

April 6, 2016

Kristina Betzold Environmental Analysis and Review Specialist Wisconsin Department of Natural Resources 2300 N. Dr. Martin Luther King Jr. Dr. Milwaukee, WI 53212

Dear Kristina,

On behalf of Milwaukee Riverkeeper, we submit the following comments on the Wisconsin Department of Natural Resources' (DNR or Department) Environmental Impact Statement (EIS) for the Estabrook Dam (Dam). In sum, the most economically responsible and environmentally sound alternative for the Milwaukee River, its users, and taxpayers is removal of the Estabrook Dam. Our comments are detailed below and organized by section of the EIS. Additional procedural concerns were submitted in a separate letter to the DNR by Attorney Joe Cincotta of Kerkman and Dunn dated March 25, 2016.

Overview of the Proposal

DNR issued an Administrative Order on September 26, 2008 ordering Milwaukee County to drawdown the impoundment due to safety concerns, and the Dam has been opened for nearly 8 years. The DNR issued a Repair or Abandon Order for the Dam on July 28, 2009.

DNR has taken the position that under state regulations only the preferred alternative submitted by Milwaukee County can be considered, which is dam repair with fish passage. On the contrary, Chapter 31 of the State Code, particularly Chapter 31.02, gives the Department broad jurisdiction over dams and dam actions so as to protect public rights and the public trust, and to protect life, health, and property. Additionally, WEPA/NEPA requires that all alternatives be considered when conducting an EIS.

DNR states that neither repairing the Dam nor establishing an operating order for water levels or flows requires an EIS under NR 150.20 as those actions are considered as a "minor action" and "Integrated Analysis" action, respectively, but that the Department has "elected to use the EIS process to facilitate public review." Even though the statute states that these types of actions don't require an EIS, DNR has essentially decided to go forward with an EIS, ostensibly because of the long history and contentiousness of the issue, and the required involvement of other federal agencies. The Department should have included analysis of all other reasonable alternatives such as dam removal or construction of a rock

ramp, both of which would be better environmentally and socioeconomically and at a lower cost to state and county taxpayers than repair with fish passage.

The DNR has not substantiated why it has classified this project as a "minor action" under federal NEPA rules. The extended period of time that the Dam has been out of operation, the risk of upstream flooding and drainage damage, and significant environmental effects posed by dam repair and operations all support that this is a major action. The Army Corps of Engineers will need to review the fish passage design and water level impacts, as well as the other permits referenced in the Section 3 Authorities and Approvals section of the EIS. To treat this project like a simple permit renewal violates the DNR's authority and responsibility under federal and state law.

In addition, significant federal and state funding is being allocated toward this repair project as part of the state dam safety and stewardship grant programs and by the US Fish and Wildlife Service for the fish passage. Federal coordination with the state will be required and for that reason, the DNR should include consideration of other alternatives in the EIS.

Furthermore, Milwaukee County's past failure to operate and maintain the Dam or address past repair orders from the Department going back to 1995, is further evidence that the County lacks wherewithal to adequately fund, inspect, operate and maintain this structure in a way that will protect both human and wildlife populations. While we will discuss this issue more below, this is not a simple dam repair or changing out some bolts and rebar, but rather addressing decades of neglect.

Construction of the fish passage is not a simple dam repair and the proposal by the County is insufficient to fully analyze the direct, indirect, or cumulative impacts of the fish passage. Milwaukee County proposes to remove four gates for the fishway on river left (or the north bank) and to install a series of weirs. However, the proposal lacks any specific design details other than the location of gate removal, and no information is provided on water level or drainage impacts from the addition of the fish passage, nor any guarantee that the County would have sufficient funds for trained personnel to operate and maintain the fishway. The EIS states that the County is still working on the modeling for the fish passage, but the public will not be afforded the opportunity to review or address those impacts or potential fishery benefits as part of this EIS. Preparation of the EIS on this aspect of the repair proposal is premature and the County has not sufficiently addressed this part of the project. The DNR should require additional information before analyzing and concluding on the impacts of the fish passage.

