

MASTER PROPERTY OWNERS ASSOCIATION

Lake Manager's Reports 2017

Randy Stowe, lakemanager@gmail.com

Lake Manager's Report - January 2017

Randy Stowe, lakemanager@gmail.com

1. After the lake iced-up in December, a question arose as to the possible presence of dredging pipeline still extending across the main body of the lake. Further investigation determined that while the vast majority of the dredge pipeline had been removed from the lake, or was moved to the northwest area of West Bay, a section of pipeline at the summer 2016 pipeline crossing was still in place. This crossing location is still marked by "no-wake" buoys, and all sections of this pipeline segment are fully submerged below the ice / lake level. An updated exhibit is attached.
2. The dredging booster pump that was being used last summer at W. Wonder Lake Road has been temporarily re-located for the winter to the dredging staging area at Wonder Marine.
3. Winter lake users are again reminded of the presence of the rip-rap "collars" around Wickline Island and O'Brien Shoals, and that snowmobiles / ATV's are not allowed on the Wonder Lake Dam embankment.
4. The Wonder Lake Sportsman's Club is organizing an invasive brush-clearing project of Yacht Club Island, similar to what was accomplished on Strom Island over last winter. This work will help to set the stage for the up-coming island rip-rap project being funded in part by the Illinois EPA Section 319 grant. Volunteers will (as always) be welcome. The first project day will be this coming Saturday, January 14, 2017. Meet at White Oaks Bay at 9:00 am with lunch served at 12:00. The weather forecast calls for partly cloudy, a high of 30 degrees and light winds, so excuses for not helping out will not be accepted.
5. The 32nd Annual Illinois Lakes Management Association Conference, March 30 to April 1, 2017, to be held at the Crystal Lake Holiday Inn in Crystal Lake, IL is fast approaching. Given the proximity, this would be a great opportunity for WL folks to learn more about a wide variety of lake topics. For more details: <http://www.ilma-lakes.org/conference>
6. Those of you who have attended ILMA conferences in the past know there is a silent auction or bucket raffle each year, which always turns out to be a lot of fun. As always, donations for bucket raffle prizes are always welcome. 100% of the funds generated from the raffle go directly to support ILMA's scholarships, which benefit our next generation of environmental leaders. If you have something to donate, feel free to drop it off at the MPOA office.

Lake Manager's Report – February 2017

Randy Stowe, lakemanager@gmail.com

1. After the lake iced-up in December, a question arose as to the possible presence of dredging pipeline still extending across the main body of the lake. Further investigation determined that while the vast majority of the dredge pipeline had been removed from the lake, or was moved to the northwest area of West Bay, a section of pipeline at the summer 2016 pipeline crossing was still in place. This crossing location is still marked by “no-wake” buoys, and all sections of this pipeline segment are fully submerged below the ice / lake level. The dredging booster pump that was being used last summer at W. Wonder Lake Road has been temporarily re-located for the winter to the dredging staging area at Wonder Marine.
2. Winter lake users are again reminded of the presence of the rip-rap “collars” around Wickline Island and O'Brien Shoals, and that snowmobiles / ATV's are not allowed on the Wonder Lake Dam embankment.
3. The Wonder Lake Sportsman's Club conducted an invasive brush-clearing project of Yacht Club Island on January 14th, similar to what was accomplished on Strom Island over last winter. This work will help to set the stage for the up-coming island rip-rap project being funded in part by the Illinois EPA (IEPA) Section 319 grant. Another work day will be scheduled if safe ice conditions occur. Volunteers will (as always) be welcome.
4. After the last few months of uncertainty coming from Washington DC regarding the viability of approved Federal environmental grants, the IEPA has indicated that, until they hear otherwise, the current Section 319 grants for Wonder Lake shoreline and upstream watershed projects are still alive and kicking.
5. The 32nd Annual Illinois Lakes Management Association Conference, March 30 to April 1, 2017, to be held at the Crystal Lake Holiday Inn in Crystal Lake, IL is fast approaching. Given the proximity, this would be a great opportunity for WL folks to learn more about a wide variety of lake topics. For more details: <http://www.ilma-lakes.org/conference>.
6. The County and the Village recently adopted an Inter-Governmental Agreement (IGA), intended to clarify how permits for shoreline projects are to be handled. The MPOA attorney is currently reviewing the IGA, as it includes the MPOA in the approval process. Lakefront landowners should be aware that the ability to do any shoreline work without first securing the proper permits, and not getting caught, are pretty slim.
7. The lack of snow this winter, if not followed by spring rains, may have an effect on lake water levels later this year. Folks are reminded that real-time information from the Nippersink Creek stream gauge at Thompson Road can be viewed through a link at the bottom of the MPOA website under “Watershed Links”.

Chicago sees least amount of midwinter snow since 1900 – Tom Skilling

- We're more than three-quarters through the heart of winter — mid-December through mid-February — and Chicago has had an extremely rare midseason snow drought. The official Chicago observing site at O'Hare International Airport has recorded just 0.6 inches of snow since Dec. 19, making this the second least snowfall during that time period since snow records began here in 1884. The only time less snow fell during this midwinter period was 117 years ago, during the winter of 1899-1900, when just 0.3 inches of snow was recorded.

Lake Manager's Report – March 2017

Randy Stowe, lakemanager@gmail.com

1. The dredging contractor is making plans to re-mobilize for the 2017 dredging season around the first week of April. The working plan is to first complete the remaining dredging of O'Brien Shoals and Wickline Island, before moving to the South Bay prior to the Memorial Day Holiday, if not sooner. Obviously, the weather at this time of year is still a factor, as below freezing temperatures can be an issue with the pumps and equipment.
2. Lake user's need to be aware of rapidly changing lake conditions as the dredging contractor begins to re-deploy the sediment pipeline, booster pumps, and other dredging-related equipment. Avoiding those areas of the lake is the best bet, when possible.
3. As in past years, the closest the dredging will come to any shoreline in the dredging zones is 20 feet. If you are in those areas, and your pier extends no more than 20 feet from shore, you should be fine. If your pier is longer than 20 feet, it will need to be temporarily removed when the dredge gets to your area, or the extent of dredging conducted in that area will have to be reduced.
4. The County and the MPOA continue to discuss recently adopted an Inter-Governmental Agreement (IGA), intended to clarify how permits for shoreline projects are to be handled by the Village and the County.
5. On February 16, 2017, I was the keynote speaker at the annual meeting of the Illinois Association of Conservation Districts held at Starved Rock State Park. My presentation was focused on all of the activities being done by various Nippersink Watershed partners, including the MPOA and the Nippersink Watershed Association, to protect and enhance water quality.
6. On March 10, 2017, I gave a brief presentation at the 5th Fox River Summit in Burlington, Wisconsin, discussing the upcoming IEPA Section 319 funded watershed projects.
7. The 32nd Annual Illinois Lakes Management Association Conference, March 30 to April 1, 2017, to be held at the Crystal Lake Holiday Inn in Crystal Lake, IL is fast approaching. Given the proximity, this would be a great opportunity for WL folks to learn more about a wide variety of lake topics. For more details: <http://www.illma-lakes.org/conference>.

Lake Manager's Report – April 2017

Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor has re-mobilized, and is continuing to get the equipment and dredge pipeline ready for the start of the 2017 dredging season. Dredging is expected to get underway within the next week.
2. The dredging contractor has indicated that they will first resume work at Wickline Island first so that area can be fully completed. The area remaining to be dredged at Wickline Island is shown below:
3. When finished at Wickline, they will re-position to complete the areas still needing to be dredged at O'Brien Shoals, as shown below:
4. Lakefront landowners in proximity to the Wickline Islands and O'Brien Shoals dredging areas are asked to not install their piers until the dredging is complete in these areas, or the extent of dredging conducted in that area will have to be reduced.
5. Lake user's need to be aware of rapidly changing lake conditions as the dredging contractor begins to re-deploy the sediment pipeline, booster pumps, and other dredging-related equipment. Avoiding those areas of the lake is the best bet, when possible.
6. The 32nd Annual Illinois Lakes Management Association Conference was held at the Crystal Lake Holiday Inn in Crystal Lake on March 30 to April 1, 2017. A large number of Wonder Lake residents took advantage of this opportunity to learn more about a wide variety of lake topics, and meet other lake user's from across Illinois.
7. I am participating in a five week water quality monitoring project, with sampling supplies provided free of cost by, of all places, the Nebraska Watershed Network. Their intent was originally to do this sampling throughout the entire Mississippi River watershed, but the interest from Illinois was so high, they refocused their scope to only include. Testing will include sampling for atrazine, nitrate/nitrites and phosphate.
8. I am attaching a copy of an article from today's Chicago Tribune, discussing water quality issues resulting from the wide-spread use of salt as a de-icing agent.



