



SACRED WATER BODIES OF KUMARADHARA RIVER AND NATURAL PONDS IN DAKSHINA KANNADA DISTRICT, KARNATAKA

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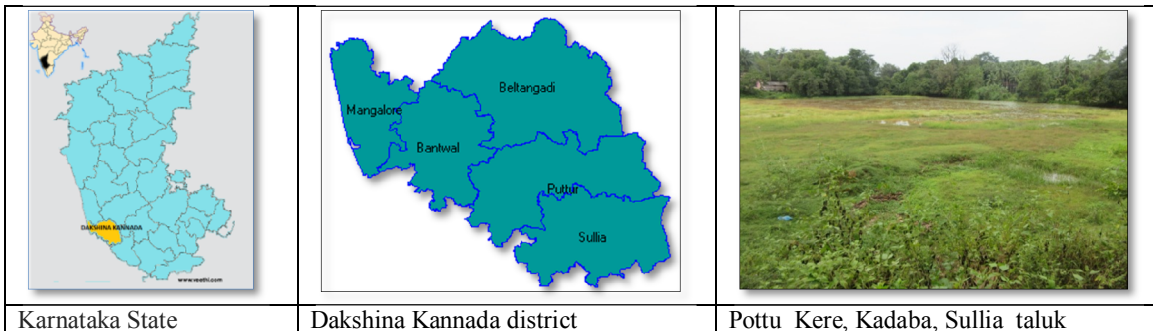
Abstract— Natural ponds and sacred water bodies are an integral component of the hydrological system and perform diverse roles in the biosphere. Studies of these ecosystems are often neglected, probably, due to lack of knowledge about their significances. The objectives of this study is to create public awareness and to provide the basic information to the concerned authorities to restore the original condition of these ecosystems. The study was carried out at different seasons in the year 2016. A survey of 12 natural ponds in Dakshina Kannada and five sacred water bodies of Kumaradhara river revealed that they are the important source of water and rare biodiversity. Only 2 natural ponds have water up to the usage level and 5 natural ponds have dried out completely during summer season. It is also observed that due to the scarcity of water in the sacred hot spots at different places in Kumaradhara river during summer have impacted the fish community. Temporary vented dam is constructed at 2 sacred hot spots of river to preserve the rare varieties of fishes. Hence there is an urgent need to protect these natural ponds and sacred water bodies from further degradation.

INTRODUCTION:

Natural ponds come in all shapes and sizes, with different water depths from small dips in the ground with a few centimeters of water to deep pools. Usually they contain shallow water with marsh and aquatic plants and animals. The type of life in a pond is generally determined by a combination of factors including water levels and nutrient levels, but other factors may also be important, including presence or absence of shading by trees, presence or absence of streams, grazing animals, and salinity. These water bodies are, however, undergoing degeneration due to various factors including encroachments leading to their extinctions. The sacred patches of water

bodies in Kumaradhara rivers have more significances in the point of conservation of rare species of fishes. Studies of these ecosystems are often neglected, probably, due to lack of knowledge about the significance of these ecosystems. Wetland conservation is an important program of ecological importance. Natural ponds, which are being neglected, should be given importance. The objectives of this study are to create public awareness and to provide the basic information to the concerned authorities to restore the original condition of the ponds for the better use and conservation of natural resource. The present paper reveals the condition of the water levels and biodiversity in natural ponds in Dakshina Kannada and five sacred hot spots of Kumaradhara both during summer and rainy seasons. A survey of natural ponds and sacred hot spots (fish sanctuaries) of Dakshina Kannada district revealed that they are the important source of water with the rare biodiversity. Unfortunately the increase in the population upsets the natural balance of these habitats and threatens their integrity. The water is polluted and the boundaries are reconstructed to accommodate housing, transportation and agricultural needs. Many a time, the stress is also caused by overuse of resources and unchecked land use practices, which have resulted in unsafe drinking water, eutrophication, algal blooms, loss of habitat, fish kills and a host of other human health and natural resource problems. Due to the lack of implementation of the management plans, these ecosystems are getting extinct. Community education will enhance the involvement and participation of people in restoring this threatened ecosystem.

