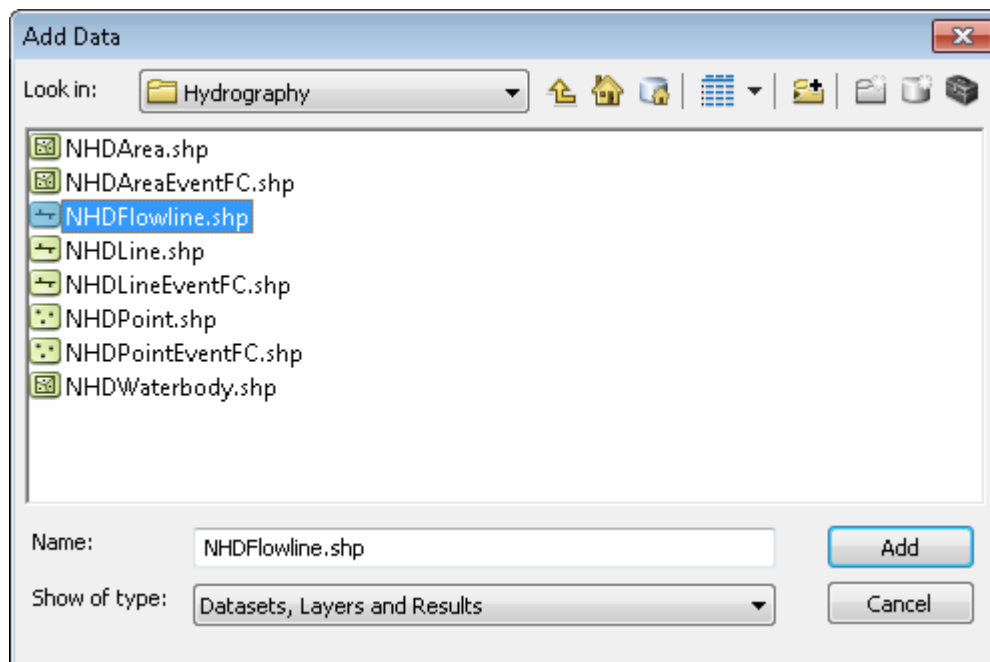


## Exercise 5 – NHDPlus Network Analysis – Last modified on 2/11/2014

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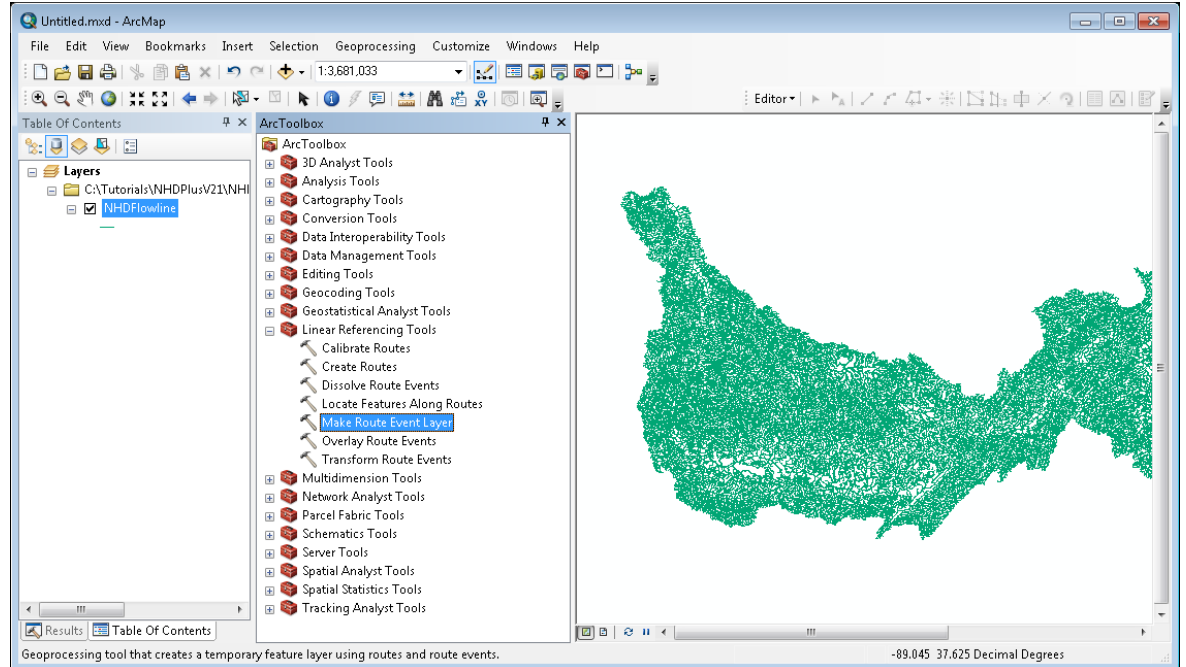
Within this document, the term NHDPlus is used when referring to NHDPlus Version 2.1 (unless otherwise noted).

1. Start ArcMap.
2. Using ArcMap,
  - a. Use the **File, Add Data** menu. In the **Add Data** dialog, navigate to the \NHDPlusMS\NHDPlus06\NHDPlusSnapshot\Hydrography folder (see Exercise 0 and the NHDPlusV2 User Guide for access to this data), select NHDFlowline.shp, and click **Add**.

