



**US Army Corps
of Engineers®**

Pittsburgh District

Planning and Environmental Branch
William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Public Notice Date: 17 May 2018
Expiration Date: 16 June 2018

NOTICE OF AVAILABILITY

Draft Environmental Assessment

Planned Deviation to the Water Control Plan for 2018 calendar year at Berlin Lake, Ohio

The U.S. Army Corps of Engineers, Pittsburgh District (USACE) is evaluating a proposed temporary planned deviation to the Water Control Plan for the 2018 calendar year at Berlin Lake, Ohio.

The USACE invites submission of comments on the environmental impact of the approval of the planned deviation request. The USACE will consider all submissions received before the expiration date of the public comment period. The nature or scope of the proposal may be changed upon consideration of the comments received.

The **draft Environmental Assessment and draft Finding of No Significant Impact** are available electronically at:

<http://www.lrp.usace.army.mil/Missions/Planning-Programs-Project-Management/>

Comments can be submitted to the address posted at the top of this notice or to berlindeviation18@usace.army.mil. Comments must be received by 16 June 2018 to ensure consideration.

ENVIRONMENTAL ASSESSMENT

PLANNED DEVIATION TO THE WATER CONTROL PLAN AT BERLIN LAKE, OHIO



MAY 2018



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1. INTRODUCTION

The purpose of an Environmental Assessment (EA), as reflected in 15 CFR sections 1500.1(c) and 1508.9(a)(1) of the Council on Environmental Quality regulations implementing the National Environmental Policy Act of 1969 (as amended) is to “provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact” on actions authorized, funded, or carried out by the federal government, and to assist agency officials in taking actions that are based on understanding of “environmental consequences, and take actions that protect, restore, and enhance the environment.” This assessment evaluates environmental consequences for a proposed temporary Planned Deviation to be carried out by the U.S. Army Corps of Engineers (USACE), Pittsburgh District (Corps) at Berlin Lake. A Planned Deviation is an intentional and scheduled request to deviate from the Water Control Plan (WCP). The request is prepared at the District level and submitted to the Division for approval.

1.1. Project Location

Berlin Lake (Figure 1) is located to the west of Berlin Center in Stark, Portage and Mahoning Counties, Ohio. The Berlin Lake Dam is located at Mahoning River mile 70.7. The Mahoning River flows into the Beaver River in Pennsylvania. The distances (by stream miles) from Berlin Dam downstream to Milton Dam (a non-federal project) is 7.7 miles, to Leavittsburg, Ohio, is 24.3 miles, to Warren, Ohio, is 29.8 miles, to Youngstown, Ohio, is 46.7 miles, to the mouth of the Mahoning River is 70.7 miles, and to the mouth of the Beaver River is 92.4 miles. The dam controls the runoff from 249 square miles of the total 1,140 square mile drainage area of the Mahoning River, located in northeastern Ohio and west central Pennsylvania. About 1,085 square miles or 96 percent of the drainage basin is located in the Ohio counties of Ashtabula, Geauga, Trumbull, Portage, Mahoning, Stark and Columbiana, and the remaining 4% is located in Lawrence County in Pennsylvania.

The Mahoning River headwaters begin in Columbiana County, Ohio, about 12 miles southeast of Alliance. It flows generally northward to a point near Warren, Ohio, where it turns towards the southeast and flows through the communities of Leavittsburg, Warren, Niles, Youngstown, and Lowellville, Ohio, and then into Pennsylvania. There it joins the Shenango River to form the Beaver River (Figure 2).

