



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

AUG 22 2013

REPLY TO THE ATTENTION OF:

Ms. Lynelle Marolf  
Deputy Director, Office of the Great Lakes  
Michigan Department of Environmental Quality  
525 West Allegan  
P.O. Box 30273  
Lansing, Michigan 48909-7773

Dear Lynelle:

Thank you for your July 15, 2013 request to remove the "Tainting of Fish and Wildlife Flavor" Beneficial Use Impairment (BUI) from the United States portion of the Detroit River Area of Concern (AOC) in Michigan. As you know, we share your desire to restore all of the Great Lakes AOCs and to formally delist them.

Based upon a review of your submittal and the supporting data, the U.S. Environmental Protection Agency hereby approves your BUI removal request for the United States portion of the Detroit River AOC. In addition, EPA will notify the International Joint Commission of this significant positive environmental change at this AOC.

We congratulate you and your staff, as well as the many federal, state, and local partners who have worked so hard and been instrumental in achieving this important environmental improvement. Removal of this BUI will benefit not only the people who live and work in the Detroit River AOC, but all the residents of Michigan and the Great Lakes basin as well.

We look forward to the continuation of this important and productive relationship with your agency and local coordinating committees as we work together to fully restore all of Michigan's AOCs. If you have any further questions, please contact me at (312) 353-4891, or your staff may contact John Perrecone, at (312) 353-1149.

Sincerely,

A handwritten signature in blue ink, appearing to read "C. Korleski".

Chris Korleski, Director  
Great Lakes National Program Office

cc: Dan Wyant, Director, MDEQ  
Jon W. Allan, MDEQ, Office of Great Lakes  
Rick Hobria, MDEQ, Office of Great Lakes  
Melanie Foose, MDEQ, Office of Great Lakes  
Stephen Locke, IJC  
Charles R. Bristol, Detroit River Public Advisory Council  
David Howell, Friends of the Detroit River  
Wendy Carney, EPA, GLNPO  
John Perrecone, EPA, GLNPO



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
OFFICE OF THE GREAT LAKES  
LANSING



JON W. ALLAN  
DIRECTOR

July 15, 2013

Mr. Chris Korleski, Director  
Great Lakes National Program Office  
United States Environmental Protection Agency  
Region 5  
77 West Jackson Boulevard (G-17J)  
Chicago, Illinois 60604-3507

Dear Mr. Korleski:

The purpose of this letter is to request the United States Environmental Protection Agency (USEPA), Great Lakes National Program Office's (GLNPO) concurrence with the removal of the Tainting of Fish and Wildlife Flavor Beneficial Use Impairment (BUI) from the U.S. portion of the Detroit River Area of Concern (AOC). The Michigan Office of the Great Lakes (OGL), Michigan Department of Environmental Quality (MDEQ) has assessed the status of this BUI in accordance with the state's *Guidance for Delisting Michigan's Great Lakes Areas of Concern*, and recommends that the BUI be removed from the list of impairments in the U.S. portion of the Detroit River AOC.

Enclosed please find documentation to support this recommendation, including the BUI removal Briefing Paper prepared by the OGL's technical staff. The Detroit River Public Advisory Council provided a letter supporting this recommendation dated December 7, 2012. A copy is enclosed.

Also note that the OGL has consulted with our sister agencies (Environment Canada and the Ontario Ministry of the Environment), as required under the Four Agency Letter of Commitment, and no objections have been raised to proceeding with this removal. The Canadians are proceeding with redesignating the BUI on the Canadian side, and we have begun work on planning a local event to celebrate jointly.

We value our continuing partnership in the AOC Program and look forward to working with the GLNPO, in the removal of BUIs and the delisting of AOCs. If you need further information concerning this request, please contact Ms. Jennifer Tewkesbury, OGL, at 586-753-3863, or you may contact me.

Sincerely,

Lynelle Marolf, Deputy Director  
Office of the Great Lakes  
517-284-5035

Enclosures

cc/enc: Mr. Dave Cowgill, USEPA  
Mr. John Perrecone, USEPA  
Ms. Rose Ellison, USEPA  
Mr. Jon W. Allan, MDEQ  
Mr. Rick Hobrla, MDEQ  
Ms. Jennifer Tewkesbury, MDEQ  
Ms. Melanie Foose, MDEQ



Friends of the Detroit River  
2674 W. Jefferson, LL1  
Trenton, MI 48183  
734.675.0141

December 7, 2012

Mr. Richard Hobrla  
Michigan Office of the Great Lakes  
525 West Allegan  
Lansing, MI 48909

Dear Mr. Hobrla,

It is the consensus of the members of the Detroit River Area of Concern Public Advisory Council (PAC) that there has been sufficient evidence obtained to support the delisting of the Fish and Wildlife Flavor Tainting Beneficial Use Impairment (BUI) for the U.S. side of the Detroit River.

In May of this year, the Friends of the Detroit River concluded an extensive survey, on behalf of the Detroit River PAC, to measure fish taste and odor, targeting local fishermen, and submitted the final study report to MDEQ. The Detroit River PAC found that their survey's results were similar to those obtained by both the St. Clair PAC and the Detroit River Canadian Cleanup Committee, which had both previously completed surveys and submitted requests for the delisting of this same BUI.

