Technical Bulletin #47:

How to Use a Secchi Disk

Why is Pond Water Green?

Particles in water reduce how transparent water is. The more particles there are the less transparent the water. The most important types of particles found in pond water are plankton. Plankton are very small plants and animals that usually color the water green or a greenish brown. Plankton is very important to aquaculture ponds for the following reasons:

- Plankton turns light, carbon, and water into food for fish.
- Plankton produces oxygen that all fish need to live and grow.
- Plankton recycles and removes fish waste (ammonia and feces).
- Plankton controls how deep light can penetrate the pond.

Figure 1: Water colored green by the ideal amount of plankton.

Aquaculture ponds need the right amount of plankton to be healthy. Too little plankton or too much plankton are bad for water quality, fish health, and fish growth.

Managing Plankton with a Secchi Disk

Controlling the amount of plankton in a pond is one of the most important management tasks in aquaculture. In an aquaculture pond plankton is controlled by increasing or decreasing the amount of fertilizer and/or feed that is put into the pond. A simple tool called a Secchi disk (Figure 2) is used to measure the amount of plankton in a pond. A Secchi disk is a circle of wood or plastic, or a metal disk, 20 centimeters in diameter. It is divided into four parts painted alternately white and black. The disk is then attached to a measuring stick. This simple device is the most important tool that a pond manager can use to help produce healthy and fast growing fish.

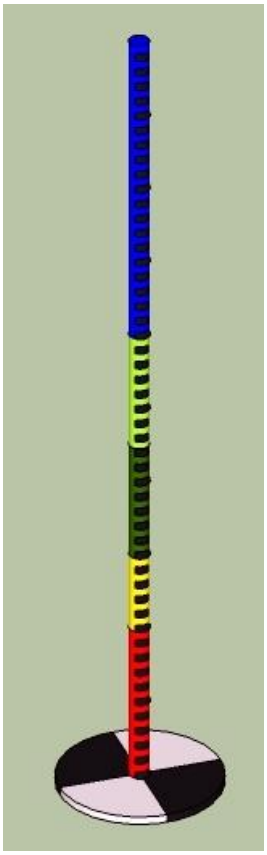

Figure 2: Secchi disk

Using a Secchi Disk

To use a Secchi disk, simply hold the measuring stick at the top and slowly lower the disk into the water until the disk is no longer visible from the pond surface. Look at the measuring stick to see the water depth when the disk is no longer visible. This is called the Secchi disk depth. Use the table below to interpret what the Secchi disk depth means and what to do to manage plankton in an aquaculture pond.

Secchi Disk Depth (cm)	Interpretation	What To Do	Example
> 60	Water is too clear. Inadaquate fertilization. Rooted plants will begin to grow. Fish can become stressed because of low oxygen.	Fertilizer must be added.	
45-60	Not enough plankton in water	Increase the amount of fertilizer applied to the pond.	
30-45	**Amount of plankton is Ideal**	**Continue normal management activities.**	
20-30	Plankton is becoming over abundant. Water quality is becoming poor.	Pond should be monitored more closely. Feed and fertilizer use may need to be reduced.	
0-20	Too much plankton. Too much fertilizer. Danger of low oxygen in the morning.	Fish feeding and/or fertilizer applications should be severely reduced or stopped until the Secchi disk depth improves.	

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