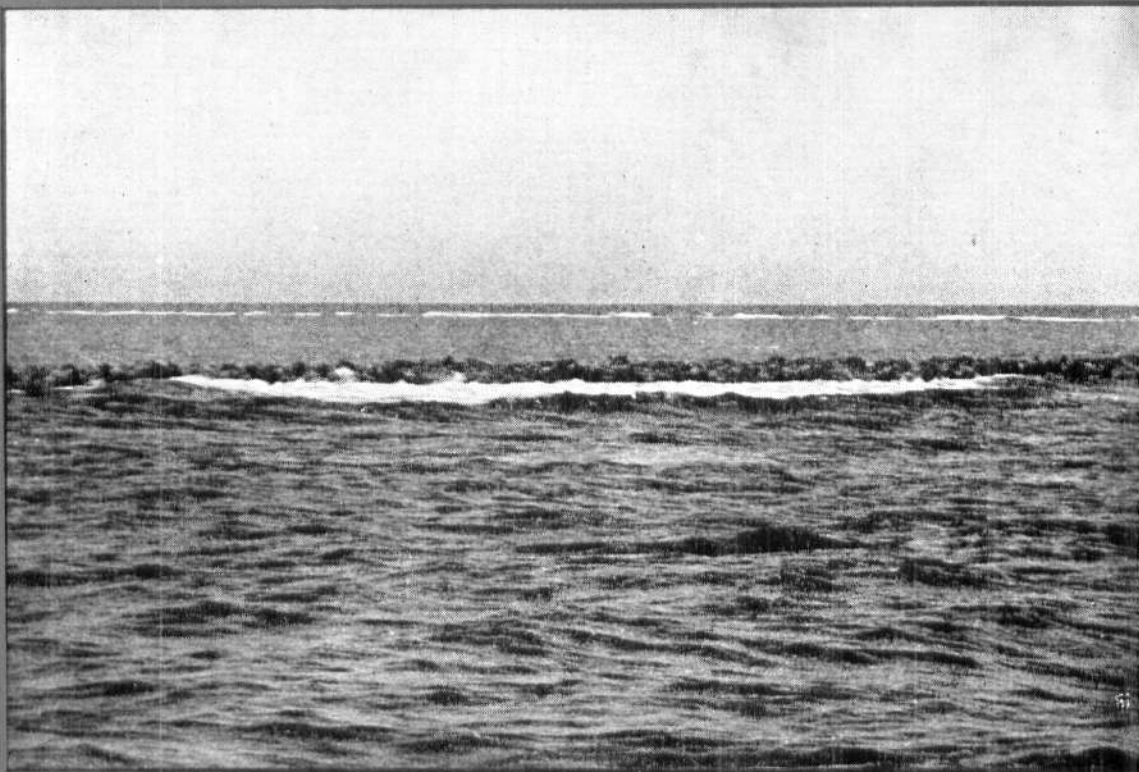




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SMALL-SCALE POLE AND LINE TUNA FISHERY IN LAKSHADWEEP — PRESENT TREND, CONSTRAINTS AND STRATEGIES FOR FUTURE DEVELOPMENTS

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Introduction

The mainstay of the tuna fishery of the Lakshadweep Islands is the small-scale pole and line fishery. It includes chumming with live-baits to attract and hold tuna schools close to the vessel and hooking by pole and line. The advantages of this type of fishing are: relatively small capital investment involved, ability to harvest small schools of fish, mobility to operate from small ports with minimum technical support and the ability to utilise unskilled labour. In Lakshadweep, as observed by Jones (1986), since the land and its resources are very limited, optimum exploitation of the resources of the vast expanse of its oceanic waters is the solution for furthering the development of the islands and the economy of the islanders. The introduction of mechanisation of the fishing boats in the early sixties and the extension of small-scale pole and line fishing which was traditionally in vogue only at Minicoy Island to some of the northern islands such as Agatti, Suheli Par and Bitra are the two recent developments in this direction.

The resource

Production of tunas (chiefly Skipjack and young Yellowfin) by pole and line fishery in the Indian Ocean and in the countries neighbouring India such as the Republic of Maldives and Sri Lanka during the period 1981-'85 is presented in Fig. 1. Total tuna production by this fishery in the Indian Ocean recorded an increase of about 40% from 1981-'85 and the Republic of Maldives contributed to 90.2% and Sri Lanka 5.6% of the total production (IPTP/FAO, 1986). Mechanisation of the traditional crafts engaged in the pole and line fishery has been instrumental for the increase in catches. Fish production in the Lakshadweep has increased from 2,570 tonnes in 1976 to 4,700 tonnes in 1985, of

which tunas, especially Skipjack tuna (*Katsuwonus pelamis*) contributed 1,300 tonnes and 3,800 tonnes respectively in these years (Fig. 2).