To this end, the Detroit River PAC requests that MDEQ and EPA proceed with the delisting of the Fish and Wildlife Flavor Tainting BUI for the Detroit River AOC.

Sincerely,

Charles R. Bristol  
Chairman, Detroit River Public Advisory Council

David Howell  
Chairman, Friends of the Detroit River



**Removal Recommendation**  
**Tainting of Fish and Wildlife Flavor Beneficial Use Impairment**  
**U. S. Detroit River Area of Concern**

**Issue**

The Michigan Department of Environmental Quality (MDEQ), Office of the Great Lakes, Areas of Concern (AOC) program requests concurrence with this recommendation to remove the Tainting of Fish and Wildlife Flavor Beneficial Use Impairment (BUI) in the U.S. Detroit River AOC. This recommendation is made with the support of staff from the MDEQ Water Resources Division and Office of the Great Lakes, the Michigan Department of Natural Resources (MDNR), the Michigan Department of Community Health (MDCH), the U. S. Fish and Wildlife Service (USFWS), the Friends of the Detroit River (FDR), the Detroit River Public Advisory Council (PAC) and the Detroit River Canadian Cleanup (DRCC). This request is made in accordance with the process and criteria set forth in the *Guidance for Delisting Michigan's Great Lakes Areas of Concern (Guidance)* (MDEQ, 2008).

**Background**

The Detroit River comprises the lowest link of the Upper Great Lakes Connecting Channels, conveying water from Lakes Michigan, Superior, and Huron to Lake Erie. The Detroit River flows approximately 32 miles in a southerly direction from Lake St. Clair to Lake Erie, forming the international boundary between the Province of Ontario, Canada and the State of Michigan, United States. The boundary of the AOC includes the river from Windmill Point at Lake St. Clair to the Detroit Light at Lake Erie. The Detroit River was listed as an AOC primarily due to historic combined sewer overflows (CSOs), industrial and municipal discharges, and nonpoint sources such as stormwater runoff from urban and industrial areas resulting in contaminated sediments throughout the river system. Contaminants have been known to include oils and grease, heavy metals, and polychlorinated biphenyls (PCBs) (MDNR and OMOE, 1991).

According to the 1991 Stage 1 RAP document, there had been no reports of fish, wildlife or waterfowl tainting in the Detroit River. Therefore, this use was not considered to be impaired (MDNR and OMOE, 1991). In 1992 and 1993, the Michigan Department of Natural Resources (MDNR) and the Michigan Department of Public Health (now the MDCH) each conducted a fish flavor impairment study, respectively. In the 1992 preliminary study conducted by MDNR, four of the six walleye caught from the Trenton Channel were found to taste impaired at the 95% confidence level of significance, and three walleye tasted impaired at the 99% confidence level as compared to control walleye purchased from a seafood market (Waggoner, 1992; MDEQ, 1996). A follow up study was conducted in 1993 that concluded the results of the study were consistent with findings from the 1992 study and a small percentage of the walleye in the Trenton Channel may exhibit flavor impairment (MDEQ, 1996). Therefore, in 1996 the Technical Working Groups (TWG) recommended changing the status of "tainting of fish flavor" to "impaired" to reflect the results of the MDNR/MDPH studies (MDEQ, 1996).

Following the 1991 Stage 1 RAP document and subsequent MDNR and MDEQ studies numerous remedial actions have been implemented within the AOC that address the recommended point and nonpoint sources. These actions include the elimination of historical sources such as the remediation of contaminated sediments in the former Black Lagoon and the former BASF Chemical site, both located within the Trenton Channel. Additional measures have been implemented throughout the AOC to address non-point source contaminants.

Ten BUIs remain for the Detroit River AOC: Loss of Fish and Wildlife Habitat, Degradation of Fish and Wildlife Populations, Degradation of Aesthetics, Tainting of Fish and Wildlife Flavor, Fish Tumors or Other Deformities, Bird or Animal Deformities or Reproductive Problems, Restrictions on Fish and Wildlife Consumption, Beach Closings, Restrictions on Dredging, and Degradation of Benthos.

## Removal Criteria

The *Guidance* has two tiers for the Tainting of Fish and Wildlife Flavor BUI. Historically the BUI has only applied to the tainting of fish flavor for the Detroit River AOC as there have been no documented complaints of tainting of wildlife flavor reported to the MDNR or MDEQ. Further, there are no significant wildlife species that are consumed by the general population in the AOC. This BUI is considered restored when:

1. No more than three reports of fish tainting have been made to the MDNR or MDEQ for a period of three years.

OR, if there have been reports of tainting:

2. A one-time analysis of representative fish species in an AOC in accordance with MDEQ Surface Water Assessment Section (SWAS) Procedure #55 or other state-sanctioned taste and odor study indicates that there is no tainting of fish flavor.

The attached excerpt from the *Guidance* (pages 19-22) includes the rationale for the delisting criteria (Attachment A).

