



October 5, 2016

IP-SE-2016-52-03643

Racine County Board of Drainage Commissioners-Norway Dover
c/o Alan Jasperson
500 College Ave.
Racine, WI 53403

Dear Mr. Jasperson:

Re: Application for temporary winter drawdown of Rochester Dam located in the
Village of Rochester, Racine County

We have reviewed your application for a temporary drawdown of Rochester Dam during the 2016-2017 winter season. **Your application for a temporary winter drawdown of Rochester Dam during the 2016-2017 winter season is hereby denied.**

It is our determination that the temporary drawdown would be detrimental to the public interest in the Rochester Impoundment. A denial order is attached which includes our findings of fact listing the specific reasons for denial. Your rights to appeal this action are also defined.

It is important to note that the applications to dredge the Wind Lake Canal and the Goose Lake Branch Canals on 7/29/2015 under docket IP-SE-2012-52-05674 are still approved and valid and the inability to draw down the impoundment this season does not prevent you from conducting the project this winter.

The Department will continue to work with the Drainage District on potential future drawdowns or amending the official water level order.

If you have any questions about this determination, please contact me at 262-574-2136 or via email at Elaine.johnson@wisconsin.gov.

Sincerely,

Elaine Johnson
Water Management Specialist

cc: Julie Anderson, Racine County
Rebecca Ewald, Village of Waterford
Betty Novy, Village of Rochester
Russ Rasmussen, Michelle Scott & Michelle Hase, WDNR

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BEFORE THE
DEPARTMENT OF NATURAL RESOURCES

Request for Temporary Lowering of)	IP-SE-2016-52-03643
Impoundment Water Levels at the Rochester)	
Dam by the Racine County Board of Drainage)	
Commissioners-Norway Dover, c/o Alan)	
Jasperson)	

FINDINGS OF FACT AND ORDER

The Racine County Board of Drainage Commissioners- Norway Dover, c/o Alan Jasperson, 500 College Ave., Racine, WI 53403, filed an application with the Department on 08/25/2016, under Section 31.02(1), Wisconsin Statutes, for a temporary draw down of Rochester Dam, located in the in the SW1/4 of the NW1/4 of Section 11, Township 3 North, Range19 East, Village of Rochester, Racine County. Approval Denied.

FINDINGS OF FACT

1. The Racine County Board of Drainage Commissioners- Norway Dover, c/o Alan Jasperson, 500 College Ave., Racine, WI 53403 (herby known as the 'applicant'), filed an application with this Department on 08/25/2016, under section 31.02, Wisconsin Statutes, for a temporary draw down of Rochester Dam, located in the in the SW1/4 of the NW1/4 of Section 11, Township 3 North, Range19 East, Village of Rochester, Racine County.
2. The Rochester Dam is owned by Racine County and operated by the applicant.
3. The Fox River is navigable in fact at the project site.
4. The applicant proposes a water level drawdown the Rochester Dam on the Fox River beginning October 1, 2016 and ending on March 1, 2017 for the purpose of dredging work in the Wind Lake and Goose Lake Canals.
5. The Department issued Chapter 30 permit IP-SE-2012-52-05674 on 7/29/2015 for sediment removal activities within the Wind Lake and Goose Lake Branch Canals. IP-SE-2012-52-05674 is a valid permit expiring in 2018, and the applicant can continue efforts to clean these waterways in accordance with the conditions of the permit.
6. The Department has been working with the applicant, the local villages and citizen interest groups over the course of the last year on a Memorandum of Understanding to evaluate the effect from modifications to the Rochester Dam operational order on downstream flow, Fox River water levels, Wind Lake Canal water levels, and related environmental effects.

