***Antenna Location Start and End.csv***

Description:This dataset contains the locations of the PIT antennas each year from 2016-2024 that collected the PIT tag data of river herring, hickory shad, common carp, American shad, and quillback in the Patapsco River.

File type: Comma-separated values file

Entity and attributes:

Column heading: Antenna

Label: Antenna

Description: Identification code for antenna location

Data type: Character

Measurement unit: None

Comments:

Column heading: Start Date

Label: Start Date

Description: The date the specific antenna was placed in the river

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: End Date

Label: End Date

Description: The date the specific antenna was removed from the river

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: Year

Label: Year

Description: Year in which the antenna was placed in the river

Data type: Number

Measurement unit: None

Comments:

Column heading: Latitude

Label: Latitude

Description: Latitude of sampling site

Data type: Numeric

Measurement unit: Decimal degrees (DD)

Comments:

Column heading: Longitude

Label: Longitude

Description: Longitude of sampling site

Data type: Numeric

Measurement unit: Decimal degrees (DD)

Comments:

Column heading: System

Label: System

Description: River the antenna was placed in

Data type: Character

Measurement unit: None

Comments:

Column heading: Description

Label: Description

Description: Explains the location of where the antenna was placed in the river

Data type: Character

Measurement unit: None

Comments:

***Patapsco Tagged Fish.csv***

Description:This dataset contains the species of fish tagged and original tagging location in the Patapsco River from 2016 to 2021.

File type: Comma-separated values file

Processing steps: Habitat use and spawning migration movement by individual adult fish was assessed using passive integrated transponder (PIT) telemetry. These PIT tags are passive radio tags that allow the tracking of individual adult fish movement during their migration. River herring, hickory shad, common carp and quillback were captured via boat electrofishing from within the study system and each fish was identified to species, measured (total and fork length) and sexed (determined based on the presence of milt or eggs, when possible). All fish were surgically implanted with either a 23 mm × 3.65 mm HDX+ PIT tag or a 32mm x 3.65mmm HDX+PIT tag (Oregon RFID, Portland, Oregon, USA). The fish receiving the 23m tags followed established intraperitoneal tagging methods while larger fish had the 32mm tag inserted by injector under the dermal. In short, a small incision was made just posterior to the pelvic fin, roughly three scale rows forward of the ventral midline. A PIT tag was then immediately inserted manually and the fish placed into an aerated live well. Once tagged fish returned to normal swimming behavior they were released back in the river. The scalpel width (#15 blade, 3.75 mm) was slightly larger than the tag width (3.65 mm) and closed neatly after tag implantation; thus, negating the use of sutures. Surgical handling times were short, generally less than 30 s per fish.

Source inputs: PIT tags

Entity and attributes:

Column heading: TagID

Label: Tag ID

Description: Identification code for the individual PIT tag

Data type: Numeric

Measurement unit: None

Comments:

Column heading: Species

Label: Species

Description: Alewife, blueback, hickory shad, American shad, common carp, and quillback

Data type: Character

Measurement unit: None

Comments:

Column heading: FL

Label: FL

Description: Fork length

Data type: Numeric

Measurement unit: mm

Comments:

Column heading: TL

Label: TL

Description: Total length

Data type: Numeric

Measurement unit: mm

Comments:

Column heading: Sex

Label: Sex

Description: Type of sex of the fish

Data type: Character

Measurement unit: None

Comments: Determined based on the presence of milt or eggs, when possible. Otherwise listed as unknown.