Purpose and Need

The most important part of any EIS is the purpose and need for the project. In this instance, there is no public purpose or need for repair, other than fulfilling the DNR's Order, which could be met by either repair or abandonment. While the *Purpose and Need* section states that "the public requested the local government construct a dam to create a pool for enhancing parkland aesthetics and recreational purposes," other parts of the EIS

state that the Dam is no longer fulfilling this purpose. In addition, repairing the dam and adding fish passage is no longer central to the purpose and need to provide recreation and aesthetics. The planners of the Dam could not have foreseen the degraded aesthetics and recreation that would result from building the Dam. The impoundment and Dam degrade aesthetics, and the impoundment provides few unique public recreation opportunities that couldn't be enhanced and enjoyed by the public without the Dam. Aside from limited motorized boating, the impoundment does not provide unique or additional recreational activities than a free flowing river. Moreover, no adequate public boat launch exists in the impoundment, as mentioned in Section 12 of the EIS, in the Recreational Resources section of the Affected Cultural Environment.

From a content perspective, historical facts and details are missing and some of the history is incorrectly stated. This should be corrected prior to finalizing the EIS. While the EIS puts forth the history of the construction of Estabrook Dam and its long demise, it does not include relevant information on the County's failure to address several repair orders detailed in inspection reports dating back to 1995. It also fails to include information regarding the County's failure to meet several deadlines for the 2009 Repair or Abandon Order over the last seven years. In addition, as previously communicated via email, Milwaukee Riverkeeper filed a nuisance lawsuit in 2011 (not 2014) after the County failed to meet their first deadline of the 2009 Order. It is critical that this section of the EIS includes the full history of the Dam to the extent it substantiates the "need" for action, as well as the long history of the County's failure to operate and maintain the structure. Further, this is relevant given the large sums of state and federal funds being spent on this repair project with a fishway, which require financial assurance that the structures will be operated and maintained. The worst case scenario would be that the County repairs this dam, puts in a fish passage, and fails to operate or maintain it. This would result in the County and DNR facing another decision point on the Dam several years down the line. The DNR has a duty to ensure that the worst case scenario does not occur.

Alternatives

The most cost effective and efficient alternative to provide fish passage for all native fishes is complete removal of the Dam. This alternative, which was not considered, would also have no continual operation and maintenance costs. We urge the DNR to consider removal of the Dam as an alternative.

Of the dam repair alternatives considered, the only acceptable operational scenario is year round, run of the river full pool; however, that operational scenario poses significant flooding and environmental concerns. While Milwaukee Riverkeeper supports fish passage in general, spending a million dollars on a fish passage that would not function during either drawdown alternative—full winter drawdown or partial winter drawdown—makes no sense and is not a real fish passage option. Under either drawdown alternative, from September 15th to May 15th or for a full 8 months, the fish passage would not be functional, and this is a key period when there are substantial spawning runs of salmon, brown and rainbow trout, walleye, white sucker and lake sturgeon. Spending a million dollars on a fish passage to pass fish for 4 months is not a good deal for the Milwaukee River or the

taxpayer. The need and benefit for drawdowns are so limited and environmental impacts so severe that the Operational Order should dismiss seasonal drawdowns as reasonable water level management alternatives.

Dam Repair with Full Winter Drawdown

During full winter drawdown, fish would be able to pass upstream through the gates hypothetically from September 15th to May 15th. There would be no flow through the fish passage during this time, making it useless for 8 months of the year. Thus, there is no need to construct a fishway under this alternative, because the peak migratory period for native and non-native species would be met through open gates. The fishway would only possibly benefit native species whose peak migrations occur between mid-May through June when gates would be closed (e.g., white suckers and Redhorse spp.). Although the fish attracting flows tend to be on the spillover side of the Dam (river left or south bank), fish would not be able to traverse the spillway during a full winter drawdown. In addition, there are other negative and unacceptable environmental impacts from a full winter drawdown, which are discussed in more detail below and which should remove this alternative from future consideration.

Dam Repair with Partial Winter Drawdown

A partial winter drawdown results in a lower water level in the impoundment, stop logs are removed from the spillover and gates are closed all winter, which would allow no fish to swim through the gates and not enough flows to pass fish. A lower pool also makes it unlikely any fish would be able to pass over the spillover. The overall result is that there would be NO fish passage for 8 months of the year despite a million dollar investment in fish passage. This option is completely unacceptable and should be removed from future consideration. In addition, this alternative poses real safety risk to County staff that would have to access the fixed crest spillway to take out and put in stop logs in the fall and spring, which are normally times of very fast river flows and high water. This option does not comport with dam safety rules.

