

INDIGENOUS TECHNICAL KNOWLEDGE AND ANCIENT PROVERBS OF THE COASTAL FISHER FOLK OF DAKSHINA KANNADA AND THEIR IMPLICATIONS

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ABSTRACT : A field survey was conducted to document the Indigenous Technical Knowledge (ITK) of fisherfolk of Karnataka. Profile analysis of the respondents showed that majority were of old age (above 45 years), had primary level of education, were married and had a minimum fishing experience of 20 years. Majority had a family size of more than 4 members and nuclear families and dwelled in pucca houses. The Indigenous Technical Knowledge of the fisherfolk of fishing villages, Bengre, Dumavathi, Ullal and Kulai belonging to Dakshina Kannada district were collected and the scientific rationale for the same was studied.

Key words : *Indigenous technical knowledge, Fisheries, Proverbs, Implications.*

INTRODUCTION

Indigenous knowledge (IK) can be defined as a body of knowledge built up by a group of people through generations of living in close contact with nature (Johnson, 1992). It is mainly passed from one generation to another through folklore, myths, customs, folksongs and other traditional methods. Indigenous traditional knowledge is a treasure trove of ancient wisdom, beliefs and traditional knowledge handed down generations after generations, by forefathers to the posterity, for preservation and conservation of natural resources. Rural people have an intimate knowledge of many aspects of their surroundings and their daily lives. Over centuries, people have learned how to grow food and to survive sometimes in difficult environment.

Whereas crop science or agriculture abounds in a plethora of such knowledge in the field of fisheries too, similar knowledge sources can be traced and documented. Such indigenous knowledge may or may not have a scientific rationale (Swathilekshmi and Dineshababu, 2009). An attempt has been made to study the Indigenous Technical Knowledge among the fisher folk of selected coastal villages of Dakshina Kannada district and also to study the scientific rationale, if any, behind them. Besides, the ancient proverbs of the coastal community have been documented.

It is based on experience often tested over centuries of use adapted to local culture, environment. There is an old African proverb which goes "When an old knowledgeable person dies, a whole library dies". The importance of IK is hidden in this proverb. An approach to coastal assessment that combines scientific and traditional knowledge has the potential to provide coastal managers with a local perspective that will augment any information base of a coastal area and will prepare them for sensitive issues that should be addressed through management. All this calls for concerted efforts to systematically document the indigenous knowledge in coastal fisheries and establish their scientific rationale. Therefore, the present investigation was carried out to explore the indigenous knowledge systems of coastal fisherfolk of Dakshina Kannada district.

MATERIAL AND METHODS

Dakshina Kannada district was purposively selected for the study, since it forms one of the most important coastal districts of Karnataka. Multistage stratified random sampling was used for the study. From the state of Karnataka, Dakshina Kannada district was selected, since it formed one of the most important coastal districts of the state. From this district, four traditional fishing villages namely Bengre, Dumavathi, Ullal and Kulai were selected, since traditional fishing villages were found to be predominantly blessed with traditional knowledge and wisdom. From each village, samples of 25 respondents were randomly drawn to form a total sample of 100 respondents for the study. Group interaction was used to elicit information on the Indigenous Technical knowledge systems as well as to document the proverbs used in the community.

RESULTS AND DISCUSSION

Indigenous Technical Knowledge (ITK) : The data presents the findings of the sample survey of fishermen community household in and around Mangalore area. The results are presented under the following heads in line with the objective of the study. The measurement followed by Nirmal *et al.* (2007) was used for the study. Distribution of respondents based on their

Table. 2 Indigenous Technical Knowledge (ITK) documented from fishermen of Dakshina Kannada district.

