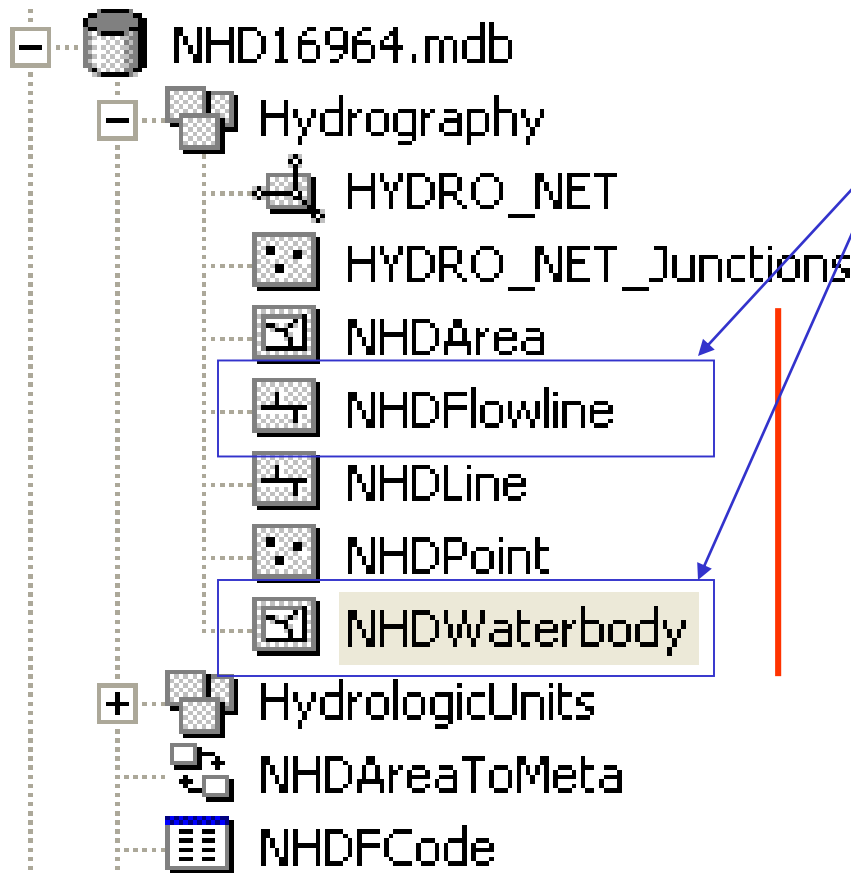


# Networks in GIS

- Network model
- Flow on Networks
- Hydrologic networks
- Linear referencing on networks

Some slides in this presentation were prepared by  
Dr Francisco Olivera

# National Hydrography Dataset

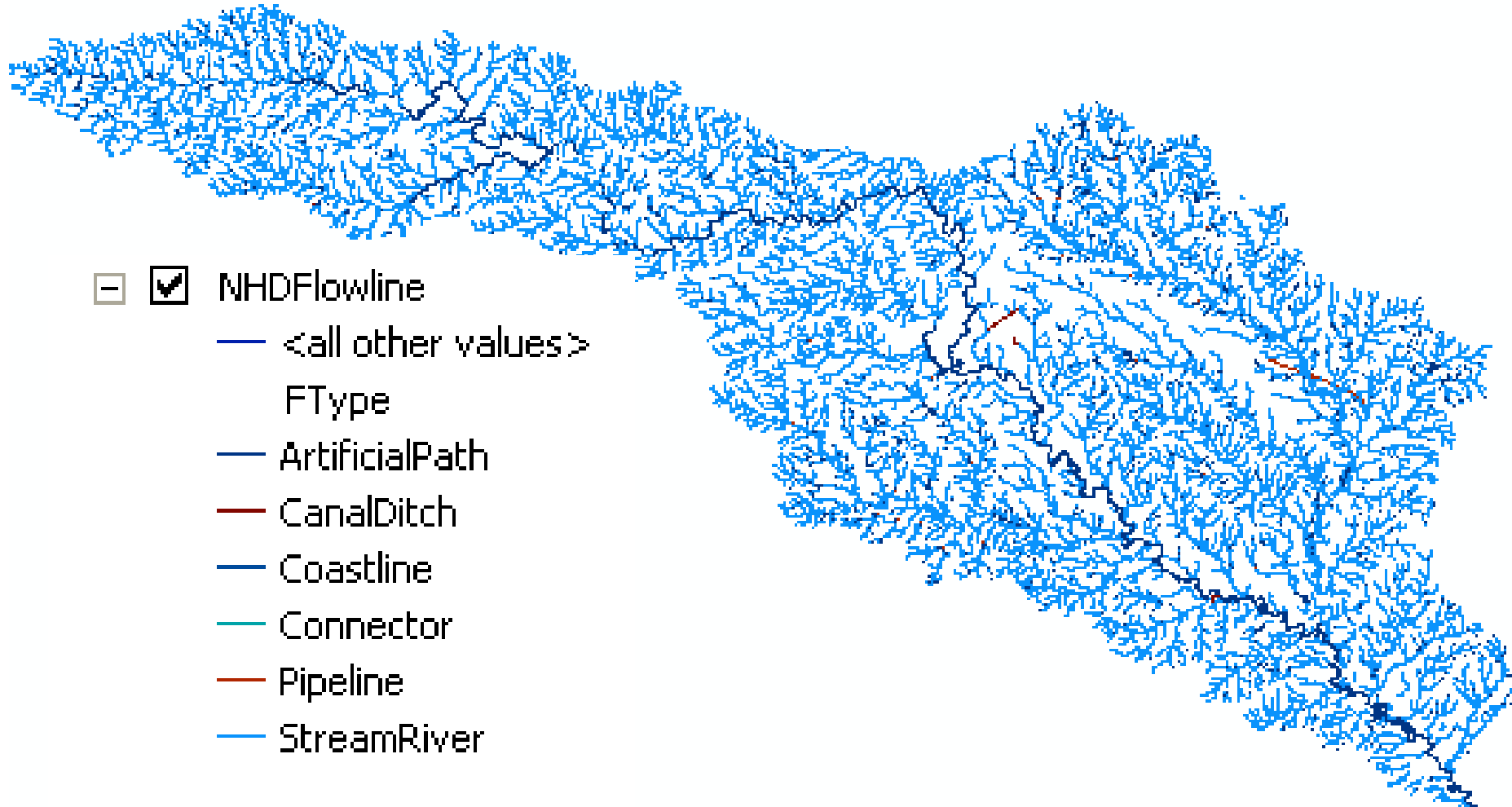


Key feature classes

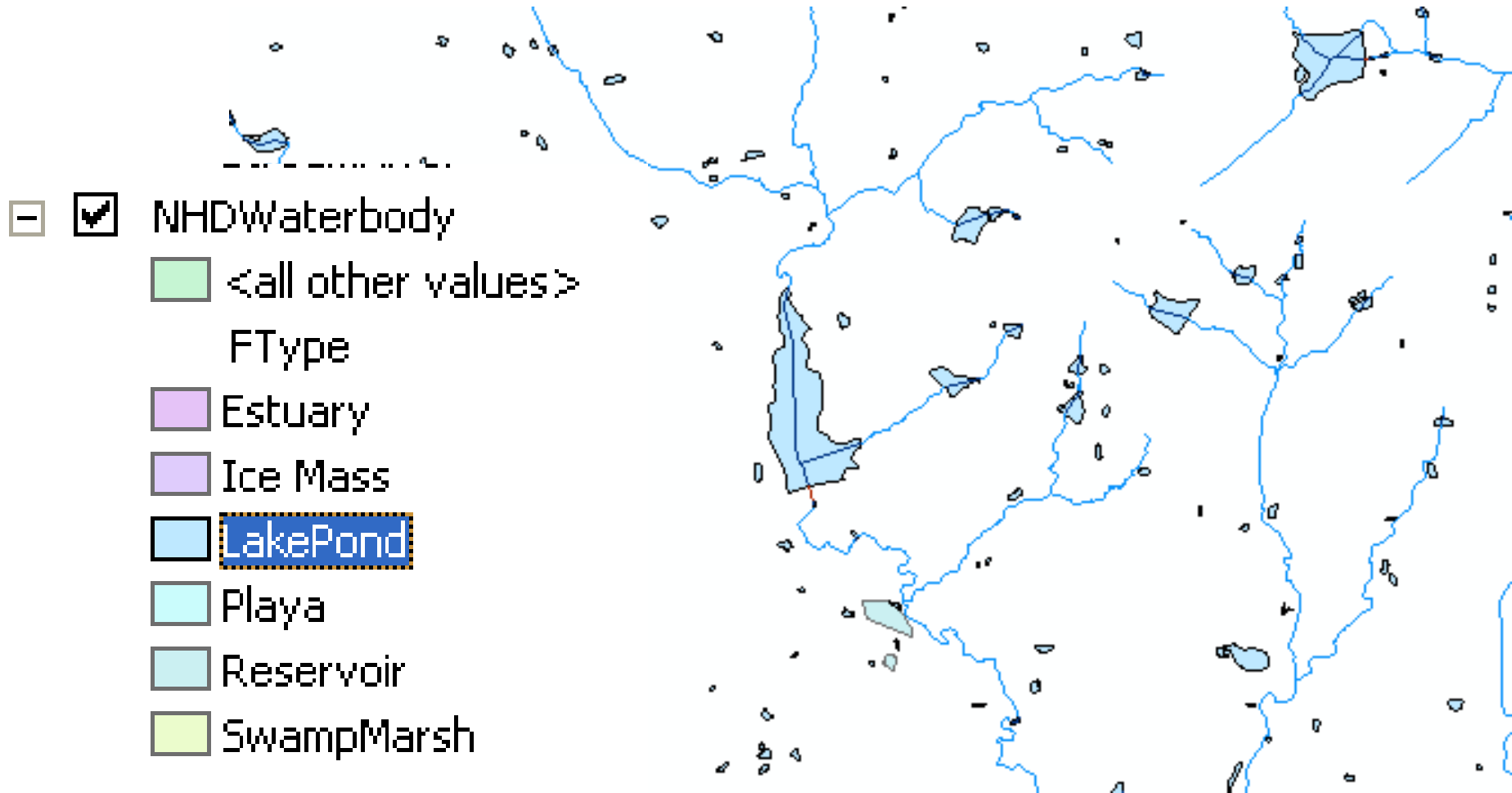
Five feature classes with **NHDFlowline** built into A geometric network

**NHDPoint**, **NHDLine**, **NHDArea** are point, line and area water features on map apart from flowlines and waterbodies

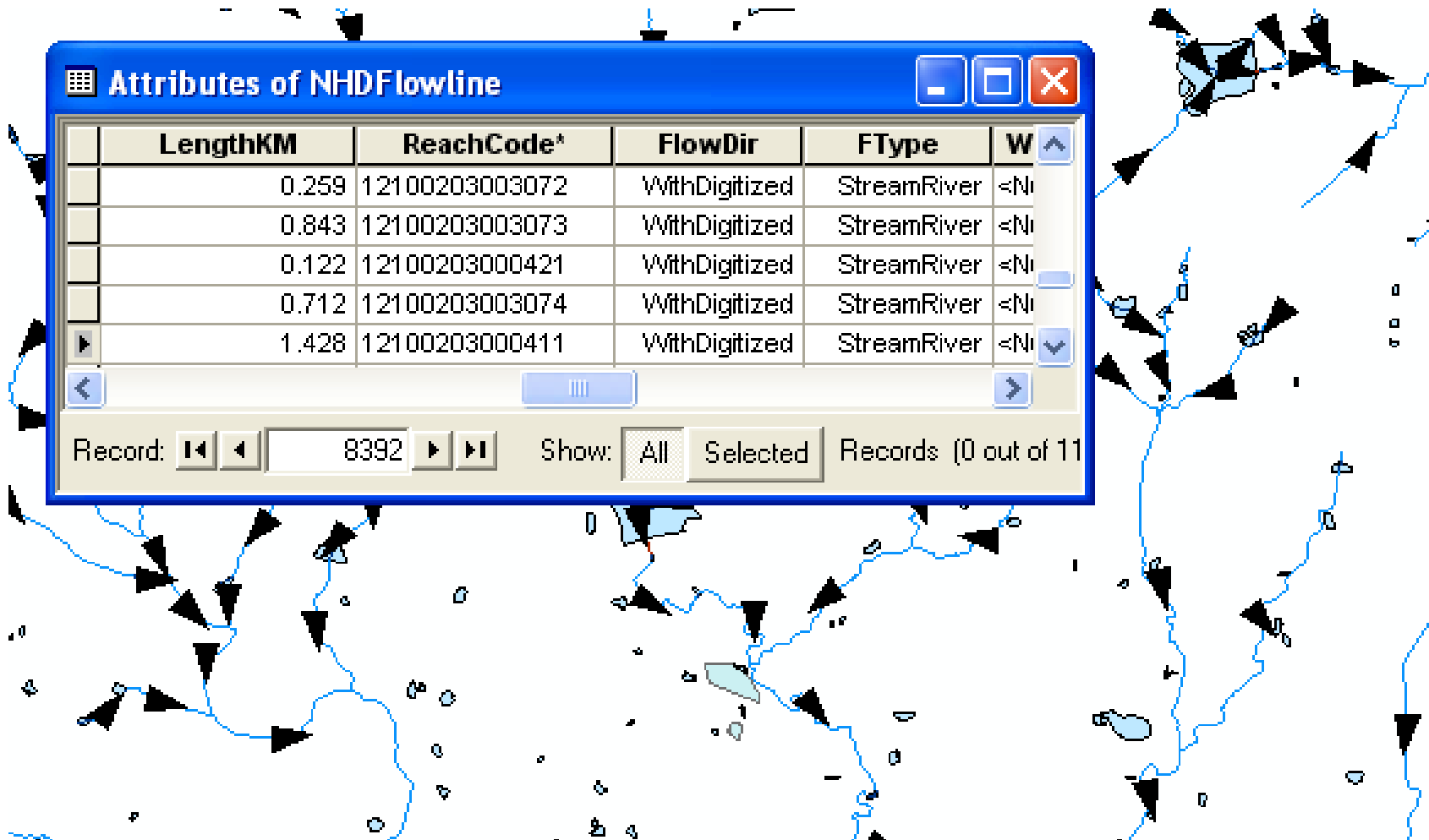
# National Hydrography Dataset



# NHD Waterbody



# NHD Geometric Network

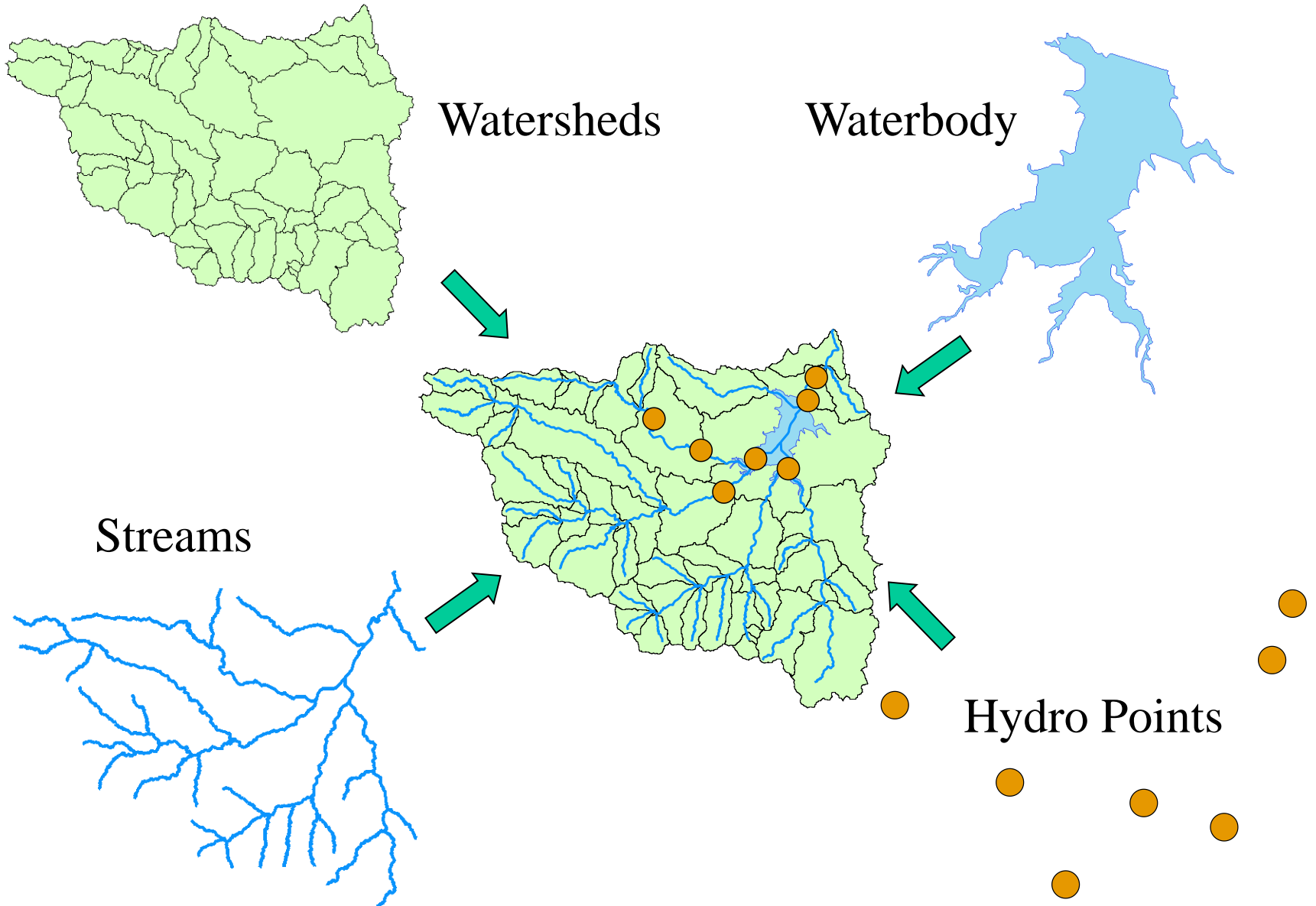


Attributes of NHDFlowline

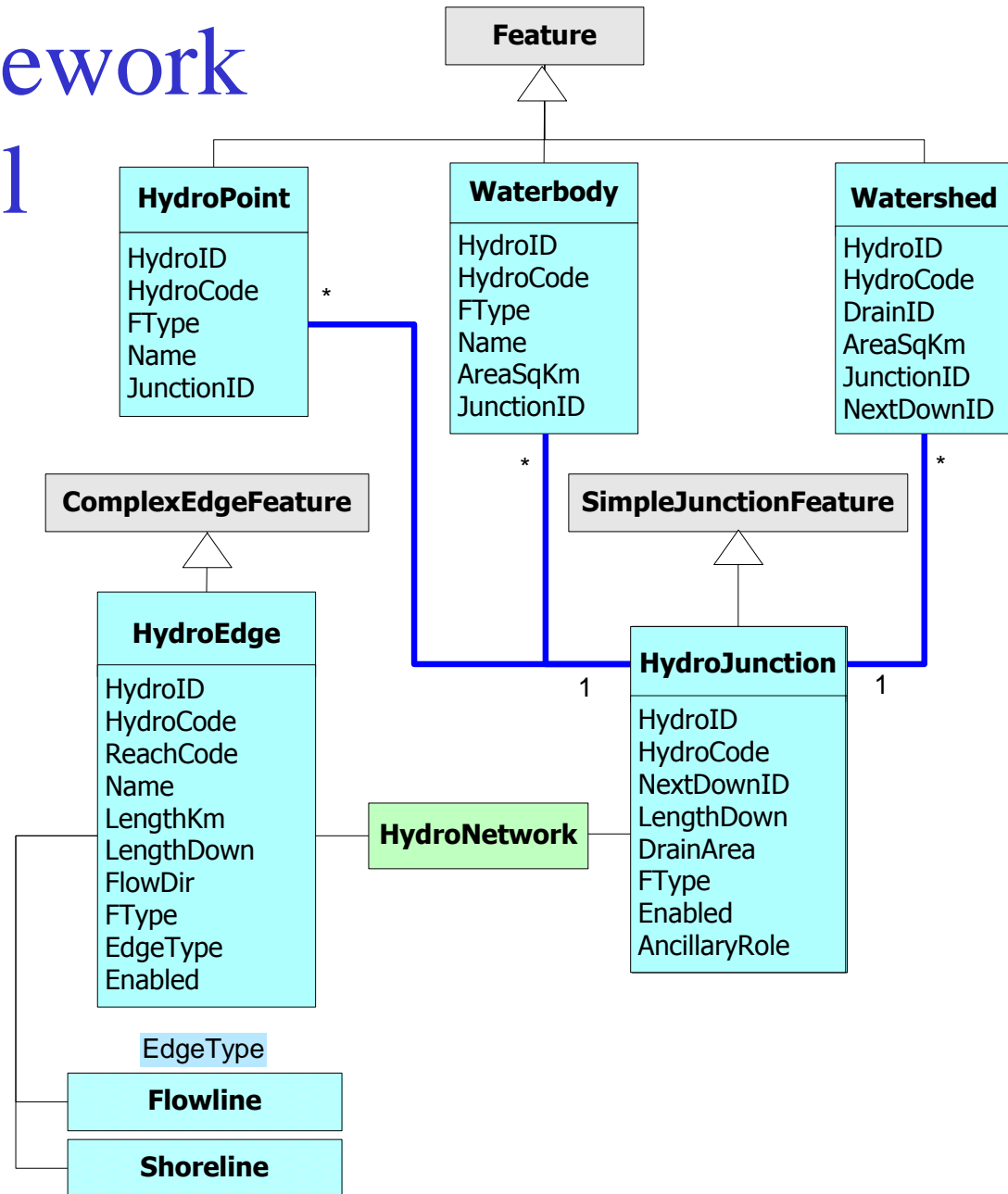
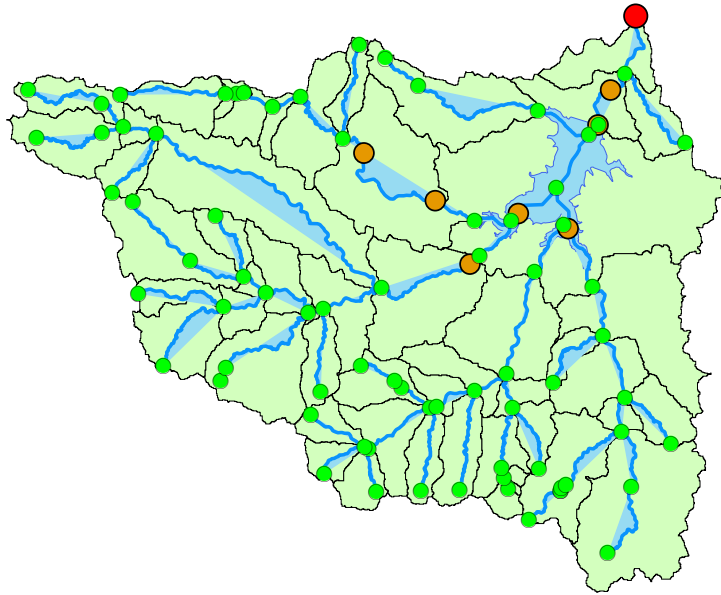
	LengthKM	ReachCode <sup>a</sup>	FlowDir	FType	W
	0.259	121002030003072	WithDigitized	StreamRiver	<Ni
	0.843	121002030003073	WithDigitized	StreamRiver	<Ni
	0.122	12100203000421	WithDigitized	StreamRiver	<Ni
	0.712	121002030003074	WithDigitized	StreamRiver	<Ni
▶	1.428	12100203000411	WithDigitized	StreamRiver	<Ni

