

## Aquatic Weed Diversity of a Freshwater Pond in Chandrapur District of Maharashtra State

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### Abstract

Aquatic weeds thrive in all the water bodies in India and pose a risk to the water body choking in long run. In this context studies were carried on a small water body of Chora village of Bhadrawati tehsil of Chandrapur district to assess the weed fauna. This study was carried out during different seasons to know the status of prevailing aquatic weeds. The investigation revealed 16 macrophyte species in the catchment area of the reservoir. Out of the 16 macrophytes from the study area, 4 species belong to free floating, 5 rooted floating and 4 submerged type whereas 3 species belong to emergent type. The people residing nearby this reservoir use this reservoir for washing and bathing activities and for open defecation practices in the bank add anthropogenic source of pollution leading to enriching its nutrient contents thereby subsequently degrading the water quality and copious growth of aquatic weeds. This pond is a closed type of ecosystem having embankments on all the sides and the sediments of this lake are constantly getting polluted due to human activities present near the basin and anthropogenic interference by dumping sewage and drainage from the nearby localities.

**KEYWORDS:** anthropogenic activity, aquatic weeds, Chora , diversity, fresh water.

### Introduction

Biodiversity is referred to as a combination of different species living together in a particular habitat. In India a large number of aquatic weeds thrive in water bodies thus posing a grave threat to water potability by their death and decay and subsequent organic enrichment reducing the water holding capacity.

In water bodies large number of macrophytes of different types resides throughout the year. Depending on the type of nutrient loading the macrophytes colonize different types of freshwater bodies in India. The aquatic weeds are classified into free floating, rooted floating, submerged and emergent type. Based on nutrient input into a lake

from the catchment area and anthropogenic activities, the process of succession converts the pond ecosystem into a dry land and the pond ecosystem will be not be usable for benefit of human being. Taking into consideration this point, an assessment of aquatic weed biodiversity of Chora pond of Chimur city was undertaken during summer 2013, by field visits and visual observations methods.

The aquatic weeds are of great importance today as far as food supply to fish species is concerned. Aquatic weeds are an integral component of an aquatic ecosystem and serve as source of food to the water birds and animals thus forming a base for aquatic wildlife conservation practices. Macrophytes of different water bodies in India are studied by researchers such as Wetzel (1975), Majid (1986), Sugunan (1989), Venkatraman *et al* (2000), Yadav and Sardesai (2002), Abmasht (2005), Raut and Pejawar (2005), Sitre (2013) and many more. As there are no previous reported studies on aquatic weed biodiversity of Chora Pond in Bhadrawati Tehsil of Chandrapur district an attempt has been made to study them.

### Materials and Methods

The Chora Pond is located in the village Chora, having an area of approximately an area of about 4 acres with a firm embankment in the Bhadrawati tehsil of Chandrapur district of Maharashtra state. The studies were carried out during different season from 4 different sites of the reservoir catchment area to assess the biodiversity of weeds. Aquatic weeds were collected by field visits and visual observations. The survey was conducted to collect information regarding floating, emergent, marginal and submerged type of vegetation. The macrophytes were collected by hand picking and brought to the laboratory and were identified using Cook (1996) and other standard literature.

### Results and Discussion

In all 16 species of aquatic weed were recorded from the study area belonging to four different groups viz. free floating, rooted floating, submerged and emergent types. Free floating weeds were represented by 4 species, which mainly include tiny and delicate plants which covered the major surface of lake water. Free floating aquatic weeds were *Pistia* spp., *Azolla* spp., *Lemna* spp. and *Wolffia* spp. Rooted floating species were represented by 5 species. They were rooted in the mud along the margins of the water body and had long creeping and lofting stems. Rooted floating species include species such as *Trapa* spp., *Marselia* spp., *Nymphae* spp. and *Hydrilla* spp. Submerged weeds were represented by 4 species viz. *Vallisneria spiralis*, *Ceratophyllum* spp., *Potamogeton crispus*, and *Najas* spp. They were found in littoral zone of the lake and can be classified as fragile water weeds. They remain firmly fixed in the bottom sediments but their top regions were exposed in the environment. Emergent weeds like *Typha* spp., *Ipomoea indica*, and *Sagittaria* spp. were observed. The aquatic weeds of Chora pond are presented in Table 1.

**Table 1.** The diversity of weeds in Chora Pond of Chora Village

<i>Type of Weed in Water Body</i>	<i>English name</i>	<i>Family</i>
<b>Free floating weeds (4)</b>		
<i>Azolla pinnata</i>	Feathered mosquito fern, water velvet	Azollaceae
<i>Lemna minor</i>	Duckweed, Common duckweed	Araceae
<i>Pistia stratiotes</i>	Water lettuce	Araceae
<i>Salvinia molesta</i>	Giant salvinia, Kariba weed	Salviniaceae
<b>Rooted floating weeds (5)</b>		
<i>Hydrilla verticillata</i>	Hydrilla	Hydrocharitaceae
<i>Marsilea spp.</i>	Water clover and four-leaf clover	Marsileaceae
<i>Nelumbo nucifera</i>	Indian lotus	Nelumbonaceae
<i>Nymphaea spp.</i>	Water lily	Nymphaeaceae
<i>Trapa natans</i>	Water chestnut	Trapaceae
<i>Ceratophyllum demersum</i>	Hornwort	Ceratophyllaceae
<i>Najas spp.</i>	Water weed	Najadaceae
<i>Potamogeton crispus</i>	Curly leaf pondweed	Potamogetonaceae
<i>Vallisneria spiralis</i>	Tape grass, Eel grass	Hydrocharitaceae
<b>Emergent weeds (3)</b>		
<i>Ipomoea indica</i>	Morning glory	Convolvulaceae
<i>Sagittaria spp.</i>	Arrowhead, Duck potato	Alismataceae

Meshram, in the year 2003, recorded dominant macrophytes like *Hydrilla ceratophyllum* and *Chara* in Wadali lake of Amravati district and stated that the macrophytes stimulate the growth of phytoplankton and help in the recycling of the organic matter. Sitre (2013) recorded 17 macrophytes species in Ghotnimbala reservoir of Bhadrawati tehsil in Chandrapur district. Ambasht (2005) recorded 25 species of macrophytes from Gajner Tal, Jaunpur township of North India. Patil *et al.* (2012) investigated Panchaganga river stretch in Ichalkaranji city of Kolhapur district and recorded 9 hydrophytes and 6 amphibious plants and recorded that the macrophytes were drained into river basin from the lakes in the vicinity of river during flood situation. Kiran *et al.* (2006) recorded 15 species of macrophytes belonging to 13 families and grouped them under submerged (2 species), rooted floating (2 species), free floating (2 species), emergent (7 species) and marshy amphibious (2 species) from fish culture ponds of Karnataka. Sugunan (1989) stated that aquatic macrophytes figure prominently in the community structure and trophic events of the reservoirs in India, and are the factors for the ageing of reservoirs due to pollution impact.

The present study confirms the presence of 16 different species of weeds in the water body which can harm the pond in long run by adding its nutrient content.

### Conclusion

The open defecation practices prevalent on the banks of this pond coupled with enriched sediments and garbage disposal were daily increasing its organic loading thus providing a rich base for continuous growth of aquatic and emergent

macrophytes in the basin. If this prolific growth of aquatic weeds is not curtailed and due attention is not given then this beautiful pond will become a dumping ground of pollutants which will be lost forever from the history thus subsequently losing a good recreation place. The results showed that the lake basin was rich with a diverse range of aquatic weeds which were posing a grave threat of silting and losing its aesthetic value due to prolific growth of aquatic weeds.

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