Column heading: Date

Label: Date

Description: Date of collection

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: Time

Label: Time

Description: Time of collection

Data type: Time

Measurement unit: None

Comments: Format: hh:mm

Column heading: Site

Label: Site

Description: Specific location where the fish were tagged

Data type: Character

Measurement unit: None

Comments:

Column heading: Temp

Label: Temp

Description: in situ temperature reading using a handheld YSI

Data type: Numeric

Measurement unit: Celsius

Comments:

Column heading: Salinity

Label: Salinity

Description: in situ salinity reading using a handheld YSI

Data type: Numeric

Measurement unit: None

Comments:

Column heading: Cond

Label: Cond

Description: in situ conductivity reading using a handheld YSI

Data type: Numeric

Measurement unit: milliSiemens per meter (mS/m)

Comments:

Column heading: DO

Label: DO

Description: in situ dissolved oxygen reading using a handheld YSI

Data type: Numeric

Measurement unit: mg/L

Comments:

***Patapsco Detections.csv***

Description:This dataset contains river herring PIT tag data collected in the Patapsco River.

File type: Comma-separated values file

Processing steps: Habitat use and spawning migration movement by individual adult fish was assessed using passive integrated transponder (PIT) telemetry. These PIT tags are passive radio tags that allow the tracking of individual adult fish movement during their migration. River herring, hickory shad, common carp and quillback were captured via boat electrofishing from within the study system and each fish was identified to species, measured (total and fork length) and sexed (determined based on the presence of milt or eggs, when possible). All fish were surgically implanted with either a 23 mm × 3.65 mm HDX+ PIT tag or a 32mm x 3.65mmm HDX+PIT tag (Oregon RFID, Portland, Oregon, USA). The fish receiving the 23m tags followed established intraperitoneal tagging methods while larger fish had the 32mm tag inserted by injector under the dermal. In short, a small incision was made just posterior to the pelvic fin, roughly three scale rows forward of the ventral midline. A PIT tag was then immediately inserted manually and the fish placed into an aerated live well. Once tagged fish returned to normal swimming behavior they were released back in the river. The scalpel width (#15 blade, 3.75 mm) was slightly larger than the tag width (3.65 mm) and closed neatly after tag implantation; thus, negating the use of sutures. Surgical handling times were short, generally less than 30 s per fish.

Tagged fish were tracked from 2016 to 2024 using multiple PIT tag antenna/reader systems (Oregon RFID, Portland, Oregon, USA). The configuration of all antennas (comprising 4-gauge fine strand oxygen free copper wire) was a pass-over loop that stretched along bottom of the entire stream width (~ 35 m). The antenna shape and integrity were maintained by 3/16 in chain attached to the antenna wire and 75 cm sections of 1.25 in schedule 40 PVC pipe filled with cement spaced at roughly 10 m intervals attached to both sides of the chain in the center of the loop. We deployed antennas at three sites: “PTUPS”, “PTMID”, and “PTDWN”. For three years pre-removal (2016–2018), only the two antennas located downstream of Bloede Dam (“PTUPS” and “PTDWN”) were deployed. In 2019 and 2022, all three antennas were deployed with “PTUPS” antenna located upstream of the former Bloede Dam location. River herring were not tagged or tracked in 2020 due to COVID-19 restrictions on field activities. In 2023 and 2024 only the PIT tag detections were automatically logged with a timestamp by tag readers. For analysis, detections for each unique tag at any given antenna were aggregated by date.

Source inputs: PIT tags

Entity and attributes:

Column heading: Site Code

Label: Site Code

Description: Specific location of which antenna the fish was detected on

Data type: Character

Measurement unit: None

Comments:

Column heading: Date

Label: Date

Description: Date of collection

Data type: Date

Measurement unit: None

Comments: Format: Month/Day/Year

Column heading: Time

Label: Time

Description: Time of collection

Data type: Time

Measurement unit: None

Comments: Format: hh:mm

Column heading: Date Time

Label: Date Time

Description: Date and time combined for detections

Data type: Date Time

Measurement unit: None

Comments: Format: Month/Day/Year hh:mm:ss

Column heading: TagID

Label: Tag ID

Description: Identification code for the individual PIT tag

Data type: Numeric

Measurement unit: None

Comments:

Column heading: Count

Label: Count

Description: Number of times the fish was detected constantly during the detection period

Data type: Numeric

Measurement unit: None

Comments: