

## Phosphorus Information Sheet

### **Background:**

Phosphorus is a nutrient that occurs naturally at low concentrations in water and it is essential for all forms of life. It comes from processes like the weathering of rocks and from the decomposition of organic matter such as plant litter. Phosphorus is present in streams as soluble phosphates, phosphorus bound to sediments and phosphates occurring in living organisms.

Phosphorus can enter a river system from:

- irrigation drains
- runoff from agricultural land
- intensive agricultural industries
- sewage treatment facilities
- stormwater drains
- runoff from forests
- geological sources

Phosphorus can occur in a variety of forms in water. In drainage channels, it is largely present as soluble phosphorus, which is readily available to algae. The phosphorus in catchment runoff is usually bound to clay particles.

Phosphorus can also be stored in the sediments of a river or a lake. It can be stored for very long periods of time and, under certain conditions, can be released into the water and become available to algae.

Increased levels of phosphorus in streams may result from erosion, discharge of sewage, detergents, urban stormwater and rural runoff containing fertilisers and animal and plant material.

When the concentration of phosphorus becomes high, problems such as algal blooms, excessive growth of aquatic weeds and the loss of species diversity occurs. These are all symptoms of EUTROPHICATION. Abundant plant growth, such as occurs in algal blooms, leads to increases in pH and turbidity, production of toxins, odours and changes in variety and numbers of aquatic species of plants and animals.

Reactive Phosphorus or Orthophosphate is only the soluble forms of phosphate and is indicative of the readily available and biologically active phosphorus. It has the advantage of being a simple test to carry out.

Phosphorus results can vary greatly depending on:

- the geology of the area;
- Soil types; and
- Weather conditions. It is very important to consider flow rates and weather conditions when drawing conclusions about phosphorus data. With high rainfall events, phosphorus levels will be elevated naturally because of agricultural and urban runoff.