

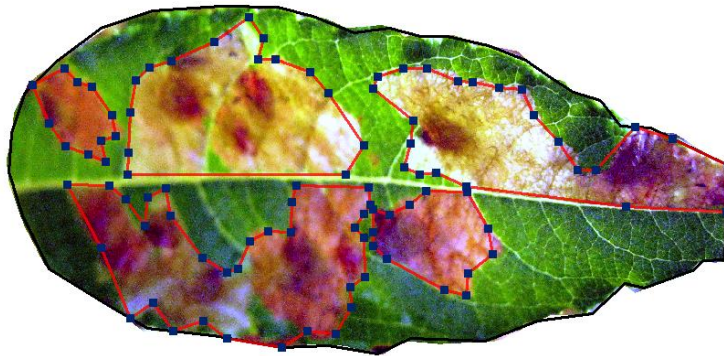
## KEY Week#7 Editing Shapefiles

Download and unzip **Editing\_Shapefiles.exe** from the class website  
[http://nrm.salm.uaf.edu/~dverbyla/nrm338/thurs\\_GIS\\_problems/](http://nrm.salm.uaf.edu/~dverbyla/nrm338/thurs_GIS_problems/)

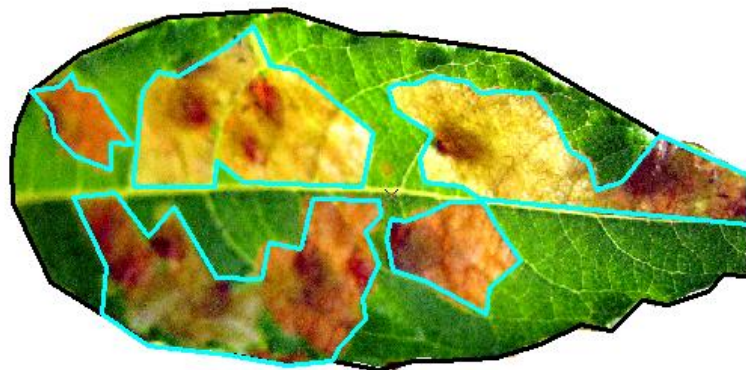
### Percentage of Leaf Miner Damage

What **percentage** of this willow leaf has been mined by the willow leaf blotch miner?

- 1) Create a polygon shapefile using catalog window.
- 2) Create a polygon for the entire leaf
- 3) Create multipart blotch polygon.



FID	Shape *	Id
0	Polygon	0
1	Polygon	0

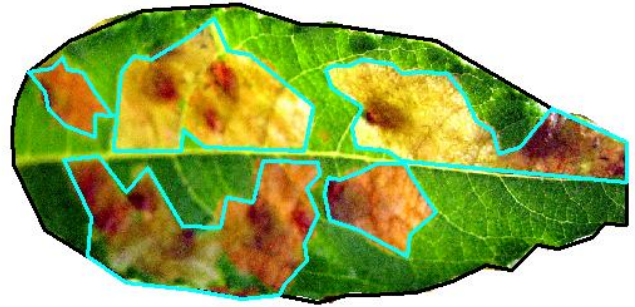


Add a field for percent and compute percent of leaf affected by blotches

Table

LeafPolygons

Shape *	Name	area	Percent
Polygon	Entire Leaf	3817385.21206	0.0%
Polygon	Leaf Miner Infested	1868623.7195	49.0%

