BMW - Fall News You Can Use

Barr Lake and Milton Reservoir Watershed Association

Carp Removal at Barr Lake

For the first time ever, carp will be removed from Barr Lake for the sole purpose of helping improve water quality. Carp is a non-native, nuisance fish that does not belong in Barr Lake but has been the dominate fish species for the past 100 years.

Originally, carp were brought over from Europe and Asia along with the immigrants as a source of food. Once here, the carp no longer was a favorite dish. Carp are conditioned to live in eutrophic conditions where other fish can't survive. They can survive for more than 25 years, and their feeding habits include diving deep into nutrient-rich lake sediments. To find their detrital food, they stir up the sediments looking for the good stuff. This re-suspension of sediments by carp is call bioturbation. With thousands of carp in Barr, this can be a significant source of nutrients contributing to the green in-lake conditions during the summer.

Carp are also highly effective at processing food stored deep in the sediments. Like all other fish, they excrete nutrients that are readily available for algal growth. There are just too many carp, though, in Barr. Removing a large portion of the carp population may have a positive effect on nutrient cycling as evidenced by a less green and clearer lake during the summer.

Besides fish, additional data will be collected. All carp will be counted, weighed, and taken to a composting facility in Keenesburg, CO. A representative carp will be analyzed for phosphorus to see how many pounds of phosphorus are removed with each fish.

No carp will be used for human consumption. Not all of the carp will be removed as the goal is not to eradicate them. There is no fish screen on the Burlington Ditch so more will migrate in each year when the lake refills. There are many park visitors that enjoy fishing for carp so Barr Lake will always have carp in it.

Internal loading

What is internal loading and how does it happen in Barr and Milton?

The element of greatest concern in Barr and Milton is phosphorus. This is the nutrient that determines how green the water turns during the summer. Internal loading is just one way in which phosphorus reaches the lake water.

The load of phosphorus is typically talked about in pounds per year. This is how much phosphorus gets into each reservoir. The phosphorus can come from the watershed or outside of the lake; this is called external loading. The only other way for phosphorus to enter the water is from sediments at the bottom of the lake. This is called internal loading – phosphorus leaves the sediments and enters the water column.

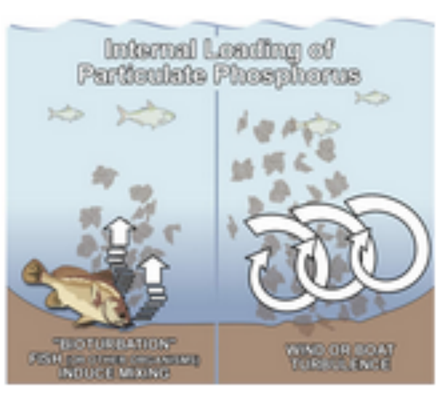
There are two ways that internal loading occurs. One pathway occurs when phosphorus dissolves into the water column when there is a lack of dissolved oxygen at the lake bottom. The lack of oxygen allows for phosphorus to seep out of the sediments in a dissolved form that the algae can easily use.

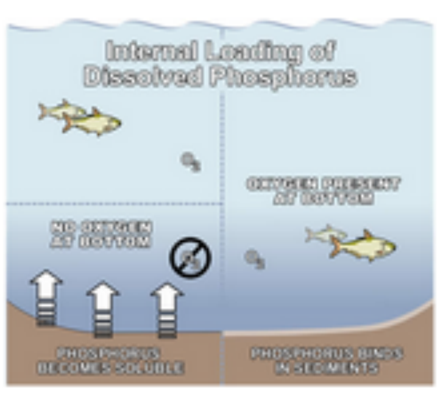
The other method is by physically mixing or disturbing the sediments. Bioturbation is one way this happens. This is when aquatic organisms dig or stir up the sediments looking for food or shelter. Small worms and bottom feeder fish like carp do this well. Wind and boat props in shallow water also contribute to sediment mixing. Mixing up the sediments releases phosphorus in particulate form. Most of it settles right back down but some of it is used to grow algae.

The current goal for both reservoirs is to limit total phosphorus loading to about 13,000 lbs per year. Currently, it is estimated that Barr's internal loading is 9,000 lbs while Milton's is about 4,500 lbs per year. This is evidence that control of internal loading is critical in meeting the overall loading goals. The current plan is to reduce internal loading by at least 75% along with other efforts to help reduce external loads.

The BMW Technical Committee is working to evaluate a variety of in-reservoir techniques to meet the internal loading reduction goals. Both reservoirs experience low oxygen levels during certain times of the year. Barr Lake also has a large population of carp that disturb the sediments all summer long. Aeration, bubblers, mixers, and other mechanical techniques do a good job of keep oxygen in the water. Alum is also another tool that is effective in binding with the phosphorus to keep it stored in the sediments, even when there is no oxygen present. The first step is to reduce the carp population to see if that makes a different in the annual phosphorus loading.

This spring, fish traps were put into Milton and Barr to estimate carp population size. For Milton, is was determined there are around 2,200 carp. Milton was completely drained dry in the fall of 2009 so there are not as many as in Barr. For Barr, the fish trapping did not work. For some reason the larger carp were not easily lured into the traps. Based on visual observations, there could be as many as 10,000 carp in Barr Lake.



