

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter Of:)	
)	
MARATHON PETROLEUM)	
COMPANY LP,)	
)	
Petitioner,)	
)	
v.)	PCB No. 18-049
)	
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
)	
Respondent.)	

NOTICE OF FILING

TO: Don Brown	Carol Webb, Esq.
Clerk of the Board	Hearing Officer
Illinois Pollution Control Board	Illinois Pollution Control Board
100 W. Randolph Street, Suite 11-500	1021 North Grand Avenue East
Chicago, Illinois 60601	P.O. Box 19274
(VIA ELECTRONIC MAIL)	Springfield, Illinois 62794-9274
	(VIA ELECTRONIC MAIL)
(SEE PERSONS ON ATTACHED SERVICE LIST)	

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board a **MOTION FOR LEAVE TO FILE AN ADDENDUM TO EXHIBIT 4 OF THE PETITION TO APPROVE ALTERNATIVE THERMAL EFFLUENT LIMITATIONS** and **ADDENDUM TO TECHNICAL SUPPORT DOCUMENTATION FOR ALTERNATIVE THERMAL EFFLUENT LIMITATIONS**, copies of which are herewith served upon you.

Respectfully submitted,

MARATHON PETROLEUM COMPANY LP,

Dated: February 27, 2018

By: /s/ Katherine D. Hodge
One of Its Attorneys

Katherine D. Hodge
Joshua J. Houser
HEPLERBROOM, LLC
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CERTIFICATE OF SERVICE

I, Katherine D. Hodge, the undersigned, on oath state the following:

That I have served the attached **MOTION FOR LEAVE TO FILE AN ADDENDUM TO EXHIBIT 4 OF THE PETITION TO APPROVE ALTERNATIVE THERMAL EFFLUENT LIMITATIONS** and **ADDENDUM TO TECHNICAL SUPPORT DOCUMENTATION FOR ALTERNATIVE THERMAL EFFLUENT LIMITATIONS** via electronic mail upon:

Don Brown
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That my email address is Katherine.Hodge@heplerbroom.com.

That the number of pages in the email transmission is 19.

That the email transmission took place before 5:00 p.m. on the date of February 27, 2018.

/s/ Katherine D. Hodge
Katherine D. Hodge

Date: February 27, 2018

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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**MOTION FOR LEAVE TO FILE AN ADDENDUM TO EXHIBIT 4 OF THE
PETITION TO APPROVE ALTERNATIVE THERMAL EFFLUENT LIMITATIONS**

MARATHON PETROLEUM COMPANY LP (“Marathon”), by and through its attorneys, HEPLERBROOM, LLC, and pursuant to 35 Ill. Adm. Code § 101.500, hereby files this Motion for Leave to File an Addendum to Exhibit 4 of the Petition to Approve Alternative Thermal Effluent Limitations (“Motion”). In support of this Motion, Marathon states as follows:

1. On December 15, 2017, Marathon filed its Petition to Approve Alternative Thermal Effluent Limitations (“Petition”) in this proceeding.
2. Exhibit 4 to the Petition is entitled “Technical Support Documentation for Alternative Thermal Effluent Limitations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) for the Marathon Petroleum Company LP Refinery located in Robinson, Illinois” (“TSD”) and was prepared by Marathon’s consultant, Midwest Biodiversity Institute (“MBI”).
3. Exhibit 7 to the Petition is entitled “Biological and Water Quality Assessment of Robinson and Sugar Creeks and Tributaries 2016” (“Bioassessment”), also prepared by MBI.

4. The Bioassessment's fish assemblage data revealed the occurrences of eight individuals of Bigeye Chub (*Hybopsis amblops*) within the study area (three sites in Robinson Creek and one site in Lamotte Creek). *See* Exhibit 7 Bioassessment, at Appendix B-2 page B2-4, Appendix B-3 page B3-6, B3-7, B3-9, B3-16, and B3-25.

5. Bigeye Chub is listed as an endangered species by the State of Illinois. *See* 17 Ill. Adm. Code § 1010.30(a). Bigeye Chub is not a federally listed species.