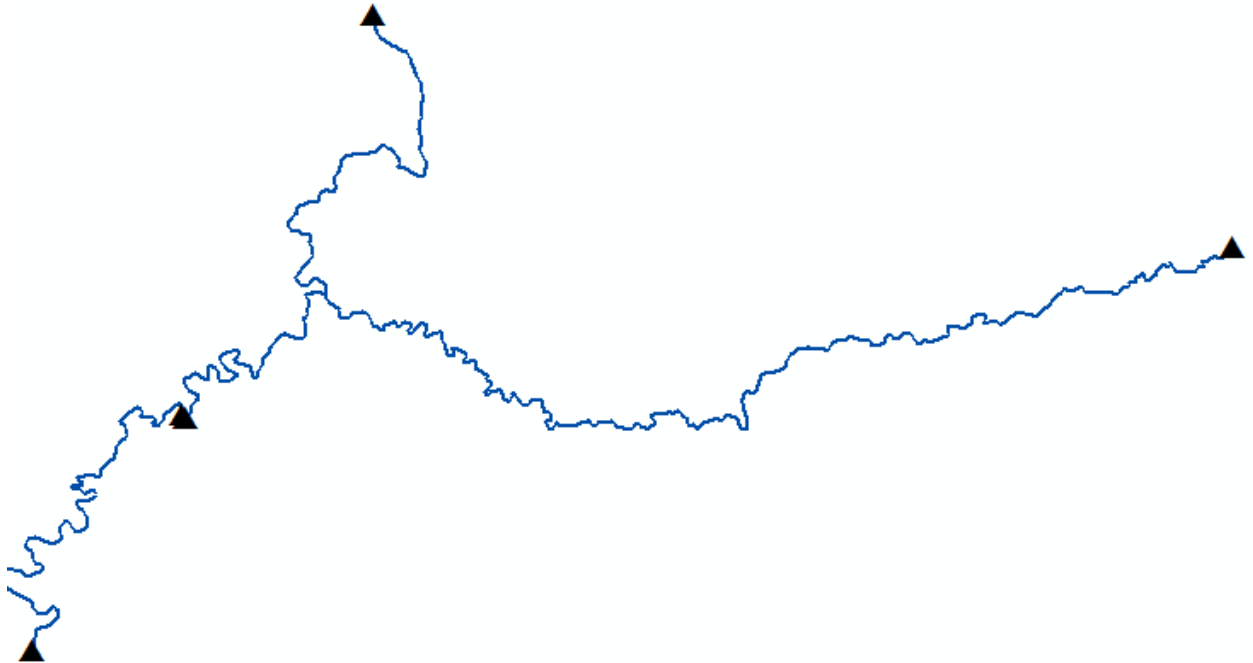


Approximately 49 percent infested (40-50% depending on your editing polygon decisions).

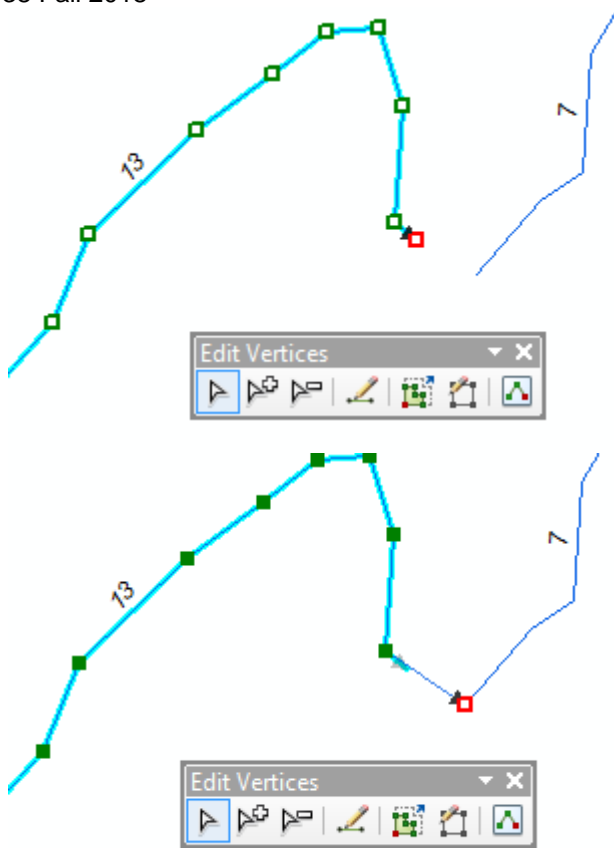
## Line Editing

Fix the Chena River line layer so there are three lines representing the three branches of the river.

- 1) Make backup copy of Chena River shapefile
- 2) Use Feature Vertices to Points to check dangling nodes



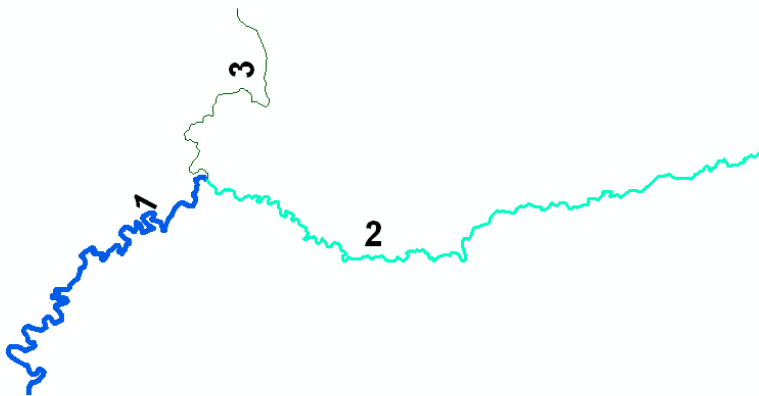
- 3) Edit the line and move the line endpoint to snap to the the endpoint upstream.