Record: 8392 Show: All Selected Records (0 out of 11)

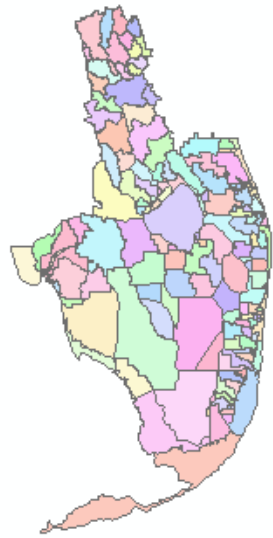
# Arc Hydro Framework Input Data



# Arc Hydro Framework Data Model



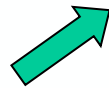
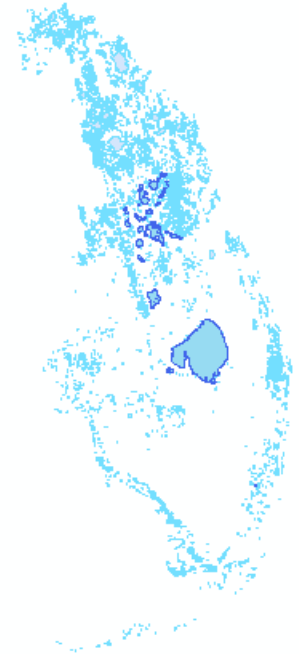
# Arc Hydro Framework For South Florida



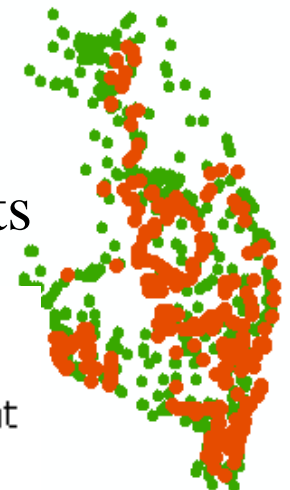
Basins



Waterbody  
(NHD)



Hydro Points



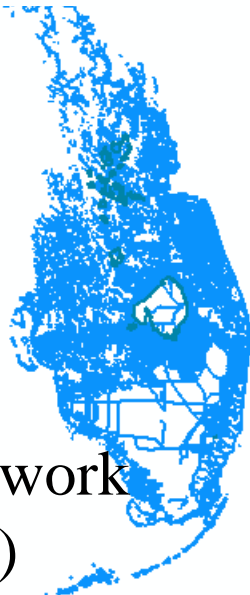
Structure



MonitoringPoint



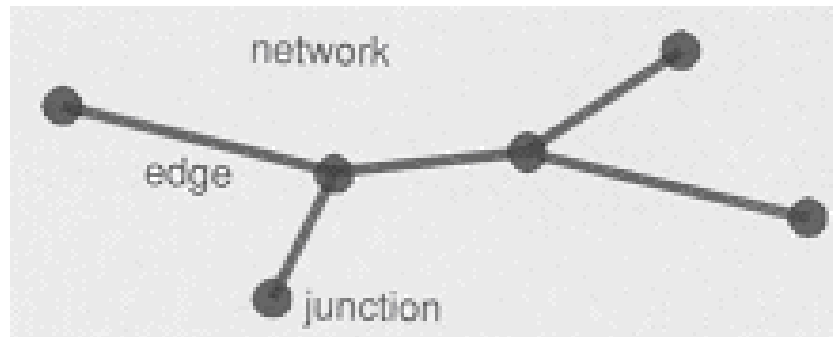
Hydro Network  
(NHD)





# Network Definition

- A **network** is a set of edges and junctions that are topologically connected to each other.

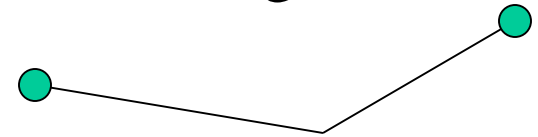


# Network Model in GIS

- Three components
  - **Geometric model:** (x,y,z,m) coordinates of edges and junctions
  - **Logical model:** which edges are connected to what junctions
  - **Addressing model:** location on the network using measure

# Edges and Junctions

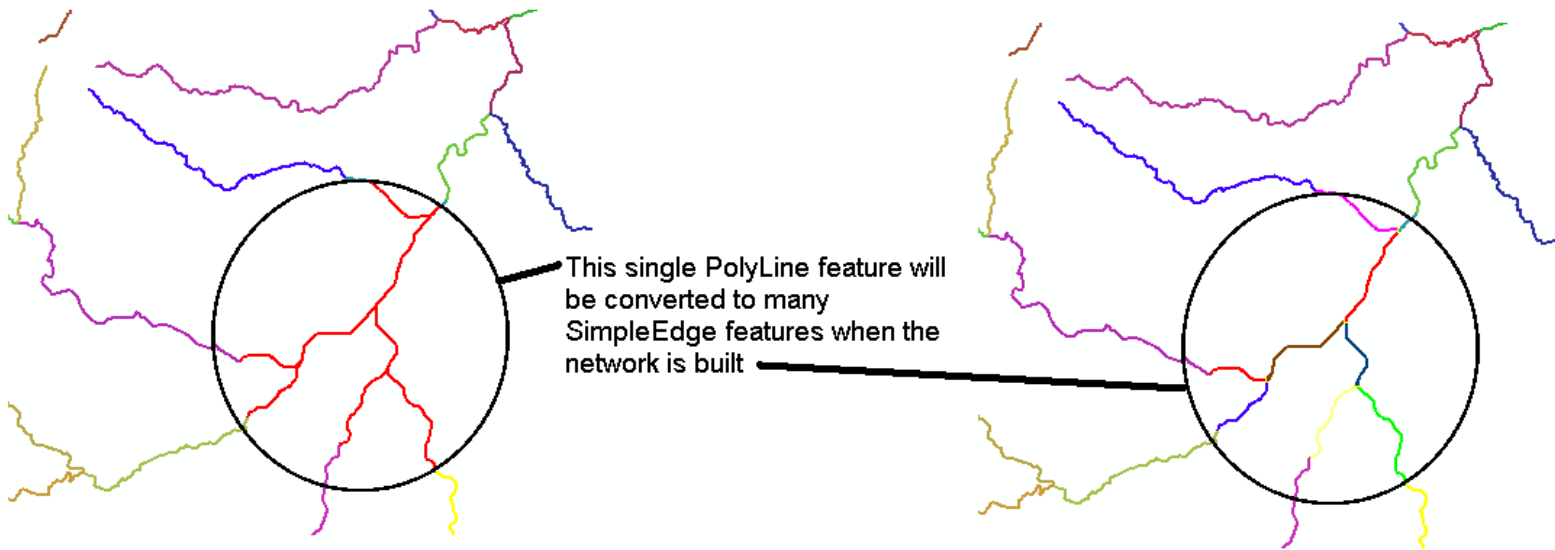
- **Simple feature** classes: points and lines
- **Network feature** classes: junctions and edges
- Edges can be
  - **Simple:** one attribute record for a single edge
  - **Complex:** one attribute record for several edges in a linear sequence



- A single edge cannot be branched



# Polylines and Edges



# Junctions

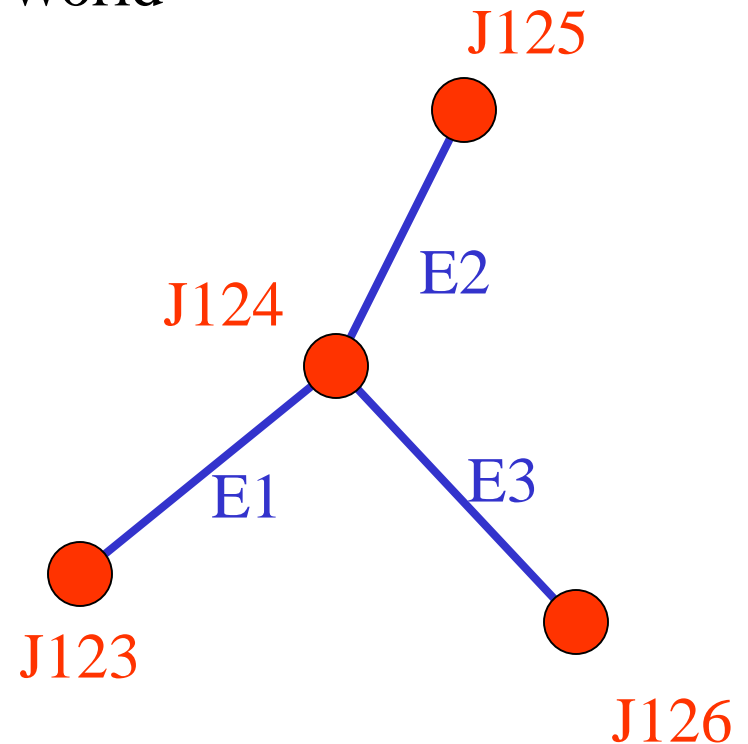
- Junctions exist at all points where edges join
  - If necessary they are added during network building (**generic junctions**)
- Junctions can be placed on the **interior** of an edge e.g. stream gage
- **Any number of point feature classes** can be built into junctions on a single network

# Connectivity Table

p. 132 of Modeling our World

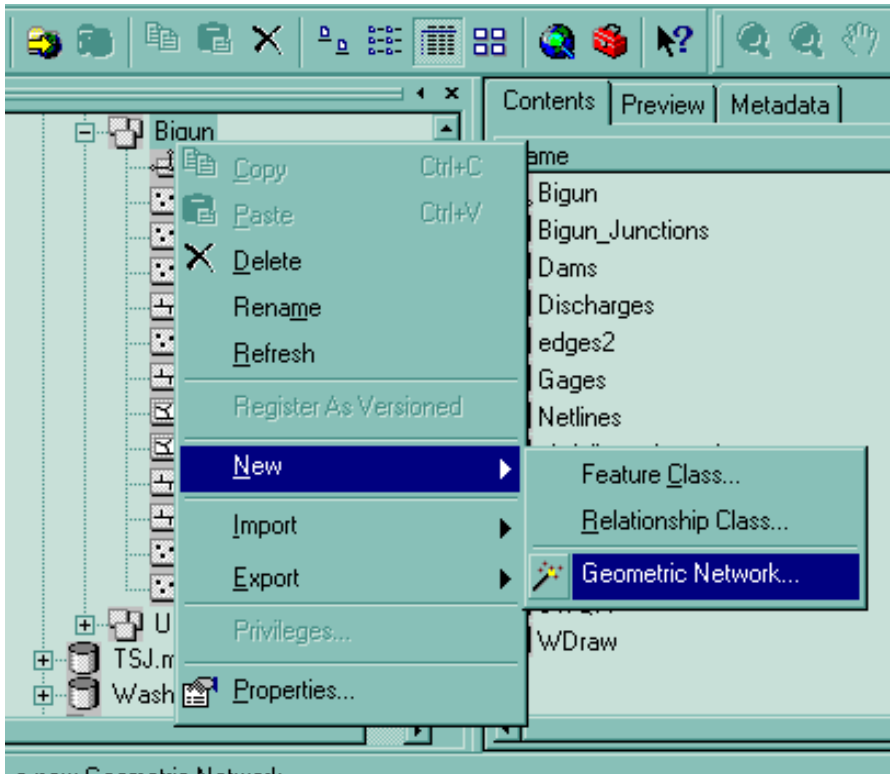
**Junction**    Adjacent Junction and Edge

J123	J124, E1		
J124	J123, E1	J125, E2	J126, E3
J125	J124, E2		
J126	J124, E3		



This is the “Logical Network”

# Build Network Tables

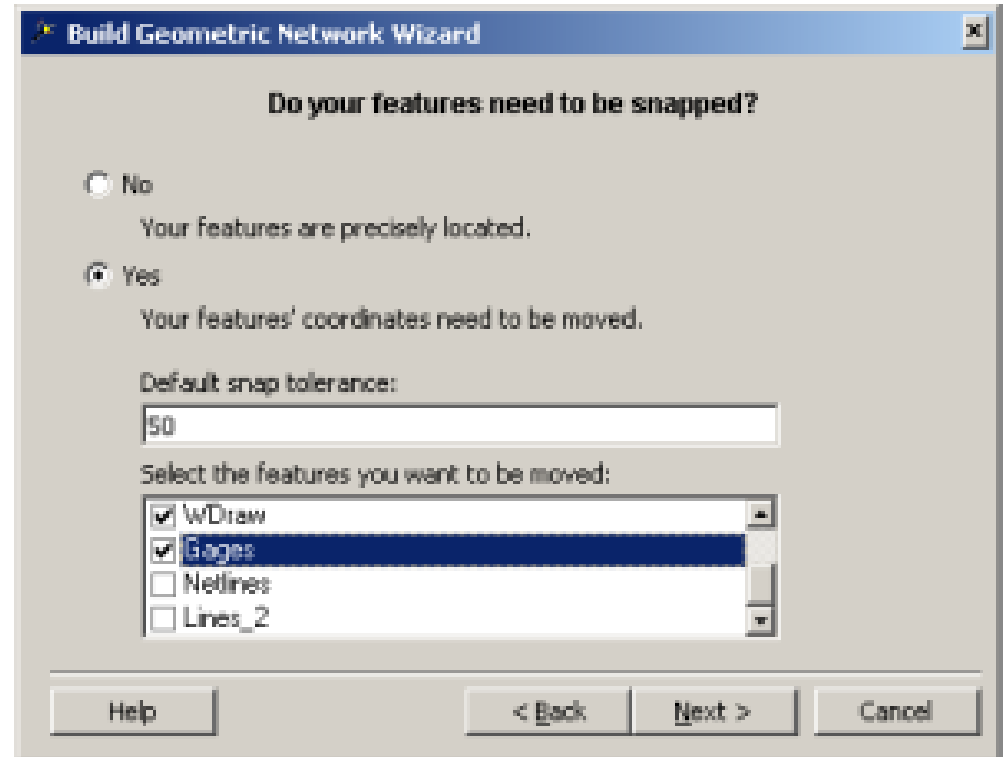
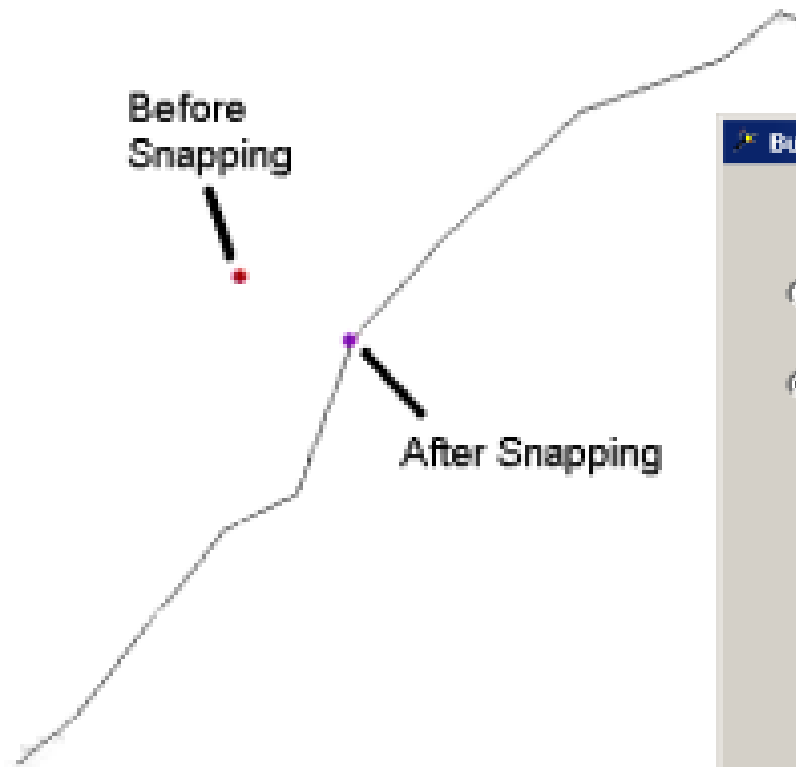


- Establishes **connectivity** of Edge and Junction features
- Enables **tracing**
- Generates **Generic Junctions**

Geometric Network Wizard in ArcCatalog

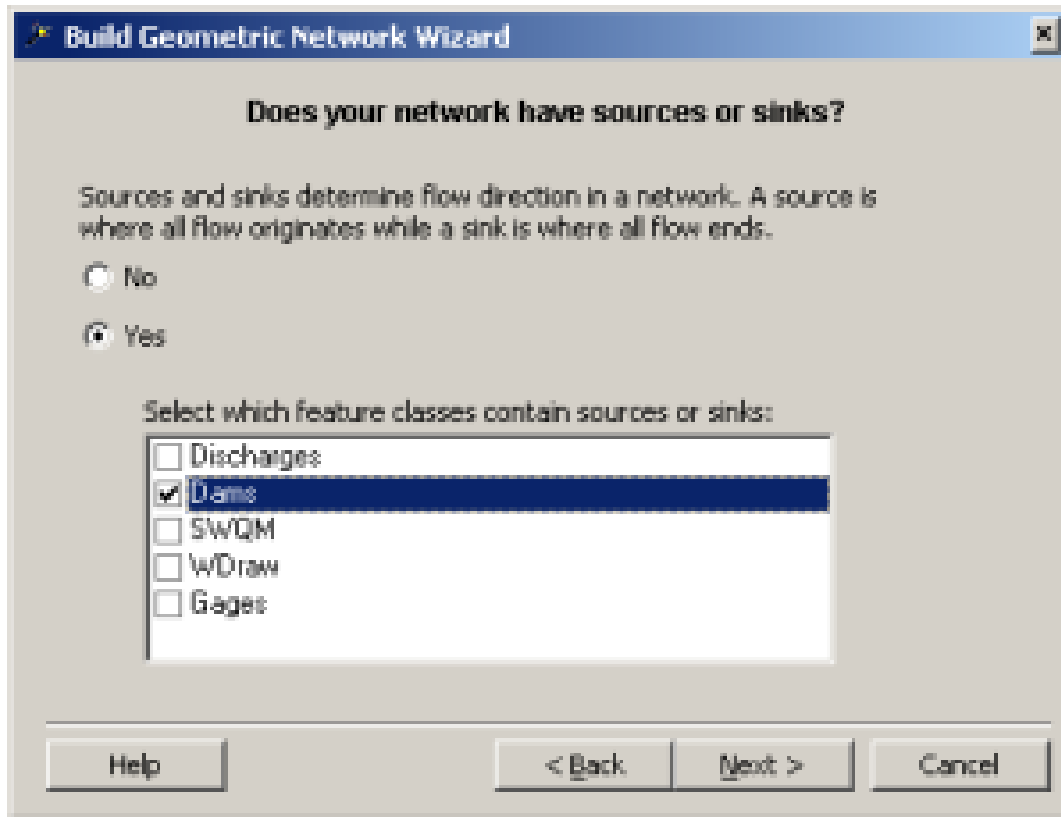
[https://telegram.me/Urbanism\\_Gis\\_Rs\\_File](https://telegram.me/Urbanism_Gis_Rs_File)

