

SECHI DISK

SUBJECT: MARINE INSTRUMENTATION

SECHI DISK

Prepared By

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Secchi disk

- The Secchi disk, created in 1865 by Pietro Angelo Secchi, is a circular disk used to measure water transparency in Ocean and Lakes.
- The disc is mounted on a pole or line, and lowered slowly down in the water. The depth at which the pattern on the disk is no longer visible is taken as a measure of the transparency of the water.
- This measure is known as the Secchi depth and is related to water turbidity.

Description of Disk

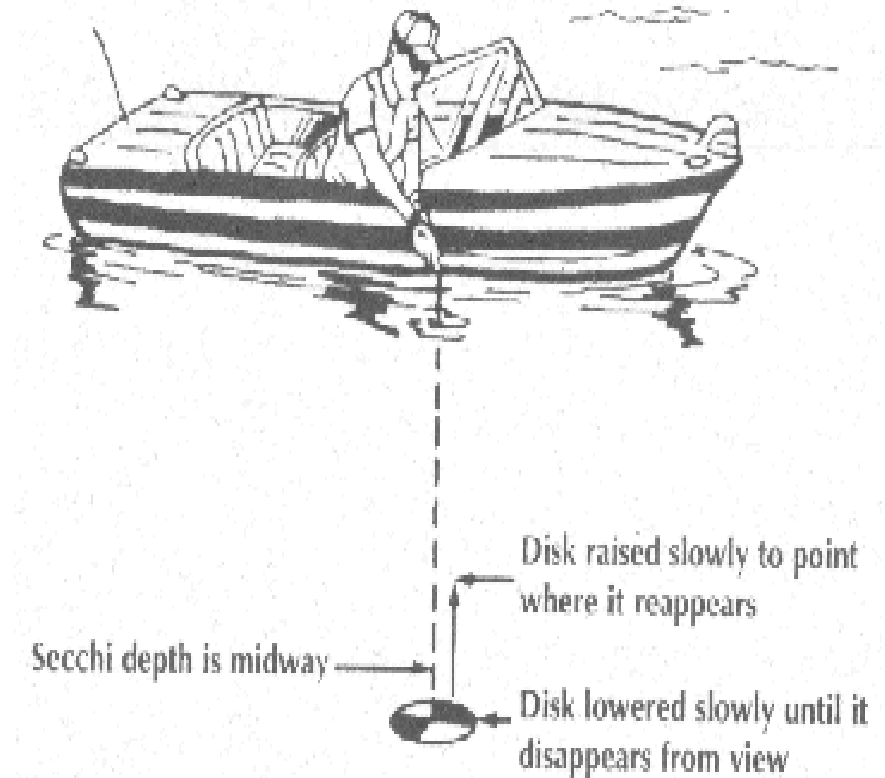
- In Limnological studies, the average size of a secchi disk is 20 cm. The disk consists of a weighted circular plate painted black and white in contrasting quarters. A calibrated line hangs from a ring in the center of the disk so that the disk hangs horizontally when lowered in the water .
- 1. Slowly lower the secchi disk into the water until it disappears, and note the depth.
- 2. Lower the disk further in the water and the raise the disk until it reappears. Note depth.
- 3. The average of the two readings is the secchi disk visibility depth.

When to Take a Secchi Disk Measurement?

- The secchi disk method is a very useful way of comparing the visibility of different waters, so the method has been standardized.
- A secchi disk measurement should always be taken off the shady side of the boat between 9 A.M. and 3 P.M. (Lind).
- According to Cole, the time interval is between 10 A.M. and 2 P.M. The same observer should always take secchi depth measurements in the same manner every time.
- For example, readings should be taken while standing or sitting, or with or without glasses (Lind).

