

Bulk Load Prep Toolbox v1.0

The bulk load prep toolbox contains custom Python tools that are intended to increase the efficiency of data preparation prior to bulk loading into Biotics

Toolbox name: BulkLoadPrepToolbox.pyt

Toolbox access: <https://github.com/PNHP/DataManagement/tree/master/BulkLoading>

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1.0 Separation Distance Analysis Tools

The aquatic and terrestrial separation distance analysis tools are used to prepare feature classes and/or shapefiles for bulk load into Biotics by assigning an existing EOID/SFID or new EO/SF grouping string to observations based on separation distance.

1.1. Data Needed to Run the Aquatic and Terrestrial Separation Distance Analysis Tool

- One or more spatial datasets (feature class or shapefile) of observations intended for bulk load (must be projected into a metric coordinate system). This dataset must include:
 - A field that uniquely identifies species using the same values as the Biotics datasets.
 - A field that designates the species separation distance in kilometers.
- Existing EO Reps spatial dataset (feature class or shapefile). This dataset must include:
 - EOID field.
 - A field that uniquely identifies species using the same values as the input observation datasets.
- Existing source feature point, line, and polygon spatial datasets (feature classes or shapefiles). These datasets must include:
 - SFID field.
 - A field that uniquely identifies species using the same values as the input observation datasets.

1.2 Additional Data Needed to Run the Aquatic Separation Distance Analysis Tool

- NHD flowline layer
- Network dataset built on NHD flowlines (see Appendix 1.0)
- Optional dam/barrier point layer (must be snapped to flowlines – see Appendix 1.0)
- Snap distance in meters which is the distance to the flowline beyond which observations will not be assigned/grouped.

Appendix 1.0 – Preparing Aquatic Network Analysis Data

The aquatic network analysis data only needs to be prepared once and then can be used for any future aquatic separation distance analyses. Store these datasets somewhere that can be accessed by those who will be using the separation distance analysis tools.

NHD Flowlines

The NHD flowlines are a part of the NHD dataset and can be downloaded from <https://www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus>

NHD Flowline Network Dataset Preparation

The flowlines used in the Aquatic Separation Distance Analysis Tool must be made into a network dataset prior to being used as input. To create a network dataset, follow these guidelines:

- 1.) Create a new feature dataset (use same projected coordinate system as Biotics data).
- 2.) Add the NHD flowlines layer.
- 3.) Right-click on the feature dataset and click New → Network Dataset...
- 4.) Follow the steps in the Network Dataset Wizard. If you are unsure of the options to select, follow these guidelines:
 - a. Select your flowlines layer when asked to select the feature classes that will participate in the network dataset.
 - b. Select No for 'Do you want to model turns in this network?'
 - c. Select None for 'How would you like to model the elevation of your network features?'
 - d. Select No for 'Do you want to establish driving directions for this network dataset?'
 - e. Select the checkbox for 'Build Service Area Index'.
 - f. Use default settings for the rest of the options.

Dam/Barrier Layer Preparation

The Aquatic Separation Distance Analysis Tool has the option of including a barrier layer that will split assignment groups upstream and downstream of a barrier. Dams, areas of point source pollution, or other barriers to upstream and downstream movement can be included in this layer, but all barriers must be represented as points. The point layer used as barriers must be snapped to the network flowlines prior to use in the tool. To snap the points to the flowlines, take the following steps:

- 1.) Open the Snap (editing) tool in ArcMap Desktop.
- 2.) Include the barriers point layer as your input features ****NOTE THAT THIS TOOL WILL PERMANENTLY CHANGE YOUR ORIGINAL DATA.** Create a copy of your original data if you wish to have an unchanged backup.
- 3.) Include the flowlines as the Snap Environment.
- 4.) Choose 'EDGE' for Type and select the distance at which you wish to snap the features (you may have to try a few different distances to get the most accurate snapping effect).