Title: Metadata for river herring spawning run counts and species composition surveys in the Patapsco River

Time period: 2016 – 2023

Location:

Patapsco River, Maryland (2016-2019, 2021-2023)

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File names: patapsco\_species composition survey.csv

patapsco\_DIDSON counts.csv

Methodology: River herring run counts were conducted for 10 min every hour from early March to late May at one location in the Patapsco River using a DIDSON V5.25.52 multibeam sonar. In addition, weekly biological sampling using boat electrofishing was conducted to track changes in the species composition of fish recorded by the DIDSON unit. The hourly sonar fish counts (of all species within the size range of river herring, 200–350 mm) were converted to species-specific counts for alewives and blueback herring.

**patapsco\_species composition survey.csv**

Description:This dataset contains the weekly fish species compositions in the Patapsco River. Data is used to convert the hourly DIDSON sonar fish counts to species-specific counts.

Processing steps: Weekly biological sampling using electrofishing.

Source inputs: Electrofishing.

Column heading: river

Description: River or tributary in which counts were collected

Data type: Character

Measurement unit: None

Comments: patapsco

Column heading: year

Description: Year in which samples were collected

Data type: Character

Measurement unit: None

Comments: 2016, 2017, 2018, 2019, 2021, 2022, 2023

Column heading: date

Description: Date of count

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: multiple: alewife – yellow\_perch (columns: D AE)

Description: Number of each species collected in sample.

Data type: Numeric

Measurement unit: Count

Column heading: total

Description: Total number of fish of all species collected in sample.

Data type: Numeric

Measurement unit: Count

Column heading: Proportion\_Alewife

Label: Proportion Alewife

Description: Proportional presence of alewife in the sample.

Data type: Numeric

Measurement unit: Proportion (0 – 1.0)

Column heading: Proportion\_Blueback

Label: Proportion Blueback Herring

Description: Proportional presence of blueback herring in the sample.

Data type: Numeric

Measurement unit: Proportion (0 – 1.0)

Column heading: Proportion\_hickory\_shad

Label: Proportion Hickory Shad

Description: Proportional presence of hickory shad in the sample.

Data type: Numeric

Measurement unit: Proportion (0 – 1.0)

**patapsco\_DIDSON counts.csv**

Description:This dataset contains the hourly fish counts in the Patapsco River, and the estimated species-specific counts for alewives and blueback herring moving upstream and downstream

Processing steps: Hourly fish counts were collected using DIDSON multibeam sonar. Weekly biological sampling using electrofishing was used to convert the fish counts to species-specific counts for alewives and blueback herring. Weekly species values were converted to daily values of species composition using linear interpolation. All data was set to a standardized time of GMT/UTC-5.

Source inputs: DIDSON multibeam sonar (fish counts), HOBO U20-001–2-Ti loggers (temperature).

Column heading: Year

Description: Year in which counts were collected

Data type: Character

Measurement unit: None

Comments: 2016, 2017, 2018, 2019, 2021, 2022, 2023

Column heading: Date

Description: Date of count

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: Hour

Description: Hour of the day the count was taken. GMT/UTC-5

Data type: Numeric

Measurement unit: Hour

Column heading: Upstream\_Count

Description: Count of the number of fish moving upstream in the 10 min sonar recording. All fish within the size range of river herring, 200–350 mm, were counted.

Data type: Numeric

Measurement unit: Count

Column heading: Downstream\_Count

Description: Count of the number of fish moving downstream in the 10 min sonar recording. All fish within the size range of river herring, 200–350 mm, were counted.

Data type: Numeric

Measurement unit: Count

Column heading: Proportion\_Alewife

Description: Proportional presence of alewife in the counts estimated from the weekly biological sampling efforts and linear interpolation.

Data type: Numeric

Measurement unit: Percent (0 – 1.0)

Column heading: Proportion\_Blueback

Description: Proportional presence of blueback herring in the counts estimated from the weekly biological sampling efforts and linear interpolation.

Data type: Numeric

Measurement unit: Percent (0 – 1.0)

Column heading: Upstream\_Alewife

Description: Estimated number of alewife moving upstream in that hour.

Data type: Numeric

Measurement unit: Number of alewife

Comments: Estimates obtained by multiplying the Upstream Count by the Proportion Alewife, then multiplying by a factor of six to generate hourly fish counts (since Upstream Counts are 10 min recordings).

Column heading: Downstream\_Alewife

Description: Estimated number of alewife moving downstream in that hour.

Data type: Numeric

Measurement unit: Number of alewife

Comments: Estimates obtained by multiplying the Downstream Count by the Proportion Alewife, then multiplying by a factor of six to generate hourly fish counts (since Downstream Counts were 10 min recordings).

Column heading: Upstream\_Blueback

Description: Estimated number of blueback herring moving upstream in that hour.

Data type: Numeric

Measurement unit: Number of blueback herring

Comments: Estimates obtained by multiplying the Upstream Count by the Proportion Blueback Herring, then multiplying by a factor of six to generate hourly fish counts (since Upstream Counts are 10 min recordings).

Column heading: Downstream\_Blueback

Description: Estimated number of blueback herring moving downstream in that hour.

Data type: Numeric

Measurement unit: Number of blueback herring

Comments: Estimates obtained by multiplying the Downstream Count by the Proportion Blueback Herring, then multiplying by a factor of six to generate hourly fish counts (since Downstream Counts were 10 min recordings).

Column heading: Water\_temperature

Description: Temperature

Data type: Numeric

Measurement unit: degrees Celsius (°C)