Scientific estimates of potential resources of tunas in the Lakshadweep Sea, based mainly on the primary production and catch statistics indicate that they vary between 50,000 tonnes and 1,00,000 tonnes, and resource availability is not a constraint in the development of tuna fishery in this area. According to the recent estimation by Chidambaram (1986) the fishery potential in the southwest region of the Exclusive Economic Zone of India is 1.15 million tonnes, of which 90,000 tonnes are formed by tuna resource. James (1986) presented an exploitable potential of 5,00,000 tonnes of oceanic resources including tunas, pelagic sharks etc. from the area. This coincides with the observation by Silas and Pillai (1985) that tunas remain to be one of the least exploited resources of the Indian seas, and in 1984 it formed only 1.25% of the total marine fish landings in India.

Development of domestic small-scale fisheries and national harvesting capabilities become important to ensure rational exploitation of fishery resources in the Exclusive Economic Zone. As opined by Varma *et al.* (1986) an initial moderate scale of development by expanding pabo-boat fishery using traditional fishing methods can be encouraged in view of their efficiency and other advantages. It has earlier been suggested that for augmenting tuna production in the developing countries like India, expansion of surface fisheries is the prime means (Silas and Pillai, 1982; 1986). Introduction of highly mobile, large-scale purse seining is not a prudent proposition since it is capital intensive and may not provide local employment and also require shore based infrastructure facilities such as berthing and bunkering jetties, large scale freezing and canning

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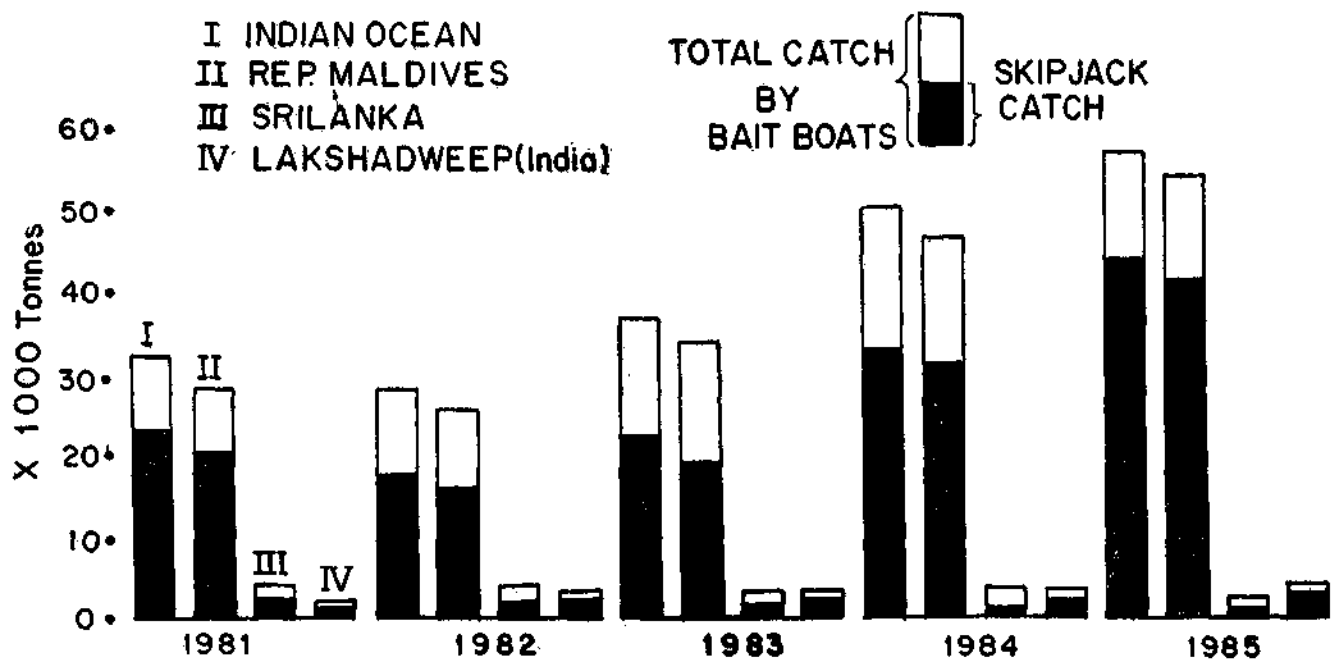


Fig. 1. Production of tunas by pole and line (bait-boat) fishery in the Indian Ocean, Republic of Maldives, Sri Lanka, and India 1981-'85. Shaded portions indicate composition of Skipjack tuna in the total catch.

facilities etc. Hence it is felt that one of the immediate steps which appears practicable and feasible for the development of surface fishery for tunas within our EEZ is the strengthening and expansion of the small-scale pole and line fishery and the introduction of medium sized purse seiners especially in the northern islands.

According to Varghese (1986), a fishery providing self employment to nearly 5,000 people has been established in the Lakshadweep with the necessary infrastructure. About 300 mechanised fishing boats operate in this area landing over 5,300 tonnes of tunas and other fishes annually, adding about, 2.5 crores to the income of the islands, with a per capita fish availability of over 100 kg.

