RULE-BASED AGGREGATION AND WBIC ASSIGNMENT OF SURFACE WATERS IN THE WDNR 1:24,000 SCALE HYDRO GIS LAYER

OBJECTIVES:

1.) To automate the aggregation of unnamed stream segments into single water bodies through the use of an agreed upon **rule-based** methodology.
2.) To automate the assignment of WBICs to the streams created in step #1.
3.) To automate the assignment of WBICs to unnamed open water polygons that currently do not have WBICs assigned. (NOTE: Open water polygons are NOT aggregated in this process!)
4.) To *minimize* impact to existing user data that has been located by WBIC. (i.e. existing WBICs in the hydro layer will NOT be modified)

METHODOLOGY: The methodology used to aggregate stream segments together to form a single "water body" is based on the concept of starting at the headwaters and working down the network, grouping segments based on certain criteria which are described below.

Figures 1 and 2 following the methodology demonstrate results of the aggregation of stream segments and the assignment of WBIC. Figure 1 demonstrates the results of aggregation and WBIC assignment given none of the features had a WBIC to begin with. Figure 2 shows the resulting aggregation and WBIC assignment taking into account one of the features already has a WBIC assigned.

Stream Aggregation Steps:

Each headwater is given its own WBIC. That WBIC is used to aggregate all segments downstream until it gets to a confluence. At a confluence, identify the main stem. The longest upstream WBIC aggregation is continued downstream unless it is intermittent flow and other branches are perennial flow. In that case, the longest upstream perennial flow is the WBIC that is carried downstream. If branches come together in a lake or wide stream (water area), then the main flow through it (the center line) is the aggregation that is kept downstream.

