

# New DSM2 Cross-Section Creation Based on DEM

May 25, 2016

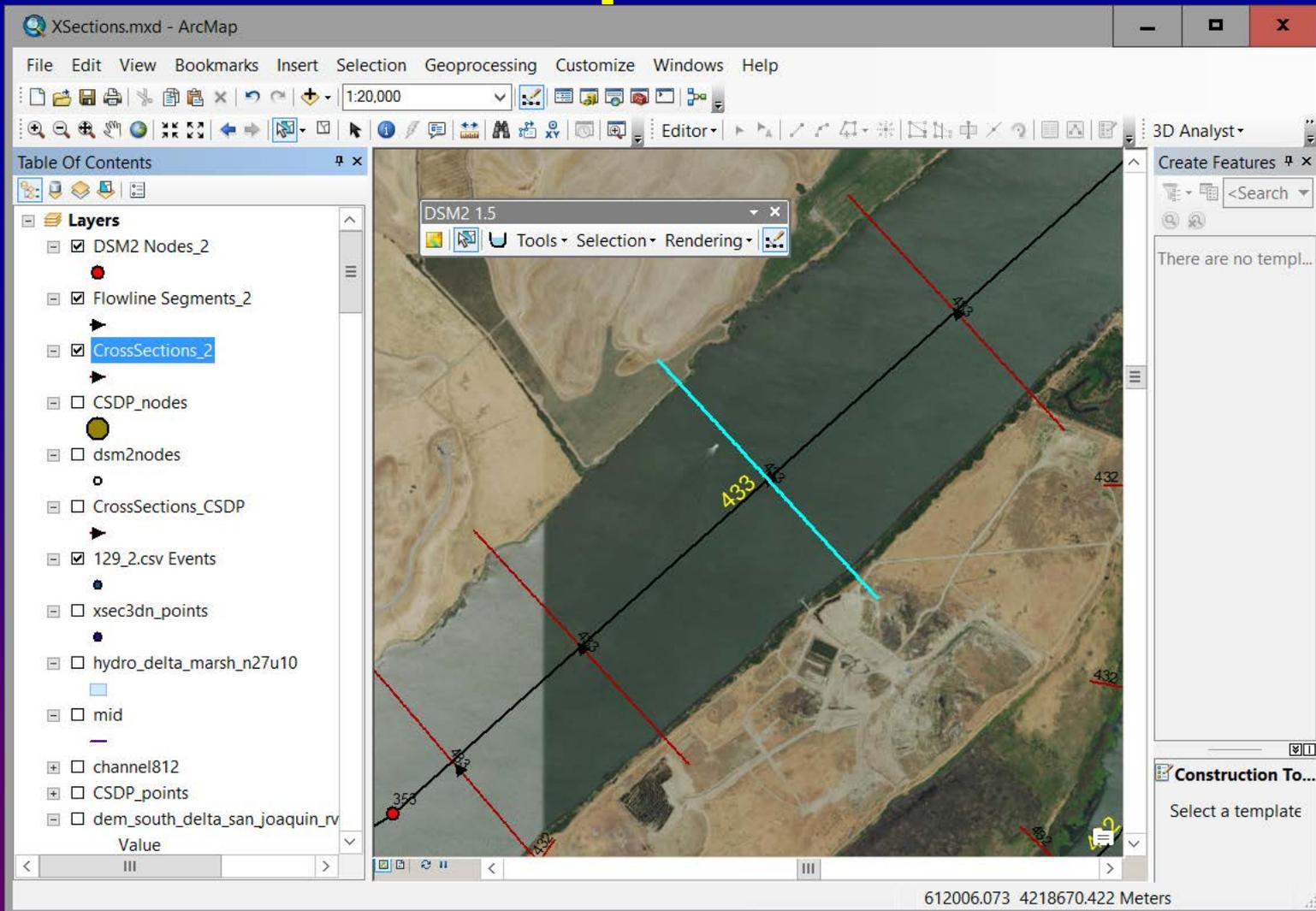
Lianwu Liu, Nicky Sandhu