4) Calculate a field so all lines have the same value, then use the Dissolve tool.

dissolve_output	
Shape ^	
Polyline	
Polyline	
Polyline	

Add ID field and calculate ID from feature ID



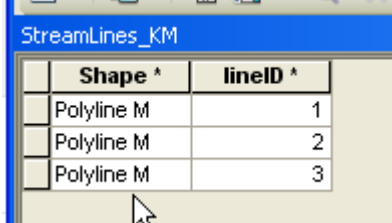
### Points on Lines

Create a point every 10 km going upstream for each river line.

Step 1) Add a field and calculate geometry in KM for each line.

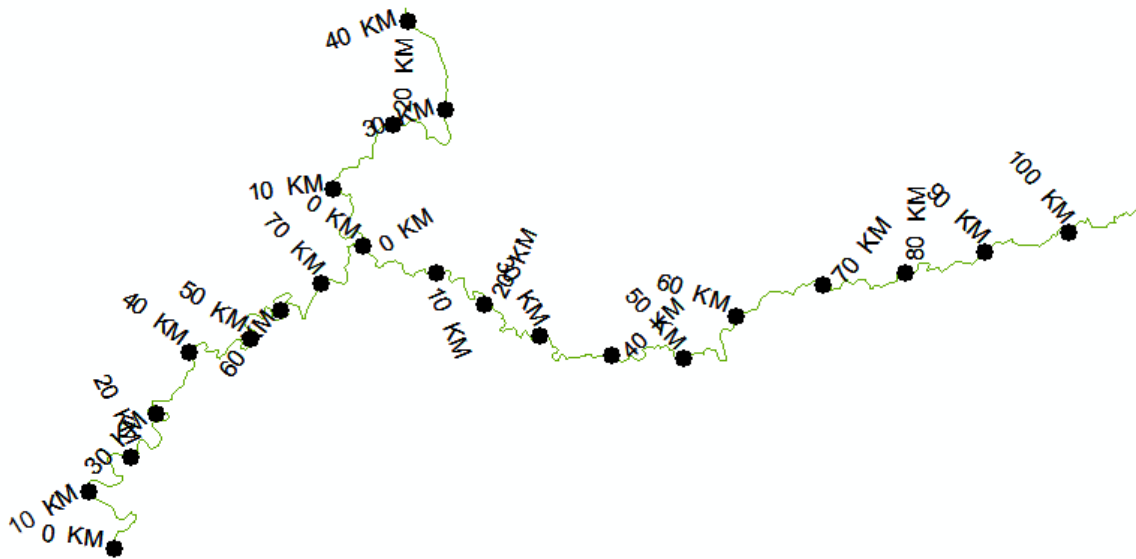
	Shape *	NUM	Shape_Length	KM
1	Polyline	1	77917.149082	77.9
2	Polyline	2	109630.712027	109.6
3	Polyline	3	41395.468711	41.4

Step 2) Use Create Routes tool to create measured lines in KM



Shape *	lineID *
Polyline M	1
Polyline M	2
Polyline M	3

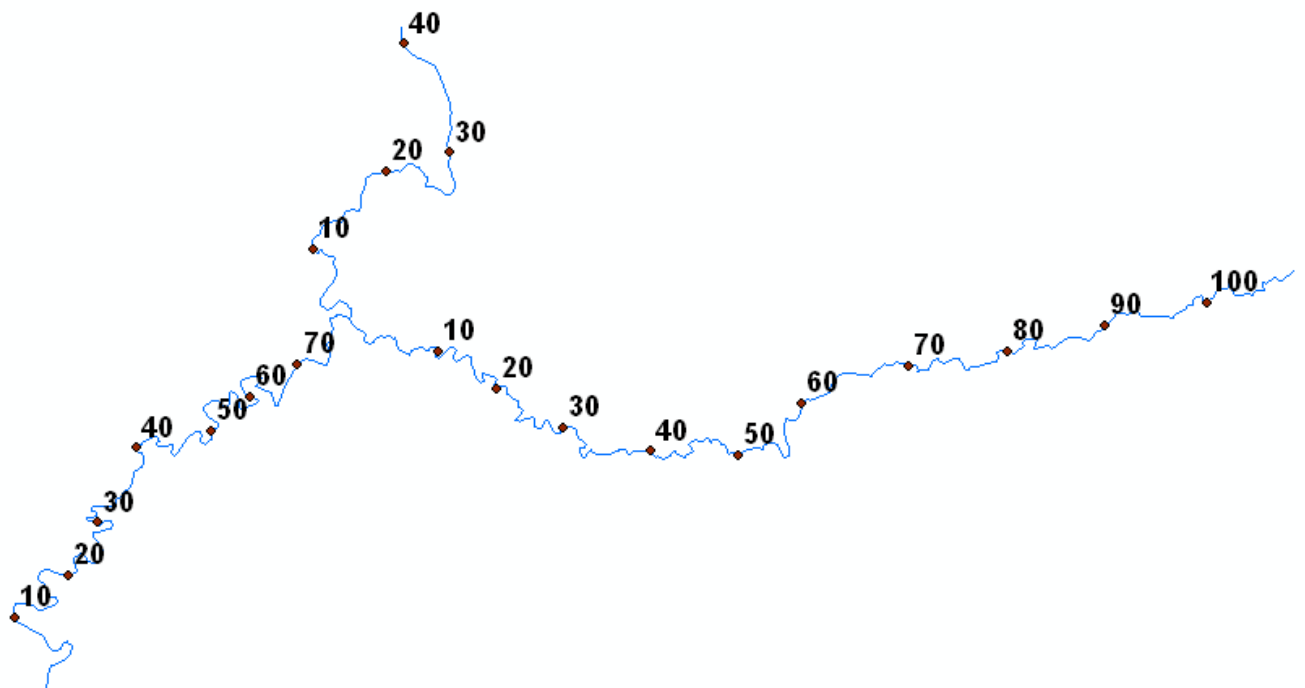
Lines are measured, so hatching is available under layer properties