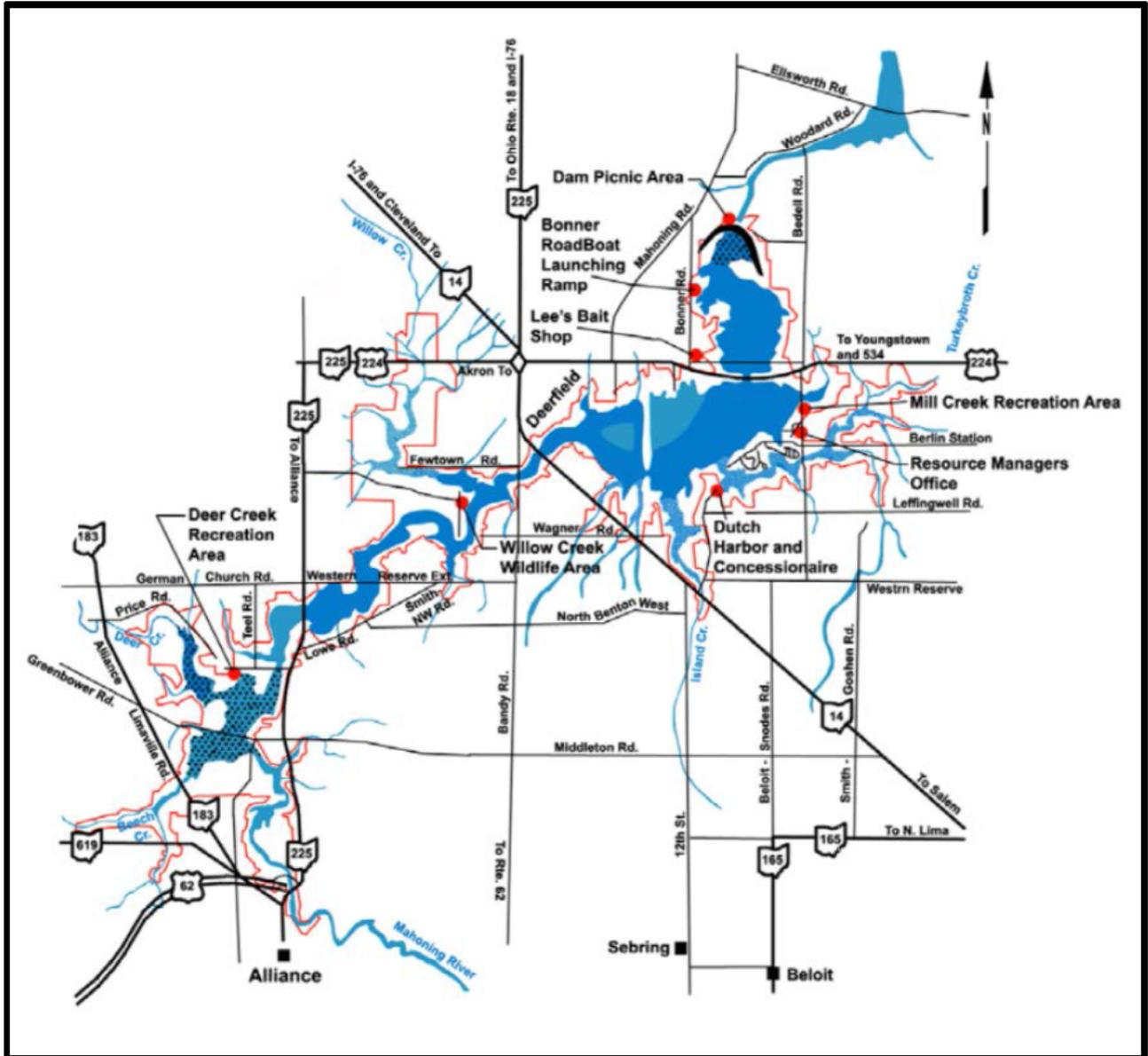


Figure 1. Berlin Lake Map

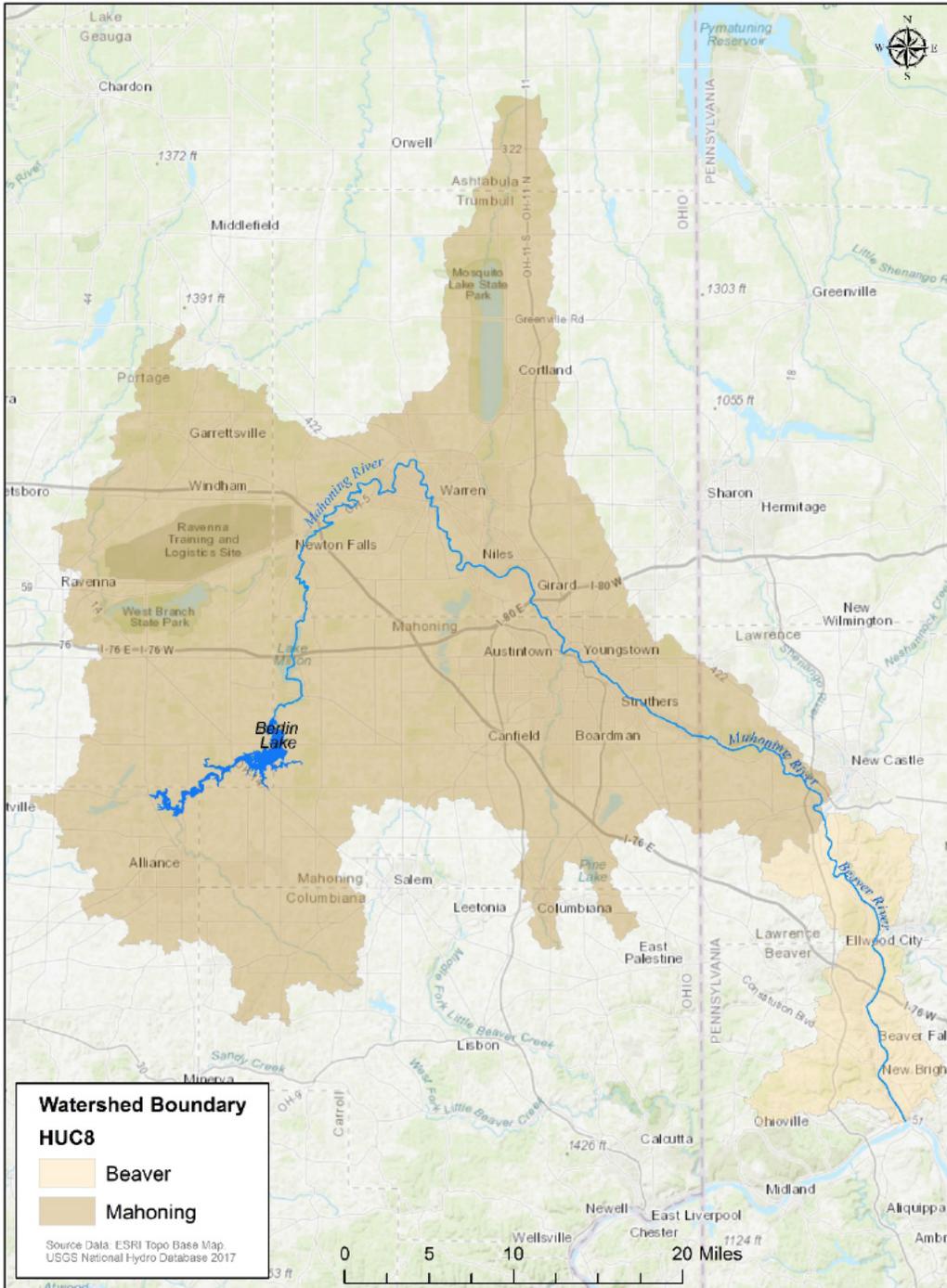


Figure 2. Mahoning and Beaver Watershed Map

damages estimated to be in excess of \$1.7 billion. The Project is operated to meet downstream flow requirements at Leavittsburg, Ohio.

The Corps is responsible for water control management at the Project and implements its authorized project purposes by means of an approved WCP. The Corps follows the WCP to operate the reservoir. The WCP is located within the Berlin Reservoir Water Control Manual. Planned Deviations from the approved WCP may be authorized at the Division level (Great Lakes and Ohio River Division), provided that they do not adversely affect the fulfillment of the Project's authorized purposes. The Project is operated to provide as stable a pool as possible to the extent compatible with other authorized purposes.

The Army Corps of Engineers is bound by the congressionally-authorized purposes of the reservoirs. Any temporary deviation from the WCP must not adversely impact the authorized purposes of flood control, downstream water quality, and water supply. Any change to the purposes of a Federal reservoir, including storage reallocation for recreation, requires congressional approval through a reallocation feasibility study. Corps feasibility studies are regularly cost-shared with a non-Federal sponsor (typically as a 50/50 cost share between the Federal government and the non-Federal sponsor).

A permanent change to the WCP would require a new NEPA analysis and a public outreach effort would be conducted. Before considering permanent changes to the current WCP, impacts on water quality must be thoroughly analyzed. This would require intensive study, including but not limited to basin-wide water quality modeling; continuous water quality monitoring in the reservoir and the Mahoning River; analyses of current and future pollution loads; an assessment of the assimilative capacity of the Mahoning and Beaver Rivers; and analyses of reservoir productivity and sedimentation rates.

1.3. Purpose and Need

During the Berlin Visioning Meeting held on 10 July 2017, participants noted a desire to extend the summer recreation season for boating. Local residents, business owners and organizations have requested that the Corps deviate from the WCP in order to maintain a higher reservoir level for a longer period for the purposes of recreation. The intent for the deviation, as expressed by attendees in the meeting, is to facilitate the use of recreational boats throughout a longer portion of the summer recreation season in order to economically benefit the surrounding community. With the current draw down schedule, the reservoir drawdown begins at the end of June to reach winter pool by late August.

The purpose of the proposed 2018 calendar year Planned Deviation from the WCP is to act as a pilot project. The proposed Planned Deviation period during the 2018 calendar is the four month period from July 1 through mid-October. The pilot project would allow the Corps to further understand benefits and impacts of a longer term WCP modification. Provided that the 2018 Planned Deviation does not significantly increase the risk of flooding, impact flow requirements at Leavittsburg, or negatively impact water quality, further Planned Deviations may be considered in future years. A cumulative look

at several Planned Deviations could be used to support a full study for a permanent change to the WCP.

2. ALTERNATIVES CONSIDERED

2.1. No Action Alternative

Under the No Action Alternative, the Corps would not deviate from the WCP. No modification to the schedule of reservoir pool changes would occur.

2.2. Deviation to Extend Summer Pool Term

Under this alternative, the Corps would maintain Berlin Lake at the maximum summer conservation pool (summer pool) elevation of 1024 ft (NAVD88), until after Labor Day in order to maximize recreation potential for the local community.

If low rainfall were to occur within the watershed in the late summer of 2018, implementation of this alternative could result in the inability to meet the downstream flow requirement at Leavittsburg.

2.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

This alternative allows the Corps to meet the downstream flow requirements at Leavittsburg, while also possibly allowing additional recreation at Berlin Lake during the summer. If there is sufficient rainfall in the watershed to continue to meet the downstream flow requirement and there are no negative impacts to water quality, the reservoir level would be held at summer pool levels until the end of July and then a gradual drawdown to elevation 1021 ft (NAVD88) by Labor Day would occur, followed by a drawdown to winter pool, 1015.9 ft (NAVD88), by late October.

If low rainfall were to occur during the months proposed for the 2018 Planned Deviation, the District would continue to release water in accordance with the WCP in order to meet the downstream flow requirement which would result in corresponding drop in the reservoir level. It is possible that with the implementation of this alternative, given dry weather conditions, no change would be noticeable in terms of the reservoir level from a non-deviation year. However, given wet weather conditions, a higher reservoir level could be maintained while continuing to meet the downstream flow requirement for water quality and water supply.

2.4. Mitigation Features

Mitigation for effects of a proposed action is evaluated as part of documentation under NEPA, such as this EA. Mitigation can take any of the following forms:

1. Avoiding the effect altogether by not taking a certain action or parts of an action.
2. Minimizing effects by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the effect by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the effect over time by preservation and maintenance operations during the life of the action.
5. Compensating for the effect by replacing or providing substitute resources or environments.

Project impacts are expected to be minimized by choosing to maintain the required downstream flow requirements and by initiating drawdown procedures (terminating the Planned Deviation and returning to the WCP) if the authorized purposes of the Project are impacted. If negative impacts to water quality in the reservoir and/or the regulated reach of the Mahoning River downstream of the Dam occur, measures will be implemented to avoid and/or minimize potential negative water quality impacts (see Section 3.2.3 for further discussion).

2.5. Recommended Plan

The Corps recommends the Deviation to Extend Summer Pool Term and Meet Flow Requirements Alternative (see Figure 4). The downstream flow requirements at Leavittsburg are described in the Berlin Reservoir Water Control Manual, and were developed based on minimum downstream flow requirements, established by the U.S. Public Health Service in 1965. This alternative incorporates water quality monitoring (see Section 3.1) to minimize risks to the authorized water quality purpose of the Project while potentially allowing the community to benefit from increased recreation by striving to hold the summer pool through Labor Day.

