UTAH DEPARTMENT of ENVIRONMENTAL QUALITY

FREQUENTLY ASKED QUESTIONS - PART 2

Utah Lake Harmful Algal Bloom 2016

Utah Department of Environmental Quality

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WHAT'S DIFFERENT THIS YEAR? THE PRECURSORS ARE PHOSPHORUS, SUNLIGHT AND WARM WATER DID WE HAVE MORE OF ANY OF THESE THIS YEAR?

A: This year the blooms are starting much earlier than usual and there are several reasons why this may be true:

1. Warm temperatures: The lake is really low, which means that temperatures are increasing much earlier than is typical.

2. Calm conditions: When the blooms started, there were several days without any winds. This decreases turbidity from suspended sediment, which increases the sunlight available for algae growth. It is relevant to note that we are expecting at least another week of similarly calm conditions.

3. As lake levels go down, there are also more backwater areas, which increases retention time—essentially the amount of time that a plant or algae cell would have access to nutrients that may otherwise limit growth rates.

4. Phosphorus (P): The lake is very low, so while P inputs are always occurring, concentrations are likely higher than usual (at least prior to being incorporated into cyanobacteria cells) because there is less dilution.

IF THERE ISN'T ANYTHING PARTICULARLY DIFFERENT ABOUT THIS YEAR, CAN WE EXPECT MORE OF THIS IN THE FUTURE?

A: Yes, we can expect to see more of this in the future, especially if we do NOT start limiting the amount of nutrients that enter our waters. The intensity of cyanobacteria blooms is increasing worldwide due to: temperature, changes in hydrology, and increases in nutrients. Left unchecked, all of these conditions can be expected to contribute to bloom intensity in the future.

IS THERE ANYTHING THAT CAN BE DONE UNDER CURRENT LAW TO FORCE ANYONE TO REDUCE THE AMOUNT OF NUTRIENTS GOING INTO THE LAKE?

A: EPA has made nutrient reductions a national priority, as has DWQ. However, EPA has not established a numeric standard for nutrients, given the site-specificity of an appropriate standard. DWQ has implemented a phased approach to nutrient reductions. One of the first phases of our approach is to require phosphorus limits for treated wastewater. These limits were established based on available treatment processes that were thought to best balance phosphorus reductions against treatment costs. On average, this modest step would cost taxpayers $1.18/mo. To aggressively attack the problem the cost would be approximately $15.50/month.

HOW MANY WASTEWATER PLANTS DISCHARGE INTO THE LAKE? CAN YOU GIVE PERCENTAGES OF WHERE THE NUTRIENT LOAD COMES FROM (WASTEWATER VS. AG RUNOFF VS. URBAN/STORM RUNOFF).

A: There are eight municipal wastewater treatment plants that discharge into Utah Lake. These are facilities owned and operated by: Provo City, Orem City, Timpanogos Special Service District, Salem City (lagoon), Springville City, Payson City and Spanish Fork City. Approximately 76.5% of the phosphorus loading to Utah Lake is contributed by those wastewater treatment plants. The ag and storm water contribution would be the remaining 23.5%.

IF IT IS MOSTLY THE PLANTS, HOW MUCH TIME DOES THE 2020 SOLUTION BUY US?

A: The 2020 nutrient control plan is a modest first step in controlling excessive nutrients. It would establish a 1 mg/l phosphorus limit to discharges from the municipal wastewater treatment plants—with the exception of the Salem City lagoon which would receive a phosphorus cap. The present value cost estimate for this is $114 million (2010 $) statewide for the 34 mechanical treatment plants. That minimalistic step will not likely control future algal blooms, only help reduce them. Controlling algal blooms would take a much more aggressive approach—which would be to establish an effluent limit of 0.1 mg/l for phosphorus and 10 mg/l for nitrogen. The cost of that approach is estimated to have a present value cost of $1,352 million (2010 $), or on average $15.50/month per household. The upgrades would include having wastewater facilities adopt biological nutrient removal technology, combined with filters.

WHAT IS THE LIFETIME OF THE TOXINS? IF WE GET A WORSE-CASE BLOOM THAT IS FULL OF TOXINS, HOW LONG BEFORE IT HAS RUN ITS COURSE, ASSUMING THE CONDITIONS HAVE SHIFTED ENOUGH THAT IT ISN'T JUST RE-OCCURRING?

A: Depending on the particular cyanotoxin in question, they can break down as rapidly as three days, under specific conditions, or persist for as long as a month.

CAN YOU NAME SPECIFIC UTAH BODIES OF WATER THAT WOULD FIT YOUR CRITERIA FOR SUSCEPTIBILITY?

A: The most susceptible waters to algal blooms are those that have higher water temperatures, are quiescent and are most nutrient enriched. In the recent past we have had algal blooms on backwaters of the Jordan River backwaters, Farmington Bay, Lindon Harbor, Blackridge Pond, Payson Lake, Salem Pond, Schofield Reservoir and Pineview Reservoir.

Q: WHAT HELP MIGHT BE AVAILABLE FOR FARMERS WHO WILL BE AFFECTED BY THESE RECOMMENDATIONS? IF THEY DON'T HAVE AN ALTERNATE WATER SOURCE AND CONTINUE WATERING CROPS, WHAT IF THEY HAVE TO THROW THEM AWAY?

Utah Department of Agriculture and Food is working on finding solutions and researching options.

Q: HOW FAR COULD THIS SPREAD? NOW THAT IT'S GONE UP THE JORDAN RIVER, COULD IT SPREAD FARTHER NORTH?

DWQ: It could spread to the Great Salt Lake impounded wetlands and the Farmington Bay of the Great Salt Lake. Farmington Bay already has regular toxic algal blooms. The species is different because of the salinity in the Great Salt Lake.

Q: HOW DOES THIS GROW? WHAT KIND OF ENVIRONMENTAL SITUATIONS ALLOW FOR THESE BLOOMS TO MULTIPLY?

DWQ: High nutrient concentrations in the water, calm and stagnant water, warm weather and abundant sunlight. Of these, the only controllable factor is the nutrient level.

Q: HOW LONG COULD THIS LAST?

DWQ: It is difficult to say. Some blooms dissipate after a few days, and others continue to bloom in cycles for weeks. Florida, for instance, has been dealing with this on a much more massive scale. (http://www.nytimes.com/2016/07/19/science/algae-blooms-beaches.html?_r=0)

Q: BECAUSE UTAH LAKE HAS BEEN CLOSED, DOES THIS MEAN UTAH LAKE STATE PARK IS ALSO CLOSED?

Utah State Parks: Utah Lake State Park remains open with day-use and camping activities. A private rental concessionaire located at the park is also still renting recreational items to be used in the lower portion of the Provo River.