Delta Modeling Section

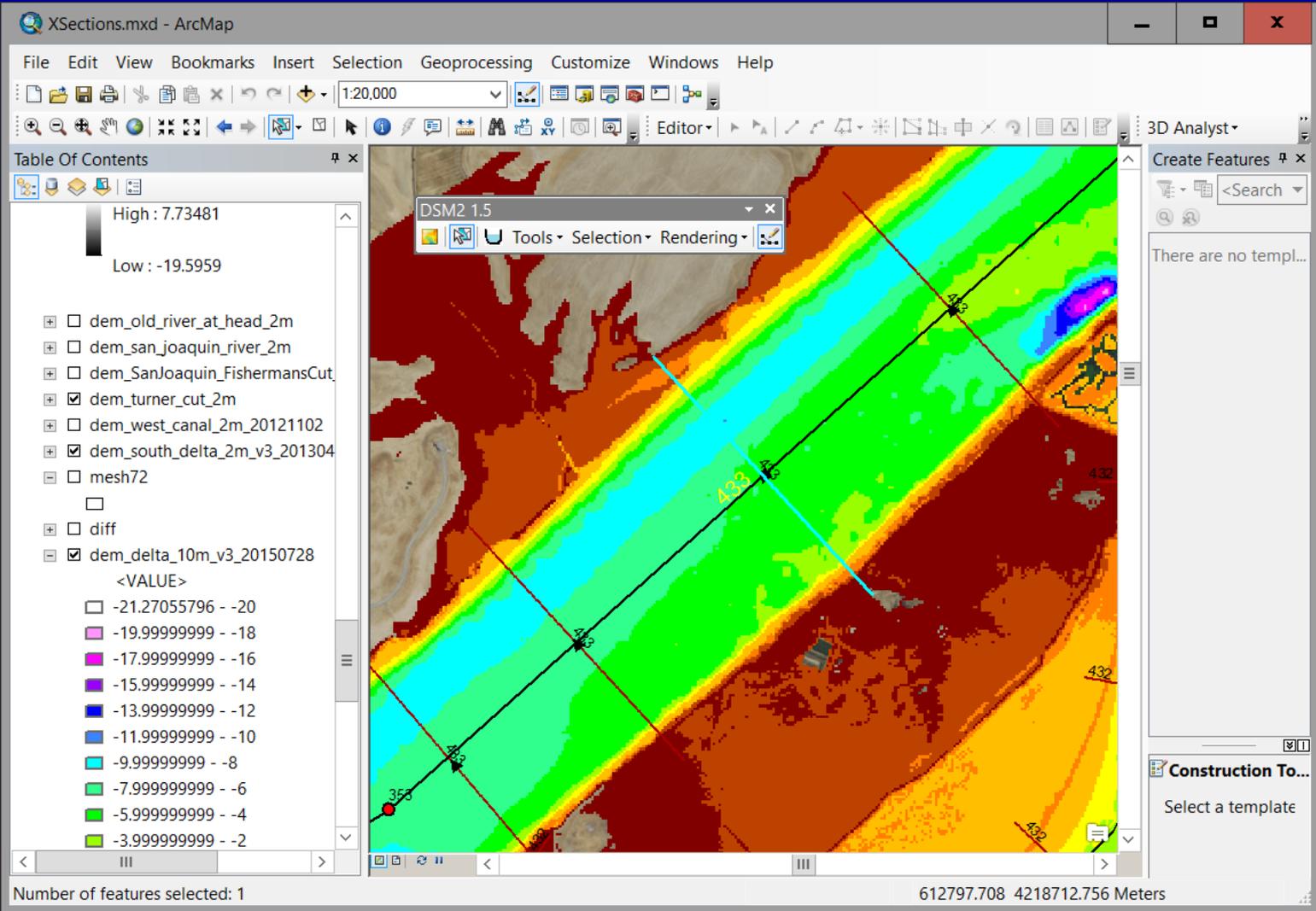
California Department of Water Resources