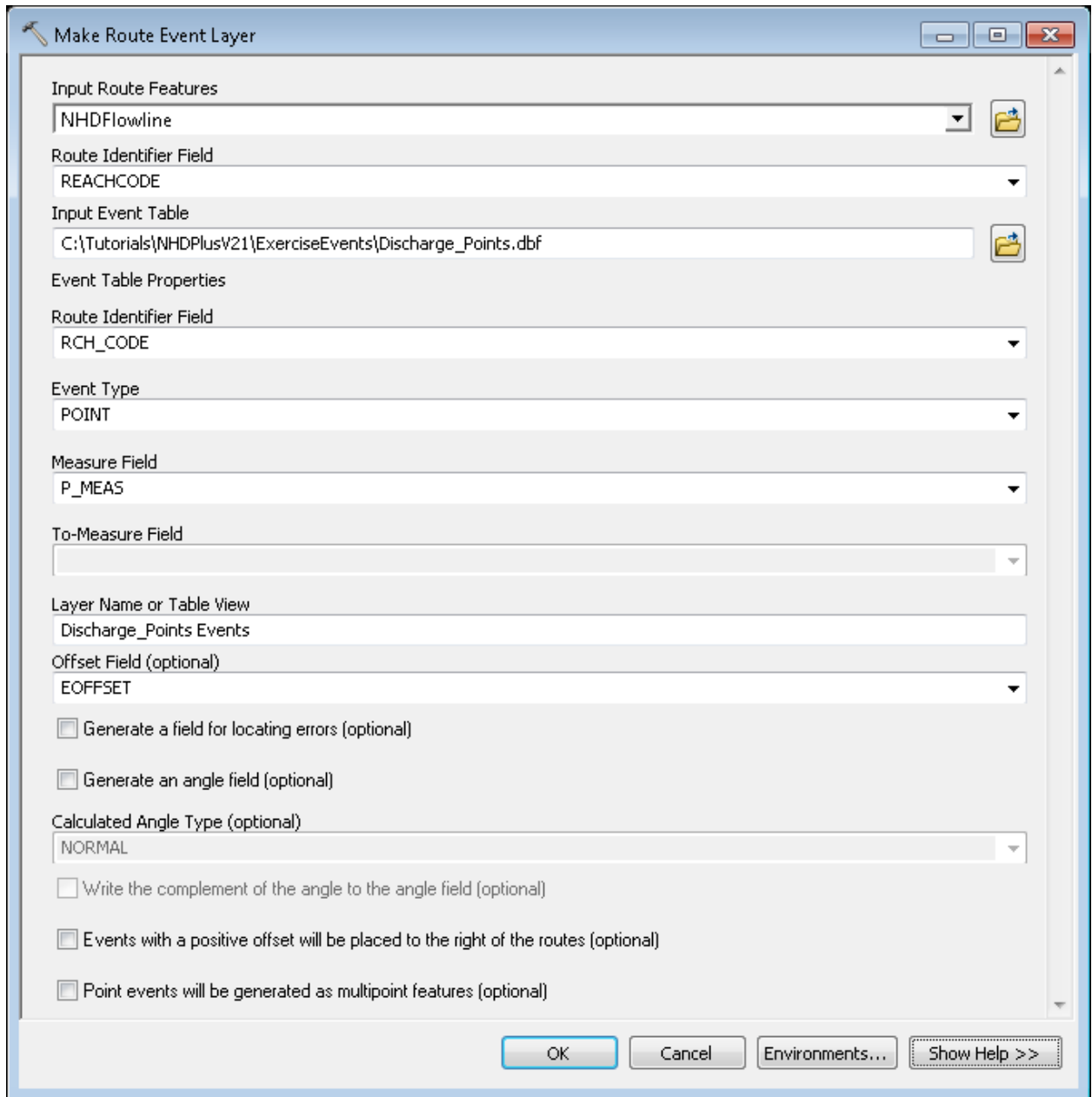


3. To load the exercise events into the map, use Show/Hide ArcToolbox Window to add the ArcToolbox to ArcMap.