The small-scale fisheries development requires in most cases special support from the administration. An integrated approach with the participation of fishing communities involved in fish production and marketing, and scientists involved in research and development is probably the best way of channelising technical, financial and other forms of assistance. In this context, it is felt opportune to outline the present trend, constraints and prospects for further development by designing and adopting technologies appropriate to local conditions, which would assist the policy planners involved in the development of tuna fishery in Lakshadweep.

Present trend

The pole and line fishery at present is concentrated mainly at Agatti, Bangaram, Perumal Par Reef, Minicoy, Suheli Par and Bitra islands of Lakshadweep.

At Agatti, pole and line fishery including the mechanisation started in early 1960. On an average 50 pole and line boats operate for about twenty fishing days in a month at Agatti during the active fishing months viz. November to April. The total average annual effort is about 6,000, yielding about 1,800 tonnes of tunas with an average catch per boat of 300 kg.

There is further prospect of developing the small-scale pole and line fishery around Agatti due to the added advantage of availability and abundance of live-bait fishes from the nearby lagoons of uninhabited islands and islets like Bangaram, Tinnakara, Parali and Perumal Par Reef. The shallow sandy areas of the lagoons of Agatti, Bangaram and Perumal Par harbour a rich resource of the common live-bait fish *Spratelloides delicatulus*, which is the only live-bait fish exploited at present. Recent exploratory live-bait resource survey, conducted by scientists from Central Marine Fisheries Research Institute, at Minicoy and Agatti (November-December, 1986) in the deeper parts of the lagoons of the above mentioned islands using lift nets operated by poles revealed that the above

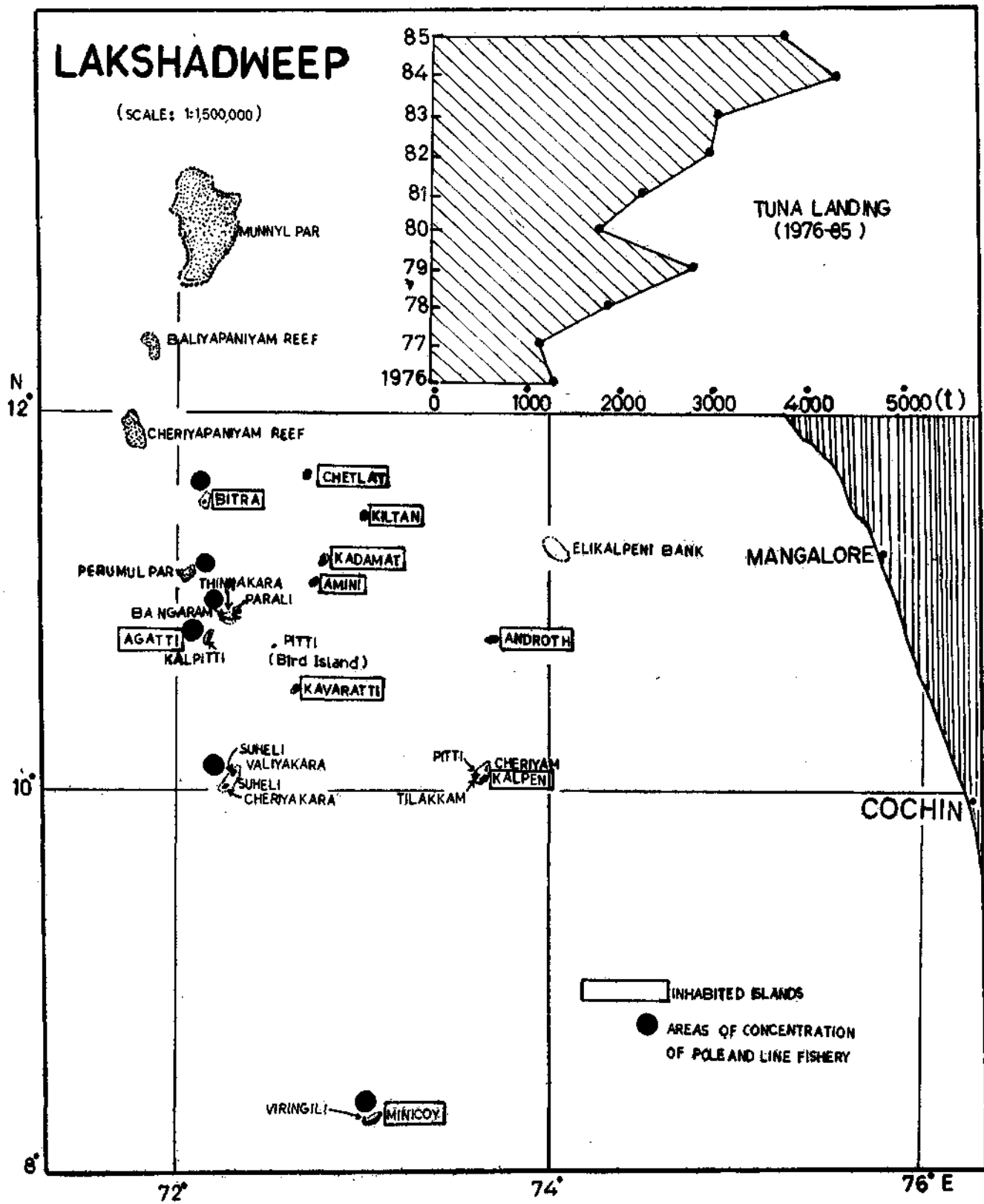


Fig. 2. Topography of islands in the Lakshadweep, areas of concentration of pole and line tuna fishery, and total landing of tunas in the Lakshadweep, 1976-'85.

