**Instructions:** Complete this worksheet to prepare for an in-class activity in which you will investigate the migration patterns of sicklefin redhorse.

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The sicklefin redhorse was recognized by the Cherokee people as Ugiidatli, which translates as “the fish that wears the red feather”. Describe the significance of this fish and other redhorses to the Cherokee people.

Provide a brief description of the sicklefin redhorse, including its range and any characteristics associated with its migration.

Review the assigned pre-class videos. These videos discuss sampling methods and some of the conservations actions that are being implemented to protect and restore sicklefin redhorse populations throughout their range.

Describe the methods being used to capture and study sicklefin redhorse.

Describe the conservation actions being implemented to conserve the sicklefin redhorse.

Review the dataset that has been provided on the movement of sicklefin redhorse in Brasstown Creek. The data set was based upon sicklefin redhorse that were capture in a fyke net and tagged with a passive integrated transponder (PIT) tag. An antenna was deployed along the stream bottom during the spawning season that detected individuals moving upstream and downstream. The data set contains the following columns of data:

* **Individual** – A unique number assigned to each individual fish
* **First Date** – The first date that an individual was detected by the antenna, representing when the individual migrated into the spawning grounds.
* **Last Date** – The last date that an individual was detected by the antenna, representing when the individual migrated back downstream.
* **Year** – The year of the detection, being either 2017 or 2018.
* **Residence Time** – The number of days between the first date of detection and the last date of detection, representing the time of residency in the spawning grounds.
* **Total Length** – The size (mm) of the sicklefin redhorse as measured from the tip of the snout to the tip of its caudal fin (or tail).
* **Sex** – The biological sex of the individual (male or female) based upon the expression of spawning tubercles on the fins.

The figure above shows the migration pattern of the sicklefin redhorse in Brasstown Creek. This data was constructed based upon the movement of tagged fish across an antenna that detected their movement patterns. Detections to the left of the black line mostly demonstrate “first detections” of individuals migrating upstream and entering the spawning grounds. Detections to the right represent the “last detections” of individuals fish, representing downstream movement of fish migrating out of the spawning grounds.

What patterns are observed in the spawning migration of the sicklefin redhorse based upon the figure shown above?

Based upon the figure and the data set, propose two hypotheses to test related to the sicklefin redhorse migration and construct a prediction for each hypothesis. Propose a method of statistical analysis for each hypothesis.

Identify the independent and dependent variable for each hypothesis. Suggest a statistical analysis that can be used to test the hypothesis.

Construct a graph that supports each hypothesis and prediction.