6. Prior to Marathon's filing of its Petition, as part of the Illinois Environmental Protection Agency's ("Illinois EPA") review and approval of Marathon's Detailed Plan of Study, Illinois EPA consulted with the Illinois Department of Natural Resources ("IDNR"). On June 2, 2016, IDNR issued a letter of no objection to Marathon's Detailed Plan of Study. *See* Petition Exhibit 5, Letter from N. Grider, IDNR, to Marathon, c/o J. Titsworth, regarding Marathon's 316(a) Plan of Study and EcoCAT Number 1608667 (June 2, 2016). In that letter, IDNR reported that its review was "auto-terminated" due to "no protected resources identified in the immediate discharge area," and that IDNR's detailed review of the Natural Heritage Database resulted in "no records for state threatened or endangered aquatic species occur[ring] in the proposed study area of Robinson Creek and its tributaries, Lamotte Creek, and Sugar Creek." *Id.*

7. However, after Marathon filed its Petition, IDNR reviewed the Petition and supporting exhibits. Based on its review, IDNR sent Illinois EPA a letter dated January 26, 2018, indicating that IDNR was reopening its consultation process due to the occurrences of Bigeye Chub reported in Marathon's Bioassessment. *See* Letter from Keith M. Shank, IDNR, to Scott Twait, Illinois EPA (Jan. 26, 2018), attached to this Motion. IDNR provided Marathon

with a copy of this letter on the same day and indicated that IDNR would be scheduling further discussions between IDNR, Illinois EPA, and Marathon.

8. In response to IDNR's consultation reopening letter, over the next couple of weeks, IDNR, Illinois EPA, and Marathon held several telephone conferences to preliminarily discuss potential Bigeye Chub thermal tolerance data and the reopened consultation process.

9. Marathon understands that IDNR and Illinois EPA met on February 2, 2018, to further discuss Bigeye Chub occurrences and Marathon's Petition.

10. After the IDNR-Illinois EPA meeting on February 2, 2018, IDNR, Illinois EPA, and Marathon scheduled a meeting for February 14, 2018, at IDNR's offices to further discuss Bigeye Chub occurrences and Marathon's Petition.

11. In preparation for that meeting, MBI assisted Marathon by performing a detailed analysis of the potential for any adverse effects to Bigeye Chub associated with Marathon's requested alternative thermal effluent limitations.

12. On February 14, 2018, IDNR, Illinois EPA, and Marathon met at IDNR's offices and discussed in detail the occurrences of Bigeye Chub, the limited amount of thermal tolerance data available on Bigeye Chub, MBI's analysis of the potential adverse effects to Bigeye Chub that might be posed by Marathon's requested alternative thermal effluent limitations, and the analysis' conclusion that the occurrence of Bigeye Chub in Robinson Creek has no effect on the conclusions of Marathon's 316(a) technical evaluation nor the alternative thermal effluent limitations that are being requested by Marathon.

13. Also during the meeting, Marathon informed IDNR and Illinois EPA that Marathon would prepare an addendum to the TSD that reports MBI's Bigeye Chub analysis and

conclusions, and that Marathon would supplement the record with this information by requesting leave from the Board to file the addendum in this proceeding.

14. Accordingly, MBI prepared an Addendum to the Technical Support Documentation for Alternative Thermal Effluent Limitations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) for the Marathon Petroleum Company LP Refinery located in Robinson, Illinois (February 27, 2018) (“Addendum”), which Marathon has simultaneously filed with this Motion. Marathon intends for this Addendum to supplement the record in this proceeding by providing additional review and analysis of the potential for adverse effects to Bigeye Chub that might be posed by Marathon’s requested alternative thermal effluent limitations, and providing the rationale for concluding that the occurrence of Bigeye Chub in Robinson Creek has no effect on the conclusions of Marathon’s 316(a) technical evaluation nor the alternative thermal effluent limitations requested in Marathon’s pending Petition, i.e., that Marathon’s requested alternative thermal effluent limitations will assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on Robinson Creek.

15. Therefore, Marathon requests leave from the Board to file the Addendum as a supplement to the TSD in Exhibit 4 of the Petition.

WHEREFORE, for the above and foregoing reasons, MARATHON PETROLEUM COMPANY LP requests that the Illinois Pollution Control Board enter an Order granting this Motion for Leave to File an Addendum to Exhibit 4 of the Petition to Approve Alternative Thermal Effluent Limitations, and granting such other and further relief in MARATHON

PETROLEUM COMPANY LP'S favor as the Illinois Pollution Control Board deems just and proper.