# Snapping Features



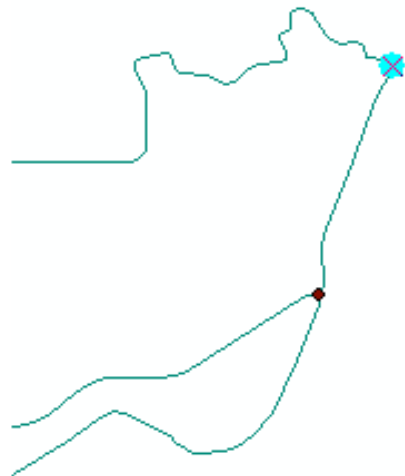


# Network Sources and Sinks



Each junction feature class in a network can have junctions which are sources or sinks for flow

# Ancillary Role of Sink



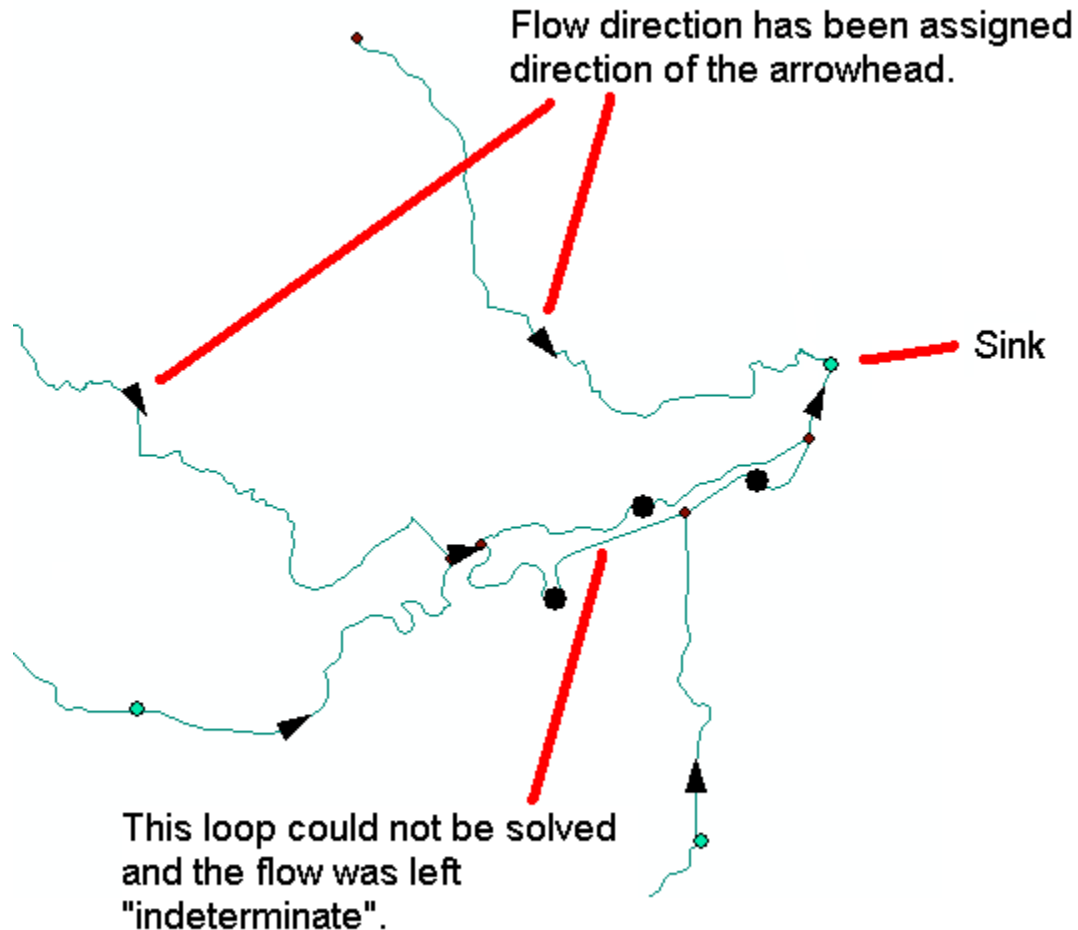
Attributes

[-] Gages  
+ 141

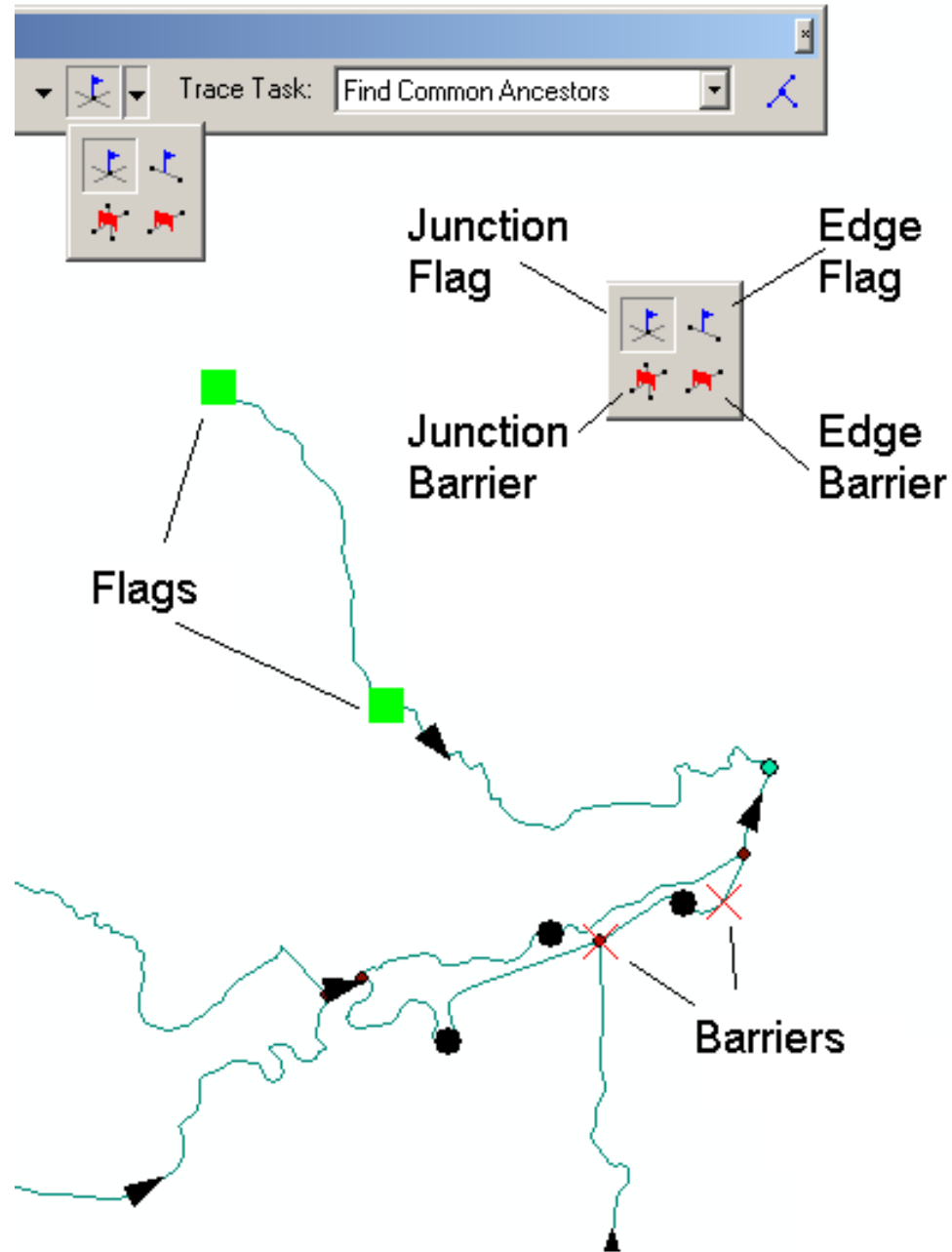
Property	Value
FID	141
A_USGSGAGE	141
X_COORD	<Null>
Y_COORD	<Null>
STATION_	65
Enabled	True
AncillaryRole	Sink

1 features

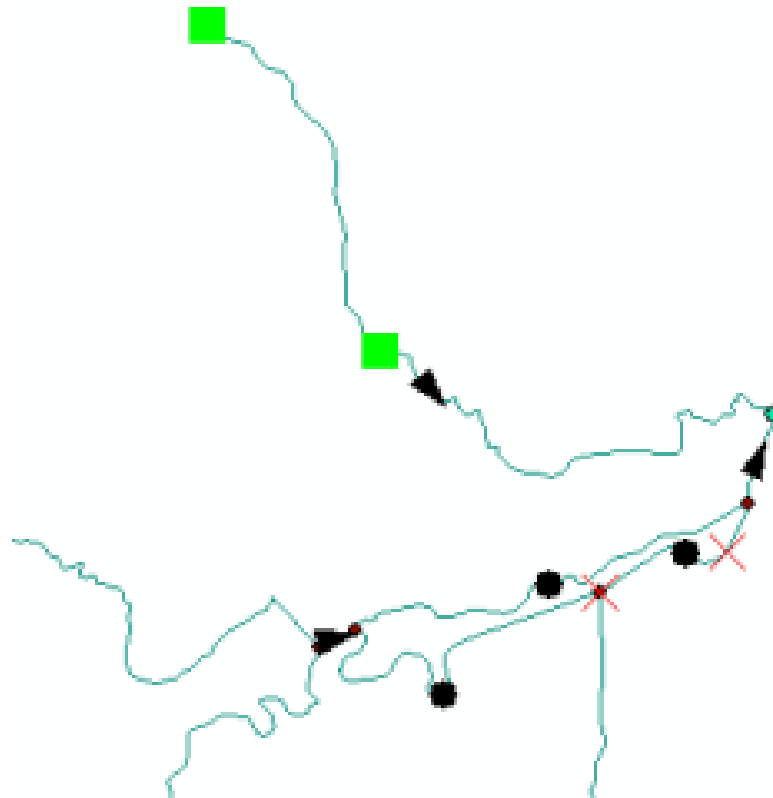
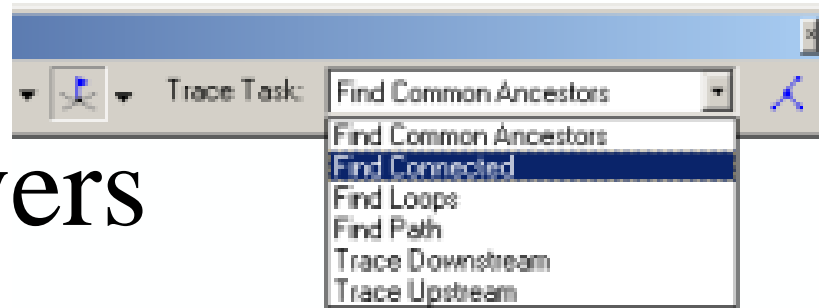
# Flow to a sink



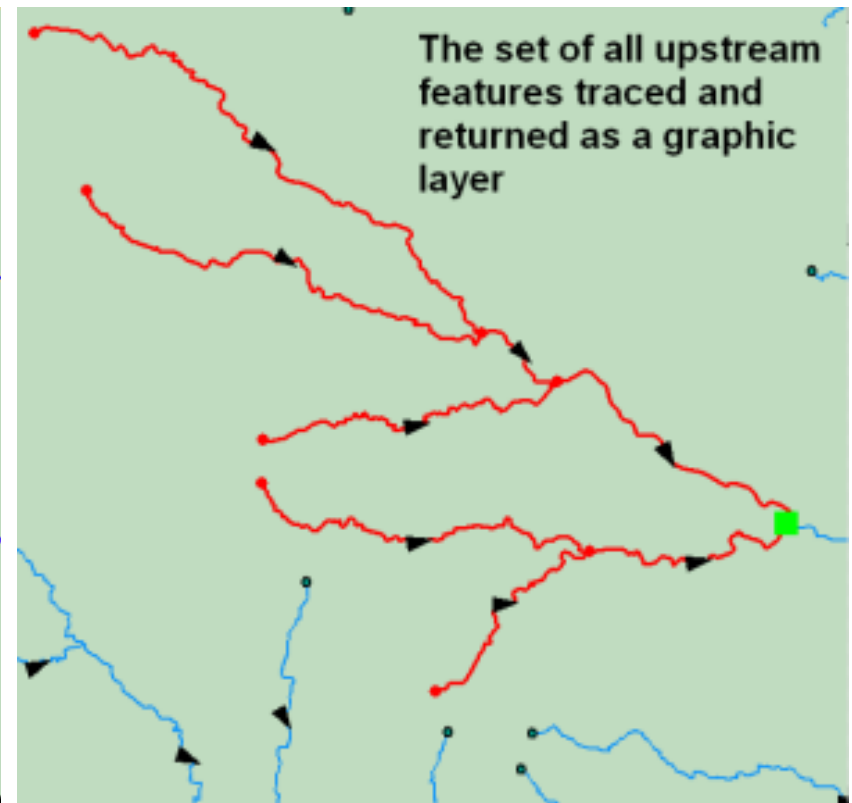
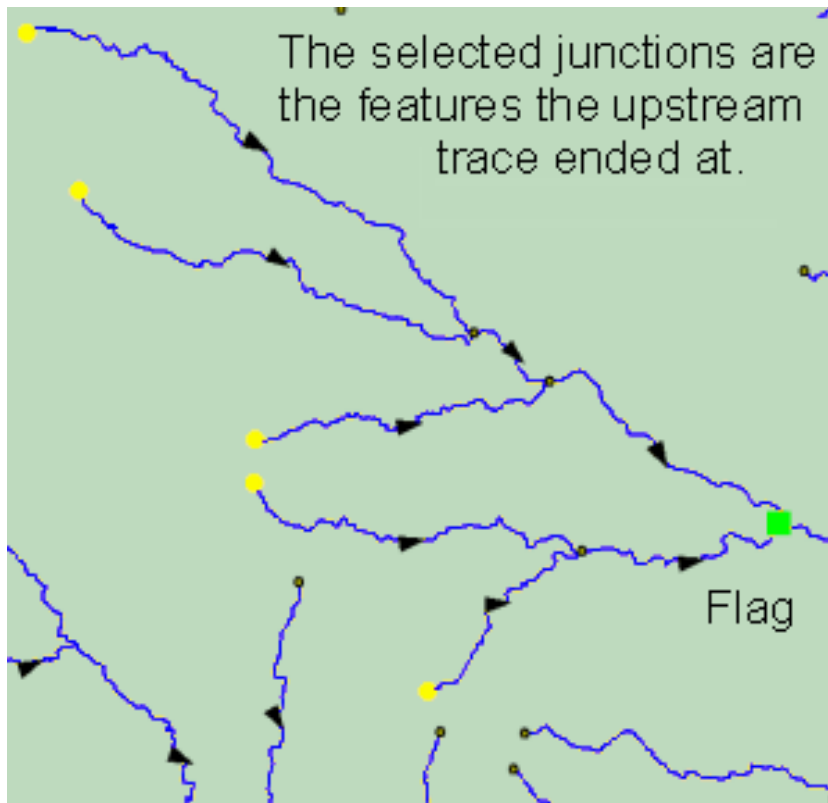
# Flags



# Trace Solvers

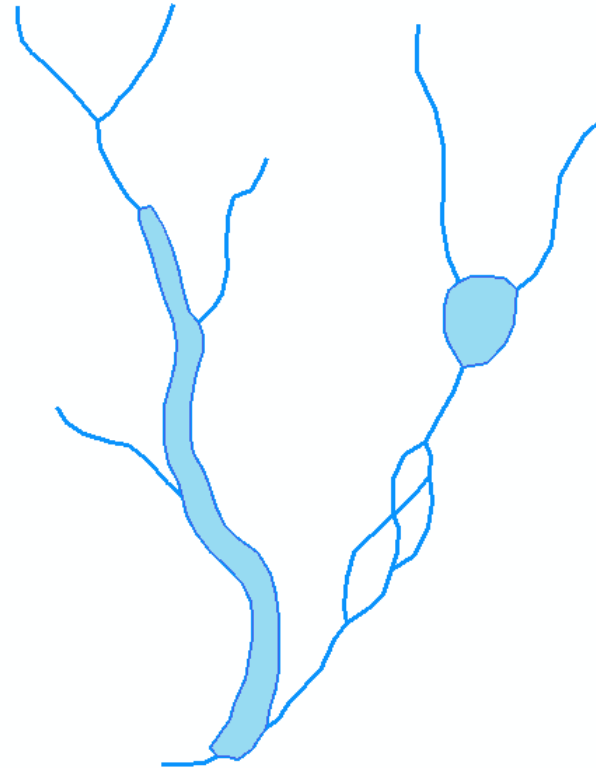


# Upstream Trace Solvers



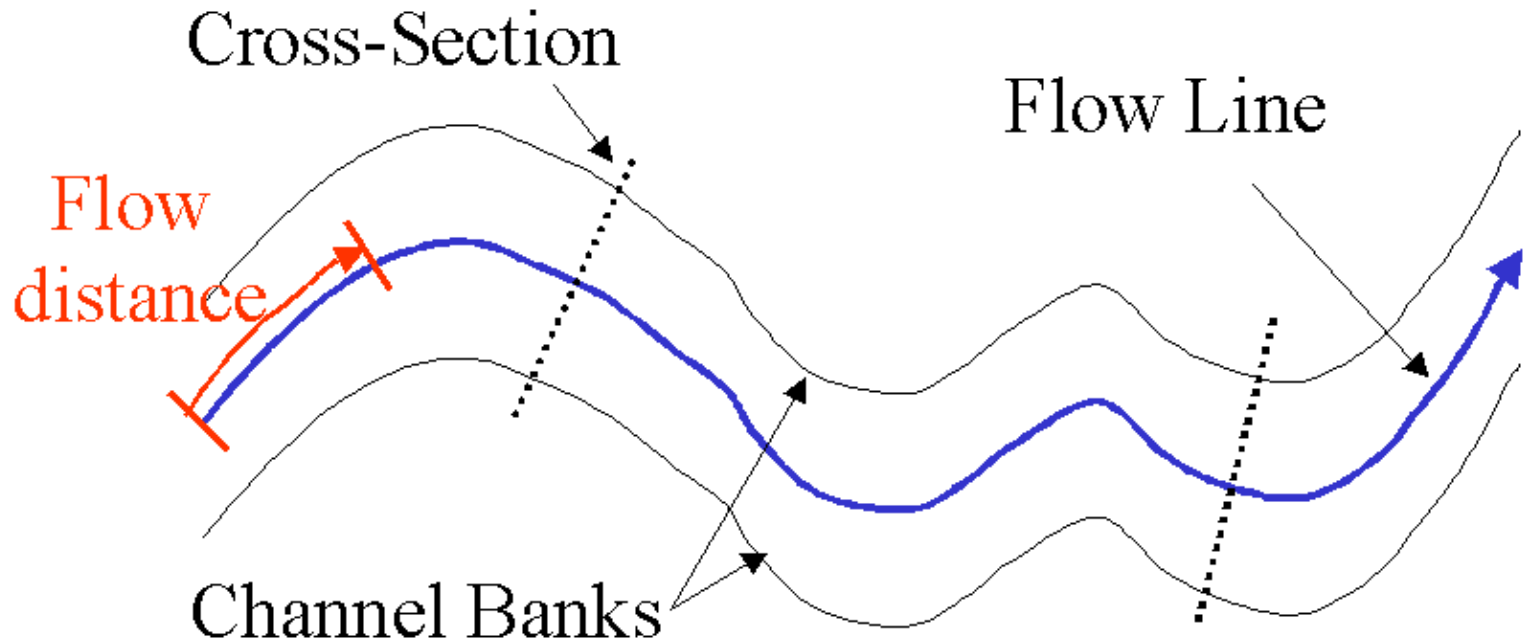
# Hydrologic Networks

- Hydrologic data includes:
  - Single-line streams
  - Double-line streams
  - Braided streams
  - Manmade channel systems
  - Waterbodies