Step 3) Create table for every 10 km for each line ID and use **Make Route Event** Layer tool to create points every 10km

KM.txt

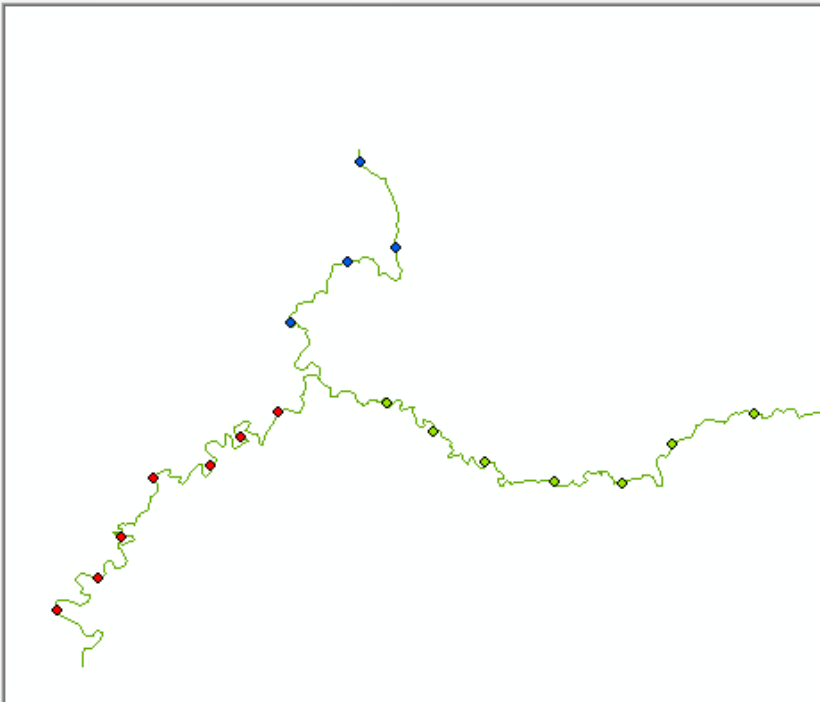
	STREAM	KM
▶	1	10
	1	20
	1	30
	1	40
	1	50
	1	60
	1	70
	2	10
	2	20
	2	30
	2	40
	2	50
	2	60
	2	70
	2	80
	2	90
	2	100
	3	10
	3	20
	3	30
	3	40



Table

PointEvents

ID	KM	Shape *
1	10	Point M
1	20	Point M
1	30	Point M
1	40	Point M
1	50	Point M
1	60	Point M
1	70	Point M
2	10	Point M
2	20	Point M
2	30	Point M
2	40	Point M
2	50	Point M
2	60	Point M
2	70	Point M
2	80	Point M
2	90	Point M
2	100	Point M
3	10	Point M