## Methods

Due to the numerous improvements to the condition of the AOC and the lack of updated fish tainting and odor studies it was recommended that a comprehensive survey of Detroit River anglers be developed to further assess this BUI. This survey, “An Angler Survey to Assess the Status of the Beneficial Use Impairment: Tainting of Fish and Wildlife Flavor on the U.S. Side of the Detroit River” (FDR Angler Survey 2012) was conducted in 2011-2012 and sought input from members of the general public representing consumptive users of the resource, especially anglers. FDR, working under the guidance of the Detroit River PAC, conducted a questionnaire survey of Detroit River on-water and shoreline anglers. A copy of the survey is attached in (Attachment B). Since the delisting criteria for this BUI focuses on taste in the context of the Huron-Erie corridor, the Detroit River survey was very similar to the surveys conducted in the St. Clair River AOC and Detroit River Canadian AOC.

Two primary survey delivery methods were utilized: (1) through a web-based application, and (2) volunteer shoreline angler interviews in known fishing locations along the Detroit River shoreline as well as at local boat launches, local fishing sites, local outdoor events, and local fishing group meetings. For the web-based application participants were allowed to link through the FDR website complete the survey which was then automatically provided to FDR with a time dated tracking copy for each submittal yielding a total of 26 responses. For the interview method, college student volunteers trained by FDR were recruited to interview shoreline anglers along the Detroit River shoreline comprising 18 different sites of known angler activity from mid-August through late October yielding a total of 69 responses (Figure 1). In addition, FDR staff attended various outdoor events from mid-July through late September yielding 137 responses and local fishing group meetings from September 2011 through late January 2012 yielding 95 responses. From a combination of both methods a total of 327 surveys were collected from mid-July of 2011 to late January of 2012. Following the completion of the survey collection process, FDR staff compiled the data for each of the surveys collected.



**Figure 1 – Detroit River Shoreline Locations for Survey**

## Results

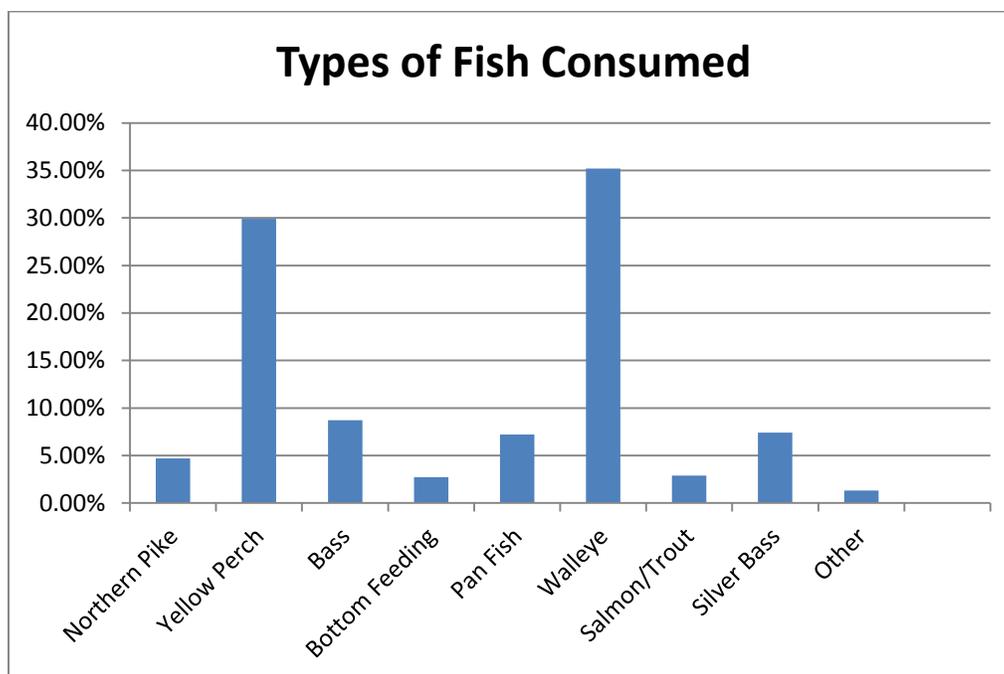
A total of 327 surveys were collected through this process. Although all 327 surveys that were collected provided valuable information, not all of the surveys were fully completed. Therefore, the calculations for each of the following data sets reflect the number of responses obtained for that specific question in the survey.

When asked “How often do you fish the Detroit River?”, 325 responses were recorded, with just over eighteen percent (18.2 %) responding 1-3 times per year. Over fourteen percent (14.4%) responded 4-6 times per year, just over ten percent (10.2%) responded 7-10 times per year, and just over fifty-seven percent (57.2%) responded to fishing the Detroit River over ten times per year (Figure 2).

| Annual Fishing Frequency | Number of Responses | Percent |
|--------------------------|---------------------|---------|
| 1- 3 x/year              | 59                  | 18.2%   |
| 4-6 x/year               | 47                  | 14.4%   |
| 7-10 x/year              | 33                  | 10.2%   |
| >10 x/year               | 186                 | 57.2%   |

**Figure 2 – Annual angler fishing frequency**

Anglers were asked about their consumption of Detroit River fish with a total of 315 responses recorded. Over eighty-eight percent (88.6 %) of anglers indicated that they eat their catch from the Detroit River while only eleven percent (11.4%) indicated they did not. Species most often consumed were walleye and yellow perch followed by bass, panfish, and northern pike (Figure 3). These results are almost identical to those for the Detroit River Canadian AOC survey where eighty-five percent (85%) of respondents consumed Detroit River fish, most notably walleye and yellow perch (DRCC 2010).



