

LAKE FACTS

WHY WILL THE LAKE TURN GREEN? SOME QUESTIONS AND ANSWERS

Q: What causes color in our lakes?

A Most lakes look blue. Blue light scatters more than any other color and this is what our eyes sense when we look through the water. Lakes also reflect the color of the sky which is usually also blue.

Q: But, why will our lake look green?

A: The presence of suspended or dissolved materials in the water causes a change in color. The green color is a result of microscopic plants called algae. The algae may be single cells, filaments (chains of cells), or colonies (groups of cells). The individual algae cells are typically in the range of 5 to 200 microns in size (that's 2/10,000th to 8/1000th of an inch).



Q: Where does the algae come from?

A: Most algae is carried into the lakes by wind-blown soil and runoff. Birds and ducks can also transfer algae from one lake to another.



Q: What makes the algae grow?

A: Algae are plants. Like all plants, they require sunlight, carbon dioxide, and nutrients (fertilizer).

Q: It is obvious where the sunlight comes from, but where does carbon dioxide come from?

A: When animals breathe (respire), they convert oxygen to carbon dioxide. Fish and other aquatic organisms also respire and discharge carbon dioxide into the water where it can be taken up by the algae cells. Additional carbon dioxide dissolves into the water from the atmosphere.

Q: Where do the nutrients come from?

A: Nutrients can enter a lake from wind blown soil, storm water runoff, birds and waterfowl, and the source water. It can also be recycled from the sediment at the bottom of the lake. At Power Ranch Village, most of the nutrients will initially come from the well water that fills the lake. The water is high in nitrogen, but low in phosphorus, the major plant nutrients for algae growth. When outside sources eventually add enough phosphorus, the water will become and remain green most of the time. During the winter, when plant growth is slowed by cold temperatures, algae growth is often reduced and improved water clarity is observed.

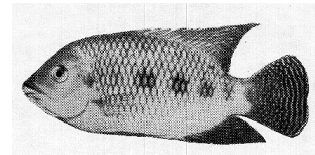
Q: Is there any way we can reduce the nutrients in the water?

A: Yes, but the chemical treatment process is cost prohibitive. Additionally the nutrients are beneficial to the turf and ornamentals that are irrigated from the lake water.

Q: Is there any way the lake water can be treated to reduce the amount of algae?

A: Yes, there are a number of algae control techniques. Several are listed below.

1. chemical treatments with algaecides - kills the algae cells
2. fertilizer restrictions for areas near the lake- reduces nitrogen and phosphorus quantities in storm water runoff that flows into the lakes
3. limiting waterfowl that add nutrients to the lake
4. addition of alum- combines with phosphorus and removes it from the water column
5. addition of lime - combines with particles and algae and causes them to sink to the bottom of the lake
6. addition of liquid dyes- reduces light transmission into the water and slows algae growth
7. artificial aeration/circulation - stops recycling of nutrients from the lake sediments
8. stocking with algae eating fish
9. installing aquascapes, biofilters, or nutripods - to absorb nutrients by permanent or removable vegetation and make less available to algae.
10. adding coagulants - physically combines with the algae and cause it to sink to the lake bottom
11. biomanipulation - enhancing natural predators of algae, such as small crustaceans (zooplankton)



Q: Will any of these techniques being used at our lake?

A: Management is currently collecting chemical and biological data to better understand how this lake works and to determine the actual levels of nutrients and algae that will enter the lake. This information will be used to identify algae control strategies that are applicable specifically to these lakes and which have a good chance of being successful.