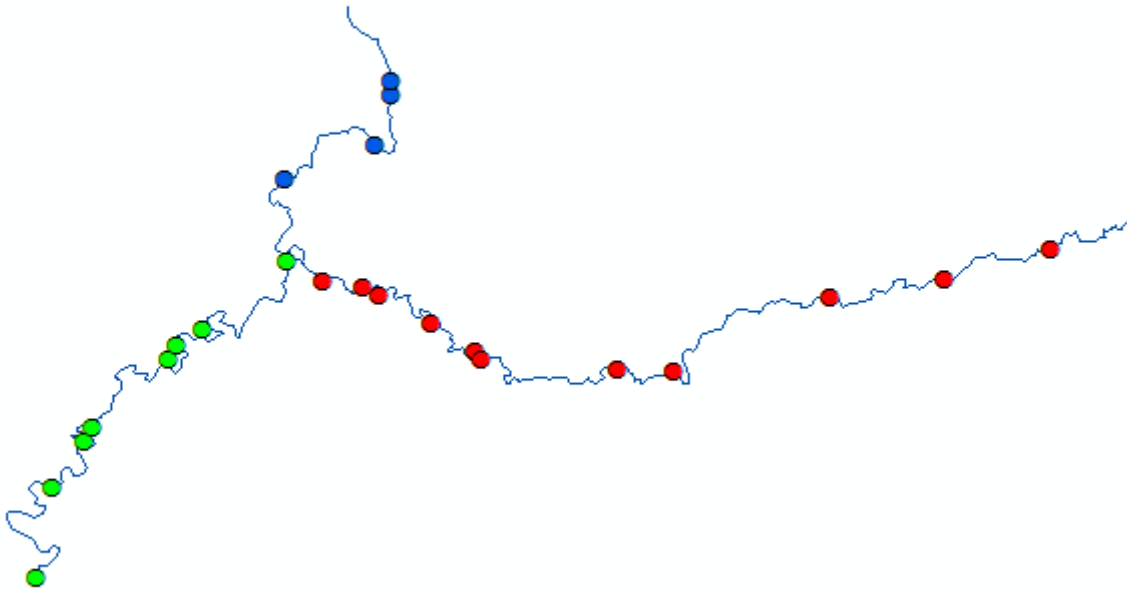


**Create a randomly located point for every 10km of each river line.**

Step 1) Add a field and compute number of points for each line based on 10KM increments of each line:

KM	NPTS
77.945441	8
109.630712	11
41.395469	4

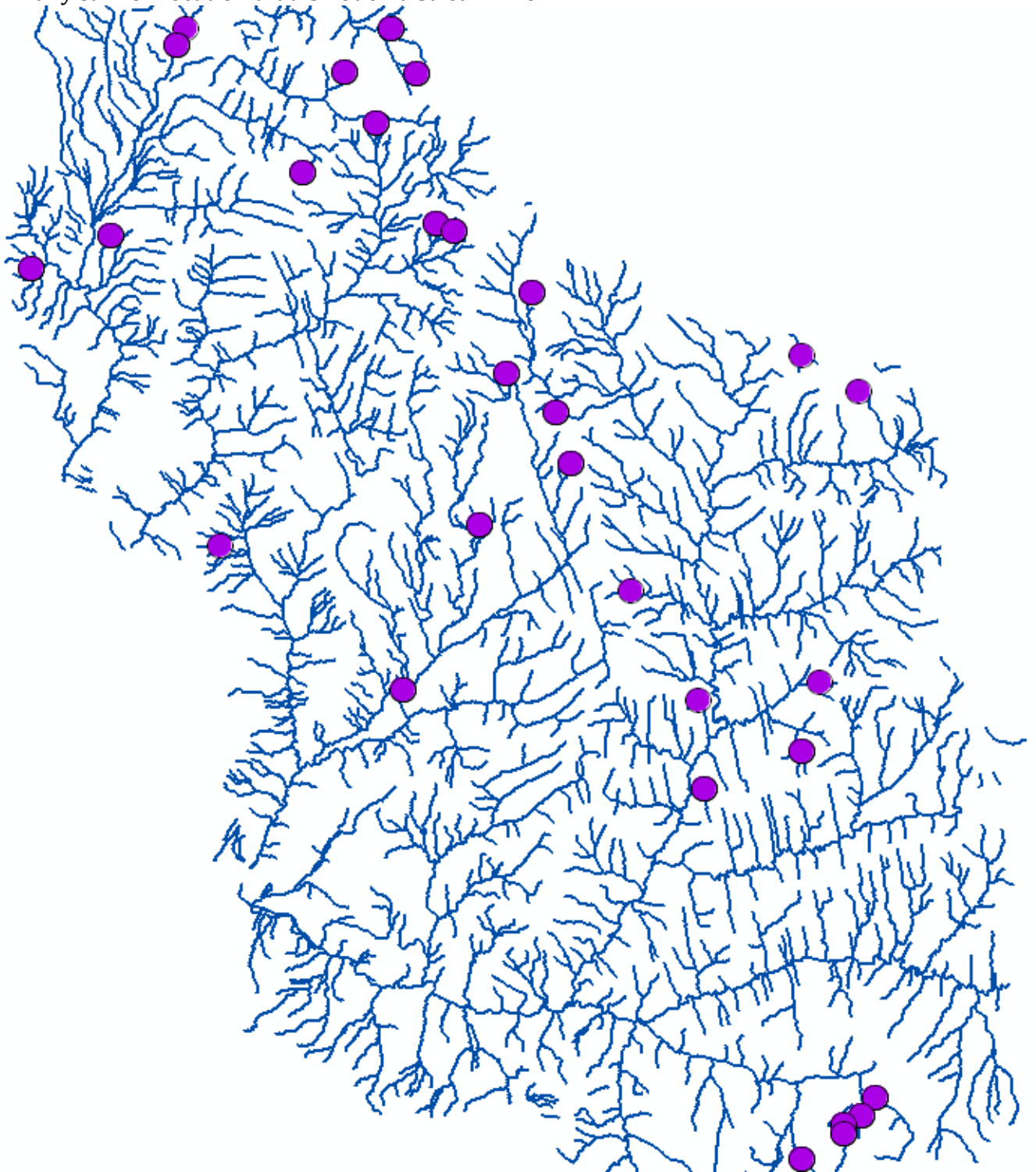
Step 2) Use **Create Random Points** geoprocessing tool to create random points based on the NPTS field.