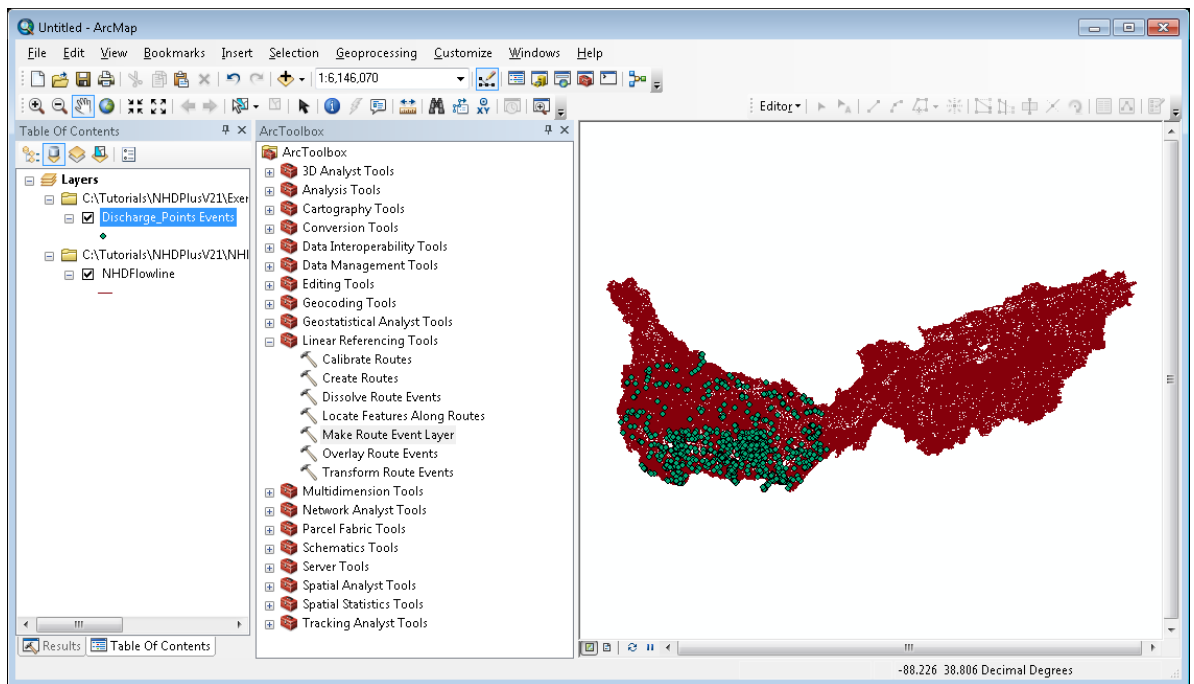
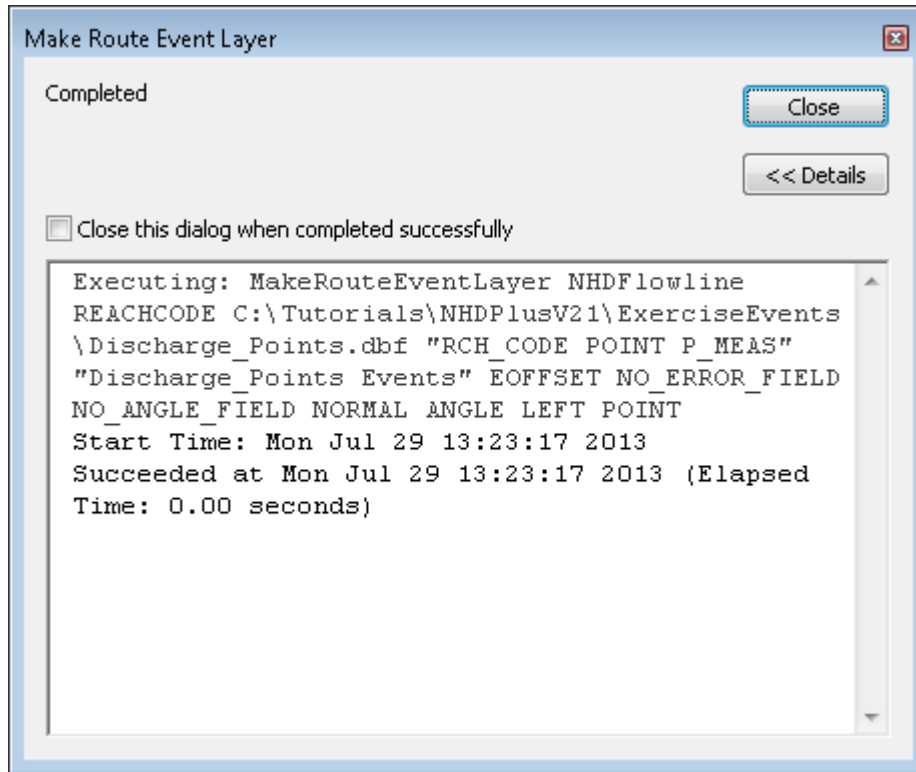
- a. Expand the **Linear Referencing Tools** list.