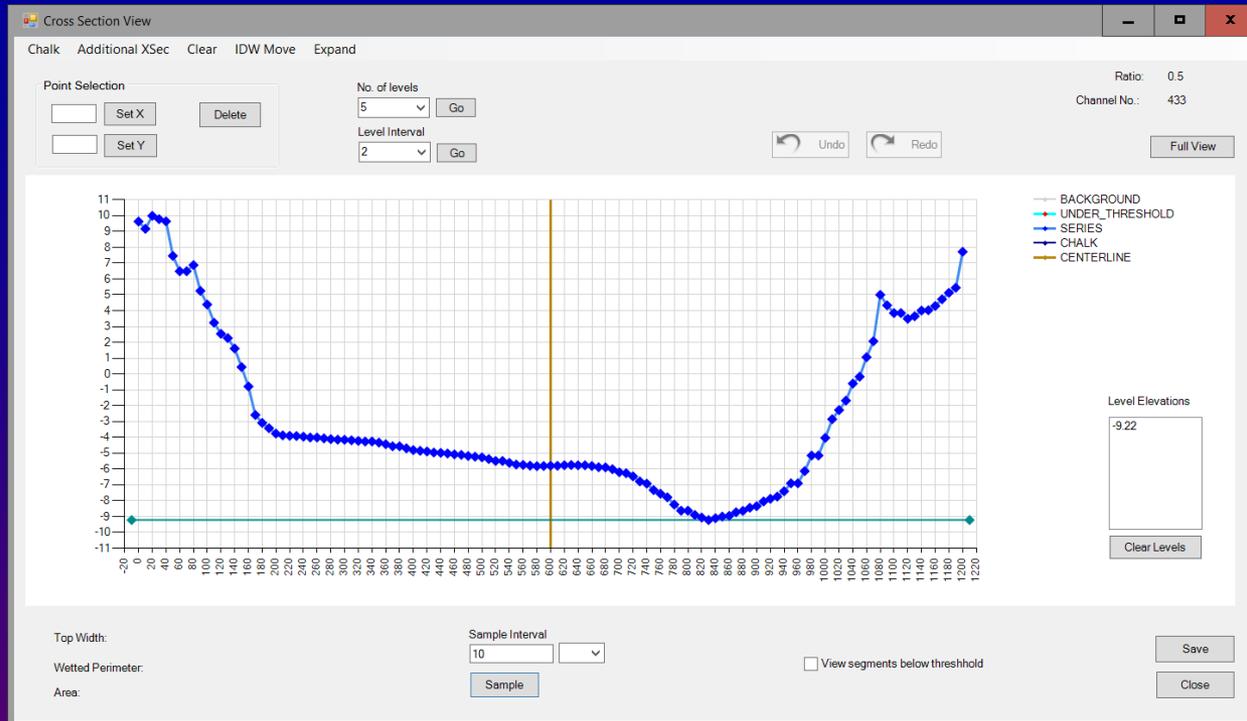
# ArcMap Window



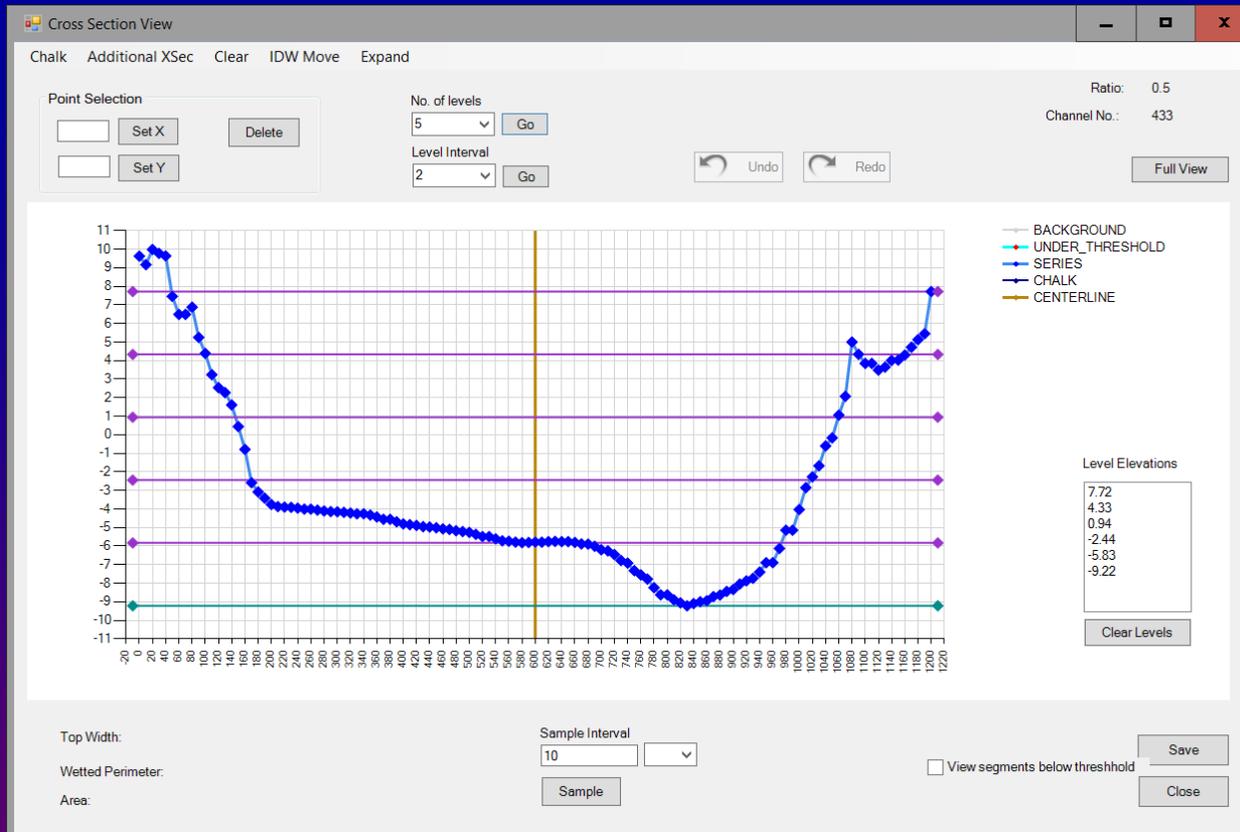
# DEM



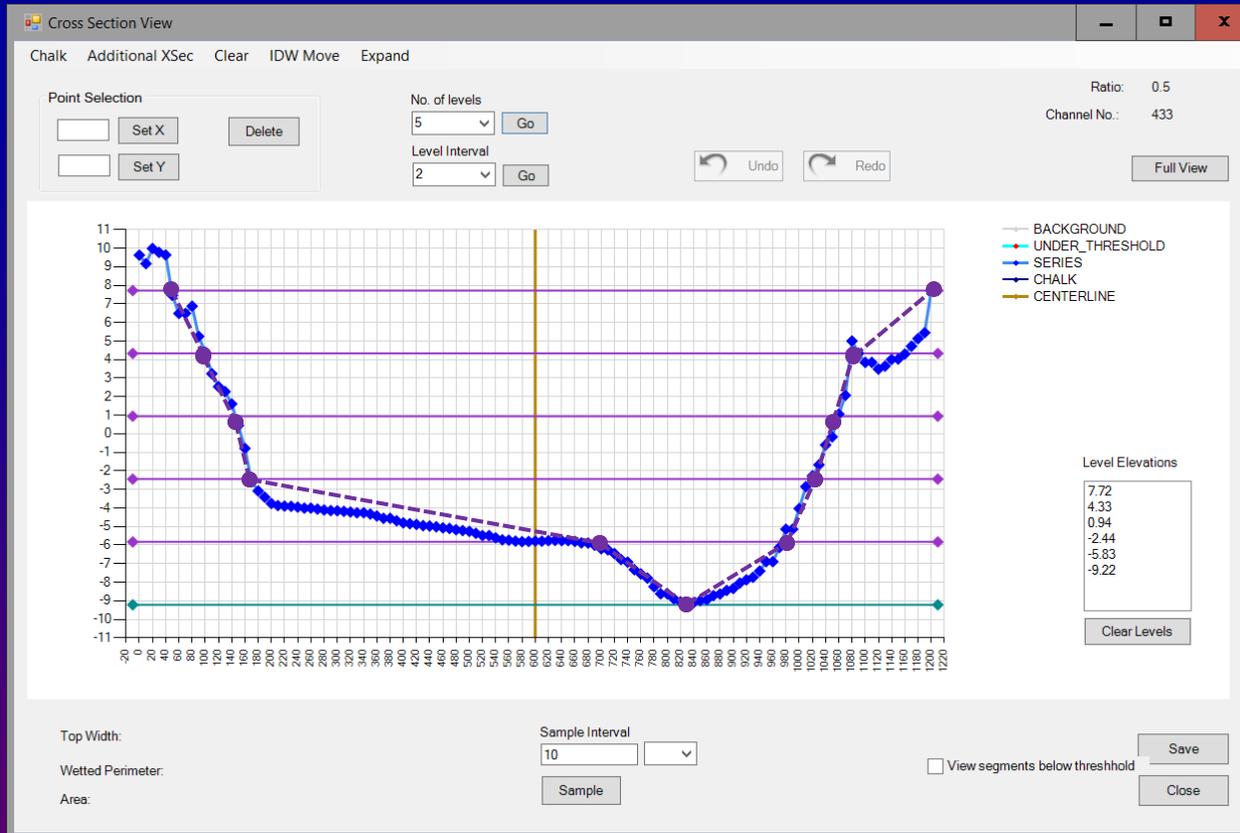
# View/Edit Cross Section