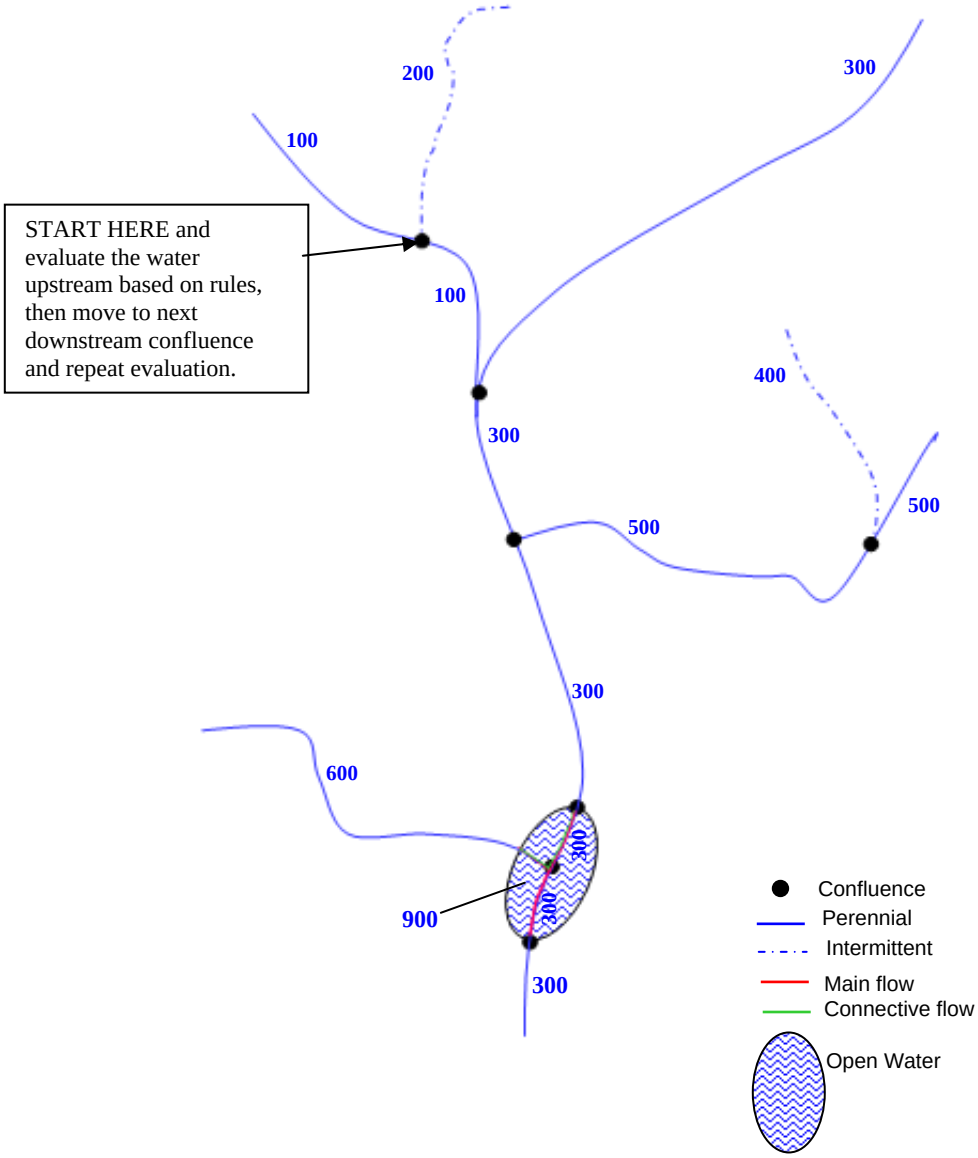

Figure 1. Results of aggregation and WBIC assignment to features that didn't have a WBIC previously assigned.

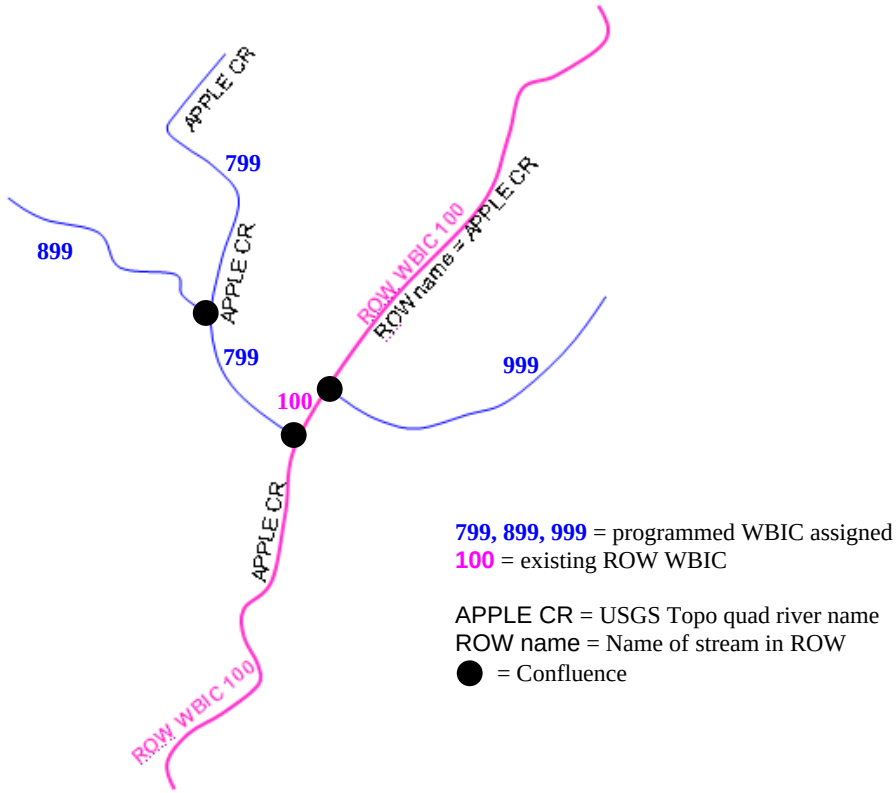

Figure 2. Results of WBIC assignment – starting with an existing ROW WBIC assigned to Apple Creek (WBIC 100).

NOTES REGARDING THE APPLICATION OF THE METHODOLOGY:

1.) The methodology is applied specifically to:

a.) **Primary flow lines of 24K hydro:** This is an attribute on the hydro layer designating the main flow channel vs secondary flow paths. This represents 97% of the entire statewide flow network (by length).

- This includes artificial connections such as wetland gap connectors and flow potentials.
- Extension lines and flow potential lines inside water polygons will receive WBICs but they **will NOT be entered into ROW**.

b.) **Individual hydro open water polygons:** No aggregation of open water polygons was made.

2.) No correction of existing WBICs were made

3.) Once assigned, the WBICs are considered final

4.) Aggregations may be "broken" by existing WBIC locations

5.) WBICs assigned by this methodology are differentiated from original ROW WBICs through the use of a WBIC_TYPE code:

- WBIC_type of 'C" indicates the WBIC was defined using cultural criteria such as name or specific knowledge of the area to define the water body.
- WBIC_type of 'P' indicates the WBIC was assigned by the programmed aggregation/assignment methodology.