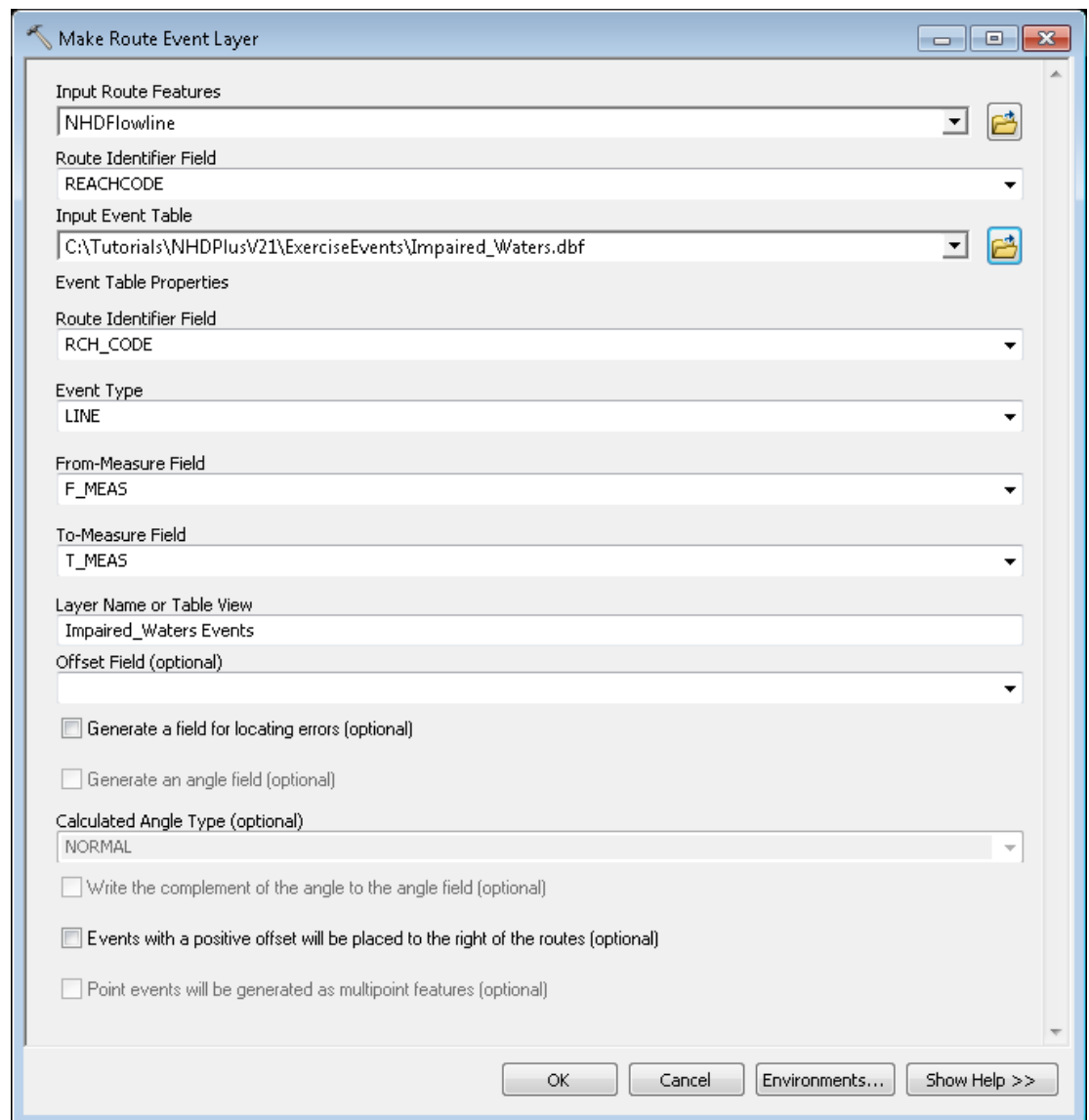
- b. Load the Discharge Point events (see Exercise 0 for access to this data) into the map. These events represent locations where something is being discharged into a surface water feature. Double click on **Make Route Event Layer** tool in the ArcToolbox. In the dialog:
- Use the **Input Route Features** pull down to select the NHD route feature class which is **NHDFlowline**
  - Use the **Route Identifier Field** to select the NHD route identifier which is **ReachCode**.
  - Use the **Input Event Table Folder** button to browse to the \NHDPlus06 folder and select **Discharge\_Points.dbf**.
  - Use the **Route Identifier Field** pull down to select **RCH\_CODE** as the route identifier in the event table.
  - Use the **Event Type** pull down to select **Point**.
  - Use the **Measure Field** pull down to select **P\_Meas**.
  - Use the **Offset Field** pull down to select **EOFFSET**
  - Leave the remaining items at their default values.
  - Click **OK**.



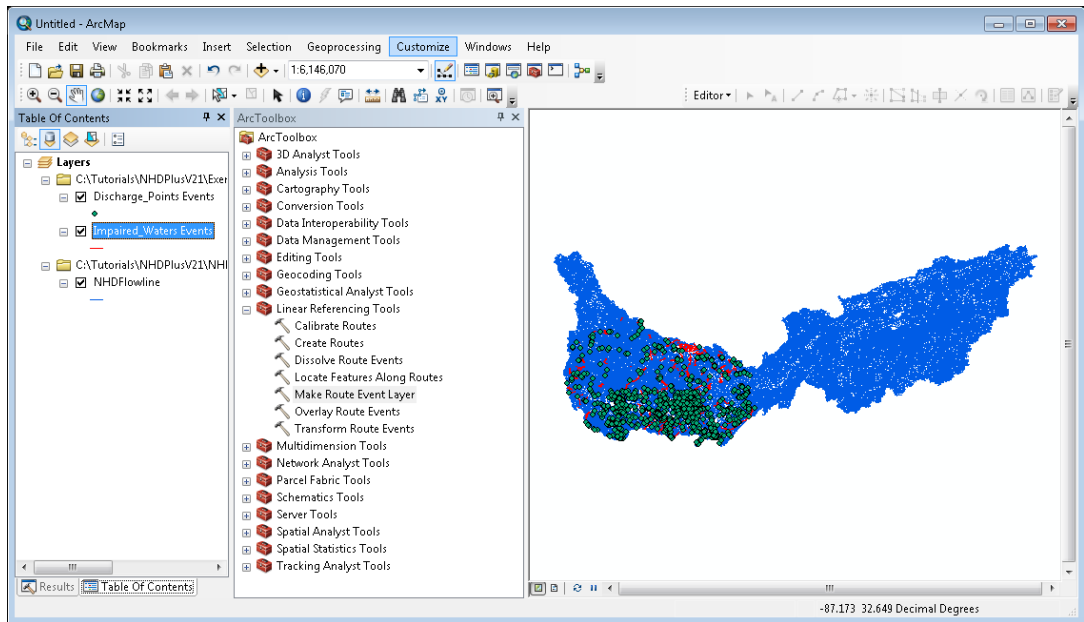
- x. The **Make Route Event Layer** tool will execute. When the word “**Completed**” appears in the window, click **Close**. A new feature class called Discharge\_Points Events will be added to the map.