7. The project does not meet the standards contained in s. 31.02(1), Wis. Stats. Specifically, the project is not in the public interest in the navigable waters, for the following reasons:
- Department staff has reviewed the proposed drawdown effects on the fisheries communities within the impoundment (see attached Exhibit A, incorporated herein by reference).
 - Department staff has reviewed the proposed drawdown effects on impacts to wildlife and recreational uses within the impoundment (see attached Exhibit B, incorporated herein by reference).
 - Department staff has reviewed the proposed drawdown effects on water quality and impacts to aquatic life (see attached Exhibit C, incorporated herein by reference).
 - Since 2007, the applicant has requested and received approval for a temporary winter drawdown of Rochester Dam in conjunction with dredging activities a total of 7 times. Cumulatively, these drawdowns have impacted local recreation and fisheries on the Fox River in the Rochester Dam impoundment.
8. Under NR150, temporary drawdowns are considered a minor action.

CONCLUSIONS OF LAW

1. The Department has authority under Section 31.02(1), Wisconsin Statutes, and the foregoing Findings of Fact, to issue an order denying the permit requested.
2. The Department has complied with Section 1.11, Wisconsin Statutes.

ORDER

IT IS THEREFORE ORDERED THAT the application of The Racine County Board of Drainage Commissioners- Norway Dover, c/o Alan Jasperson, under Section 31.02(1), Wisconsin Statutes, requesting a temporary drawdown of the Rochester Dam in the Fox River, located in the in the SW1/4 of the NW1/4 of Section 11, Township 3 North, Range 19 West, Village of Rochester, Racine County, be, and the same hereby is, denied.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with section NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing does not extend the 30 day period for filing a petition for judicial review.

Dated at Waukesha Service Center, Wisconsin on 10/5/2016.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By 

Elaine Johnson
Water Management Specialist

CORRESPONDENCE/MEMORANDUM

DATE: September 20, 2016
TO: Elaine Johnson, Water Management Specialist
FROM: Luke Roffler, Senior Fisheries Biologist
SUBJECT: Proposed Rochester Dam Drawdown (Winter 2016-2017)

FILE REF: 742500-16

The Racine County Drainage District – Norway Dover (RCDD) is proposing a water level drawdown at the Rochester Dam on the Fox River in conjunction with a permitted dredging project in the Wind Lake Canal during the winter of 2016-17. The drawdown is proposed to begin in October 2016, with restoration of normal water levels by March 1, 2017. At normal operating levels (4.20' minimum at the County Highway D river gage station), maximum water depth in the Wind Lake Canal and Fox River above the Rochester Dam is roughly 6'. Winter drawdowns in the past two years have dropped the reading at the gage to roughly 1.20', meaning the maximum water depth upstream of the dam is approximately 3.0' during the drawdowns. Additionally, the spillway at the Rochester Dam as currently constructed is considered impassable during typical spring flows when fish are attempting to migrate up the Fox River. Lastly, the Wind Lake Canal and Fox River above the Rochester Dam are relatively popular public water resources and support various uses, including boat fishing, shore fishing, waterfowl hunting, and recreational boating (including canoes and kayaks).

Fish Community Concerns

The Wind Lake Canal and Fox River above the Rochester Dam are home to a wide variety of gamefish and panfish species, including black crappie, bluegill, channel catfish, flathead catfish, largemouth bass, muskellunge, northern pike, pumpkinseed, smallmouth bass, walleye, white bass, white crappie, yellow bass and yellow perch. Additional fish species include bullheads, common carp, freshwater drum, gizzard shad, various redhorse and suckers (including the state threatened river redhorse), longnose and shortnose gar and quillback. Other sites on the Fox River immediately upstream are also home to lake chubsucker (state species of special concern) and starhead topminnow (state endangered species). Many of the gamefish and forage fish present above the Rochester Dam have shown a documented affinity for specific overwintering habitat that is unlikely to be present during a winter drawdown to a maximum water depth of approximately 3.0'. Paragamian (1989) used radiotelemetry to determine seasonal walleye habitat use in the Cedar River in Iowa, finding that walleye overwintered in pools ranging in depth from 4.9' to 9.8' and that deep pools (>5.9') were sought most frequently by walleye in winter. Coble (1975) indicated a similar preference in smallmouth bass, finding they preferentially selected the deepest available habitat during winter. Channel catfish are known to seek out the deepest available scour holes for overwintering habitat (Newcomb 1989), even relocating to larger rivers if preferred habitat is not immediately available (Peters et al. 1992; Pellett et al. 1998). Multiple studies have documented the preference of northern pike for deep overwintering habitat (>6.7') in reservoirs and lakes (Diana et al. 1977; Cook and Bergersen 1988). Largemouth bass have also been significantly affected by winter drawdowns, typically moving greater distances and exhibiting larger home ranges during the drawdown (Rogers and Bergersen 1995). Largemouth bass, like all fish species, seek out specific overwintering habitat to minimize energy expenditure (Carlson 1992), habitat which may not be available during a drawdown. Muskellunge have also exhibited an affinity to congregate in the deepest available overwintering habitat during drawdown conditions (Gillis et al. 2010). Muskellunge in the Mississippi River have shown a significant preference for deeper pools, with overwintering depths up to and above 8.2' (Young et al. 1996). Adult white sucker in the Credit River system in Ontario occurred almost exclusively in pools deeper than 3.2' during the