lagoons also inhabit unexploited live-bait resources of apogonids, pomacentrids and caesionids which can sustain a moderate fleet of small-scale pole and line fishing boats (*Appendix*).



Fig. 3. A pole and line tuna fishing boat with bait baskets alongside the boat at Agatti Island.

The fishermen at Agatti go out for pole and line fishing to nearby islands and islets like Perumal Par Reef, Suheli Par, Bitra, Pitti, Cheriyaniam Reef and Baliyaniam Reef, when the tuna schools are not obtained around Agatti and Bangaram. This is an added advantage for the fishermen at Agatti, as compared to those at Minicoy, who are not able to move out of the vicinity of the island without navigational aids, due to the isolated geographical location of the Minicoy Island.

Biological examination of Skipjack tuna landed at Agatti indicates that they occur in the fishery in the size range of 32-68 cm. Two major modes at 46 and 64 cm representing one and two year olds respectively are recorded.

As to the economy of tuna fishery, the fixed capital involved in pole and line tuna fishing is the cost of the hull, engine and accessories which comes to about Rs. 1,25,000/-. The cost of gear which includes the bait net, poles, lines and hooks comes to about Rs.2,500/- annually. The operational expenditure for a pole and

line boat at Agatti for a fishing season, which includes the cost of diesel, lubrication oil and the food and refreshment charges of the crew (120 fishing days on average ten hours running per day for engine and for 9 fishing crew) is about Rs. 25,000/-. The average maintenance cost of hull, engine and gear is about Rs. 5,000/- per fishing season. All the expenditure is borne by the boat owner. The price of *masmin* at present is about Rs. 30 to 40 per kg. (Source: Planning Department, Secretariate, Lakshadweep, Kavaratti - Revised Seventh Five Year Plan 1985-1990, Sector - Introduction, 1987). The average *masmin* produced per boat during a fishing season is about 6 t, the revenue from which comes to about Rs. 1,80,000/- at the average rate of Rs. 30 per kg of *masmin*. Half of the revenue is the share of the boat owner and the rest is shared by the crew (usually nine). It is worth mentioning that there is no indebtedness or middlemen problem at the islands.

Minicoy: Detailed information on the pole and line tuna fishing and estimates of stocks of Skipjack and Yellowfin tunas at Minicoy in recent years are available (Madan Mohan *et al.*, 1985; Silas *et al.*, 1986a, b; Gopakumar *et al.*, 1986 MS and James *et al.*, 1986). Estimates of the effort expended, catch and catch per boat are presented below for the period 1984-'85 and 1985-'86 for comparison.



Fig. 4. Live-bait fishing using lift net.

In both the year, the Skipjack tuna occurred in a wide range of size 30-70 cm with two dominant modes

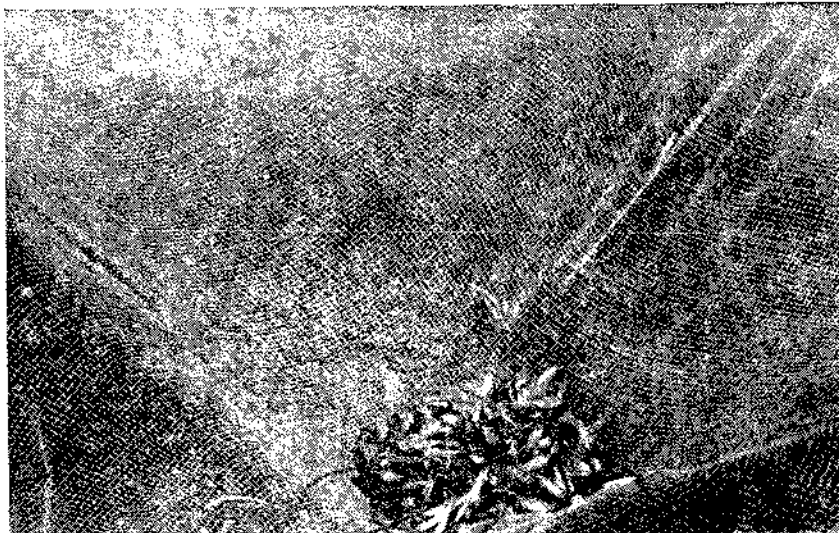


Fig. 5. Live-baits caught in a haul of the lift net.



Fig. 6. A catch of Skipjack tuna brought to the shore.