**Figure 3 – Percentage of Species of Fish Consumed by Anglers**

When asked to rate the quality of the fish caught in the Detroit River anglers were asked to answer in two parts with the first part ranking the taste of the fish caught from excellent to poor and the second part ranking their interpretation of the odor of the fish from excellent to poor. For the first part of the question relating to fish taste 296 responses were recorded with over forty-three percent (43.6%) ranking the taste as excellent, over forty-seven percent (47.6 %) as good, about eight percent (8.1 %) as fair, and just under one percent (.7 %) as poor. When asked to rank the odor of the fish caught, 252 responses were recorded with almost thirty-two

percent (31.7%) of the responses ranking the odor as excellent, almost fifty-nine percent (58.7 %) as good, over five percent (5.6 %) as fair, and four percent (4.0 %) as poor (Figure 4).

|              | <b>Excellent</b> | <b>Good</b> | <b>Fair</b> | <b>Poor</b> |
|--------------|------------------|-------------|-------------|-------------|
| <b>Taste</b> | 129 (43.6%)      | 141 (47.6%) | 24 (8.1%)   | 2 (0.7%)    |
| <b>Smell</b> | 80 (31.7%)       | 148 (58.7%) | 14 (5.6%)   | 10 (4.0%)   |

**Figure 4 – Four Parameter Ranking of Fish Taste and Odor by Anglers**

When asked to comment on specific tastes and odors experienced during the preceding three years, the survey results showed that nine percent (9.0 %) of the 301 respondents answered “Yes” while ninety-one percent (91.0 %) answered “No” to the question (Figure 5).

| <b>In the last (3) years have you noticed any objectionable tastes or odors in the fish caught from the Detroit River?</b> |           |
|--|-----------|
| <b>Yes</b>   | 27 (9%)   |
| <b>No</b>  | 274 (91%) |

**Figure 5 – Response to Objectionable Taste and Odors in Fish by Anglers**

Of the 27 anglers who answered “Yes” only five directly referenced an oily or chemical odor in the fish while the remaining respondents made references to a “fishy” or “strong” taste or smell. Others in this group also referenced the fish’s texture which may be attributed to the way the fish was handled after it was caught.

Based on the results of this survey, and its comparable results to the survey conducted on the Canadian side of the Detroit River, the Detroit River PAC recommended that the Tainting of Fish and Wildlife Flavor BUI be redesignated, on the U.S. side of the AOC, as “not impaired.” This recommendation was made to the MDEQ in the final report (FDR Angler Survey 2012) in April 2012.

The MDEQ then convened a Technical Committee to review this recommendation for BUI removal. This Technical Committee was comprised of James Francis, Fisheries Division, MDNR; Kevin Goodwin, Water Resources Division, MDEQ; Michelle Bruneau, Fish Consumption Health Educator, Michigan Department of Community Health; Stephanie Millsap, Contaminants Specialist, U. S. Fish and Wildlife Service; Andrew Hartz, Detroit River Angler; and Jennifer Tewkesbury, Office of the Great Lakes, MDEQ.

The Technical Committee concluded that the Tainting of Fish and Wildlife Flavor BUI has been restored within the Detroit River AOC. This conclusion is based on the following:

1. The determination, made by MDNR and MDEQ staff, that no recorded complaints of fish or wildlife flavor tainting have been received for the Detroit River AOC within the past three years.
2. The results of the FDR Angler Survey conducted in 2011-2012, and the determination, made by Technical committee, that these survey results satisfy the

first tier of Michigan's criteria for demonstrating restoration of the Tainting of Fish and Wildlife Flavor BUI.

3. The significantly similar results of the 2011-2012 FDR Angler Survey to those of a similar survey conducted on the Canadian side of the Detroit River in 2010 of which that BUI is currently being recommended for removal.

## Recommendation

MDEQ, AOC Program, staff request approval of its recommendation to remove the Tainting of Fish and Wildlife Flavor BUI on the United States side of the Detroit River AOC.

Prepared by: Jennifer Tewkesbury, AOC Coordinator  
Great Lakes Management Unit  
Office of the Great Lakes  
Michigan Department of Environmental Quality  
November 1, 2012

## Attachments

- A – Restrictions on Fish and Wildlife Consumption; pages 14-18 of the *Guidance for Delisting Michigan's Great Lakes Areas of Concern*
- B – An Angler Survey to Assess the Status of the Beneficial Use Impairment: Tainting of Fish and Wildlife Flavor on the U.S. Side of the Detroit River, April 2012

## References

- Michigan Department of Environmental Quality. 2008. *Guidance for Delisting Michigan's Great Lakes Areas of Concern*, revised. MI/DEQ/WB-06-001.
- Michigan Department of Natural Resources. 1991. Stage 1 Remedial Action Plan for the Detroit River Area of Concern. Great Lakes and Environmental Assessment Section, Surface Water Quality Division, Michigan Department of Natural Resources, Lansing, Michigan.
- Waggoner, C.A., 1993. An Investigation of Fish and Flavor Impairment in Walleye from the Detroit River. Michigan Department of Natural Resources, Surface Water Quality Division, MI/DNR/SWQ-93/005
- Michigan Department of Environmental Quality, 1996. 1996 Detroit River Remedial Action Plan Report. Surface Water Quality Division, Michigan Department of Environmental Quality, Lansing, Michigan.
- Friends of the Detroit River, 2012. An Angler Survey to Assess the Status of the Beneficial Use Impairment: Tainting of Fish and Wildlife Flavor on the U.S. Side of the Detroit River, Detroit, Michigan.
- Detroit River Canadian Cleanup (DRCC). 2011. Re-designation Report: Assessment of the Tainting of Fish and Wildlife Flavor (BUI #2) in the Detroit River Canadian Area of Concern. Windsor, Ontario, Canada.

