Biological Status of Ponds at Subramanya and Neelavara Shri Krishna temple, Udupi

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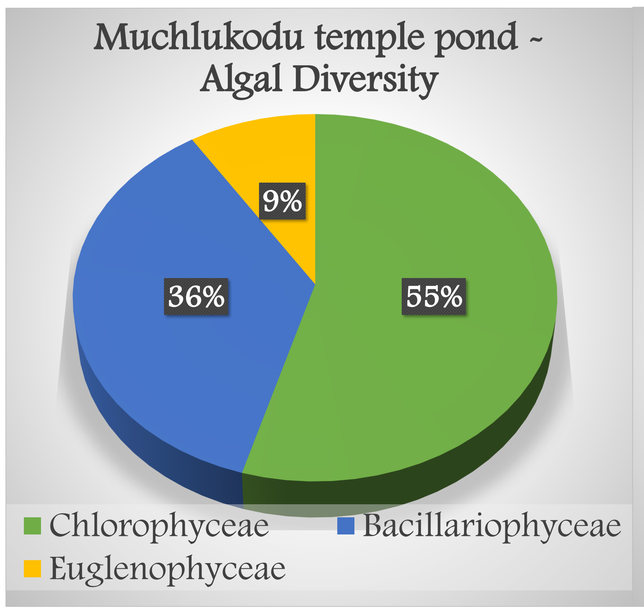
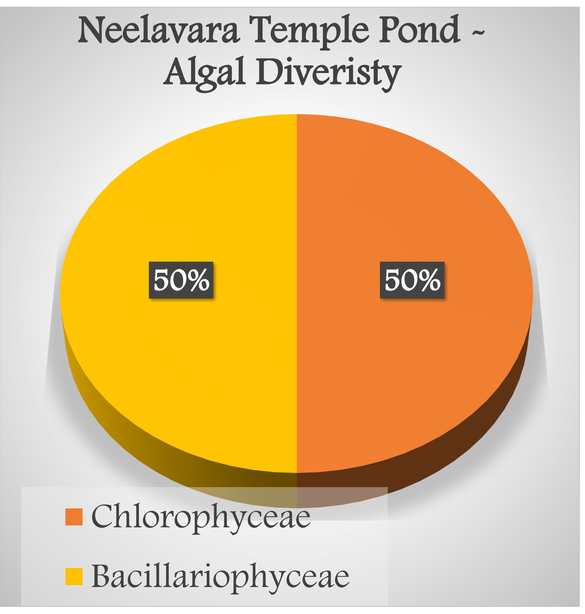
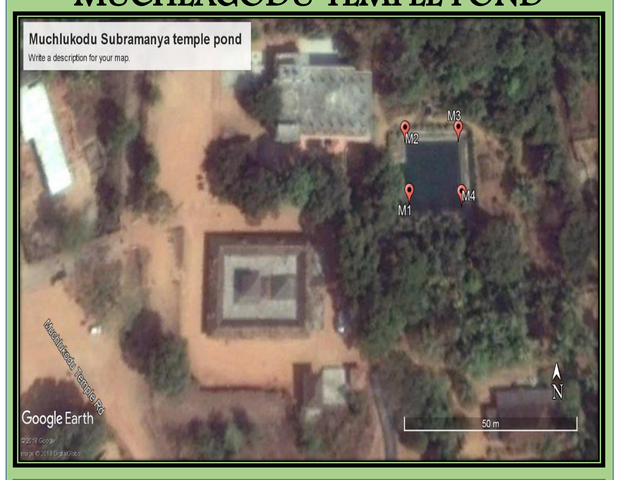
Introduction

- Temple ponds hold a high priority and sanctity among the Indian societies.
- Temple ponds render myriads of benefits:
  - Maintenance of the ground water table
  - Helps in ground water recharge, regulation of good microclimate
  - water balance and act as a perennial source of freshwater.