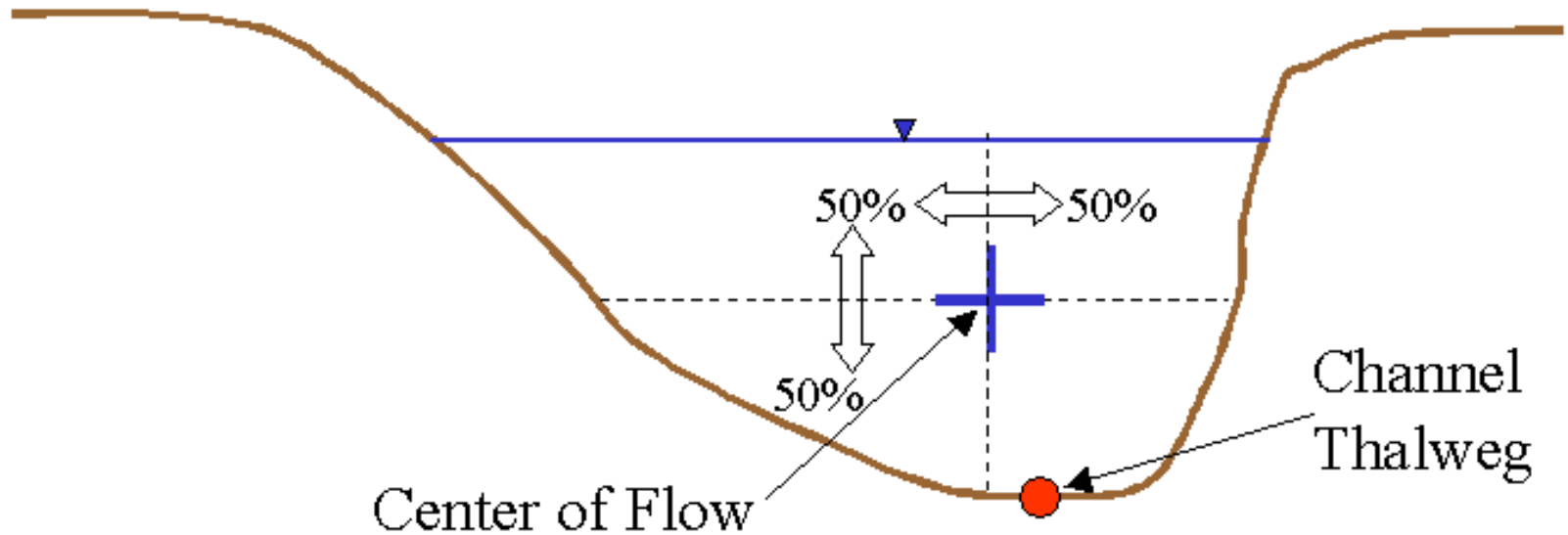
# Flow Line

Traces movement of water in a one-dimensional flow system



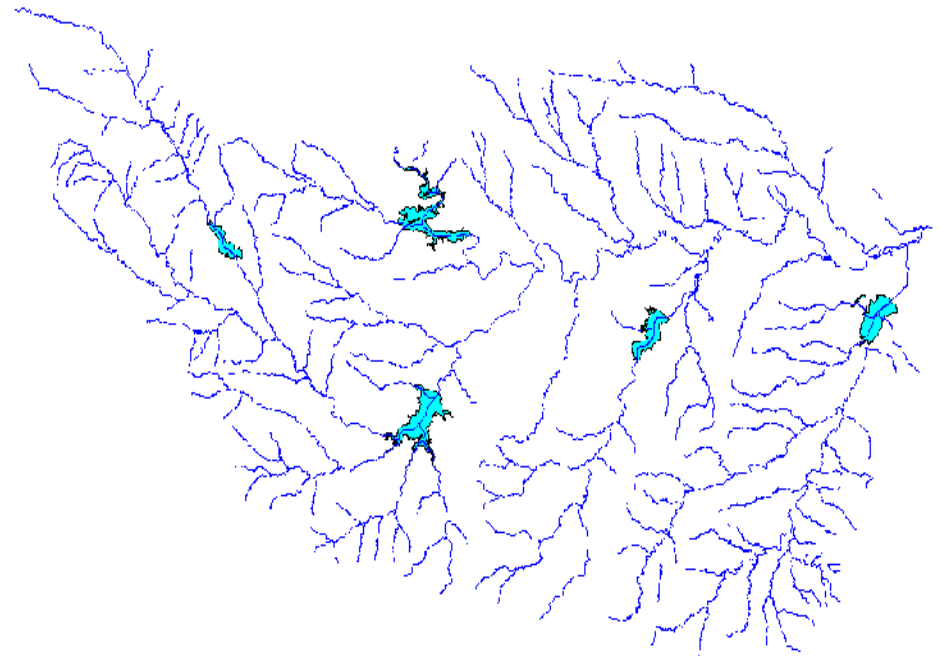


# Location of the Flowline



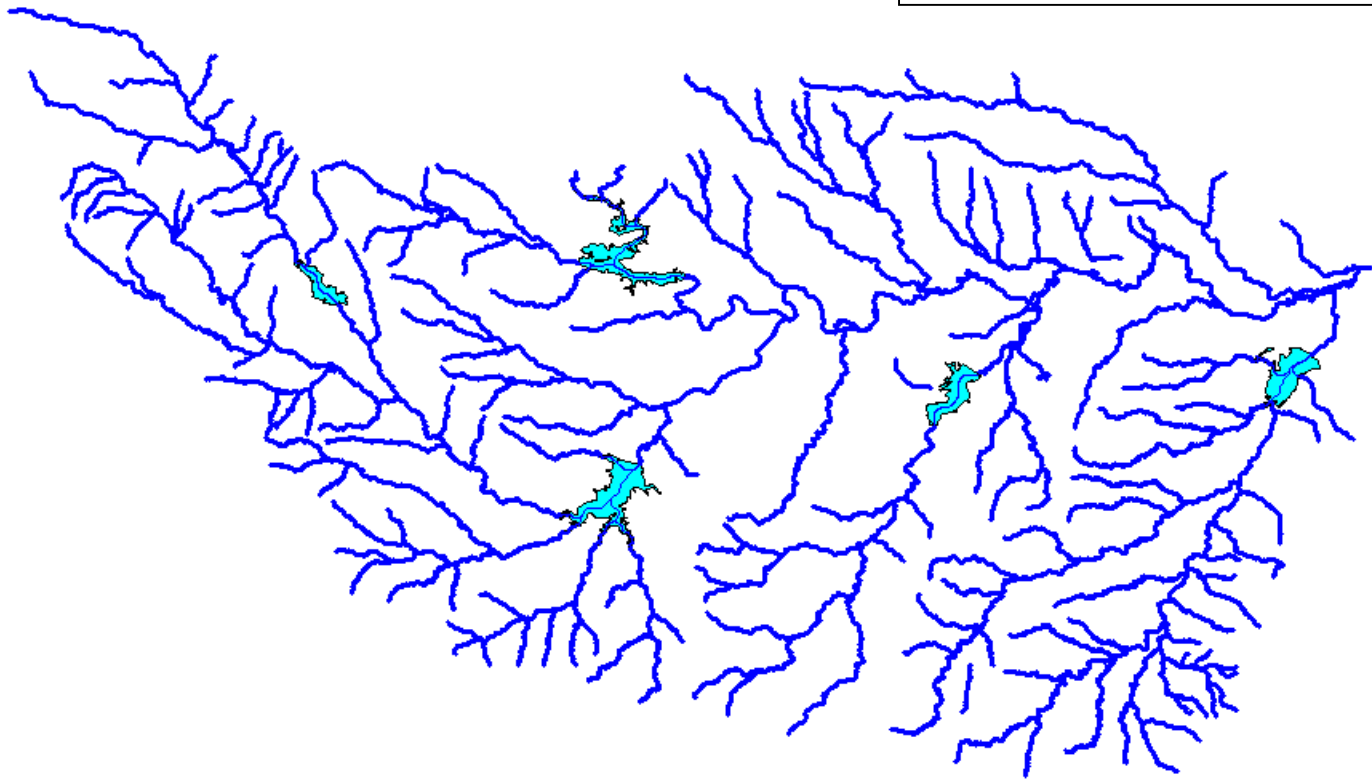
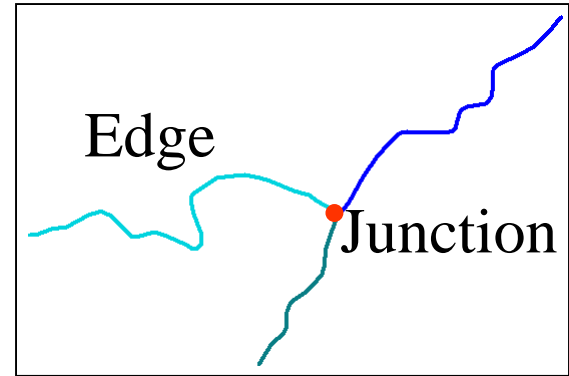
# Introduction to the **Hydro Network**

- **Hydro Edge** –  
think of Arc
- **Hydro Junction**  
– think of Node
- **Waterbody** –  
think of Polygon



# Flow Network

A connected set of flow *edges*



# Flowlines and Shorelines

## Hydro Network, Edges

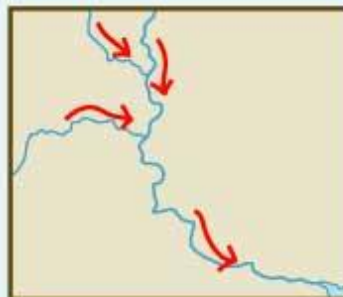
Hydro Networks trace water movement through streams and rivers on **Flowlines**.



Hydro Networks include **centerlines** through lakes, swamps, and areas of complex drainage.



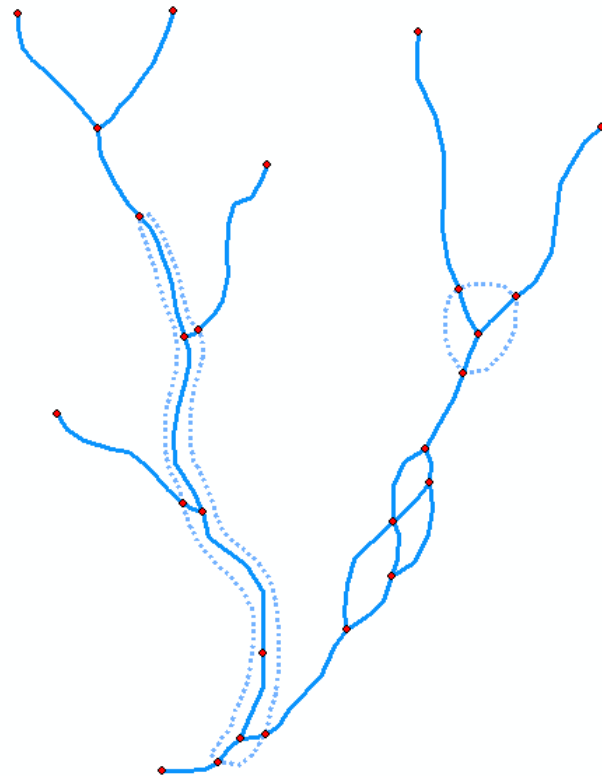
Hydro Networks include **shorelines** for large water bodies.



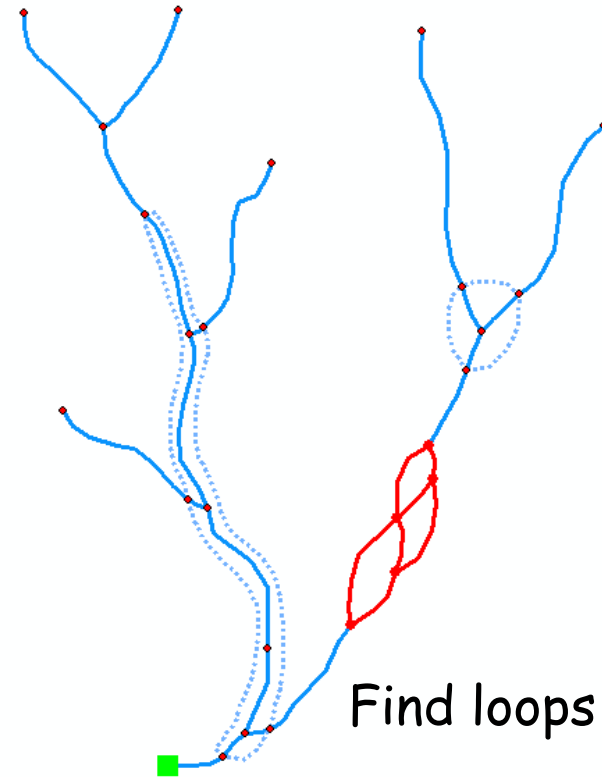
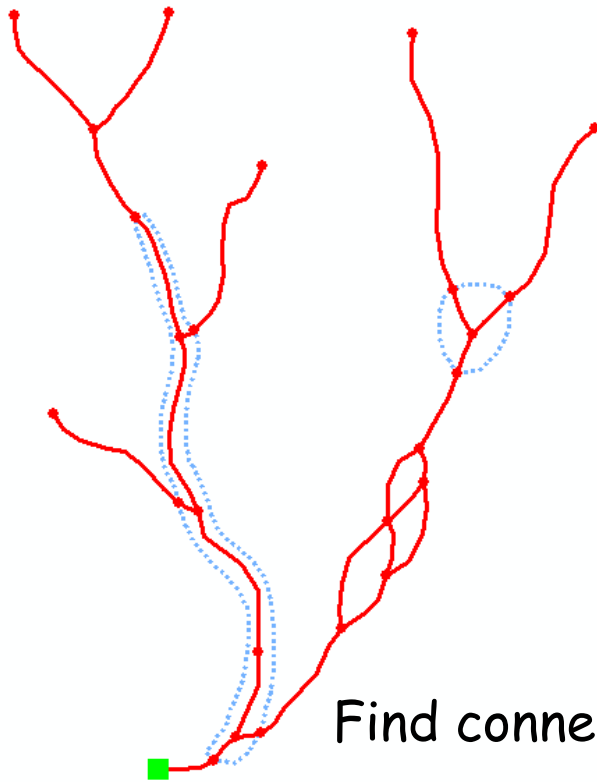
HydroEdges show **flow direction**.

# Network Building

- Define flow-paths within double-line streams and waterbodies.
- Define network sinks and sources.

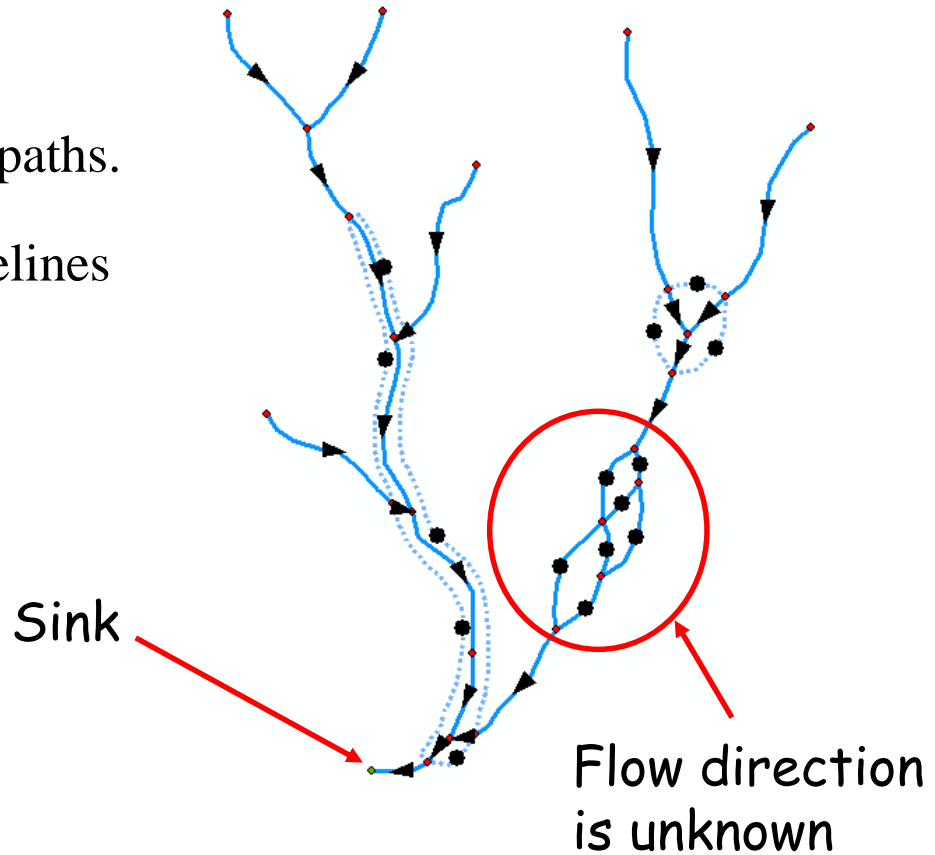


# Network Connectivity



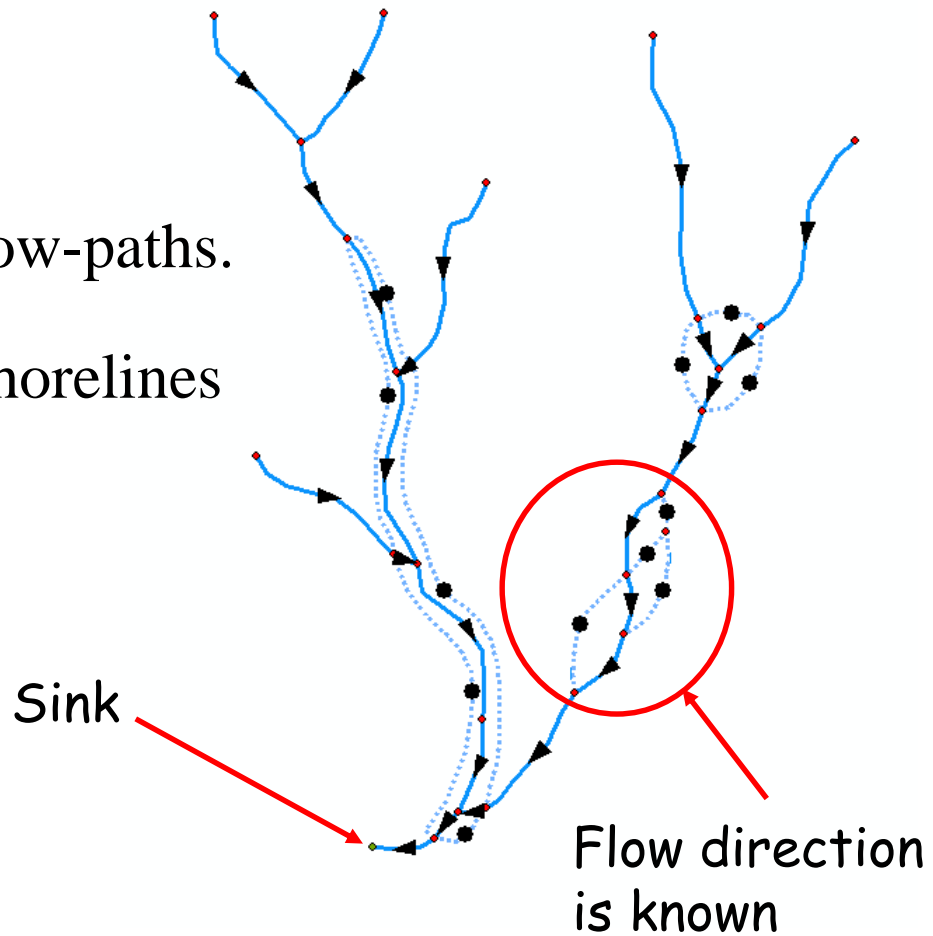
# Network Flow Direction

- Enable flow in flow-paths.
- Disable flow in shorelines



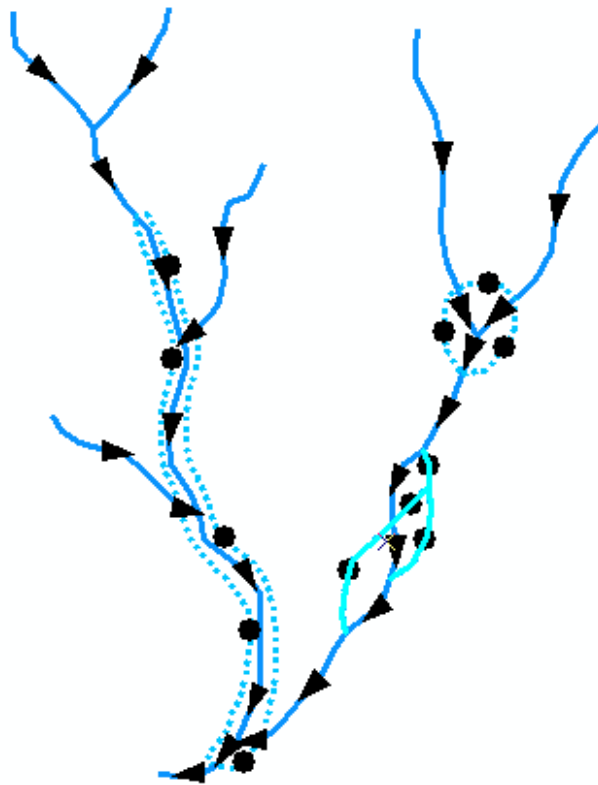
# Network Flow Direction

- Enable flow in flow-paths.
- Disable flow in shorelines





# Uninitialized Flow Direction

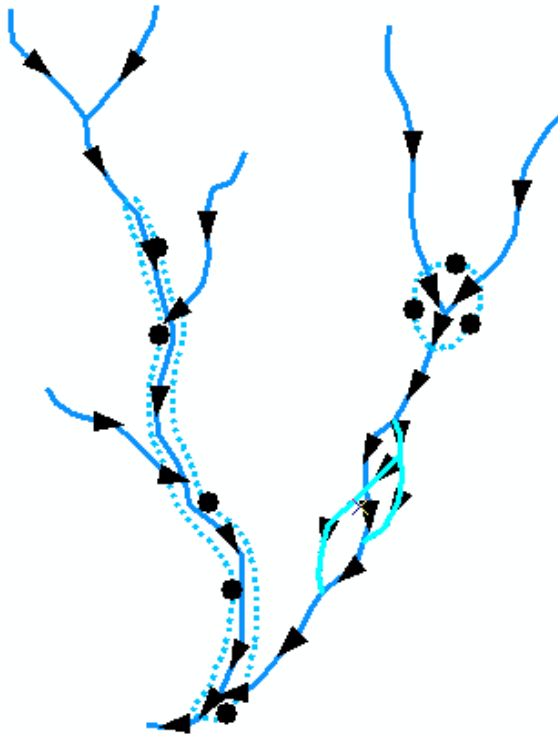


Attributes of HydroEdge

	LengthKm	LengthDown	FlowDir	FType	EdgeType
▶	<Null>	3100.648625	AgainstDigitized	<Null>	
	<Null>	6661.314075	AgainstDigitized	<Null>	
	<Null>	10026.725681	Uninitialized	<Null>	
	<Null>	8538.955149	AgainstDigitized	<Null>	
	<Null>	0	Uninitialized	<Null>	
	<Null>	0	Uninitialized	<Null>	
	<Null>	10026.725681	AgainstDigitized	<Null>	
	<Null>	12332.168515	Uninitialized	<Null>	
	<Null>	12332.168515	AgainstDigitized	<Null>	

Record: 19 Show: All Selected Records (4 out of 36 Selected.)