winter (Cunjak 1996). Given the fact that preferred winter habitat will not be available for these fish after the drawdown begins each October, a downstream fall migration of fish through the Rochester Dam can be expected each year. The Rochester Dam spillway is also unlikely to be passable during typical spring flows, meaning these fish species will not be able to migrate upstream past the dam to recolonize the river and canal. Given the lack of sufficient overwintering depths and the inability of fish species to surmount the Rochester Dam during spring spawning runs, annual winter drawdowns could reasonably be expected to lead to a marked decrease in fish abundance in the Wind Lake Canal and Fox River above Rochester Dam.

Fishing reports from the Wind Lake Canal and Fox River above the Rochester Dam appear to confirm a significant reduction in gamefish and panfish abundance following the winter drawdown in 2014-15. Fishing activity at the various popular access points has fallen off substantially since winter drawdowns began. Fisheries monitoring surveys have not collected sufficient information to confirm the effects of the drawdowns, as the Wind Lake Canal and Fox River above the Rochester Dam are somewhat habitat limited which increases the difficulty of effectively targeting fish. However, recent DNR fisheries monitoring surveys have documented the presence of 28 of the fish species listed above, including several quality sized gamefish. An electrofishing survey in October 2015 (shortly after that year's drawdown began) showed a slightly higher catch rate of gamefish upstream of Dover Line Road, where dredging of the Wind Lake Canal had already been completed. Channel depth was roughly 2' greater than downstream of the road, but the primary gamefish attractant was likely the extremely high concentration of gizzard shad at the site, which is a common forage item for gamefish in the system.

Various negative effects can also be expected for any fish that remain above the Rochester Dam. Flow regime is among the most significant factors in determining the abundance, growth and dispersal of riverine fisheries communities. Flow regulation that is unstable and/or does not mimic natural "run of the river" conditions has been associated with a variety of deleterious effects on fish populations. The natural dispersal of larval or juvenile fishes can be significantly altered, primarily by restricting or removing access to traditional rearing sites (Bonetto et al. 1989). Stable systems typically exhibit better fish abundance and growth rates than those with frequent water drawdowns (Gaboury and Patalas 1984; Bonetto et al. 1989). These fish will also face increased predation risk, as winter conditions, particularly during a drawdown, concentrate fish and make them much more vulnerable to land predators and birds (Alexander 1979; Bustard 1986; Power and Mitchell 1994). These issues would exacerbate the negative effects of limited and fragmented habitat discussed in the previous paragraphs, putting additional pressure on remnant populations of popular gamefish and the forage fish that support them. DNR Fisheries Management and multiple outside groups have invested significant resources to stock fish in this portion of the Fox River in recent years, including 22,500 small fingerling walleye, 1,475 large fingerling walleye, 1,000 small fingerling northern pike and 200 large fingerling northern pike, all within just the last five years. The Fox River and connected Wind Lake Canal are popular fishing resources that should be maintained as such, particularly given their unique ability to provide access to shore anglers and non-motorized boaters.