Respectfully submitted,

MARATHON PETROLEUM COMPANY LP,

Dated: February 27, 2018

By: /s/ Katherine D. Hodge
One of Its Attorneys

Katherine D. Hodge
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Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Bruce Rauner, Governor
Wayne A. Rosenthal, Director

January 26, 2018

Mr. Scott Twait
Division of Water Pollution Control
Bureau of Water
Illinois Environmental Protection Agency
1020 North Grand Ave. East
Springfield, IL 62794-9276

**RE: Marathon Refinery NPDES Thermal Variance Request, Crawford County
Endangered Species Consultation Process
EcoCAT Review #1608667; #1706633**

Dear Mr. Twait:

The Department is contacting you pursuant to the requirements of the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The EcoCAT reviews referenced above were initiated on behalf of Marathon Petroleum Company LLC pertaining to a study pursuant to Section 316(a) of the Clean Water Act and pursuant to a proposed modification of NPDES Permit IL0004073. At the time of those submissions, in March 2016 and January 2017, this Department had no documentation that species listed as endangered or threatened by the Illinois Endangered Species Protection Board were present in the vicinity. Consequently, those consultations were closed without further evaluation by the Department.

Recently, the Department became aware of Case PCB-2018-049, now pending before the Illinois Pollution Control Board, filed on December 15, 2017, by Marathon Petroleum LLC to request a variance from the thermal standards contained in NPDES Permit IL0004073.

In reviewing the exhibits supporting Marathon's request, the Department noted that in September 2016 Marathon's consultant collected two specimens of the **Bigeye Chub**, *Hybopsis amblops*, at

Outfall 001, where the variance is proposed, as well as one specimen upstream of Outfall 001. This species is listed as “endangered” by the Illinois Endangered Species Protection Board, but was not identified as such at the time nor during the ensuing study to support the thermal variance request. It appears no consideration was given to this species’ protected status when preparing the variance request, nor was this information available to the Department at the time of the prior consultations.

Pursuant to Part 1075.50 of Title 17 of the Illinois Administrative Code, the Department is re-opening the consultation process for the relevant consultations because new information pertaining to the presence of listed species in the vicinity is now available which was not previously considered.

Information supporting the Marathon filing suggests the Bigeye Chub may be unable to tolerate the proposed thermal variance. Further evaluation is necessary to determine whether Marathon may need permission from this Department, pursuant to the requirements of the Illinois Endangered Species Protection Act [520 ILCS 10] to take the Bigeye Chub, prior to seeking such a variance.

The Department recommends the Agency not take further action on the variance request until the Department and Agency can discuss and evaluate the implications of the presence of this species. Given that time is of importance, a meeting for this discussion should be arranged as soon as possible.

Sincerely,

A handwritten signature in dark ink, appearing to read "Keith M. Shank". The signature is fluid and cursive, with the first name "Keith" being more prominent.

Keith M. Shank, Chief
Impact Assessment Section
Office of Realty & Environmental Planning
Ph. (217) 785-5500
keith.shank@illinois.gov

cc: Virginia Yang, IDNR
Sara Terranova, IEPA

**Technical Support Documentation for Alternative Thermal Effluent Limitations
under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) for
the Marathon Petroleum Company LP Refinery located in Robinson, Illinois**

-ADDENDUM-

by

Midwest Biodiversity Institute
P.O Box 21561
Columbus, OH 43221-0561

to

Marathon Petroleum Company LP
Illinois Refining Division
400 S Marathon Ave.
Robinson, IL 62454

February 27, 2018

ADDENDUM to Technical Support Documentation for Alternative Thermal Effluent Limitations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) for the Marathon Petroleum Company LP Refinery located in Robinson, Illinois

Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561

BACKGROUND

The documentation of Bigeye Chub (*Hybopsis amblops*), an Illinois endangered species, in the 2016 Robinson Creek study area prompted comments by Illinois DNR in a letter to Illinois EPA about the potential for adverse effects in Robinson Creek by the MPC 001 thermal effluent. In its letter, Illinois DNR indicated that new information pertaining to the presence of listed species in the vicinity is now available which was not previously considered. Illinois DNR's letter also stated that further evaluation of the potential for any adverse effects to Bigeye Chub associated with MPC's request for alternative thermal effluent limitations pursuant to Section 316(a) of the Clean Water Act (CWA) (33 U.S.C. § 1326(a)), Section 304.141(c) of the Illinois Pollution Control Board's (Board) Water Pollution regulations (35 Ill. Admin. Code § 304.141(c)), and the Board's Subpart K procedural rules (35 Ill. Admin. Code 106, Subpart K) was necessary prior to MPC seeking such alternative thermal effluent limitations. This addendum provides additional review and analysis of the potential for adverse effects to Bigeye Chub that might be posed by MPC's requested alternative thermal effluent limitations.

