

A Cattail Tale

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Eastern Ontario has been redesigned by our road managers and cattails. The landscape is now a network of lines of cattails following the ditches along the shoulders of roads. With the help of the wind, cattails seeds from this network can reach any open, wet spot that develops, almost overnight. So cattails are available everywhere and if the nutrients are there, a dense colony can develop.

The appearance of these cattail colonies is worth watching if you are interested in the nutrient 'loading' of your lake or river. It has been clearly shown that cattails appear and thrive in response to available total phosphorus.

Cattail response is greater than the response of some other semi-aquatic plants such as the sedges, or saw-grass. So, noting the appearance and early development of cattail colonies can serve as an indicator of change in the phosphorus load in your waters.

The growth of cattails is also linked, by other research evidence, to water level and its fluctuation. This happens because water level can control the amount of the phosphorus that is in a chemical form that can be taken up by the cattails.

When the water level drops, soil and organic matter is exposed to the air. The oxygen in the air converts the iron in the soils to an oxidized form that combines chemically with the phosphorus, producing a molecular complex that cannot be taken up by the cattails (and other plants).

When the water level rises again, the air and oxygen is shut away from the soil and the iron changes back to a form with less oxygen causing the complex of iron and phosphorus to break down. The phosphorus is released in a form that the cattails can take up and the cattails grow rapidly. When water levels are artificially fixed at a constant level, phosphorus continues to be released from the sediments all year long. Phosphorus that entered the lake many years ago can be released. This is why rank growth of cattails is such a problem in lakes and reservoirs that have a stabilized water level controlled by a dam or other structure.

Two lessons are worth taking home. First, the appearance of cattail colonies in your waterway can serve as a biological indicator of change in phosphorus loading. Second, controlling water at a fixed level can cause release of a lot of phosphorus stored in the soil and sediments from past times and the cattails will respond to the nutrient availability. The excess of nutrients will become evident.