# Assigned Flow Direction

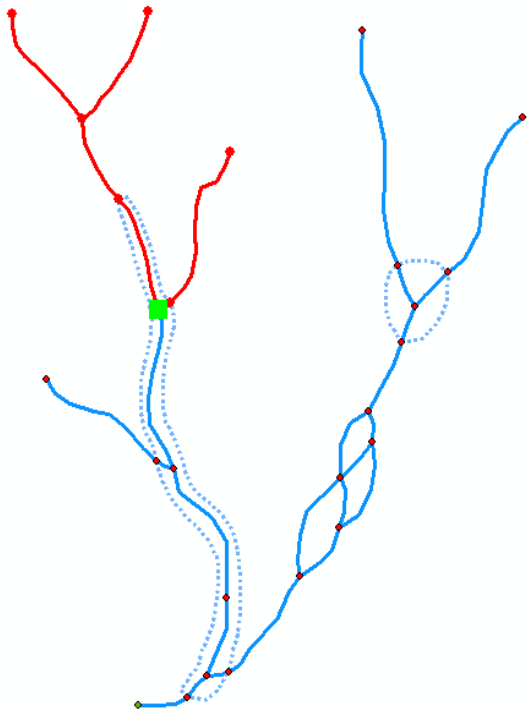


Attributes of HydroEdge

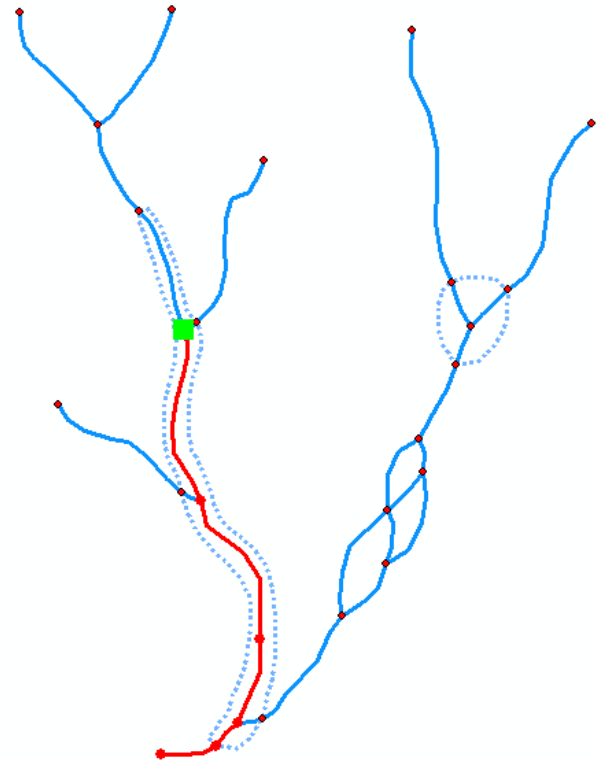
	LengthKm	LengthDown	FlowDir	FType	EdgeType
	<Null>	3100.648625	AgainstDigitized	<Null>	
	<Null>	6661.314075	AgainstDigitized	<Null>	
	<Null>	10026.725681	AgainstDigitized	<Null>	
	<Null>	8538.955149	AgainstDigitized	<Null>	
	<Null>	0	AgainstDigitized	<Null>	
	<Null>	0	AgainstDigitized	<Null>	
	<Null>	10026.725681	AgainstDigitized	<Null>	
	<Null>	12332.168515	AgainstDigitized	<Null>	
	<Null>	12332.168515	AgainstDigitized	<Null>	

Record: 26 Show: All Selected Records (4 out of 36 Selected.)

# Network Tracing



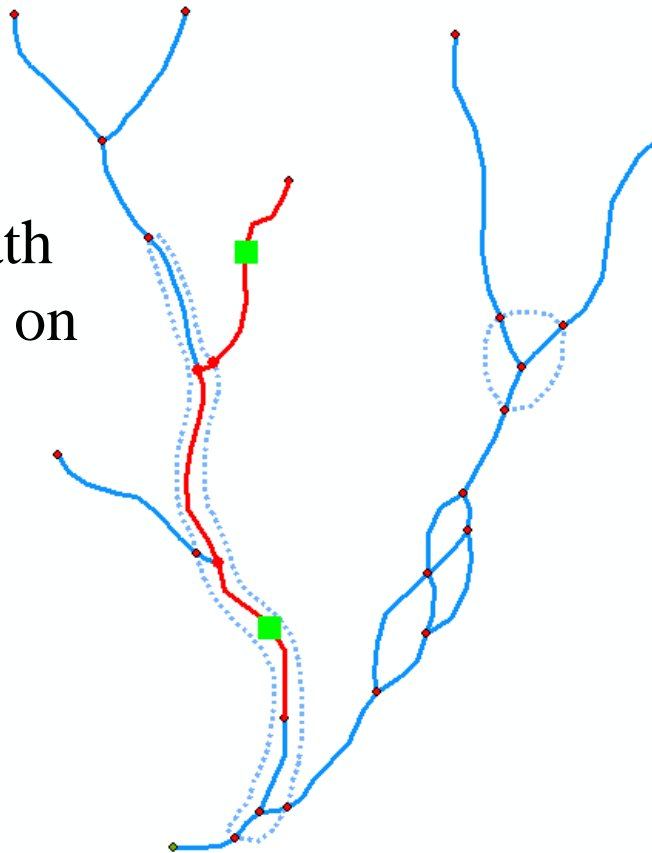
Trace Upstream



Trace Downstream

# Trace Path

Find the shortest path  
between two points on  
the network

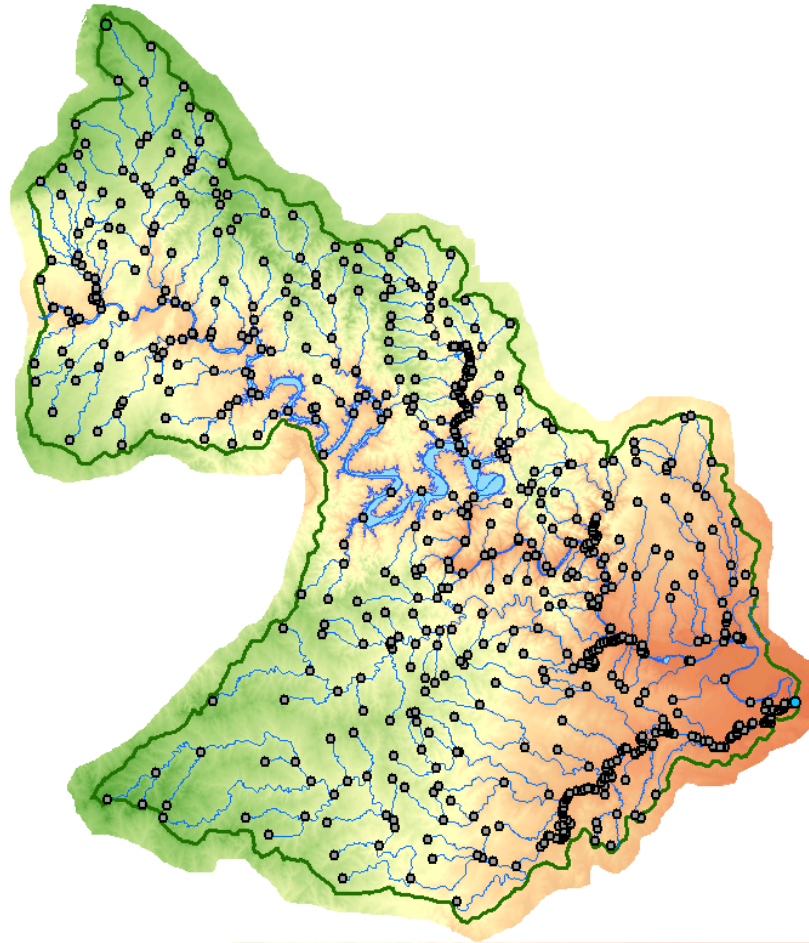


# Hydro Network for Holland

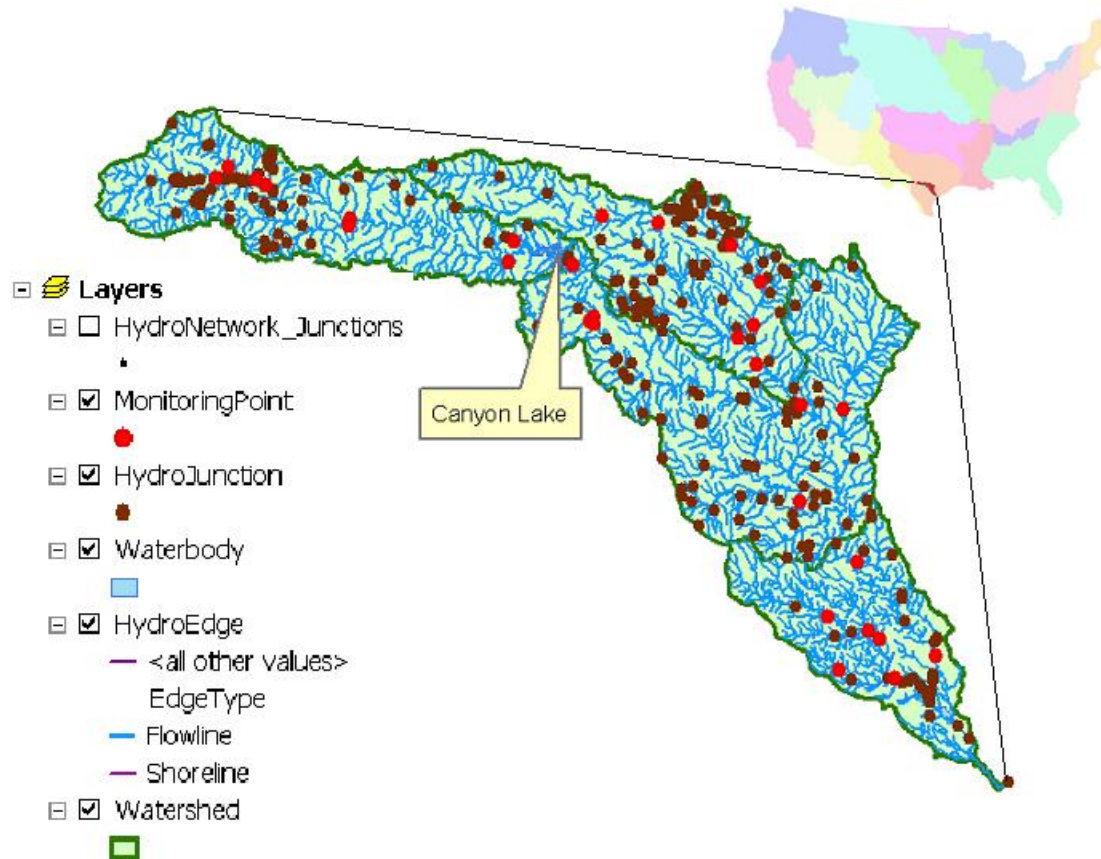


[https://telegram.me/Urbanism\\_Gis\\_Rs\\_File](https://telegram.me/Urbanism_Gis_Rs_File)