Dam Repair with Full Pool or Normal Water Level

Of the dam repair alternatives, the best option is a year round, full pool or "normal pool operation" with run of the river operations and no drawdown. This option provides the best chance hypothetically for fish passage 12 months out of the year and during the most important spawning months of the year. It also would minimize some environmental impacts from dam operations (e.g., erosion, scour, sedimentation and dislodging of downstream aquatic organisms).

Notwithstanding the hypothetical pros, this alternative would not address many other negative environmental impacts posed by the impoundment, including sedimentation that leads to poor habitat and water quality conditions for fish and other aquatic life like mussels. Indeed, the benefits of normal pool or full pool operation for fish would be discounted by the liabilities of increasing flooding upstream for more than the current 300 homeowners in the 100 year floodplain, and increased liability to the County should staff not be able to open gates during anything larger than a 10 year storm. There is an acknowledgement in the EIS that if the gates were closed during a flood event only

somewhat greater than a 10-year event, effects would be similar to 100 year flood elevations upstream, and that during a 100 year event with gates closed, water levels would be elevated significantly from 100 year flood elevations (from 5 inches at Bender Road to 1.5 feet at the Dam). No actual water level data or impacted number of properties is included to allow comparison of impacts of operation of the dam with 6 gates and fish passage versus 10 gates. Nor is there any comparison of repair with fish passage versus the rock ramp alternative in the County's EIR, which would also be preferable to this option. This section of the EIS also does not discuss which alternatives would require a dam operator.

All of these options pose significant concerns either with flooding, success of fish passage or other environmental and safety issues. Removal of the Dam carries none of these concerns or issues and will achieve the goals of the Department's Orders.

Manipulation of Terrestrial Resources

We would object to rock riprap over geotextile fabric for slope protection upstream and downstream of the gated dam structure. Rip rap is very painful for recreational users portaging the dam structure. There was no information provided about whether paddlers could pass through the fish passage or whether the existing take-out upstream of the dam and existing portage would be kept or improved as part of this project. Given large flows during storm events and private property on the south bank of the river, its likely paddlers will need to portage on the same side of the river as the fish passage, and this should be considered as part of the EIS. The EIS also does not mention how the County will address the existing pile of debris that has been historically removed from in front of the "dragon's teeth" or icebreakers and placed adjacent to the Dam on the north bank for nearly a decade. Also, the EIS does not include any mention of whether the past practice of removing debris from the icebreakers will still be possible under a full pool or partial seasonal drawdown scenario using past protocol and procedure that required a tracked machine to drive through the river. At a minimum, these considerations should be added to the EIS.

Manipulation of Aquatic Resources and Physical Effects

This section of the EIS mentions when and how gates would be opened to adjust water levels, but does not model water level effects from the fish passage. The impacts of the fishway to 100-year probability flood elevations have not been provided in the EIS, which begs the question of how the County's dam repair plans and Chapter 31 permits can be approved? The existing hydrologic and hydraulic model developed by SEWRPC and floodplain approved by FEMA as referenced in the EIS assume that the structure has 10 gates that will all be open during a 100-year frequency storm. This assumption does not reflect real world conditions of how the Dam can be operated. Even with the gates opened to their maximum capacity, there is more "structure" than opening, and this impacts both the capacity and conveyance of the Dam and increases flood conditions upstream for a range of flood events from the 10-year to 500 year event.

The EIS acknowledges that with all ten gates closed during a 100-year event, the river levels would be as much as 1.5 feet higher than the 100 year flood elevation near the Dam, and continue to exceed the 100 year flood elevation up to Bender Road. The EIS also acknowledges that if "6 gates are closed during a 100-year frequency flood, the 100-year flood elevations will be exceeded and can contribute to upstream flooding." Given the significant increase in flood risk to upstream homeowners and potential liability to the County, it is critical that this information be carefully considered before the DNR grant any approval of this proposed project or an operational order. DNR is required to protect public health and safety.