WICKLINE ISLAND DREDGING PLAN



WICKLINE ISLAND DREDGING PLAN

Road salt drives salinization of lakes

Researchers express alarm about human health, ecosystems

By BEN GUARINO

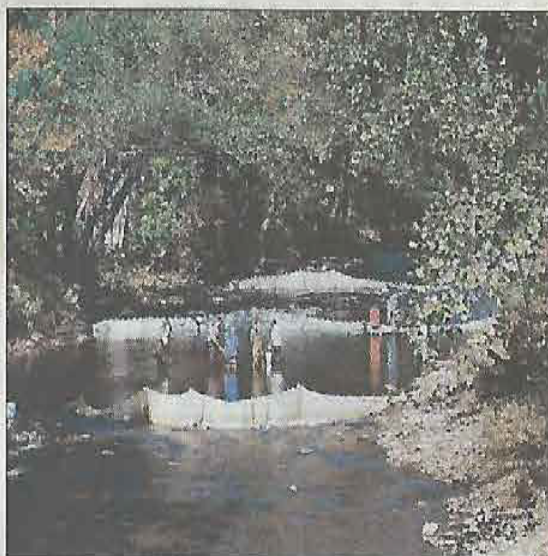
The Washington Post

In the 1940s, Americans found a new way to love salt. Not simply for sprinkling on food — we'd acquired a taste for the mineral long before that — but for spreading on roads and sidewalks. Salt became a go-to method to de-ice frozen pavement.

During the past half-century, annual U.S. sales of road salt grew from 160,000 tons to about 20 million tons, as a group of environmental scientists pointed out in a study published Monday in the Proceedings of the National Academy of the Sciences. Salt kept roads free from slippery ice, but it also changed the nature of North America's freshwater lakes. Of 371 lakes reviewed in the new study, 44 percent showed signs of long-term salinization.

Extrapolating that finding for all of North America, at least 7,770 lakes are at risk of elevated salt levels — a likely underestimate, the researchers said.

Theirs is the first study of freshwater lakes on a continental scope. "No one has tried to understand the scale of this problem across the conti-



HAROLD E. MALDE/THE NATURE CONSERVANCY 1996

Researchers from Frostburg State University study the effects of road salt on aquatic life in a Maryland stream.

nent in the Northeast and Midwest, where people apply road salt," said study co-author Hilary Dugan, a University of Wisconsin freshwater expert.

No federal body tracks how much salt gets spread on our roadways or makes its way into our lakes. So the researchers gathered a vast number of data sets, produced by states, municipalities and universities. The study was the product of several "big, nasty, hairy heterogeneous databases," as co-author Kathleen Weathers, an ecologist at the Cary Institute of Ecosystem Studies in New York, described it.

Each lake in the report had chloride measurements going back 10 years or more, was at least four hectares in size (about nine

football fields or larger) and was in a state that regularly salted its roads during winter. The study authors also analyzed what percentage of the lake was surrounded by an impervious surface. This could be any combination of roadways, sidewalk pavement, boat launches or other hard surfaces.

Impervious surfaces, critically, allow dissolved salt to slide into lakes rather than soaking into soil. If at least 1 percent of the surface circling a lake was impervious, the lake was at risk of high chloride concentrations, the environmental scientists found.

Across all lakes, chloride concentrations ranged from 0.18 to 240 milligrams per liter, with a median of 6 milligrams per liter. (Seawater, by contrast, is much

saltier — an average of about 35 grams per liter.) The Environmental Protection Agency recommends that salt in drinking water exceed no more than 250 milligrams per liter, at which point water tastes salty.

The scientists could not directly measure how much of the chloride came from road salt. But previous research indicated that agriculture, water softeners and other sources played only minimal roles. "Road salt is the major driver for chloride loading," Dugan said.

Environmental scientists had previously observed rising salt levels in the nation's rivers and streams. "These trends have been going on for decades," said Sujay Kaushal, an ecologist at the University of Maryland who was not involved in the new study. Kaushal has assessed freshwater streams that have wintertime salt concentrations up to 40 percent higher than seawater. Saltwater plants now grow in some of these streams.

Lakes are generally less susceptible than streams to changes like salinization. They may also serve as sources of drinking water.

James Gibbs, a conservation biologist at the State University of New York who was not affiliated with the new research, said that combining the lake data

sets must have amounted to a "herculean effort."

Gibbs has studied roadside pools and springs where amphibians lay their eggs and observed a "pretty high reduction in survival rates" of eggs and young in pools contaminated with road salt. Few amphibians live in large lakes, he noted. ("Lakes mean fish, and fish are bad news for amphibians.") But he and other environmentalists are concerned that exotic species, better suited for brackish water or tolerating chloride, will move into saltier lakes.

If current trends continue through 2050, 14 of the lakes studied would exceed the EPA's "aquatic life criterion concentration" of 230 milligrams per liter, the study authors predict. Another 47 would have a chloride concentration above 100 milligrams per liter. "Right now it's about ecosystems and biota," Gibbs said, meaning animal and plant life. "It is kind of alarming. Ultimately, we're looking at a human health issue."

The average water treatment system will not remove dissolved elements such as chloride ions from water. "You can't filter out these salts," Kaushal said.

Increased salt in drinking water poses health problems to humans who have kidney trouble, use dialysis or have hypertension.

Lake Manager's Report – May 2017

Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor has re-mobilized, and based on field observations today, it would appear that the Wickline Island dredging should now be complete.

2. Over the next few days, they will re-position to complete the areas still needing to be dredged at O'Brien Shoals, as shown below. Based on the current position of the sediment pipeline, they plan to work from south to north. They will be at O'Brien Shoals for the remainder of May, and possibly longer, depending on the type of lakebed material they encounter, before moving down to South Bay. The MPOA will post additional info on the MPOA website as we receive it.

Dredged areas in 2017

3. Lakefront landowners in proximity to O'Brien Shoals dredging areas are asked to not install their piers if they extend more than 20 feet from shore until the dredging is complete in that area or the extent of dredging conducted in that area will have to be reduced.

4. Lake users need to be aware of rapidly changing lake conditions as the dredging contractor will be re-positioning the sediment pipeline, booster pumps, and other dredging-related equipment as they progress. Avoiding those areas of the lake is the best bet, when possible. The dredging contractor has placed additional weights on the sediment pipeline at the designated crossing point (which will hopefully minimize the rise and fall of the pipeline) and has added red marker lights on top of the "no-wake" buoys on either side of the crossing point. As in the past, only use this crossing point at the mid-point at a no-wake speed, utilizing your tilt mode if applicable.

5. I have been participating in a five week water quality monitoring project. I take a Nippersink Creek water sample at Thompson Road every Wednesday and use testing strips to identify the levels of atrazine and simazine (pesticides) and nitrate/nitrites and phosphate (nutrients). No elevated levels of any of nitrate/nitrites or phosphate have been detected to date, and no atrazine or simazine has been detected at all.



6. There have been concerns raised about the number of cormorants present on Wonder Lake, and the potential impacts of them roosting on the various islands. If present in sufficient quantities, the "droppings" from cormorants roosting in trees can actually eventually kill off those trees. This is a particular concern on Strom Island, where the survival of large oak trees and on-going restoration efforts could be threatened. Dennis Gallo and I met with an IDNR Wildlife Biologist today to determine what options exist to discourage cormorants, and minimize adverse impacts. We will continue to work with IDNR to develop a management plan.

