal groups in the marine fish landings (tonnes) at Visakhapatnam Outer Harbour during 1980-1984

	1980	1981	1982	1983	1984	Average
Pelagic	1772	1572	986	1287	1125	1348
Demersal	6279	4534	5262	6179	5957	5642
Total	8051	6106	6248	7466	7082	6990

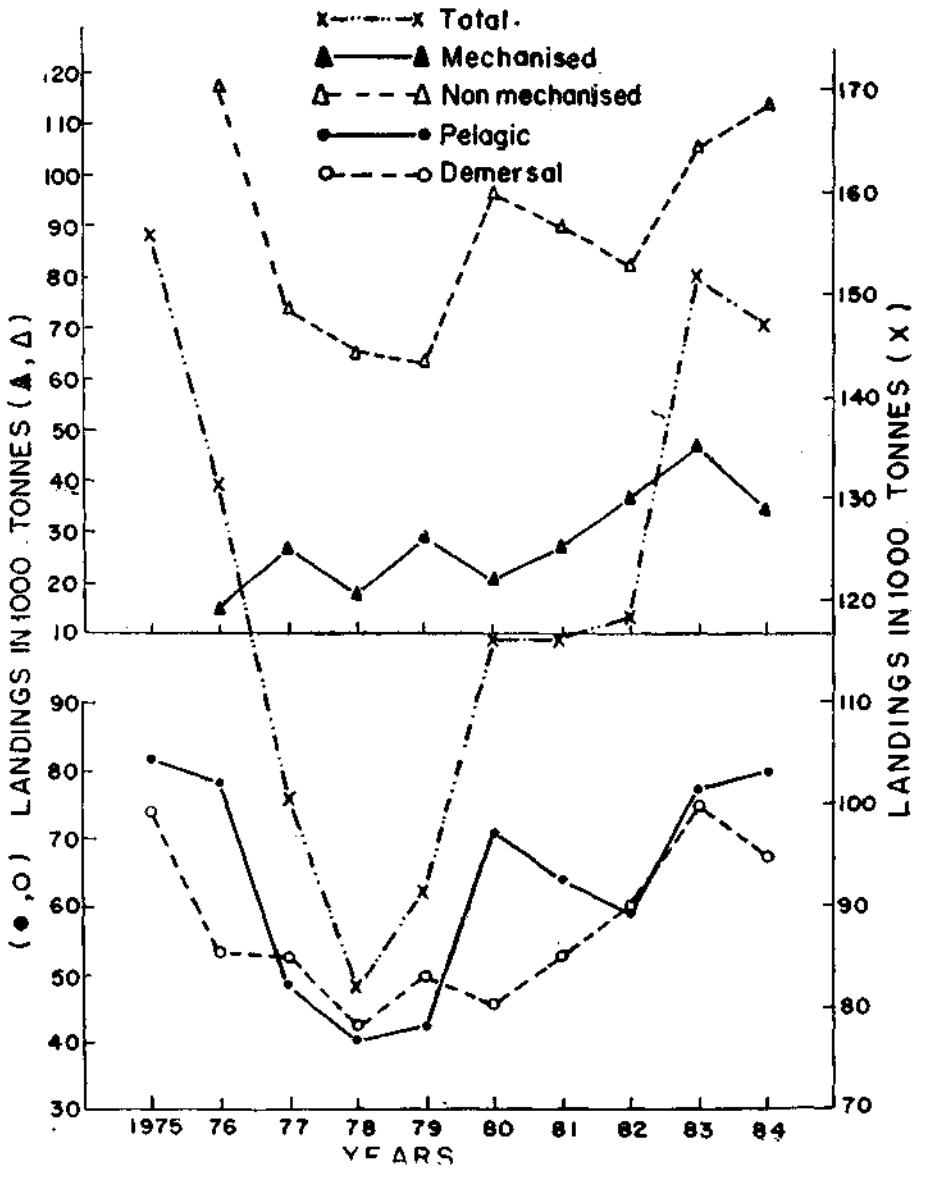


FIG. 1 Mechanized/nonmechanized—gearwise, pelagic/demersal—groupwise and total landings in Andhra Pradesh from 1975 to 1984.

Pradesh were more than 1.16 lakh tonnes. In the other years the landings were less than 1.01 lakh tonnes except in 1982, when contributions from pelagics was almost equal to that of demersals, suggesting that good pelagic landings would result in higher over all marine fish production in Andhra Pradesh. Lesser

landings in the years 1977, 78 & 79, when demersal contribution was more, support this statement (see Table 13).

Fin fishes: Among fin fishes, clupeoids, as seen earlier, dominated the landings (30%), *Lesser sardines* (13%) contributed more than any other groups under clupeoids, followed by *Stolephorus* spp (7%). During 1978 and 79 lessar sardine landings were less than 8,000 t and the total marine fish landings in Andhra Pradesh were also less than one lakh tonnes. In 1975, this group contributed maximum (33000 t) and the total landings in this state also were the highest (1,56,000 t). Regarding *Stolephorus* spp the maximum (14000 t) was in 1981 and minimum (4400 t) in 1984.

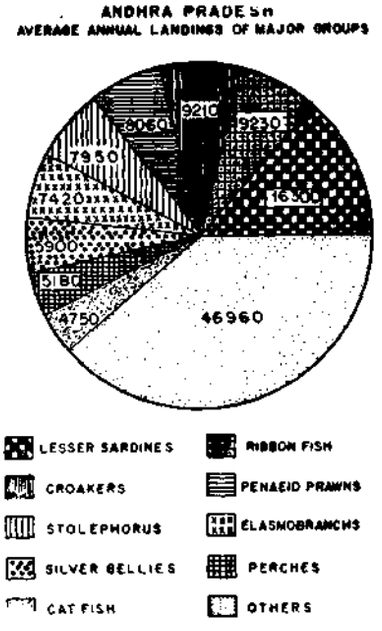


FIG. 2. Average annual landings of major groups in Andhra Pradesh.

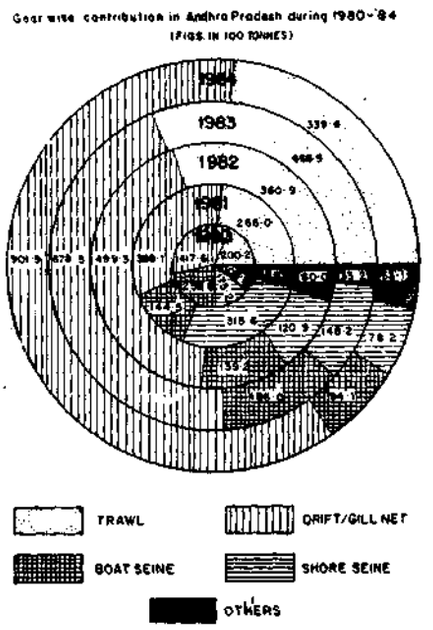


Fig. 3. Gearwise contribution in Andhra Pradesh during 1980-84 (Figures in '00 tonnes)

Next in the order comes ribbonfishes and croakers. Maximum contribution (15400 t) of ribbonfishes was in 1980 and the minimum (5500 t) in 1978. Percentage contribution of ribbonfishes to the total during the period under review ranged from 4.4. (1984) to 13.5 (1980). Landings of croakers varied from 5600 t in 1978 to 11700 t in 1975, with the percentage contribution to the total landings ranging between 5.5 (1984) and 10.1 (1977). Contribution from elasmobranchs was maximum (10000 t) in 1984 and 1975 and minimum (4800 t)

in 1980. Percentage contribution of this group to the total ranged between 4.2 (1980) and 10.6 (1978). Silverbellies recorded the maximum landings (11400 t) in 1975 and minimum (2200 t) in 1978, thus showing wide fluctuations during the ten-year period. In the percentage contribution also wide fluctuations have been noticed in the silverbellies landings, the range being 2.65 (1978) and 8.49 (1981). The landings of perches varied from 1751 t (1976) to 11125 t (1984) and the percentage contribution from 1.38 (1976) to 7.58 (1984). Thus agreement between the percentage and actual contributions has been noticed in this case. Catfishes contributed to the total landings varying from 2.0% (1980) to 6.3% (1975). Pomfret landings from 5700 t in 1975 started declining to 2100 t in 1979, then picked up reaching 9900 t in 1984 indicating a clear trend. Regarding their percentage contribution the decreasing trend from 3.7% in 1975 to 1.9% in 1980 was noticed and thereafter an increasing trend could be seen till 1984, reaching the maximum of 6.7% in 1984. Such a clear trend is not there in the landings of seerfishes, their landings ranging from 2,600 t (1977) to 8,100 t (1984). In the order of landings of those groups contributing not less than 3%, mackerel is the last one, its contribution ranging from 1000t (1977) to 6500t (1983) The percentage contribution of mackerel to the total was the least (1.0%) in 1975 and 1977 and maximum (5.4%) in 1980.

The seasonal abundance of different groups off fin fishes also varies. Each group has its own seasons of abundance. In most of the years the first and fourth quarters recorded better landings of clupeoids. Since clupeoids contributed about 30% of the total landings this observation holds good for the total landings also as indicated earlier. So is the case with the lesser sardines. However, in the case of *Stolephorus* spp, the first two quarters recorded maximum landings during 1976-78 and first and fourth quarters during 1979, 81, 82 & 84. In the case of ribbonfishes, the third quarter appears to record better landings during the period under review followed by the second quarter. Regarding croakers no such clear cut indications are available. However, their contribution in the second quarter appears to be lean. Elasmobranchs recorded good landings in the first two quarters in the years 1976, 80 & 81, the first and third quarters during 1975, 79, 82, 83 & 84. Thus the first quarter appears to be a good season for elasmobranchs. First two quarters were good seasons for silverbellies during 1976, 77, 79, 81, and first and third during 1982, 83 & 84. As a general remark for this group also, first quarter appears to be favourable. Similar statement holds good in the case of perches for which the first two quarters indicated better landings during 1975, 76, 77, 80, 81 ,83, first and third quarters in 1978 & 82 and first and fourth quarters in 1079& '84. In the case of catfishes, first two quarters during 1977, 81 & 83, and first and third quarters during 1975, 78, 80 & 84 had recorded better landings. Mackerels recorded good landings in the first two quarters

during 1976, 77, 81 & 84 and first and fourth quarters during 1978, 79, 80, 82 & 83. Pomfrets landed in good quantities during first two quarters in the years 1975, 77 & 81; first and third quarters in 1979, 80 & 82, and first and fourth quarters in 1978, 83 & 84. However, in the case of seer fishes first two quarters landed relatively more quantities only in 1975 & 81, and first and third quarters in 1976, 77, 79, 80, 82 & 84. From the above account it is clear that first quarter landings of fin fishes were relatively more during the decade under review.

Crustaceans: Among crustaceans penaeid prawns top the list followed by [redacted] non-penaeid prawns, crabs and lobsters. On an average only 20 t of lobsters were landed during the period under review.

The landings of penaeid prawns ranged from 5700 t in 1980 to 10600 t in 1983 indicating no regular trend during the period under review. *Metapenaeus dobsoni, M. monoceros* and *P. indicus* were the dominant species under this group. The contribution of this group to the total landings varied from 4.6% (1975) to 9.8% (1978). Considerable quantities of non-penaeid prawns were landed in Andhra coast when compared to other regions in the east coast. On an average about 3300 t (2.7%) of this group were landed in Andhra Pradesh during this decade, major landings coming from East Godavari District, particularly Kakinada region.

Cephalopods accounted for less than one percent only of the total marine fish landings in Andhra Pradesh, the average landings being 420 t.

Effort pattern: In the exploitation of marine fisheries in the inshore waters under mechanised units, only small trawlers were operated throughout the period under report barring a few gill netters in the later years whose contribution was insignificant. Apart from these, large trawlers numbering about 70 were operating off Andhra coast and using the infrastructure facilities available at Visakhapatnam Fisheries Harbour. Catch and other details from these large trawlers were not available for CMFRI for a unified approach to the problem of assessing the impact of the mechanised units on marine fishery resources of this state. However, from the available data it was noticed that about 1,39,000 units of operation of mechanised units have been estimated in 1979, the maximum during the decade and 86500 units in 1977, the minimum in the period 1977-84. Whereas the maximum landings (46900 t) from mechanised units were in 1983 with the number of units of operation being 121700 and minimum 17100 t in 1978 with the corresponding units numbering 97800. From table 16 it is evident that there is no clear cut relationship between effort expended and quantities landed. (Table 17)

TABLE-16

Annual contributions of pelagic and demersal groups in the marine fish landings (tonnes) at Kakinada Fisheries Harbour during 1980-84

	1980	1981	1981	1983	1984	Average
Pelagic	2697	2067	5075	6130	4677	4129
Demersal	6328	5849	9758	14188	11577	9540
Total	9025	7916	14833	20318	16254	13669

TABLE-17

Gearwise annual marine fish landings (tonnes) and effort (in brackets in '000s of units of operations) in Andhra Pradesh during 1980-84

Gear / Year	Mechanised Trawl	Non-mechanised Drift/Gill net	Boat seine	Shore seine	Others	Total
1980	20017 (99)	41756 (1635)	25861 (398)	17522 (167)	10857 (608)	116013
1981	26507 (112)	38813 (1624)	14447 (303)	31558 (153)	4818 (276)	116143
1982	36094 (124)	49928 (1759)	13919 (350)	12094 (119)	5999 (307)	118034
1983	46892 (122)	67848 (1996)	18598 (325)	14826 (192)	3320 (130)	151484
1984	33962 (118)	90188 (1830)	9415 (227)	7820 (63)	5309 (188)	146694
Average) catch	32694	57707	16448	16764	6061	129674
Average) Effort	115	769	321	139	302	

In the case of non-mechanised sector, unit operations of different gears cannot be added, as they have different pattern of exploitation on different segments of resources. However, for an overall understanding, table 17 indicates that maximum effort (28,11,000 units in 1980) resulted in about 96,000 t of landings, though the maximum landings were 112,600 t in 1984 when the effort level was at 2308,000 units. In this case also no clear cut relationship between the effort expended and the landings could be discerned.

Districtwise Account

For this account, data for the five year period 1980-84 alone are considered. The total landings in East Godavari were more followed by Srikakulam, Visakhapatnam, Prakasam, Nellore, Guntur, Krishna, West Godavari and Vizianagaram.

In the case of non-mechanised craft, Srikakulam recorded more landings, followed by East Godavari, Prakasam, Visakhapatnam, Nellore, Guntur, West Godavari, Krishna and Vizianagaram. However, in the contribution of mechanised units, East Godavari landed more catches, followed by Visakhapatnam, Guntur, Nellore, Krishna, Prakasam and West Godavari, whereas in Srikakulam the landings were less than 100 t and nil in Vizianagaram (See Appendix). This clearly indicates that there is enough scope to increase the marine fish landings through mechanised units in the districts of Srikakulam and Vizianagaram.

In Srikakulam District the landings in the first and fourth quarters were always more than the second and third quarters, thus conforming to the overall trend in the state during the period under reference. No such trend was noticed in the case of Vizianagaram. In Visakhapatnam the estimates were more in the first two quarters of 1980, 81, 83 and 84, whereas in 1982 the catches during third quarter was high followed by first, fourth and second quarters. In East Godavari the landings in the first two quarters were higher in all the years except in 1982, when first quarter was followed by fourth. No such trend could be seen in West Godavari District. In this district no fishing was reported during the third quarter in 1980 and 1981. In Krishna District the catches in the first quarter were higher in 1980, 81 and 84 whereas in 1982, landings in the second and third quarters were considerably higher than those of in first and fourth quarters. So far as Guntur District was concerned, the estimates in the last two quarters were higher than the rest of the quarters throughout the period except in 1984, when first and fourth quarters dominated. As regards Prakasam District, estimates in the third quarters of 1980 and 1983 were more than the landings in each of the other quarters in these years. However, in 1981 and 1984 first quarter was leading. In the case of Nellore District third quarters of 1980, 82, 83 and the first quarter of 1981 were leading. In the overall total, first quarter landings were more than the other three quarters in all the years as seen earlier.

