

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

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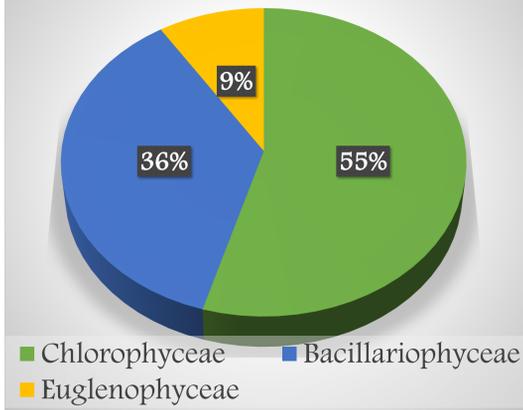
Website: <http://wgbis.ces.iisc.ernet.in/energy/>, <http://wgbis.ces.iisc.ernet.in/biodiversity/>



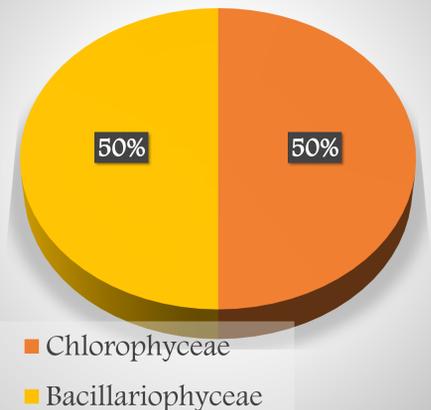
Introduction

- 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.

Muchlukodu temple pond - Algal Diversity



Neelavara Temple Pond - Algal Diversity



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	<i>Scenedesmus sp.</i>	+	
	<i>Spirogyra sp.</i>		+
	<i>Clamydomonas sp.</i>	+	
	<i>Coclastrum sp.</i>		+
	<i>Cosmarium sp.</i>	+	
	<i>Chlorella sp.</i>		+
	<i>Merismopedtia sp.</i>		+
	<i>Desmidium sp.</i>	+	
	<i>Oedogonium sp.</i>	+	
	<i>Bracteacoccus sp.</i>		+
	<i>Oocytis sp.</i>		+
	<i>Pamella sp.</i>	+	+
	<i>Pandorina sp.</i>	+	+
	<i>Phytoconis sp.</i>	++	
Bacillariophyceae	<i>Achnanthes sp.</i>		+
	<i>Amphora sp.</i>	+	
	<i>Aulacoseira granulata</i>		++
	<i>Craticula cuspidata</i>		+
	<i>Cymbella sp.</i>	+	+
	<i>Navicula spp.</i>	++	+
	<i>Nitzschia linearis</i>	+	+
	<i>Nitzschia sigma</i>	+	
	<i>Pinnularia jocolata</i>	+	
	<i>Prestauroneis integra</i>	+	
Euglenophyceae	<i>Synedra sp.</i>	+	
	<i>Cocconeis sp.</i>		+
	<i>Gomphonema sp.</i>	+	++
	<i>Euglena sp.</i>	+	
	<i>Trachelomonas sp.</i>	+	



Macrophytes Diversity in Muchalagodu Temple Pond

Site	Species
M3	<i>Commelina sp.</i>
M3, M4	<i>Hydrilla sp.</i>

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.

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