Occurrence of Bigeye Chub in Robinson Creek

The fish assemblage data reported by MPC in the *Biological and Water Quality Assessment of Robinson and Sugar Creeks and Tributaries 2016* (MBI 2017) revealed the occurrence of eight (8) individuals of Bigeye Chub at three sites in Robinson Creek and one site in Lamotte Creek (Figure 1 and Table 1). Although part of the study area, Lamotte Creek is outside the area of influence of the thermal discharge from MPC 001, which essentially ends where Robinson Creek flows into Sugar Creek. The total length data show that most of the individuals are very likely sexually mature and capable of reproducing (Sherwood and Wylie 2015). There were no occurrences of deformities, erosions, lesions, and tumors in the eight individuals collected.

Status and Occurrence of Bigeye Chub in Illinois

A review of the literature about Bigeye Chub in Illinois indicates that by the mid-1980s it was declared as being virtually extirpated from the state (Warren and Burr 1988) with the most recent collections in 1961 (Smith 1979). Historic records prior to 1961 show that it was widely distributed in the upper Wabash and Kaskaskia River basins. This understanding was the basis

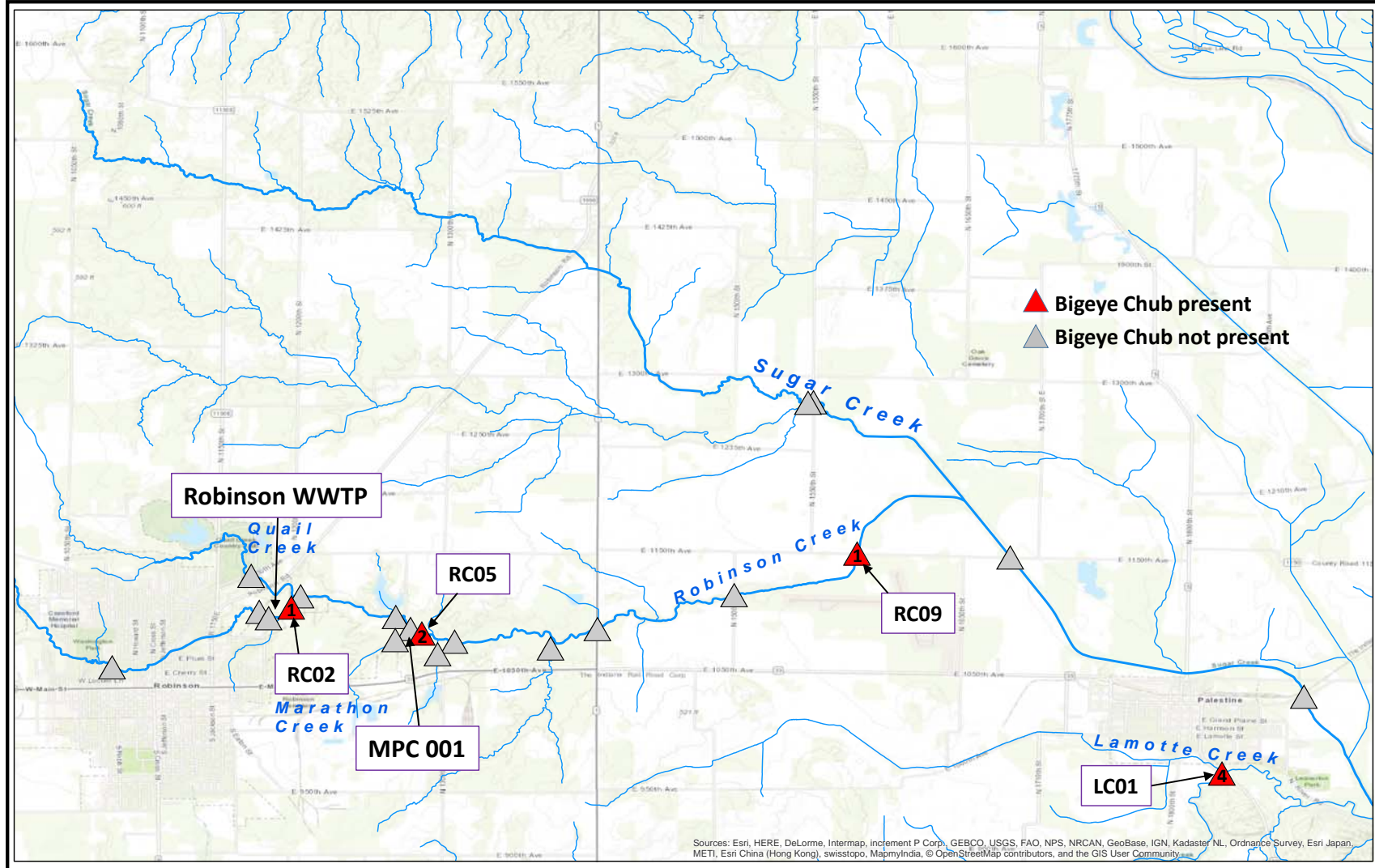


Figure 1. Robinson Creek study area showing 2016 sampling locations and occurrence of Bigeye Chub (*Hybopsis amblops*) shown as red triangles with the total number of fish collected. Bigeye chub were not collected at locations shown as grey triangles. The Robinson WWTP and MPC 001 discharge locations are shown relative to sampling locations.

Table 1. *Locations and dates of Bigeye Chub¹ (Hybopsis amblops) occurrences in the 2016 Robinson Creek study area. The total lengths of each are provided (range of lengths with more than one individual collected).*

Site Code – River Mile	Location	Date	Number of Individuals	Total Length(s)
RC02 – RM 6.25	0.2 mi. dst. Robinson WWTP	Sept. 28	1	81 mm
RC05 – RM 4.9	0.2 mi. dst. MPC 001	Sept. 2	2	62-68 mm
RC09 – RM 1.0	Co. Rt. 1150E	Sept. 29	1	69 mm
LC01 – RM 1.9	IL St. Rt. 33 (Palestine)	Aug. 30	1	54 mm
LC01 – RM 1.9	IL St. Rt. 33 (Palestine)	Sept. 27	3	60-61 mm
RC – Robinson Creek; LC – Lamotte Creek				