S.	Indigenous technical knowledge (ITK)	Scientific rationale of ITK
1.	White sardines come to the surface to pray to the Sun God during early morning when they can be easily caught	It is reported that white sardine (<i>Kowala covala</i>) will feed only during day time and that it will not feed during night. It may, thus be said that the starved fish would come to the surface in the early hours to feed. However, it was also reported that they were found to be feeding well during full moon night implying that they feed by sight (vision).
2.	Mulletts are not a favoured food fish in the region.	Since mullet's (<i>Mugil cephalus</i>) head resembles the head of a snake, (due to religious sentiments-snakes are revered in Coastal Karnataka), it is not a favoured food item.
3.	Jumping of prawns and fishes is an indication of good catches.	An indication of the presence of predator fishes.
4.	The formation of mud banks is a good sign of high catch of fish and prawns.	Mud bank is formed due to the upwelling of water resulting in the lifting of nutrient rich bottom water. Moreover, due to the calm conditions of the sea, fishing operation will be easier.
5.	When wind blows from South, there will be severe coastal erosion and the sea will be rough. At that time, the availability of fish will be less. On the other hand, if wind blows from north, fish catch will be high and also the coastal erosion will be less.	During south west monsoon period, the coastal erosion is very common. At that time, under the influence of wind, upwelling of coastal waters take place resulting in upsurge of cold and deoxygenated nutrient rich subsurface sea water takes place. Naturally at that time fishes will disappear from the area. But during north east monsoon, the effect of wind being very less, no coastal erosion takes place. However, due to the post- monsoon productivity, the fish catch will be more during that time.
6.	Flipping and splashing noise in the water indicates the presence of thick shoals of oil sardine	This is attributed to the group behavior of sardines. When sardines move in groups they produce jerking movements and splashing noise.
7.	Series of air bubbles coming from below and bursting at the surface indicates the availability of oil sardine.	These air bubbles are believed to be released by oil sardines while feeding on muddy bottoms which in turn give an indication of the bottom shoals.
8.	Presence of strong fishy odour at sea gives a sign big concentration of fishes.	When there is big concentration of fishes, a strong fishy odour originates of from the mucus they discharge and this enables the fishermen to spot the shoal.
9.	During the month of may, when storm arrives, the sea water will recede.	No possible explanation can be given.
10.	When sea surface bears dark patch, it implies the presence of dense shoal of sardine.	When thousands of sardines appear in shoals, it changes the blue colour of the sea surface to dark colour.
11.	Crabs will have less meat content during full moon nights.	It is likely that due to regression of energy from meat for gonad development, meat content in crabs may be less at that time. (Physiological phenomenon).
12.	Appearance of small insects on the sea shore indicates that toofan will arrive the next day.	No possible explanation can be given.
13.	If clouds surround the sun in circular fashion, it is believed that the sea will expand.	Possibly the high tide during full moon may be the reason for the above statement.
14.	If rainbow appears in the east, it indicates the arrival of toofan. Similarly, the disappearance of rainbow indicates that toofan (if at all it arrives) will be of low intensity. It is believed that if the rainbow appears without toofan, it indicates the chances of toofan arriving the next day are high.	Appearance of rainbow itself indicates that it is raining over there and that it might arrive soon to this area.
15.	If the circle appearing around the moon is closer to the moon, it is likely to rain. However, if it is away from it, it is not likely to rain immediately	No possible explanation can be given.
16.	Presence of dark patches in the water with ripples indicates a good catch of mackerel.	The dark patches indicate the presence of mackerel shoals in the day time. The colour is due to light penetration through the shoal.
17.	Splash observed on the sea surface indicates the presence of shoals of mackerel and sardine.	When thousands of fishes swim near the surface, it gives rise to creation of water bubbles and splashing of sea surface. Hence, it is suspected that fish shoals are very much present over there.
18.	If clouds appear in different colours and shapes (as described by poets) as discrete patches in the sky during sunset, it means that toofan has subsided.	After the disappearance of rain bearing dark clouds, the sky may be assumed to have only patchy clouds of different colours.
19.	Use of lantern light at night in shrimp farms attracts the prawn seeds to the farms.	During night the post larvae of the prawn gets attracted to the light as they are photo tactic.

profile characteristics is presented in (Table.1). Indigenous Technical knowledge provides a deep insight in to the experiences and wisdom of the local people accumulated over generations. Indigenous Knowledge helps to unravel the causes and reasons for occurrence of a natural phenomena relating to biological activity of living organisms. They provide food for thought and offer subjects and areas for newer research. The fisher folk of Dakshina Kannada district, are by themselves a community enriched with ancient wisdom of their seas, oceans and fishery resources. Indigenous Technical Knowledge (ITK) documented from fishermen of Dakshina Kannada district (Table.2).

Table. 1 Distribution of respondents based on their profile characteristics.

Profile characteristics	Categories	Respondents (n=50)	
		Frequency	Percentage
Age	Young (up to 30 years)	00	00.00
	Middle (31 to 50 years)	14	14.00
	Old (more than 50 years)	86	86.00
Education	Illiterate	12	12.00
	Read only	4	4.00
	Read and write	14	14.00
	Primary School	52	52.00
	High school	17	17.00
Size of family	College	1	1.00
	Small (< 4 members)	32	32.00
Marital status	Large (> 4 members)	68	68.00
	Unmarried	11	11.00
Experience in fishing	Married	89	89.00
	Up to 10 years	36	36.00
	Up to 11 to 20 years	42	42.00
Type of house	More than 20 years	22	22.00
	Pucca house	86	86.00
Type of family	Thatched hut	14	14.00
	Nuclear family	83	83.00
	Joint family	17	17.00

Proverbs related to fisheries prevalent in the Dakshina Kannada coast

- "When an old knowledgeable person dies, a whole library dies."
- "Even if you are throwing something in to the river, you should measure and do it.
- Implication : Always a record of everything. Do not waste anything even if you are not in need of it.
- "Only a person who has gone in to the water will know about the depth of the river.
- Implication : Only personal experiences make things clear.
- "If you are standing with legs in two boats you will end up in the depth of the river.
- Implication : Double mind and confusion always leads to danger.
- "You must have a bait to catch a fish.
- Implication : Only with effort you can achieve something.
- "Do the angling only where the water is deep.
- Implication : You should know what is right to do. Otherwise the effort will be wasted.
- "Like fish out of water.
- Implication : Restless and uncomfortable.
- "You cannot catch fish from the sea if you wait till all the waves subside
- Implication : If you are looking for excuses you cannot complete any work.
- "Even if you go deep in to the ocean, the water you collect depends on the size of your container
- Implication : You should plan your efforts according to your potential.

Although the ancient people were not aware of the genetic principles responsible for particular characters of living organisms they were able to test and isolate the suitable ones based on the physical or external or observable expression of those genes called phenotypes through their long association, experience and keen observation of those organisms. proverbs are yet another means of communicating ancient wisdom from generation to generation. Proverbs of the fishing communities are exception to this and have great signification and implications for day-to-day life. Such proverbs and traditional wisdom should be preserved and conserved to enrich the learning experiences of the present and future generations.

The salient results of the field survey on ITK are as follows :

1. Profile analyses of the respondents showed that majority were of old age (above 45 years), had primary level of education, married and had a minimum fishing experience of 20 years. Majority had a family size of more than 4 members and nuclear families dwelled in pucca houses.
2. Overwhelming majority of respondents (97%) opined that winds blowing from Northerly direction fetched more fish while those blowing from southerly direction fetched very less catch.
3. By virtue of their co-living with fish and other aquatic organisms, fishermen are expected to have developed some notion on specific abnormal behaviour of fish and other aquatic organisms before, during or after cyclone.

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