THE SECCHI DISK

- Various sizes of disks have been used since that time, but the most frequently used disk is an 8 inch diameter metal disk painted in alternate black and white quadrants.
- The Secchi disk is used to measure how deep a person can see into the water.
- It is lowered into the lake by slow down the waterproof tape to which it is attached and until the observer loses sight of it.
- The disk is then raised until it reappears. The depth of the water where the disk vanishes and reappears is the Secchi disk reading.
- The depth level reading on the tape at the surface level of the lake is recorded to the nearest foot.
- Even though the Secchi disc measurement of water clarity is an approximate evaluation of the transparency of water, it is used primarily for its simplicity.



SECCHI DISK READINGS – HOW VALUABLE ARE THEY ?

The increased water transparency depth after may be due to the following reasons

- Reduced nutrient input from the watershed.
- Increased grazing of algae by zooplankton.
- Reduced soil erosion into the lake.
- Seasonal algae succession.

If the Secchi Disk transparency depths are getting down may be due to one or more of the following

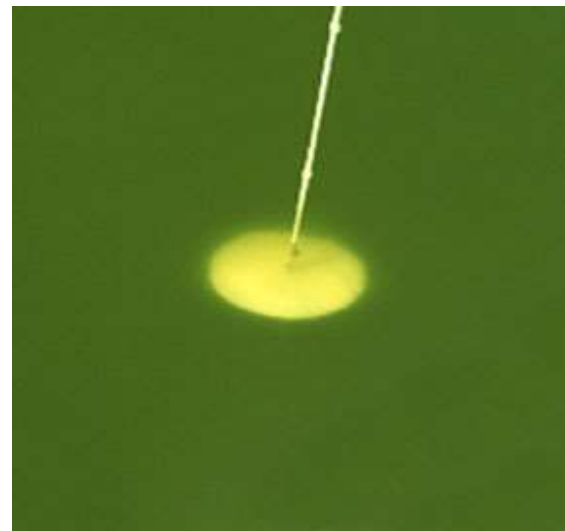
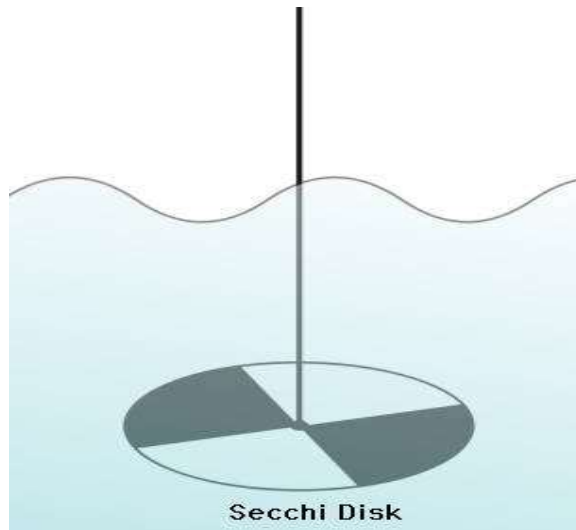
- Increased abundance of free floating algae.
- Erosion of the shoreline or erosion from site development near the lake.
- Recirculation of bottom sediment from motorboat activity.
- Discoloration of the water from wetland runoff and/or plant decomposition.
- Increased turbidity.
- Reduced zooplankton populations.

SECCHI DISK DATA

- Secchi Disk measurement be done to provide the greatest accuracy, the following conditions should be met:
- The same person should be taking all readings since sharpness of vision varies from person to person.
- The reading should be taken on the same day of the week, or at least not more than one day before or after the same day of the week.
- It is preferable that the measurement be taken between 10:00 a.m. and 4:00 p.m. so that the light rays from the sky are at a similar angle each time the reading is taken.
- Avoid taking the measurement when the sea is rough.
- The Secchi disk measurement should be taken at the deepest part of the sea. This may be determined by viewing a bathymetric map or using a depth gage.
- After anchoring the boat at the predetermined site, take the reading on the shady side of the boat.

- **A Secchi Disk measures water clarity. Water clarity may be affected by three different factors -- algae, sediment and / or water color.**
- **Secchi disk readings which show a significant decrease during the summer season and often accompanied by a distinct green, brown or red color are probably due to the proliferation of free floating algae**

SECHI DISK



THANK YOU