I traveled to Beaufort, NC in October of 2019 to sort through and obtain original data on Gulf Menhaden tag and recapture efforts from the 60s, 70s, and 80s. I sorted through about 20 books of data. Most of the data were repeated multiple times, and I found final versions of Adult and Juvenile tag data. I also found final versions of Adult and Juvenile Plant Test data. Meaning all data was consolidated into just nine books. I do believe Amy recycled the repeated data sets. After finding all final versions of the data, I scanned the Adult Field data and Juvenile Field data, which are both tag/recapture data sets, to pdf files. An intern, Brittani, and I then digitized the pdf files and saved them as Excel documents. There was also an additional set of tag/recapture data that was not scanned and was just entered into its respective (Adult Field or Juvenile Field) Excel document. As for the Adult and Juvenile Plant Test data, it was not scanned and is currently being entered by the intern.

Now, a little background information about the project from which the data came. This tag/recapture project started in 1969. The scientists working on the project went out, a few days every couple of months for nearly 20 years to tag gulf menhaden. They used a small version of a purse seine to collect fish to tag. The tags were magnetic and there were sizes of tags, small and medium sized (not sure on the exact length). The smaller tags were used to tag juvenile fish and medium were used for adults. They inserted the tags into the abdominal cavity of each fish and released it. In order to get the tag recovery (or recapture) data, they depended on the menhaden processing (reduction) plants. When the menhaden boats came back into port from sampling and placed their catch on the processing conveyer belts, the fish would be ground up and magnets running along the top of the processed fish would pick each tag up.

The plant test data was a little simpler. Someone from the scientific team would go to each of the processing plants, pick and tag 100 random fish that had already been caught, and place them back on the conveyer belt. After the processing, they would check the magnets to see how many of the 100 tags came back to check the accuracy of the magnets. It is important to state that there were multiple magnets running across the conveyer belts.

Final copies of data:

Adult Field Data is the final version with all data collected from tagging and recapturing adult gulf menhaden. This data spans from 1976 to 1985. The data includes Date, Area, Area Type, Release Location, Gear, Time, Tagged, Tagger, Group, Series, ID, Recovery Area, Recovery Date, Plant, Magnet, and Cleaned.

When digitizing this data, I entered the following based on Dr. Leaf’s suggestion:

Tag\_Year, the year in which the menhaden were originally tagged.

Tag\_Month, the month in which the menhaden were originally tagged.

Tag\_Day, the day on which the menhaden were originally tagged.

Tag\_Series is denoted by the letter, ‘U’, this indicates the series of tags being deployed.

Tag\_Series\_Number indicates which group in the tag series with which the gulf menhaden were tagged.

Tag Series and Tag Series Number go together, but I chose to separate them by letter and number when digitizing to make reading the CSV of the data into R easier.

Each group of tags, with a tag series and number, (example: U20) has 100 individual tags and are numbered from 0 to 99. These specific tag IDs were entered under the Recov\_Tag\_ID column.

Recov\_Year, Recov\_Month, and Recov\_Day pertain to the date on which the individual gulf menhaden tags were recovered from the reduction plant they were being processed [at].

Recov\_Plant is the denoted by a number that has been assigned to each gulf menhaden reduction plant. This is the plant each individual fish was processed at and their tag picked up by magnets.

Juvenile Field Data is the final version with all data collected from tagging and recapturing juvenile gulf menhaden. This data spans from 1970 to 1985. The data includes Date, Area, Area Type, Release Location, Gear, Time, Tagged, Tagger, Group, Series, ID, Recovery Area, Recovery Date, Plant, Magnet, and Cleaned.

When digitizing this data, I entered the following based on Dr. Leaf’s suggestion:

Tag\_Year, the year in which the menhaden were originally tagged.

Tag\_Month, the month in which the menhaden were originally tagged.

Tag\_Day, the day on which the menhaden were originally tagged.

Tag\_Series is denoted by multiple letters; this indicates the series of tags being deployed.

Tag\_Series\_Number indicates which group in the tag series with which the gulf menhaden were tagged.

Tag Series and Tag Series Number go together, but I chose to separate them by letter and number when digitizing to make reading the CSV of the data into R easier.

Each group of tags, with a tag series and number, (example: RQ12) has 100 individual tags and are numbered from 0 to 99. These specific tag IDs were entered under the Recov\_Tag\_ID column.

Recov\_Year, Recov\_Month, and Recov\_Day pertain to the date on which the individual gulf menhaden tags were recovered from the reduction plant they were being processed [at].

Recov\_Plant is the denoted by a number that has been assigned to each gulf menhaden reduction plant. This is the plant each individual fish was processed at and their tag picked up by magnets.

Plant Test Data, for both Adult and Juvenile, is the compiled data from all plant tests. This data included:

Test\_Year, Test\_Month, and Test\_Day indicate the date on which the plant test was performed, meaning the date when the 100 random gulf menhaden were tagged to test accuracy of magnets.

Tag\_Series, which is denoted as letters and indicates the series of tags being deployed

Tag\_Series\_Number indicates which group in the tag series with which the gulf menhaden were tagged.

Tag\_ID is the individual number, 0 to 99, of the tag series (example: L282) that the magnets on the conveyer belts in the plants picked up.

Recov\_Year, Recov\_Month, and Recov\_Day pertain to the date on which the individual gulf menhaden tags were recovered from the test plant.

Plant is the denoted by a number that has been assigned to each gulf menhaden reduction plant. This is the plant the plant tests were performed at.

Adult Field Data Length 1969 is data collected from tagging and recapturing adult gulf menhaden in the year 1969. The data includes Date, Area, Area Type, Release Location, Gear, Time, Tagged, Tagger, Group, Series, ID, Recovery Area, Recovery Date, Fork Length, Plant, Magnet, and Cleaned.

Tag\_Year, the year in which the menhaden were originally tagged.

Tag\_Month, the month in which the menhaden were originally tagged.

Tag\_Day, the day on which the menhaden were originally tagged.

Tag\_Series is denoted by multiple letters; this indicates the series of tags being deployed.

Tag\_Series\_Number indicates which group in the tag series with which the gulf menhaden were tagged.

Tag Series and Tag Series Number go together, but I chose to separate them by letter and number when digitizing to make reading the CSV of the data into R easier.

Each group of tags, with a tag series and number, (example: L0) has 100 individual tags and are numbered from 0 to 99. These specific tag IDs were entered under the Recov\_Tag\_ID column.

Recov\_Year, Recov\_Month, and Recov\_Day pertain to the date on which the individual gulf menhaden tags were recovered from the reduction plant they were being processed [at].

Fork\_Length: I believe the fork length was collected from each individual upon recapture, not when tagged and released.

Recov\_Plant is the denoted by a number that has been assigned to each gulf menhaden reduction plant. This is the plant each individual fish was processed at and their tag picked up by magnets.

**Notes:**

* Everything above the U20, represent tag series, and no recaptures
* Blue book data – integrate this into the adult tagging data, useful for understanding what was considered