## **Attachment A**

### **2008 Guidance for Delisting Michigan’s Great Lakes Areas of Concern**

#### ***Tainting of Fish and Wildlife Flavor***

##### **Significance in Michigan’s Areas of Concern**

Three of Michigan’s AOCs are listed as either impaired or unknown for fish and wildlife tainting – Detroit River, Saginaw River/Bay, and St. Clair River. The impairment in all of these AOCs is fish, not wildlife, tainting.

##### **Michigan Restoration Criteria and Assessment**

This BUI will be considered restored when:

- No more than three reports of fish tainting have been made to the MDNR or MDEQ for a period of three years.

OR, if there have been reports of tainting

- A one-time analysis of representative fish species in an AOC in accordance with MDEQ Surface Water Assessment Section (SWAS) Procedure #55 for conducting taste and odor studies indicates that there is no tainting of fish flavor.

##### **Rationale**

###### **Practical Application in Michigan**

Throughout Michigan, including the AOCs identified above, there have been historical taste and odor complaints related to fish. Tainting has been associated with water quality contaminants such as oils, grease, metals, phenols, PCBs, and wastewater, as well as algae over-abundance from high levels of nutrients.

The SWAS Procedure #55 lays out a specific methodology for evaluating fish tainting in compliance with Rule 55 of the Michigan Water Quality Standards (WQS). Rule 55 states that “waters of the state shall contain no taste-producing or odor-producing substances in concentrations which impair or may impair their use for a public, industrial, or agricultural water supply source, or which impair the palatability of fish ...” This BUI restoration criteria is consistent with Rule 55 of the state WQS and SWAS Procedure #55.

The State has no formal methodology for evaluating wildlife tainting, but none has been reported. The only means of tracking wildlife tainting is through calls or complaints to the MDNR or MDEQ.

#### 1991 IJC General Delisting Guideline

*When survey results confirm no tainting of fish or wildlife flavor.*

The IJC general delisting guideline for the BUI is presented here for reference. The Practical Application in Michigan subsection above describes application of specific criteria for restoration based on existing Michigan programs and authorities.

#### **State of Michigan Programs/Authorities for Evaluating Restoration**

If a taste and odor study is necessary in an AOC, the MDEQ will work with the PAC to develop a tainting study according to Procedure #55. After the assessment is completed, the MDEQ will evaluate whether the data indicate that the restoration criteria for this BUI has been met.

Some local AOC communities also have programs for monitoring water quality and related parameters which may be applicable to this BUI. If an AOC chooses to use local monitoring data for the assessment of BUI restoration, the data can be submitted to the MDEQ for review. If the MDEQ determines that the data appropriately address the restoration criteria and meet quality assurance and control requirements, they may be used to demonstrate restoration success.

## Attachment B

# Detroit River Area of Concern

## An Angler Survey to Assess the Status of the Beneficial Use Impairment: Tainting of Fish and Wildlife Flavor on the U.S. Side of the Detroit River

Final Report  
April 2012



Prepared for the Detroit River Public Advisory Committee by the Friends of the Detroit River



## **Project Introduction-**

The Michigan Detroit River Area of Concern (AOC) comprises the waters and near shore areas of the U.S. side of the Detroit River from the river's head at Lake St. Clair, to its mouth at its lower end where it meets western Lake Erie. In 1987, the countries of the United States and Canada signed the Great Lakes Water Quality Agreement (GLWQA) that designated 43 Areas of Concern around the Great Lakes and listed 14 Beneficial Use Impairments (BUIs) (GLWQA 1987). Currently, the Detroit River AOC has 10 designated impaired BUIs, with BUI #9, *Restriction on Drinking Water Taste and Odor* being delisted in 2011. The Stage 1 Remedial Action Plan (Stage 1 RAP) was published in June of 1991 (MDNR 1991). BUI #2, *The Tainting of Fish and Wildlife Flavor* was not considered impaired at that time, because no records of any reports of fish or wildlife "tainting" in the Detroit AOC had been recorded (a requirement of impairment).

On review of the Stage 1 RAP, the International Joint Commission (IJC) voiced concerns to the lack of data to support a non-impairment status to this BUI. In response to this concern, both the Michigan Department of Natural Resources (MDNR) and the Michigan Department of Public Health (MDPH) conducted fish flavor and smell studies. MDPH did a study in August of 1992 and MDNR did a similar study in 1993 (Waggoner 1993). Results from the studies indicated that there were significant taste and odor problems with walleye caught and consumed from the Trenton Channel, in the Detroit River. In the 1996 RAP Update, the status of BUI #2, *The Tainting of Fish and Wildlife Flavor* was changed from non-impaired to impaired and currently retains this status to date.