# View/Edit Cross Section



# DSM2 Area Calculation

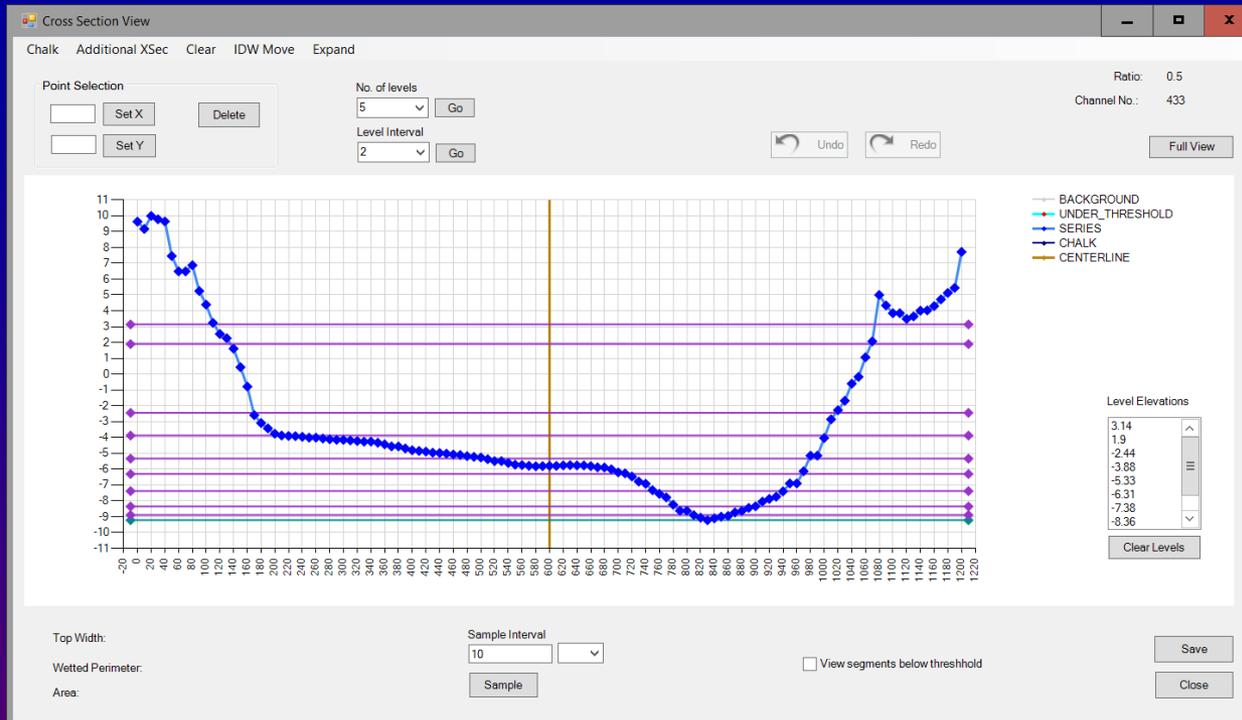


## Trapzoidal Rule

# Calculated Area

Elevation(ft)	Area from DEM(ft <sup>2</sup> )	DSM2 Calculated Area	Error (%)
-30.24	0	0	
-19.13	6142.8	5646.2	-8.1
-8.01	30817.4	26750.6	-13.2
3.1	62951.2	58861.1	-6.5
14.21	97882.5	94616	-3.3
25.33	138334.4	134706.3	-2.6