for including it on the Illinois list of endangered species with its “exceptional intolerance for silt” cited as the reason for listing and the most important factor in its decline (IESPB 2006). One of the first post-1960s era occurrences was reported by Burr et al. (1996) from the L. Vermilion River in 1992, who recommended that additional searches be conducted. Tiemann et al. (2004) reported a single individual from L. Beaver Creek in Kankakee Co. in 2004. These occurrences, while encouraging, were insufficient to change their virtually extirpated status.

Sherwood and Wylie (2015) documented the first evidence of a more substantial resurgence of Bigeye Chub in Illinois. An intensive survey of the Vermilion River (Wabash River Drainage) in 2011 revealed multiple occurrences and a healthy population. They developed a historic species distribution model that showed the probable range to include the Vermilion, Little Vermilion, and Brouillets Creek basins and the northern parts of the Kaskaskia, Embarras, and Little Wabash River basins. Robinson Creek is located immediately adjacent to the modeled range. It is likely that the 2016 collections of this species in Robinson Creek resulted from a continuing expansion in the upper Wabash River basin. Sherwood and Wylie (2015) suggested that the Wabash River mainstem serves as a route of ingress as the populations in the upper tributaries have become established. Their appearance in Robinson and Lamotte Creeks is the likely result of fish moving into Sugar and Robinson Creeks via the Wabash River mainstem. A similar resurgence of Bigeye Chub has also occurred in Ohio and over the same general time period. Once abundant and widely distributed in streams and rivers across Ohio (Trautman 1981) it occurred in only a few disjunct subwatersheds by the mid-1980s. Intensive statewide sampling by Ohio EPA has since revealed a recovery similar to that observed in Illinois (Miltner 2014). An in progress assessment of 37 years of fish distribution data in the once heavily polluted Scioto River in and below Columbus, OH (Yoder et al. 2018) shows Bigeye Chub occupying its pre-settlement range as recently as 2015. This study also shows the role of the

¹ Voucher specimen photos appear in Appendix A.