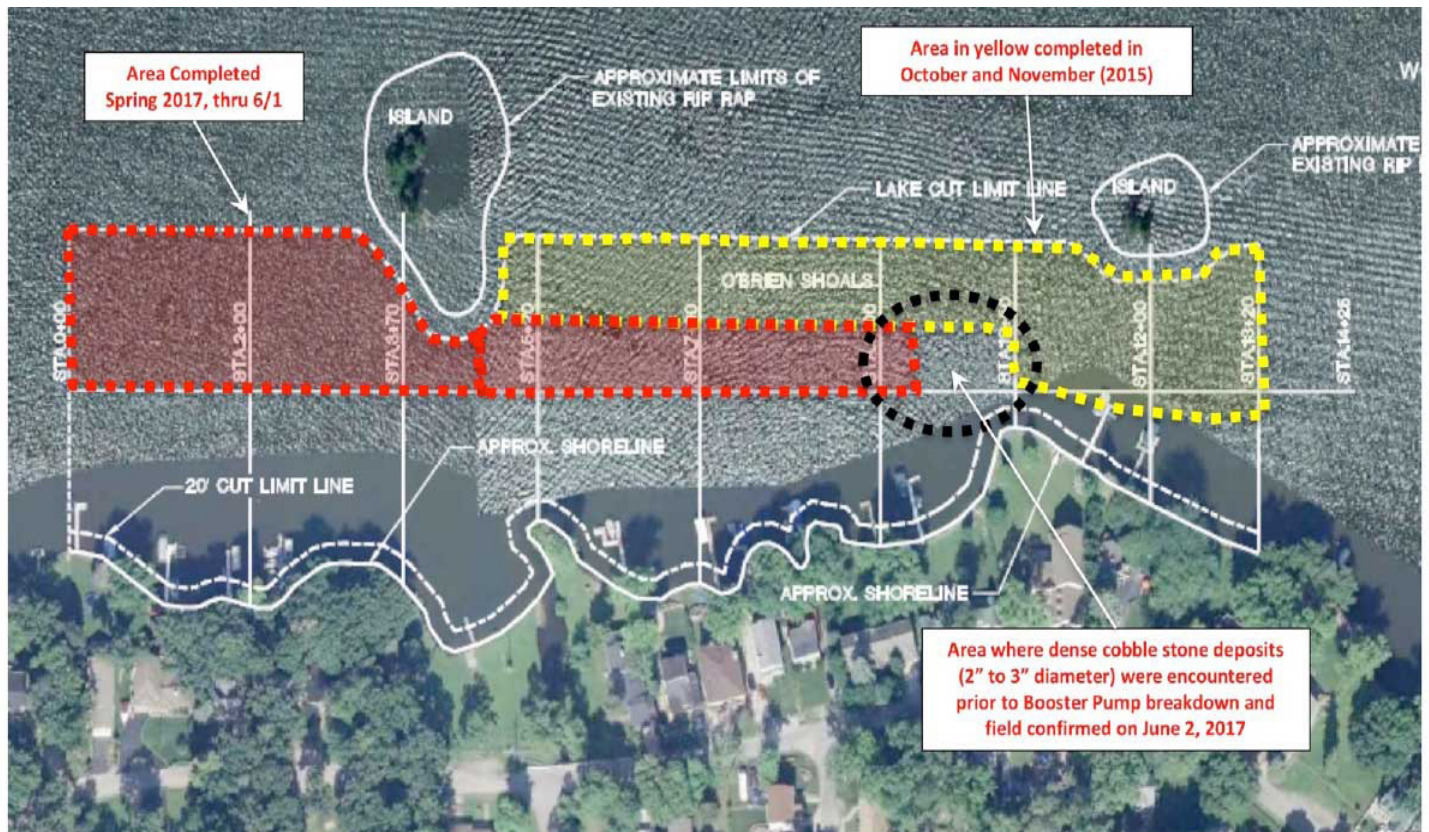
7. We will continue to work with IDNR to develop a management plan.

7. We continue to move forward with the IEPA Section 319 grant projects, including the MPOA's pending project to install shoreline protection around Strom and Yacht Club Islands. We have already received the County Stormwater permit, and will be meeting with the U.S. Army Corps next week to review the application that has been submitted to them. It is hoped that this project can be completed in 2017. Additional 319-funded projects are also being pursued with individual landowners around Wonder Lake as well.

Lake Manager's Report – June 2017

Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor re-mobilized and completed Wickline Island. They then re-positioned and began dredging at O'Brien Shoals. They were able to complete the area shown in red below, before encountering thick deposits of rock "cobble", ranging from golf-ball to tennis-ball size. The dredging of this cobble caused the larger on-shore booster pump to break down, leading to a dredging work stoppage of approximately 11 days until a replacement booster pump could be located and brought in.
2. A June 2nd site visit by the MPOA dredging consultant and dredging contractor, and subsequent field investigations by the dredging contractor, determined that similar cobble deposits are present throughout the remaining areas to be dredged at O'Brien Shoals. Since then, the MPOA dredging consultant and dredging contractor continue to have on-going discussions on how to complete the remaining areas at O'Brien Shoals. In the interim, the dredge has moved back into South Bay so that dredging work could resume. Until an alternative is developed, lakefront landowners in proximity to O'Brien Shoals dredging areas can install their piers, and the MPOA has re-installed appropriate buoys at the typical O'Brien Shoals locations, as needed. The MPOA will post additional info on the MPOA website as we receive it.

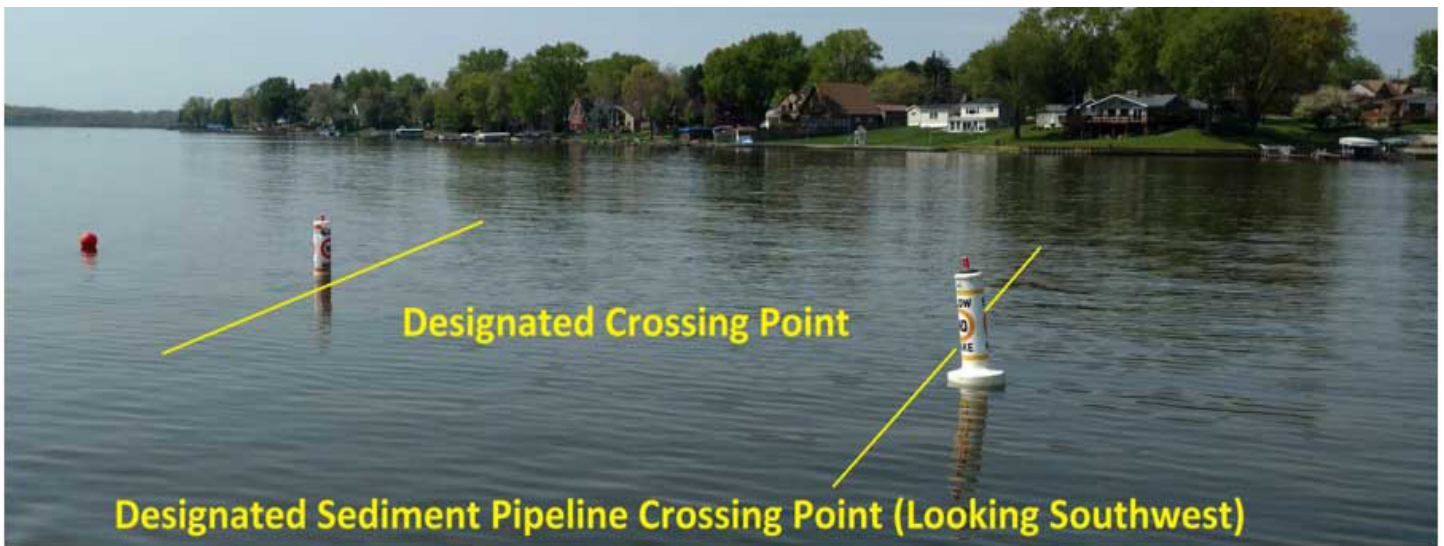


3. We continue to move forward with the IEPA Section 319 grant projects, including the MPOA's project to install shoreline protection around Strom and Yacht Club Islands. We have received the County and Army Corps permits, and it is planned to complete this project in Fall 2017. Additional 319-funded projects are also being pursued with individual landowners around Wonder Lake as well.

4. The on-going effort to discourage Cormorants from congregating on Strom Island seems to be working well.

5. Lake users need to be aware of changed lake bed conditions where dredging has already occurred, particularly near swimming beaches, or other shallow areas. Deeper areas, with drop-offs many now exists that were not previously present.

6. Lake users need to be aware of rapidly changing lake surface conditions as the dredging contractor will be re-positioning the sediment pipeline, booster pumps, and other dredging-related equipment as they progress. Avoiding those areas of the lake is the best bet, when possible. The dredging contractor has placed additional weights on the sediment pipeline at the designated crossing point (which will hopefully minimize the rise and fall of the pipeline) and has added red marker lights on top of the "no-wake" buoys on either side of the crossing point. As in the past, only use this crossing point at the mid-point at a no-wake speed, utilizing your tilt mode if applicable.



2017 Dredging Status (June 13, 2017)

Note: Dredging continues in South Bay as of June 13, 2017 in location shown below; dredge will move from west to east and then continue to south until completion of South bay dredging area. All of South Bay is designated as "No-Wake", and no-wake boating is required at all times when within close proximity of dredging areas and dredge pipeline.