### Points in Spatial Relation to Lines

Fix any salmon location that is not on a stream line.



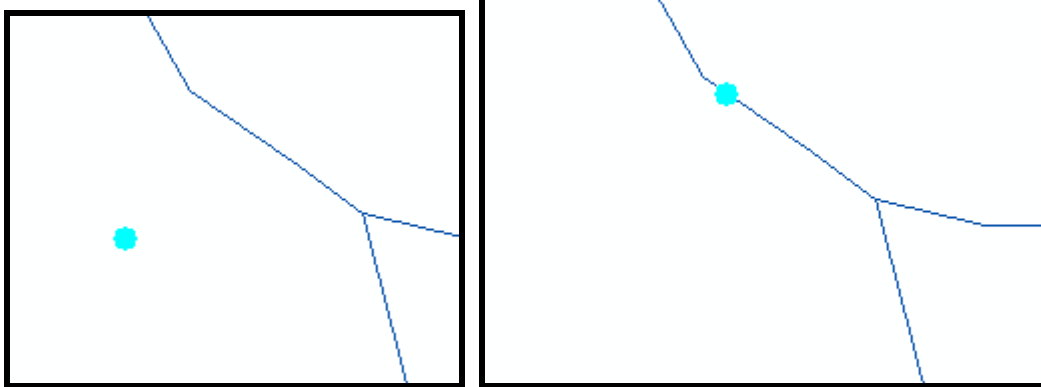
Step 1) Use catalog window to **copy the original salmon** shapefile. Work with the copy!  
Select all salmon not on a stream line.

(7 out of 122 Selected)

Step 2) Determine the distance to nearest line for seven selected salmon locations

	NEAR_DIST
3	6.577824
4	13.190809
3	15.008629
3	15.774579
4	16.725318
3	17.955037
3	18.359184

Step 3) Use **Snap geoprocessing** tool to snap selected salmon locations to closest stream.