This is especially concerning because based on past performance, it is likely that County Staff will not be able to open all the gates (6 or 10) during a major flood event. In the past, County staff has not been able to raise gates due to mechanical gate failure, electrical problems, and/or lack of safe access to the structure. The need for dam maintenance will increase over time, not only due to the age of the 80 year old structure, but also due to increased maintenance required for the fish passage and to keep dam gates from freezing during winter months under several operational scenarios. The EIS states that either aerators or glycol systems would need to be put in place to protect against the gates freezing. Both require maintenance. Moreover, a glycol system creates unnecessary potential for harm to the public, fish, water quality and wildlife should it leak into the river. The potential for increased ice jams under the normal pool or partial drawdown scenarios is great and will cause safety issues. Given that the majority of flow will flow over the spillway, it's possible that under full pool some ice and debris could continue to flow over the spillway; however, it's unlikely that this would happen under a partial drawdown, leading to increased debris removal costs.

Any fishway design that requires frequent manipulations or major maintenance is concerning given the County's past poor performance with this structure. Further, simply requiring the County to assure that 25% of the natural flow passes through the fishway, without specific plans, is insufficient for an EIS. For example, the design appears to have multiple weirs to balance water depth and velocity through the upstream portion of the fishway to prevent any decrease in water elevation in the impoundment. This will likely require frequent flow manipulations in the fish passage, especially during the spring when the impoundment is being refilled (should any seasonal drawdown be allowed), and this also coincides with peak spring migration for fish. Placing the fishway on the north bank of the river through the gated section, far away from the dominant "fish attracting flows," which are at the other end of the dam at the fixed crest spillway, is a poor design. Even with the dam gates being opened now for nearly 8 years and given lack of a clearly defined thalweg in this portion of the channel, the dominant flow of the river is along the south bank adjacent to the spillway. This raises concerns about whether the County will be able to ensure that 25% of the river flows will go through that fish passage, regardless of operational scenario.

Affected Biological Community and Biological Effects

Repair of the dam with any operational scenario would cause continued sedimentation to build up in the impoundment, degrading water quality and habitat, and leading to a carp dominated system. The best alternative to reduce sedimentation, protect aquatic life, provide fish passage, and improve water quality is complete dam removal, which was not considered.

Either dam repair drawdown alternative would flush sediment downstream when gates are open, causing sediment to be deposited in the streambed, leading to loss of mussel habitat and increased sediment clogging of mussel siphons and gils. Keeping dam gates permanently closed in a full pool or normal operation scenario, would lead to continued sediment deposition behind the impoundment causing its habitat value and water quality to be degraded for mussels, fish, and other life. The impoundment also causes higher water temperatures and decreased oxygen levels that minimize value to aquatic life and result in nuisance algae blooms in the summer, which further degrade water quality. Mussels in shallow water can be exposed to hypoxia from algae as well as to ammonia from decaying organic material. Likewise, suddenly closing the gates in spring to raise the impoundment water level under a full or partial winter drawdown, would lower water levels downstream causing desiccation of mussels and other aquatic life downstream of the Dam.

Similarly, sudden release of water through dam gates in the fall as the impoundment is lowered has been shown in the past to cause erosion and scour downstream. In addition, a large discharge of flow or a discharge during the wrong season can dislodge organisms downstream and upstream of the dam causing death or stress to mussels, juvenile fish, macroinvertebrates, and other aquatic life. Any of the drawdown alternatives is troubling from this regard, but there are also likely impacts under a full pool or normal water level condition, as the County would still be allowed to operate the gates during flooding conditions. In addition, lowering of water levels can cause mussels and other organisms to be left high and dry, stranding them, drying them out and making them more vulnerable to predation. We have seen evidence also of death of frogs and other amphibians from past dam operations, by both drying out and freezing. Likewise, dropping water levels can kill wetland plants that become dewatered as a result of drawdown. All drawdown scenarios are bad for mussels and aquatic life. While a partial drawdown could provide more water in the impoundment during winter, which would benefit mussel populations, this is outweighed by restriction of movement of fish, which are also hosts required for mussel reproduction. Full drawdown would allow fish passage, but also cause more mussel injury and death through sedimentation and desiccation. Thus, full pool would be the most protective operational scenario, especially for mussels and other aquatic life. The most protective alternative for mussels would be complete dam removal, which would provide the best water quality, best conditions for mussel growth and survival, and best likelihood of passage of fish hosts.