MUCHLAGODU TEMPLE POND



Parameters	Site 1	Site 2	Site 3	Site 4
Site code	M1	M2	M3	M4
Latitude(N) ° dec	13.3290	13.3292	13.3292	13.3290
Longitude (E) ° dec	74.7726	74.7726	74.7728	74.7728
Date (dd/mm/yyyy)	16/01/2018	16/01/2018	16/01/2018	16/01/2018
Time (IST)	18:06	18:15	18:25	18:40
Water temperature (°C)	29	28.8	29	28.9
Air temperature (°C)	28	28	28	28
pH	6.3	5.9	6.2	6.3
DO (mg/L)	8.06	7.80	7.97	7.80
Salinity (ppm)	34.6	35.2	34	35.2
Chloride (mg/L)	29.5	30.2	29	29.5
Acidity (mg/L)	12	12	14	12
Alkalinity (mg/L)	0	0	0	0
Total Hardness (mg/L)	37.2	37.2	37.2	37.4
Calcium (mg/L)	14.9	16	14.4	16
Magnesium (mg/L)	20.16	20.16	21.12	20.16
Nitrate (ppm)	0.23	0.19	0.21	0.30
Phosphate (ppm)	0.03	0.02	0.03	0.03
Sodium (mg/L)	24.2	26	28.6	26.2
Potassium (mg/L)	4.6	3.9	4,2	4.4
BOD (mg/L)	NA	NA	NA	NA
COD (mg/L)	6.4	7	6.5	6.1

Class	Species	Muchalagodu Temple Pond	Neelavara Temple Pond
Chlorophyceae	*Scenedesmus sp.*	+	
	Spirogyra sp.		+
	Clamydomonas sp.	+	
	Coelastrum sp.		+
	Cosmarium sp.	+	
	Chlorella sp.		+
	Merismopedia sp.		+
	Desmidium sp.	+	
	Oedognium sp.	+	
	Bracteacoccus sp.		+
	Oocytis sp.		+
	Pamella sp.	+	+
	Pandorina sp.	+	+
	Phytoconis sp.	++	
Bacillariophyceae	*Achnanthes sp.*		+
	Amphora sp.	+	
	Aulacoseira granulata		++
	Craticula cuspidata		+
	Cymbella sp.	+	+
	Navicula spp.	++	+
	Nitzschia linearis	+	+
	Nitzschia sigma	+	
	Pinnularia joculata	+	
	Prestauroneis integra	+	
	Synedra sp.	+	
	Cocconeis sp.		+
	Gomphonema sp.	+	++
Euglenophyceae	*Euglena sp.*	+	
	Trachelomonas sp.	+	

Macrophytes Diversity in Muchalagodu Temple Pond

Site	Species
M3	*Commelina sp.*
M3, M4	*Hydrilla sp.*

NEELAVARA TEMPLE POND

Parameters	Site 1	Site 2	Site 3	Site 4
Site code	N1	N2	N3	N4
Latitude(N) ° dec	13.449	13.449	13.448	13.448
Longitude (E) ° dec	74.795	74.796	74.796	74.784
Date (dd/mm/yyyy)	19/01/2018	19/01/2018	19/01/2018	19/01/2018
Time (IST)	10:30	10:40	10:45	10:58
Water temperature (°C)	28	28	28	28
Air temperature (°C)	27	27	27	27
pH	6.4	6.5	6.4	6.4
DO (mg/L)	6.50	5.85	6.50	6.18
Salinity (ppm)	28	29	30	28
Chloride (mg/L)	26.56	27.0	26.56	26.56
Acidity (mg/L)	6	6	6	6
Alkalinity (mg/L)	0.0	0.0	0.0	0.0
Total Hardness (mg/L)	18.4	18.6	18.6	18.4
Calcium (mg/L)	4.8	5.2	4.8	4.8
Magnesium (mg/L)	4.32	4.32	4.62	4.32
Nitrate (ppm)	0.05	0.05	0.05	0.06
Phosphate (ppm)	0.01	0.00	0.01	0.01
Sodium (mg/L)	23.2	23.2	23.6	23.2
Potassium (mg/L)	2.2	2.2	2.4	2.2
BOD (mg/L)	0.81	0.81	0.81	0.81
COD (mg/L)	0.0	0.0	0.0	0.0

Recommendations

1. Immediate Removal of plastic sheets which were already deployed in the Muchlukodu pond as a remedial measure to prevent macrophyte proliferation.
2. Frequent harvesting/ de-weeding of the macrophytes grown will ensure the weed spore dispersal in the water is minimized.
3. Introduction of indigenous varieties of fishes, turtles in a sustainable quantity to ensure the balance of microalgae/macrophyte proliferation.
4. Planting water lilies, lotus inside the pond would help in reviving the pristine conditions of the pond.
5. Introducing fountain aerators/spargers will help in maintaining the Dissolved oxygen level of the pond.

Government of India

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