Srikakulam District

During 1980 about 22,000 tonnes of marine fish were estimated to have landed along the coast of this district, forming 19% of the total marine fish landings in Andhra Pradesh. It was third among the coastal districts in the order of abundance of landings in this year. However, in 1981 it stood first, landing 32% of the total catches in the state. The first quarter contributed more, followed by the fourth, third and second quarters. In 1982 its contribution (20%) was second among the districts, amounting to about 23,000 tonnes. In this year also the trend in quarterwise contribution was the same as in 1981. In 1983 and 84 also it stood second among the districts, contributing 16% and 14% respectively of the total landings.

Regarding the species contribution in 1980, catches of other sardines (36%) were more, followed by anchovies (16%) mackerel (8%), silverbellies (6%) ribbonfish (6%), non-penaeid prawns (4%), and penaeid prawns (3%). In 1981 anchovies (30%) dominated the landings followed by other sardines (28%), silverbellies (20%), mackerel (3%), pomfrets, carangids and ribbonfish (2% each) and penaeid prawns (1%). During 1982 higher catches of other sardines (35%) were recorded, followed by anchovies (16%), silverbellies (7%), penaeid prawns (6%), ribbon fish and carangids (5% each) and non penaeid prawns (2%). In 1983 the catches of other sardines were leading (36%) followed by anchovies (20%) penaeid prawns and silverbellies (8%) each), carangids (6%), croakers (4%), ribbon fishes (3%) and mackerel (2%). During 1984, other sardines (45%) dominated the landings. Other groups in the order of abundance were penaeid prawns (7%), ribbon fishes (6%), carangids (6%), silverbellies, seer fishes and mackerel (5% each), anchovies (4%) and elasmobranchs (3%). Thus in all, major contribution to the total marine fish landings in Srikakulam district has come from other sardines and anchovies both together accounting for more than 50% of the catches.

Vizianagaram District

Estimated marine fish landings were 1348, 1112, 2548, 2810 and 4390 tonnes, forming 1%, 1%, 2%, 2% and 3% in the state totals in 1980, 81, 82, 83 and 84 respectively. There was no definite trend in the quarterwise landings in this district during this period. Other sardines dominated the catches in all the years ollowed by seerfish. Other groups that contributed to the total landings in this district were anchovies, carangids, mackerels, ribbon fish, catfishes and prawns.

Visakhapatnam District

Considerable fishing activities are generated in Visakhapatnam district due to the presence of the fishing harbour at Visakhapatnam. The landings in the first two quarters dominated over the rest during 1980, 81, 83 and 84. The estimates for the first quarter in 1980 and 1984 and that of second quarter in 1981 and 1983 were higher than the rest of the quarters. However, in 1982 third quarter contributed more followed by first, fourth and seeond quarters.

During 1980, 16% of the total marine fish landings in Andhra Pradesh came from this district out of which pelagic group contributed 52%. Carangids (13%), anchovies (12%), perches (10%), croakers (7%), penaeid prawns and ribbonfish (6% each) were the important groups. In 1981 contribution from this district to the state remained more or less same (15%) as in 1980, pelagic groups contributed 58%. Ribbon fish (15%) landed more among the species when compared to other groups. Next in importance was other sardines (12%) followed by penaeid prawns, seer fish and perches (7% each) and anchovies, croakers and carangids

(6% each). In 1982, pelagic group contributing 54%, the above trend was more or less maintained both in total landings and groupwise contribution, in that the landings from other sardines amounted to about 15% of the total landings followed by perches (10%), anchovies (8%), seer fish and penaeid prawns (7% each) and lizard fishes (6%). Contribution from nonpenaeid prawns was only 2%. This district contributed 15% to the total landings of Andhra Pradesh in 1983 with pelagic group sharing 52%. In this year also other sardines dominated (17%) the catches, followed by perches (11%), penaeid prawns (7%), mackerel (6%), *Stolephorus* spp. (5%), ribbonfishes, silverbellies, catfishes, croakers and seer fishes (4% each) and elasmobranchs (3%). However, in 1984 this district contributed only 14% to the total, in that pelagics formed 60%. About 27% was the contribution from other sardines alone, followed by perches (8%), ribbon fishes (7%) penaeid prawns (6%), croakers and mackerel (5% each), elasmobranchs and seer fishes (3% each).

East Godavari District

East Godavari District led the rest of the districts in total marine fish landings in Andhra Pradesh during 1980 (22%), 1982 (24%), 1983 (26%) and 1984 (27%). Good landings at the Kakinada Fisheries Harbour have contributed to this trend. In 1981, though the contribution from this district was 29%, it ranked second. In commensuration to this contribution to the total marine fish landings, the number of marine fishing villages is 84, second to the district Srikakulam (105) only. In the number of landing centres, this district stands third. However, this district ranks first as regards to the number of fishermen households as well as fishermen population.

Throughout the period under report, the contribution in the first quarter topped the rest of the quarters, followed by second, fourth and third quarters. During the five year period, pelagic contribution was more during 1980 and 1984. However, on an average, pelagics contributed 49%. Contribution from mechanised craft-trawlers only-ranged from 35% (1980) to 60% (1982), forming 50% on the average. In the order of abundance, in 1980 anchovies (19%) dominated the total landings followed by carangids (11%), penaeid prawns (9%), ribbon fish (8%), croakers, elasmobranchs and mackerel (6% each). Significant contribution from the non-penaeid prawns (4%) was also noticed during that year. During 1981 penaeid prawns (11%) ranked first followed by ribbonfish and carangids (10% each) contributing in good quantities. The other groups which contributed significantly were perches (9%) anchovies (8%) and elasmobranchs (7%). Penaeid prawns contributed 13% during 1982 followed by perches and carangids (9% each) other sardines and anchovies (7% each), ribbon fish (6%) and non-penaeid prawns (5%). Carangids contributed 11% during 1983 followed by perches (10%), penaeid prawns (8%), non-penaeid prawns and other sardines

(7% each), silverbellies (6%) and croakers and ribbon fish (5% each). In 1984 penaeid prawns, pomfrets and other sardines contributed 9% each followed by *Stolephorus* and perches (7% each), croakers and carangids (6% each) and silverbellies and ribbon fish (5% each).

West Godavari District

The total marine fish landings in the district ranged between 1 and 3% of the total state landings during the period under review. Among the quarters, the landings in the first quarter of 1981, 1982 and 1984 and the last quarter of 1980 and 1983 were higher. On an average, during 1980-84, pelagics contributed 40% and the mechanised craft 10%. Among the groups elasmobranchs (32%) dominated the landings in 1980 followed by bombayduck (17%), perches (8%), catfishes (6%), ribbon fish, pomfrets, croakers and other clupeiods (5% each) and penaeid prawns (3%). In 1981 bombayduck (21%) contributed more. The other important groups in order of abundance were ribbonfish and pomfret (13% each), elasmobranchs (12%), other clupeiods (10%) and penaeid prawns (3%). However, elasmobranchs (16%) were dominant during 1982, followed by pomfrets (12%), bombayduck and croakers (11% each), other clupeiods (10%) and penaeid prawns (7%). In 1983 sharks contributed 21%, followed by pomfrets (19%) croakers (12%) other clupeoids (9%) seer fish (6%) and penaeid prawns (5%). In 1984 pomfrets contributed more (31%), followed by other clupeoids (16%) sharks (15%) bombay duck (6%) and mackerel (5%).

Krishna District

This district contributed about 5% of the total state landings during the period under review. Pelagics accounted for 39% of the total landings and the contributions from mechanised craft accounted for 36%. There is no definite trend discernible in the quarterly landings of this district. During 1980, 1981 and 1984 the landings in the first quarter were more than the rest whereas in 1982 and 1983 the catch in the third quarter was the maximum. Croakers (24%) landed more in 1980. Other clupeoids (19%), cat fishes 13%), ribbonfish (6%), elasmobranchs and other shads (5% each) and penaeid prawns (3%) were the other important groups that contributed to the fishery in 1980. In 1981, croakers (21%) dominated the catches followed by catfishes (17%), other clupeoids (16%), elasmobranchs and anchovies (8% each) and penaeid prawns (4%). As in 1981, in 1982 also croakers emerged out as the major group (26%). Other clupeoids (13%), cat fishes and elasmobranchs (8% each), penaeid prawns (7%) and anchovies (6%) were other important groups contributed to the total marine fish landings in this district. Croakers dominated the landings both in 1983 (22%) and 1984 (20%). Considerable quantities of prawns (13%) were landed in 1983 only. Other clupeoids contributed 10% and 18% during 1983 and

1984 respectively, followed by sharks 9% (in both the years), pomfrets 7% and 12% in 1983 and 1984, respectively, and ribbonfish 10% in 1983.

Guntur District

The share of this district in the marine fish landings of Andhra Pradesh was 7% in 1980, 3% in 1981 and 6% each in 1982 and 1983 and 7 % in 1984. In general, the last two quarters registered better catches followed by first and second quarters in the period 1980-84. Contributions from pelagics ranged from 28% (1981) to 65% (1980) with an average of 47% during the five year period. In the case of mechanised units contribution also, there was a wide fluctuation ranging from 19% in 1980 to 67% in 1981 with an average of 38%.

During 1980, ribbonfish were landed in good quantities (30%). The other groups in the order of magnitude of landings were croakers (16%), other sardines (12%), other clupeoids (9%), mackerel (7%) and penaeid prawns (5%). However, in 1981 croakers (24%) dominated the catches followed by penaeid prawns (13%) other clupeoids (9%), pomfrets (6%) and perches (3%). In 1982 good landings of prawns (17%) resulted in the elevation of its rank second to croakers (18%). Pomfrets and seer fish (8% each) came next followed by other shads and other clupeoids (7% each). During 1983 also croakers dominated (19%) followed by other shads (11%), penaeid prawns and mackerel (8% each), other clupeoids and silverbellies (6% each) and caranx and pomfrets (5% each). However, in 1984 other shads contributed (30%) to the total, followed by croakers (8%), penaeid prawns, elasmobranchs, cat fishes and mackerel (7% each), perches (6%) and seer fishes (5%).

Prakasam District

The contribution of this district to the state was 20% in 1980, 8% in 1981, 11% in 1982 and 1983, and 15% in 1984. In 1980, catches in the third quarter were more followed by fourth, first and second quarters. In 1981 the landings in the first quarter were maximum whereas in the other three quarters the landings were more or less of the same magnitude. However, in 1982, more landings were recorded in the third quarter followed by fourth, first and second quarters, reflecting the trend of 1980. In 1983 more landings were recorded in the fourth quarter followed by first, third and second. During 1984, first quarter dominated followed by fourth, third and second. Pelagics contributed 52% on an average during 1980-84 ranging from 39% (1982) to 70% (1980). Contribution from mechanised units was relatively less in this district, the contribution ranging from almost nil in 1980 to 8% in 1983 with an average of 3%.

Maximum landings were that of ribbon fish (31%) in 1980 followed by other sardines (12%), other clupeoids (10%), croakers (8%), mackerel (6%), non-pena-

eid prawns (4%) and penaeid prawns (2%). However, in 1981, other clupeoids (19%) dominated the catches and croakers (14%) came next. The other important groups that contributed to the fishery were cat fishes (8%), anchovies and perches (7% each), pomfrets (6%), non- penaeid prawns (4%) and penaeid prawns (3%). In 1982 elasmobranchs and seer fish (12% each) were the major groups. Pomfrets (11)%) and threadfins (10%) have also contributed in good quantities to the total marine fish landings in this district. The other important groups were penaeid prawns (7%), perches and hilsa shad (6% each) and non-penaeid prawns (4%). Other shads (12%) dominated the catches during 1983 followed by ribbon fishes (11%), seer fishes (10%) mackerel (9%), elasmobranchs (7%), croakers and pomfrets (6% each) carangids and other clupeoids (5% each). In 1984 however, perches contributed maximum (18%) followed by seer fishes (14%) elasmobranchs (13%) other shads (10%), pomfrets (8%). catfishes (7%) and threadfins (6%).

Nellore District

Nellore District is the southern most, having 14% of marine fishing villages and 20% of the landing centres of Andhra Pradesh. Krishnapatnam is a fast developing landing centre both for indigenous and small mechanised craft.

Ten percent of the total marine fish landings in Andhra Pradesh came from this district in 1980, 6% in 1981, 13% in 1982, 15% in 1983 and 9% in 1984 Third quarter landings were more in 1980, 1982 and 1983 whereas in 1981 and 1984 the landings in the first quarter were more followed by that of the third quarter. Pelagics and demersals contributed 40% and 60% respectively on an average during 1980-84, the contribution from pelagics ranging from 32% (1982) to 50% (1980). Mechanised units contributed 19% on an average to the total marine fish landings in this district during 1980-84.

Anchovies (15%), croakers and ribbon fish (14% each), non-penaeid prawns (12%), perches (7%), pomfrets (5%), other clupeoids (4%) and penaeid prawns (3%) were the major groups that contributed to the fishery in this district during 1980. However, in 1981, catfishes (18%) were dominant in the landings followed by non-penaeid prawns (9%), anchovies and ribbonfish (7% each), other clupeoids and elasmobranchs (6% each), silverbellies (5%) and penaeid prawns (4%). During 1982, croakers, ribbon fish and non penaeid prawns (13% each) landed in good quantities. The other important groups were perches (8%), elasmobranchs (7%) silverbellies (6%) and penaeid prawns (5%). During 1983, ribbonfishes landed in good quantities (16%) followed by elasmobranchs (12%) croakers (10%) non-penaeid prawns (9%) silverbellies (7%), seer fishes and perches (6% each) and carangids (5%), However, in 1984 the dominant groups were elasmobranchs, croakers and carangids (11% each) followed by

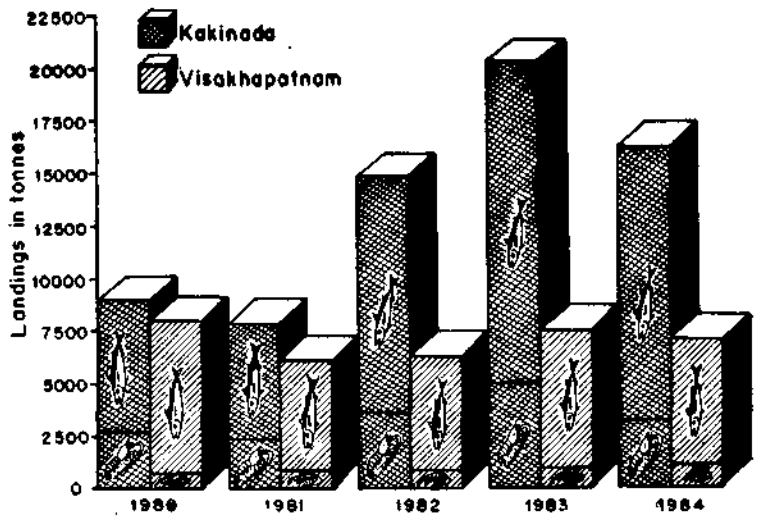
perches (10%), seer fishes (8%), penaeid prawns (7%), silver bellies and mackerel (6% each) and cat fishes and thryssa (5% each).