Scioto River mainstem in providing a pathway to other tributaries and watersheds despite receiving 160 MGD of treated municipal wastewater.

Impact on the Alternative Thermal Effluent Limitations Request

The fact that Bigeye Chub is on the Illinois endangered species list has prompted Illinois DNR to request further evaluation of the protectiveness of MPC's requested alternative thermal effluent limitations. The approach used by MPC to develop and request the alternative thermal effluent limitations was necessarily predictive and relied on the development of a list of Representative Important Species (RIS) following the *Interagency 316(a) Technical Guidance Manual and Guide for Thermal Effects Sections of Nuclear Facilities Environmental Impact Statements* (U.S. EPA 1977) and the Fish Temperature Modeling System (Yoder 2008) to screen for potential adverse thermal effects. It should be stated here that MPC is not seeking an increased thermal discharge to Robinson Creek, thus the conditions under which the 2016 fish sampling and the predictive analysis were conducted reflect the conditions under which the request is being made. What the MPC request seeks is relief from the existing thermal effluent limitations in MPC's NPDES permit that are based on the temperature standards in 35 Ill. Admin. Code § 302.211(d) and (e) and allowed mixing requirements in 35 Ill. Admin. Code § 302.102.

Reviewing the RIS Process for Robinson Creek

One of the criteria for the selection of a fish species as an RIS is to include species with an endangered status. When the original RIS for Robinson Creek was developed as part of the study planning process, there were no records of Bigeye Chub in or adjacent to Sugar Creek or the Wabash bioregion, thus it was not included in the initial RIS list. *See also* Letter from N. Grider, Illinois DNR, to MPC, c/o J. Titsworth, regarding MPC's 316(a) Plan of Study and EcoCAT Number 1608667 (June 2, 2016) (reporting that Illinois DNR's review was "auto-terminated" due to "no protected resources identified in the immediate discharge area," and that Illinois DNR's detailed review of the Natural Heritage Database resulted in "no records for state threatened or endangered aquatic species occur[ring] in the proposed study area of Robinson Creek and its tributaries, Lamotte Creek, and Sugar Creek."). Now that Bigeye Chub has been identified in the 2016 fish sampling results and given its current status as endangered, Bigeye Chub can be added to the other 28 species that were considered for final RIS status.

The next step in the RIS selection process is to determine the availability and quality of thermal tolerance data since that data comprises the input variables for the Fish Temperature Modeling System (FTMS) that produces the average and maximum summer period temperatures that are protective of the RIS and the entire fish assemblage by extension. Candidate RIS that lack sufficient thermal tolerance data need to be covered by other RIS that have such data. The thermal tolerance data that is available for Bigeye Chub consists of a single lethal endpoint test consisting of a single observation at an unrepresentative acclimation temperature. Lutterschmidt and Hutchinson (1997) listed critical thermal maximum test endpoints of 30.1°C (86.2°F) and 31.7°C (89.1°F) at an acclimation temperature of 10°C (50°F). This data is regarded as insufficient to use in the FTMS given the low acclimation temperature that is not

representative of critical summer conditions. We accepted thermal test data at acclimation temperatures of 25°C (77°F) as the *minimum* that is representative of critical summer conditions. Based on an examination of the influence of the acclimation temperature on the lethal endpoints for other species in Appendix B-1 of the 316(a) technical evaluation, had the Bigeye Chub tests been conducted at an acclimation temperature of 25°C (77°F) or higher, the lethal endpoint would have likely been in the 33-36°C (91.4-96.8°F) range. Bush et al. (1974) listed Bigeye Chub as expected to be lost from the Tennessee River system if temperatures exceeded 34°C (93.4°F); however, they did not provide the specific tolerance endpoints used to reach that conclusion. Further, the geographical distribution of Bigeye Chub in the U.S. ranges from the southern parts of the Lake Erie drainage in Ohio and Michigan southward to the Ohio River basin from New York to eastern Illinois, south to the Tennessee River, Georgia, and Alabama, the Ozarks of southern Missouri and northern Arkansas, and northeastern Oklahoma². This clearly shows it to be a warmwater species with no apparent requirement for cool water.