METHOD



Dakshina Kannada is a coastal district in the state of Karnataka in India. Sheltered by the Western Ghats on the east and surrounded by the Arabian sea on the west. The district is characterized by high humidity (58-75%) and temperature (25 - 40 °C) and heavy rainfall (average 4119 mm). The seasons can be distinctively divided as summer (pre-monsoon), rainy (monsoon) and winter (post-monsoon). The Kumaradhara river originates from Western Ghats, merges with the Netravathi river at Uppinangadi. The Kumaradhara river is rich in water is the main source of water for the of Dakshina Kannada. Nakur Gaya, Yenekkal Bachhanayakana Gundi, Kumaradhara Ghat in Subrahmanya, Sangama place of Kamaradhara and Netravathi at Uppinagadi are the important sacred water bodies(fish sanctuaries) exists in the Kumaradhara river. The study was carried out at summer and rainy seasons in the year 2016 and surveyed 12 natural ponds in Dakshina Kannada district and five sacred water bodies of Kumaradhara river. Data are collected on the availability of water and biodiversity of the natural ponds of Dakshina Kannada and sacred water bodies of Kumaradhara river both during rainy and summer seasons. Interviews with the local people were conducted to gather information on the importance of the natural ponds of Dakshina Kannada in regard to their utilisation and conservation aspects and the significances of sacred hot spots of Kumaradhara river.

RESULT

A survey of five sacred hotspots of Kumaradhara river and 12 natural ponds in Dakshina Kannada district revealed that they are the important source of water and rare biodiversity. Two natural ponds have water up to the usage level during summer season and 5 natural ponds have water in unusable condition during summer season. 5 natural ponds have macrophytes cover during summer season. 5 natural ponds have dried out completely during summer season. During the study period, it is observed that these natural ponds are, however, undergoing degeneration due to various factors including encroachments, filling up and negligence of local administrative bodies. Thus, most of the ponds are losing its original ecological characteristics that supported abundant biodiversity. Those ponds which dry up during summer also harbour a variety of annuals during the summer season. It is observed that some of the ponds are important feeding and roosting ground for many birds. The sacred patches (fish sanctuaries) of rivers prohibited from fishing .The endangered species of fish called Mahaseer is abundant in these water bodies. It is also observed that due to the scarcity of water in the sacred hot spots at different places in Kumaradhara river during summer highly affect the fish community. In Yenekkal Bachhanayakana Gundi and Kumaradhara snana ghata Subrahmanya, local gram panchayat has built a small vented dam for maintaining water levels for the rare varieties of fish. Local people have helped in conservation of specific species such as mahaseer fish due to religious sentiments, cultural and traditional associations.

Table.1 Water levels of the natural ponds at different seasons in Dakshina Kannada district

Sl. No	Name of the natural ponds	Taluk	Water condition			
			R	S ₁	S ₂	D
1	Panadavara Kere.	Sullia taluk	✓		✓	
2	Bhoganayakana Kere	Sullia taluk	✓		✓	
3	Guruvayana kere	Belthangadi taluk	✓	✓		
4	Kadal Kere Moodubidre	Mangalore taluk	✓			✓
5	Koti Kere Vitla	Bantwala taluk	✓			✓



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6	Albuda Kere Bannur	Puttur taluk	✓		✓	
7	Vennoor kere	Belthangadi taluk	✓		✓	
8	Polali kere	Bantwala taluk	✓		✓	
9	Salethur Madaka	Bantwala taluk	✓			✓
10	Bolanthur Madaka	Bantwala taluk	✓			✓
11	Pottu kere Kadaba	Puttur taluk	✓			✓
12	Nettaru Kere	Sullia taluk	✓	✓		

R=Clean water during rainy season S₁= Clean water during summer season

S₂=Unusable dirty water during summer season D= Completely dried condition during summer season

Table-2 Biodiversity of the natural ponds at different seasons in Dakshina Kannada district