Public Access Concerns

The more immediately visible issue with ongoing winter drawdowns at the Rochester Dam is the significant negative impact on nearly every user group that uses the Fox River or Wind Lake Canal. Lowering water levels by 3' on an already relatively shallow waterway from October through February severely impacts usage by boat anglers, shore anglers, hunters and recreational boaters. A multitude of popular shore access points exist along the Fox River, as well as a single motorized boat launch near the terminus of the Wind Lake Canal. Such sites are generally unusable as soon as water levels begin to drop in the fall. Various municipalities along the Fox River have dedicated significant time, effort and funds to develop and maintain public access points that become largely unusable during periods of drawdown.

These include River Bend Park, Ten Club Park, Village Hall Park and Whitford Park owned by the Village of Waterford; Pioneer Park owned by the Village of Rochester; and Case Eagle Park owned by Racine County. This stretch of the Fox River is also currently under consideration for designation as a national water trail by the National Parks Service. The Village of Waterford is working in conjunction with the Fox River Ecosystem Partnership, the Southeast Wisconsin Regional Planning Commission, the Chicago Metropolitan Agency for Planning and the Rock River Trail Initiative to develop a Fox River Water Trail that runs from Waukesha County through Racine and Kenosha County and into Illinois. The Village of Waterford also recently unveiled two new canoe and kayak launches, as well as plans for a redevelopment of Ten Club Park to improve river access. There are also dozens of riparian landowners along the Wind Lake Canal and this portion of the Fox River whose abilities to access the waterbody in their backyards is severely limited or eliminated during periods of drawdown at the dam.

Summary

The Wind Lake Canal and Fox River upstream of the Rochester Dam provide a popular fishing, hunting and recreational resource to riparian landowners and the public who access the waterbodies from various public lands. Several municipalities along the river have recognized the value of the resource and have made significant investments in developing, improving and maintaining public access points to the river. Recent winter drawdowns at the dam have indisputably limited or eliminated access to these popular waterbodies for a good portion of the year. Established scientific research and anecdotal fishing reports also indicate a high likelihood that recent drawdowns have negatively impacted the resident fish community, likely causing the large majority of desirable fish species to migrate downstream over the dam to locate suitable water depths for overwintering habitat. There is no reason to suspect the proposed 2016-17 winter drawdown will have anything but the same negative impacts on the fish community and public access.

The “cost” of the proposed drawdown is readily apparent after multiple winter drawdowns immediately preceding this one. The stated “benefit” of this proposed drawdown and those completed in the previous two years was to improve the efficiency of the permitted dredging project in the Wind Lake Canal. Unfortunately, the RCDD has declined to conduct dredging activities as spelled out in their permit, citing a need for a deeper freeze for equipment access. Given the unpredictability of winter conditions and the well-established negative impacts of ongoing drawdowns, every effort should be made by the applicant to complete the dredging project, regardless of water level, winter conditions, etc. Alternative dredging methods are available that do not require extremely low water levels to complete. These methods should be considered in order to complete the permitted dredging project and restore public access to the resource.

In summary, the drawdowns have been shown to produce significant negative impacts a broad array of users. Continuing to allow winter drawdowns for a dredging project that may or may not occur allows the desires of one particular user group to negatively impact all other users in a significant way, while also directly opposing ongoing efforts by DNR, the Village of Waterford, the Village of Rochester and Racine County to maintain and improve a popular and valuable public waterway. Any winter drawdowns in the future (aside for those directly related to maintenance of the dam) should not be allowed to proceed, given the clear negative impacts detailed above, particularly when it is well-established that dredging projects can be completed regardless of water level or time of year.