# Hydro Network for Colorado River Basin around Lake Travis

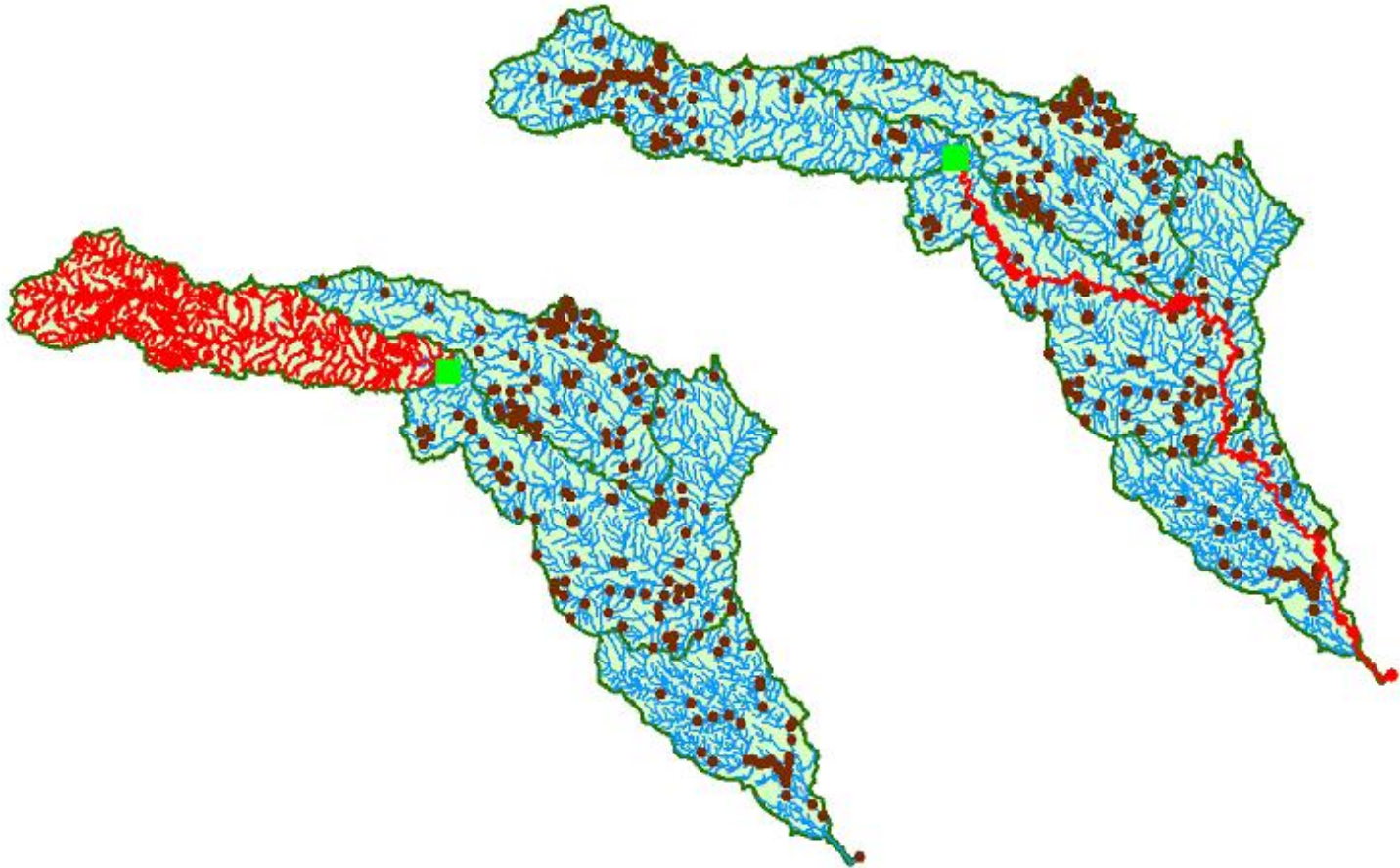


# Guadalupe Basin Framework Dataset



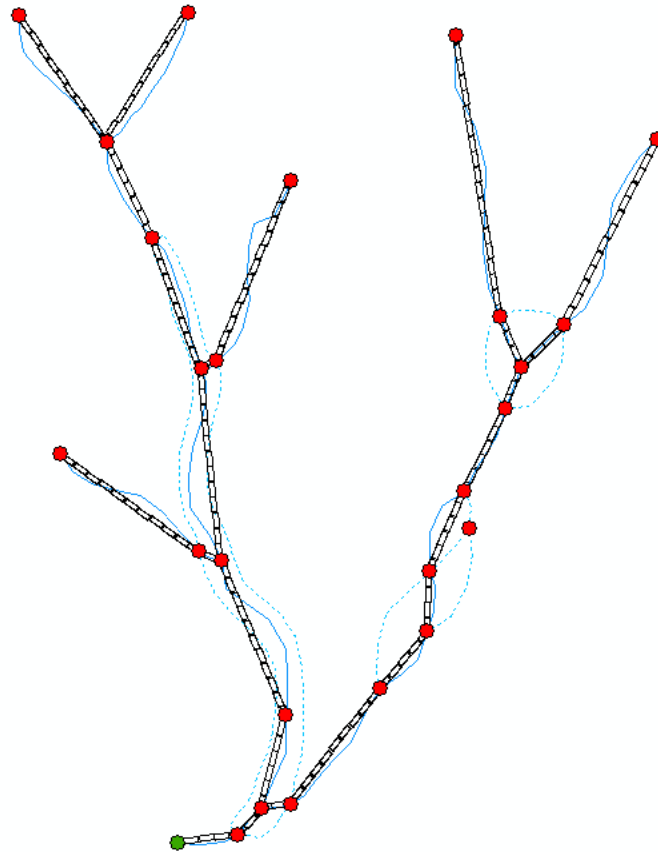


# Network Tracing on the Guadalupe Basin





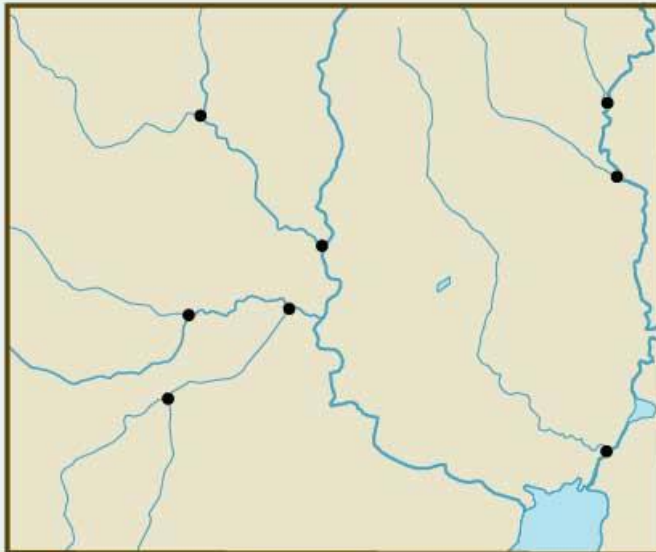
# Schematic Network



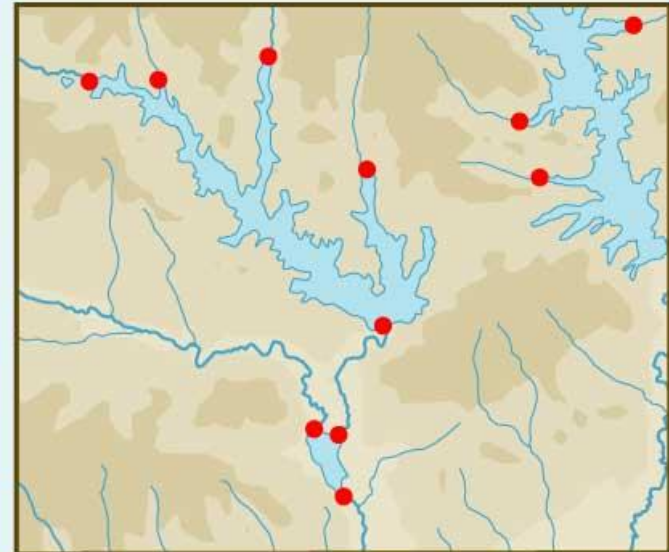
# Hydro Network Junctions

## Hydro Network, Junctions

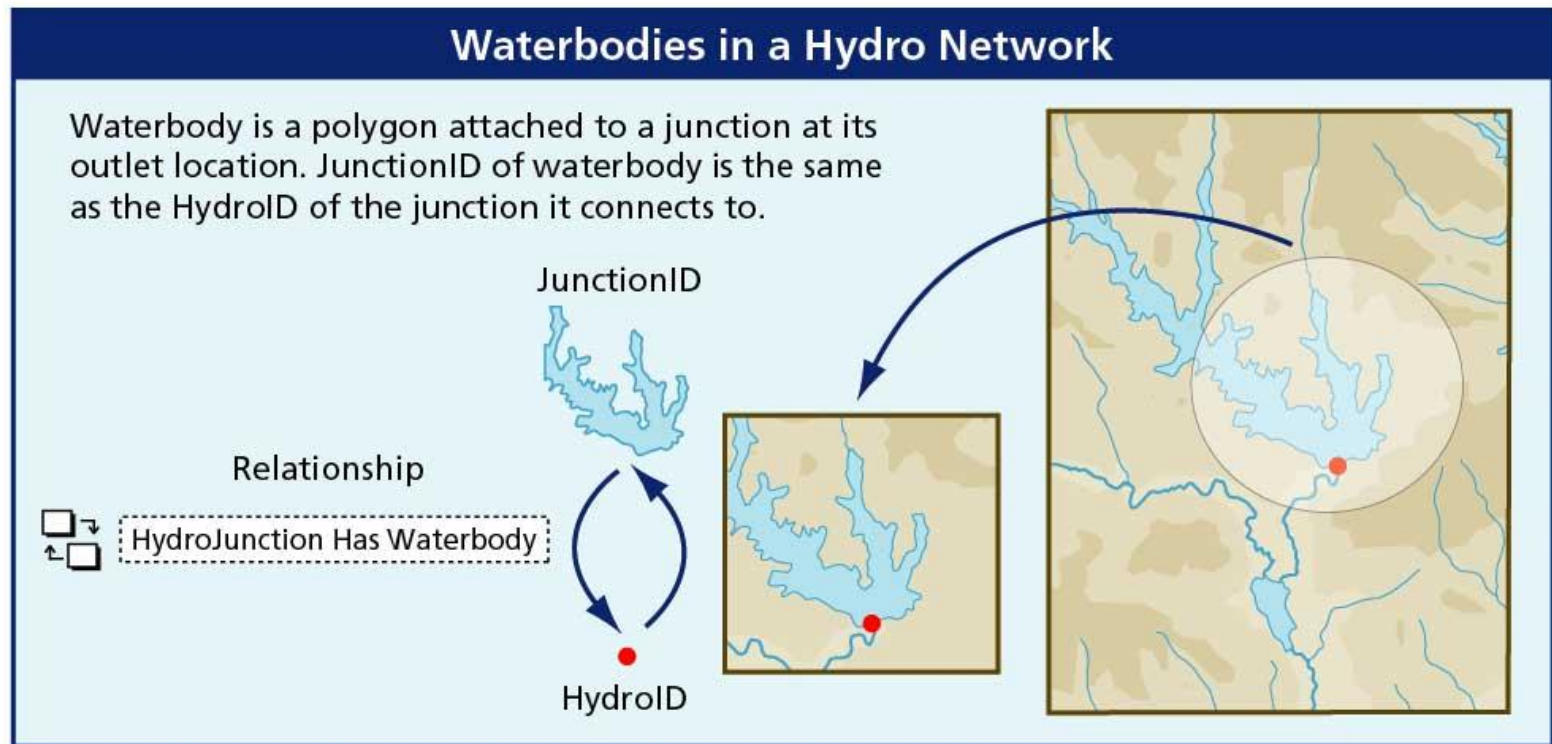
**Generic Junction** is wherever two edges meet.



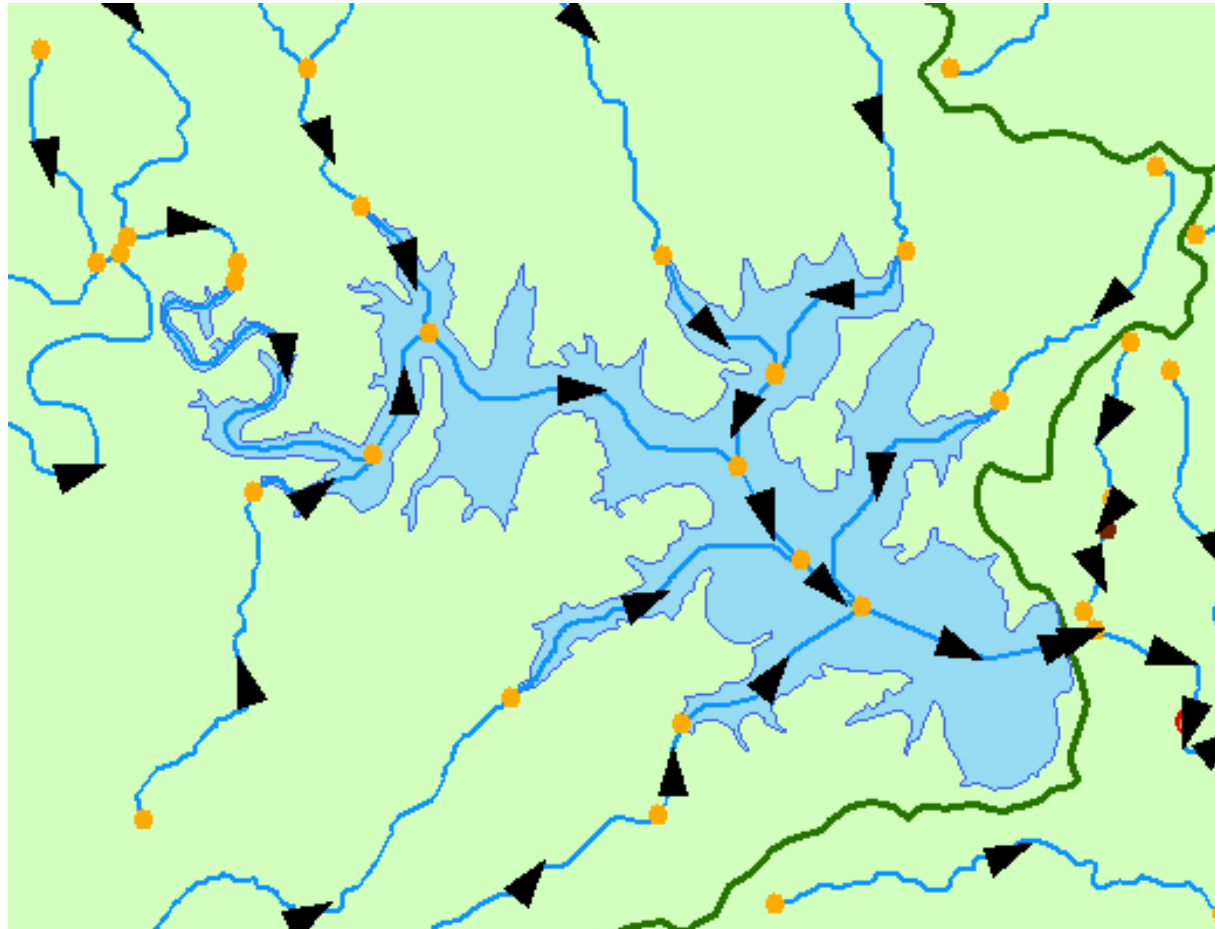
**Hydro Junction** is where other features are attached to the network.



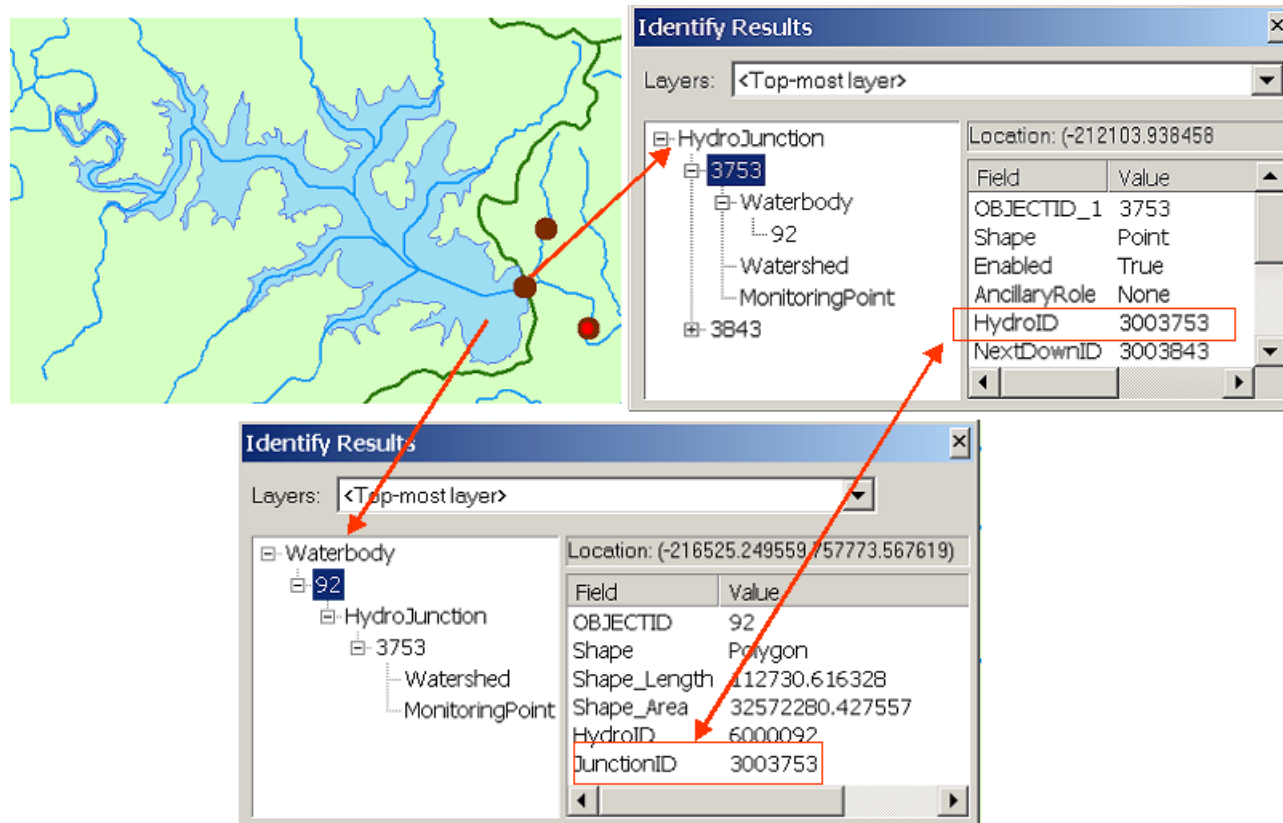
# Connecting Waterbodies using Relationships



# Hydro Network through Canyon Lake



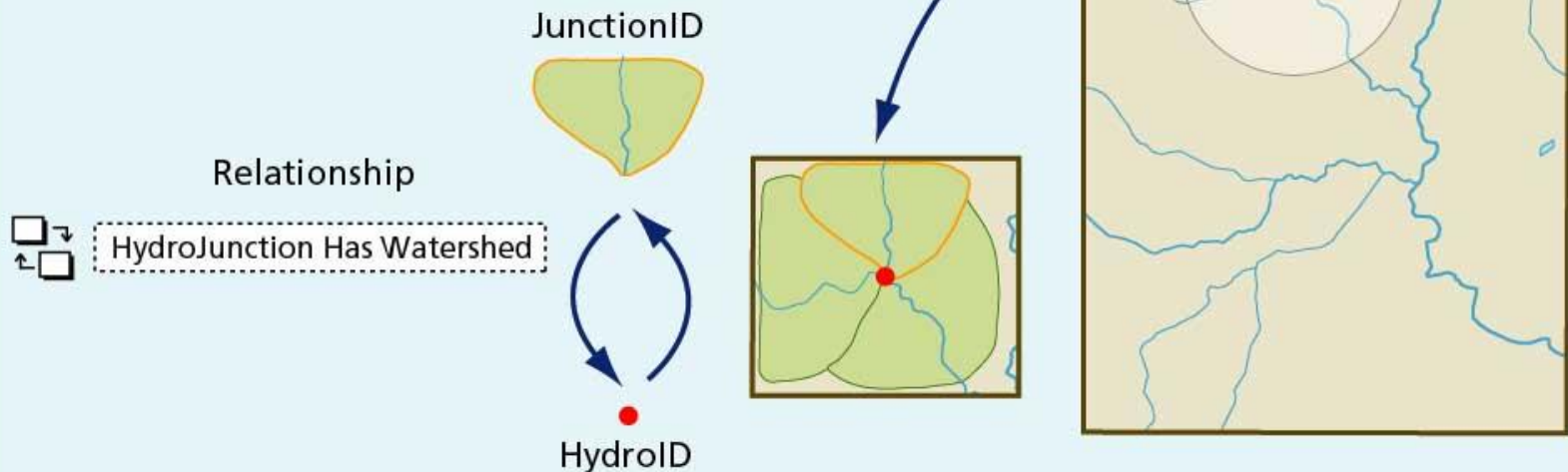
# Linking Canyon Lake to the Network



# Connecting Drainage Areas using Relationships

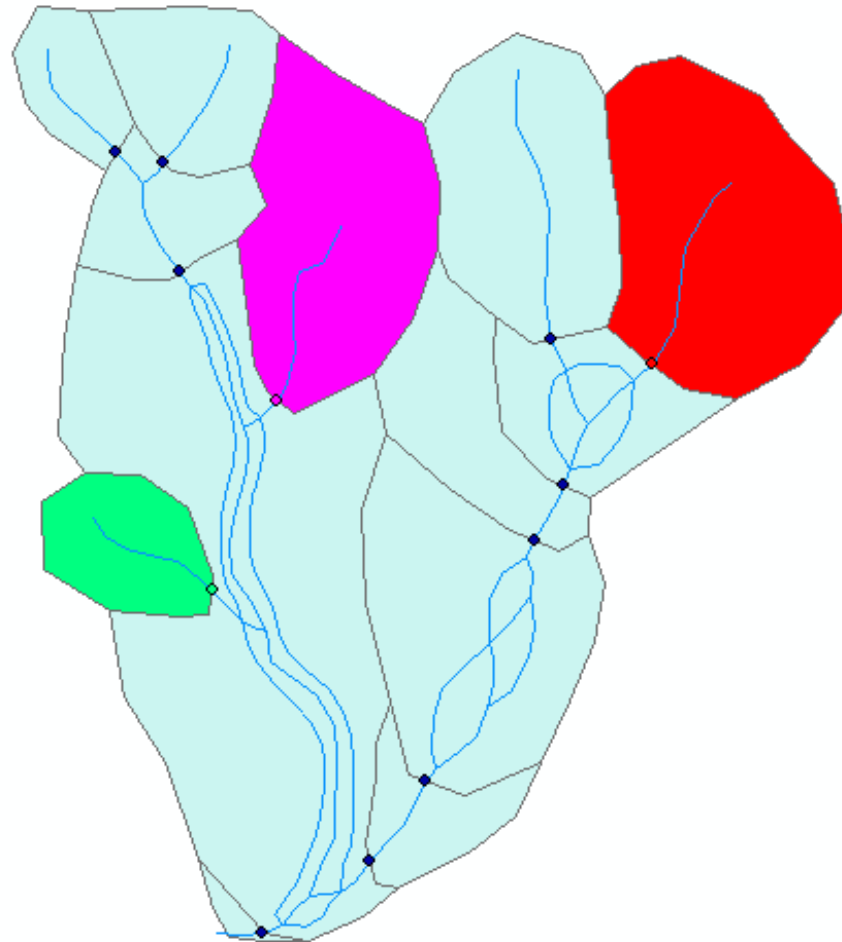
## Drainage Area in a Hydro Network

Watershed is a polygon attached to a junction at its outlet location. JunctionID of watershed is the same as the HydroID of the junction it connects to.



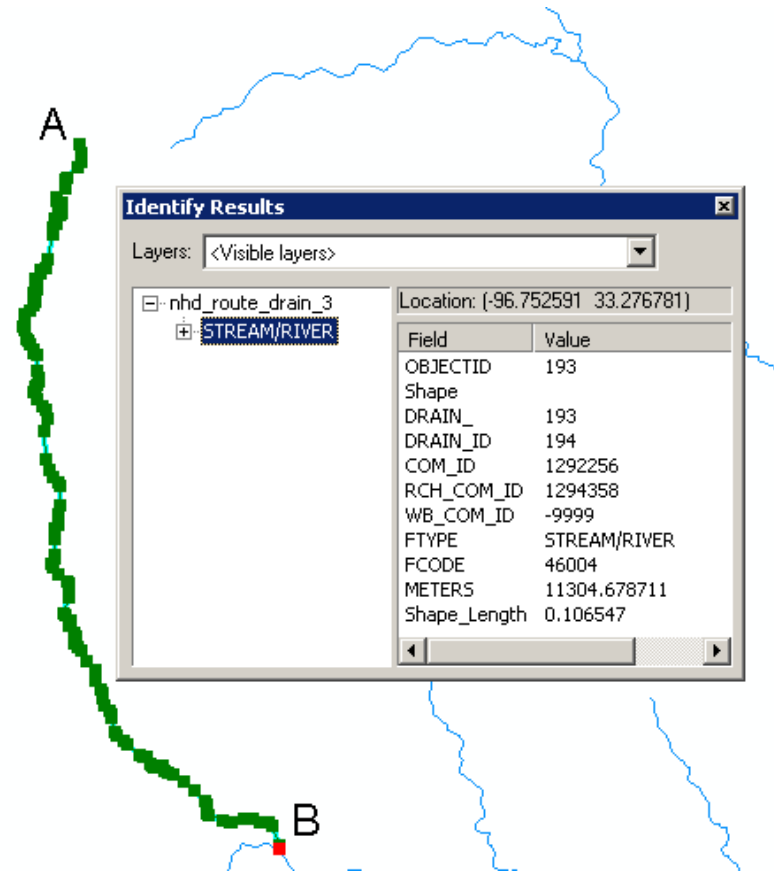
# Connecting Drainage Areas to the Network

Area goes to point on line



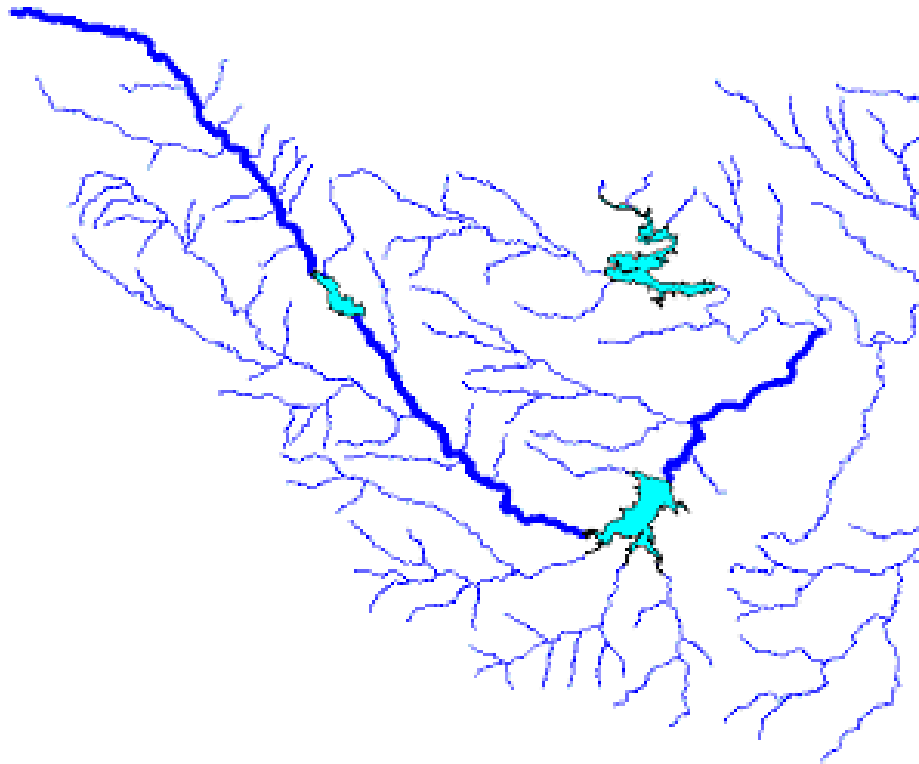
# Linear Referencing

Where are we on a line?