Lake Manager's Report – July 2017

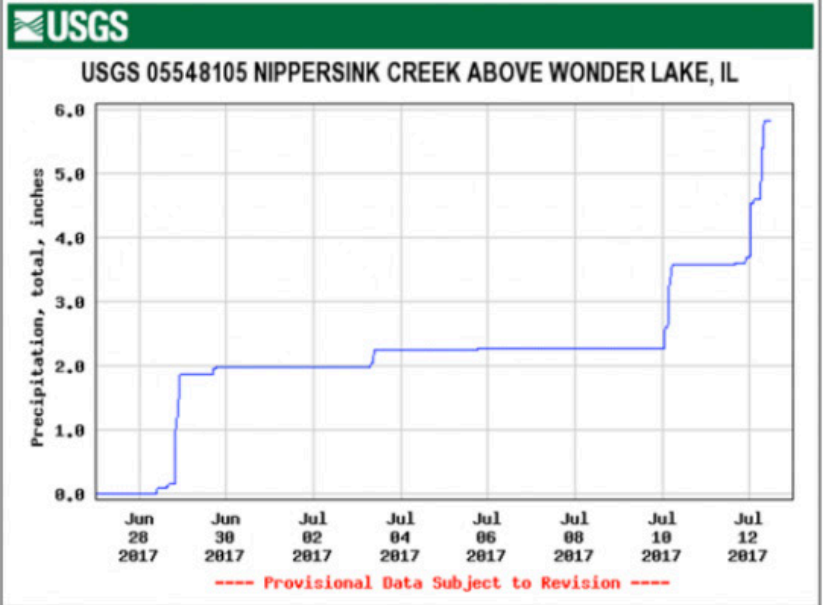
Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor resumed dredging after replacing the damaged booster pump, and continues to move farther into South Bay.
2. The MPOA dredging consultant is continuing to look into possible alternative dredging options to allow the remaining areas at O'Brien Shoals to be completed. Lake users should avoid the area between O'Brien Shoals and the east shoreline, as well as the Troy Creek inlet at Deep Springs Wood Country beach.
3. Lake users are again reminded that the Nippersink Creek Inlet and entire South Bay have been designated as "No-Wake" areas, and marked with No-Wake buoys. Lake users are also reminded that MPOA decals MUST be permanently affixed to the watercraft it is registered to. The Wonder Lake Marine Patrol has been issuing tickets for No-Wake and decal violations.
4. Due to recent heavy rainfall events, the MPOA has had to impose a "No-Wake" restriction on the lake twice in the last two weeks; first on June 29th, and again today. A "No-Wake" restriction is required when large rainfall events occur. This is because woody debris can wash into the lake, posing potential boating hazards. Wakes generated at high lake levels can also cause damage to shorelines, docks, and moored watercraft. Lake users should also remember that heavy rainfall events are also the most common reason for swimming beach closures, based on water sampling conducted by the McHenry County Health Department.
5. In addition to direct observation of the lake during high water events, the MPOA also monitors the stream gage on Nippersink Creek at Thompson Road. This stream gage, operated and maintained by the United States Geological Survey (USGS) under a cost-share agreement between the MPOA and McHenry County, provides real-time information of Nippersink stream conditions on the internet. There is a link to the USGS website on the MPOA website homepage.
6. The USGS gage measures rainfall amount, stream flow (discharge), and the elevation (stage) of Nippersink Creek at Thompson Road. If there is significant rainfall in the Nippersink Creek watershed upstream of the gage, the volume of flow moving down the creek towards Wonder Lake will increase. The flow is measured in cubic feet per second (cfs), meaning how many cubic feet of water is moving past the stream gage each second.
7. As the stream discharge increases, the water surface will also rise. While none of these measured parameters represent exactly what is happening on Wonder Lake itself, we do know that if there is a heavy rainfall, and we see the discharge and stage of Nippersink Creek increase, we will see higher water levels on Wonder Lake. When we see the stream discharge begin to decrease, we know lake levels will also begin to fall, barring any new rain events.
8. The following graphs from the USGS website depict the Nippersink stream condition's leading up to the June 29th high water event, and the high water event currently on-going. Since June 28th, the stream gage recorded almost six (6) inches of rainfall; had flow volumes of over 400 cfs on June 29th, and almost 600 cfs today; causing the stream level to rise 1.5 feet on June 29th, and over 2 feet today. The discharge exhibit also shows a series of small triangles, depicting what the average stream discharge has been each day over the last 13 years. Over the two week period represented in the exhibit, the average daily streamflows ranged from 30 to 60 cfs.

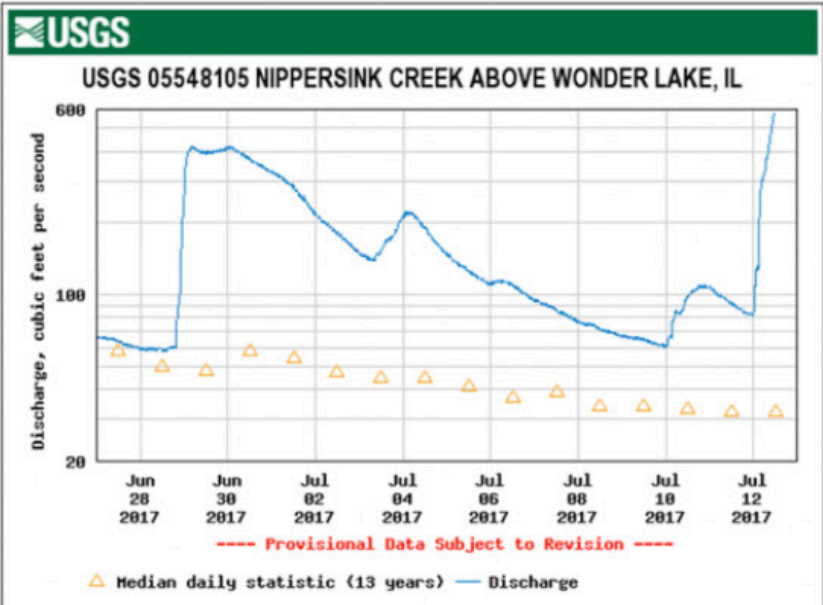
NIPPERSINK CREEK

June 28th – July 12th, 2017

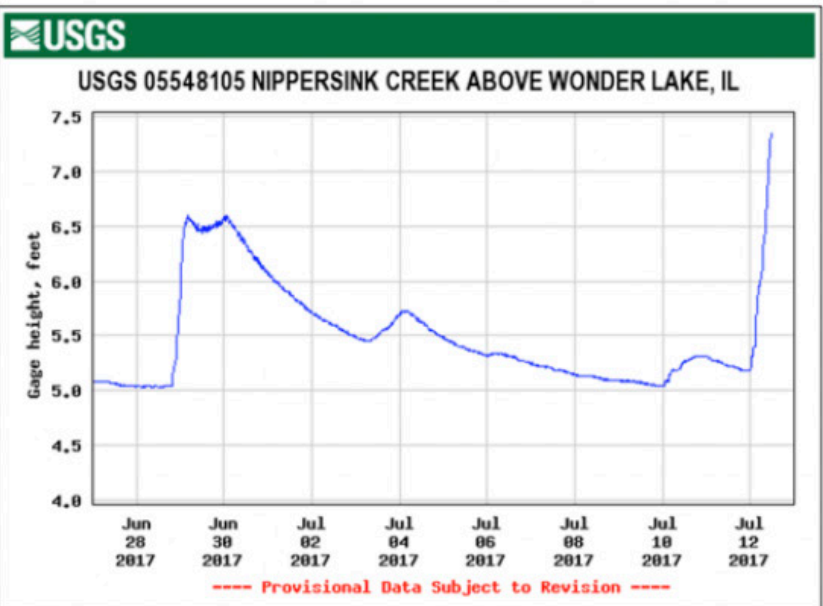
RAINFALL



CREEK DISCHARGE - CUBIC FEET PER SECOND (CFS)