Since these studies were conducted in the early 90's, there has been a lot of activity in the Detroit AOC to address the underlying factors that have been driving the continued impairment of BUI #2. Many of the historical sources of the contaminants that impacted fish taste and smell in the past have been eliminated. There have also been several contaminated sediment projects completed in the river, including the cleanup of the "Black Lagoon" and the old BASF chemical dump site in Riverview, both on the Trenton Channel.

The purpose of this study is to utilize a fish survey to help assess the quality of taste and smell of fish consumed in the Detroit River, as it relates to BUI #2 *The Tainting of Fish and Wildlife Flavor*, and to determine the status of this BUI.

## **Methods**

FDR utilized similar methodologies in collecting data that had previously been successfully employed in both the St. Clair River and the Detroit River Canadian AOCs. Both had used a survey questionnaire to gather information from local fishermen--(Briggs et al. 2011) and (DRCC 2011). FDR used samples of these surveys as references to construct its own template. Specific questions were chosen that would provide the necessary data needed to make an informed decision regarding a delisting recommendation, as well as provide additional anecdotal information such as angler activity and fish species preferences. (See survey in Appendix 1.)

Four different methods were utilized to obtain surveys from local fishermen, and each used the same survey format. The first method entailed the development of a web based application, where FDR could make the survey available on line. This was accomplished by using the web based application “Survey Monkey”. This allowed participants to link through FDR’s website, fill out a survey, which, when completed, automatically provided FDR with a time dated tracking copy for each survey submitted. Web surveys were collected from mid-July until early December and yielded 26 responses.

The second method employed by FDR was to collect surveys from shoreline fishermen and those fishermen who were coming in and out of local boat launches along the Detroit River. Specific survey acquisition locations along the Detroit River were selected based on popular public fishing sites and boat launches that local fishermen were known to frequent. A total of 18 sites were selected along the entire length of the Detroit River shoreline. (See attached map in appendix 2).

To conduct the collection of these surveys, FDR utilized college student volunteers from the University of Michigan-Dearborn’s Environmental Science Department. Three students, who signed on to the program, went through an orientation session led by FDR personnel, were assigned survey location sites, and were provided with the necessary supplies to conduct the surveys. These surveys were collected from mid-August through the end of October and yielded 69 responses.

The third method for collecting surveys employed by FDR was to attend local outdoor events that centered near the river or around outdoor recreational activities where fishermen were likely to be present. Events such as a local community hydro boat race, a duck hunter’s festival, a riverside street fair, a fishing tournament, and a kayak event all provided venues where FDR could set up a booth and collect surveys. Surveys at these events were collected from mid-July through the end of September and yielded 137 responses.

The fourth and final method that FDR used to acquire surveys was to attend local fishing group meetings and collect surveys from attending club members. FDR attended three different local fishing group meetings which included a Steel Headers group, a Walleye and a Bass Fisherman’s Association meeting. These meetings were attended from September 2011 through the end of January of 2012 and yielded 95 responses.

## **Results**

From the combination of all four survey methods used, a total of 327 surveys were collected from mid-July of 2011 to the end of January of 2012. Following the completion of the survey collecting process, FDR personnel compiled the data for each of the surveys collected. Although all 327 surveys that were collected provided valuable information, not all surveys were fully completed. For the calculations for each of the data sets below, the number of responses used reflects the total number of completed responses obtained for each of the survey questions asked.

**Angling effort frequency**

When asked “How often do you fish the Detroit River?”, 325 responses were recorded, with just over eighteen percent (18.2%) responding to 1-3 times per year. Over fourteen percent (14.4%) responded to 4-6 times per year. Just over ten percent (10.2%) responded to 7-10 times per year, and just over fifty-seven percent (57.2%) responded to fishing over 10 times per year (Table 1).

| Annual Fishing Frequency | Number of Responses | Percent |
|--------------------------|---------------------|---------|
| 1- 3 x/year              | 59                  | 18.2%   |
| 4-6 x/year               | 47                  | 14.4%   |
| 7-10 x/year              | 33                  | 10.2%   |
| >10 x/year               | 186                 | 57.2%   |

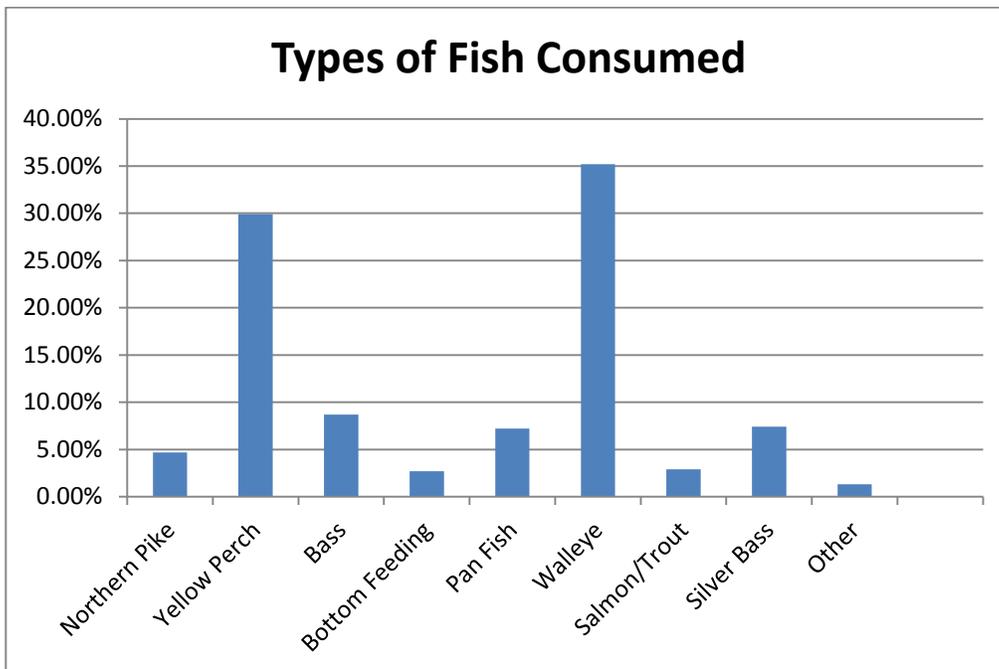
**Table 1. Annual angler fishing frequency**