Opening and closing of gates and resulting changes in water level makes it impossible for vegetation to become established on streambanks under any dam repair scenario. This

subsequently leads to increased sediment transport from erosion, and resulting impacts on fish and aquatic life both upstream and downstream of the dam.

Despite a laundry list of sensitive fish, mussel, macroinvertebrate and other plant and animal life detailed in the *Affected Biological Environment* section, there was no mention under different operational scenarios whether or not there could be greater biological effects to certain species of concern under different operational scenarios. For example, it would be helpful to know whether certain species such as redhorse, sturgeon, the striped shiner, and others would be able to use the fish passage if properly designed given expected flow and water depths.

A discharge from the dam that is too low—either due to a partial winter drawdown or a drought, making the fish passage un-operational during a full pool scenario—could cause significant impacts to fish, mussels, and other life downstream. Mussels, invertebrates, and other aquatic life move very slowly, and would not be able to adapt to rapid changes in impoundment water levels. Given the climate change predictions of more frequent and volatile storms, punctuated by drought, it is questionable whether this Dam can be operated in any way to minimize negative impacts on fish and aquatic life while simultaneously protecting upstream landowners from flooding. Dam repair is a lose-lose scenario, the only benefit of which is to provide a limited number of private landowners with a few months of a "lake" for their pontoon boats.

Affected Cultural Environment and Cultural Effects

The dam repair option that also minimizes impacts to the environment is the full pool or normal water level operation. Dam repair provides only a minimal increase in recreational value for the general public. The impoundment is unlikely to attract many motor boaters that do not live in the impoundment given the lack of actual stream miles that can be traversed at wake or no-wake speeds, which range from approximately 0.2 miles to 1 mile for wake speeds based on type of craft, and a max of 2 miles for no-wake motorized boating under best case flow conditions.

Dam repair, under any operational scenario, would cause increasing sedimentation over time in the impoundment, which ultimately is the key factor limiting the quality of fisheries, habitat, and water quality. Increasing sediment build up over time will affect recreation of all kinds, but most importantly, the ability to use motorized boats. Motorized boating would not be possible for 8 months of the year under either drawdown scenario; the season could be extended a few months potentially under a full pool scenario unless more flows need to be diverted to maintain 25% flow in the fish passage. None of these considerations are included in the EIS and should be assessed and included.

In addition, sediment build up in the impoundment under any repair scenario would require costly dredging to maintain and facilitate continued recreation by motor boats. On the flipside, while dam removal would result in no motorized boating of any kind, the benefits outweigh this impact, including: improvement in habitat, fisheries, and water quality; reduction in nuisance algae and eutrophic conditions contributing to impairments

in the Milwaukee River Area of Concern; improvement in conditions for other recreational activities such as paddling and fishing; and improvement in aesthetics. Dam repair is not needed to facilitate public recreation 12 months of the year to Lincoln and Estabrook Parks.

The EIS did not, but needs to include consideration of nuisance trash, how it would be removed under different operational scenarios, how often it would be disposed of, and impacts related thereto, including costs. Debris removal is made more complicated by repair scenarios that increase water levels during winter months (e.g., full pool, partial drawdown), making it difficult if not impossible to remove trash and debris from behind the icebreakers due to high water. In addition, a partial or full winter drawdown would ensure continued accumulation of debris behind the fixed crest spillway. The County's reliance on past expenditures for debris removal is not an accurate representation of future needs should this dam be repaired.

Furthermore, not only does trash contribute to the aesthetic impairment of the Milwaukee River Area of Concern, it is also bad for wildlife and inhibits recreation such as paddling. In the past, paddlers have had to portage the icebreakers due to trash accumulation and this is likely to continue with or without a fish passage.

Socioeconomic Effects

The Socioeconomic effects section, which is three sentences long, states that DNR does not anticipate any impacts to homeowners from repair of the dam due to reestablishment of water levels, and states there could be increased fishing from the fish passage. Again, this intimates that dam removal would cause impacts to property values, which has no factual basis. Over the last 8 years, homes have continued to sell in the impoundment, and thus claims that there would be \$200 million plus in lost property value should the dam be removed are unfounded. We have not seen one report of property value decline from a small dam removal in Wisconsin or elsewhere. Conversely, past studies of property value impacts from small dam removal in Wisconsin have shown that property values tend to stay the same or improve after dam removal (Provencher et al, 2008).