This Planned Deviation is proposed for July through October 2018 only and will act as a pilot project to allow the Corps to further understand the benefits and impacts of a possible longer-term deviation.

As per Engineering Regulation (ER) 1110-2-240, Planned Deviation requests to the WCP in the Great Lakes and Ohio River Division (LRD) must be submitted by the District Commander or their designee to the Water Management Division Chief in LRD. The requests must be submitted and approved prior to commencing the deviation activity.

The Corps proposes to submit a request for the recommended Planned Deviation analyzed within this EA to LRD. The request would address a number of components including environmental coordination and compliance, other agency coordination, documentation of NEPA compliance, and public coordination which are supported by this draft EA.

As discussed further in Section 5, this draft EA will be available for public comment. The final Planned Deviation request would include all comments received as well as the final EA. The nature or scope of the proposal may be changed upon consideration of the comments received on the draft EA.

Initial analyses, as described below in Section 3, indicate that by choosing the alternative that maintains the downstream flow requirement along with water quality monitoring, the expected impact from the proposed temporary Planned Deviation should be minimal. In order to support the implementation of the Planned Deviation in 2018, the draft EA relies upon the best professional judgment of Corps' team members to determine impacts using available data.

3. ENVIRONMENTAL RESOURCES OF CONCERN

The surrounding ecosystem is accustomed to the rising and falling reservoir levels which result from adherence to the WCP. Summer pool levels may be held longer with the recommended plan. This may increase reservoir storage and retention time, which

could lead to stronger reservoir stratification, higher biological productivity, and greater hypolimnetic anoxia, negatively impacting reservoir water quality and aquatic life. As the Corps' recommended plan includes no construction or structural change, there are no expected impacts to many resources, including: vegetation, soils, topography, wildlife, threatened and endangered species, and cultural resources. The proposed Planned Deviation is not expected to significantly increase the spread of invasive species. The proposed Planned Deviation is only for 2018, therefore no impact to surrounding land use is anticipated.

A qualitative climate change impact assessment has been performed for the Upper Ohio River basin (HUC4) based on guidance provided in ECB 2016-25. In the context of the Planned Deviation for Berlin Lake, this qualitative analysis indicates that the potential impacts to the ecosystem most likely outweigh any potential impacts to flood risk reduction. Any ecosystem (i.e., water quality) impacts identified in Section 3.2 will likely be exacerbated by realization of forecasted future climate scenarios.

3.1. Hydrology and Flooding

Berlin Lake is a man-made reservoir, created by the construction of the Berlin Dam in 1943. The construction of the dam and reservoir was undertaken by the Corps for the purposes of downstream flood damage reduction, water quality improvement and dependable water supply. Pool elevations are maintained at levels to support these authorized purposes. The Corps manages the reservoir's water level by opening and closing the gates at the dam to control the outflow in order to adhere to the WCP.

The Water Control Manual containing the WCP was originally written in April 1977 with revisions in July 1978. An update in February 2010 changed the vertical datum from NGVD29 to NAVD88. The reservoir level, also known as the pool level, is driven by the authorized purposes for the reservoir. If the downstream flow schedule is met, then the pool is required to be held at or below elevation 1015.9 ft. (NAVD88) in the fall/winter for flood storage. Following flood storage events, the pool must be drawn down to the proper seasonal elevation within five days. In early March, the pool is raised in order to get to the summer pool of 1024.0 ft. (NAVD88) by early May. The summer pool is held in order to augment downstream water levels for improved water quality. Currently, the Corps begins to lower the reservoir in late June in order to reach winter pool by August 22 for adequate flood storage. The existing (solid line) and proposed (dashed line) drawdown schedules are shown in Figure 4 with normal pool based on a three-decade (30-year) statistical average last computed in 2010. Also indicated in Figure 4 is flood storage capacity at winter pool (4.07" of runoff) and at summer pool (2.35" of runoff). In other words, a storm event generating more than 4.07" of runoff in the watershed while the reservoir is at winter pool or more than 2.35" of runoff in the watershed while the reservoir is at summer pool will cause the reservoir to rise to full pool and will likely result in spillway flow.

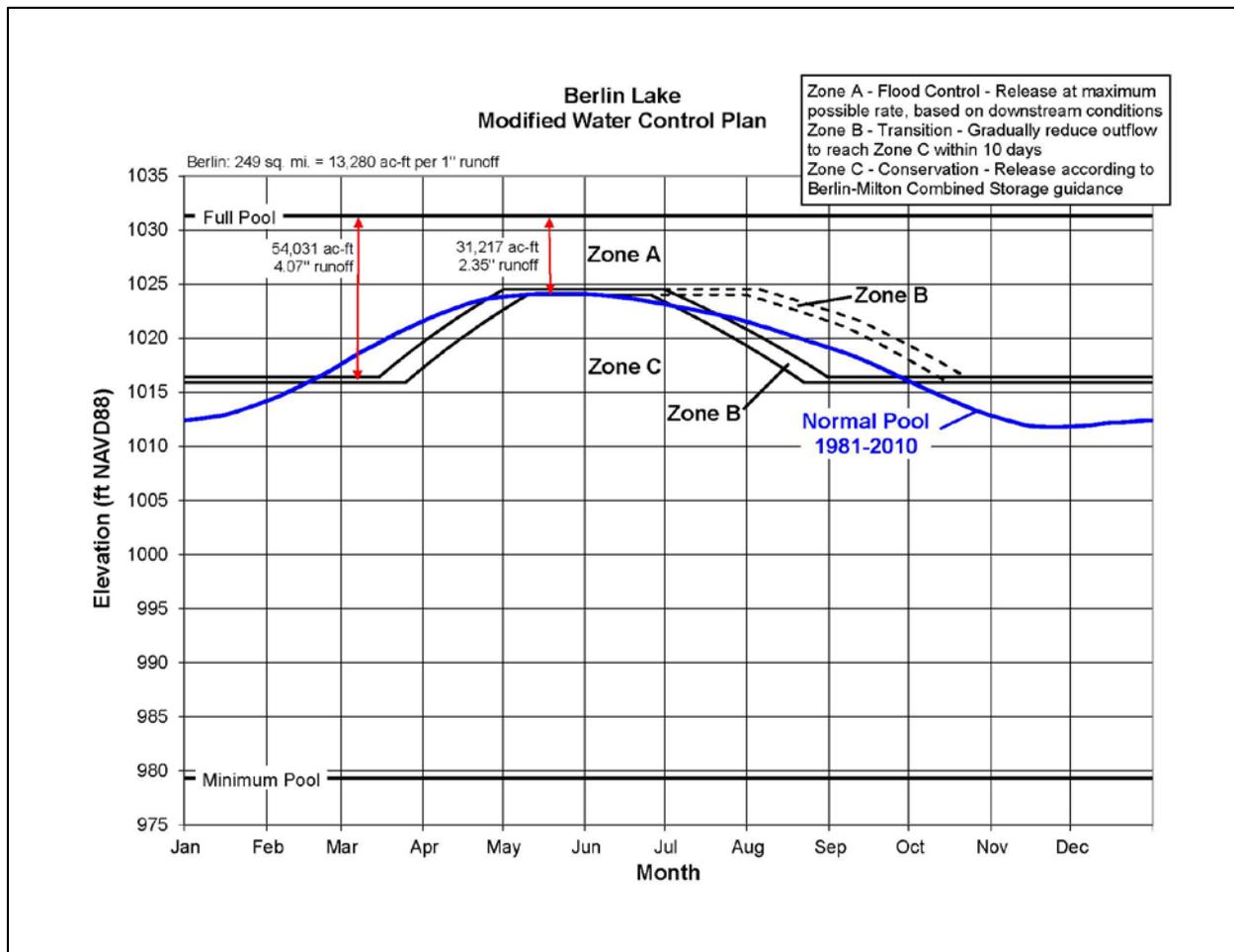


Figure 4. Existing (solid line) and Proposed (dashed line) Drawdown Schedule

Additionally, the WCP requires downstream flows to be maintained at a minimum of 145 cubic feet per second (cfs) in the winter months (November through March) increasing to a minimum of 310 cfs in the summer months (June through August) in Leavittsburg. Therefore, in a dry year, reservoir levels can begin to decrease earlier than the late June target. Berlin-Milton and Michael J. Kirwan Reservoirs are regulated so that minimum downstream flow requirements are met at Leavittsburg. Flow deficiencies at Leavittsburg are augmented 64% by Berlin-Milton and 36% by Michael J. Kirwan Reservoir. If the flow in the Mahoning River at Leavittsburg is below the daily flow schedule, then the Corps releases additional water into the rivers from Berlin Lake and Michael J. Kirwin Lake to make up for the deficiency.