CREEK STAGE

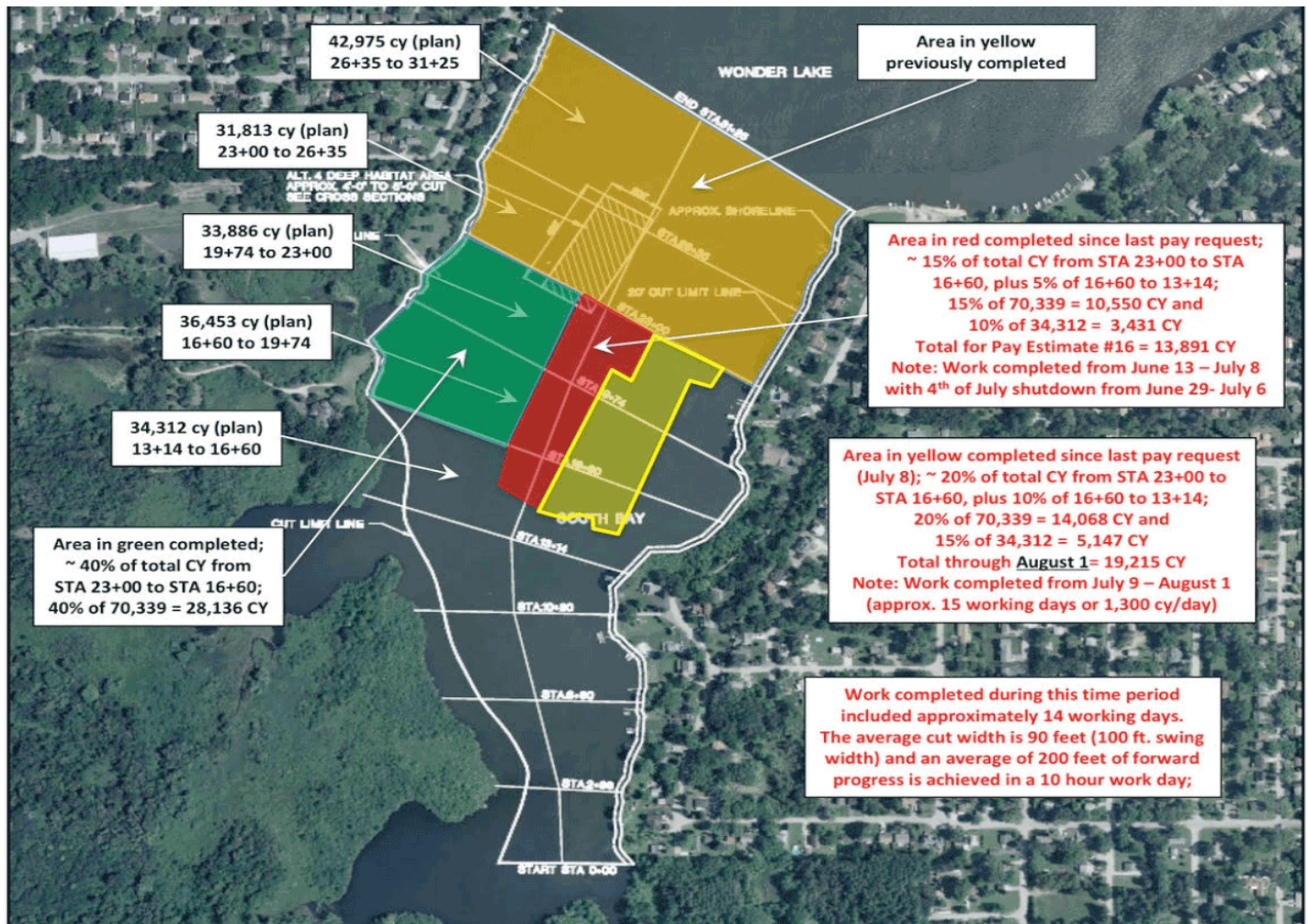


<https://tinyurl.com/y8vezzhl>

Lake Manager's Report – August 2017

Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor continues to move farther into South Bay. They are planning to add an additional dredging shift to increase production.
2. The dredging contractor is planning to continue dredging South Bay until complete or the end of September (whichever comes first). At that point, they will resume work at O'Brien Shoals.
3. Lake users should continue to avoid the area between O'Brien Shoals and the east shoreline, as well as the Troy Creek inlet at Deep Springs Wood Country beach.
4. Lake users are again reminded that the Nippersink Creek Inlet and entire South Bay have been designated as "No-Wake" areas, and marked with No-Wake buoys. Lake users are also reminded that MPOA decals MUST be permanently affixed to the watercraft it is registered to. The Wonder Lake Marine Patrol has been issuing tickets for No-Wake and decal violations.
5. In last month's report, I briefly discussed the factors that the MPOA considers when deciding whether a "No-Wake" or "Lake Closure" is warranted due to heavy rainfall or other events. The following article provides a good summary of how other lake managers have to make similar decisions.



Lake Manager's Report - September 2017

Randy Stowe, lakemanager@gmail.com

The MPOA dredging contractor continues to move farther into South Bay. They have added an additional dredging shift to increase production. The exhibit below shows their progress up to August 11th. dredging sediment

The dredging contractor is planning to continue dredging South Bay until complete or the beginning of October (whichever comes first). At that point, they will resume work at O'Brien Shoals, and then move back into West Bay. As part of their contract, the dredging contractor will be bringing in a specialized surveyor to confirm that the dredging quantities called for in their contract have been achieved.

Lake users should continue to avoid the area between O'Brien Shoals and the east shoreline, as well as the Troy Creek inlet at Deep Springs Wood Country beach.

Lake users are again reminded that the Nippersink Creek Inlet and entire South Bay have been designated as "No-Wake" areas, and marked with No-Wake buoys. Lake users are also reminded that MPOA decals MUST be permanently affixed to the watercraft it is registered to. The Wonder Lake Marine Patrol has been issuing tickets for No-Wake and decal violations.

I am attaching an article from a Wisconsin publication called "Lake Tides". It does a great job of describing issues lake management associations across the Midwest are experiencing.

Lake Manager's Report - October 2017

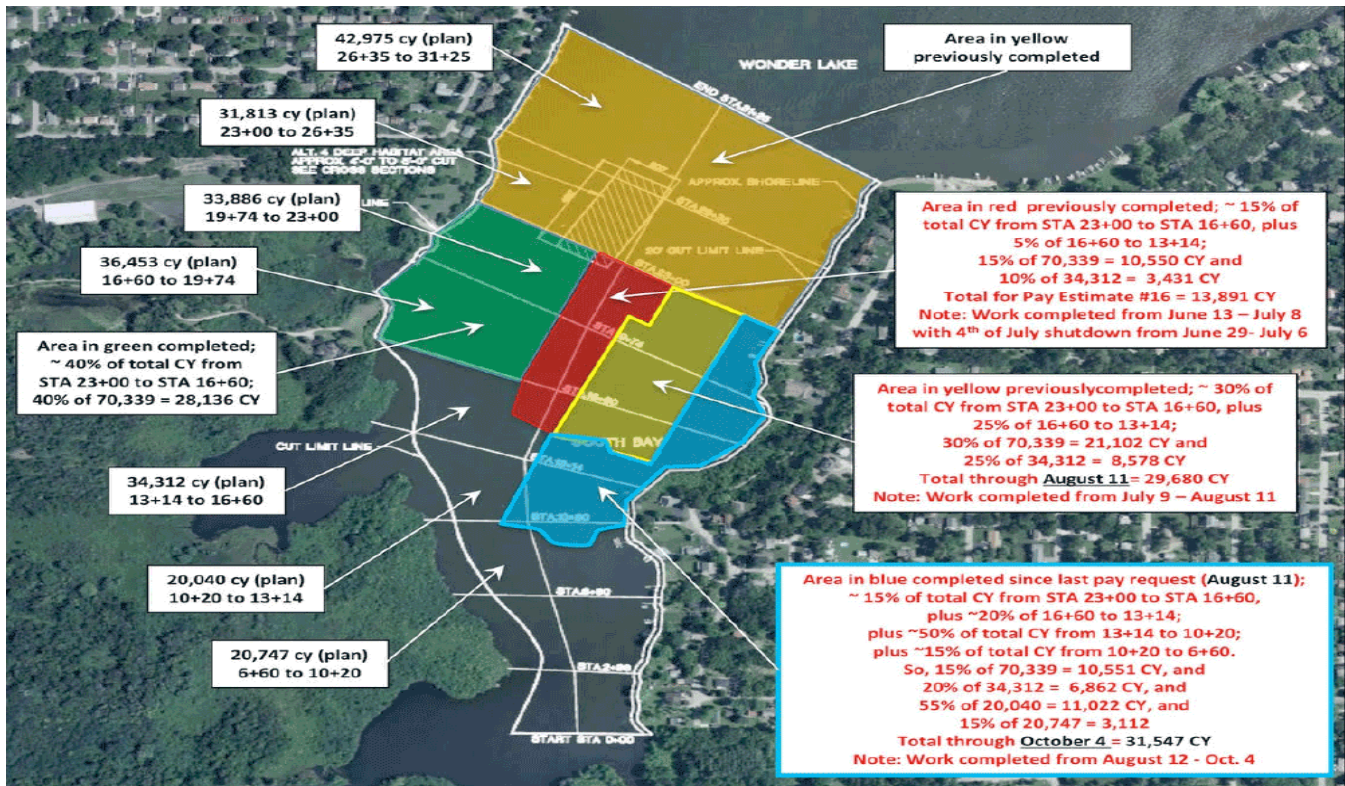
Randy Stowe, lakemanager@gmail.com

The MPOA dredging contractor continues to move farther into South Bay. The exhibit below shows their progress up to October 4th, 2017. To date, approximately 178,000 cubic yards of sediment have been dredged from South Bay, out of the 247,000 cubic yards under contract. Depending on how the weather cooperates this fall, the MPOA dredging consultant estimates that it is still possible that South Bay may be completed by the end of this dredging season. In order to do so, the dredging contractor will be conducting expanded shifts, so everyone's continued cooperation is greatly appreciated.