- c. Repeat step 4b to load the Impaired Waters linear events (see Exercise 0 for access to this data) to the map. Impaired Waters represent stretches of the stream network that have been monitored and found to be impaired. The event table is located at \NHDPPlus06\Impaired\_Waters.dbf.

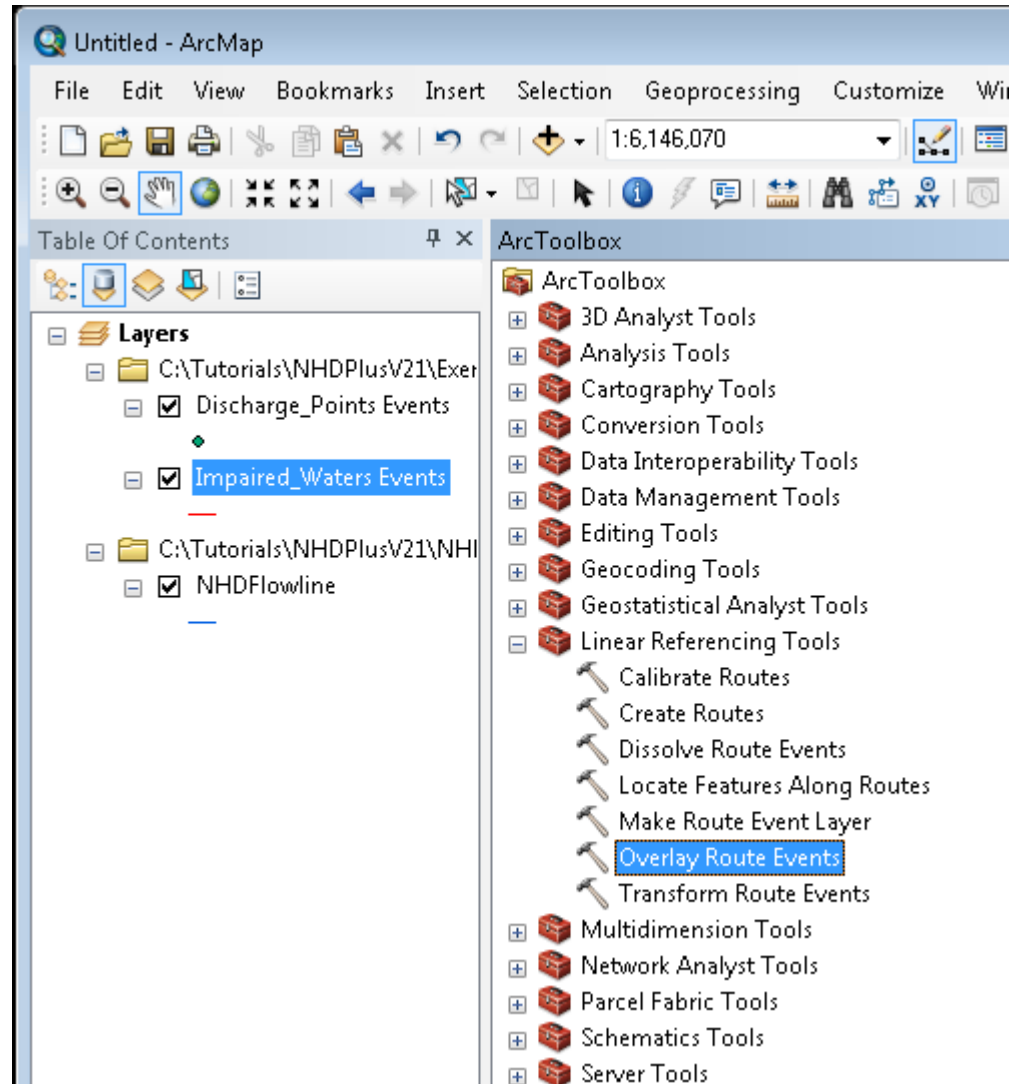


When Impaired\_Waters Events are in the map, you may wish to symbolize them to make them more visible.