Fisheries Harbours

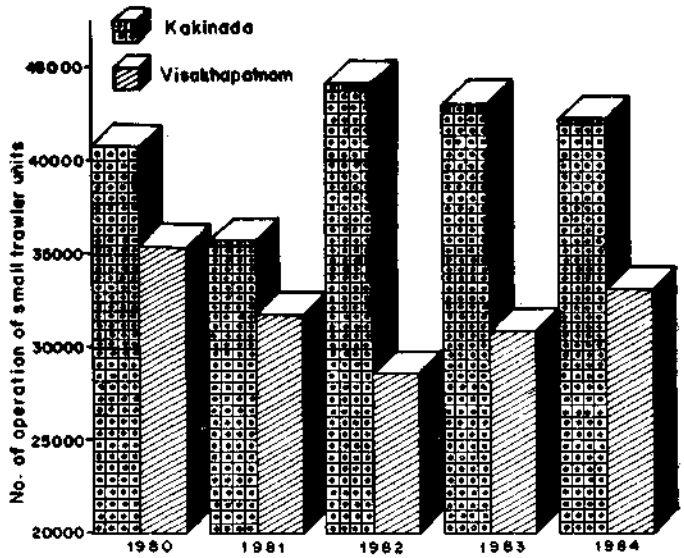
Among the mechanised fish landing centres, fisheries harbours at Visakhapatnam and Kakinada are the most important ones at present, in Andhra Pradesh.

At Visakhapatnam, on an average about 130 small trawlers operated daily during 1980-84 with a catch per unit effort of 220 Kg. The contribution in the third quarter was more throughout the period under review when compared to other three quarters (See Appendix). The average annual catch during this period under reference was about 7000 tonnes, 81% of which is from demersals (Table 15). Penaeid prawns, the most important group sustaining the fishing activities of this centre, contributed 10 % in 1980 and 13% in each of 1981 and 1982, 12% in 1983 and 15% in 1984 in the total catch landed in this harbour. *Metapenaeus monoceros* was leading in the penaeid prawns contributions of this harbour followed by *Penaeus indicus*, *Metapenaeopsis* spp. and other penaeid prawns. In all the five years, perches dominated the catches (17 to 28%), threadfin breams being the important group. In 1980 croakers were second (11%) in the order of landings, whereas, in 1981 their landings ranked third (10%) and in 1982 fourth (5%). In 1983 and 1984 it contributed 7 and 9% respectively. Carangids landed in good quantities during 1980 forming 11% of the total catches. In 1981 it constituted 7% of the catches only. However, in 1983 and 1984 it contributed less than 4% only. Landings of lizardfishes were considerable throughout the five year period. In 1980, 1981, 1983 and 1984 their landings ranked second among the groups that constituted the total marine fish landings in this district. Though ribbon fish landings were not in good quantities in 1980, in 1981 and 1982 this group formed a good fishery resulting in 14% and 5% of the total catches respectively. During 1983 and 1984 the contribution from this group were 9 and 8% respectively. Silverbellies catches were also good. The contribution of this group to the total landings is 6% in each of the three years (See Appendix)

Smaller mechanised trawlers in Kakinada fisheries harbour landed about 9000, 8000, 15000, 20000 and 16,000 t respectively during these five years thus showing a peek in 1983. The average number of smaller trawlers operating per day was about 160. In contrast to Visakhapatnam fisheries harbour where 3rd quarter was dominant over the rest, at Kakinada fisheries harbour first quarter landings dominated throughout the five year period (See Appendix). The intensity of fishing operations in terms of number of units operating per day, and catch per unit per day, which works out to 330 Kg, are relatively higher when compared to



Catches landed (in tonnes) at the fishery harbours at Kakinada and Visakhapatnam during 1980-84



Number of operations of small trawler units from Kakinada and Visakhapatnam fishery harbours during 1980-84

the landings at Visakhapatnam fisheries harbour. (See Appendix). During the five year period average annual landings were 14,000 t of which demersals formed 70%. (Table 16).

Penaeid prawns were landed in good quantities in this harbour- Major landings of penaeid prawns were recorded during 1980–84 amounting to 21% in 1980, 25% in 1981, 18% in 1982, 12% in 1983 and 18% in 1984 and ranking firs among the groups that landed during 1980, 82 and 1984. Major species were *Metapenaeus monoceros M. dobsoni* and *Penaeus indicus*. The other species that contributed significantly to the total landings of penaeid prawns were *P. merguiensis, M. affinis, M brevicornis* and *Solenocera* spp. Non-penaeid prawns also were landed relatively in more quantities in this harbour, *Acetes* spp. being the major component.

Among the fin fishes, croakers and ribbon fish (10% each) were dominant in 1980 followed by anchovies (8%), silverbellies (7%) and carangids (5%) in the landings at Kakinada fisheries harbour. During 1981, carangids (16%) were dominant in the landings. Perches (10%) came second. Croakers (6%), elasmobranchs and silverbellies (5% each) were other important groups contributing to the total landings. In 1982 perches ranked first (16%) followed by carangids (12%). Ribbonfish and silverbellies (6% each) and anchovies (4%) have also contributed to the total landings in good quantities. Perches dominated during 1983 and 1984 forming 15 and 16% respectively, followed by carangids (14 and 10%), silverbellies (8 and 10%), clupeoids (6 and 11%), ribbon fishes (7 and 6%) and croakers (5 and 6%).

Regarding offshore catches by large vessels, no complete coverage was possible during this period, as the catch details from the most of the companies engaged in offshore fishing were not forthcoming. Hence this report does not touch this aspect.

Gearwise Landings

During the period 1980-84, out of an average landings of 1.30 lakh tonnes, major contribution (45%) came from drift/gill nets, followed by smaller trawlers (20%), shore seines (13%), boat seines (12%) and others (5%). Among these gears, trawls alone come under mechanised units. The landings from drift/gill nets ranged from 39,000 t (1981) to 90,000 t (1984). But for 1981, the overall trend in the contribution from this sector was increasing, indicating a good scope for this fishery. Similar trend is noticed in the case of smaller trawlerst also but for the decline in 1984. The total landings from this sector ranged from 20000 t (1980) to 47000 t (1983). However, in the case of boat seines and shore seines, a declining trend was discernible during the period under review (Table 17).

MANAGEMENT OF MARINE FISHERY RESOURCES

For effective management of any living resource, a correct information on its availability is a basic need. To take advantage of the renewable nature of the resource, intensity of exploitation of the resource in question also should be known so as to assess the impact of the exploitation on it. The earlier two chapters have provided information on the effort pattern available in Andhra Pradesh and the estimates of the landings in the small scale marine fisheries sector of this state. These estimates as such may not be able to give a complete picture of the resource availability in the region. Hence, an attempt is made in this chapter to get an estimate on the availability of exploitable resources in the present area of fishing based on the data on presently exploited resources, so that it may indicate whether the present level of exploitation is favourable or the resources are over or under exploited.

For this purpose the problem of assessing the availability of exploited stocks is studied from different angles so as to come to a reasonably reliable conclusion. In the first part, under macro-analytic model, the procedures followed are 'Maximum Contribution Approach' and 'Relative Response Model'. (Alagaraja 1984).

Maximum Contribution Approach (MCA)

Groupwise landings in Andhra Pradesh have not so far indicated any perceptible interaction between the groups, so also the contributions of different types of gear. In the absence of such interaction, M C A would indicate the level of exploitable fishery resources of a given region. Under this procedure groupwise landings for the period 1975-84 (see Appendix) have been considered. The maximum estimate for each group during this period has been noted and such estimates are added to arrive at the maximum yield expected from this state. For example, the maximum landing of elasmobranchs was 10,000 t in 1984. In this way the corresponding maximum estimates for 13 groups have been considered and they total to 2.03 lakh tonnes. (See table on the next page).

From these two estimates it may safely be assumed that at the present area of exploitation the annual marine fish landings in Andhra Pradesh may be expected to be 2.00 lakh tonnes under the best favourable conditions. This level, in a difference of about 80,000 t from the average, can be reached, once sustained efforts are made to exploit the marine fishery resource in this state.

	Maximum landings (tonnes)	Year
Elasmobranchs	10,000	1984
Catfishes	10,000	1975
Lesser sardines	33,000	1975
Stolephorus	14,000	1981
Perches	12,000	1984
Croakers	12,000	1975 & 83
Ribbonfishes	16,000	1980
silver bellies	12,000	1975
Pomfrets	10,000	1984
Mackerel	7,000	1980 & 83 & 84
Penaeid prawns	11,000	1983
Non-penaeid prawns	6,000	1977 & 83
Others	50,000	1980 & 84
Total	203,000	

Similar exercise is done for gearwise landings for the period 1980-84. In this case the total of the maximum yield is 2.06 laks tonnes as follows:-

	Maximum landings (tonnes)	Year
Trawl	47,000	1983
Drift/gillnet	90,000	1984
Boat-seine	26,000	1980
Shore-seine	32,000	1981
Others	11,000	1980
Total	206,000	

'Relative response model' does not appear to be applicable for this ten-year period owing to fishery independent factors, such as cyclones affecting the fishery in the years 1977-79 and their after effect felt till 1982. The maximum landings reported in 1975 were almost equal to the landings in 1983 amounting to 1.51 lakh tonnes followed by a slight decline in 1984. Since effort adjustment is a known feature in the small scale fishery, this trend clearly indicates 1.50 lakh tonnes as the safe level for the resources in the present area and level of exploitation. However, control over the size at first capture, in other words mesh regulation, particularly in the case of trawls may go a long way in improving the catches. This has been clearly pointed by the change in average size of fish and

prawns obtained in the recent years (Sudhakara Rao *et. al* 1980). Hence proper control of fishery dependent factors may increase the yield to 2.0 lakh tonnes, as indicated under maximum contribution approach.

Yet another approach based on productivity studies (Ramachandran Nair *et. al* 1973) has indicated that the maximum exploitable yield from the east coast could be estimated at a little over 6 lakhs tonnes for the total shelf area of 11.2 million ha, of which Andhra Pradesh has a share of 29%. Hence, according to this account the maximum exploitable yield from this state comes to about 1.75 lakh tonnes,which is just the average of the estimate obtained under Maximum contribution approach and the maximum landings estimated during 1975-84. Jones *et. al* (1973), basing on primary productivity, assumed thatu potential yield is 0.024 C where C is the gross carbon production. Using this factor the expected exploitable yield from Andhra Pradesh works out to be 2.4 lakh tonnes. George *et. al* (1971) have indicated exploitable yield of about 10.00 lakh tonnes in the 0.50 m depth area itself in the east coast. For the area up to 200 m depth, their estimate was 14.20 lakh tonnes. The share of Andhra Pradesh for the area up to 50 m depth works out to 2.63 lakh tonnes and the corresponding figure for the area in the 51-200 m depth range is 1.22 lakh tonnes, totalling to 3.85 lakh tonnes, the highest so far arrived at.

On the basis of the above analysis and observation, the range of exploitable marine fishery resources in Andhra Pradesh in 0-50 m depth is 1.50-2.63 lakh tonnes. However, a safe level of 2.0 lakh tonnes as average annual marine fish production from this state can be considered for immediate planning and management of small scale marine fisheries sector.

Assessing the exploited stocks through micro analytic model requires information on mortality, growth etc. Beverton and Holt model is widely used for this purpose as the same is able to throw light on the required level of effort and the size at first capture for reaping maximum sustainable yeild. However, this approach is species and gear-specific. Hence such studies are confined only to certain species particularly penaeid prawns, *Nemipterus* spp. and cat fishes and certain gears, shrimp trawl in this case, (Sriramachandra Murthy. 1983) indicating the scope for improving the catches by increasing the mesh size. Mesh regulation has been found to be the urgent need so as to maintain the stocks at the sustainable levels. Sudhakara Rao *et. al* (1980) have indicated that from the earlier mesh size of 25 mm, the mesh size has come down to 10-20 mm and later it has further come down to 8-20 mm in Kakinada region. Out of the sampled 37 nets, 85% had meshes below 17 mm resulting in the reduction of mean size of prawns caught. Moreover, the reduction in mesh size has been responsible for the capture of smaller sized prawns like *Acetes* spp. In the

light of this, it may be mentioned that increase in mesh size may affect non-penaeid prawn fishery. This is the problem existing in all multi-species fishery involving multi-gears. However, suitable alternate methods of exploitation such as column water trawling for exploiting non-penaeid prawns may be planned to overcome such problems.

Basing on the above observations, it may be concluded that there is enough scope to increase the marine fish landings in Andhra Pradesh. At the first instance, the average level of annual contribution of this state may be raised to 1.50 lakh tonnes. Then this level may be raised to 1.75 lakh tonnes and 2.00 lakh tonnes respectively in a phased manner. This phased manner approach will give great scope to the stocks exploited and the effort pressure for a healthy interaction. Side by side, great care should be taken to see that effective management measures are taken such as mesh regulation so that indiscriminate fishing is avoided at all costs.

Regarding the deployment of effort, major contribution is to be expected from gill nets followed by trawls, shore seines, boat seines and others including hooks and lines. Shore seines, during the five year period 1980-84, showed a declining trend. However, there are reports that improvement in the material used for webbing from cotton to synthetic twine, and in the shape and size of the gear particularly in Kakinada region and at the same time reducing the mesh size considerably from 16-32 mm to 12-18 mm (Seshagiri Rao, MSS), has improved the catches from this gear. Declining trend in the landings of other gears also was noticed. The promising gear is drift / gill net. This is true considering the topography of the east coast where the depth range is great within short distances from the shore.

Considering their percentage contribution to the total landings, drift/gill nets may be expected to land about 45% of the additional catches. Similarly trawlers are expected to contribute 20%, shore seines and boat seines 15% each and others 5%. On the basis of this, the following table indicates the input requirements in a phased manner. To assess the gear-wise requirements the following method is used. At present, on an average, 58,000 t of fish are landed by drift/gill nets, forming 45%. The average number of unit operations per year for the period 1980-84 for this gear is 1,769,000 resulting in a catch per unit effort of 33kg. In the first phase of the additional yield of 25,000 t, 45% is expected from drift/gill nets. Number of unit operations is then expected to be 3,41,000. In the same way, input estimates are obtained for trawls, boat seines, shore seines and others. Taking 200 days of operation in a year, expected number of units/boats are obtained as follows. (Table-20)

TABLE-20

Gearwise effort requirements in the first phase

	Expected contribution		No. of unit operations required	No. of boats required
	%	Catch (tonnes)		
Drift/gill net	45	11250	341000	1705
Trawl	20	5000	17500	87
Shore seine	15	3750	31000	105
Boat seine	15	3750	74000	370
Others	5	1250	62500	312
Total		25000		

Thus there is scope for increasing gill net units, trawlers, shore seines, boat seines and others to 1700, 100, 100, 370 and 300 respectively from the present effort level. After a period of 5 years another set of these units with the same strength may be introduced to harvest additional 25,000 t. During this period the effect of the introduction of additional effort may be studied and accordingly another set of units may be introduced in the same strength or required strength, on the basis of studies then made, so as to increase the marine fish landings by another 25,000 t. As mentioned earlier, judicious care should be taken to see that indiscriminate fishing is avoided to maintain the stock levels at healthy conditions so as to reap maximum sustainable yields. Group-wise contribution expected in 2000 AD in Andhra Pradesh from marine sector is as follows.

	%	Tonnes
Cluepeoids	30.0	60,000
Ribbon fish	7.5	15,000
Croakers	7.5	15,000
Elasmobranchs	6.0	12,000
Silver bellies	5.0	10,000
Perches	5.0	10,000
Goat fishes	4.0	8,000
Pomfrets	4.0	8,000
Mackerel	3.0	6,000
Prawns	10.0	20,000
Others	18.0	36,000
	100.0	200,000

On the basis of the above observations the expected landings from Andhra Pradesh in 2000 AD could be 2,00,000 tonnes from capture fisheries.

SUMMARY

The annual average marine fish landings in Andhra Pradesh is estimated at 1.21 lakh tonnes during the decade 1975-84. This period includes the years that experienced devastating cyclones. In the post cyclonic period, namely 1980–84, the annual marine fish landings average at 1.30 lakh tonnes. However, during 1983-84 as well as the pre-cyclonic period, the annual production has been about 1.50 lakh tonnes. In the light of this, it may safely be concluded that, at the present level of exploitation, the annual average marine fish production in Andhra Pradesh could increase to 1.50 lakh tonnes. The fluctuations in the landings of different groups do not show any effect of interaction among them. Hence maximum contribution approach is used to find out the potential level of exploitation for the state, which is found to be 2.20 lakh tonnes. On this basis, the annual average yield of 2.00 lakh tonnes is considered to be the safe level for exploitation purpose.

