Waterwatch Australia National Technical Manual
Module 4 - Physical and Chemical Parameters
Waterwatch Australia Steering Committee
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Teachers' Resource Sheet - Turbidity (suspended solids)

Why is turbidity (suspended solids) important?

Turbidity is caused by small particles that are "hanging" or suspended in the water. These particles are so small that they take a long time to settle, and if the water is flowing or is disturbed, the particles may never settle. These particles cause the water to look cloudy or muddy. If the water looks like this, the light that is needed for plants to grow cannot penetrate the water. Without plants there is little or no oxygen or food for animals and so waters that are very turbid cannot support a lot of life. High levels of turbidity may also increase the temperature of the water and make life difficult for fish and other animals. This is particularly true in eastern Queensland rivers and streams.

Not all turbid waters are an indication of poor water quality. Some of our great inland rivers are naturally very turbid and the animals and plants that grow in them have adapted to live in these conditions. It is important to find out whether the waters near your school are naturally turbid or clear.

What causes the turbidity to change?

There are many things that cause turbidity. The most common cause is erosion of soil from either the banks or the land near the water. After rain, soil washes off building sites, newly cleared paddocks, gardens, roads and the banks of gullies, streams and rivers. It is this soil that increases the turbidity of the waters. Another source of turbidity is waste discharges from sewage systems, mining sites or factories. If you are investigating waters near ti-tree swamps you may find that the water is black and appears very turbid, however this is quite natural. The colour in the water comes from the tannins in the leaves and bark of the trees.

How do we measure turbidity?

The most effective method of testing for turbidity is to use a turbidity tube. These tubes are easy to use. Be aware that the lowest turbidity reading is less than 1, but can never be zero. The units used are nephelometric turbidity units (NTU).

Instructions

- Stand the turbidity tube on a white tile.
- Gradually pour in the water sample until the black cross is no longer visible when looking down the tube.
- Record the reading from the side of the tube.

Turbidity is measured in centimetres (cm) or nephelometric turbidity units (NTU) depending upon the type of instrument you use.

Questions

- What are some things that people do in the catchment that will contribute to increased turbidity?
- Why are animals in the water in danger if the turbidity levels rise?
- How could you find out the turbidity level for your local water?
- What are the effects of increased turbidity on the temperature of the water?
- What will this do to the amount of dissolved oxygen in the water?