Berlin Lake has a maximum surface area of 5,500 acres and its maximum pool is at elevation 1031.31 ft. The project has the capability to store the equivalent run-off of 4.07" at winter pool from its 249 square mile watershed and the equivalent run-off of 2.35" at summer pool.

A preliminary flood seasonality analysis shows that historically there is a low risk for significant flooding during the proposed deviation months of July and August with the lowest frequency of flooding occurring during September-November. This analysis was

performed using the USACE RMC-RFA program with a threshold flow of 2,700 cfs to produce an inflow record of 35 events in 30 years. The threshold flow represents an annual chance exceedance (ACE) flow for the three-day critical duration of greater than 0.5 (i.e. less than a two year event). Figure 5 shows the analysis of the relative frequency of a flood event by month for the past 30 years.

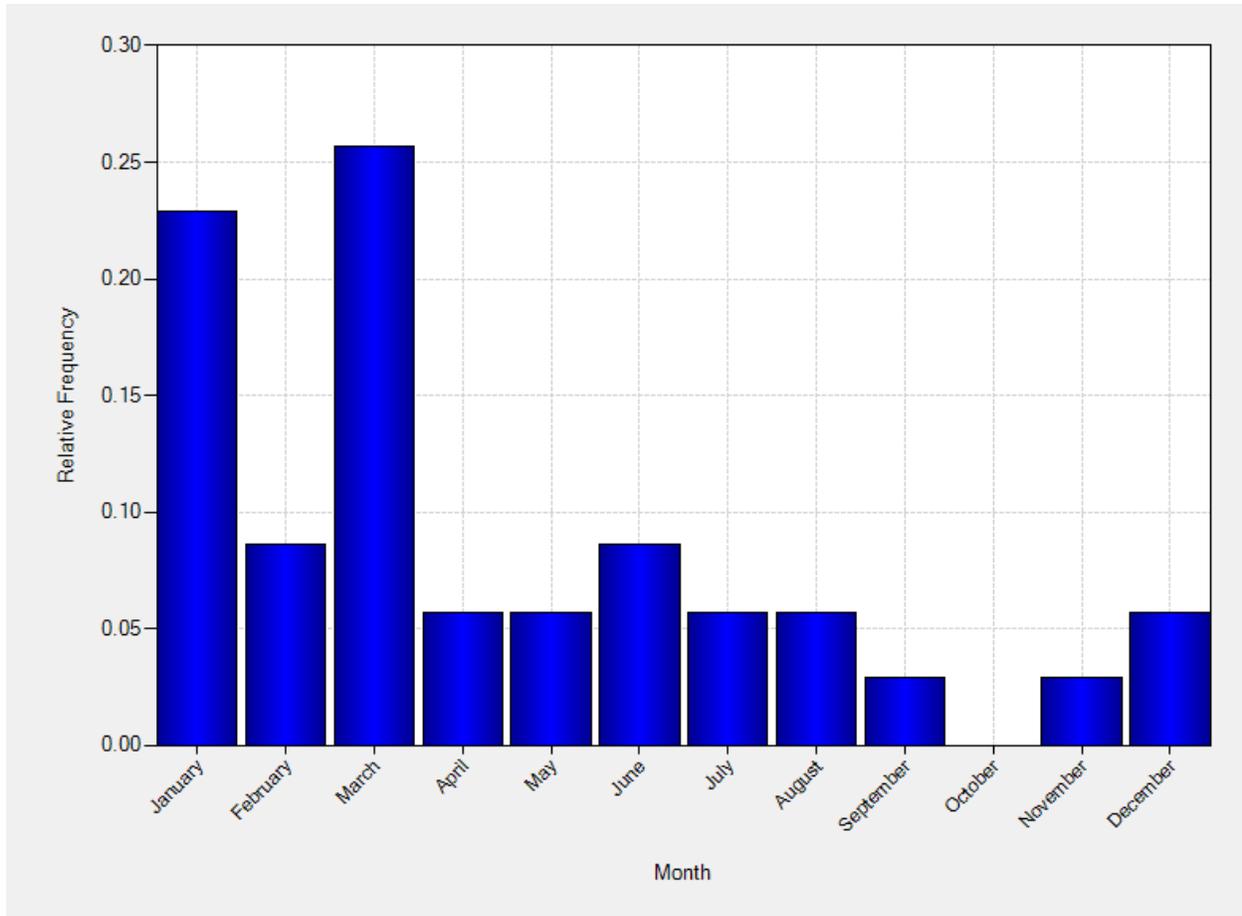


Figure 5. Berlin Lake Flood Seasonality Analysis from 1/1/1988 to 12/31/2017 (30 years)

In the context of this Planned Deviation, maintaining the pool level in the range of 1021-1024 ft (NAVD88) is not expected to have adverse effects on life safety related to the dam. The current Dam Safety Action Classification (DSAC), which reflects USACE’s understanding of the risk to the public associated with Berlin Dam, is 5. The basis for this is low likelihood of failure, low estimated consequences, and low uncertainty associated with the dam’s condition. The DSAC ratings range from 1 (Very High Urgency) to 5 (Normal). DSAC 5 dams have very low incremental risk—combination of life, economic, or environmental consequences with likelihood of failure. A DSAC 5 rating indicates that USACE considers the level of life-risk associated with the dam to be tolerable.

The proposed Planned Deviation is not expected to impact the dam’s DSAC rating and does not increase the probability of failure. Therefore, non-breach life safety risk (the risk of downstream flooding due to non-breach flow releases from the dam) is the focus

of the deviation, and non-breach life safety risk is essentially zero. According to 2017 inundation maps provided by the Modeling, Mapping and Consequences Mandatory Center of Expertise (MMC), pool levels at 1031.7ft (NAVD88) in a non-failure event would result in zero life loss; the releases from the dam would not inundate any structures. This elevation is when spillway flow would begin and the pool could potentially reach this level in a wetter year. If the dam is not failing, there is essentially no life safety risk regardless of whether it is a drier year or a wetter year.

3.1.1. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no Planned Deviation would occur. No new impacts to hydrology or flooding would occur.

3.1.2. Deviation to Extend Summer Pool Term

Under this alternative, the Corps would maintain Berlin Lake at the summer pool level until after Labor Day in order to maximize recreation potential for the local community.

Although preliminary analysis suggests that the risk for significant flooding is low during the months of the proposed Planned Deviation, there is a chance that a hurricane or other significant storm event could occur. If such a hurricane or storm event occurred while the pool was being held at the summer pool level, there would be a risk of downstream flooding. The Corps would not drawdown the reservoir in advance of a storm event as this would likely lead to more water in the downstream system as the storm event hits. This would likely lead to increased flooding. Downstream of Berlin Lake there could be impacts to residents, businesses, golf courses and Milton Lake should a flood event occur. At summer pool, Berlin Lake has the capacity to hold 2.35" of runoff before reaching the spillway flow. A storm event producing more than 2.35" of precipitation in the watershed will produce uncontrolled spillway flow and could result in flooding downstream. Higher pool elevations could increase erosion along the reservoir shores particularly during high wind and storm events if waves are produced.

Alternatively, in a drier year maintaining the pool level at summer pool could result in the Corps' inability to meet its authorized purpose for Berlin Lake in that minimum downstream flow levels may not met be at Leavittsburg. Impacts of this on other resources, such as water quality and aquatic life, are discussed below.

