

Water colour

Phytoplankton comprises all microscopic organism that are suspended in water- including small plants (phytoplankton) and small animals (animals) and bacteria

enough plankton in the water to discolour its water is said to contain plankton bloom

Plankton forms base of food web
Strong relationship between fish production and plankton abundant

Plankton bloom is common feature of fish production ponds

Types of phytoplankton – green algae; yellow green algae; blue green algae and diatoms

In summer phytoplankton blooms contain – blue green algae which can form scums on surface

These scums absorb heat during day and may cause shallow thermal stratification

during night heavy plankton bloom consume large amount of dissolved oxygen and may cause oxygen depletion before next morning

Plankton may suddenly die and decompose and cause oxygen depletion
Excess phytoplankton bloom can also cause large diurnal fluctuation in water quality may cause stress to fish

Also they can produce toxic substances that are lethal to fish
They can also produce compounds that cause off-flavour to fish

- Drying and desilting the pond every 1-2 year
- Mechanical harvesting
- Increased phytoplankton turbidity herbicide application

Provide shelter for
undesirable fish
Oxygen depletion and
produced ammonia
Contribute water loss
through evaporation
Interference to feeding
management and harvesting

Water colour

- Objective associated with the colour of water due to phytoplankton
- Increase dissolve oxygen and decrease carbon dioxide, NH₃; hydrogen sulphide; to stabilize water quality and lower content of toxic compounds

To make phytoplankton as natural food

To provide shade and decrease cannibalism

Seven types of water colour that occurs in water ponds

Reddish-brown colour or pinkish-red

Due to diatoms

Algae species – chaetoceros, navicula, Skeletonema, synedia, euglena are found in pond of this colour

Diatoms excepting Biddulphia are generally nutritious to fish and prawn

Light or bright green colour

colour due to green algae chlorella Dunaliella, carteria, chalmydomonas

Water colour is usually stable
Fish and prawn grow very well in this pond type

Dark green

Due to pond water temperature get to high or organic material get to accumulate to fast

Blue green algae bloom faster than green algae

Oscillatoria, phormidium, microcoleus
dominant

Fish prawn survival rate in the pond is not affected but growth rate affected

Dark brown colour

Poor pond management such as over feeding or using large amount of trash fish causes rapid growth of dinoflagellates and brown algae

Such water condition undesirable to fish and prawn

So recommended to change water particularly this colour appear

Yellowish water colour

Yellow water formation is due to chrysophyta growth in addition green flagellates may also grow moderately

All these algae are very small

Fish and prawn growth inhibited in this kind of water
and many cases causes mortality may be very high

Turbid water

Due to suspension of zooplankton, clay particle and detritus

This kind of water can be beneficial or harmful depending on the quality of quantity of suspended particle

Clear water

Water is transparent

May be due to lack of nutrient

Presence of heavy metal; pollution of copper; iron; manganese

Under this condition no organism can grow properly

This kind of water is not ideal for fish culture

Guidelines for water colour

Some types of water colour are desirable and some are not to achieve this particular colour –fertilizer may be use

Ammonium salt are good for green algae growth

While urea are good for brown algae

When colour becomes undesirable owing to over blooming bactericide, algaecide insecticide are used
Increasing aeration and particular replacement of clean water may be helpful in changing water quality

Feeding also influence in water colour and quality

Over feeding should be avoided