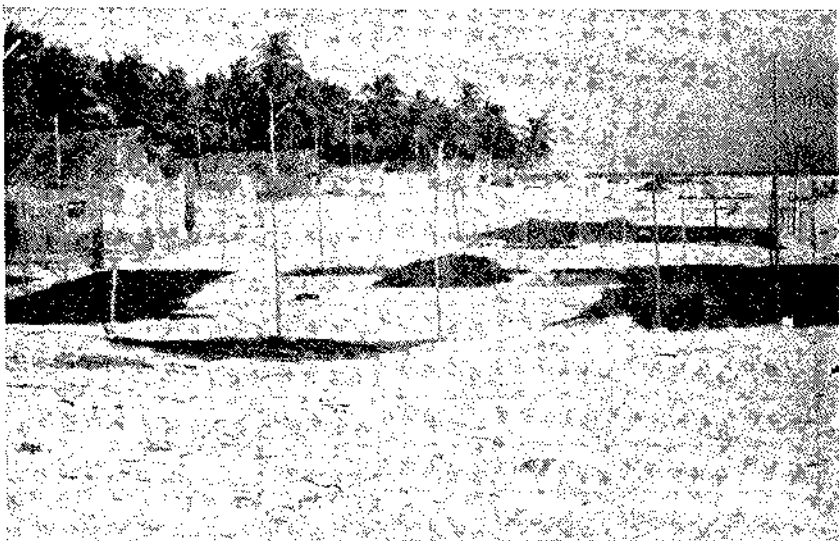


Fig. 7. A view of 'masmin' being prepared in Bitra Island.



Fig. 8. Fish wastes are simply buried on the beach in Bitra Island and this is a major health hazard in the Island.

at 53 and 63 cm representing one year and two year old groups respectively. The estimated total mortality rate of Skipjack tuna was 1.89. The standing stock and average annual stock of this species from the average catch of the two years were 455 and 1,013 tonnes respectively. The yield per recruit analysis showed that there will be increase in yield with the increase in effort, and the present level of exploitation may not affect the stock.

Year	Effort (boat trips)	Catch (tonnes)	CPUB (kg)	Skipjack (%)
1984-'85	2,649	633	240	94
1985-'86	2,601	686	264	89

Tuna fishing from schools associated with flotsam was studied at Minicoy (Madan Mohan, 1985; Gopakumar *et al.*, 1986, MS). During 1984-'85 season fifteen boats fished from these schools, and caught about 9,045 kg of tunas with a catch per boat of 580 kg. The Yellowfin tuna, *Thunnus albacares* dominated the catch (70.0%) followed by *K. pelamis*. During 1985-'86, 81 boats fished from schools associated with flotsam and caught 95 tonnes of tunas with a catch per boat of 1,176 kg. *K. pelamis* dominated the catch (50.6%) followed by *T. albacares* (48.6%). Two advantages of fishing associated with flotsam are its high catch rate and effective returns per unit of bait (in kg) used for the fishery.

Studies in the recent past on tuna live-bait fishes (Madan Mohan and Kunhikoya, 1986, MS; Pillai *et al.*, 1986; Gopakumar *et al.*, MS, 1986) and the baitfish resource surveys conducted recently throw more light on their occurrence and seasonal abundance at Minicoy (Appendix). Eventhough, *S. delicatulus* is the most dominant single species of live-bait fish employed for the tuna fishery, it constitutes on an average about 40% of the total baitfish catch at Minicoy. The rest of the bait catch is composed of the other species of sprat, *S. gracilis*, pomacentrids like *Chromis caeruleus*, *C. nigrurus*, *C. ternatensis*, *Pomacentrus pavo*, *Lepidozygus tapeinosoma*, apogonids such as *Apogon sangiensis*, *Archamia fucata*, *Rhabdamia gracilis* and caesionids like *gymnocaesio argenteus*, *G. gymnopterus*, *Caesio caeruleus*, *C. xanthonotus*, *Pterocaesio tile*, *P. pisang* and atherinids such as *Pranesus pinguis*. At Minicoy, the fishery by pole and line started from time immemorial, and the traditional practice of collecting *S. delicatulus* and other deeper species which was in vogue in the Maldive group of islands was adopted at the time of introduction of this fishery at Minicoy,

which is followed even now. This is in striking contrast to the other pole and line tuna fishing islands of Lakshadweep, where only *S. delicatulus* is being caught and used as live-bait. At Minicoy, during 1984-'85 season, a total of 5,595 kg of live-bait fishes were caught of which *S. delicatulus* formed 36.1%, *S. gracilis* 7.8%, *Dussunieria hasselti* 2.2%, *Chromis caeruleus* 2.1%, *Lepidozygus tapeinosoma* 0.5%, *Caesio caeruleus* 18.5%, *C. chrysozona* 12.9%, *Gymnocaesio argenteus* 12.2%, *Apogon sangiensis* 2.1%, *Rhabdamia gracilis* 1.1% and *Archamia fucata* 1.8%. In 1985-'86 season, a total of 5,051 kg of live bait fishes were caught of which *S. delicatulus* formed 22.6%, *S. gracilis* 11.4%, *C. caeruleus* 8.1%, *L. tapeinosoma* 7.0%, caesionids 35.6%, apogonids 14.9%, *P. pinguis* 0.2% and *D. hasselti* 0.2%. A direct quantitative relationship was observed between the live-bait fish catch and tuna catch, the months of good catch of tuna being those of good availability of live-bait fishes.