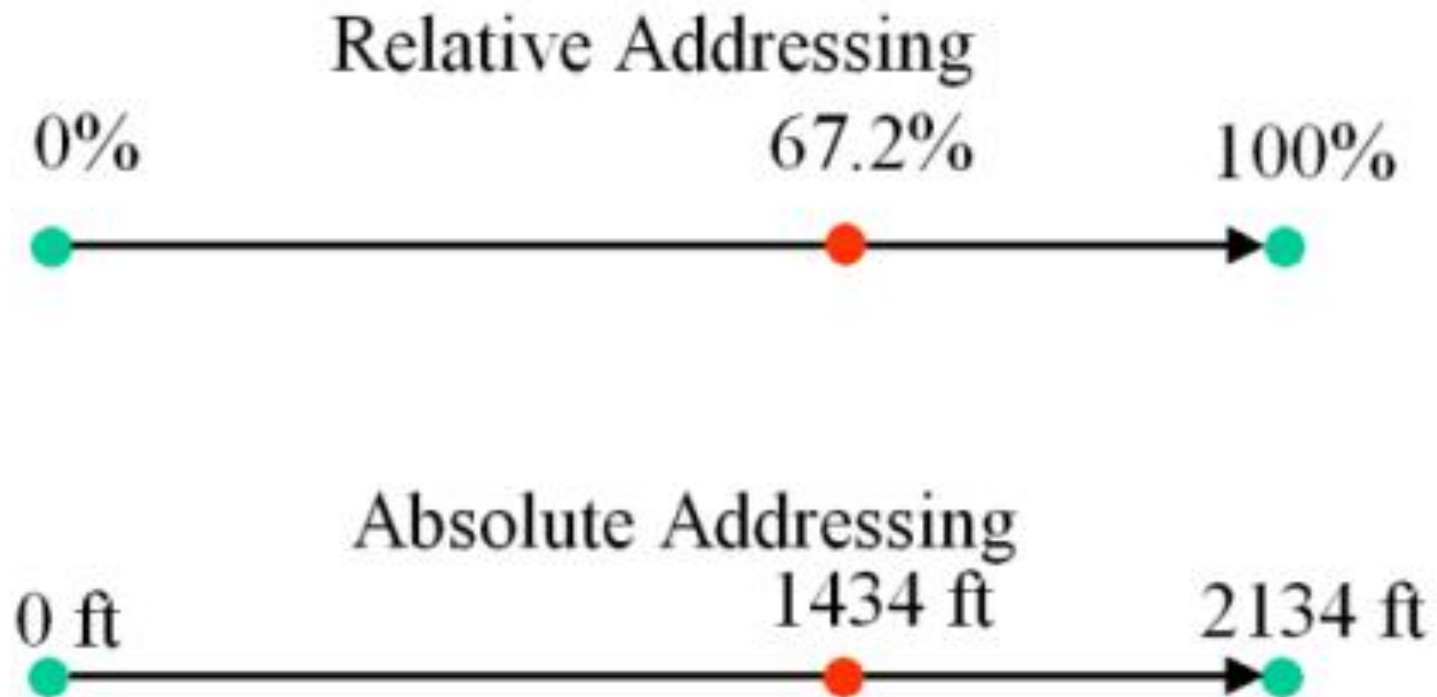


# My Streams are really long...

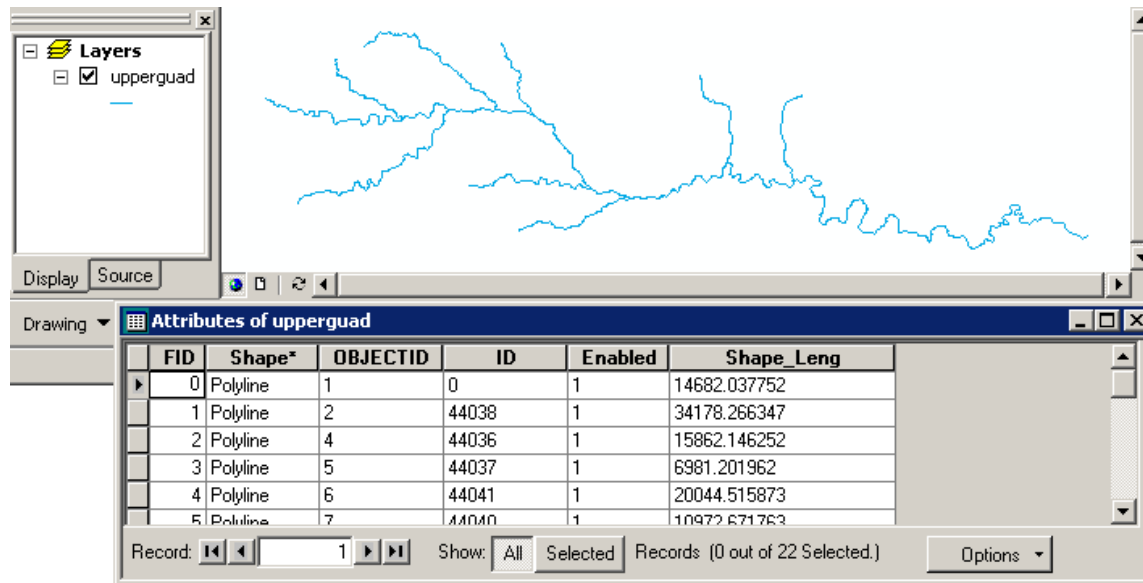


**Use ReachID to  
link many Hydro  
Edges together  
into one River**

# Addressing



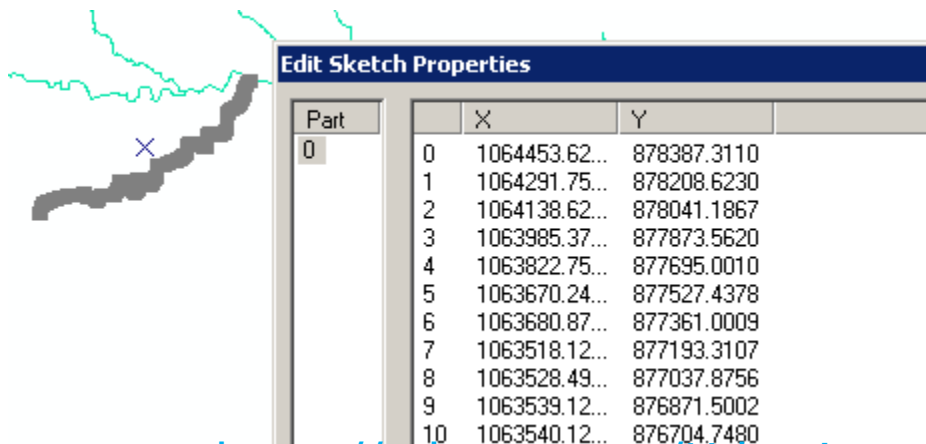
# Coordinates of a 2-D Polyline



The screenshot shows a GIS application window with a map of a river network. A 'Layers' panel on the left shows the 'upperguad' layer is checked. Below the map is a table titled 'Attributes of upperguad' with the following data:

FID	Shape*	OBJECTID	ID	Enabled	Shape_Leng
0	Polyline	1	0	1	14682.037752
1	Polyline	2	44038	1	34178.266347
2	Polyline	4	44036	1	15862.146252
3	Polyline	5	44037	1	6981.201962
4	Polyline	6	44041	1	20044.515873
5	Polyline	7	44040	1	10972.671763

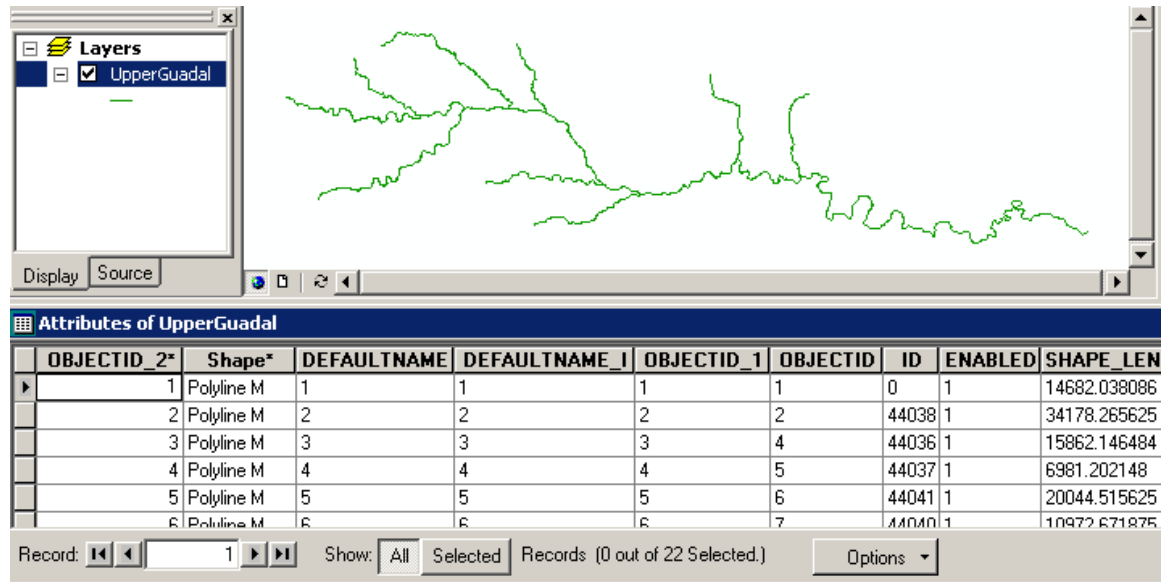
At the bottom of the table, there are navigation controls: Record: 1, Show: All Selected, Records: (0 out of 22 Selected.), and an Options dropdown.



The 'Edit Sketch Properties' dialog box is open, showing the coordinates for a selected polyline segment. The table below contains the following data:

Part	X	Y
0	1064453.62...	878387.3110
1	1064291.75...	878208.6230
2	1064138.62...	878041.1867
3	1063985.37...	877873.5620
4	1063822.75...	877695.0010
5	1063670.24...	877527.4378
6	1063680.87...	877361.0009
7	1063518.12...	877193.3107
8	1063528.49...	877037.8756
9	1063539.12...	876871.5002
10	1063540.12...	876704.7480

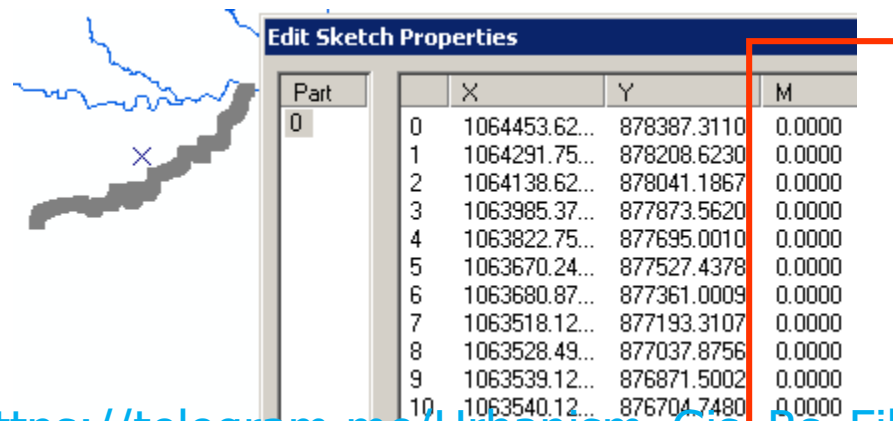
# Coordinates of a 2-D Polyline M



The screenshot shows a GIS application window. On the left, a 'Layers' panel lists 'UpperGuadal'. The main map area displays a green river network. Below the map is a table titled 'Attributes of UpperGuadal'.

OBJECTID_2*	Shape*	DEFAULTNAME	DEFAULTNAME_1	OBJECTID_1	OBJECTID	ID	ENABLED	SHAPE_LEN
1	Polyline M	1	1	1	1	0	1	14682.038086
2	Polyline M	2	2	2	2	44038	1	34178.265625
3	Polyline M	3	3	3	4	44036	1	15862.146484
4	Polyline M	4	4	4	5	44037	1	6981.202148
5	Polyline M	5	5	5	6	44041	1	20044.515625
6	Polyline M	6	6	6	7	44040	1	10972.671875

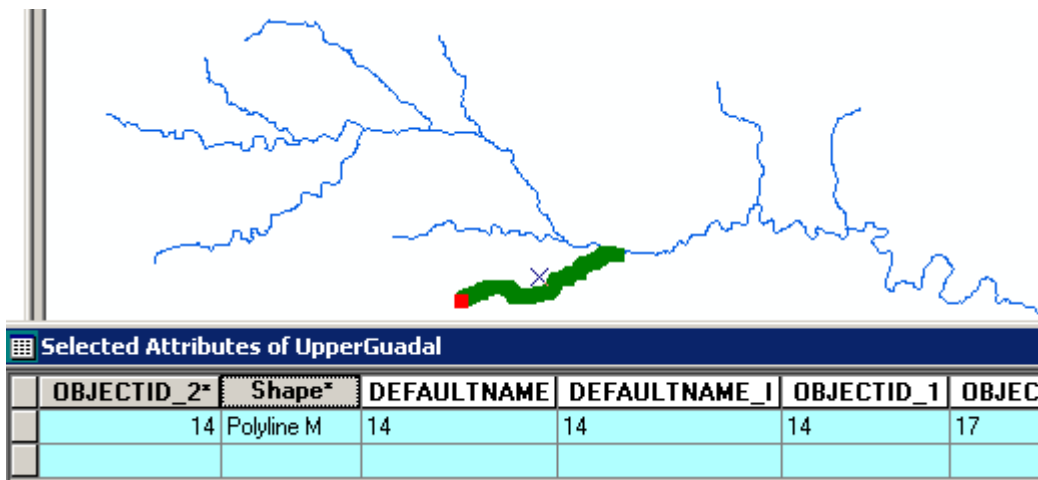
Record: 1 Show: All Selected Records (0 out of 22 Selected.) Options



The 'Edit Sketch Properties' dialog box is open, showing a table of coordinates for a selected polyline segment. The table has columns for Part, X, Y, and M. A red box highlights the M column.

Part	X	Y	M
0	1064453.62...	878387.3110	0.0000
1	1064291.75...	878208.6230	0.0000
2	1064138.62...	878041.1867	0.0000
3	1063985.37...	877873.5620	0.0000
4	1063822.75...	877695.0010	0.0000
5	1063670.24...	877527.4378	0.0000
6	1063680.87...	877361.0009	0.0000
7	1063518.12...	877193.3107	0.0000
8	1063528.49...	877037.8756	0.0000
9	1063539.12...	876871.5002	0.0000
10	1063540.12...	876704.7480	0.0000

# Setting Line Measure



Field Calculator

Fields: DEFAULTNAME\_, DEFAULTNAME\_ID, ENABLED, ID, OBJECTID, OBJECTID\_1, OBJECTID\_2

Type:  Number,  String,  Date

Functions: Abs ( ), Atn ( ), Cos ( ), Exp ( ), Fix ( ), Int ( ), Log ( ), Sin ( ), Sqr ( )

Pre-Logic VBA Script Code  Advanced

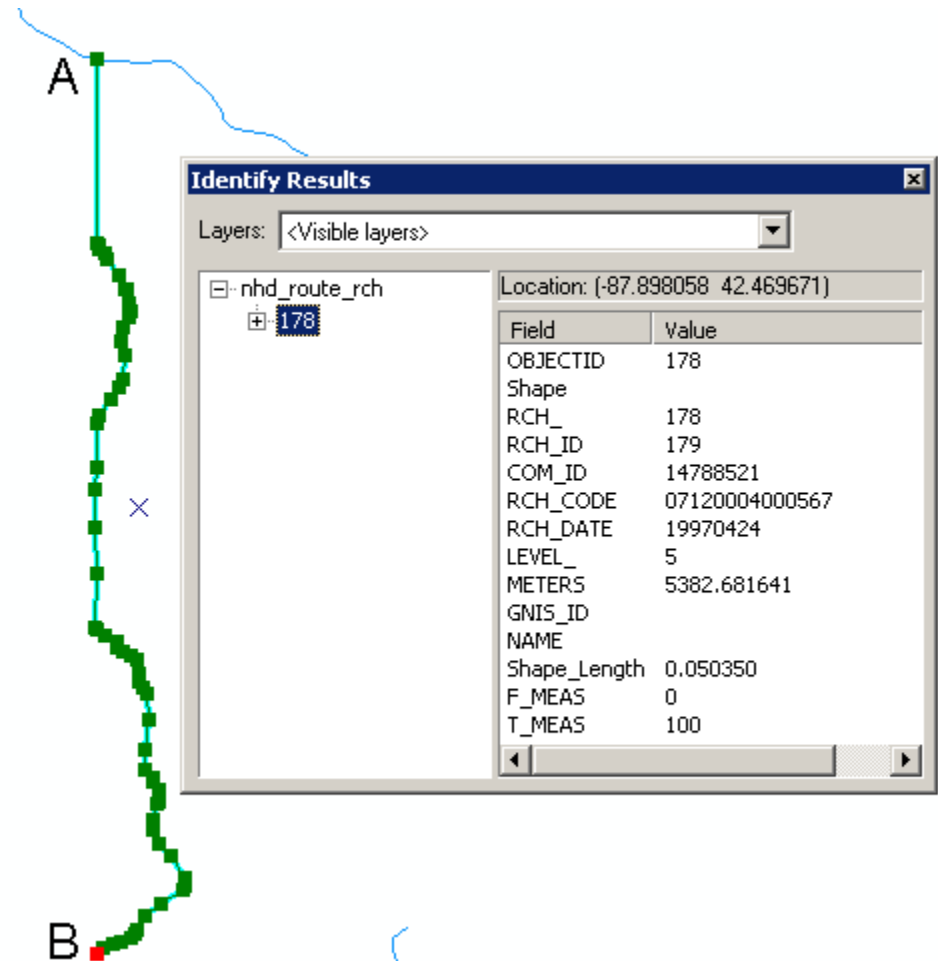
```
dim pMSeg as IMSegmentation
set pMSeg = [Shape]
pMSeg.SetAndInterpolateMsBetween 0, 100
dim pGeom as IGeometry
set pGeom = pMSeg
```

Shape = pGeom

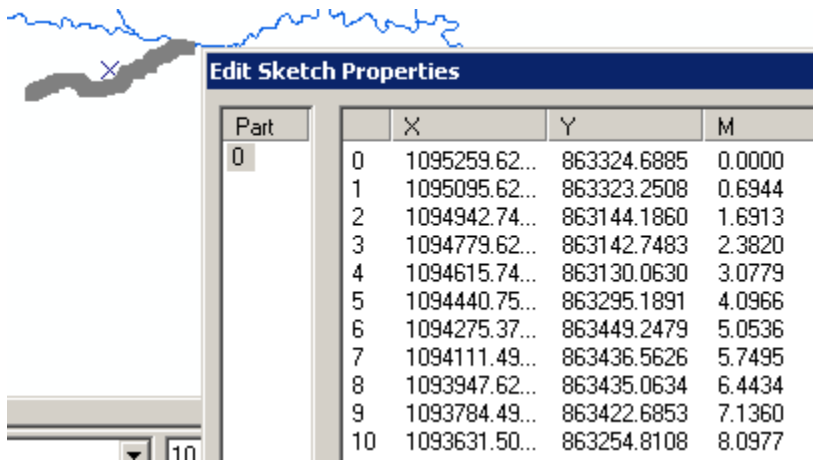
Buttons: \*, /, &, +, -, =, Save..., Load..., OK, Cancel

# Proportional Aliasing

Distance is measured  
Relative to the length  
of the line as a percentage  
0% – 100%