Luke Roffler

Senior Fisheries Biologist – Racine, Kenosha and Walworth Counties
Wisconsin Department of Natural Resources
26313 Burlington Road
Kansasville, WI 53139

Literature Cited

- Alexander, G. R. 1979. Predators of fish in coldwater streams. Pages 153-170 in H. Clepper, editor. *Predator-prey systems in fisheries management*. Sport Fishing Institute, Washington, D.C.
- Bonetto, A. A., J. R. Weis, and H. P. Castello. 1989. The increasing damming of the Parana Basin and its effects on the lower reaches. *Regulated Rivers Research & Management* 4:363-346.
- Bustard, D. R. 1986. Some differences between coastal and interior stream ecosystems and the implications to juvenile fish production. Pages 117-126 in J. H. Patterson, editor. *Proceedings of the workshop in habitat improvements*. Canadian Fisheries and Aquatic Sciences Technical Report 1483. Nanaimo, British Columbia, Canada.
- Carlson, D. M. 1992. Importance of wintering refugia to the largemouth bass fishery in the Hudson River Estuary. *Journal of Freshwater Ecology* 7:173-180.
- Coble, D. W. 1975. Smallmouth bass. Pages 21-22 in H. Clepper, editor. *Black bass biology and management*. Sport Fishing Institute, Washington, D.C.
- Cook, M. F., and E. P. Bergersen. 1988. Movements, habitat selections, and activity periods of northern pike in Eleven Mile Reservoir, Colorado. *Transactions of the American Fisheries Society* 117:495-502.
- Cunjak, R. A. 1996. Winter habitat of selected stream fishes and potential impacts from land-use activity. *Canadian Journal of Fisheries and Aquatic Sciences* 53:267-282.
- Diana, J. S., W. C. Mackay, and M. Ehrman. 1977. Movements and habitat preference of northern pike (*Esox lucius*) in Lac Ste. Anne, Alberta. *Transactions of the American Fisheries Society* 106:6. 560-565.
- Gaboury, M. N., and J. W. Patalas. 1984. Influence of water level drawdown on the fish populations of Cross Lake, Manitoba. *Canadian Journal of Fisheries and Aquatic Sciences* 41:118-125.
- Gillis, N. C., T. Rapp, C. T. Hasler, and S. Cooke. 2010. Spatial ecology of adult muskellunge (*Esox masquinongy*) in the urban Ottawa reach of the historic Rideau Canal, Canada. *Aquatic Living Resources* 23:225-230.
- Newcomb, B. A. 1989. Winter abundance of channel catfish in the channelized Missouri River, Nebraska. *North American Journal of Fisheries Management* 9:195-202.
- Paragamian, V. L. 1989. Seasonal habitat use by walleye in a warmwater river system, as determined by radiotelemetry. *North American Journal of Fisheries Management* 9:392-401.
- Pellet, T. D., G. J. Van Dyck, and J. V. Adams. 1998. Seasonal migration and homing of channel catfish in the lower Wisconsin River, Wisconsin. *North American Journal of Fisheries Management* 18:85-95.
- Peters, E. J., R. S. Holland, and B. C. Chapman. 1992. Studies of the channel catfish (*Ictalurus punctatus*) in the lower Platte River, Nebraska. University of Nebraska. 68583-0814, Lincoln, Nebraska.
- Power, G., and J. Mitchell. 1994. The influence of river ice on birds and mammals. Pages 315-330 in T. D. Prowse, editor. *Proceedings of the Workshop on Environmental Aspects of River Ice*. National Hydrology Research Institute, Saskatoon, Saskatchewan.
- Rogers, K. B., and E. P. Bergersen. 1995. Effects of a fall drawdown on movement of adult northern pike and largemouth bass. *North American Journal of Fisheries Management* 15:596-600.
- Younk, J. A., M. F. Cook, T. J. Goeman, and P. D. Spencer. 1996. Seasonal habitat use and movements of muskellunge in the Mississippi River. Minnesota Department of Natural Resources, Investigational Report 449. St. Paul, Minnesota.

CORRESPONDENCE/MEMORANDUM

DATE: 09/23/2016

TO: Elaine Johnson, Water Management Specialist

FROM: Marty Johnson, Wildlife Biologist

SUBJECT: Comments on Temporary Drawdown Application 2016-2017 05674

The Racine County Drainage District is proposing to lower the Rochester Dam by 2.5 feet from Oct. 1st to March 1st, thus lowering the water depth in the Wind Lake Canal and the Goose Lake Canal. The purpose of the drawdown is to prepare the channel for the dredging project. The following are comments concerning impacts to wildlife resources and wildlife related recreation opportunities as a result of the drawdown.