exhibit 1 10-4-17

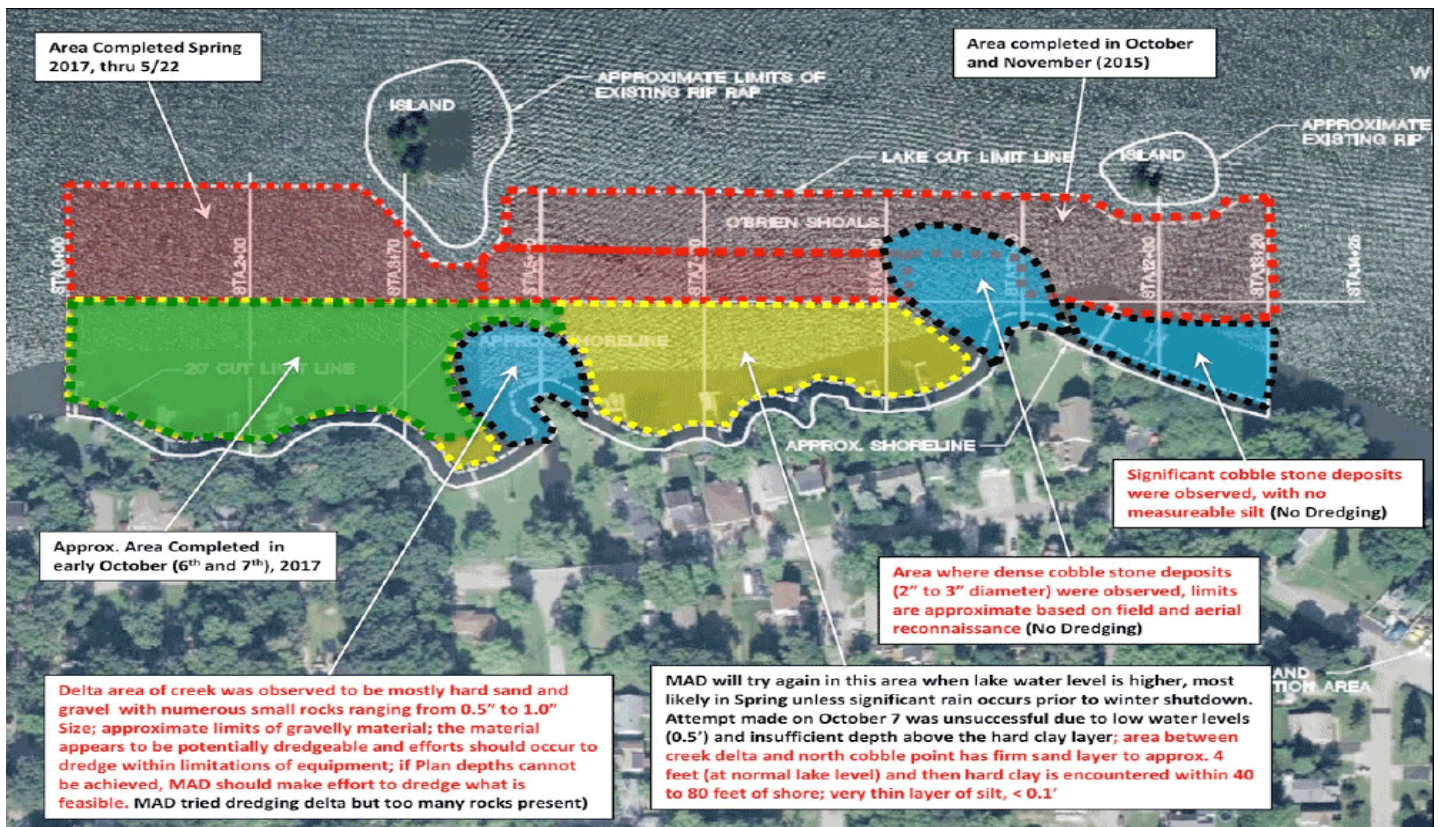
The dredging contract payouts are based strictly on a cubic yard volume basis, which to date have been based on GPS mapping conducted from the dredge, and reviewed by the MPOA dredging consultant. In addition, a post-dredging survey is required to be conducted by a specialized surveyor as part of the contract with the MPOA. The surveyor was out in early October to begin measuring and documenting the actual dredging volumes achieved to date.

The dredging contractor relocated to O'Brien Shoals (OBS) in early October to attempt additional dredging of OBS areas previously found to be comprised of rocky cobble. They were able to complete much of the remaining OBS area under contract, located south of where Troy Creek flows into the lake (shown in green). Dredge access to the "middle" shoreline area at OBS (shown in yellow) was limited to the lake being low from the recent dry spell, but will be re-attempted when water levels come back up. At this time, it is still uncertain as to what will happen to the rocky areas shown in blue.



All MPOA buoys have been removed for the season. Late season boaters will need to use caution when operating near known shallow water areas, as well as anywhere in proximity of the dredge and sediment pipeline.

The annual inspection of the Wonder Lake Dam, and the Wonder Lake SDF, conducted by the MPOA consulting engineers, will be conducted on Friday, October 13th.



Lake Manager's Report – November 2017

Randy Stowe, lakemanager@gmail.com

1. The MPOA dredging contractor continues to move farther into South Bay. The exhibit below shows their progress up to November 7th, 2017. To date, approximately 210,360 cubic yards of sediment have been dredged from South Bay, out of the 247,000 cubic yards under contract.

Lake Stauts by November 2017

2. A review of preliminary survey data by the MPOA dredging consultant suggests that the dredging contractor has actually dredged South Bay 0.75 feet deeper than what is called for in the project plans / contract. The MPOA is only required to pay for dredging to the design depth in the plans / contract, so South Bay will be slightly deeper, at no cost to the MPOA.