Pelagic resources contribute as much as 53% of the total landings in this state. The major resource is clupeoids, which accounts for 30%. Recent observations indicate the emergence of a fishery of oil sardine in this state. Substantial increase in the landings of mackerel is recorded in recent times. Improved landings of tuna and tuna-like fishes are also reported in certain areas, particularly in the East Godavari district. Shrimp landings account for 10%, out of which 7% are penaeids. Fisheries harbours coming up in other parts of this state, particularly those at Nizampatnam in Guntur district and Krishnapatnam in Nellore district, may increase shrimp landings.

Among gear, drift/gill nets recorded maximum contribution (43%), followed by trawls (22%), shore seines and boat seines (15% each) and others (5%). The topography of the inshore and offshore areas of this coast offers wide scope for improving the landings from drift/gill nets. In this connection, it is interesting to note that motorization of indigenous craft has not caught up with the fishermen of this state as in the case of other states. As powering the craft would increase their mobility, extends their area of exploitation and, above all, help the fishermen to bring quality fish in fresh and good condition and get high price in the market, the country craft operating gill nets may be mechanised.

In the case of trawling, it has been noticed that, in the Kakinada region, the codend-mesh size is now drastically reduced from 25 mm to 8-20 mm. This

has resulted in reduction of average size of prawns landed. Maintaining the codend mesh size at 25 mm may raise the average size caught above the size at first maturity, and thus the recruitment may not be adversely affected.

Phased-manner approach is suggested to increase the average annual marine fish landings from the present 1.30 lakh tonnes to 2.00 lakh tonnes at the end of this centuary. In the first phase, ending in 1995, there is a scope for the introduction of about 1700 drift/gill netters, 100 small trawlers, 100 shore seiners, 370 boat seiners and 300 others, so that the production can be increased by about 25,000 tonnes.

First two quarters are in general more productive than the rest and if clupeoids occur during this period, it may lead to even better landings during the year. On this basis a fishery forecast could be made in this region.

It may be concluded that motorization of country craft, increase in codend-mesh size of trawlers at least up to 25 mm and improved infrastructure facilities are some of the measures that might help increase the annaul marine fish production from the present 1.30 lakh tonnes to 2.00 lakh tonnes by the end of this centuary.

APPENDIX

QUARTERWISE AND SPECIESWISE MARINE FISH LANDINGS

Name of fish	1975					1976				
	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS	2949	2839	3041	1148	9977	2398	1621	1128	1541	6688
2. EELS	95	1652	21	69	1837	53	86	—	66	205
3. CATFISHES	2986	2952	3059	827	9824	1495	1678	1393	1565	6131
4. CLUPEIDS										
a. Wolfherring	684	668	899	669	2920	389	473	374	601	1837
b. Oil sardine	—	—	—	131	131	9	59	—	44	112
c. Other sardines	13902	14185	1362	3545	32994	12985	4064	1938	4233	23220
d. Hilsa shad	—	10	60		70	5	17	248	10	280
e. Other shads	73	380	261	216	930	312	403	830	270	1815
f. Anchovies										
Stolephorus	1621	2566	220	2630	7037	6485	2380	340	2104	11309
Thryssa	332	629	513	302	1776	416	251	691	405	1763
g. Other clupeids	1860	1959	2741	976	7536	2580	1946	1948	1936	8410
5. BOMBAYDUCK	9	—	120	230	359	52	—	23	139	214
6. LIZARDFISHES	62	41	60	79	242	46	47	31	42	166
7. HALFBEAKS & FULLBEAKS	14	3	—	7	24	—	—	4	10	14
8. FLYINGFISHES	1	—	—	—	1	—	—	—	—	—
9. PERCHES	1229	2342	815	502	4888	733	496	373	149	1751
10. GOATFISHES	31	510	12	168	721	197	73	43	240	553
11. THREADFINS	590	632	536	78	1836	440	376	454	543	1813
12. CROAKERS	2666	3693	2560	2763	11682	2305	3485	2530	2571	10891
13. RIBBONFISHES	1001	3196	6619	885	11701	4175	3088	3677	1503	12443
14. CARANGIDS										
a. Leather-jackets	496	674	513	107	1790	424	419	453	524	1820

TABLE-I

(IN TONNES) IN ANDHRA PRADESH DURING 1975-1979

1977					1978					1979				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
1368	2164	2063	855	6450	3476	915	1910	2403	8704	2676	815	1979	1524	6994
161	189	54	34	438	936	81	43	22	1082	62	84	22	77	245
1668	1524	1415	1055	5662	875	828	924	654	3281	2268	314	585	632	3799
257	152	586	222	1217	321	132	410	399	1262	381	43	273	279	976
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3346	3319	1185	3122	10972	3867	1074	223	2521	7685	2971	969	133	2107	6180
14	3	12	12	41	1	—	1	—	2	—	—	68	10	78
128	413	1103	10	1654	1053	143	49	104	1349	591	37	431	33	1092
4425	3220	347	955	8947	3821	2319	231	1439	7810	1920	1126	299	2543	5888
3·9	322	399	278	1398	613	264	559	388	1824	726	294	1045	1368	3433
703	527	737	396	2363	546	409	493	346	1794	1351	249	548	370	2518
31	69	262	598	960	150	16	926	7	1099	44	28	76	569	717
380	208	69	218	875	220	118	363	356	1057	616	251	254	258	1379
27	—	—	108	135	2	4	3	51	60	12	19	61	8	100
—	—	32	52	84	—	—	12	53	65	47	--	24	—	71
1251	680	321	475	2727	1037	316	401	191	1945	1395	614	410	676	3095
96	161	29	29	315	87	42	147	59	335	91	79	154	102	426
347	143	83	125	698	687	111	153	124	1075	275	721	225	191	1412
2483	4589	1886	1224	10182	1945	961	1789	1002	5597	1433	1067	3461	2864	8825
1429	2274	3867	976	8546	625	1843	1885	1152	5505	928	1454	2439	1516	6337
381	66	52	31	530	279	154	126	106	665	204	29	37	174	444

Name of fish	1975					1976				
	I	II	III	IV	Total	I	II	III	IV	Total
b. Other carangids	1000	1479	901	406	3786	902	843	749	662	3156
15. SILVERBELLIES	1208	8288	1348	525	11369	825	1633	780	686	3924
16. BIG-JAWED JUMPER	549	608	1188	168	2513	193	601	350	574	1718
17. POMFRETS	1770	2203	694	1030	5697	860	1161	1075	992	4088
18. INDIAN MACKEREL	365	671	470	87	1593	749	476	415	444	2084
19. SEERFISHES	2261	1479	1001	536	5277	1053	688	970	701	3412
20. TUNNIES	217	380	6	61	664	3	—	10	321	334
21. BILLFISHES										
22. BARRACUDAS	26	93	—	—	119	144	35	2	6	187
23. MULLETS	433	230	280	11	954	253	231	227	181	892
24. UNICORN COD										
25. FLATFISHES	29	256	10	10	305	22	12	6	16	56
26. CRUSTACEANS										
a. Penaeid prawns	1183	2225	2013	1731	7152	1872	2468	2516	1977	8833
b. Nonpenaeid prawns	542	1449	1144	388	3523	197	594	1035	449	2275
c. Lobsters	8	1	93	—	102	1	—	—	2	3
d. Crabs & others	95	163	200	145	605	74	96	70	89	329
e. Stomatopods										
27. MOLLUSCS										
Cephalopods	22	121	6	2	151	34	46	95	67	242
28. MISCELLANEOUS	887	1231	700	734	3552	4125	1226	1322	1680	8353
TOTAL	41196	59810	33466	21166	155638	46806	31072	26100	27343	131321

Effort in manhours

Effort in unit hours

No of operations of fishing units

TABLE-I (CONTD.)

1977					1978					1979				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
2826	452	790	157	4225	923	441	471	329	2164	1853	418	558	419	3248
2698	1857	928	420	5903	593	515	421	645	2174	997	1145	783	660	3585
289	148	578	117	1132	302	87	166	129	684	189	189	461	106	945
1014	695	614	206	2529	592	322	349	1182	2445	816	296	596	361	2069
387	490	32	131	1040	2394	9	55	62	2520	675	356	180	1410	2621
1243	545	1150	323	3261	1165	249	592	594	2600	1393	719	2846	589	5547
239	33	153	24	449	134	15	80	99	328	102	116	51	168	437
24	47	14	23	108	24	7	6	6	43	12	5	43	2	62
38	23	3	106	170	10	101	91	35	237	137	--	--	22	159
318	166	49	147	680	125	90	83	49	347	160	87	185	178	610
2752	2143	1179	692	6266	1418	639	455	1420	8031	1531	951	3428	2787	8697
29	1497	2002	1581	5109	56	178	917	381	1532	190	399	2342	186	3117
1	—	—	1	2	—	10	2	8	20	25	1	1	6	33
186	101	209	223	719	111	143	114	109	477	55	10	368	476	1109
158	142	34	74	408	53	41	118	85	297	86	117	171	149	523
1156	1177	863	1365	4561	1776	539	2282	1364	6021	1129	372	1351	1803	4655
31752	29539	23100	16365	100756	30077	13116	21049	17874	82116	27341	1 574	25888	24623	91426

QUARTERWISE AND SPECIESWISE MARINE FISH LANDINGS

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS	1584	1581	1040	637	4842					
a. Sharks						1058	926	407	478	2869
b. Skates						274	13	12	68	367
c Rays						1134	427	158	281	2000
2. EELS	153	40	69	27	289	269	96	15	26	406
3. CATFISHES	1198	286	495	359	2338	2453	646	545	606	4250
4. CLUPEIDS										
a. Wolfherring	254	30	492	347	1123	175	311	355	270	1111
b. Oil sardine	—	—	—	—	—	—	—	—	—	—
c. Other sardines	3975	528	1054	8373	13930	6609	2348	295	6467	15719
d. Hilsa shad	—	—	96	—	96	12	—	26	2	40
e. Other shads	161	249	768	89	1267	140	541	302	360	1343
f. Anchovies										
Coilia	—	—	—	—		30	—	13	11	54
Setipinna	—	—	—	—		—	—	153	24	177
Stolephorus	2214	709	1727	1532	6182	5726	1200	241	6662	13829
Thryssa	5764	462	481	619	7326	628	403	666	826	2523
g. Other clupeids	927	636	914	3009	5486	2203	1170	590	979	4942
5. BOMBAYDUCK	34	27	131	419	611	247	1	43	554	845
6. LIZARDFISHES	184	144	226	377	931	405	140	192	287	1024
7. HALF BEAKS & FULL BEAKS	13	22	35	27	97	3	3	23	—	29
8. FLYINGFISHES	9	—	15	24	43	—	—	—	—	—
9. PERCHES	1756	2019	367	497	4639					
a Rock cods						7	7	1	20	35
b. Snappers						26	135	19	30	210
c. Pigface breams						—	—	—	—	—
d. Threadfin breams						1545	203	88	213	2049
e. Other perches						1898	775	406	321	3400
10. GOATFISHES	90	95	73	91	349	84	461	48	91	684
11. THREADFINS	243	947	120	138	1448	302	214	42	218	776
12. CROAKERS	3498	1447	3101	1450	9496	2590	921	1681	1854	7046
13. RIBBONFISHES	1861	1077	10821	1887	15646	2152	3396	1595	1064	8207
14. CARANGIDS										
a. Horse mackerel						122	62	4	87	275
b. Scads						2473	1046	4	—	3523
c. Leather-jackets	86	310	92	222	710	192	107	61	93	453
d. Other carangids	2704	1959	813	624	6100	494	310	390	221	1415

TABLE-2

(IN TONNES) IN ANDHRA PRADESH DURING 1980-1984.

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
1188	509	2085	891	4673	2333	1677	1448	1248	6706	2789	1828	1215	795	6627
47	51	46	87	231	159	41	144	60	404	163	46	148	252	609
224	181	911	227	1543	387	298	728	263	1676	1006	279	1084	426	2795
157	37	257	78	529	102	167	138	65	472	249	159	152	131	691
794	705	1227	456	3182	1260	977	497	872	3606	1570	797	1610	1503	5480
309	49	431	456	1245	474	367	517	572	1930	506	228	696	604	2034
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5542	2499	11	5706	13758	4945	4604	473	7492	17514	8842	6355	742	5138	21077
4	5	136	3	148	43	—	19	—	62	13	2	42	—	57
485	301	316	1376	2478	924	36	275	2541	3776	4566	331	560	1738	7195
33	23	154	21	231	18	1	16	5	40	1	64	24	25	114
9	21	439	—	469	19	—	30	—	49	—	—	—	—	—
2948	799	540	1647	5934	1283	2863	333	3648	8127	2300	567	412	1125	4404
526	720	817	759	2822	1471	517	898	969	3855	834	853	928	820	3435
2136	515	1009	1324	4984	1655	394	1200	1906	5155	2451	1174	1479	1608	6712
307	63	522	642	1534	236	3	129	708	1076	181	46	280	516	1023
226	121	777	534	1658	159	197	568	215	1139	304	136	480	297	1217
37	—	7	4	48	—	57	—	9	66	17	66	54	1	138
166	—	2	—	168	—	62	—	12	74	1	—	38	—	39
				—										
13	2	19	1	35	—	2	3	3	8	—	7	5	3	15
77	22	195	36	330	393	205	365	92	1055	247	239	336	1311	2133
—	—	--	—	—	1	—	6	—	7	—	—	6	—	6
1120	110	312	915	2457	789	1108	659	419	2975	1112	166	420	449	2147
2003	291	1752	270	4316	2521	732	1009	521	4783	2086	779	1109	2850	6824
268	128	582	542	1520	307	328	665	131	1431	198	107	455	188	948
636	303	810	294	2043	489	232	262	243	1226	749	454	185	742	2130
2437	1174	3099	2069	8779	2288	1879	4090	3297	11554	2502	1457	2534	1554	8047
1232	310	1702	3551	6795	3323	921	3271	3142	10657	1178	591	3260	1428	6457
258	88	314	48	708	60	250	202	298	810	96	309	228	131	764
2252	445	7	10	2714	3250	489	23	20	3782	1607	211	57	35	1910
234	66	145	140	585	1028	245	278	87	1638	1042	173	579	173	1967
526	519	786	595	2426	602	625	1602	634	3463	807	476	1441	421	3145

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
15. SILVERBELLIES	888	824	1057	1062	3831	4035	4422	890	509	9856
16. BIG-JAWED JUMPER	378	68	385	109	940	462	70	114	171	817
17. POMFRETS	660	590	681	270	2201					
a. Black pomfret						1017	426	104	231	1778
b. Silver pomfret						184	154	360	193	891
c. Chinese pomfret						—	—	26	3	29
18. INDIAN MACKEREL	2718	1356	245	1884	6203	1005	1731	209	310	3255
19. SEER FISHES	1264	354	788	564	2970					
a. *S. commersoni*						737	31	208	106	1082
b. *S. guttatus*						357	1146	254	711	2468
c. *S. lineolatus*						—	—	—	13	13
20. TUNNIES	304	23	9	83	419					
a. *E. affinis*						125	10	7	52	194
b. *Auxis* spp.						—	—	—	—	—
c. *K. pelamis*						—	—	—	—	—
d. *T. tonggol*						—	—	—	—	—
e. Other tunnies						113	—	6	25	144
21. BILL FISHES	—	—	—	—	—	136	25	—	43	204
22. BARRACUDAS	9	3	—	76	88	93	7	16	8	124
23. MULLETS	8	—	19	—	27	5	45	116	16	182
24. UNICORN COD	—	—	—	—	—	—	—	—	—	—
25. FLATFISHES	170	225	79	99	573					
a. Halibut						8	34	2	2	46
b. Flounders						—	1037	—	—	1037
c. Soles						100	856	97	77	1130
26. CRUSTACEANS										
a. Penaeid prawns	1661	814	1732	1453	5660	2355	822	1908	1643	6728
b. Nonpenaeid prawns	126	664	3113	443	4346	83	326	1059	139	1607
c. Lobsters	7	3	—	—	10	1	—	—	—	1
d. Crabs	71	279	635	428	1413	600	241	439	232	1512
e. Stomatopods	—	—	—	—	—	119	29	20	120	288
27. CEPHALOPODS	143	95	101	131	470	193	123	74	122	512
28. MISCELLANEOUS	1433	885	872	723	3913	615	207	543	1279	2644
Total	36548	18751	32641	28073	116013	45594	27604	14827	28118	116143
No of operations of fishing units (in'000)	702	623	799	777	2091	827	479	514	648	2468