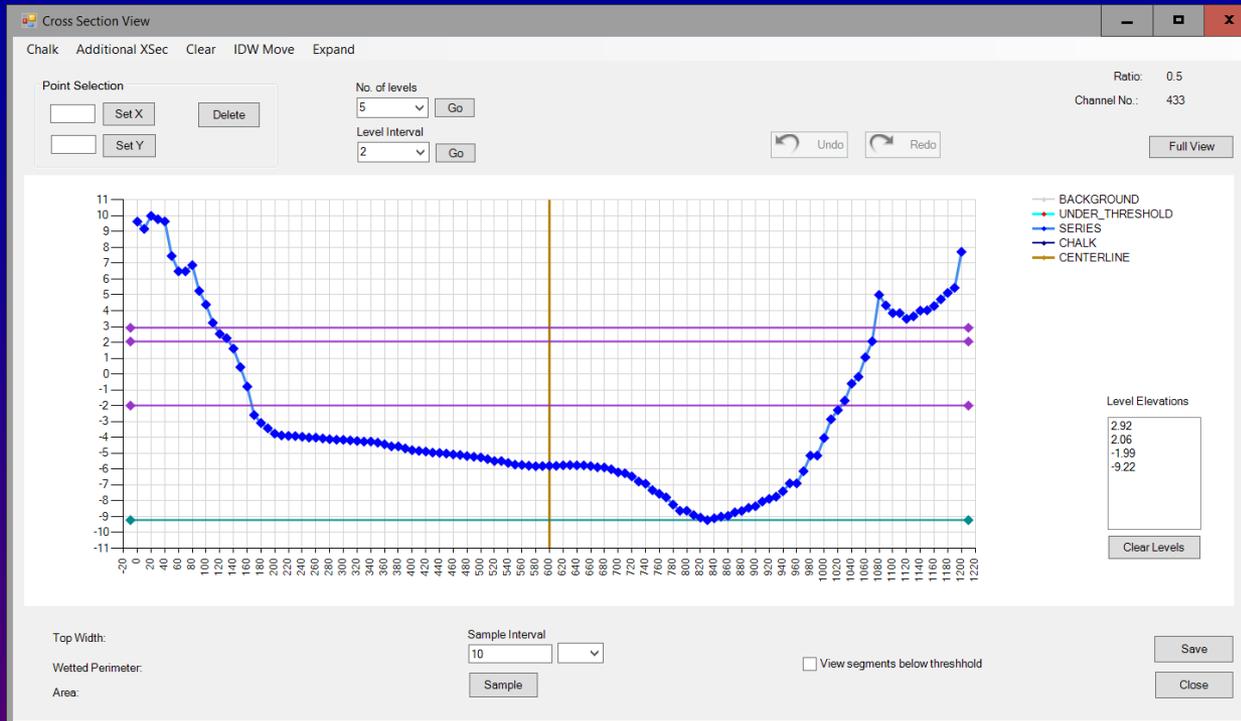
# View/Edit Cross Section



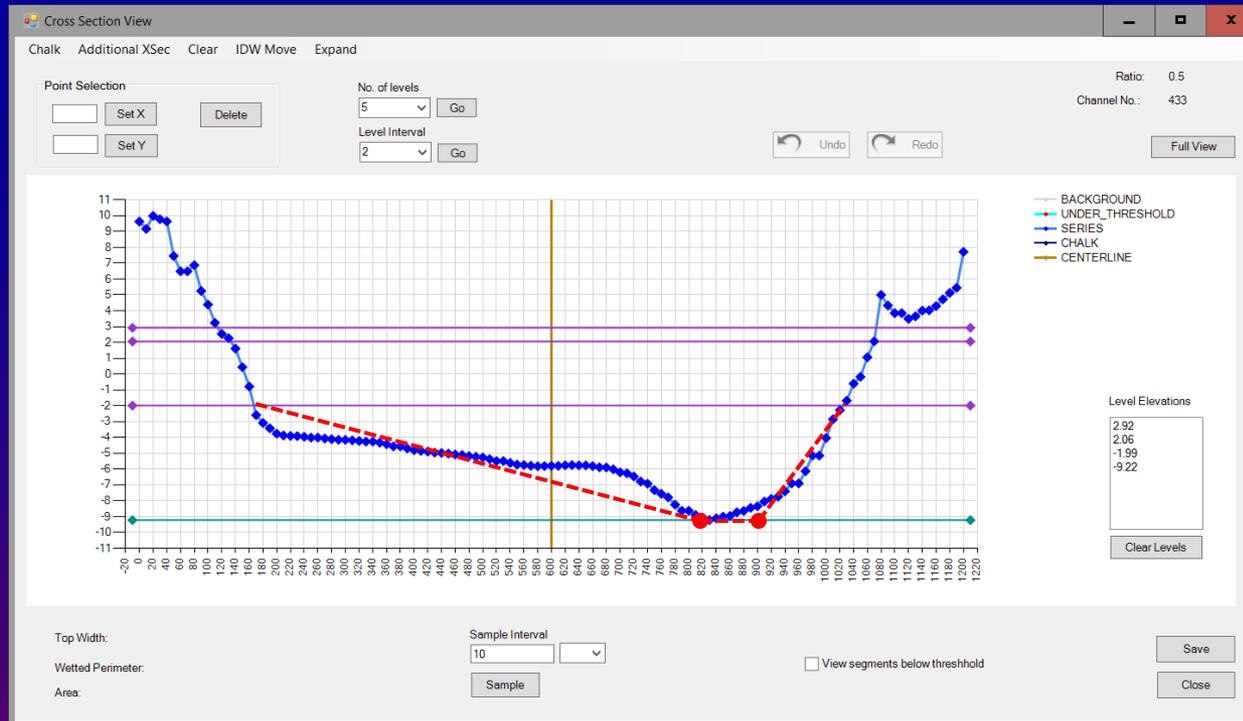
# Calculated Area

Elevation(ft)	Area from DEM(ft <sup>2</sup> )	DSM2 Calculated Area	Error (%)
-30.24	0	0	
-29.18	88.3	90.9	3
-27.41	571.5	578.5	1.2
-24.23	2143	2163.4	1
-20.69	4713.4	4736.9	0.5
-17.5	8427.9	8534.5	1.3
-12.72	18092.6	18416.3	1.8
-8.01	30817.4	31053.9	0.8
6.22	72404.9	72634.6	0.3
10.29	85074.8	85289.7	0.3