Two (2) mature Bigeye Chub were collected on September 2, 2016 at site RC05 (Table 1, Figure 1) which is immediately downstream from the MPC 001 thermal discharge. A single fish was collected at RC09 which is four miles downstream. Another Bigeye Chub was collected at RC02 upstream from MPC 001 and immediately downstream from the Robinson WWTP. The temperature regime that preceded the September 2 collection at the thermally affected site (RC05) is characterized in Figure 2 which shows the temperature profile at RC04 (upstream MPC 001) and RC05 (downstream MPC 001) based on HOBO continuous recorders deployed between July 13 and September 15. This is the same analysis in the 316(a) Technical Support Document that was used to evaluate the sequence of thermal stress and recovery periods and upon which we concluded that no adverse effects from the thermal component of the MPC 001 discharge had occurred.

Effluent temperatures recorded during that period were added to Figure 2 to show that the MPC 001 effluent is “warm” as opposed to “hot” and that the dissipation of heat is adequate to protect the RIS and the fish assemblage by extension. While there is no way to pinpoint the exact date of the arrival of Bigeye Chub in this reach of Robinson Creek, it is not unreasonable to assume that it happened either during or before the summer of 2016 possibly during an elevated flow event on the Wabash River that allowed fish to move into Sugar and Robinson Creeks from known sources upstream. Regardless, the thermal stress/recovery analysis provides insight into the thermal regime that the Bigeye Chub at RC05 likely experienced before the time of their collection in early September 2016. One of the most significant periods of thermal stress occurred on August 30, 2016 when temperatures of 90.7-91.6°F occurred over a period of 9.7 hours. This was followed by a brief recovery period (temperatures <87.1°F) of 4.2 hours early on August 31 and then a longer recovery period of 178.7 hours that started later on August 31 and ended on September 8. As shown in the 316(a) Technical Support Document, recovery periods occurred at a rate of 10:1 compared to thermal stress periods during the summer of 2016.