3.1.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

Implementing this alternative could impact flooding and hydrology similar to that described in Section 3.1.2. The Corps would continue to evaluate flood risk and hydrology as is done with current operating procedures required by the WCP. When flood storage capacity nears full pool level, drawdown procedures would be initiated to draw the reservoir down to summer pool. If a significant storm event occurs during the deviation period, the Corps would hold water during the event and then increase reservoir discharges to drawdown the reservoir to summer pool after the Mahoning River has crested downstream. These increased discharges could cause flooding downstream. Higher pool elevations could increase erosion along the reservoir shores particularly during high wind and storm events if waves are produced.

3.2. Water Quality

Water Quality is a primary authorized purpose for Berlin Lake. Given the time and funding constraints associated with this proposed Planned Deviation, along with the understanding that implementation could compromise reservoir and downstream water quality, the Corps will utilize available water quality information and real-time continuous water quality monitoring, and will terminate the Planned Deviation if certain water quality standards and conditions are not met. The water quality monitoring measures described in this EA are based on information taken from cursory analyses of Corps' water quality data collected at Berlin Lake and the results of the Ohio Environmental Protection Agency's (OEPA) 2016 Integrated Water Quality Report (OEPA, 2016), and Total Maximum Daily Load (TMDL) Reports for the Mahoning River and Berlin Lake written by the United States Environmental Protection Agency (USEPA) in 2004 and the OEPA in 2011 (USEPA, 2004 and OEPA, 2011). The information from the Corps' data and the OEPA and USEPA reports was used to determine potential risks to reservoir and downstream water quality and provide measures to monitor and manage water quality impacts.

3.2.1. Mahoning River

The upper Mahoning River watershed, which includes the reach of the Mahoning River upstream of Berlin Lake, Berlin Lake itself, Lake Milton, and the reach of the Mahoning River between Milton Dam and Leavittsburg, OH, was assessed by the Ohio Environmental Protection Agency (OEPA) in 2006 and was found to have impairments to aquatic life and recreational uses (OEPA, 2008). OEPA developed a Total Maximum Daily Load (TMDL) report, the "Upper Mahoning River Watershed TMDL Report," for the upper watershed, which was approved by the US Environmental Protection Agency on September 28, 2011, to identify and address these impairments (OEPA, 2011). This TMDL report addresses impairments for total phosphorus, habitat, siltation, and *Escherichia coli* bacteria. There are a number of point source discharges within the watershed regulated with National Pollutant Discharge Elimination System (NPDES) discharge permits. According to this TMDL report, the reach of the Mahoning River from Berlin Dam downstream to Leavittsburg, OH, which includes Lake Milton, is also impaired. Primary causes of impairment include siltation, flow alteration, nutrients, upstream dam releases, upstream impoundment, low dissolved oxygen, and poor habitat. Pollutants from waste water treatment systems contribute to the impairment of the watershed.

In 2013 the OEPA also assessed the lower Mahoning River watershed, which includes the 35 mile long reach of the Mahoning River from Leavittsburg, OH to the PA/OH state line, and documented impairments to the OEPA's aquatic life and recreation designated uses (OEPA, 2018).

The USEPA prepared a TMDL for pathogens for this reach of the Mahoning River in 2004, "Mahoning River Total Maximum Daily Load for Fecal Coliform Bacteria," which in addition to pathogens, identified metals, sediments, nutrients, and related low dissolved oxygen levels as issues of concern (USEPA, 2004). In 2013, the OEPA conducted comprehensive chemical, physical, and biological monitoring in the lower Mahoning River watershed to identify the pollutants impairing beneficial uses and to support the

development of Total Maximum Daily Loads (TMDLs) for those pollutants. Results were included in the OEPA's 2016 Integrated Water Quality Monitoring and Assessment Report (OEPA, 2016). This report indicated significant recovery of biological communities since the previous assessment that was conducted in 1994. However, this reach of the Mahoning River was still impaired, that is, it did not attain the OEPA's beneficial use designations of aquatic life, recreation, human health, and recreation. Sources of impairment identified included combined sewer overflows, municipal point source discharges, upstream sources, and sedimentation/siltation.

3.2.2. Berlin Lake

Berlin Lake is a nutrient enriched and hyper-eutrophic impoundment that experiences moderate to severe thermal and chemical stratification during the summer season. Concentrations of iron, manganese, aluminum, phosphorus, ammonia nitrogen, apparent color and acidity all increase with depth during the summer season and conversely, water temperature, dissolved oxygen, phytoplankton, chlorophyll, nitrate-nitrite, nitrogen, and pH values decrease with depth in the reservoir. Anoxic conditions, defined for this EA as dissolved oxygen concentrations of 4.0 mg/l or less, first develop in the deeper hypolimnetic waters of the reservoir in May and persist there until late September or early October. Anoxic water conditions during the summer stratification period normally persist at depths approximately 15 feet beneath the reservoir surface. Factors that contribute to reservoir productivity and algae growth include nutrient over-enrichment, high water temperatures, sunlight, impoundment, and related summer thermal stratification. A rapid increase in algae growth is called an algae bloom, and a bloom of a species of algae or cyanobacteria (bluegreen algae) that can naturally produce biotoxins is called a harmful algae bloom (HAB). HABs can create biochemical conditions that may harm the health of the environment, plants, or animals. While algae and bluegreen algae blooms commonly occur every summer at Berlin Lake, the Corps has never documented a HAB.

It is likely that poor water quality conditions in reaches of the Mahoning River downstream of Berlin Dam that are not currently in attainment or are partially in attainment of the State of Ohio's water quality designated uses will be exacerbated by the Planned Deviation. This is because Mahoning River summer flows, and therefore the river's assimilative capacity, will be reduced. In addition, the Planned Deviation will increase water storage and retention time in Berlin Lake, which could lead to stronger, more persistent reservoir stratification, higher biological productivity and associated algae production, hypolimnetic anoxia, and negative impacts on aquatic life. Therefore, to monitor and manage water quality impacts in Berlin Lake and the Mahoning River downstream of the reservoir, the Corps will monitor water quality, real-time and continuously, (pH, dissolved oxygen, water temperature, and specific conductivity), prior to and throughout the deviation period as discussed below in Section 3.2.3. If/when water quality standards and conditions are not met, then the Planned Deviation will be terminated.

3.2.3. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no deviation would occur. No impacts to water quality differing from those

already documented by the OEPA in Berlin Lake or the Mahoning River downstream of the dam would occur.

3.2.4. Deviation to Extend Summer Pool Term

This alternative would negatively impact water quality. A drier year would result in less flow in the Mahoning River downstream of Berlin Lake in July through early September. The greatest impact to Mahoning River water quality would therefore occur if the summer and fall of 2018 are dry, as less flow would cause an increase in water temperatures, less dilution of any pollutants entering the watershed below Berlin Lake, and lower amounts of dissolved oxygen. In addition, the negative impacts of this alternative on Berlin Lake water quality would be greater than impacts of the other alternatives since the reservoir retention time will be the longest, with the most severe water quality impacts occurring during drought years. Reservoir water quality impacts will include stronger, more persistent reservoir stratification, higher biological productivity and associated algae production, and increased and shallower hypolimnetic anoxia. Poor water quality would negatively impact aquatic life, and would increase the risk of fish kills and HABs. Under this alternative, downstream flows would be increased during September and early October, as the current WCP requires drawdown to winter pool by late August.

3.2.5. Deviation to Extend Summer Pool Term and Meet Flow Requirements

This alternative should not significantly impact water quality as it includes real-time continuous water quality monitoring in the reservoir and also at three locations on the regulated reach of the Mahoning River downstream of Berlin Dam that are not currently attaining state designated water quality uses, from June through October 2018.

3.2.5.1. Mahoning River

Parameters to be monitored along the Mahoning River downstream of Berlin Dam include water temperature, pH, dissolved oxygen, and specific conductivity. The first Mahoning River monitoring location requires the installation of a new United States Geological Survey (USGS) water quality gage in Warren, Ohio, at river mile 35. The second Mahoning River monitoring location is an already existing USGS water quality gage located downstream of Youngstown, Ohio at river mile 21. The third Mahoning River monitoring location is also an existing USGS water quality gage located downstream of Lowellville, Ohio at river mile 12.88, which is to be upgraded to include additional parameters (dissolved oxygen and pH).