# View/Edit Cross Section



# View/Edit Cross Section

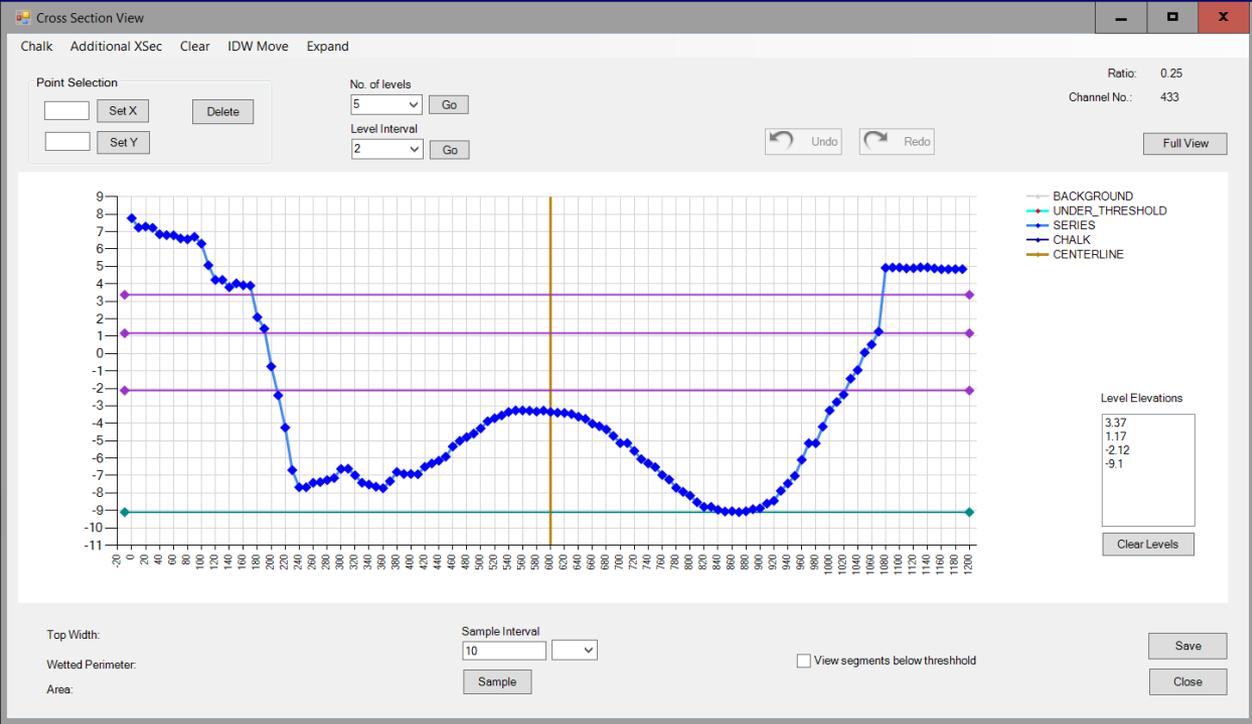


**Post-processing script:  
to calculate an equivalent width at channel bottom**

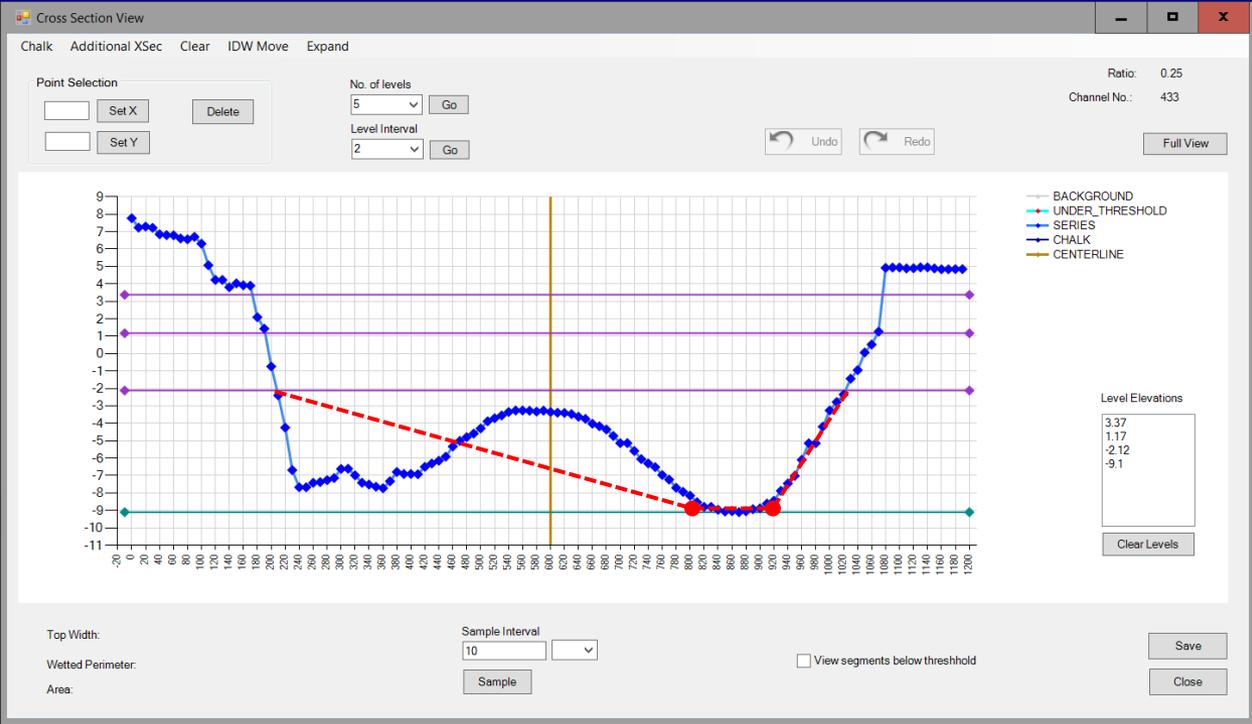
# Final Calculated Area

Elevation(ft)	Area from DEM(ft^2)	DSM2 Calculated Area	Error (%)	Width(ft)
-30.24	0	0		134.7
-6.52	34982.9	34982.9	0	2815.3
6.75	74029.1	74073.8	0.1	3073.1
9.59	82841.3	82879.2	0	3144.3