4. We are now ready to perform an analysis. The question that we want to answer is -- Which Discharge Points are located on Impaired Waters? We will do this with a tool in ArcToolbox.

a. Double click on **Overlay Route Events**



- b. In the **Overlay Route Events** dialog,
- Use the **Input Event Table** pull down to select **Discharge\_Points Events**.
  - Use the **Route Identifier Field** pull down to select **RCH\_CODE**.
  - Use the **Event Type** pull down to select **POINT**.
  - Use the **Measure Field** pull down to select **P\_MEAS**.
  - Use the **Overlay Event Table** pull down to select **Impaired\_Waters Events**.
  - Use the **Route Identifier Field** pull down to select **RCH\_CODE**.

vii. Use the **Event Type** pull down to select **LINE**.

Overlay Route Events

Input Event Table  
Discharge\_Points Events

Input Event Table Properties  
Route Identifier Field  
RCH\_CODE

Event Type  
POINT

Measure Field  
P\_MEAS

To-Measure Field

Overlay Event Table  
Impaired\_Waters Events

Overlay Event Table Properties  
Route Identifier Field  
RCH\_CODE

Event Type  
LINE

From-Measure Field  
F\_MEAS

To-Measure Field  
T\_MEAS

Type of Overlay  
INTERSECT

Output Event Table  
C:\Tutorials\ExerciseEvents\ImpairedWater\_Discharges.dbf

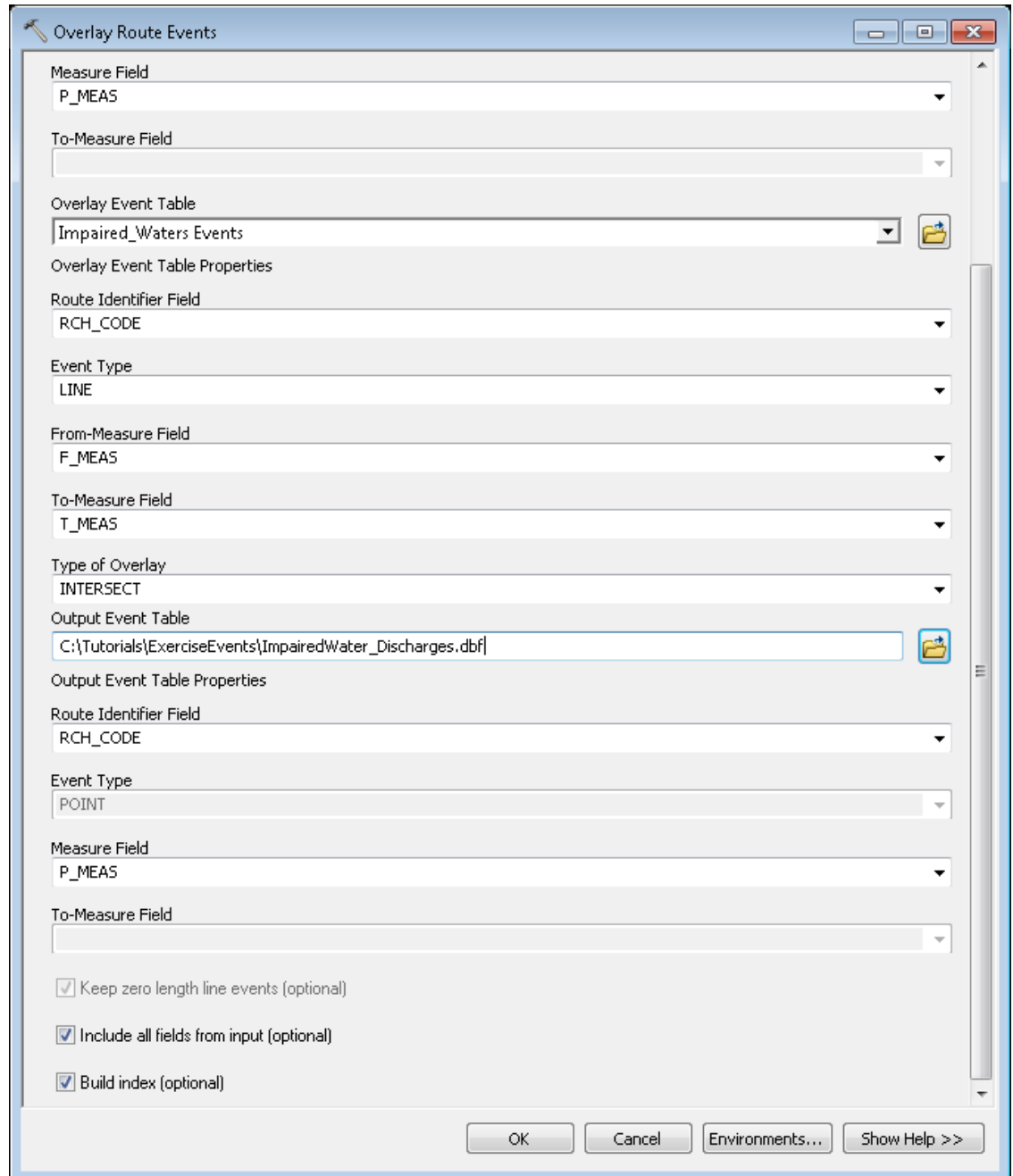
Output Event Table Properties  
Route Identifier Field  
RCH\_CODE