Continual compliance with Ohio's state water quality standards for dissolved oxygen, pH and water temperature will be required at all three Mahoning River monitoring locations to continue the Planned Deviation. Specific conductivity measurements will act as a surrogate for the pollution load at the monitoring sites. If standards are not met or are trending toward non-compliance or if the specific conductivity exceeds 600 uhmos/cm, the Corps will terminate the Planned Deviation and normal drawdown procedures will commence to draw down the reservoir pool elevation in accordance with the guide curve as indicated in the current WCP.

3.2.5.2. Berlin Lake

During the Planned Deviation, water quality will be monitored real-time and continuously in Berlin Lake at two depths at the District's existing water quality buoy, which is located near Berlin Dam. The Corps currently measures water quality at the buoy at the reservoir surface; parameters measured include water temperature, pH, dissolved oxygen, specific conductivity, turbidity, bluegreen algae phycocyanin, chlorophyll, nitrate nitrogen, and turbidity. A second monitor will be added to the buoy at a depth of 10 feet, prior to the commencement of the Planned Deviation period, which will measure water temperature, pH, dissolved oxygen, and specific conductivity. A depth of 10 feet was selected because it is the approximate depth of the average summer season metalimnion, and the reservoir typically becomes anoxic at deeper depths. Dissolved oxygen levels at 10 feet are typically 4.0 mg/L or higher.

Continuous real-time monitoring will allow the Corps to manage the reservoir to reduce water quality risks. As mentioned, the Planned Deviation will result in more water being stored at Berlin Lake for a longer period of time over the summer and early fall, which could lead to stronger, more persistent reservoir stratification, higher biological productivity and associated algae production and increased hypolimnetic anoxia, with negative effects on aquatic life. A deeper reservoir with a longer retention time will also increase the potential for HABs and fish kills (which can occur when water temperatures rise and/or dissolved oxygen levels drop). Once HABs occur in a system, not only can that individual occurrence be harmful but it may perpetuate future HABs as they can persist in aquatic systems and the biotoxins produced by the algae can survive in reservoir sediments year-round (Corbel et al. 2014, Johnson et al. 2013).

Another potential impact to aquatic life could result from reservoir stratification. Holding the summer pool increases the chance for reservoir stratification keeping colder waters at the bottom of the reservoir where there is little circulation and low amounts of dissolved oxygen. This would force aquatic life into the warmer upper layer of water where higher temperatures could negatively impact fish and other aquatic organisms. A stretch of higher temperatures could result in fish kills if water temperatures rise and dissolved oxygen levels fall.

Real time continuous monitoring of the algae pigment chlorophyll, the blue-green algae pigment phycocyanin, and pH at the reservoir surface will allow the Corps to track reservoir productivity and allow detection of algae and bluegreen algae levels before HABs occur. If at the Berlin Lake surface chlorophyll levels exceeds 50 ug/L, phycocyanin levels exceed 5 ug/L, and/or the pH exceeds 9 pH Units, then the Planned Deviation would be terminated and the Corps would increase the discharge of the dam and return the operation of Berlin Lake to the current WCP.

Real time continuous water temperature, dissolved oxygen, and specific conductivity monitoring in the reservoir at a depth of 10 feet will allow the Corps to track reservoir stratification, increasing water temperatures and conductivity levels, and decreasing dissolved oxygen levels. If in Berlin Lake at a depth of 10 feet, the dissolved oxygen level drops below 4 mg/L, water temperature exceeds 85 degrees F, and/or specific conductivity exceeds 600 uhmos/cm, then the Planned Deviation would be terminated

and the Corps would increase the discharge of the dam and return the operation of Berlin Lake to the current WCP.

The water quality action levels prescribed for the Planned Deviation were determined based on water quality data collected at the Berlin Lake buoy over the past 10 years. The Corps may revise these measures any time during the Planned Deviation period as necessary.

3.3. Recreation

There is a legislative basis for Federal participation in recreation development as discussed in Section 1.2. This authority allows the Corps, sometimes in partnership with other agencies, to construct and maintain recreation facilities such as campgrounds, playgrounds, trails, and boat ramps on Corps properties for the benefit of the public. Depending upon the type of project and the authorized use of the Corps' projects, they are either fully funded by a non-federal sponsor or cost shared with the Corps.

At Berlin Lake, the Corps and the Ohio Department of Natural Resources (ODNR) partner to manage several recreation facilities, including a picnic area, a camping area, boat ramps, hiking trails, a swimming pool, a playground, and a marina.

As discussed in Section 1.3, local residents, businesses and organizations have requested that the Corps deviate from the WCP in order to maintain a higher reservoir level for a longer period for the purposes of recreation for recreational boaters. Holding the summer pool through Labor Day will allow more recreational opportunity for all boaters.

Dutch Harbor Marina and Les's Bait Shop, Berlin Lake's two largest commercial marinas, report that once Berlin Lake reaches an elevation of 1021 (ft-NAVD88), their businesses experience negative financial impacts. Regardless of whether it is a dry or a wet year, boaters generally start storing their vessels once the water lowers to this level. Although Berlin Lake could still be utilized by most vessels at this elevation, many boat owners perceive elevation 1021 (ft-NAVD88) to be the reservoir level at which their boats are subject to an unacceptable level of risk of sustaining damage, and therefore they remove their boats from the water and put them into storage. Maintaining summer pool through Labor Day will allow all boaters more recreational space throughout all of Berlin Lake. Due to the increase in space, boaters would likely not start storing their vessels until after Labor Day, which would lead to an increase in recreation.

The potential increase in recreation is dependent on the weather conditions throughout the boating season. An average decade-long weather cycle is displayed below in Table 1. On average at Berlin Lake, dry conditions occur once every four years, and drought conditions occur once every 10 years—all other years are considered normal to wet conditions. If 2018 is a dry year, the pool elevation would be higher than 1021 (ft-NAVD88) on average for about 50 additional days; if 2018 is a normal to wet year, the pool elevation would be higher than 1021 (ft-NAVD88) on average for about 31 additional days. There would be no change during drought condition. Based on this decade-long weather cycle, it is estimated that the reservoir elevation would be higher than 1021 (ft-NAVD88) for an additional 32 days on average. The reservoir's highest

usage is on weekend days throughout the boating season, therefore, a more conservative estimate for additional recreation days is approximately nine days.

Schedule of Average Decade-Long Weather Cycle	
Condition	Additional Rec Days
Normal to Wet	31
Normal to Wet	31
Dry	50
Normal to Wet	31
Normal to Wet	31
Normal to Wet	31
Dry	50
Normal to Wet	31
Normal to Wet	31
Drought	0
Average Estimated Additional Recreation Days: 32	

Table 1

An estimate of the amount of boaters that utilize Berlin Lake throughout the season can be found below in Table 2.

Boats on Berlin Lake		
Location	Number of Docks	Number of Estimated Boats
Private Docks	273	546
Community Docks	31	541
Dutch Harbor Marina	1	200
Les's Bait Shop	1	125
Mill Creek Recreation Area	1	83
State Boat Launches	2	200
Estimated Total Boats:		1,695

Table 2

3.3.1. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no deviation would occur. It is expected that boat owners would continue to remove their boats from the water once the pool elevation drops below 1021 ft.

3.3.2. Deviation to Extend Summer Pool Term

This alternative would provide the greatest benefit to recreational boat users. This alternative provides the largest increase of recreational space and extends the period of time that summer pool is held. No significant impacts are expected to other users of the reservoir as the reservoir is widely used for many types of activities (fishing, kayaking, boating, etc.) throughout the season.

If downstream flows are not met at Leavittsburg, there could be recreational impacts for fishing and kayaking downstream of Berlin Lake in an exceptionally dry year if flows within the Mahoning River decrease.

3.3.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

This alternative may provide benefits to recreational boaters, depending on the weather. Actualized benefits are likely to be somewhere between the lower limit set by the No Action and the upper limit set by the Deviation to Extend Summer Pool Term. In a wetter year, provided that the downstream flow requirement is met, summer pool would be held until late July with a gradual drawdown to reach winter pool by late October. In a drier year, draw down may be necessary earlier than late July to meet the flow requirement. Monitoring would be conducted to minimize the risk of negative impacts to water quality and its associated impacts to recreation from fish kills or HABs.

3.4. Aquatic Life

Aquatic life within Berlin Lake and downstream in the Mahoning River consists of common species of fish and invertebrates. The beneficial use designation of the Mahoning River by the OEPA is as Warmwater Habitat, which is classified as those waters containing typical populations of fish and invertebrates. Berlin Lake contains fish populations of walleye, channel catfish, bluegill, bullhead, muskellunge, black and white crappie, largemouth bass, smallmouth bass and white bass.