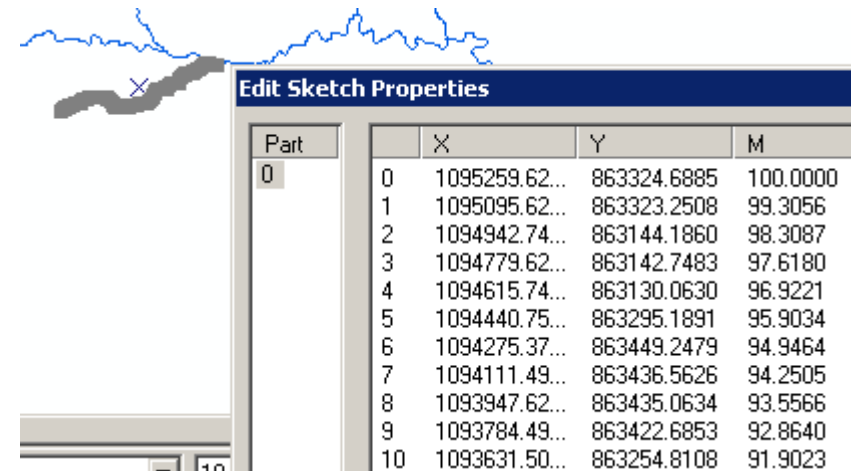


# Setting Percent Measure



**pMSeg.SetAndInterpolate**  
**MsBetween 0, 100**

0 – 100 going upstream



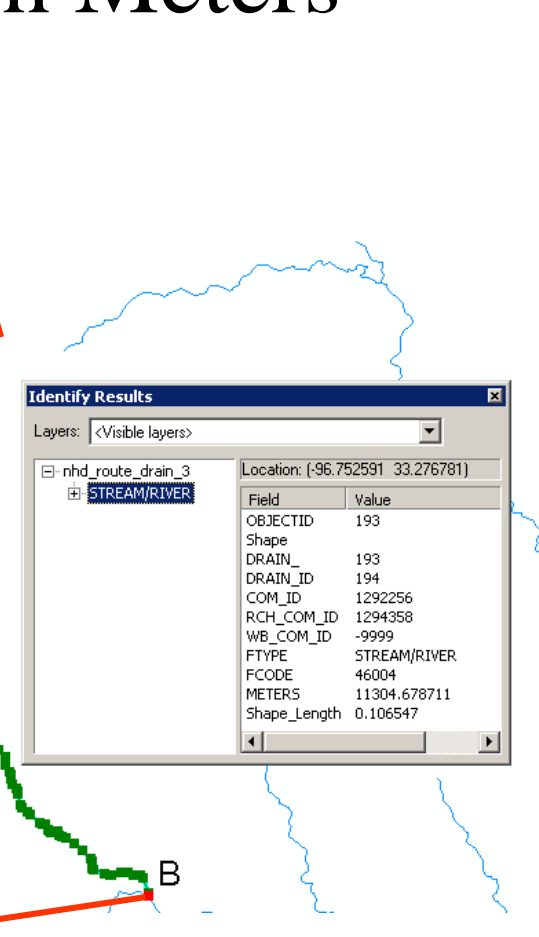
**pMSeg.SetAndInterpolate**  
**MsBetween 100, 0**

0 – 100 going downstream

# Distances from Upper End in Meters

**Edit Sketch Properties**

Part	X	Y	M
0	-96.7500	33.3184	0.0000
1	-96.7497	33.3172	131.9750
2	-96.7497	33.3162	234.0230
3	-96.7503	33.3156	317.7480
4	-96.7515	33.3143	506.9910
5	-96.7517	33.3140	550.8330
6	-96.7517	33.3133	621.3380
7	-96.7518	33.3130	659.5810
8	-96.7528	33.3119	812.6300
9	-96.7528	33.3116	844.2160
10	-96.7522	33.3113	917.5660
11	-96.7521	33.3111	942.5340



**Identify Results**

Layers: <Visible layers>

nhd\_route\_drain\_3  
 + STREAM/RIVER

Location: (-96.752591 33.276781)

Field	Value
OBJECTID	193
Shape	
DRAIN_ID	193
DRAIN_ID	194
COM_ID	1292256
RCH_COM_ID	1294358
WB_COM_ID	-9999
FTYPE	STREAM/RIVER
FCODE	46004
METERS	11304.678711
Shape_Length	0.106547

**Edit Sketch Properties**

Part	X	Y	M
0	-96.7346	33.2384	10149.2320
126	-96.7330	33.2378	10329.3230
127	-96.7322	33.2375	10413.8500
128	-96.7319	33.2375	10445.6590
129	-96.7305	33.2380	10600.8910
130	-96.7297	33.2381	10690.8050
131	-96.7294	33.2380	10722.9700
132	-96.7287	33.2377	10808.1360
133	-96.7276	33.2375	10925.4060
134	-96.7272	33.2372	10976.7540
135	-96.7262	33.2348	11251.1610
136	-96.7262	33.2343	11304.6790
137	-96.7262	33.2343	11304.6790



A  
0%

Part	X	Y	M
0	-87.8980	42.4748	0.0000
1	-87.8980	42.4656	18.3080
2	-87.8980	42.4655	18.5273
3	-87.8979	42.4653	18.8682
4	-87.8977	42.4651	19.5071
5	-87.8975	42.4648	20.1889
6	-87.8970	42.4640	22.1241
7	-87.8966	42.4633	23.7021
8	-87.8966	42.4632	23.8854
9	-87.8965	42.4625	25.2703
10	-87.8964	42.4621	26.0645
11	-87.8965	42.4618	26.6399
12	-87.8965	42.4614	27.0000

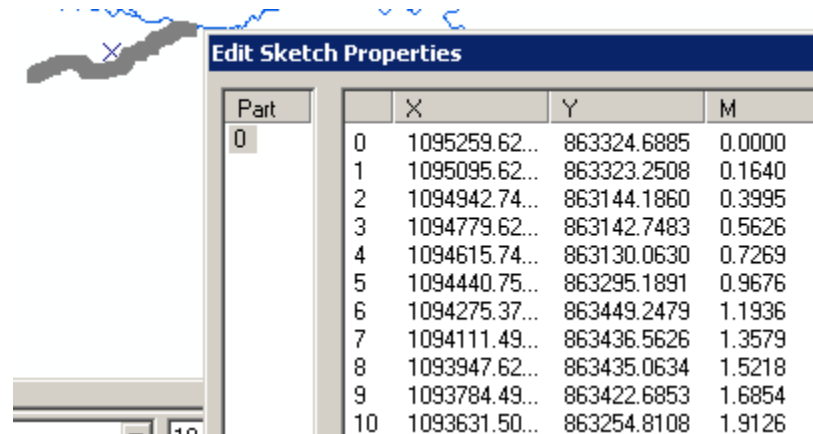
Percent distance from  
bottom end of reach

Part	X	Y	M
50	-87.8937	42.4338	87.5605
51	-87.8936	42.4334	88.3805
52	-87.8937	42.4331	88.9558
53	-87.8948	42.4325	91.5037
54	-87.8956	42.4318	93.5717
55	-87.8960	42.4311	95.1205
56	-87.8962	42.4310	95.5309
57	-87.8964	42.4308	96.0806
58	-87.8969	42.4305	97.2369
59	-87.8972	42.4304	97.9850
60	-87.8978	42.4302	99.1969
61	-87.8980	42.4299	100.0000

Field	Value
OBJECTID	178
Shape	RCH_
RCH_ID	179
COM_ID	14788521
RCH_CODE	07120004000567
RCH_DATE	19970424
LEVEL_	5
METERS	5382.681641
GNIS_ID	
NAME	
Shape_Length	0.050350
F_MEAS	0
T_MEAS	100

# Measure in kilometers

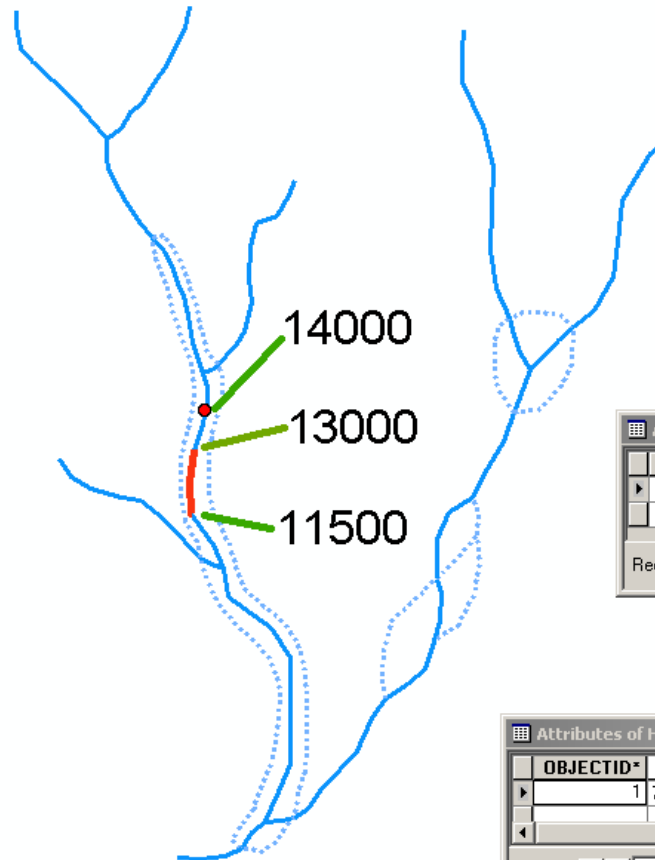
Measure in km from  
bottom end of line  
(like river miles or  
Kilometers)



Part	X	Y	M
0	1095259.62...	863324.6885	0.0000
1	1095095.62...	863323.2508	0.1640
2	1094942.74...	863144.1860	0.3995
3	1094779.62...	863142.7483	0.5626
4	1094615.74...	863130.0630	0.7269
5	1094440.75...	863295.1891	0.9676
6	1094275.37...	863449.2479	1.1936
7	1094111.49...	863436.5626	1.3579
8	1093947.62...	863435.0634	1.5218
9	1093784.49...	863422.6853	1.6854
10	1093631.50...	863254.8108	1.9126

**pMSeg.SetAndInterpolateMsBetween 0, ([Shape\_Length] /1000)**

# Point and Line Events



Attributes of HydroPointEvent

OBJECTID*	ReachCode	Measure
1	7	14000

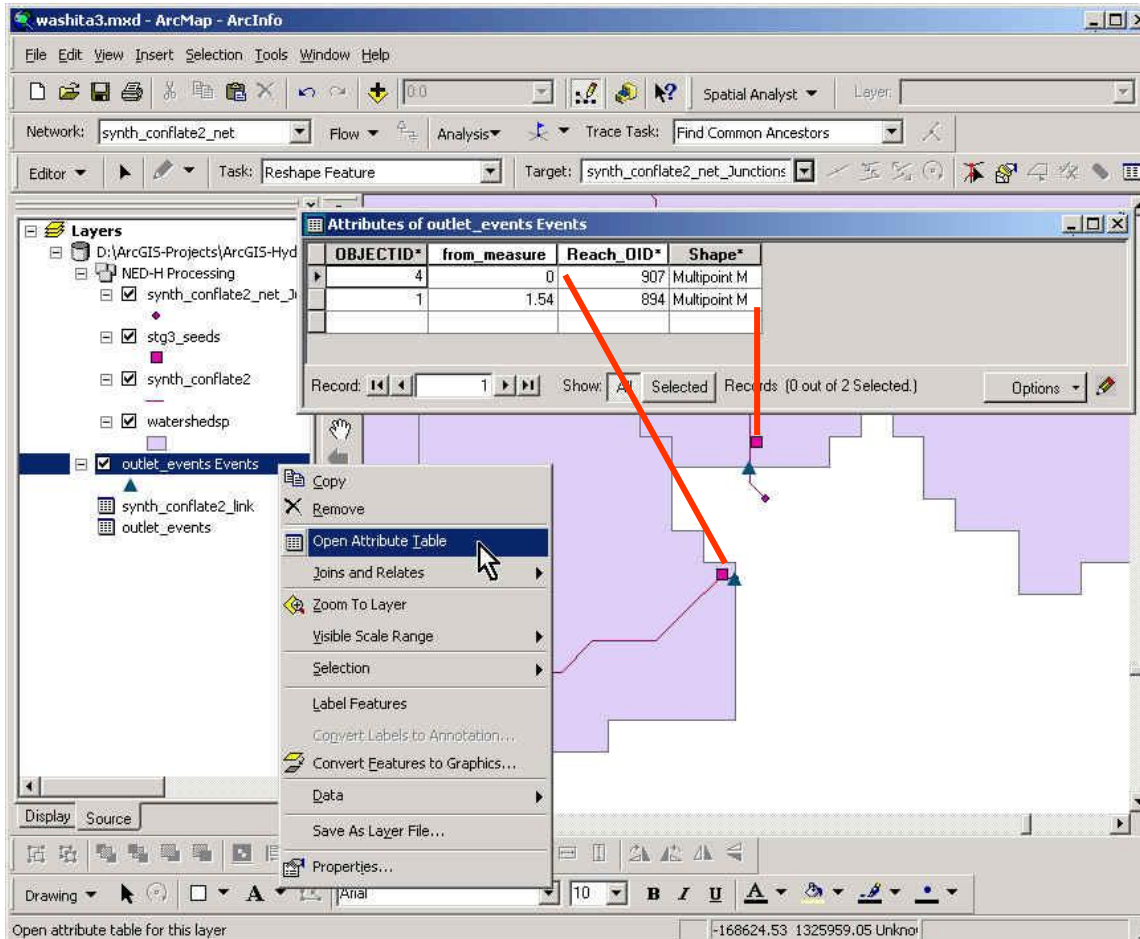
Record: 1 Show: All Selected R

Attributes of HydroLineEvent

OBJECTID*	ReachCode	FMeasure	TMeasure
1	7	11500	13000

Record: 1 Show: All Selected Records (0 out of

# Displaying Events



### Display Route Events

Route events are locations measured along routes. A table containing route events can be added to the map as a layer.

1. Choose a table from the map or browse for another table.  
outlet\_events
2. Specify the type of events the table contains.  
 Point Events: These occur at a precise location along a route  
 Line Events: These define discontinuous portions of a route
3. Choose the event key field. It identifies which route each event is on.  
Reach\_OID
4. Specify the location field for the point events:  
M Field  
from\_measure
5. Choose the offset field. Events can be offset from the routes.  
<none>
6. Choose the layer containing the routes that the events refer to or open the route feature class from disk.  
synth\_conflate2
7. Choose the route key field that identifies the routes.  
OBJECTID

Values in this field are unique. (Display of route events is faster when the route keys are unique.)

OK Cancel

با عرض سلام کانال channel\_Urbanism & Gis\_Rs جهت اشتراک فایل های نایاب  
شهرسازی، جغرافیا و GIS و سنجش از دور و معماری مانند کتب، مقالات، طرح های  
شهری، جزوات، فیلم های آموزشی و ... به صورت رایگان راه اندازی شده است جهت  
عضویت در کانال روی لینک زیر کلیک کنید

از اینکه کانال را به دوستان خود معرفی کنید متشکریم

[https://telegram.me/Urbanism\\_Gis\\_Rs\\_file](https://telegram.me/Urbanism_Gis_Rs_file)

با تشکر تیم مدیریت کانال



**A. ESMAILZADE**

+989017735530

@ A.ESMAILZADEH2000@GMAIL.COM

مشاوره و انجام پایان نامه در رشته های شهرسازی، جغرافیا، GIS و RS

ارسال رایگان منابع جهت انجام پایان نامه

انجام پایان نامه و مقاله

پروپوزال

سمینار

تحلیل آماری با SPSS و Liserle و Amose و ...

سه بعدی سازی

تحلیل های GIS و زمین آماری

انجام و تحلیل پروژه های نرم افزاری سنجش از دور (envi, erdas, elwise و ...)

در رشته های جغرافیا (تمامی گرایش ها)، شهرسازی، سنجش از دور و gis

انجام مدل های تصمیم گیری electere, topsis, anp, ahp, vikor و ... همچنین پیاده سازی این

مدلا در gis

**با شماره روی کارت در تماس باشید**

نام دیتا	قیمت	نام دیتا	قیمت
نقشه های زمین شناسی رقومی ۲۵۰۰۰۰ (کل ایران)	۴۰ هزار	نقشه راه های کل ایران با تفکیک درجه و نوع راه	توافقی یا به صورت مبادله دیتا
نقشه های زمین شناسی رقومی ۱۰۰۰۰۰	۶۰ هزار	شیپ فایل آمار جمعیتی کل روستاهای ایران	توافقی یا به صورت مبادله دیتا
تصاویر ماهواره ای استر (کل ایران)	۴۵ هزار	شیپ فایل محدوده قانونی کل شهرستان	توافقی یا به صورت مبادله دیتا
تصاویر ماهواره ای landsat۸ (کل ایران موجود)	۱۵ هزار	کلیه رودخانه های ایران	توافقی یا به صورت مبادله دیتا
تصاویر ماهواره ای IRS با دقت ۵ متر (پوشش ۹۵ درصد ایران موجود)	۱۰۰ هزار	کاربری زمین کل ایران	توافقی یا به صورت مبادله دیتا
لایه رقومی ارتفاعی (DEM ۱۰M) ۸۰ درصد ایران موجود بر اساس برش ایندکس ۱۰۰ هزار	۵۰ هزار	موقعیت رانش زمین کل ایران	توافقی یا به صورت مبادله دیتا
لایه رقومی ارتفاعی (DEM ۲۷ M) ۱۰۰ درصد ایران موجود (تصحیح شده)، بر اساس برش ایندکس ۱۰۰ هزار	۲۰ هزار	پهنه های سیل خیز کل ایران؛ گسل های کل ایران، آخرین تقسیمات سیاسی تا حد دهستان،	توافقی یا به صورت مبادله دیتا
لایه رقومی ارتفاعی (DEM ۹۰ M) ۱۰۰ درصد ایران موجود (تصحیح شده)، بر اساس برش ایندکس ۱۰۰ هزار	۱۰ هزار	پهنه های فرسایش زمین کل ایران	توافقی یا به صورت مبادله دیتا
برگه ژئوشیمی رسوبات آبراهه ای بر اساس برگه های ۱۰۰۰۰۰ (پوشش ۴۰ درصد ایران)	۱۰۰ هزار	پهنه بندی اقلیمی کل ایران	توافقی یا به صورت مبادله دیتا
تصاویر ماهواره ای Spot (دقت ۲٫۵) فیوژن شده (پوشش ۴۰ درصد ایران)	۴۰۰ هزار	لایه عمق آب های جنوب ایران با دقت سانتی متری	توافقی یا به صورت مبادله دیتا
لایه توپوگرافی در مقیاس ۱:۲۵۰۰۰	۳۰ هزار	دانلود تاسیسات و زیرساخت های آب و برق و گاز استان های کردستان، ایلام و کرمانشاه با جزئیات فوق العاده	توافقی یا به صورت مبادله دیتا
کاربری زمین استان تهران و البرز با مقیاس ۱:۲۵۰۰۰	۱۰ هزار	۱:۲۰۰۰ شهرهای زیر نیز موجود است تهران، کرج، تفرش، پاکدشت، اصفهان، شیراز، مشهد، زنجان، بوکان، رویان، فشم، کاشان، سمنان، اهواز، اراک، مراغه، تبریز، طرقله، سرخس، سهند، فریدون کنار، کاشان، مهاباد، مریوان، رشت، مشکین دشت، دامغان، سرخ آباد، اراکه، قزوین، صفاشهر، شهر کرد، بابلسر، عسلویه، شهریار، مشکات، نور، کلیه شهرهای استان خراسان شمالی، کلیه شهرهای استان مازندران	توافقی یا به صورت مبادله دیتا
نقشه های زمین شناسی رقومی ۲۵۰۰۰۰ (کل ایران)	۴۰ هزار	بلوک آماری شهرهای زیر نیز موجود است: تهران، اراک، قم، مهاباد، کرج	توافقی یا به صورت مبادله دیتا

جهت سفارش لایه ورد نظر بر اساس ایندکس مشخص گردیده تعداد شیت های منطقه مورد مطالعه خود را جدا کنید در صورت نیاز به کمک محدوده مورد نیاز خود را به ایمیل بنده ارسال کنید خدمتون عرض خواهم کرد منطقه شما چند شیت است.

انجام پایان نامه و مقاله رشته های شهرسازی، جغرافیا، GIS\_RS پذیرفته می شود همچنین تحلیل های آماری و کلیه کارهای نرم افزاری رشته های مذکور نیز پذیرفته می شود

شماره تماس: ۰۹۰۱۷۷۳۵۵۳۰ اسماعیل زاده یا با این ID تلگرام در تماس باشید @abdolsalam\_esmailzadeh

ایمیل: [a.esmailzadeh2000@gmail.com](mailto:a.esmailzadeh2000@gmail.com)

دوستان توجه کنید این دیتاها بیشترشون واسه یکی از دوستان هست اما خودمم به تعدادشون دارم اونای که خودم داشته باشم با تخفیف فوق العاد یا با تبادل دیتا خدمتتان تقدیم خواهم نمود