TABLE-2 (Contd)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
1513	688	1594	1337	5132	3213	1211	2809	921	8154	1926	1121	1247	741	5035
336	62	139	281	818	253	123	490	253	1119	127	273	112	82	594
632	229	841	429	2131	315	210	351	1120	1996	4991	309	622	449	6371
746	193	617	314	1870	697	178	459	1570	2904	1351	298	661	1127	3437
—	5	133	13	151	2	4	16	4	26	46	—	15	—	61
1717	211	315	728	2971	2928	914	1262	1421	6525	3129	1927	677	679	6412
924	291	653	608	2476	1666	342	55	306	2369	1707	439	134	416	2696
1104	270	1248	603	3225	1696	589	492	963	3740	2748	505	1478	602	5333
—	—	—	—	—	—	—	—	—	—	42	1	—	—	43
132	4	199	312	647	302	243	92	89	726	324	313	66	108	811
—	—	—	—	—	—	—	4	4	8	—	—	4	6	10
—	—	—	—	—	—	—	—	—	—	—	8	—	—	8
—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
45	8	113	3	169	—	10	—	22	32	32	—	—	4	36
142	19	—	62	223	281	26	25	13	355	7	—	59	—	66
215	13	13	45	286	102	105	23	13	243	103	6	23	26	158
1	10	377	8	396	64	16	4	26	110	4	51	14	24	93
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
34	1	14	9	58	10	35	41	14	100	38	10	39	13	100
—	—	74	—	74	11	120	1	7	139	10	1	15	1	27
82	233	273	132	720	169	288	326	188	971	188	124	101	57	470
2341	1443	3866	2242	9892	1155	2036	4171	3209	10571	2690	1719	2991	1387	8787
53	2166	2149	269	4637	287	2935	2263	366	5851	3	337	592	251	1183
5	—	—	3	8	7	—	8	5	20	4	2	4	2	12
100	250	239	366	955	636	769	1050	592	3047	614	424	478	373	1889
41	81	67	106	295	158	136	180	138	612	167	169	147	102	585
270	80	119	126	595	99	156	134	130	519	185	71	129	65	450
610	258	533	561	1962	637	454	654	496	2241	569	390	520	407	1886
37237	16572	32986	31239	118034	45207	30177	34758	41342	151484	58423	26398	30687	31186	146694
773	460	771	655	2659	824	662	671	607	2764	693	559	584	590	2426

QUARTERWISE SMALL TRAWLER LANDINGS (TONNES) AT

Name of fishes	Year	1980					1981				
	Quarter	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS		91	61	18	18	188	—	—	—	—	—
a. Sharks		—	—	—	—	—	12	12	6	26	56
b. Skates		—	—	—	—	—	28	—	3	16	47
c. Rays		—	—	—	—	—	106	42	45	111	304
2. EELS		50	30	30	23	133	68	47	12	14	141
3. CAT FISHES		54	43	18	16	131	38	85	22	45	190
4. CLUPEIDS		—	—	—	—	—	—	—	—	—	—
a. Wolf herring		—	—	—	—	—	—	—	—	—	—
b. Oil sardine		—	—	—	—	—	—	—	—	—	—
c. Other sardines		14	8	—	—	22	2	—	—	—	2
d. Hilsa shad		—	—	—	—	—	—	—	—	—	—
e. Other shads		—	—	—	—	—	—	—	—	—	—
f. Anchovies		—	—	—	—	—	—	—	—	—	—
Coilia		—	—	—	—	—	—	—	—	—	—
Setipinna		—	—	—	—	—	—	—	—	—	—
Stolephorus		133	364	7	36	540	47	31	57	52	187
Thryssa		105	29	29	54	217	16	10	27	28	81
g. Other clupeids		64	41	34	28	167	74	7	10	15	106
5. BOMBAYDUCK		—	2	47	21	70	—	—	19	15	34
6. LIZARD FISHES		60	43	9	18	130	67	20	27	105	219
7. HALF BEAKS & FULL BEAKS		—	19	—	—	19	—	—	—	—	—
8. FLYING FISHES		—	—	—	—	—	—	—	—	—	—
9. PERCHES		217	89	50	91	447	—	—	—	—	—
a. Rock cods		—	—	—	—	—	—	—	—	—	—
b. Snappers		—	—	—	—	—	—	2	—	—	2
c. Pig-face breams		—	—	—	—	—	—	—	—	—	—
d. Threadfin breams		—	—	—	—	—	256	22	40	99	417
e. Other perches		—	—	—	—	—	282	23	22	51	378
10. GOATFISHES		46	33	—	—	79	4	4	3	17	28
11. THREADFINS		10	6	—	—	16	1	—	1	8	10
12. CROAKERS		298	177	285	161	911	103	141	36	227	507
13. RIBBONFISHES		198	236	160	291	885	100	34	101	83	318
14. CARANGIDS		—	—	—	—	—	—	—	—	—	—
a. Horse Mackerel		—	—	—	—	—	—	—	—	—	—
b. Scads		—	—	—	—	—	333	866	4	—	1203
c. Leather-jackets		—	—	—	—	—	—	—	—		—
d. Other carangids		219	153	79	29	480	32	4	11	24	71
15. SILVER BELLIES		236	110	106	136	589	186	63	38	106	393
16. BIG-JAWED JUMPER		38	16	2	4	60	2	3	6	4	15
17. POMFRETS		6	3	5	1	15	—	—	—	—	—
a. Black pomfret		—	—	—	—	—	—	—	—	—	—

TABLE-4

KAKINADA FISHERIES HARBOUR DURING 1980-1984.

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8	4	16	5	33	13	19	16	5	53	16	2	16	6	40
15	5	11	34	65	30	6	4	12	52	23	10	31	13	77
98	27	68	70	263	27	30	73	65	195	83	35	86	41	245
22	23	68	58	171	47	39	64	41	191	87	38	36	35	196
98	24	17	72	211	132	29	57	42	260	109	13	43	73	238
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	1	1	—	—	2	—	2	1	—	1	—	2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
543	10	—	2	555	83	15	2	—	100	18	6	—	1	25
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	1	—	1	—	—	—	—	—	—	5	3	—	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	4	3	7	—	—	7	2	9	—	6	7	1	14
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
47	129	102	143	421	140	98	140	168	546	315	228	287	202	1032
24	16	43	97	180	105	18	107	84	314	139	106	131	101	477
231	24	51	74	380	237	22	23	30	312	87	46	76	16	225
—	4	347	6	357	—	—	70	13	83	—	25	70	2	97
43	16	41	122	222	59	44	99	72	274	117	15	175	137	444
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	1	2	3	—	3	3	—	6
1	3	2	—	6	2	3	2	5	12	1	9	8	5	23
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
465	20	72	362	919	633	145	180	84	1042	643	17	99	291	1050
1341	38	46	57	1482	1502	143	219	97	1961	1135	68	172	157	1532
24	16	30	120	190	39	61	42	20	162	54	31	107	45	237
9	3	7	12	31	2	2	20	13	37	30	12	24	17	83
179	87	106	201	573	189	144	355	277	965	364	167	291	188	1,010
334	80	310	220	944	251	316	684	210	1461	214	176	454	212	1056
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1676	4	6	5	1691	2681	45	11	1	2738	1292	1	27	33	1353
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9	14	25	37	85	33	14	113	27	187	47	39	68	47	201
278	126	220	275	899	326	307	762	331	1726	600	333	414	271	1618
4	5	16	20	45	2	3	121	33	159	7	7	20	7	41
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	—	—	—	1	11	2	3	2	18	—	—	1	—	1

Name of fishes	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
b. Silver pomfret	—	—	—	—	—	—	3	4	4	11
c. Chinese pomfret	—	—	—	—	—	—	—	—	—	—
18. INDIAN MACKEREL	91	68	1	1	161	1	—	—	—	1
19. SEER FISHES	—	—	—	—	—	—	—	—	—	—
a. *S. commersoni*	—	—	—	—	—	—	—	—	—	—
b. *S. guttatus*	—	—	—	—	—	—	—	—	—	—
c. *S. lineolatus*	—	—	—	—	—	—	—	—	—	—
20. TUNNIES	—	—	—	—	—	—	—	—	—	—
a. *E. affinis*	—	—	—	—	—	—	—			—
b. *Auxis spp.*	—	—	—	—	—	—	—			—
c. *K. pelamis*	—	—	—	—	—	—	—			—
d. *T. tonggol*	—	—	—	—	—	—	—			—
e. Other tunnies	—	—	—	—	—	—	—			—
21. BILL FISHES	—	—	—	—	—	—	—			—
22. BARRACUDAS	9	2	—	—	11	19	—	2		21
23. MULLETS	—	—	—	—	—	—	—	—		—
24. UNICORN COD	—	—	—	—	—	—		—	—	—
25. FLATFISHES	—	—	—	—	—	—		—	—	—
a. Halibut	—	—	—	—	—	—		—	—	—
b. Flounders	—	—	—	—	—	—		—	—	—
c. Soles	60	58	16	27	161	37	27	6	24	94
26. CRUSTACEANS	—	—	—	—	—	—	—	—	—	—
a. Penaeid prawns	572	535	334	424	1865	551	365	358	679	1953
b. Non penaeid prawns	116	302	320	95	833	23	8	236	99	366
c. Lobsters	—	—	—	—	—	—	—	—	—	—
d. Crabs	33	57	105	157	352	115	49	34	56	254
e. Stomatopods	—	—	—	—	—	93	23	20	118	254
27. CEPHALOPODS	49	22	23	32	126	23	15	6	44	88
28. MISCELLANEOUS	280	93	20	25	418	42	21	25	77	165
Total	3039	2600	1698	1688	9025	2661	1927	1181	2147	7916
No. of operations of fishing units (in '000)	14	14	6	7	41	9	7	7	12	35

(TABLE-4 contd.)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
4	1	6	1	12	—	—	4	1	5	—	2	13	3	18
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
291	—	—	2	293	110	5	21	6	142	9	22	5	2	38
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	2	—	—	2	—	—	—	—	—
—	—	—	—	—	—	—	2	—	2	—	—	1	—	1
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
42	—	1	1	44	72	41	20	5	138	45	4	7	13	69
—	—	—	—	—	—	—	—	1	1	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	—	1	1	2	4	3	10	4	1	7	6	18
—	—	3	—	3	10	59	1	7	77	9	1	15	1	26
23	15	62	65	165	105	77	99	69	350	108	37	57	40	242
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
665	500	686	932	2783	553	376	789	700	2418	1096	568	710	414	2788
38	244	482	119	883	184	419	1736	299	2638	1	127	317	61	506
—	—	—	—	—	—	—	—	—	—	—	—	1	2	3
11	21	32	142	206	222	157	286	123	788	195	112	112	85	504
23	74	65	104	266	132	94	145	64	435	98	81	52	43	274
17	30	27	30	104	27	34	38	42	141	70	19	43	31	163
92	73	98	77	340	73	106	77	53	309	91	58	81	43	273
6656	1637	3071	3469	14833	8033	2877	6399	3009	20318	7108	2430	4071	2645	16254
12	10	12	10	44	10	10	14	9	43	15	9	12	6	42

QUARTERWISE SMALL TRAWLER LANDINGS (TONNES) AT

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS	58	23	45	61	187					
a. Sharks						15	1	4	2	22
b. Skates						15	4	7	16	42
c. Rays						28	7	20	23	78
2 EELS	4	1	4	3	12	7	2	3	4	16
3. CATFISHES	139	—	26	32	197	44	47	33	26	150
4. CLUPEIDS										
a. Wolfherring	—	—	—	1	1	—	—	2	3	5
b. Oil sardine	—	—	—	—	—	—	—	—	—	—
c. Other sardines	1	—	—	—	1	35	—	—	—	35
d. Hi'sa shad	—	—	—	—	—	—	—	—	—	—
e. Other shads	—	—	—	—	—	—	—	—	—	—
f. Anchovies										
Coilia	—	—	—	—	—	—	—	—	—	—
Setipinna	—	—	—	—	—	—	—	—	—	—
Stolephorus	2	5	50	59	116	3	18	88	24	133
Thryssa	3	8	87	3	101	—	28	32	8	68
g. Other clupeids	—	—	—	—	—	23	5	—	—	28
5. BOMBAYDUCK	—	—	6	—	6	—	—	—	—	—
6. LIZARD FISHES	120	86	160	256	622	138	83	126	154	501
7. HALFBEAKS & FULLBEAKS	—	—	—	—	—	—	—	—	—	—
8. FLYING FISHES	—	—	—	—	—	—	—	—	—	—
9. PERCHES	580	793	144	219	1736					
a. Rock cods						1	1	—	1	3
b. Snappers						—	—	—	—	—
c. Pig-face breams						—	—	—	—	—
d. Threadfin breams						158	50	44	109	361
e. Other perches						406	137	78	35	656
10. GOATFISHES	9	12	33	32	86	12	28	34	28	102
11. THREADFINS	3	—	12	7	22	7	5	12	15	39
12. CROAKERS	100	135	544	119	898	101	129	176	195	601
13. RIBBONFISHES	58	8	282	144	492	36	118	490	209	853
14. CARANGIDS										
a. Horse Mackerel						—	—	—	—	—
b. Scads						296	37	—	—	333
c. Leather-jackets	—	—	—	—	—	—	—	—	—	—
d. Other carangids	221	553	50	34	858	4	35	36	8	83

TABLE-3

VISAKHAPATNAM OUTER HARBOUR DURING 1980-1984.