3.4.1. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no deviation would occur. No impact to aquatic life would occur.

3.4.2. Deviation to Extend Summer Pool Term

In a wetter year, no impacts to aquatic life would be expected in Berlin Lake or downstream. In a drier and hotter year, impacts to aquatic life (including fish larvae, juveniles, and adults) may occur during July through October if reservoir stratification occurs with low dissolved oxygen levels in the deeper waters of the reservoir and high temperatures in the shallower waters of the reservoir. These are conditions that can lead to fish kills and HABs. Lower water levels in the Mahoning River downstream could also impact aquatic life during July through September if water temperatures increase and dissolved oxygen decreases. Mobile aquatic life could move upstream or downstream to escape poor water quality conditions but sedentary aquatic life or fish or invertebrates trapped in scour pools isolated from the main stream channel could be negatively impacted.

Fish spawning typically occurs in spring and early summer, so no significant impacts to spawning are expected although larvae and juveniles may be impacted during the deviation period as described above.

3.4.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

By maintaining the flow to meet the downstream flow requirement, no significant impacts to aquatic life are expected. With this alternative, the monitoring measures for water quality would ensure that water quality conditions would not vary significantly from a typical year (see Section 3.2 for further explanation of the water quality risks). Downstream flow requirements would be met and any significant detrimental change in reservoir and Mahoning River water quality would be managed by initiating drawdown procedures in the reservoir to increase downstream flows. Conditions will likely still change from a non-deviation year in that the timing of the pulse of water from the reservoir drawdown will shift from the early summer to the later summer; however, with maintenance of water quality this four month change in water timing is not anticipated to be a significant impact to aquatic life.

3.5. Public Infrastructure

One roadway/bridge crossing at Bedell Road exists between Berlin Lake and Lake Milton. Another crossing at the upstream end of Milton Lake exists at Ellsworth Road. Public drinking water surface intakes are also located on the Mahoning River downstream of Berlin Lake.

3.5.1. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no deviation would occur. No new impacts to public infrastructure would occur.

3.5.2. Deviation to Extend Summer Pool Term

In a drier year if flow requirements at Leavittsburg are not met, there could be impacts to water supply if water elevations fall below the public water surface intakes. In a wetter year as discussed in Section 3.1.2 if a storm event results in uncontrolled spillway flow there is the possibility of flooding downstream, although as discussed in Section 3.1 it is unlikely that structures would be inundated.

3.5.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

If flow requirements are met at Leavittsburg, no impacts to public drinking water surface intakes are expected as this would not vary from existing conditions. In a drier year, the potential for flooding infrastructure would not differ from existing conditions. In a wetter year, impacts would be similar to those discussed in Section 3.1.3. If a significant storm event occurs during the deviation period while the reservoir is at summer pool or higher, the Corps may need to increase reservoir discharges to drawdown the reservoir after the storm. The increased discharges could cause flooding downstream.

3.6. Air Quality and Noise

Northeast Ohio's reliance on manufacturing, industry, coal-fired electricity, and single-occupancy vehicles has contributed to the region's air pollution (NOACA 2017). Air

quality has improved in Northeast Ohio in recent years (NOACA 2017); however, portions of the region remain in nonattainment for one or more of the National Ambient Air Quality Standards (NAAQS, EPA 2018). The EPA's Clean Air Act sets National NAAQS for several criteria pollutants including ozone, lead, carbon monoxide, nitrogen oxides, sulfur dioxide, and particle pollutants with diameters less than 10 microns. Areas that persistently exceed the standards are designated as nonattainment areas. Once a nonattainment area attains and maintains the relevant standard, EPA may designate them as maintenance areas. EPA requires the state to develop maintenance plans for maintenance areas to ensure the area remains in compliance with the standard. Within the project area, Portage and Summit counties are maintenance areas for several NAAQS.

The project site is in a developed rural community. Noise levels are low due to the lower population density in the immediate areas. Rural homes are within close proximity of the lake and associated noises from homes and small agricultural plots contribute to the ambient noise levels. Typical noises in the area include residential and recreational noises such as traffic, lawn care, and motorboats.

Minor impacts to air quality and noise during the Planned Deviation may occur with an increase in use of the reservoir by recreational boats with higher horsepower motors, as these motors could slightly increase emissions and noise on the reservoir.

3.6.1. No Action Alternative

Under the No Action Alternative the reservoir would continue to be managed per the WCP and no Planned Deviation would occur. No change to air quality and noise would occur.

3.6.2. Deviation to Extend Summer Pool Term

Minor impacts to air quality and noise during the deviation period may occur with an increase in use of the reservoir by recreational boats with higher horsepower motors, as these motors could slightly increase emissions and noise on the reservoir.

3.6.3. Deviation to Extend Summer Pool Term and Meet Flow Requirements

As described in 3.6.2, minor impacts to air quality and noise during the Planned Deviation may occur with an increase in use of the reservoir by recreational boats with higher horsepower motors.

4. CUMULATIVE EFFECTS

Cumulative effects include effects resulting from future Federal, State, tribal, local or private actions that are reasonably foreseeable to occur in the project area.

The proposed request to temporarily deviate from the WCP by maintaining summer pool until late July with a gradual drawdown to reach winter pool by late October in the 2018 calendar year, would not result in significant cumulative effects provided that project impacts are minimized by implementing mitigation including water quality monitoring. Mitigation measures will ensure that the downstream flow requirement at Leavittsburg is met and that Berlin Lake continues to meet its authorized purposes of flood control and water quality/water supply. The Corps will continue to evaluate flood risk and hydrology as is done with current operating procedures identified in the WCP. If future deviations

are planned, the Corps will conduct a new analysis to determine impacts and cumulative effects.

When evaluated in the context of past, present, and reasonably foreseeable future actions, the Planned Deviation would not result in significant cumulative effects.

5. COORDINATION

The Corps conducted a Berlin Visioning Meeting on 10 July 2017. This meeting was to gather information from participants about their values and interests related to the future management of Berlin Lake. Although the Planned Deviation was not the focus, it was a topic discussed. Many participants noted a desire to extend the summer recreation season for boating.

The Corps will provide a copy of this draft EA to the following state and Federal agencies during the environmental coordination of this project:

- Ohio Department of Natural Resources
- Ohio Environmental Protection Agency
- Ohio State Historic Preservation Office
- Pennsylvania Department of Environmental Protection
- United States Environmental Protection Agency
- United States Fish and Wildlife Service

In addition, comments will be solicited from the public, including local governments, organizations, etc. A 30-day public comment period will occur from 17 May 2018 to 16 June 2018. The Corps invites submission of comments on the environmental impact of the proposed temporary Planned Deviation. The Corps will consider all submissions received before the expiration date of the public comment period. The nature or scope of the proposal may be changed upon consideration of the comments received.

6. ENVIRONMENTAL COMPLIANCE

6.1. Federal Statutes

6.1.1. American Indian Religious Freedom Act

The American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) establishes protection and preservation of Native Americans' rights of freedom, belief, expression, and exercise of traditional religions. Courts have interpreted the American Indian Religious Freedom Act to mean that public officials must consider Native Americans' interests before undertaking actions that might impact their religious practices, including impact on sacred sites.

No alternative is expected to have any effect upon Native Americans' rights of freedom of belief, expression, and exercise of traditional religions.

6.1.2. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) prohibits the taking, possession or commerce of bald and golden eagles, except under certain circumstances. Amendments in 1972 added to penalties for violations of the Act or related regulations.

No taking of either bald or golden eagles is likely through any of the actions discussed in this EA. The recommended plan does not involve removal of trees or any construction activity. Eagles in the area are expected to be acclimated to human presence and any noise associated with drawing down the reservoir levels and the proposed Planned Deviation is not expected to disrupt eagles in the area.

6.1.3. Clean Air Act

The Clean Air Act requires states to develop plans, called State Implementation Plans (SIP), for eliminating or reducing the severity and number of violations of National Ambient Air Quality Standards (NAAQS) while achieving expeditious attainment of the NAAQS. The Act also requires Federal actions to conform to the appropriate SIP. An action that conforms with a SIP is defined as an action that will not: (1) cause or contribute to any new violation of any standard in any area; (2) increase the frequency or severity of any existing violation of any standard in any area; or (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The Corps has determined that the recommended plan would not impact emissions as there are no construction activities associated with this request. Any increase in emissions due to the extended use of higher horsepower boat motors is expected to be de minimis and limited to the local area.