The present status of live-bait fishery at Minicoy indicates that the demand for the live-bait fish exceeds their availability in the atoll. The environmental deterioration by way of large scale siltation has resulted in the mass mortality of corals, which in turn affected the resident ichthyofauna, many of which are employed as live-baits.

At Minicoy, the investment on fixed capital, operational expenditure and the returns are almost similar to those at Agatti. The average crew of a pole and line boat is twelve. A unique traditional system of collective effort and sharing of the total income is prevalent at Minicoy. There are ten fishing villages in this island and each village head is known as 'Moopan.' The majority of the pole and line boats which are in the name of village Moopan is the collective property of the village. Pole and line fishing is a combined effort of the village since it involves various specialised activities such as fabrication of live-bait fish net, bait box, bait basket, diving for location of live-bait fish, bait fishing, scouting for tuna schools, chumming the shoals and hooking. There is division of labour and each fisherman is specialised in a particular aspect of fishing. Hence their catch sharing system is also very peculiar. One third of the catch is the share of the boat owner. Out of the rest of the catch, two shares go to the captain of the boat, two for the diver for bait fish location and the other crew get one share each. There is a second category of shares for the other collective efforts involved in the fishing. They include shares for the village house, Moopan, repair of boat and engine, cleaning

the beach for unloading the catch, fabrication and repair of live-bait fish basket, supply of hooks for fishing, for mosque etc. However, if the catch is very poor, shares for the second category of collective efforts are not given. On the contrary, if the catch is very good, even some other shares which are not listed above are also given.

Suheli Par: Suheli Par consists of two uninhabited islands viz. Cheriya-kara and Valiya-kara. The fishing operations are based at Cheriya-kara. The pole and line fishing around Suheli Par is practised by the fishermen mainly from Kavara-tti and Agatti, who come with the fishing equipments and necessary provisions for camping at Cheriya-kara for a period ranging from three weeks to one month at a time. Temporary thatched huts and other necessary arrangements are made by them for camping and for the preparation of *masmin*. Each day's catch is converted to *masmin* and stored.

On an average, twenty pole and line boats operate for about twenty fishing days in a month from Suheli Cheriya-kara during the active fishing months viz., November to April. The total annual effort comes to 2,400, yielding about 600 tonnes of tunas with an average catch per boat of 250 kg.

The vast sand flat of the lagoon of Suheli Par is a rich ground for *S. delicatulus* which is the only live-bait fish exploited at present. The recent exploratory live-bait fish survey revealed that the sprat *S. gracilis*, pomacentrids like *C. caeruleus*, apogonids and caesionids are also available for reasonable exploitation (*Appendix*).

The fixed capital involved in the fishing is same as that of Agatti and Minicoy. The average recurring expenditure for a fishing boat which includes the cost of diesel, engine oil, maintenance charges and food and refreshment of the crew comes to about Rs. 5,000/ and is incurred by the boat owner. The average quantity of *masmin* produced by a boat which camps at Suheli Par during one month is about 1,000 kg. The revenue from this comes to about Rs. 30,000/- at the rate of Rs. 30/- per kg of *masmin*. Half of the revenue is the share of the boat owner and the rest is shared by the crew whose number is usually nine.

It is felt that there is further scope for developing the small-scale pole and line fishery around Suheli Par. For the purpose, there is an urgent need to provide basic requirements in these uninhabited islands. As opined by Varghese (1986), infrastructural facilities incl-

uding sweet water are not available in this place to attract fishermen from other islands, and the islands are privately owned. Arrangements for the camping of one mechanic with engine spare parts and arrangements for supply of diesel deserve attention. Since about 200 fishermen, on an average, camp at Suheli Cheriya-kara during the fishing months arrangements for getting essential provisions and medicines require urgent attention. As stated by Varghese (1986) if Suheli Valiya-kara is acquired and made into a common fishing centre with infrastructural facilities and provision of drinking water, it can be converted as a major tuna fishing centre.

Bitra: Bitra, the smallest of the inhabited islands has got the largest lagoon. Fishing around Bitra, Cheriya-paniyam Reef and Baliya-paniyam Reef is practised by fishermen mainly from Bitra, Chetlat, Kiltan and Agatti. The fishermen coming from other islands camp at Bitra in temporary huts for a period ranging from three weeks to one month at a time and the tuna catch is converted to *masmin*, as is practised at Suheli Par.