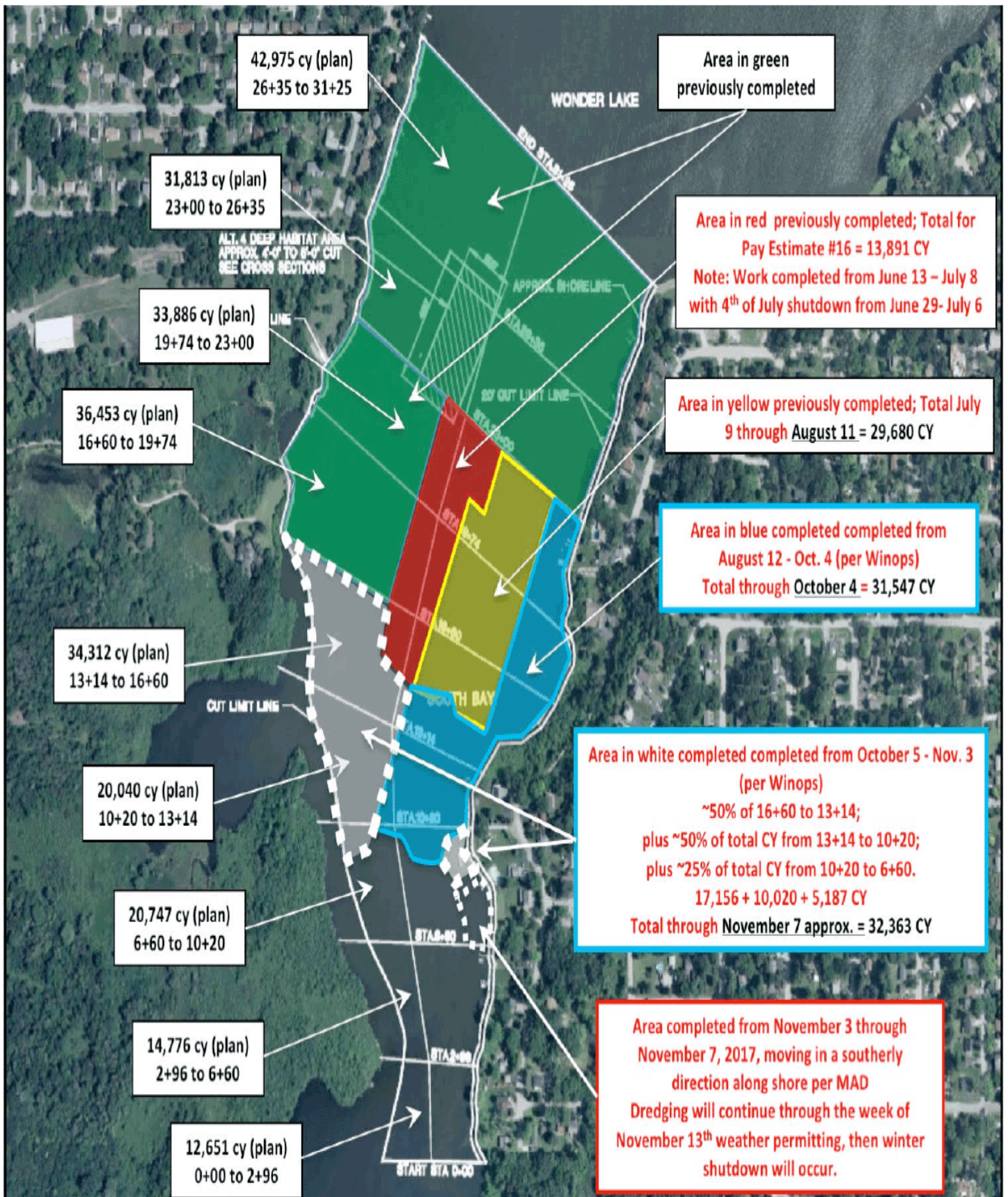
3. Based on the current weather forecast, the plan is for the dredging contractor to their begin winter shutdown during the week of November 13th. The dredge will be removed from Wonder Lake over the winter for servicing / maintenance, but will return in Spring 2018. It is hoped to get South Bay and the remaining areas at O'Brien Shoals completed as early as feasible in 2018, so that the remaining areas to be dredged in West Bay will be off the main body of the lake.

4. The annual inspection of the Wonder Lake Dam, and the Wonder Lake SDF, was conducted by the MPOA consulting engineers was conducted on Friday, October 13th. No issues were raised by the MPOA or State engineers who participated.

5. On November 3rd, I made a presentation near Port Washington, Wisconsin on the efforts of the Nippersink Watershed Association to protect the water quality of Nippersink Creek and Wonder Lake.

6. I was invited by the Illinois Environmental Protection Agency to make a presentation in Springfield on November 30th, about how to successfully apply for Section 319 grants. To date, the Nippersink Watershed has received over \$ 2 million in Section 319 water quality grants, matched against an additional \$1.3 million in local cost-share funding to implement watershed implementation projects that help protect and enhance Nippersink Creek and Wonder Lake.

7. Two Section 319 funded projects were implemented in the Nippersink Creek Watershed above Wonder Lake this fall. Both projects included streambank stabilization to reduce erosion, as well as the planting of native species as riparian buffers. As part of these projects, approximately 80 acres of Nippersink Creek stream corridor above Wonder Lake are now permanently protected.



Lake Manager's Report – December 2017

Randy Stowe, lakemanager@gmail.com

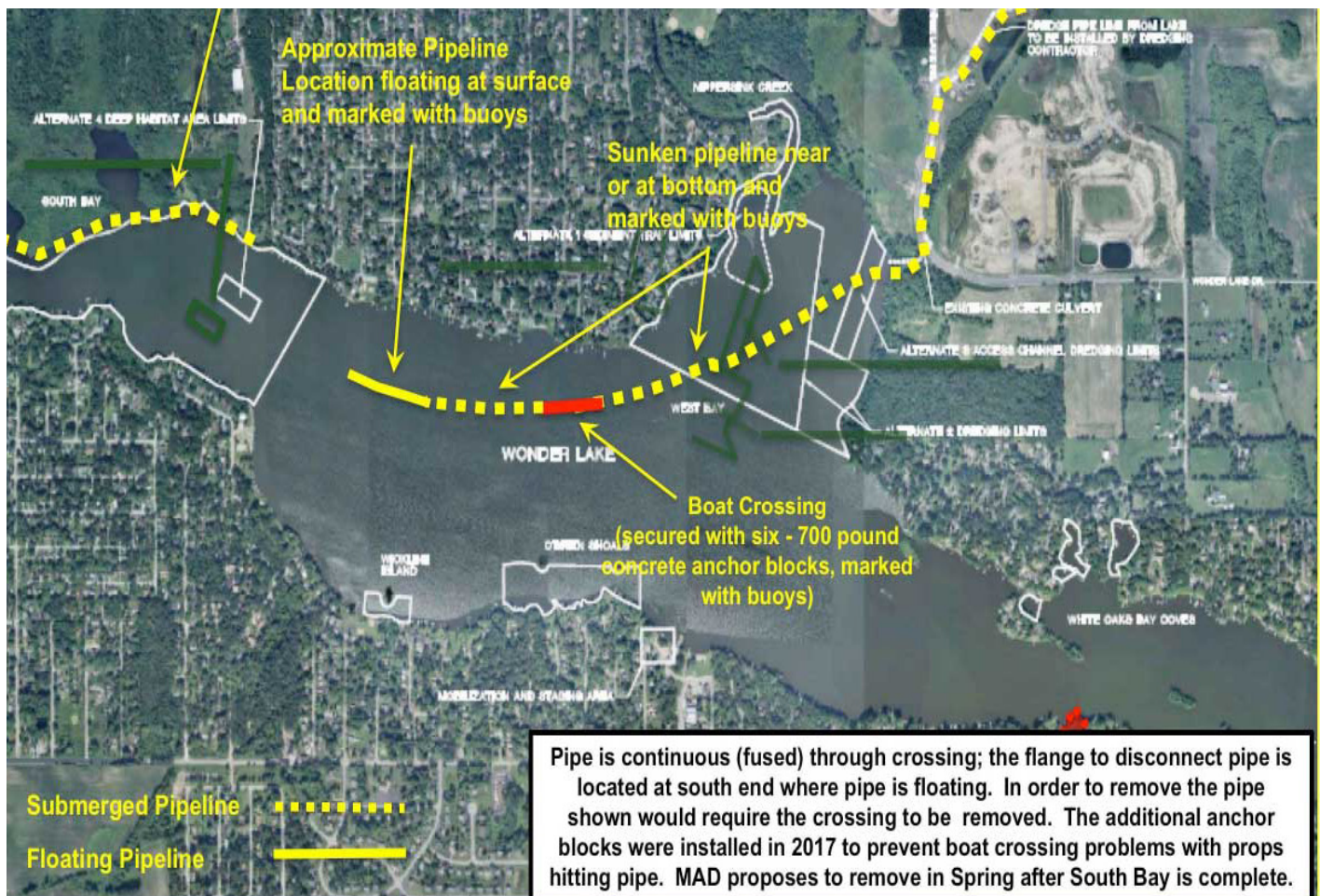
1. The MPOA dredging contractor has shut down for the winter. All of the in-lake sediment pipeline in West Bay and through the designated boating season pipeline crossing has been “sunk” for the winter. South of the designated crossing, a portion of the pipeline is floating at the surface and has been marked by buoys. The remaining pipeline south of that point has been detached and moved into the southern part of South Bay, and secured against the west shoreline.

2. Any winter lake user should use extreme caution when in the vicinity of the floating pipeline (as shown below), roughly between Wickline Islands on the east and the Highland Shores beach on the west. Winter lake users are also reminded of the presence of the rip-rap “collars” around Wickline Island and O’Brien Shoals.

Winter pipeline position

3. The dredge will be removed from Wonder Lake over the winter for servicing / maintenance, but will return in Spring 2018. It is hoped to get South Bay and the remaining areas at O’Brien Shoals completed as early as feasible in 2018, so that the remaining areas to be dredged in West Bay will be off the main body of the lake.