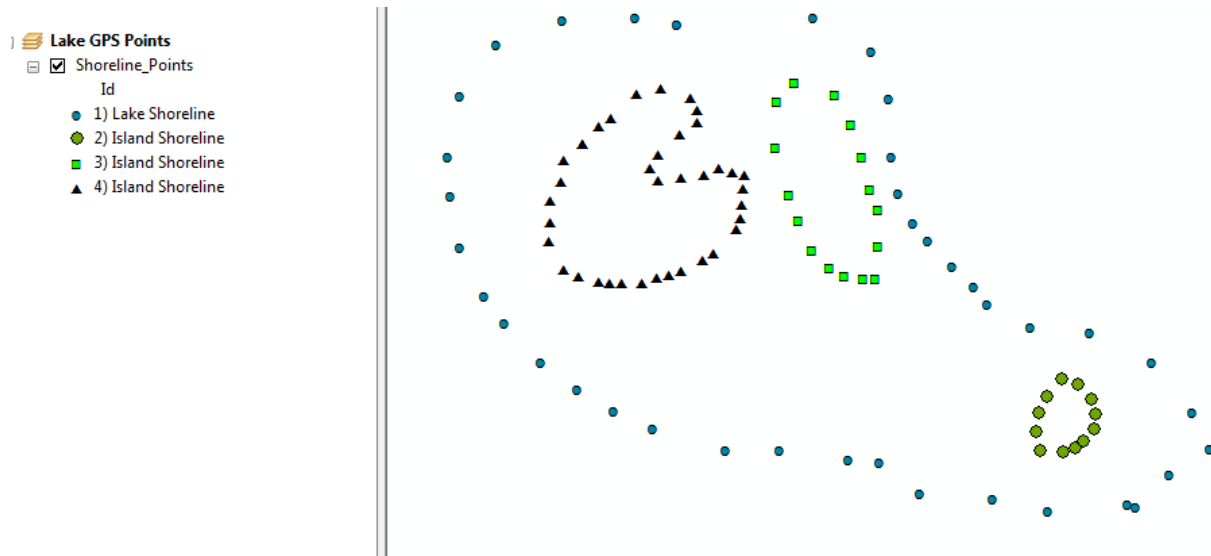


Step 4) Check that all salmon locations are on stream lines

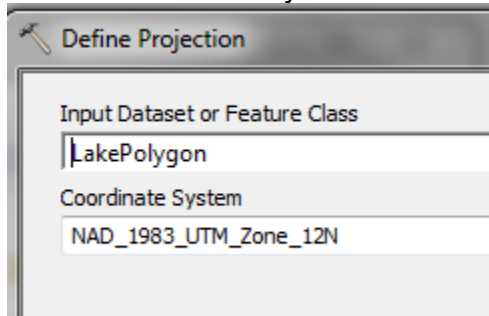
(122 out of 122 Selected)

### Lake Shoreline Points

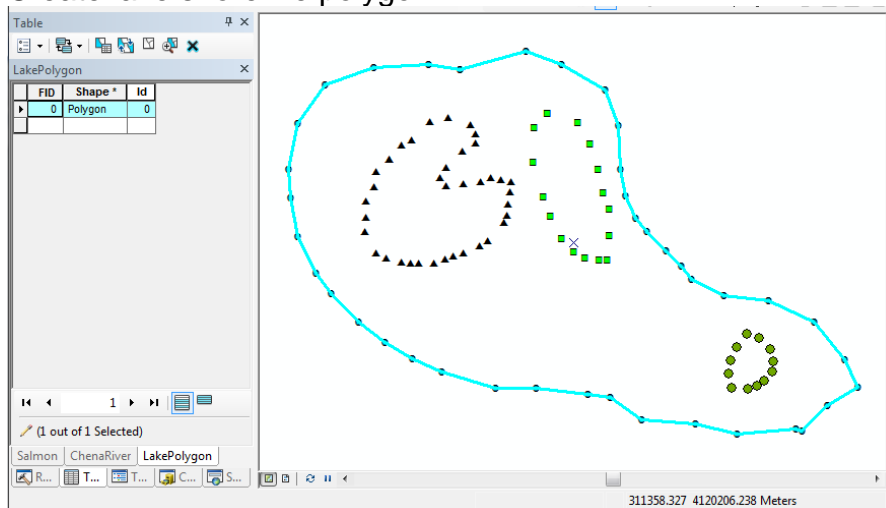
Create a lake polygon from the point shapefile ShorelinePoints.shp.