For the question, “Do you eat fish from the Detroit River?”, there were a total of 315 responses recorded. Over eighty-eight percent (88.6%) answered “Yes” to this question and over eleven percent (11.4%) answered “No” (Table 2).

| Do you eat fish from the Detroit River? |     |       |
|---|-----|-------|
| Number of responses                     | 315 |       |
| Yes                                     | 279 | 88.6% |
| No                                      | 36  | 11.4% |

**Table 2. Percentage of anglers who consume fish from the Detroit River**

When asked as to which species of fish were caught and consumed, there were a total of 700 responses to this question (out of maximum data set of 2943). Almost five percent (4.7%) selected Northern Pike. About thirty percent (29.9%) chose Yellow Perch, about nine percent (8.9%) chose Bass, just under three percent (2.7%) chose bottom feeding fish, just over seven percent (7.1%) chose pan fish, thirty-five percent (35.1%) chose Walleye, almost three percent (2.9%) chose Salmon/Trout, over seven percent (7.4%) chose Silver Bass, and just over one percent (1.3%) chose “other”. The other category was mainly comprised of Carp (Figure 1).



**Figure 1. Percentage of the different types of fish consumed by anglers**

For the question, “How do you rate the quality of fish caught?”, the answer was divided into two parts. The first part allowed respondents to rank the taste of the fish caught by giving them a general ranking from excellent to poor. The second part of the question allowed the ranking of how they interpreted the smell of the fish they caught by using the same ranking method. For the part of the question relating to taste, 296 responses were recorded. Over forty-three percent (43.6%) ranked the taste of fish consumed as excellent, over forty-seven percent (47.6%) as good, over eight percent (8.1%) as fair, and just under one percent (.7%) as poor.

For the second part of the question ranking the smell of the fish, 252 responses were received, with almost thirty-two percent (31.7%) of the responses ranking the smell as excellent, almost fifty-nine percent (58.7%) ranked it as good, over five percent (5.6%) as fair, and four percent (4.0%) as poor (Table 3).

|              | Excellent   | Good        | Fair      | Poor      |
|--------------|-------------|-------------|-----------|-----------|
| <b>Taste</b> | 129 (43.6%) | 141 (47.6%) | 24 (8.1%) | 2 (0.7%)  |
| <b>Smell</b> | 80 (31.7%)  | 148 (58.7%) | 14 (5.6%) | 10 (4.0%) |

**Table 3. Four parameter ranking of taste and smell by anglers**

By combining the “excellent” and “good” scores and the “fair” and “poor” scores for both the taste and the smell parts of the question, over ninety-one percent (91.2%) of the responses ranked the taste of the fish consumed as “excellent” or “good”, while just under nine percent (8.8%) of the responses ranked the taste of the fish as “fair” or “poor”.

For the ranking of the smell of the fish, over ninety percent (90.4%) of the responses ranked the fish caught as having a smell ranked “excellent or good”, and just under ten percent (9.6%) of the responses ranked the fish as having a “fair” or “poor” smell (Table 4).

|              | Excellent/Good | Fair/Poor |
|--------------|----------------|-----------|
| <b>Taste</b> | 207 (91.2%)    | 26 (8.8%) |
| <b>Smell</b> | 228 (90.4%)    | 24 (9.6%) |

**Table 4. Two parameter ranking of taste and smell by anglers**

The final question of the survey asked fishermen, “In the last three (3) years have you noticed any objectionable tastes or odors in the fish caught from the Detroit River?”. Of the 301 responses obtained with this question, nine percent (9.0%) answered “yes” to this question and ninety-one percent (91.0%) answered “no” to this question (Table 5).

| <b>In the last (3) years have you noticed any objectionable tastes or odors in the fish caught from the Detroit River?</b> |           |
|--|-----------|
| <b>Yes</b>   | 27 (9%)   |
| <b>No</b>  | 274 (91%) |

**Table 5. Response to objectionable taste and odors in fish by anglers**

For the “yes” response, respondents were asked to describe exactly what they noticed, what species of fish were affected and where in the river the fish was caught. Of the 27 “yes” responses that were received, 15 comments were recorded. (See appendix 3).