6.1.4. Federal Water Pollution Control Act

The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA). The CWA is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The CWA was established to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

The Corps does not issue permits for its own civil works activities. Nevertheless, the Corps has accepted responsibility for the compliance of its civil works projects with Section 404, as well as the obligation to seek water quality certification under Section 401. The recommended plan does not involve the discharge of fill material into waters of the United States and does not require a 404 (b)(1) evaluation or Section 401 Water Quality Certification. No earth disturbance is proposed for this request.

6.1.5. Endangered Species Act

The Endangered Species Act (16 U.S.C. 1531-1544), amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a) of the ESA requires that Federal agencies consult with USFWS and NMFS, as appropriate, to ensure that proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy designated critical habitats.

Using the USFWS's online database and information contained on the USFWS Ohio Ecological Services Field Office website, four species were identified as occurring in the Berlin Lake and Mahoning River area (USFWS, 2018). These include the Indiana bat, the northern long eared bat, Mitchell's Satyr Butterfly, and Northern Wild Monkshood (a plant species). As there is no tree removal or construction, no impact to the bat species is expected. As there are no construction activities, vegetation removal, or earth disturbance proposed, no impact to the butterfly or Northern Wild Monkshood is expected.

Per Dr. Michael Hoggarth (personal communication, email 9 Feb 2018), the clubshell mussel is thought to have been extirpated from the Mahoning River. As such, no impact to this species is expected.

Overall, no effect to any species protected by ESA or their designated critical habitat is expected.

6.1.6. Federal Water Project Recreation Act

In the planning of any Federal navigation, flood control, reclamation, or water resources project, the Federal Water Project Recreation Act, as amended (16 U.S.C. 460(l)(12), et seq.) requires that full consideration be given to opportunities that the project affords for outdoor recreation and fish and wildlife enhancement. The Act requires planning with respect to development of recreation potential. Projects must be constructed, maintained, and operated in such a manner if recreational opportunities are consistent with the purpose of the project.

This EA assesses impacts of alternative actions on recreation. The Planned Deviation associated with the recommended plan is for the purpose of increasing recreational activities by maintaining a higher reservoir level to facilitate the use of recreational boats for a longer period during the summer than currently exists.

6.1.7. National Environmental Policy Act

NEPA (42 U.S.C. 4321, et seq.) requires that Federal agencies consider the environmental effects of their actions. It requires that an Environmental Impact Statement (EIS) be included in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. The EIS must provide detailed information regarding the proposed action and alternatives, the environmental effects of the alternatives, appropriate mitigation measures, and any adverse environmental effects that cannot be avoided if the proposal is implemented. Agencies are required to demonstrate that these factors have been considered by decision makers prior to undertaking actions. Major Federal actions determined not to have a significant adverse effect on the quality of the human environment may be evaluated through an Environmental Assessment (EA).

This EA evaluates the environmental effects of the recommended plan and alternatives. This EA has been prepared pursuant to NEPA Sec. 102(C). Effects on the quality of the human environment as a result of the proposed project are anticipated to be less than significant. The EA has incorporated any necessary and applicable modifications to the scope and/or nature of the project, any effects to the human environment resulting from these modifications, the procedures and practices used to implement the project, and/or

the type and extent of compensatory mitigation associated with the project. Accompanying this EA is a Finding of No Significant Impact (FONSI).

6.1.8. National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires that a federally assisted or federally permitted project account for the potential effects on sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the National Register of Historic Places. No earth disturbance or construction activities are proposed. The Corps has determined that the recommended plan does not have the potential to cause effect to either archaeological resources or historic properties.

6.2. Executive Orders

6.2.1. Executive Order 11990, Protection of Wetlands

Executive Order 11990 encourages Federal agencies to take actions to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. The recommended plan should not cause any effect to wetlands located within Berlin Lake or downstream as the overall range of water levels is unchanged. The recommended plan is consistent with this order.

6.2.2. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

Executive Order 12898, dated February 11, 1994, requires Federal agencies to consider and address environmental justice by identifying and assessing whether agency actions may have disproportionately high and adverse human health or environmental effects on minority or low income populations. Disproportionately high and adverse effects are those effects that are predominately borne by minority and/or low income populations and are appreciably more severe or greater in magnitude than the effects on non-minority or non-low income populations.

The recommended plan does not involve siting a facility that would discharge pollutants or contaminants, so no human health effects would occur. The recommended plan would not have a disproportionate adverse impact on low-income or minority populations since the recommended plan is only delaying the reservoir drawdown period as a temporary trial. Therefore the recommended plan is in compliance with this order.

6.2.3. Executive Order 11988, Floodplain Management

Executive Order 11988 requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

The recommended plan does not constitute a major rehabilitation project, require extensive engineering and design, or significantly change the project footprint and therefore is not required to be evaluated for its impact on the floodplain.

7. CONCLUSION

Based on the above analysis, the recommended plan of a Planned Deviation of the Berlin Lake WCP with the associated monitoring for water quality is not a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an environmental impact statement.

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APPENDIX A: PUBLIC COMMENTS AND RESPONSES

DRAFT FINDING OF NO SIGNIFICANT IMPACT

Planned Deviation to the Water Control Plan at Berlin Lake, Ohio

In accordance with the National Environmental Policy Act (NEPA) and its implementing regulations, a draft Environmental Assessment (EA) was developed to evaluate potential impacts associated with a temporary Planned Deviation from the Water Control Plan (WCP) for the 2018 calendar year at Berlin Lake.

Authorized by the Flood Control Act of 1938, the Project was originally authorized to reduce flooding and provide low flow augmentation for water quality. Subsequent acts authorized supplemental purposes for water supply (Flood Control Act of 1944), fish and wildlife enhancement (Fish and Wildlife Coordination Act of 1958) and recreation (Flood Control Act of 1944, as amended by the Flood Control Act of 1962). Of these three supplemental purposes, additional storage in Berlin Lake was allocated only for water supply.

The temporary Planned Deviation was requested by local residents, businesses and organizations to maintain a higher lake level for a longer period of time during the summer for the purposes of recreation. The agency analyzed three alternatives including a “No Action” alternative (Alternative 1), an alternative where the Planned Deviation extends the summer pool term (Alternative 2), and an alternative where the Planned Deviation extends the summer pool term and meets flow requirements (Alternative 3). Alternative 2 was the alternative requested by the local residents, businesses and organizations, but if low rainfall conditions were to occur during the deviation period it could result in the inability to meet downstream flow requirements at Leavittsburg, Ohio. Alternative 3 was selected as the Corps’ recommended alternative. This alternative allows the Corps to meet the downstream flow requirements at Leavittsburg and provides monitoring for water quality impacts. Real-time continuous monitoring of water quality within Berlin Lake and at three locations downstream on the Mahoning River will occur during the deviation period. If water quality impacts occur during the deviation period, the deviation will be terminated and the Corps will return the operation of Berlin Lake back to the current WCP.

This EA has determined that the Proposed Action will not result in significant impacts to the natural or human environment. The Proposed Action does not require the preparation of an Environmental Impact Statement (EIS). All environmental, social, and economic factors that are relevant to the proposal were considered in this assessment. These include, but are not limited to, hydrology and flooding, water quality, recreation, aquatic life, wetlands, public infrastructure, air quality and noise, threatened and endangered species, and cultural resources. Overall, effects are expected to be non-significant.

A 30-day public comment period will occur from 17 May 2018 to 16 June 2018. The Corps will consider all submissions received before the expiration date of the public comment period. The nature or scope of the proposal may be changed upon consideration of the comments received. If significant effects on

the quality of the human environment are identified during public comment which cannot be mitigated, the Corps will initiate an Environmental Impact Statement (EIS), and afford all of the appropriate public participation opportunities attendant to an EIS.

After having carefully evaluated all aspects of the Proposed Action and based on the draft EA, I have reasonably concluded that the Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement is not required and will not be prepared.

John P. Lloyd
Colonel, Corps of Engineers
Pittsburgh District Commander

Date