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
—	4	6	5	15	—	1	5	4	10	1	8	1	—	10
10	3	16	11	40	5	8	10	12	35	3	6	9	9	27
15	18	24	27	84	10	12	24	23	69	13	44	31	17	105
7	3	6	19	35	3	3	2	19	27	18	20	29	40	107
51	20	89	57	217	20	21	67	14	122	32	14	63	30	139
—	—	3	3	6	—	—	5	1	6	1	—	4	4	9
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	—	—	—	10	2	—	—	—	2	35	1	—	—	36
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	59	105	25	192	—	8	37	96	141	43	2	66	29	140
—	10	35	12	57	3	6	44	5	58	1	24	43	26	94
34	3	—	—	37	5	3	—	—	8	20	9	—	—	29
—	—	8	—	8	—	—	1	1	2	—	1	2	—	3
93	92	588	227	1000	59	93	321	115	588	60	98	251	145	554
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	1	1	4	—	—	—	1	1	—	—	—	—	—
1	—	—	1	2	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
580	38	183	217	1018	94	852	102	204	1252	261	109	157	138	665
253	66	205	75	599	111	343	254	155	863	234	212	227	100	773
14	51	77	52	194	36	54	135	44	269	17	43	116	102	278
3	1	9	13	26	5	1	14	22	42	7	5	22	24	58
34	67	91	131	323	60	63	117	315	555	100	97	206	215	618
8	32	226	31	297	8	8	411	233	660	21	18	374	154	567
—	—	—	—	—	—	—	2	—	2	—	—	—	—	—
231	1	1	2	235	64	149	12	—	225	146	30	7	—	183
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	2	37	38	77	29	12	35	2	78	1	—	16	9	26

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
15. SILVERBELLIES	70	97	186	150	503	51	102	125	102	380
16. BIG-JAWED JUMPER	—	—	19	4	23	—	26	15	13	54
17. POMFRETS	—	—	2	3	5					
a. Black pomfret						—	—	6	1	7
b. Silver pomfret						4	1	5	3	13
c. Chinese pomfret						—	—	—	—	—
18. INDIAN MACKEREL	67	3	6	—	76	6	—	2	—	8
19. SEER FISHES	—	—	—	—	—	—	—	1	—	1
a. *S. commersoni*										
b. *S. guttatus*										
c. *S. lineolatus*										
20. TUNNIES	—	—	—	—	—					
a. *E. affinis*						—	—	—	—	—
b. *Auxis* spp.						—	—	—	—	—
c. *K. pelamis*						—	—	—	—	—
d. *T. tonggol*						—	—	—	—	—
e. Other tunnies						—	—	—	—	—
21. BILL FISHES	—	—	—	—	—	—	—	—	—	—
22. BARRACUDAS	—	—	—	2	2	1	6	6	1	14
23. MULLETS	—	—	—	—		—	—	—	—	—
24. UNICORN COD	—	—	—	—		—	—	—	—	—
25. FLATFISHES	35	30	46	24	135					
a. Halibut						3	—	—	2	5
b. Flounders						—	—	—	—	—
c. Soles						13	19	26	16	74
26. CRUSTACEANS										
a. Penaeid prawns	181	43	278	282	784	339	50	181	246	816
b. Non penaeid prawns	—	—	—	—	—	—	—	1	—	1
c. Lobsters	—	—	—	—	—	1	—	—	—	1
d. Crabs	3	64	249	84	400	61	75	158	67	361
e. Stomatopods						10	—	—	2	12
27. CEPHALOPODS	37	47	78	84	246	36	44	48	78	206
28. MISCELLANEOUS	252	256	18	16	542	14	6	11	13	44
Total	1943	2164	2325	1619	8051	1868	1064	1770	1404	6106
No. of operations of fishing units (in'000)	9	6	12	8	35	9	6	11	6	32

TABLE-3 (Contd.)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
19	101	174	60	354	33	68	248	174	523	46	48	144	78	316
1	1	10	3	15	—	—	81	62	143	—	12	19	20	51
—	2	3	3	8	—	—	3	1	4	—	1	2	5	8
—	2	1	2	5	—	1	1	1	3	—	—	12	21	33
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
26	2	10	—	38	1	10	69	11	91	2	1	8	—	11
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	2	—	2	—	—	1	—	1	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	8	—	—	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	2	12	—	19	—	2	3	—	5	—	—	7	—	7
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	—	2	9	16	1	—	—	1	2	1	1	2	5	9
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	19	8	13	50	7	17	16	15	55	12	45	25	12	94
186	72	285	276	819	40	77	482	316	915	233	187	236	382	1038
—	3	2	—	5	—	6	41	—	47	2	7	38	3	50
—	—	—	3	3	—	—	—	—	—	—	—	—	—	—
21	71	26	17	135	19	109	154	56	338	83	219	152	104	558
8	1	2	2	13	4	5	22	17	48	36	68	80	59	243
31	32	91	86	240	20	81	71	56	228	31	21	78	30	160
12	7	14	17	50	6	10	15	17	48	15	17	24	19	75
1673	785	2352	1438	6248	645	2023	2805	1993	7466	1475	1376	2451	1780	7082
5	7	11	6	29	3	8	13	7	31	6	10	12	5	33

QUARTERWISE AND SPECIESWISE CONTRIBUTION OF (TONNES) OF ANDHRA PRADESH

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS	161	87	67	86	401					
a. Sharks						51	38	32	39	160
b. Skates						104	12	10	32	158
c. Rays						767	135	85	142	1129
2. EELS	54	31	34	27	146	221	83	15	18	337
3. CATFISHES	204	46	91	103	444	259	158	252	92	761
4. CLUPEIDS										
a. Wolfherring	—	—	—	1	1	—	—	2	5	7
b. Oil sardine	—	—	—	—	—	—	—	—	—	—
c. Other sardines	15	8	—	1	24	42	—	—	—	42
d. Hilsa shad	—	—	—	—	—	—	—	—	—	—
e. Other shads	—	—	—	—	—	—	—	2	—	2
f. Anchovies										
Coilia	—	—	—	—	—	2	—	—	—	2
Setipinna	—	—	—	—	—	—	—	—	—	
Stolephorus	135	369	57	95	656	245	112	146	76	579
Thryssa	108	37	118	111	374	55	101	179	45	380
g. Other clupeids	64	41	51	190	346	116	20	163	20	319
5. BOMBAYDUCK	—	2	53	21	76	1	—	26	17	44
6. LIZARDFISHES	180	129	169	274	752	281	112	153	260	806
7. HALF BEAKS & FULL BEAKS	—	19	—	—	19	—	—	—	—	—
8. FLYINGFISHES	—	—	—	—	—	—	—	—	—	—
9. PERCHES	797	882	194	310	2183					
a. Rock cods						1	1	—	1	3
b. Snappers						—	7	7	2	16
c. Pigface breams						—	—	—	—	—
d. Threadfin breams						1545	79	84	210	1918
e. Other perches						1557	168	107	88	1920
10. GOATFISHES	55	45	49	51	200	29	32	48	45	154
11. THREADFINS	13	6	12	7	38	10	10	13	23	56
12. CROAKERS	1102	312	933	539	2886	539	373	783	1158	2853
13. RIBBONFISHES	256	244	467	641	1608	239	190	650	331	1410
14. CARANGIDS										
a. Horse mackerel						—	—	—	—	—
b. Scads						2159	903	4	—	3066
c. Leather-jackets						—	—	—	1	1
d. Other carangids	440	706	129	73	1348	63	45	70	34	212

TABLE-7

MECHANISED UNITS IN THE MARINE FISH LANDINGS DURING 1980-84.

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
84	82	87	26	279	26	28	26	47	127	44	23	89	16	172
39	8	27	45	119	36	23	14	30	103	28	37	40	23	128
167	65	99	97	428	44	65	175	111	395	152	111	167	87	517
53	31	75	78	237	89	114	117	57	377	147	86	85	75	393
264	283	117	210	874	197	117	212	155	681	231	109	212	114	666
—	—	3	21	24	5	1	46	15	67	6	—	24	5	35
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
557	10	—	2	569	85	17	2	—	104	57	8	—	10	75
—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
—	—	1	112	113	19	—	63	144	226	164	11	37	90	302
27	7	6	13	53	—	—	7	2	9	—	14	14	21	46
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
64	197	207	168	636	170	133	228	271	802	417	356	388	234	1395
100	153	89	160	502	256	39	309	373	977	269	247	448	154	1118
319	45	168	113	645	275	80	398	216	969	180	102	255	52	589
6	60	424	83	573	14	—	87	167	268	10	45	81	24	160
188	112	716	524	1540	155	170	530	212	1067	268	134	456	287	1145
2	—	—	—	2	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	1	1	4	—	—	1	3	4	—	4	3	—	7
31	4	2	1	38	2	8	158	38	206	50	62	106	45	263
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1120	110	312	911	2453	778	1045	587	417	2827	1087	143	419	449	2098
1600	110	414	141	2265	1655	539	608	363	3165	1497	335	449	274	2545
160	103	312	489	1064	181	289	588	127	1185	118	103	426	156	803
31	7	129	31	198	8	51	142	36	237	48	27	59	47	181
1143	690	1555	1384	4772	682	999	2745	2496	6922	916	695	1439	748	3798
994	132	719	1041	2886	368	594	1620	865	3447	323	312	902	546	2083
—	—	—	—	—	5	5	2	22	34	4	1	—	1	6
1907	5	7	7	1926	2745	198	23	1	2967	1512	43	36	35	1626
—	—	—	—	—	—	—	—	—	—	4	—	—	—	4
87	39	126	188	440	89	114	374	97	674	108	138	207	72	525

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
15. SILVERBELLIES	306	207	292	298	1103	449	259	163	212	1083
16. BIG-JAWED JUMPER	38	16	21	8	83	8	30	21	44	103
17. POMFRETS	6	3	7	11	27					
a. Black pomfret						—	—	17	2	19
b. Silver pomfret						12	18	81	45	152
c. Chinese pomfret						—	—	—	—	—
18. INDIAN MACKEREL	158	71	7	1	237	8	1	2	37	48
19. SEER FISHES										
a. *S. commersoni*	—	—	—	—	—	—	—	—	—	—
b. *S. guttatus*	—	—	—	—	—	—	—	1	5	6
c. *S. lineolatus*	—	—	—	—	—	—	—	—	—	—
20. TUNNIES										
a. *E. affinis*	—	—	—	—	—	—	—	7	—	7
b. *Auxis* spp.	—	—	—	—	—	—	—	—	—	—
c. *K. pelamis*	—	—	—	—	—	—	—	—	—	—
d. *T. tonggol*	—	—	—	—	—	—	—	—	—	—
e. Other tunnies	—	—	—	—	—	—	—	—	—	—
21. BILL FISHES	—	—	—	—	—	—	—	—	—	—
22. BARRACUDAS	9	2	—	2	13	30	6	8	1	45
23. MULLETS	—	—	—	—	—	—	—	—	—	—
24. UNICORN COD	—	—	—	—	—	—	—	—	—	—
25. FLATFISHES	163	88	73	80	404					
a. Halibut	—	—	—	—		3	—	—	2	
b. Flounders						—	—	—	—	—
c. Soles						94	53	59	62	268
26. CRUSTACEANS										
a. Penacid prawns	967	584	743	884	3178	1918	767	912	1205	4802
b. Non penacid prawns	116	302	320	95	833	24	27	237	99	387
c. Lobsters	—	—	—	—		1	—	—	—	1
d. Crabs	36	121	354	241	752	480	134	192	130	936
e. Stomatopods	—	—	—	—		119	29	20	120	288
27. CEPHALOPODS	86	69	101	116	372	97	62	54	122	335
28. MISCELLANEOUS	868	394	112	139	1513	284	55	285	1063	1687
Total	6337	4821	4454	4405	20017	11813	4020	4890	5784	26507
No of operations of fishing units (in'000s)	321	20	21	18	91	44	18	23	25	112

TABLE-7 (contd.)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
456	347	811	774	2388	476	625	2361	699	4161	958	661	949	374	2942
12	6	85	125	228	39	85	323	106	553	15	180	77	34	306
6	2	3	3	14	22	24	6	4	56	3	4	14	5	26
19	10	95	25	149	24	4	37	20	85	8	5	47	55	115
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
317	2	14	24	357	165	43	171	116	495	38	27	29	14	108
4	—	8	—	12	—	2	2	—	4	10	1	—	5	16
—	—	—	—	—	—	—	3	13	16	11	—	117	11	139
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	8	—	—	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	10	—	—	10	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	2	13	1	66	81	62	23	5	171	50	6	14	15	85
—	—	—	—	—	7	—	—	1	8	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
21	1	2	9	33	2	7	32	14	55	18	2	19	13	52
—	—	3	—	3	10	60	1	7	78	9	1	15	1	26
78	215	218	100	611	139	221	319	173	852	176	112	99	55	442
1906	1074	2061	1645	6686	818	1613	2143	1996	6570	1767	1399	1499	1039	5704
44	408	484	119	1055	191	485	1777	299	2752	3	263	357	64	687
5	—	—	3	8	7	—	8	5	20	4	2	4	2	12
38	97	58	159	352	296	487	464	265	1512	334	369	304	212	1219
41	81	67	106	295	158	136	179	138	611	166	169	146	102	583
53	63	118	117	351	57	128	134	112	431	117	54	129	62	362
313	114	196	223	846	151	186	159	126	622	187	119	142	82	530
12308	4675	9832	9279	36094	10527	8807	17204	10364	46902	11504	6528	10304	5710	34046
23	26	41	26	124	19	29	42	31	122	29	33	27	18	118

QUARTERWISE AND SPECIESWISE CONTRIBUTION OF (TONNES) OF ANDHRA PRADESH

Name of fish	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
1. ELASMOBRANCHS	1424	1494	972	551	4441					
a. Sharks						1007	888	375	439	2709
b. Skates						170	1	2	36	209
c. Rays						367	292	73	139	871
2. EELS	99	9	35	—	143	48	13	—	8	69
3. CATFISHES	995	240	403	256	1894	2194	488	293	514	3489
4. CLUPEIDS										
a. Wolfherring	254	30	492	346	1122	175	311	353	265	1104
b. Oil sardine	—	—	—	—	—	—	—	—	—	—
c. Other sardines	3960	520	1054	8372	13906	6567	2348	295	6467	15677
d. Hilsa shad	—	—	96	—	96	12	—	26	2	40
e. Other shads	161	249	768	89	1267	140	541	300	360	1341
f. Anchovies										
Coilia	—	—	—	—	—	28	—	13	11	52
Setipinna	—	—	—	—	—	—	—	153	24	177
Stolephorus	2079	340	1670	1437	5526	5481	1088	95	6586	13250
Thryssa	5656	425	363	508	6952	573	302	487	781	2143
g. Other clupeids	863	595	863	2819	5140	2087	1150	427	959	4623
5. BOMBAYDUCK	34	25	78	398	535	246	1	17	537	801
6. LIZARD FISHES	4	15	57	103	179	124	28	39	27	218
7. HALFBEAKS & FULLBEAKS	13	3	35	27	78	3	3	23	—	29
8. FLYING FISHES	9	—	10	24	43	—	—	—	—	—
9. PERCHES	959	1137	173	187	2456					
a. Rock cods						6	6	1	19	32
b. Snappers						26	128	12	28	194
c. Pig face breams						—	—	—	—	—
d. Threadfin breams						—	124	4	3	131
e. Other perches						341	607	299	233	1480
10. GOATFISHES	35	50	24	40	149	55	429	—	46	530
11. THREADFINS	230	941	108	131	1410	292	204	29	195	720
12. CROAKERS	2396	1135	2168	911	6610	2051	548	898	696	4193
13. RIBBONFISHES	1605	833	10354	1246	14038	1913	3206	945	733	6797
14. CARANGIDS										
a. Horse Mackerel						122	62	4	87	275
b. Scads						314	143	—	—	457
c. Leather-jackets	86	310	92	222	710	192	107	61	92	452
d. Other carangids	2264	1253	684	551	4752	431	265	320	187	1203