Reptiles and Amphibians (Herps)

Several reptile and amphibian species use the waterways: Snapping Turtle, Painted turtle, Spiny softshell turtle, Chorus frog, Bullfrog, Green Frog, American Toad, Cope's tree frog and the Gray tree frog. Several of these species use the waterways as over wintering habitat: Snapping turtle, Painted turtle, Spiny softshell turtle, Bullfrog and Green Frog. When over wintering, they burrow into the soft sediment underwater to escape freezing temperatures. To do this successfully they need sufficient water depth that will not freeze solid and will provide insulation. As cold blooded animals their ability to move during the winter is greatly reduced, so they cannot adjust to dramatic changes in environmental conditions. The permit condition requiring the drawdown be completed by October 1st helps to minimize the impact to herps. This will allow the herps time to adjust to the dropping water levels before freezing temperatures, allowing them to find suitable over-winter areas.

Despite the October 1st completion deadline, the drawdown still has the potential to impact any remaining herps using the waterways. The lowering of water levels at the dam will mean narrower channels and shallower water depths further upstream. While there may still be water further upstream, the water depths may not be sufficient to protect the herps from freezing temperatures. The shallow waters still may freeze solid, exposing turtles and frogs to extreme temperatures. Even if the channel does not freeze solid, a hard freeze could result in a significant reduction in the dissolved oxygen that is critical for frog and turtle survival in these waterways.

Bringing water levels back up at the beginning of March will benefit frog species- Green frogs and Bullfrogs- that breed in the waterway. These species attach their eggs to flooded vegetation throughout late spring and early summer.

Furbearers

Beavers and muskrats are common to the canals and will be the mammal species most affected by a winter drawdown. Both species require stable water levels for their life cycles and the October drawdown will occur at a critical time when they are preparing for the winter months. Beavers live in lodges or bank dens with their entrances underwater. (There is one known beaver lodge on the Fox River, just north of the HWY DD Bridge.) They create winter food caches near their lodges/dens that they access underwater. A winter drawdown will expose their lodge/den entrance holes, potentially exposing them predation. The



drawdown will also restrict access to food caches, causing them to look for food on land, increasing susceptibility to predation. The drawdown likely will cause beavers in the canal to relocate. As the frequency of drawdowns increases, fewer beavers will be found using the canal.

Similarly, muskrats live in lodges or bank dens with entrances underwater and create winter food caches underwater. The drawdown will expose their lodge/den entrance holes and will restrict access to their winter food caches. These changes will make the muskrats more susceptible to predation and will cause them to relocate. As the frequency of winter drawdowns increases, fewer muskrats will be found using the canal.

Beavers and muskrats are game species that have healthy populations in Racine County. Trappers pursue them during the winter and under normal water levels the canals provide trapping opportunities mainly for muskrats. As previously mentioned, the drawdown will negatively impact the local populations and as drawdown frequency increases the populations will continue to decline. This will result in a decline in trapping opportunities and activity as well. The reduction in muskrats and beavers may be seen as a positive for canal/river residents who experience muskrats damaging their shorelines and/or beavers cutting shoreline trees.

Birds

The drawdown will occur outside of the nesting season for birds and should not have an effect on it. The drawdown will affect fall bird migration, mainly waterfowl that use the canal as a resting and feeding stopover area. The canal will still provide water for migrating waterfowl to use for resting, but at a reduced scale. Lower water levels will turn the shoreline shallows into mudflats, eliminating feeding areas for waterfowl (i.e., emergent vegetation, etc.). These changes will cause the waterfowl to stay in the area for shorter periods of time or force them to move on to more suitable habitat.