Socioeconomic effects did not consider the negative effects from potential upstream flooding should the County not get all gates open in any storm exceeding a 15-year event. Given the new SEWRPC study on the hydrological and hydraulic effects of the Dam, the County would be liable under any repair scenario for upstream flooding should they not get gates open in time. There would also likely be negative effects from poor water quality and increased growth of nuisance algae, both of which are likely unavoidable in the short-term. This could impact recreation and house sales should the dam be repaired.

Short and Long-Term Environmental Effects and Cumulative Impacts

The short and long-term environmental effects and cumulative impacts were not sufficiently analyzed and the DNR must prepare a more thorough review. For example, long term environmental effects of Dam repair with fish passage did not adequately include negative effects from the continued existence of the impoundment and increased

sedimentation over time to habitat, water quality, or aquatic life as previously described. There was some discussion of increased risk of ice damage under a normal pool, but no other discussion of ice impacts under other scenarios. It is important to note that even with the gates open over the last 8 years, there continues to be ice damming upstream, especially in the big bends of the river. These sections did not consider nuisance trash or the County's failure to remove trash accumulation from past dam maintenance as mentioned above.

The cumulative impacts section states there are no such impacts from dam repair under any operational scenario. For example, over time, any repair option will have cumulative impacts on sediment deposition, and this would likely require future dredging for navigation and/or of contaminated sediments from upstream Superfund sites such as Cedar Creek. Likewise, over time, constant flushing of sediment downstream from dam operations is likely to degrade downstream habitats and affect aquatic life such as mussels and macroinvertebrates. This section is completely deficient.

Risk and Precedent

This section of the EIS intimates that there is a risk that repair with fish passage could enhance movement of aquatic invasive species. This conflicts with other statements in the EIS (Affected Biological Environment section) where the Department concludes that the dam is not a barrier to aquatic invasive species. Furthermore, no evidence supports that supposition either. The real risks include: that the fish passage would not operate as intended given changes in flow regimes or lack of maintenance by Milwaukee County; the increased flood risk to upstream homeowners under different operational scenarios; and the significant risk to downstream paddlers and fishermen every time the gates are opened suddenly during a storm event. Downstream paddlers and fishermen are often unaware when the gates are opened during storms, which put them directly in harm's way.

In the Risk and Precedent section, there should also be some analysis of the County's wherewithal, or lack thereof, to hire a dam operator or to operate and maintain this dam over time. There is no "fund" to pay for future operations and maintenance, except for a statement that \$51,000 per year will be allocated for this purpose from television and radio antenna rental fees paid to the County for the towers across from Estabrook Park. No financial assurance bond has been provided and no trust account created. Further, that leaves a nearly \$110,000 per year shortfall. State law requires that a dam owner prove that it can finance a dam for 10 years which the County has not done.

Lastly, the EIS mentions that there is a good precedent for the Estabrook fishway that was set by the fish passage on the Milwaukee River in Thiensville. Thiensville's fishway was developed as a nature-like fishway with little need for water level manipulation and no mechanical or moving parts. Allowing Milwaukee County repair this dam given its past performance and its inability to meet any deadline to repair the structure going back to 1995, and extending to the 2009 Repair or Abandon Order, sets a negative precedent and one that cannot be ignored.

Limiting the Department's role to only looking at Milwaukee County's preferred option sets a negative precedent for Wisconsin given that there are around 3,900 dams left in Wisconsin, many of which are old and failing. If we truly want to improve water quality, clean up our Milwaukee River Area of Concern, minimize flood risk, and set ourselves up to be more resilient for a changing climate, then we need to question the "repair" or major rebuilding of dams that provide no public benefit. The DNR is charged with the duty and authority to first and foremost protect the public trust and public interest in our shared waters. The DNR's preliminary decision to let the County repair and operate Estabrook Dam given the significant negative environmental effects and risks to public safety laid out in the EIS sets a negative precedent for Wisconsin. We encourage you to update the EIS to include the points raised herein and more importantly, to revise the EIS to include a consideration of all alternatives and impacts of dam removal as required by state and federal law.

Thank you for your consideration of these comments. If you have any questions, please do not hesitate to contact us at (414) 287-0207 or at cheryl_nenn@milwaukeeriverkeeper.org.

Respectfully,

Cheryl Nenn Riverkeeper