Sl.No	natural pond	FLORA				FAUNA			
		A		S		R		S	
		Micro	Macro	Micro	Macro	Fishes	Others	Fishes	Others
1	Panadavara Kere.	✓	✓	✓	✓ *	3	b, c, d, e, f, g, h	1,5	c,d
2	Bhoganayakana Kere	✓	✓	✓	✓ *		b, c, d, e, f, g, h	1,3,4	c,d
3	Guruvayana kere				✓	1,2,3 4,6	b, c, d, e, f, g, h	1,2,3, 4,6	b, c, d, e, f, g, h
4	Kadal Kere Moodubidre	✓					b, c, d, e, f, g, h		
5	Koti Kere Vitla	✓					b, c, d, e, f, g, h		
6	Albuda Kere Bannur	✓	✓	✓	✓		b, c, d, e, f, g, h	1,5	
7	Vennoor kere	✓	✓	✓	✓ *	1,2,3, 4,5,6	b, c, d, e, f, g, h		c,d,e, f,g
8	Polali kere	✓	✓		*	1,2,3 6,7	b, c, d, e, f, g, h	1	c,d
9	Salethur	✓	✓			1,2,3	c, d, e, f, g,		
10	Bolanthur	✓	✓			3	c,d, e, f, g,		
11	Pottu kere Kadaba	✓	✓ *				b, c, d, e, f, g		
12	Nettaru Kere	✓		✓		1,2,3 4,5	b, c, d, e, f, g, h	1,2,3, 45	b,c,d,e f,g,h,

R = rainy season S = summer season * = annual terrestrial herbs on damp soil during summer

Fishes: 1. Magur 2.Shark Cat fish 3.Labio 4.Spotted snake head 5. Asiatic snake head 6.Tiger Barb 7.Koi fish 8.Katla

Other animals: a. Crocodile b.Turtle c.Small water frog d.Large frog(Rana) e.Water snake f.Water spider g.Crab . h.Duck

CONCLUSIONS:

Restoration of natural ponds is one of the most important aspects of water conservation. Though some conservation programs have been initiated by the local *Gram Panchayths*, so far no scientific efforts are put in place. The traditionally protected water body in Subrhamanya is poisoned few times. There is no mechanism to safeguard cultural interests of the local people leading towards conservation of biodiversity. Since these systems are not recognized by any of the government office even at local level. The local stakeholders are having

limited powers to take action against the defaulters of the traditional system. If the scientific conservation program is implemented, we can conserve the rare fish community found in these sacred spots. Hence, there is an urgent need to protect these natural ponds and sacred hot spots from further degradation. In order to improve the quality of pond water continuous monitoring of the pollution level is an urgent need of the day. It is required to initiate the processes like mobilizing local people to take care of the water bodies in terms of maintaining those by forming Joint Water body Maintenance Committees similar to Joint

Forest Committees. Care should be taken to make these committees financially sustainable once they are formed by providing seed money by the State government.

Plate-1. Status of Natural ponds of Dakshina Kannada during summer and rainy seasons












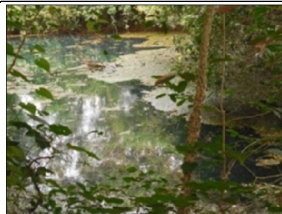


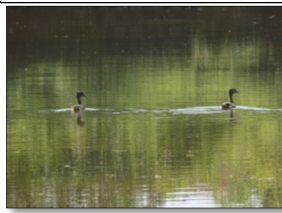
Pandavara kere Sullia taluk		
		
Bhogayana kere, Balpa. Sullia taluk		
		
Guruvayana kere, Guruvayankere. Belthangady taluk		
		
Albuda , Bannur.Puttur taluk		
		
Salethuru madaka, Bantwala taluk		
		

Plate-2. Status of Natural ponds of Dakshina Kannada during summer and rainy seasons































Kotikere, Vitla, Bantwala taluk		
		
Bolanthuru madaka, Bantwala taluk		
		
Venoor Kere, Belthangady taluk		
		
Polali Kere, Bantwala taluk		
		
Kadalkere Moodubidre, Mangalore taluk		
		

Plate-3: Status of Sacred water bodies of Kumaradhara River in D. K during summer and rainy seasons

Kumaradhara snana gatta, Subrhamanya. Sullia taluk		
		
Mahishamardhini temple, Marakata. Sullia taluk		
		
Bachanayaka gundi yenekallu. Sullia taluk		
		
Nakuru gaya, Sullia taluk		
		
Sangama, Uppinangadi. Puttur taluk		
		

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