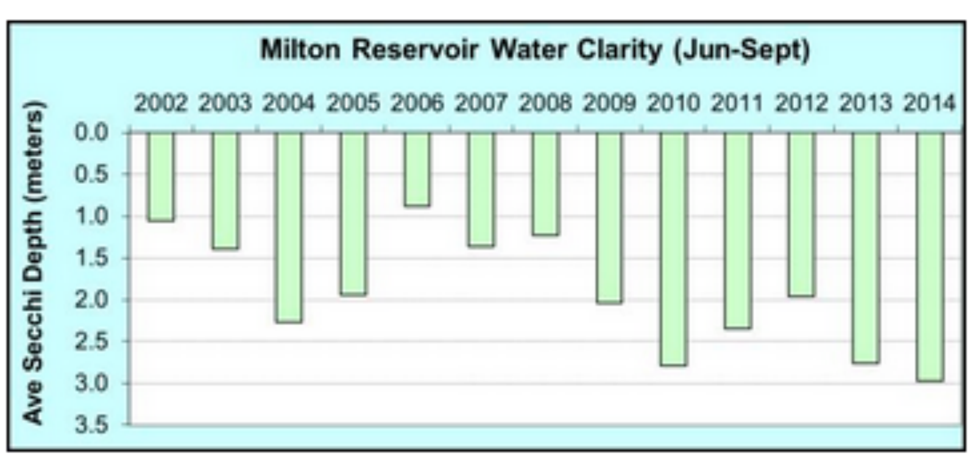


Barr Lakes Best Ever Water Clarity Reading in 128 years

On May 27th, 2014, the water clarity reading for Barr Lake was 8.2 meters, or 26.9 feet deep. This is the deepest measure ever recorded in Barr Lake. The reservoir was 32 feet deep at the time so the clarity was basically to the bottom. Barr Lake and other lakes or reservoirs typically have a clearing phase in the spring when the water is cool, the days still short, and the zooplankton grazers are doing well to keep diatoms down.

Milton Continues to Improve its Water Clarity

For the past eight years, Milton has continued to improve its water clarity during the summer season. The average water clarity depth this year was 3.0 meters or 9.8 feet between June and September. This has been the highest average since regular monitored started in 2002.



Keep your Leaves out of Barr and Milton this Fall

Find out if your community collects and composts leaves during the fall. By picking up your leaves and having them composted, it prevents them from entering the storm drains and eventually getting to Barr and Milton. Leaves are full of carbon, nitrogen, and phosphorus, the same elements that algae need to grow.

A good community program is the LeafDrop Program offered by the City and County of Denver every October and November. Denver designates several neighborhood drop off locations during the weekends for homeowners to drop leaves for free. This is much better than using a leaf blower to push them into the street or putting them in the landfill.

Click here for the program website.

Important Websites:

BMW Association http://www.barr-milton.org/

Barr Lake State Park http://www.cpw.state.co.us/placestogo/parks/BarrLake

Rocky Mountain Arsenal National Wildlife Refuge www.fws.gov/refuge/rocky_mountain_arsenal/

Weather www.crh.noaa.gov/bou/

Welcome to the quarterly newsletter of the Barr Lake and Milton Reservoir Watershed (BMW) Association assembled by the BMW Information and Education Committee. The mission of the Committee is to reach out to all people in the watershed and provide water quality information important to the health of Barr Lake and Milton Reservoir.

Mark your calendar for these upcoming events in the watershed

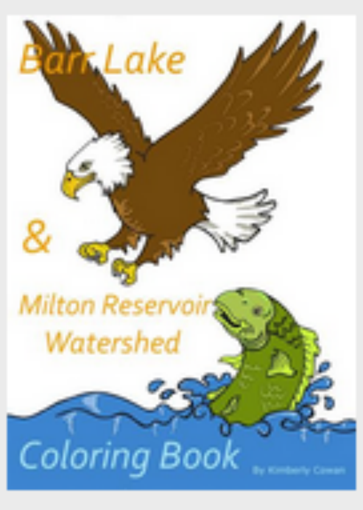
BMW Information/Education Committee meeting November 4th

CLRMA fall conference October 30th

Cherry Creek Stewardship Partners Annual Conference November 5th

BMW Technical Committee meeting November 20th

Denver Recycles' LeafDrop Program, compost your leaves this fall October 1st through November 30th at local drop off locations



BMW New Coloring Book

A nice addition to the free give-a-ways that are available from the BMW educational booth is the new educational coloring book. This 17-page coloring and activity book is a fun way for kids to learn about the BMW watershed and how to help keep both Barr and Milton clean. Come get one the next time you see the BMW booth at an event.

City of Thornton Spreading the Word

The BMW Association has started a campaign to have people use phosphorus-free lawn fertilizers. The reason is because most of our soils have enough background phosphorus to support a healthy lawn and that the added fertilizer could potentially end up washing down into our streams and lakes.

Thanks Thornton for helping educate the public about how the little things can add up to help out Barr and Milton Reservoirs.

Guess this Location in the Watershed

(Answer: Confluence Park. S. Platte River and confluence with Cherry Creek. Gold was discovered near here in 1858. Then by 1886, the Burlington head gate was constructed just a few miles downstream of the confluence.)