## **Conclusion**

Of the 327 surveys that were collected, over half (57.2%) of the fisherman fished the Detroit River more than ten times a year. Over eighty-eight percent (88.6%) of them ate the fish that they caught, with perch at almost thirty percent (29.9%) and Walleye at thirty-five percent (35.1%) being by far the two species most caught and consumed by area fishermen. There is, however, an expectation that the percentage of silver bass caught would be higher if the survey had been conducted in the months of May and June, when these fish are in the river spawning and being caught in large numbers by shoreline fishermen.

For the ranking of taste and smell of the fish caught and consumed, over ninety-one percent (91.2%) rated the taste of the fish consumed as “excellent/good”, while less than one percent (.7%) rated the taste as “poor”. For the ranking of fish smell, over ninety percent (90.4%) of the fishermen surveyed rated the smell of the fish as “excellent/good” with only four percent (4%) rating the fish as smelling “poor”. Of the 27 fishermen who answered “yes” to question five on the survey, “In the last three (3) years have you noticed any objectionable tastes or odors in the fish caught in the Detroit River?”, only five directly referenced observing an oily or chemical

taste or smell in the fish they caught and consumed. The others made references to having a fishy or strong taste or smell, and references to the fish's texture that might be a factor of how the fish was stored, cleaned or attributable to what the fish might have been eating. There were also several fishermen who commented on seeing external tumors on some fish species as well (See attached comments in appendix 3).

Based on the data collected from these surveys, the vast majority of fishermen surveyed rated both the taste and smell of the fish they caught as "excellent/good" with only a small percentage giving the fish a "poor" rating. The results of this survey support similar findings to those obtained in the studies done on the St. Clair River and on the Canadian side of the Detroit River, both sets of results from these two studies were consistent with the results that FDR obtained in its survey project.

### **Recommendation**

Based on the review of the data obtained from this study, and the similarity of the results to the previous survey work that was done by both the St. Clair and Canadian Detroit River AOCs, the Detroit Public Advisory Committee recommends to the Michigan Department of Environmental Quality that the that status of BUI #2: Tainting of Fish and Wildlife Flavor in the Detroit River AOC (U.S.) be changed from 'impaired' to 'not impaired' and be considered for delisting.

### **References**

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## Appendix 1 - Detroit River Fish Quality Survey



### Detroit River Fish Quality Survey

The Detroit River Area of Concern's Public Advisory Council (PAC) is collecting information on the flavor of fish caught in the Detroit River. This information will help the PAC assess if there is a continuing concern with fish flavor tainting, one of the Detroit River's current beneficial use impairments. This project is being completed by the Friends of the Detroit River with funding provided by the Michigan Department of Environmental Quality and administered through the Great Lakes Commission. Please check the appropriate box with your answer, thank you for your participation.

**1. How often do you fish the Detroit River?**

- 1-3 times/year       4-6 times/year  
 7-10 times/year     over 10 times/year

**2. Do you eat fish from the Detroit River?**

- Yes       No

**3. If yes, which ones (check all that apply)**

- Northern Pike                       Walleye  
 Yellow Perch                         Salmon / Trout  
 Bass                                       Silver Bass  
 Bottom feeding fish (drum, catfish, sucker)  
 Pan fish (crappie, bluegill, rock bass)  
 Other:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. How do you rate the quality of fish caught?**

- Taste:**  Excellent  Good  Fair  Poor  
**Smell:**  Excellent  Good  Fair  Poor

**5. In the last (3) years have you noticed any objectionable tastes or odors in the fish caught from the Detroit River?**

- Yes       No

If 'Yes', please describe what you have noticed?

\_\_\_\_\_  
\_\_\_\_\_

If 'Yes', what species of fish?

\_\_\_\_\_  
\_\_\_\_\_

If 'Yes', where on the River was the fish(s) caught?

\_\_\_\_\_

Please send completed surveys to:  
Friends of the Detroit River,  
P.O. Box 725, Trenton, MI 48183  
Or e-mail copy to [river@detroitriver.org](mailto:river@detroitriver.org)



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**Appendix 2 - Shoreline Locations for Survey**



**Appendix 3- Fisherman Responses to Question 5**

| <b>Comments</b>                  | <b>Fish</b>                 | <b>Species Location</b>               |
|----------------------------------|-----------------------------|---------------------------------------|
| Strong fish smell                | Perch, Walleye              | Lower River, near Grosse Ile          |
| Large Walleye taste of chemicals | Walleye                     | Trenton Channel                       |
| Dead fish with tumors            | All                         | Lower River                           |
| Tumors                           | Catfish, Rock Bass          | Lower River                           |
| Fish smell bad                   | Silver Bass                 | Mid River, behind Wyandotte Hospital  |
| Oily taste in fish               | Silver Bass                 | Trenton Channel                       |
| Oily chemical smell              | Bass                        | Upper River, Erma Henderson Park      |
| Strong taste                     | Walleye                     | Mid River Grassy/Mud Island           |
| Oily Taste                       | Walleye                     | *                                     |
| Sliminess in meat                | Catfish, Perch, Silver Bass | Mid River, near Wyandotte Boat Launch |
| Soft meat, strong taste          | Walleye                     | Upper River                           |
| Strong fishy odor                | Walleye                     | Upper River                           |
| Metal Taste                      | *                           | *                                     |
| Sores on fish gills and fins     | Pike, Perch, Walleye        | Lower River                           |
| Foul smell                       | Walleye, Bass, Perch        | Entire River                          |
| * Did not respond to question    |                             |                                       |