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# Microplastic prevalence in two fish species in two U.S. reservoirs

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- Title of the dataset and an abstract that describes the study and associated data in text form
- Keywords
- People and organizations associated with the data
- Usage Rights
- Research Project information
- Coverage details (including spatial coverage of the sample sites and temporal coverage)
- Methods and Sampling
- Detailed description of the variables and units for each column of the dataset

**Instructions:**

1. Fill in the 2 tables below for your dataset that you will be making available. If you have more than one dataset, then fill both tables for each dataset separately, although, most of the information will be the same for Table 1.
2. Save this word file in either Word or PDF format and upload your metadata to the *LO-Letters* website when you submit your manuscript.
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**Table 1.** Description of the fields needed to describe the creation of your dataset.

| | |
|---|---|
| **Title of dataset** | Microplastic concentrations in gizzard shad (*Dorosoma cepedianum*) and largemouth bass (*Micropterus salmoides*) from two drinking water reservoirs in the midwestern United States |
| **URL of dataset** | This is forthcoming upon paper acceptance |
| **Abstract** | In this study, we explored microplastic concentrations in freshwater fish and whether these concentrations were influenced by landscape or food web characteristics. We sampled gizzard shad and largemouth bass from two drinking water reservoirs, Lake Evergreen and Lake Bloomington, McLean County Illinois that have differing shoreline land use patterns. There were no differences in microplastic number per fish between the two reservoirs. Microplastic number per fish was negatively related to gizzard shad size in line with their shift from planktivores to detritivores. There was no relationship of microplastic number and size of largemouth bass. We also found a significantly higher number of microplastics in the gills of gizzard shad compared to the gut and higher number of microplastics in the gut than gills of largemouth bass. There was no relationship with shoreline development between the two reservoirs. These data show the prevalence of microplastics in reservoirs with 100% of the fishes having microplastics irrespective of local land development patterns. |
| **Keywords** | Microplastics, freshwater fish, Largemouth bass, Gizzard shad |
| **Dataset lead author** | William Perry |

| | |
|---|---|
| **Position of data author** | Professor of Aquatic Ecology |
| **Address of data author** | School of Biological Sciences, Illinois State University, Normal, IL 61790-4120 |
| **Email address of data author** | wlperry@ilstu.edu |
| **Primary contact person for dataset** | William L Perry |
| **Position of primary contact person** | Professor of Biology |
| **Address of primary contact person** | School of Biological Sciences, Campus Box 4120, Illinois State University, Normal, IL 61790 |
| **Email address of primary contact person** | wlperry@ilstu.edu |
| **Organization associated with the data** | |
| **Usage Rights** | Publicly available and free to use |
| **Geographic region** | McLean County, Illinois – Lake Evergreen (Lat. 40.648480,Lon. -89.045104) and Lake Bloomington (Lat. 40.653590, Lon. -88.930514 ) |
| **Geographic coverage** | Coverage of the data set is bounded by both lake shorelines |
| **Temporal coverage - Begin date** | July 20, 2018 |
| **Temporal coverage - End date** | August 15, 2018 |
| **General study design** | We compared Lake Evergreen which has no housing development along the shore and is all parkland to Lake Bloomington which is surrounded by a range of housing density. This project collected gizzard shad (*Dorosoma cepedianum*) and largemouth bass (*Micropterus salmoides*) from two drinking water reservoirs. In each lake six random locations were chosen where at each small (<15cm) (N=3) and large (>15cm) gizzard shad (N=3) were collected and large predatory largemouth bass were collected (N=2). |
| **Methods description** | Fish were collected from Lake Bloomington and Evergreen Lake late July through early August within a one-month time span during the summer of 2018. Fish were collected using electrofishing from boat from six different randomly selected locations in each lake (Figure MAP). We collected three juvenile ( < one year old) and three adult gizzard shad  (> one year old) along with two largemouth bass (> 30 cm length) were collected from each  locations. Fish were individually labeled and wrapped in aluminum foil and immediately put in a cooler. The fish were then taken back to the lab to be frozen until further processing. |
| **Laboratory, field, or other analytical methods** | In the laboratory, each fish was thawed at room temperature before further examination. All fish were then measured, recording both body length (cm) and body weight (g). All further steps were performed under the fume hood to prevent airborne MP contamination, and all glassware and laboratory tools were rinsed three times with distilled water before being used. The fish were then dissected, removing the whole gastrointestinal tract (GIT), and gills (GL). Each sample was placed in a glass test tube or 150 mL beaker depending on the size of the sample itself, covered with aluminum foil, and placed back into the freezer until digestions could take place.

Digestion of fish tissue followed standard procedures. Per each gram of fish tissue, we added ten mL of 1 M NaOH and 5mL of sodium dodecyl sulphate (0.5% w/v (ca 5g/L),in a 150 mL beaker. The covered beaker was then placed in a water bath for a minimum of 24 hours at 50°C, and contents in the beakers were |

| | gently shaken multiple times to. After the 24-hour incubation the contents where then filtered through 0.8 μm cellulose membrane filters **(Budimir et al. 2017).** Filters were then placed back into their original beaker for a wet peroxide oxidation (WPO) using standard procedures (NOAA) to further break down any remaining organic material. The filter was removed after the hydrogen peroxide digestion before the samples were put into the separatory funnel. The top of the solution from the density separation was filtered through 0.8μm cellulose membrane filters, and placed into covered petri dishes to be analyzed underneath a microscope and then stored **(Masura et al. 2015).** All extracted particles were observed and counted under a light microscope and categorized by two main MP types, fibers and fragments. |
| --- | --- |
| | |
| **Quality control** | *We conducted control sample processing using the above methods with no fish to ensure that no microplastics were introduced through the sample processing protocol. All controls were negative.* |
| **Additional information** | *Any additional information that may help future users of the data not included in the above rows, or in the table below.* |

**Table 2.** Description of the variables (i.e., columns) in the dataset in sufficient detail for another user to understand and use the data. If there are 10 variables (i.e., columns) in the dataset, then there should be 10 rows in this column that describe each column.

| Column name | Definition | Units |
| --- | --- | --- |
| *lake* | *Either Lake Bloomington or Evergreen where the fish were collected* | *none* |
| species | The fish species collected – either gizzard_shad or largemouth_bass | none |
| site | site in each lake were fishes were collected | none |
| fish_n | identifier for the fish index collected at the site | none |
| length_cm | fork length of the fish | centimeters |
| weight_g | mass of the fish | grams |
| git_frag_number | number of microplastic fragments in the gut | number |
| git_fib_number | number of microplastic fibers in the gut | number |
| gl_frag_number | number of microplastic fragments in the gills | number |
| gl_fib_number | number of microplastic fibers in the gills | number |
| latitude | the latitude for the collection site | decimal degrees |
| longitude | the longitude for the collection site | decimal degrees |