On an average, 15 pole and line boats operate for about twenty fishing days in a month from Bitra Island during November-April season. The total annual effort comes to 1,800, yielding about 450 tonnes of tunas with an average catch per boat of 250 kg.

The shallow coastal areas and the southeast sand flat of the lagoon harbour a rich resource of *S. delicatulus* which is currently exploited for tuna fishing. The exploratory live-bait resource survey revealed that the vast lagoon of Bitra possesses exploitable resources of pomacentrids like *C. caeruleus*, apogonids like *A. fucata* and *R. gracilis*, caesionids like *C. caeruleus* and the sprat *S. gracilis* (*Appendix*). The above factors indicate that the small-scale pole and line fishery now in vogue in the island can be further expanded. Economics of the fishing is similar to that practised at Suheli Par.

Strategies for further development and management

Fisheries development plans in the developing countries should take account of the infrastructure, technology and human resources in addition to harvesting, processing, marketing, servicing and material supply to enable better exploitation of their fishery resources, to increase the value added to economy and to provide better employment opportunities. In the programme planning for the development of small-scale pole and line tuna fishery in the Lakshadweep, the following strategies appear to be pertinent:

(1) Reliable and timely data and statistics on all aspects of fisheries are needed for planning, implementation and subsequent monitoring of fishery management and development. Departmental capability to collect data and information at sub-regional level in the Lakshadweep should be strengthened.

(2) Of recent, in Maldives, the growth of tourism and other economic sectors has led to a reduction of manpower available, but the introduction of mechanisation and subsequent increased catch rates by *masdhonis* have ensured the maintenance of annual catches. According to Varghese (1986), the grave problem faced by the fishery sector is the shortage of manpower, and blocking of manpower in the non-productive sector may be the remedial measure. While presenting the scenario for 2005 A.D. in the Lakshadweep based on some current trend of events, Sagar (1986) opined that tourism would enhance the economy of the people mainly at Agatti and nearby islands, and according to him "these sources of income have helped to fill the gap left by fishing, which has declined greatly. Some pole and line fishing continues, but the fishermen are growing old." A suitable proposal for providing employment and income generation for the local population by introduction of enhanced per capita income plans by IRDP/NREP agencies would seem to make fishing in the small-scale sector more lucrative.

(3) Development and management plans should take into account the need to protect marine habitat around the islands from any form of degradation. The coral colonies which harbour the live-bait fishes are prone to natural senescence. In addition, indiscriminate dredging and blasting of the lagoon habitat may cause altered current patterns, which may result in the siltation in the areas of coral growth, thereby causing the death of coral colonies and the resident live-bait species. Environmental damage should be kept minimum while implementing development programmes for navigation.

(4) Recent, aimed exploratory tuna live-bait resource surveys conducted in the Lakshadweep by scientists attached to the CMFRI establishment at Minicoy and Agatti (November–December, 1986) have proved beyond doubt that vast resources of potential live-bait fish species, both migrants and residents (other than the traditionally used sprat *S. delicatulus*) are available around Agatti, Bangaram, Perumal Par, Suheli Par, Kadamat and Bitra. Results of these surveys, coupled with the economically viable methods of confinement and transportation of hardy live-baits would contribute much

in planning the utilisation of live-bait species of these areas, without jeopardising economic viability by exhausting their resources.

(5) About 3,000 tonnes of tunas are annually exploited by the small-scale pole and line fishery and the approximate contribution by Agatti, Minicoy, Suheli Par and Bitra are 45%, 20%, 20% and 15% respectively. Of these, at Minicoy, its isolated geographical location and the consequent inability of small pole and line boats from expanding the area of fishing without navigational aids and the scarcity of live-bait fishes often experienced by the fishermen are the main constraints for the further expansion of the fishery. On the contrary, Agatti, Suheli Par and Bitra, due to their proximity to other islands and reefs and also due to the added advantage of getting enough of live-bait fishes, offer further scope for the expansion of the present small-scale pole and line fishery.

(6) The introduction of a new generation of larger pole and line vessels with adequate navigational, chilling and storing facilities for 4–5 days of fishing as recommended by Silas and Pillai (1982) is particularly significant to Minicoy Island due to its isolated geographical location. In this connection, it is worth mentioning that a radio beacon station and a radar transponder beacon (RACON) (9,300 to 9,500 MHZ) are working at Minicoy Light House. These navigational aids can be made use of by the fishermen with the help of a simple direction finder/radar equipment.

(7) The high catch rate of fishing from schools associated with flotsam at Minicoy, as stated earlier indicates that installation of Fish Aggregating Devices (FAD) may be successful in augmenting tuna production. The major impact of FADs, as observed by Silas and Pillai (1982) will be in the small-scale sector such as pole and line fishery as tuna fishery around these structures result in increased catches, reduction in scouting and voyage times from shore which conserve fuel, energy and also it is a safety factor for the operation of small boats. However, the experiments conducted elsewhere indicated that they are very successful at aggregating tunas, but have to date suffered from very short life time. Further research appears to be necessary on this subject.