² <https://nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=547>

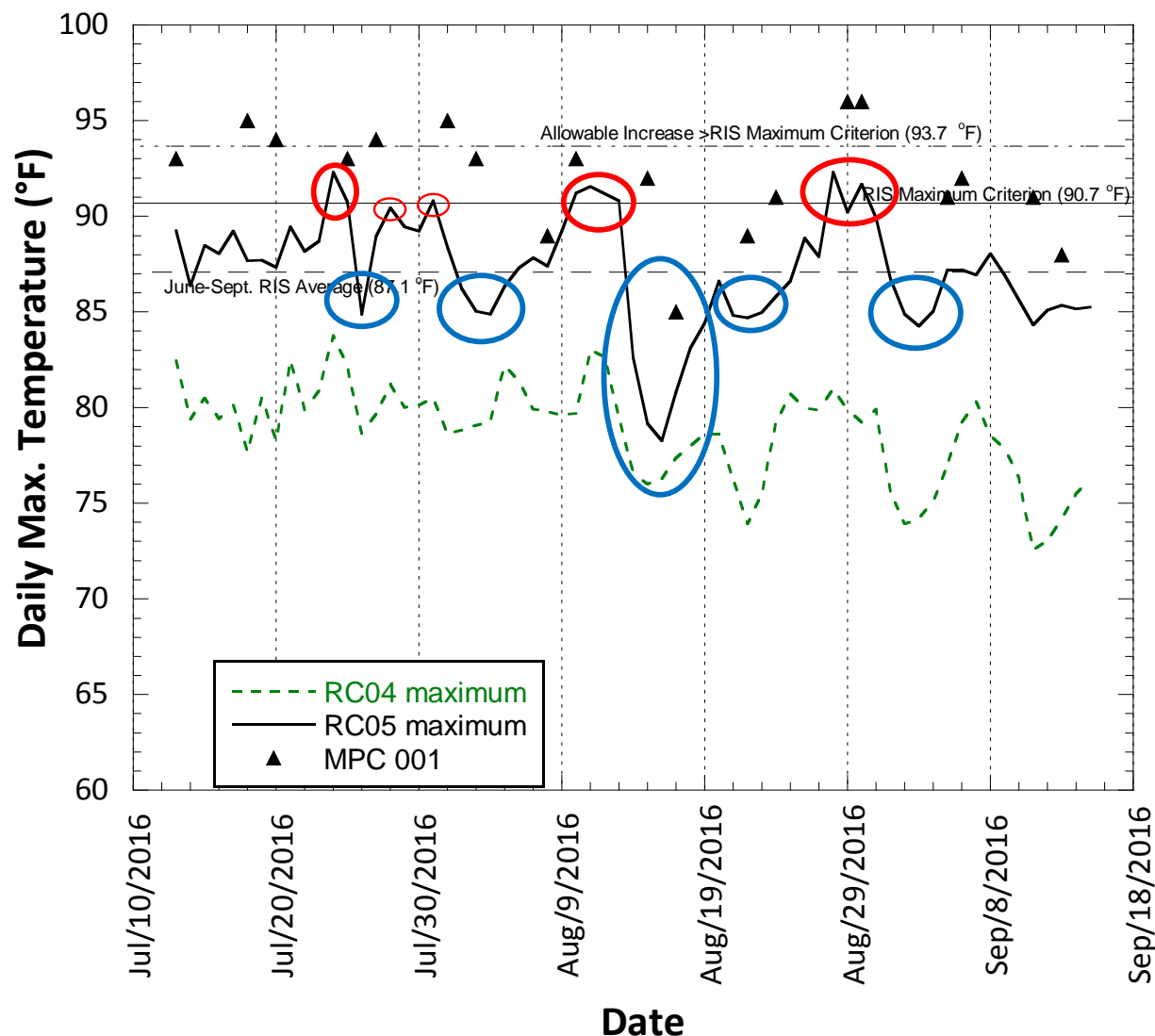


Figure 2. Daily temperature profile of Robinson Creek immediately downstream from the MPC 001 outfall (RC05) and immediately upstream (RC04) based on HOBO deployment July 13-September 15, 2016. The MPC 001 effluent temperature is indicated by solid triangles (▲) as measured on selected dates. The FTMS maximum temperature threshold of 90.7°F is shown along with the 87.1°F FTMS summer season average threshold and the Illinois 3°F not-to-exceed the 90.7°F FTMS maximum. The open red circles indicate periods of thermal stress and blue circles indicate subsequent periods of stress recovery (after Bevelhimer and Bennet 2000).

Conclusion

Upon consideration of the preceding discussion, the occurrence of Bigeye Chub in Robinson Creek does not change the conclusions of the 316(a) technical evaluation nor the alternative thermal effluent limitations that are being requested by MPC. Insufficient thermal tolerance data exists to include Bigeye Chub as a final RIS, but the data that exists for other species suggests it is in the intermediate range of thermal tolerance among the final RIS that were

included in the FTMS outputs upon which the alternative thermal effluent limitations are based. Additionally, occurrence of the Bigeye Chub in Robinson Creek and actual measured creek and Marathon effluent temperatures do suggest that the Bigeye Chub is sufficiently tolerant of the extant thermal regime to exist in Robinson Creek and under the alternative effluent limitations that are proposed in the 316(a) petition. In short, just as the proposed alternative thermal effluent limitations are protective of the fish species in the final RIS, the proposed alternative thermal effluent limitations are by extension protective of the Bigeye Chub.

The extant literature about the decline and resurgence of Bigeye Chub in Illinois and similar results in Ohio show that this species is rapidly reoccupying its former range where sufficient habitat and water quality exists. In large part, this resurgence is apparently due to the lessening of nonpoint source impacts that historically degraded habitat quality and specifically bottom substrates (Smith 1979; Trautman 1981; IESPB 2006). It was the degradation of these attributes by historical changes in land use, including the conversion of prairies and woodlands to agriculture row cropping that were oft cited for the Bigeye Chub and many other fish species declines across their range (Smith 1979; Trautman 1981). The occurrence of Bigeye Chub in Robinson Creek, albeit represented by only four fish in the mainstem, demonstrates their ability to move into and through the documented thermal and non-thermal pollution zones as has been demonstrated elsewhere (Yoder et al. 2018). This could well be their initial appearance as part of the range-wide expansion in the upper Wabash basin, as prior fish surveys as recent as 2013 did not report Bigeye Chub in Robinson Creek, Sugar Creek, or the Wabash Bioregion.

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Report MBI/2017-3-2. Marathon Petroleum Corp., Illinois Refining Division. Columbus, OH 43221-0561. 73 pp. + appendices.

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Appendix A: Robinson Creek and LaMotte Creek Bigeye Chub Photos