TABLE 6

NON-MECHANISED UNITS IN THE MARINE FISH LANDINGS DURING 1980-84

1982					1983					1984				
I	II	III	VI	Total	I	II	III	IV	Total	I	II	III	IV	Total
1104	427	1998	865	4394	2307	1649	1422	1201	6579	2745	1805	1126	779	6455
8	43	19	42	112	123	18	130	30	301	135	9	108	229	481
57	116	812	130	1115	343	233	553	152	1281	854	168	917	339	2278
104	6	182	—	292	13	53	21	8	95	102	73	67	56	298
530	422	1110	246	2308	1063	860	285	717	2925	1339	688	1398	1389	4814
309	49	428	433	1221	469	366	471	557	1863	500	228	672	599	1999
—	—	—	—	—	—	—	—	—		—	—	—	—	—
4985	2489	11	5704	13189	4860	4587	471	7492	17410	8785	6347	742	5128	21002
4	5	136	3	148	43	—	19	—	62	13	2	41	—	56
485	301	315	1264	2365	905	36	212	2397	3550	4402	320	523	1648	6893
6	16	148	8	178	18	1	9	3	31	1	50	10	4	65
9	21	439	—	469	19	—	30	—	49	—	—	—	—	—
2884	602	333	1479	5298	1113	2730	105	3377	7325	1883	211	24	891	3009
426	567	728	599	2320	1215	478	589	596	2878	565	606	480	666	2317
1817	470	841	1211	4339	1380	314	802	1690	4186	2271	1072	1224	1556	6123
301	3	98	559	961	222	3	42	541	808	171	1	199	492	863
38	9	61	10	118	4	27	38	3	72	36	2	24	10	72
35	—	7	4	46	—	57	—	9	66	17	66	54	1	138
166	—	2	—	168	—	62	—	12	74	1	—	38	—	39
11	2	18	—	31	—	2	2	—	4	—	3	2	3	8
46	18	193	35	292	391	197	207	54	849	197	177	230	1266	1870
—	—	—	—	—	1	—	6	—	7	—	—	6	—	6
—	—	—	4	4	11	63	72	2	148	25	23	1	—	49
403	181	1338	129	2051	866	193	401	158	1618	599	444	660	2576	4279
108	25	270	53	456	126	39	77	4	246	80	4	29	32	145
605	296	681	263	1845	481	181	120	207	989	701	427	126	695	1949
1294	484	1544	685	4007	1606	880	1345	801	4632	1586	762	1095	806	4249
238	178	983	2510	3909	2955	327	1651	2277	7210	855	279	2358	882	4374
258	88	314	48	708	55	245	200	276	776	92	308	228	130	758
345	440	—	3	788	505	291	—	19	815	95	168	21	—	284
234	66	145	140	585	1028	245	278	87	1638	1038	173	579	173	1963
439	480	660	407	1986	513	511	1228	537	2789	699	338	1234	349	2620

Name of fishes	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
15. SILVERBELLIES	582	617	765	764	2728	3586	4163	727	297	8773
16. BIG-JAWED JUMPER	340	52	364	101	857	454	40	93	127	714
17. POMFRETS	654	587	674	259	2174					
a. Black pomfret						1017	426	87	229	1759
b. Silver pomfret						172	136	279	152	739
c. Chinese pomfret						—	—	26	3	29
18. INDIAN MACKEREL	2560	1285	238	1883	5966	997	1730	207	273	3207
19. SEER FISHES	1264	354	788	564	2970					
a. *S. commersoni*						737	31	208	106	1082
b. *S. guttatus*						357	1146	253	706	2462
c. *S. lineolatus*						—	—	—	13	13
20. TUNNIES	304	23	9	83	419					
a. *E. affinis*						125	10	—	52	187
b. *Auxis* spp.						—	—	—	—	—
c. *K. pelamis*						—	—	—	—	—
d. *T. tonggol*						—	—	—	—	—
e. Other tunnies						113	—	6	25	144
21. BILL FISHES	—	—	—	—	—	136	25	—	43	204
22. BARRACUDAS	—	1	—	74	75	63	1	8	7	79
23. MULLETS	8	—	19	—	27	5	45	116	16	182
24. UNICORN COD	—	—	—	—		—	—	—	—	—
25. FLATFISHES	7	137	6	19	169					
a. Halibut						5	34	2	—	41
b. Flounders						—	1037	—	—	1037
c. Soles						6	803	38	15	862
26. CRUSTACEANS										
a. Penaeid prawns	698	236	1036	512	2482	437	55	996	438	1926
b. Non penaeid prawns	10	362	2793	348	3513	59	299	822	40	1220
c. Lobsters	7	3	—	—	10	—	—	—	—	—
d. Crabs	35	158	281	187	661	120	107	247	102	576
e. Stomatopods	—	—	—			—	—	—	—	—
27. CEPHALOPODS	57	26	—	15	98	96	61	20	—	177
28. MISCELLANEOUS	567	492	756	585	2400	331	152	258	216	957
Total	30219	13937	28228	23612	95996	33781	23584	9937	22334	89636
No of operations of fishing units (in'000)	670	604	778	759	2811	782	460	491	622	2356

TABLE-6 (Contd.)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
1057	341	783	563	2744	2737	586	448	222	3993	968	460	298	367	2093
324	56	54	156	590	214	38	167	147	566	112	93	35	48	288
626	227	838	426	2117	293	186	345	1116	1940	4988	305	608	444	6345
727	183	522	289	1721	673	174	422	1550	2819	1343	293	614	1072	3322
—	5	133	13	151	2	4	16	4	26	46	—	15	—	61
1400	209	301	704	2614	2763	871	1091	1305	6030	3091	1900	648	665	6304
924	291	653	608	2476	1666	340	53	306	2365	1697	438	134	411	2680
1100	270	1240	603	3213	1696	589	489	950	3724	2737	505	1361	591	5194
—	—	—	—	—	—	—	—	—		42	1	—	—	43
132	4	199	312	647	302	243	92	89	726	324	313	66	108	811
—	—	—	—	—	—	—	4	4	8	—	—	4	6	10
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
45	8	113	3	169	—	—	—	22	22	32	—	—	4	36
142	19	—	62	223	281	26	25	13	345	7	—	59	—	66
165	11	—	44	220	21	43	—	8	72	53	—	9	11	73
1	10	377	8	396	57	16	4	25	102	4	51	14	24	93
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13	—	12	—	25	8	28	9	—	45	20	8	20	—	48
—	—	71	—	71	1	60	—	—	61	1	—	—	—	1
4	18	55	32	109	30	67	7	15	119	12	12	2	2	28
435	369	1805	597	3206	337	423	2028	1213	4001	923	320	1492	348	3083
9	1758	1665	150	3582	96	2450	486	67	3099	—	74	235	187	496
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
62	153	181	207	603	340	282	586	327	1535	280	55	174	161	670
—	—	—	—		—	—	1	—	1	1	—	1	—	2
217	17	1	9	244	42	28	—	18	88	68	17	—	3	88
297	144	337	338	1116	486	268	495	370	1619	382	271	378	325	1356
24929	11897	23154	21960	81940	34680	21370	17554	30978	104582	46919	19870	20383	25476	112648
741	433	731	630	2535	805	632	628	576	2642	664	526	546	571	2309

TABLE-8

DISTRICTWISE MARINE FISHING VILLAGES AND FISHERMEN POPULATION IN ANDHRA PRADESH IN 1980

Item	DISTRICTS									
	Srikakulam	Vijayanagaram	Visakhapatnam	East Godavari	west Godavari	Krishna	Guntur	Prakasam	Nellore	Total
No. of fishing villages	105	16	62	84	14	28	22	60	62	453
No. of landing centres	55	12	39	42	10	22	7	39	54	280
No. of fishermen house holds	16026	2195	11472	20045	2328	4658	3960	6939	6261	73884
Fishermen population										
a) Male	21362	3694	17661	25812	2822	5921	4892	8777	7340	98281
b) Female	23291	2953	17515	24957	2919	5588	4624	8325	7363	97535
c) Children	31577	4456	24969	34442	3399	6945	6337	11373	10853	134351
Total	76230	11103	60145	85211	9140	18454	15853	28475	25556	330167
Educational Status										
a) Primary	5974	97	2004	5432	1253	1285	1167	1721	1768	20701
b) Secondary	1779	4	239	683	165	220	176	226	93	3585
c) Above secondary	201	—	20	75	34	25	21	50	6	432
Total	7954	101	2263	6190	1452	1530	1364	1997	1867	24718
No. of fishermen engaged in actual fishing										
a) Full time	12279	3164	14716	20368	1798	4125	3570	7273	6738	74031
b) Part time	427	294	500	1643	316	569	994	146	35	4924
c) Occasional	1400	143	834	997	416	796	473	384	47	5490
Total	14106	3601	16050	23008	2530	5490	5037	7803	6820	84445

TABLE-7 (contd.)

1982					1983					1984				
I	II	III	IV	Total	I	II	III	IV	Total	I	II	III	IV	Total
456	347	811	774	2388	476	625	2361	699	4161	958	661	949	374	2942
12	6	85	125	228	39	85	323	106	553	15	180	77	34	306
6	2	3	3	14	22	24	6	4	56	3	4	14	5	26
19	10	95	25	149	24	4	37	20	85	8	5	47	55	115
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
317	2	14	24	357	165	43	171	116	495	38	27	29	14	108
4	—	8	—	12	—	2	2	—	4	10	1	—	5	16
—	—	—	—	—	—	—	3	13	16	11	—	117	11	139
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	8	—	—	8
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	10	—	—	10	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	2	13	1	66	81	62	23	5	171	50	6	14	15	85
—	—	—	—	—	7	—	—	1	8	—	—	—	—	
—	—	—		—	—	—	—	—	—	—	—	—	—	
21	1	2	9	33	2	7	32	14	55	18	2	19	13	52
—	—	3	—	3	10	60	1	7	78	9	1	15	1	26
78	215	218	100	611	139	221	319	173	852	176	112	99	55	442
1906	1074	2061	1645	6686	818	1613	2143	1996	6570	1767	1399	1499	1039	5704
44	408	484	119	1055	191	485	1777	299	2752	3	263	357	64	687
5	—	—	3	8	7	—	8	5	20	4	2	4	2	12
38	97	58	159	352	296	487	464	265	1512	334	369	304	212	1219
41	81	67	106	295	158	136	179	138	611	166	169	146	102	583
53	63	118	117	351	57	128	134	112	431	117	54	129	62	362
313	114	196	223	846	151	186	159	126	622	187	119	142	82	530
12308	4675	9832	9279	36094	10527	8807	17204	10364	46902	11504	6528	10304	5710	34046
23	26	41	26	124	19	29	42	31	122	29	33	27	18	118

TABLE 9

DISTRICTWISE OF MARINE FISHING CRAFT AND GEAR-OWNED BY FISHERMEN IN ANDHRA PRADESH IN 1980

Item	DISTRICTS									
	Srikakulam	Vijayanagaram	Visakhapatnam	East Godavari	West Godavari	Krishna	Guntur	Prakasam	Nellore	Total
Fishing craft										
a) Mechanised trawlers	—	—	1	113	—	60	273	—	—	447
Gill netters	—	—	—	1	—	—	8	—	—	9
Total	—	—	1	114	—	60	281	—	—	456
b) Non-mechanised plank built boats	898	634	2180	5387	144	1226	828	14	48	11359
Dugout canoes	285	6	123	599	99	5	159	291	214	1781
Catamarans	7555	370	5163	2340	—	1	323	3694	3207	22653
Others	2	1	108	218	17	2	11	192	124	675
Total	8740	1011	7574	8544	260	1234	1321	4191	3593	36468
Fishing gear										
Trawl net	—	—	2	265	—	130	426	—	—	823
Drift/Gill net	13010	1570	10818	5753	164	1344	1510	3448	5165	42832
Boat seine	2821	592	2648	1953	58	—	46	949	677	9744
Fixed bagnet	830	—	288	4412	98	4181	2862	413	1547	14631
Hooks & Lines	4769	974	2871	341	—	302	50	1164	281	10752
Shore seine	926	245	907	284	21	24	201	281	161	3050
Traps	—	—	125	—	—	5	—	—	—	130
Scoop nets	55	43	276	1380	2	921	3	19	226	2925
Others	3828	537	2450	9128	5490	5485	3233	4628	2420	37199

DISTRICT-TALUK LEVEL INFRASTRUCTURE AND

Sl. No. of Taluk	No. of fisher-men houses		Drinking water supply		No. of Village						
	'Kutcha'	'Pucca'	Tap	well	Electricity	Connected by road	Primary schools	Secondary schools	Colleges	Technical institutes	Hospital/ dispensaries
1 2	3	4	5	6	7	8	9	10	11	12	13
SRIKAKULAM (dt)											
1. Ponduru	417	10	—	4	—	—	2	—	—	—	—
2. Kotabommali	2095	6	16	6	—	6	12	—	—	—	—
3. Palasa	1657	270	2	5	5	6	6	1	—	—	2
4. Ranasthalem	1669	2	—	16	—	2	6	1	—	—	—
5. Narasannapeta	242	2	—	4	—	—	2	—	—	—	—
6. Thekkali	2030	24	—	6	1	2	6	—	—	—	1
7. Sompeta	2931	130	—	18	1	2	14	1	—	—	—
8. Srikakulam	2364	167	—	15	4	7	10	1	2	—	1
9. Ichapuram	1499	142	—	13	—	—	10	—	—	—	—
Total	14904	753	18	87	11	25	68	4	2	—	4
VIJAYANAGARAM (dt)											
1. Bhogapuram	1852	20	—	16	4	6	8	1	—	—	—
VISAKHAPATNAM (dt)											
1. Visakhapatnam	2862	260	4	11	6	11	11	—	—	—	1
2. Nakkapalli	2778	170	—	18	2	10	16	—	—	—	—
3. Anakkapalli	508	1	—	3	—	4	2	—	—	—	—
4. Yellamanchili	2261	23	—	12	—	6	7	—	—	—	—
5. Bheemunipatnam	1735	191	—	17	1	14	12	—	—	—	1
Total	10144	645	4	61	9	45	48	—	—	—	2
EAST GODAVARI (dt)											
1. Tuni	998	116	—	16	10	4	8	—	—	—	—
2. Razole	1969	307	—	12	9	6	10	1	—	—	13
3. Kakinada	3904	392	3	79	20	18	16	—	—	—	—
4. Thallerevu	154	29	—	1	1	—	1	—	—	—	—
5. Pithapuram	1357	421	—	10	10	10	10	1	—	1	1
6. Amalapuram	820	37	—	5	2	2	5	—	—	—	1
7. Mummidivaram	2563	89	—	11	2	—	8	—	—	—	—
Total	11765	1391	3	84	54	40	58	2	—	1	15
WEST GODAVARI (dt)											
1. Narasapur	2022	35	1	14	7	14	14	—	—	—	—
KRISHNA (dt)											
1. Divi	830	1161	2	9	7	9	9	—	—	—	2
2. Bantimilli	942	49	—	11	2	6	4	—	—	—	—
3. Bandar	927	105	1	5	4	2	5	—	—	—	2
Total	2699	1315	3	25	13	17	18	—	—	—	4

TABLE-10

OTHER FACILITIES IN ANDHRA PRADESH IN 1980

having: Banks	Co-operative societies	Post & telegraph office	Police station	Community halls	Liquor shop	Mechanised centre	Fish landing jetty	fisheries harbours	boat building repair yards	Ice factories	Cold storages	Freezing plants	Canning plants	Fish curing yard	Oil extraction plants	Fish meal plants	Petrol/ Diesel bunks
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
—	1	—	—	—	2	3	—	—	—	—	—	—	—	—	—	—	—
—	9	2	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—
—	3	3	—	3	15	—	—	—	—	—	—	—	—	1	—	—	—
—	8	1	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—
—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
—	5	1	—	3	6	—	—	—	—	—	—	—	—	2	—	—	—
—	9	6	—	3	21	—	—	—	—	—	—	—	—	1	—	—	—
—	14	1	—	2	12	—	—	—	—	—	—	—	—	—	—	—	—
—	7	1	—	—	15	—	—	—	—	—	—	—	—	1	—	—	—
—	58	15	—	12	89	3	—	—	—	—	—	—	—	5	—	—	—
—	5	1	—	—	3	—	—	—	—	—	—	—	—	1	—	—	—
—	6	3	—	5	12	1	1	1	1	1	1	1	1	1	—	—	—
—	10	3	—	8	20	—	—	—	—	—	—	—	—	—	—	—	—
—	2	2	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—
—	6	2	—	3	10	—	—	—	—	—	—	—	—	1	—	—	—
2	13	4	1	2	17	—	—	—	—	2	—	1	—	2	—	—	—
2	37	14	1	18	63	1	1	1	1	3	1	2	1	4	—	—	—
—	1	—	—	17	15	—	—	—	—	—	—	—	—	3	—	—	—
—	—	8	—	2	13	—	—	—	—	—	—	—	—	—	—	—	—
—	5	2	—	36	22	1	1	1	1	2	2	2	1	—	1	—	2
—	—	1	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—
—	1	1	—	11	13	—	—	—	—	—	—	—	—	2	—	—	—
—	—	2	—	3	5	—	—	—	—	—	—	—	—	—	—	—	—
—	5	2	—	16	9	—	—	—	—	—	—	—	—	—	—	—	—
—	12	16	—	87	78	1	1	1	1	2	2	2	1	5	1	—	2
—	1	2	—	5	11	—	—	—	—	—	—	—	—	—	—	—	—
1	1	4	1	10	12	1	—	—	—	—	—	—	—	—	—	—	—
—	2	—	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—
—	3	2	—	1	6	1	1	—	1	—	—	—	—	—	—	—	—
1	6	6	1	11	28	2	1	—	1	—	—	—	—	—	—	—	—