(8) There is an urgent need for encouraging the fishermen of different islands other than Minicoy for the rational exploitation of the live-bait resources other than *S. delicatulus*. As already mentioned, *S. delicatulus* is the only live-bait species currently exploited for

tuna fishing in the islands other than Minicoy. This being a shallow water species which exhibits good chumming qualities is easy to be fished in desired numbers using encircling type of nets. However, the major constraint in the utilisation of this species is the large scale mortality at the time of capture, storing in livebait tanks and transportation, due to osmoregulatory stress. Moreover, since the fishery is dependent on the availability of this single species, scarcity of the same often causes abrupt suspension of fishing activities even during peak fishing months.

Steps should therefore be taken to encourage fishermen for exploiting the baitfishes belonging to Pomacentridae, Apogonidae and Caesionidae which are associated with coral colonies in the deeper parts of the lagoon by means of lift nets. Species belonging to the above groups exhibit good chumming qualities. The exploitation of these groups will, not only augment the production of tunas but also dispel the threat of over-exploitation and the consequent depletion of the stock of *S. delicatulus*.

(9) Another aspect which deserves serious attention is the absence of significant pole and line fishing activity at certain islands such as Kadamat and Kalpeni where exploitable tuna live-bait resources belonging to sprats, apogonids, pomacentrids and caesionids have been located. Initiation and expansion of pole and line fishing in these islands and encouraging fishermen for utilising the unexploited resources of live-bait fishes are suitable propositions for the policy planners involved in the development of tuna fishing industry in Lakshadweep. As referred to earlier (2), this can be achieved by providing means to make tuna fishing lucrative by developmental agencies.

The non-availability of the required number of poles used in the fishing is a problem for the fishermen, since they have to be obtained from mainland. A scheme for making them locally available through Fisheries Development Agency in the Island, as is done in the case of diesel, will be an incentive for the small-scale fishermen.

(10) In Lakshadweep, the main method of disposal of catch is by converting it to *masmin*. At Agatti, Suheli Par and Bitra, the catch after removing a fraction for domestic consumption is converted to *masmin*. Approximately 500 tonnes of *masmin* are produced annually from Lakshadweep in recent years. The price of *masmin* varies from Rs. 30 to 40 per kg. At present there is no organised marketing system for *masmin* in

Lakshadweep. The development of an organised marketing system will be beneficial to the tuna fishermen since it can solve to some extent the present problems of getting proper market and sudden price fall of the product. In this context, the recent experience in the Maldives in the tuna industry is an example while planning development of production of tunas in the small-scale sector in the Lakshadweep. The loss of Sri Lankan market for export of 'Maldivian fish' led to a shift in exports of frozen and canned tunas (Anderson, 1986). At Minicoy, a portion of the catch (average 70 tonnes annually) is canned by the Government Canning Factory, and a scheme for establishing canning factory at Agatti has recently been proposed. However, in view of the economical returns, steady market for *masmin* inside the country and outside should be explored and developed.

(11) Disposal of wastes is another aspect deserving immediate attention. At present, the head, bones, fins etc. of the fish are discarded on the beach of the islands, which get decayed and act as breeding sites of house flies and cause health hazards during the fishing season. An effective small-scale wastes utilisation method by converting them to fish-meal may be advisable since the product can be used as an excellent manure for coconut plantations in the islands. Alternatively, the possibility of converting the wastes from tunas as ensilage should be explored.

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APPENDIX

List of major species contributing to the live-bait resources of Lakshadweep

Family	Species	Local Name
Dussumieridae	<i>Spratelloides delicatulus</i> <i>S. gracilis</i>	Hondeli*; Manjachala* Rehi*; Churaichala+
Apogonidae	<i>Archamia fucata</i> <i>Apogon sangiensis</i> <i>A. leptacanthus</i> <i>Rhabdamia gracilis</i> <i>R. cypseturus</i> <i>Ostorhynchus apogonide</i> <i>O. quadrifasciatus</i>	Rybodi*; Poothan+ Dombodi*; Poothan+ Dikkuribodi*; Poothan+ Rehibodi*; Poothan+ Digubodi*; Poothan+ Bondu* Rumkuribodi*; Poothan+
Caesionidae	<i>Caesio caeruleaureus</i> <i>C. xanthonotus</i> <i>Gymnocaesio argenteus</i> <i>G. gymnopterus</i> <i>Pterocaesio pisang</i> <i>P. tille</i> <i>P. Chrysozona</i>	Hudenmugurang* Donkevumas* Dandimugurang* Choorachala + Geretha* Rymugurang* Rymugurang* Kekkurimugurang*
Pomacentridae	<i>Chromis caeruleus</i> <i>C. nigrurus</i> <i>Pomacentrus pavo</i> <i>Lepidozygus tapeinosoma</i>	Nilamahi*; Pachakotai+ Idugidari* Huibui* Bureki*; Majahibureki+
Atherinidae	<i>Pranesus pinguis</i>	Fitham*; Tholiyan+

* = at Minicoy; + = at northern islands