Hunting

The canals are used by duck hunters during the fall. The duck season typically starts in late September or early October and runs for 60 days. (In 2016 it starts on October 1st.) Hunters use watercraft (i.e., john-boats, canoes, skiffs, etc.) to access certain parts of the canals and hunt along the shoreline in dense cover, normally hunting over decoys. The effects of the October 1st drawdown will make the canal a more difficult and less desirable area to hunt during the fall duck hunting season. The drawdown will change the canals water depth and channel width, making watercraft access more difficult. The first 10 – 20 feet of the shore area will be exposed mud, making the launching of boats difficult. Hunters will be restricted to using canoes or skiffs under these conditions, which may limit some hunters.

In addition the exposed canal bed will make actual hunting difficult. Once the drawdown is completed there will be 10 – 20 feet of mudflats between the shoreline and the water. Hunters will be hunting from dense cover on the shoreline, 15 – 25 feet from the water. They will have to walk through the mudflats to setup decoys in the water and also to retrieve any harvested waterfowl. The muddy conditions will likely result in fewer hunters using the canal for duck hunting.

Summary: The proposed drawdown will affect a variety of resources and activities, but it will have the greatest impact on the herp population and duck hunting opportunities. Even with the October 1st condition, the drawdowns have likely had an impact on the herp population in the canals. In looking at the combination of the drawdown frequency (6 winter drawdowns since 2007) and the dredging work, chances that the herp population has been impacted only increases. The populations will rely on other

herps moving in from the upper reaches of the watershed. With continued drawdowns it will be harder for these other populations to re-colonize the canals and to survive the winters, limiting the herp population.

The winter drawdowns affect the entire fall duck season. Changes in the water levels affect hunter access to the canals and the ability to hunt the canals. As urbanization continues, huntable areas become harder to find and it is important to preserve existing ones.

I recommend that the RCDD look into additional methods to complete their dredging project without doing drawdowns. Other dredging methods (i.e., hydraulic, etc.) should be investigated that may avoid or minimize the disruption of the drawdowns and impact to herps and other recreational activities.

If Permitted Recommended Conditions:

- The drawdown must be completed by October 1st. Drawdown can occur after October 1st as long as water temps (typically measures approximately 1 m from shore and 1 m deep) are still 55° F or higher

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

I

DATE: 09/23/2016

TO: Elaine Johnson

FROM: Craig Helker, Water Resources Management Specialist

SUBJECT: Comments on Temporary Drawdown Application 2016-2017 05674

The Racine County Drainage District has over the last decade a history of doing "One-Time" winter drawdowns, failing to start and/or complete the associated dredging during the drawdown, and requesting another "One-Time" drawdown. So, I considered this Application not as being a single year "One-Time" event, but rather as a continuing water level management approach of annual winter drawdowns.

The annual raising and lowering of the Fox River at Rochester by water elevation manipulation will likely result in increased bank instability within the areas backwatered by the dam. Water levels that are higher during the growing season (the canal being utilized for irrigation) will prevent the establishment and growth of bank stabilizing vegetation. The subsequent lowering of water levels over the winter will now expose these denuded banks to high spring flood flows and erosive forces. Eroded bank sediment will then be transported to the Fox River and downstream communities.

To avoid the above situation and associated impacts to downstream water quality, I recommend denying the Temporary Drawdown, and encourage the District to pursue dredging measures that will not require a drawdown and that will minimize bank erosion.

Over all, dredging is extremely disruptive to wildlife that lives in the dredged area and harmful to aquatic life locally and within the wider water system. Water level manipulation that exacerbates bank erosion is counterproductive in a manipulated water system, as accumulated sediment must then be dredged and canal banks re-sloped to unstable angles that eventually fail, contributing to more sediment entering the system – and requiring more dredging.

To minimize long term water quality impacts and impacts to aquatic life, I recommend annual winter drawdowns be avoided, and that canal banks be shaped for maximum stability – including benching canal banks to provide fish spawning habitat where possible. Additionally, I recommend vegetated field buffers of sufficient width to keep eroding farm field sediment from entering the canal system. All of these efforts will maximize the time period between dredging projects, improve fish and wildlife habitat and populations, improve water quality within the canal system and the Fox River, and minimize siltation downstream in the Fox River.