TABLE-10

OTHER FACILITIES IN ANDHRA PRADESH IN 1980

having:																	
Banks	Co-operative societies	Post & telegraph office	Police station	Community halls	liquor shop	Mechanised centre	Fish landing jetty	fisheries harbours	boat building repair yards	Ice factories	Cold storages	Freezing plants	Canning plants	Fish curing yard	Oil extraction plants	Fish meal plants	Petrol/ Diesel bunks
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
—	1	—	—	—	2	3	—	—	—	—	—	—	—	—	—	—	—
—	9	2	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—
—	3	3	—	3	15	—	—	—	—	—	—	—	—	1	—	—	—
—	8	1	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—
—	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
—	5	1	—	3	6	—	—	—	—	—	—	—	—	2	—	—	—
—	9	6	—	3	21	—	—	—	—	—	—	—	—	1	—	—	—
—	14	1	—	2	12	—	—	—	—	—	—	—	—	—	—	—	—
—	7	1	—	—	15	—	—	—	—	—	—	—	—	1	—	—	—
—	58	15	—	12	89	3	—	—	—	—	—	—	—	5	—	—	—
—	5	1	—	—	3	—	—	—	—	—	—	—	—	1	—	—	—
—	6	3	—	5	12	1	1	1	1	1	1	1	1	1	—	—	—
—	10	3	—	8	20	—	—	—	—	—	—	—	—	—	—	—	—
—	2	2	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—
—	6	2	—	3	10	—	—	—	—	—	—	—	—	1	—	—	—
2	13	4	1	2	17	—	—	—	—	2	—	1	—	2	—	—	—
2	37	14	1	18	63	1	1	1	1	3	1	2	1	4	—	—	—
—	1	—	—	17	15	—	—	—	—	—	—	—	—	3	—	—	—
—	—	8	—	2	13	—	—	—	—	—	—	—	—	—	—	—	—
—	5	2	—	36	22	1	1	1	1	2	2	2	1	—	1	—	2
—	—	1	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—
—	1	1	—	11	13	—	—	—	—	—	—	—	—	2	—	—	—
—	—	2	—	3	5	—	—	—	—	—	—	—	—	—	—	—	—
—	5	2	—	16	9	—	—	—	—	—	—	—	—	—	—	—	—
—	12	16	—	87	78	1	1	1	1	2	2	2	1	5	1	—	2
—	1	2	—	5	11	—	—	—	—	—	—	—	—	—	—	—	—
1	1	4	1	10	12	1	—	—	—	—	—	—	—	—	—	—	—
—	2	—	—	—	10	—	—	—	—	—	—	—	—	—	—	—	—
—	3	2	—	1	6	1	1	—	1	—	—	—	—	—	—	—	—
1	6	6	1	11	28	2	1	—	1	—	—	—	—	—	—	—	—

1	2	3	4	5	6	7	8	9	10	11	12	13
	GUNTUR (dt)											
1.	Bapatla	344	—	—	4	—	1	1	—	—	—	—
2.	Repalle	2977	410	1	14	13	10	12	1	—	—	2
	Total	3321	410	1	18	13	11	13	1	—	—	2
	PRAKASAM (dt)											
1.	Ongole	2335	20	—	18	8	9	12	—	—	—	—
2.	Kandukur	2438	14	—	19	—	10	8	—	—	—	—
3.	Chirala	2878	103	—	22	2	11	12	—	—	—	—
	Total	7651	137	—	59	10	30	32	—	—	—	—
	NELLORE (dt)											
1.	Gudur	961	—	5	6	1	—	—	—	—	—	—
2.	Kavali	4060	260	7	15	4	7	7	—	—	—	—
3.	Kovur	2138	5	11	—	1	—	6	—	—	—	—
4.	Nellore	322	—	4	2	—	—	1	—	—	—	—
5.	Indukurpet	1212	15	—	9	2	—	3	1	—	—	—
	Total	8693	280	27	32	8	7	17	1	—	—	—

DISTRICTWISE AND QUARTERWISE MARINE FISH LANDINGS

Districts	1980					1981				
	I	II	III	IV	Total	I	II	III	IV	Total
Srikakulam	6080	2151	4754	9181	22166	14632	8477	2469	11879	37457
Vijayanagaram	432	401	238	277	1348	363	177	266	306	1112
Visakhapatnam	7128	4417	3859	3250	18654	5066	5232	3163	3506	16967
East Godavari	11868	5791	3601	4163	25423	14334	10494	2803	6166	33797
West Godavari	401	449	—	542	1392	815	39	—	785	1639
Krishna	1906	536	860	1653	4955	1674	423	1612	1265	4934
Guntur	2055	489	3059	2103	7706	691	370	1002	1722	3785
Prakasam	3756	2450	11013	5620	22839	4533	1798	1854	1598	9783
Nellore	2930	2074	5298	1228	11530	3526	594	1658	891	6669
Grand Total	36556	18758	32682	28017	116013	45594	27604	14827	28118	116143

TABLE-10 (Contd.)

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
—	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
1	7	2	1	6	9	—	—	1	—	—	—	—	—	—	—	—	2
1	8	2	1	6	12	—	—	—	—	—	—	—	—	—	—	—	2
—	7	1	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—
—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	11	1	—	6	10	—	—	—	—	—	—	—	—	—	—	—	—
—	20	2	—	6	16	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—
—	3	—	—	—	17	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—
—	3	—	—	—	38	—	—	—	—	—	—	—	—	—	—	—	—

TABLE-11

(TONNES) IN ANDHRA PRADESH DURING 1980-1984

1982					1983					1984				
I	II	III	VI	Total	I	II	III	IV	Total	I	II	III	IV	Total
9577	4189	3465	6025	23257	5674	4951	3634	10700	24959	6862	4183	4017	5047	20109
505	569	682	792	2548	885	554	372	939	2810	1364	1515	866	645	4390
4844	2905	5940	4765	18454	6148	6314	4720	5050	22232	5939	6171	4860	4091	21061
12769	3231	5989	6675	28664	16021	8995	7953	6315	39284	18267	8695	6496	6647	40105
2045	120	217	1593	3975	1964	239	210	4390	6803	5283	150	354	2617	8404
978	1760	1899	1110	5747	801	1596	3390	2731	8518	2844	314	2099	1114	6371
1517	988	2624	2204	7333	1385	958	3583	2632	8558	4112	1043	2765	2990	10910
2675	993	5110	3597	12375	5321	1319	3387	6297	16324	8609	1887	4515	7229	22240
2327	1817	7059	4478	15681	7008	5251	7509	2228	21996	5143	2440	4715	806	13104
37237	16572	32986	31239	118034	45207	30177	34758	41342	151484	58423	26398	30687	31186	146694

DISTRICTWISE LANDING CENTRES OF ANDHRA PRADESH*

I. SRIKAKULAM DISTRICT

1 Donkuru
2 Kapaskudi
3 Chinnapukkellapalem
4 Chinnakarrivanipalem
5 Peddakkarivanipalem
6 Kothakalingapatnam
7 Vonturu
8 Iskalapalem
9 Gollagandi
10 Kothuru
11 Battigalluru
12 Ekavuru
13 Yerremukkam
14 Vadagangavada
15 Gunupalluru
16 Akkupalli
17 Dokalapadu
18 Chinnakothuru
19 Nuvallarevu
20 Manchineelapeta
21 Hukumpeta
22 Kambalarayudupeta
23 Kothapeta
24 Althada
25 Bhavanapadu
26 Sunnapalli
27 Meghavaram
28 Marrivada
29 Geddalapadu
30 Kumundavanipeta
31 Jagannadhapuram
32 Umilada
33 Peddakoviripeta
34 Guppidipeta
35 Jogampeta
36 Kotharevu
37 Ampalam
38 Bandaruvanipeta
39 Komaravanipeta
40 Mogadalapadu
41 Srikurmam-Matchilesam
42 Balaramapuram
43 Kunduvanipeta
44 Pukkallapeta
45 Pathadibbalapalem
46 Kothadibbalapalem
47 Rallapeta
48 Badevanipeta
49 Budakatlapalem
50 Varadhinagonapuram
51 Gowalamukkam
52 Allivalasa
53 Peddakovvada
54 Gurrayyapeta
55 Dhonipeta

* From north to south

II. VIZIANAGARAM DISTRICT

1 Chinthapally
2 Barrepeta
3 Pathiwada
4 Puligeddapalem
5 Tippavalasa
6 Boddugurayyapeta
7 Sodipallipeta
8 Kothapalem
9 Kondarajapalem
10 Thottapallimukkam
11 Chinnakancheru
12 Peddakancheru

III. VISAKHAPATNAM DISTRICT

1 Annavaram
2 Nagamayapalem
3 Bheemilipatnam
4 Uppada
5 Mangamaripeta
6 Rushikonda
7 Rendugullapalem
8 Lawson's Bay
9 Visakhapatnam Outer Harbour
10 Jalaripeta
11 Dibbapalem
12 Gangavaram
13 Appikonda
14 Thikkavanipalem
15 Cheepurapalli
16 Mutyalammapalem
17 Thantedi
18 Poodimadaka
19 Lovapalem
20 Venkayyapalem
21 Rambhilli
22 Narasapuram
23 Kothapatnam
24 Bengarammapalem
25 Revupolavaram
26 Chinnathinorla
27 Peddathinorla
28 Dhondavaki
29 Rajayyapeta
30 Boyipadu
31 Patha Amalapuram
32 Kotha Amalapuram
33 Bengarammapeta
34 Pentakota
35 Rajavaram
36 Venkatanagaram
37 Rajanagaram
38 Ratnamayapeta
39 Korlayyapeta
40 Palachetturu

IV. EAST GODAVARI DISTRICT

1 Addurupeta
2 Pampodipeta
3 Kothapeta
4 Yerriahpeta .
5 Annayyapeta
6 Yelliahpeta
7 Gollamusaliahpeta
8 Dhaniahpeta
9 Narsipeta
10 Perumallapuram
11 Ukumpeta
12 Chodipallipeta
13 Koppirivanipeta
14 Mulapeta
15 Aminabad
16 Mayapatnam
17 Sooradipeta
18 Ramisettipeta
19 Uppada (Jaggarajupeta)
20 Kothauru
21 Kothapatnam
22 Subbammapeta
23 Nemam
24 Polaram
25 Suryaraopeta
26 Vakalapudi
27 Kondalupeta
28 Godarigunta
29 Kotha Kakinada
30 Dummulapeta
31 Kakinada Lighthouse
32 Yettimoga
33 Kakinada Fisheries Harbour
34 Bhairavipalem
35 Pandi
36 Neelarevu
37 Chirrayanam
38 Brahmasidhyam
39 Valasala
40 Valsalatippa
41 Rameswaram I
42 Rameswaram-II
43 Vadalarevu
44 Karavaka
45 Kesanapalli
46 Antharvedipallipalem

V. WEST GODAVARI DISTRICT

1 Biyyaputippa
2 Vemuladevicanal centre
3 Vemuladevi
4 Chinnamylavani lanka
5 Saradhukodappa
6 Peddamylavanilanka North
7 Peddamylavanilanka South
8 Chillapalem
9 Metturevu
10 Kothadindulapallipalem
11 Mollaparrupalem
12 Perupalem ferry centre

VI. KRISHNA DISTRICT

1 Yetipogaru Pallipalem
2 Mylavanilanka
3 Chinnagollapalem
4 Lakshmipuram Pallipalem
5 Podu
6 Urlagonditippa
7 Kanuru
8 Sathravapalem
9 Manginapudi
10 Chinnakari Agraharam Pallipalem
11 Cambelpet
12 Gilakaladindi
13 Polatitippa
14 Malakayalanka
15 Polakayatippa
16 Pathaupakali
17 Sangameswaram
18 Nali
19 Sorlagondi
20 Gullalamoda
21 Jinkapalem
22 Nachugunta
23 Yeelachetladibba

VII. GUNTUR DISTRICT

1 Lankevanidibba
2 Nakshtra Nagar
3 Nizampatnam Fisheries Harbour
4 Peralipoguru
5 Suryalanka
6 Pandurangapuram Pattapalem

VIII. PRAKASAM DISTRICT

1 Vijayalakshmipuram
2 Vodarevu
3 Sunnapuvaripalem
4 Kataripalem
5 Pottisubbaiahpalem
6 Thengayachettlapalem
7 Utukurusubbaiahpalem
8 Katamvaripalem
9 Ramachandrapuram
10 Chinnaganjam Pallipalem
11 Peddaganjam Pallipalem
12 Peddaganjam pattapalem
13 Kanuparthipalem
14 Chinthaigaripalem
15 Gundayapalem
16 Gundamola
17 Pinnivaripalem
18 Kothapatnam Pallipalem
19 Vajjireddipalem
20 Rajupalem-Pattapalem
21 Ethamukkala Pattapalem
22 Ethamukkala Pallipalem
23 Madanur Chinnapattapalem
24 Madanur Peddapattapalem
25 Pakala Pallipalem
26 Pakalachellammagari Pattapalem
27 Pakalapotaiah Pattapalem
28 Woolapalem
29 Karedu Pallipalem
30 Karedu Pattapalem
31 Battielam
32 Alagayapalem
33 Chackicherla Chinnapattapalem
34 Chackicherla Pallipalem
35 Chackicherla Pattapalem
36 Ramayapatnam
37 Karlapalem
38 Avulaelam
39 Ravoorivarielam

IX. NELLORE DISTRICT

1 Chennayapalem Pallipalem
2 Chennayapalem Chinnapattapalem
3 Chennayapalem Peddapattapalem
4 Kothasatrom
5 Peddaramudupalem
6 Chinnaramudupalem
7 Sreerampuram
8 Tummalapenta pallipalem
9 Tummalapenta Pattapalem
10 Nattu Paltapalem
11 Votturu Pallipalem
12 Thenkayachetlapalem
13 Venkateswarapuram
14 Zuwaladinne Pattapalem
15 Kadapalem
16 Bangarupalem
17 Thatichetlapalem
18 Pathapalem (Lakshminarayanapuram)
19 Iskapalli Pattapalem
20 Kurru Pattaplem
21 Chandrasekharapuram
22 Ponnapudi Pattapalem
23 Ponnapudi Lakshmipuram
24 Ponnapudi Chinnapattapalem
25 Ponnapudi Venkatanarayanapuram
26 Busakadupalem
27 Ramachandrapuram
28 Ramatheertham
29 Gowripura m
30 Utukuru Pattapalem
31 Utukuru Pallipalem
32 Ankayyadibba Pallipalem
33 Kudithipalem
34 Gangapatnam
35 Mypaud-West
36 Mypaud-East
37 Mogalaipalem
38 Krishnapuram
39 Koruturu
40 Venkannapalem
41 Muthyalathopu
42 Kodurukothapalem
43 Koduru Nadimpalem
44 Koduru Pattapalam
45 Eedurpalem
46 Adavalapalem
47 Nelathurpalem
48 Krishnapatnam Pattapalem
49 Krishnapatnam Adavalapalem
50 Krishnapatnam Basin
51 Gummalladibba
52 Theegapalem
53 Venugopalapuram
54 Pamanchipalem
55 Thupullipalem
56 Kondurpalem
57 Sreenivasapuram
58 Pulinjeripalem
59 Vadapalem
60 Manjalkuppam
61 Rayadoruva