Event Type  
POINT

Measure Field

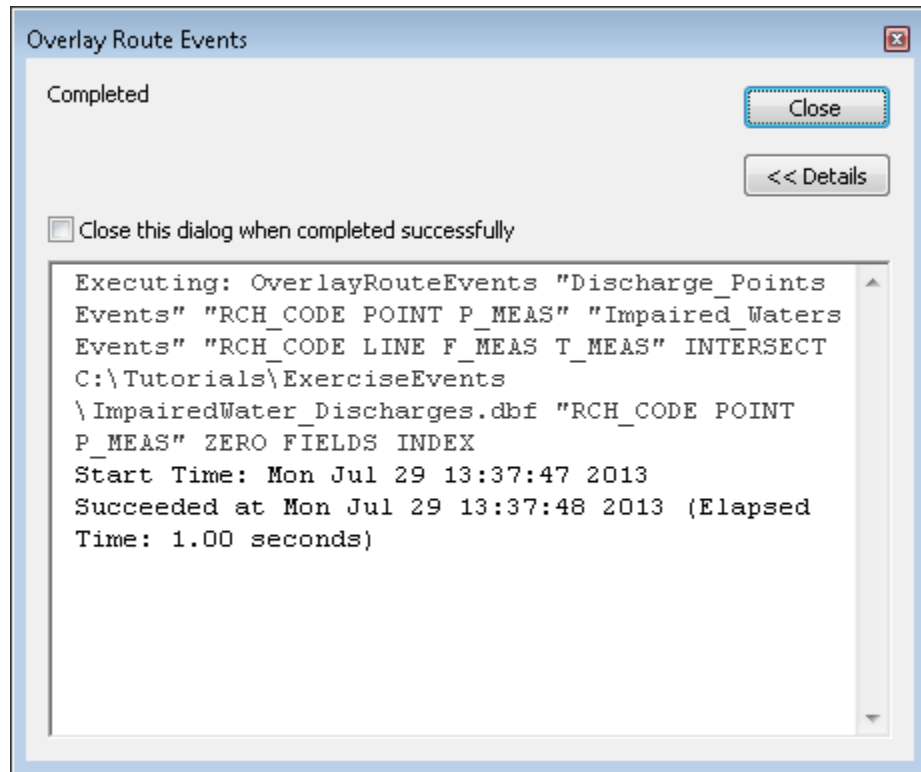
OK Cancel Environments... Show Help >>



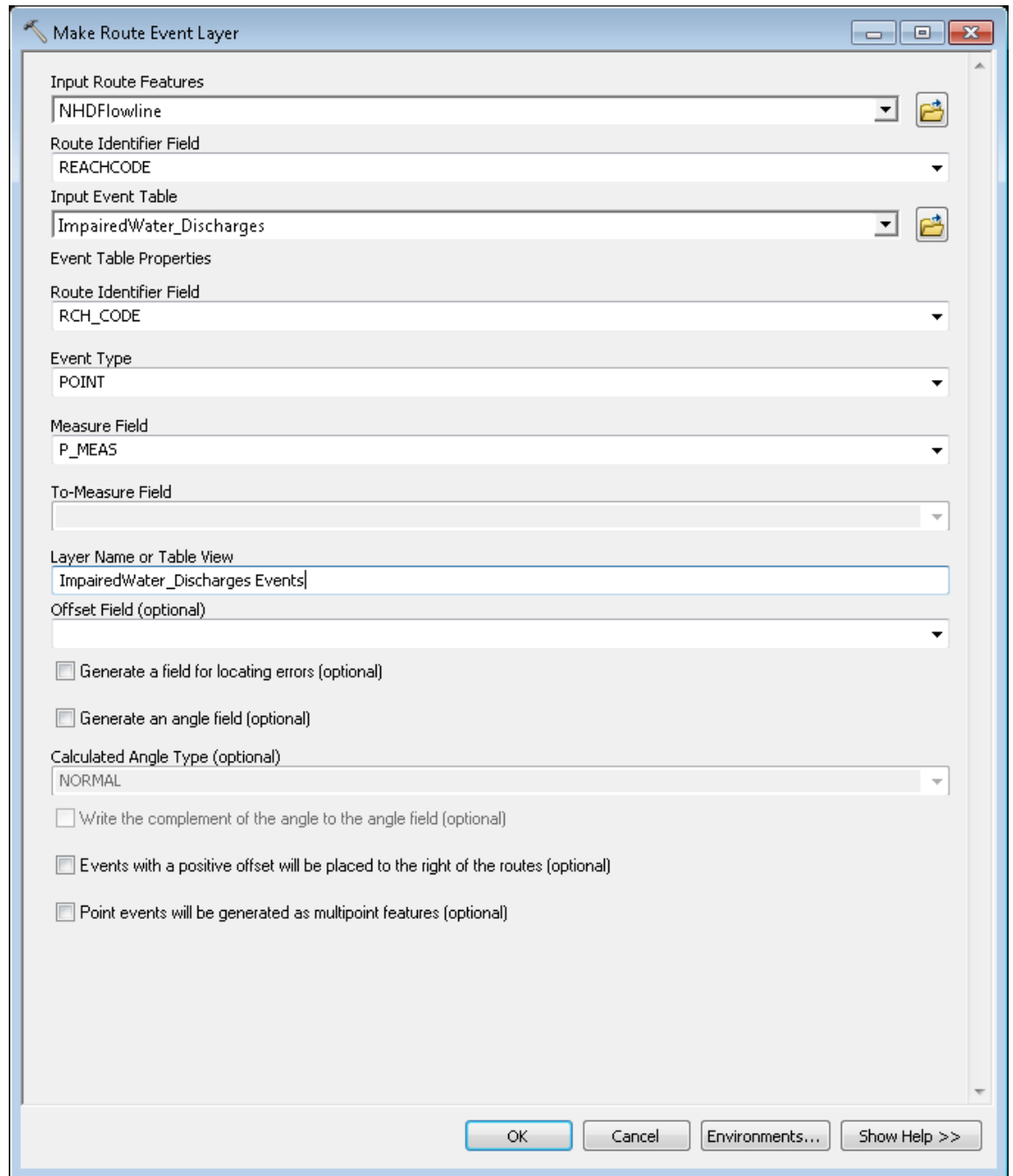



- viii. Use the **From-Measure Field** pull down to select **F\_MEAS**.
- ix. Use the **To-Measure Field** pull down to select **T\_MEAS**.
- x. Use the **Type of Overlay** pull down to select **INTERSECT**.
- xi. Use the **Output Event Table** **Folder** button, to browse to the \NHDPPlus06 folder and name the output event table **ImpairedWater\_Discharges.dbf**.
- xii. Use the **Route Identifier Field** pull down to select **RCH\_CODE**.
- xiii. Use the **Measure Field** pull down to select **P\_MEAS**.
- xiv. Allow all other options to take their default values.

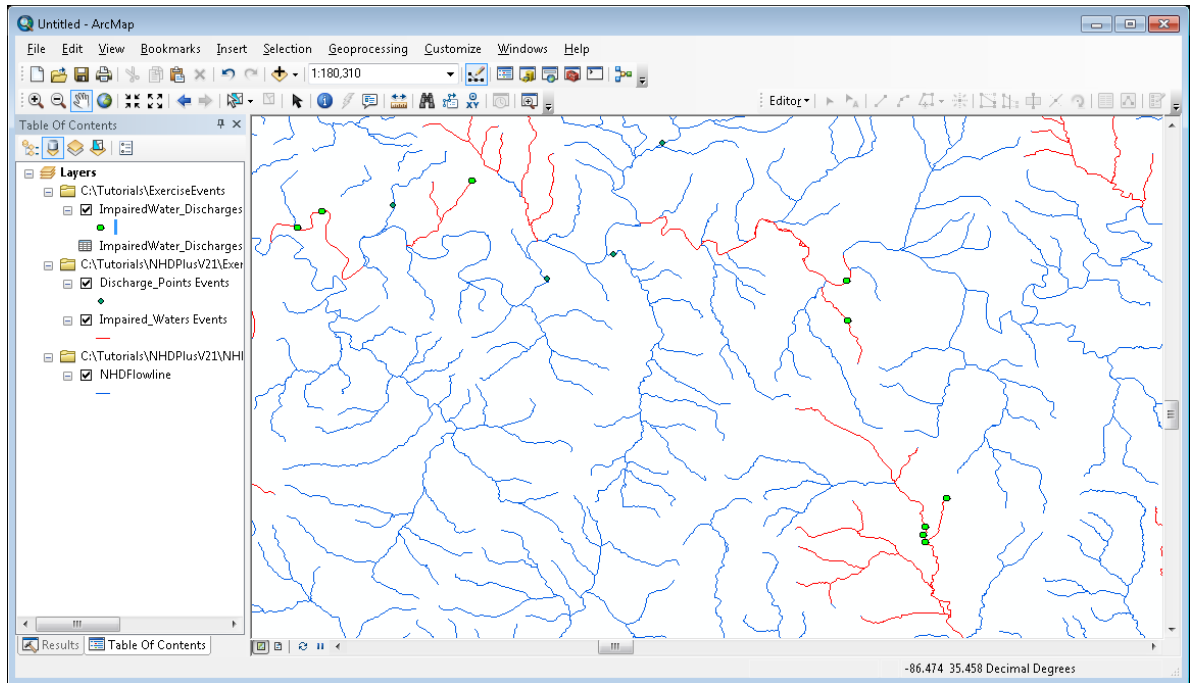
- xv. Click **OK**. The **Overlay Route Events** will execute. When the word **“Completed”** appears in the dialog, click **Close**.



- c. We have just created a new point event table that contains all of the Discharge Points that fall on Impaired Waters. To add the new event table to the map, double click on **Make Route Event Layer** in the ArcToolbox. Populate the **Make Route Event Layer** dialog as shown in the figure below. And then click **OK**. If you have questions about how to use Make Route Event Layer, refer back to step 4b.



- d. The ImpairedWater\_Discharges Events is now added to the map. You may wish to symbolize these events to make them more visible and then zoom-in  to see that, in fact, these are the Discharge Points that fall on Impaired Waters.



This is just one of many analyses that can be done with the NHDPlus network and data that has been linked to the network.