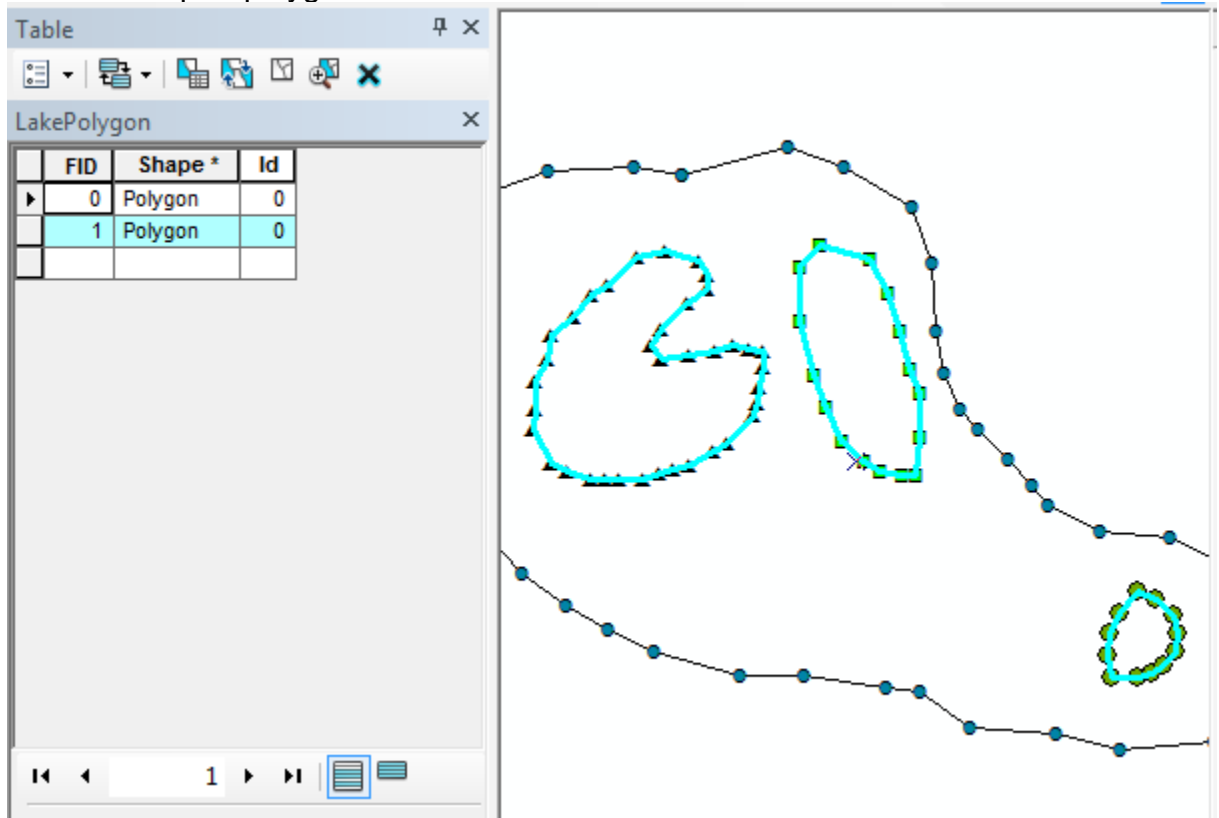
- 1) Make a empty polygon shapefile.
- 2) Define coordinate system as same as points.



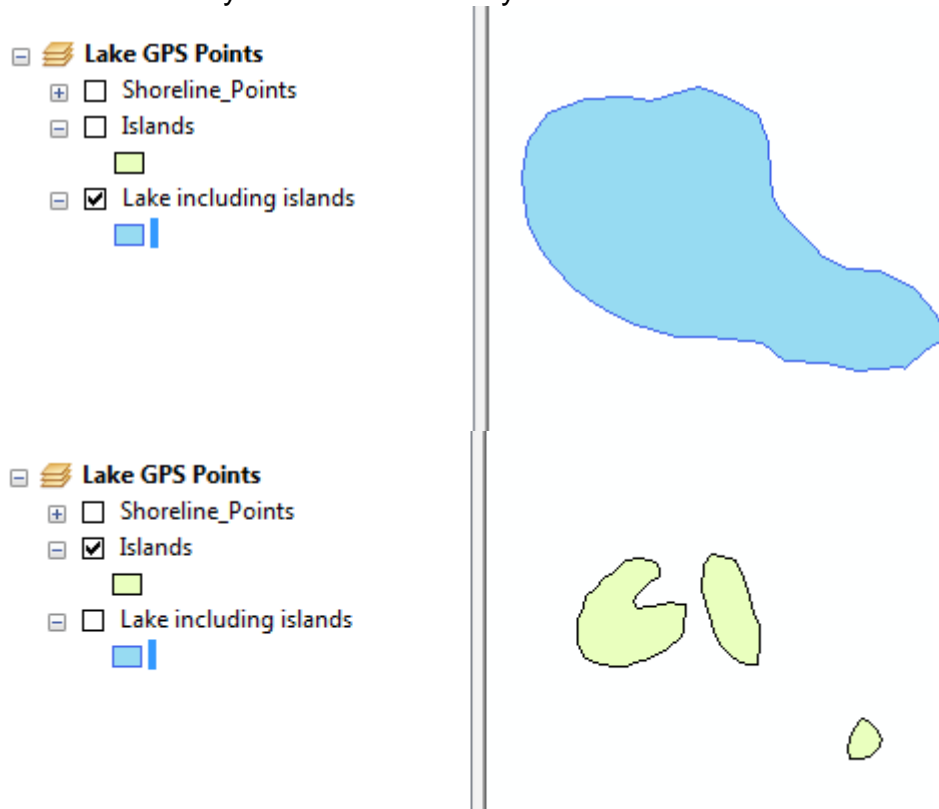
- 3) Edit this polygons shapefile.
- 4) Create lake shoreline polygon.




5) Create multipart polygon for three islands.



6) Create a lake layer and an island layer.



7) Use **Erase** geoprocessing tool to erase lake that is not water.

- ☐  **Lake GPS Points**
- ☐  Shoreline\_Points
- ☐  LakePolygon\_WaterOnly
- ☐  Islands
- ☐  Lake including islands