4. The water samples from last groundwater monitoring event of the year, as mandated by our IEPA dredging permit, were delivered to the state-approved testing lab on December 4th. The most recent lab results are not back yet, but none of the IEPA groundwater testing done to date, since the start of the dredging, have indicated any issues related to groundwater quality or compliance with our IEPA permit.





Wetter Summer Weather Yields Water Woes

By Eric Olson, Director, UW-Extension Lakes

Summer 2017 is shaping up to be extraordinarily wet for Wisconsin, with some portions of the state seeing over two times their normal summertime rain totals. In early July, southeastern Wisconsin experienced nearly a foot of rain in one 24-hour period, causing riverway flooding and requiring boating restrictions on numerous lakes. Wet summer weather often leads to poor lake water clarity and algal blooms. To understand why that's the case, we need to look closer at what influences water quality, how watersheds function, and the impacts of land use change on runoff.

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ost of our concern with lake water quality focuses on how clear the water appears. Volunteers and professionals collect Secchi disc measurements to allow us to track clarity over time and across different water bodies. Researchers can compare measured clarity with water samples to understand why clarity varies over time and across lakes. The amount of suspended algae and sediment in the water is often the main determinant of how clear the water appears.

Abnormally wet summer weather will increase the amounts of sediment, nutrients and algae found in a typical lake. Additionally, blue green algae blooms are more common in warm, nutrient rich (eutrophic) bodies of water. Runoff from hot summertime rains provide the perfect fuel for algal blooms, but it's not the rainwater by itself that's driving change.

Rainwater alone is relatively nutrient poor, but once it makes contact with the ground and becomes stormwater runoff, it picks up a range of sediment particles and delivers them to

(Continued on page 2)



Jake Vander Zanden

Fish and other aquatic animals were directly effected by low oxygen levels from a blue-green algae bloom on Lake Mendota, brought on by this summer's mid-June heavy rains.

Learn more about Lake Mendota's recent blue-green algae bloom and the science behind lake health: <http://blog.limnology.wisc.edu/madison-in-bloom-blue-green-algae-hits-lake-mendota/>

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Wisconsin Lakes Partnership

(Wetter Summer Weather, continued)

Impervious surfaces are hard, man-made surfaces such as rooftops, driveways, roads, parking areas and patios where rain and melting snow can no longer soak into the ground.

Lynn Markham from the Center for Land Use Education has produced a short online video exploring the impacts of impervious surfaces on water: <https://youtu.be/UPjPnaGNB1c>

The City of Milwaukee is estimated to be 46% covered with impervious surfaces.

Madison Area Municipal Stormwater Partnership and the Dane County Land & Water Resources Department have collaborated to create "Ripple Effects," an online clearinghouse for rain garden, rain barrel and yard care to protect lakes and streams: <http://www.ripple-effects.com/>

streams, rivers, and lakes. In any single rain event, there is a direct relationship between the amount of rain, the volume of runoff, and the capacity of that runoff to carry larger and larger particles. We observe this on exposed soils whenever runoff is heavy enough to create rivulets or even gullies. The volume of runoff reaching a river or lake is closely related to the land use and percent of a watershed covered by impervious surfaces.

Prior to European settlement, forests and prairies dominated the landscape and

Wisconsin's watersheds mostly lacked impervious surfaces (except places with exposed bedrock). The topography of the land surrounding lakes was complex and uneven, with decaying logs and myriad holes from places where trees had blown down from hundreds of years of storms. This situation was ideal for lake clarity, since most runoff would be slowed down and would soak into the ground before reaching open water.

Today's landscape around lakes provides a stark contrast to the pre-settlement era. With tractors and bulldozers, humans leveled out the land and removed many low spots where rain once

collected and soaked into the ground. The amount of impervious surface has dramatically increased through buildings, roads and parking lots. Beyond impervious surfaces, lawns, ditches and swales present a landscape that is intentionally designed to quickly move water away. Along roads and highways, for example, engineers require that water not be allowed to collect and soak into the ground as it would potentially reduce the lifespan of the road itself. Gutters and storm sewers are designed to efficiently get stormwater away from development and into streams, ponds, rivers and lakes.

The same logic is found on farmland, where too much standing water can reduce yield or

even drown crops. Over time, plowing and tilling farmland has smoothed out the land to reduce the amount of land where water gathers and slowly soaks into the ground. Subsurface tile drains and ditches help move water away from farmland. In both farmland and cities, wetland areas that once slowed the movement of water are drastically reduced from what they were 150 years ago.

This modified landscape produces predictable results when heavy summer rains occur: massive amounts of water move fast across the land and quickly fill in low areas. The stormwater carries more sediments and nutrients, eventually depositing them into rivers and lakes. The potent water comes into lakes at or near the surface, and in summer the lake is already stratified with warm water at the top, so the new polluted runoff tends to stay near the surface. If lake levels increase from stormwater, waves at the shoreline can re-suspend nutrient rich sediments that tend to accumulate above the ordinary high water mark. Add a long period of daytime sunshine and warm air over the lake surface and you'll find a perfect condition for blue-green algae blooms.

This was the exact scenario that played out in Lake Mendota in Madison on June 16 of this year. The area had just received five days of wet weather totaling over three inches in rain. This was followed by a hot, calm, sunny day. The resulting blue green algae bloom was the largest in over 20 years, according to Dr. Stephen Carpenter, director of the UW-Madison's Center for Limnology. The bloom eventually moved into the stretch of the Yahara River that connects Mendota to Lake Monona. The riverway became a grim scene of dead fish, crayfish and even baby ducks.

In addition to land use, our weather is changing to make large summer storm events more common. Summer has always been the period when most precipitation falls in Wisconsin. On average, over a third of our annual total falls during the months of June, July and August. In recent years, a larger portion of that summer precipitation has been coming in the form of heavy rains. Records compiled by the Great Lakes Integrated Sciences and Assessments





Photos by Robert Korfh

Program (GLISA) at Michigan State and the University of Michigan reveal that the amount of precipitation falling in the heaviest 1% of storms increased by 37% in the Midwest from 1958 to 2012. The researchers also project that heavier storms will increase in frequency at a faster rate than storms that are less intense.

Learn more about recent findings on rain intensity at the Great Lakes Integrated Sciences + Assessments website: <http://glisa.umich.edu/>

These heavy storms are creating new challenges for communities, lake organizations and landowners working to protect and improve lake water quality. The rain falls so hard and so fast that the landscape cannot absorb or slow down the water. Major storms overwhelm storm sewers and flood roads, sometimes washing them out entirely and yielding tons of soil into streams and lakes. Waste treatment plants, often located on low areas near waterways, can be inundated by floodwaters, rendering them ineffective. In response, we need to rethink our landscape and begin the work of enhancing the land's capacity to slow down and infiltrate rainwater.

While the task may seem monumental, there are signs that communities and people are taking the right steps to mitigate the potential impact of large summer storms. In and around Milwaukee, where stormwater and sanitary sewers are largely in one shared conveyance system, there is tremendous incentive to mimic the pre-settlement landscape through green infrastructure that allows water to soak into the

Explore Milwaukee's green infrastructure plan: <http://www.freshcoast740.com/>

ground rather than move across the land. This includes a range of practices from simple steps like installing rain gardens and rain barrels to more involved projects such as bioswales and cisterns. The Milwaukee Metropolitan Sewerage District plans to add 740 million gallons of stormwater capacity through green infrastructure by the year 2035, which would allow 14.8 billion gallons of water to infiltrate into the groundwater table annually.

On a smaller scale, every shoreland property owner can take simple steps to reduce the yield of summertime rain coming off of their land and going directly into the lake. Stormwater infiltration practices like French drains and rain gardens direct rainwater back into the ground, reproducing the effect of the pre-settlement landscape. Rain barrels and cisterns can store rainwater for later use and limit the amount of runoff generated by rooftops. Shoreland buffers help filter runoff moving across the land toward the lake. Property owners can also rethink the impervious surfaces on their property and either remove structures that are no longer needed or explore pervious alternatives.

We are not going to accomplish this task overnight, but we need to remember that Wisconsinites have been heavily modifying the landscape towards faster stormwater movement for about 150 years. It's reasonable to expect work to reverse this may stretch out for decades. What is most important is the direction we are headed: we need to work together to restore the land's ability to slow down and infiltrate runoff, naturally sustaining healthy waterways. ♣

Since the state of Wisconsin was first settled, one half of our wetlands have been destroyed, drained or filled.

The Wisconsin Healthy Lakes program provides technical guidance and potential cost-sharing to shoreland property owners looking to install shoreland buffer, rain garden, stormwater diversion or infiltration practices. <http://healthylakeswi.com/>