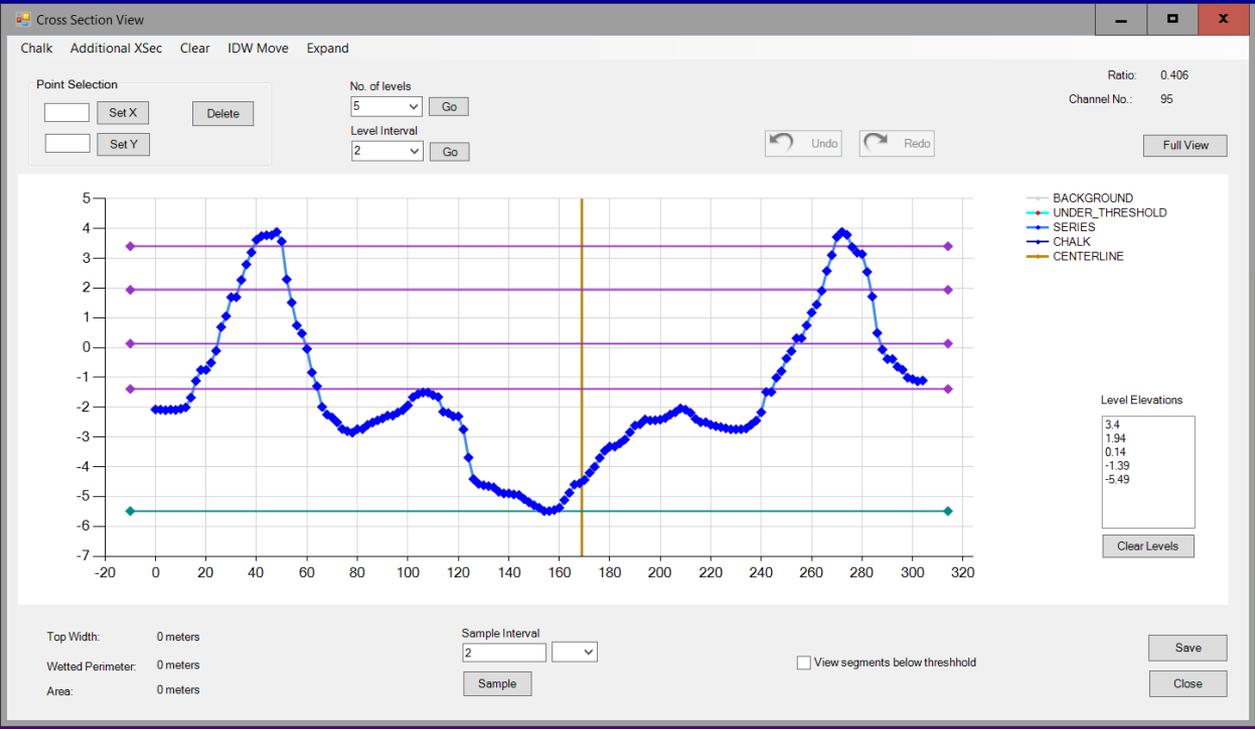
# Sample Profile



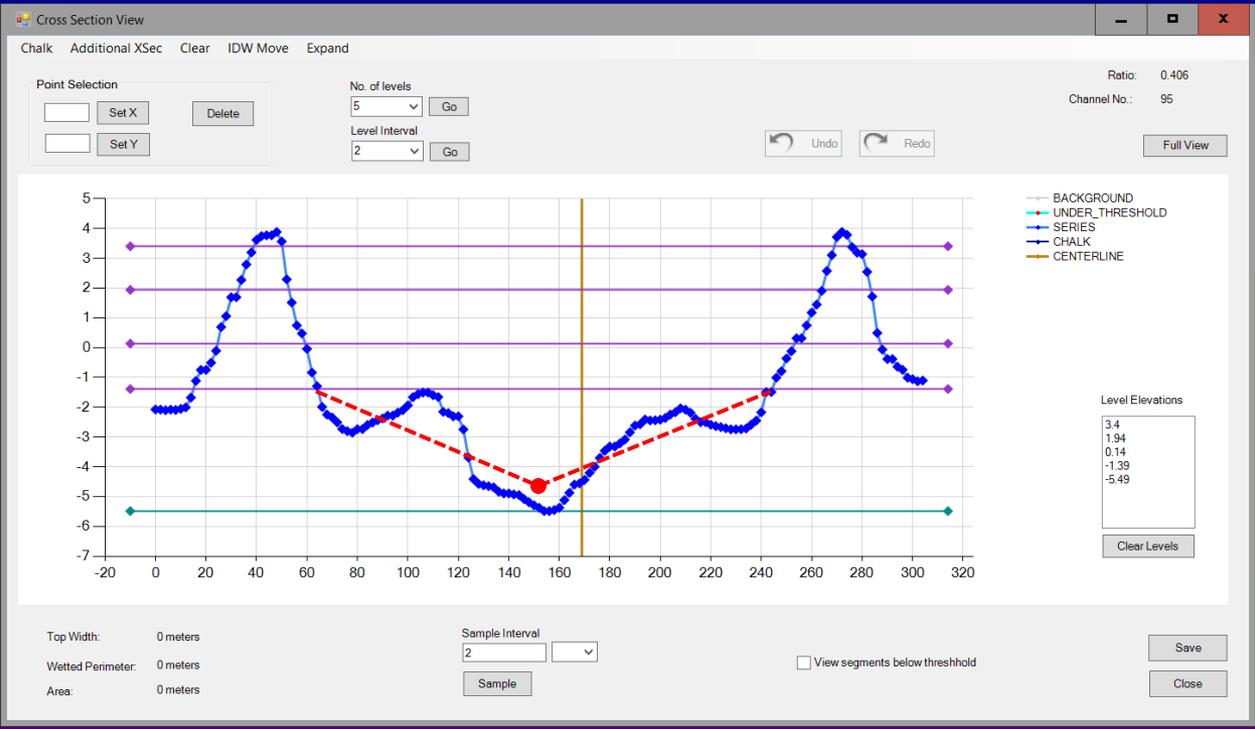
# Sample Profile



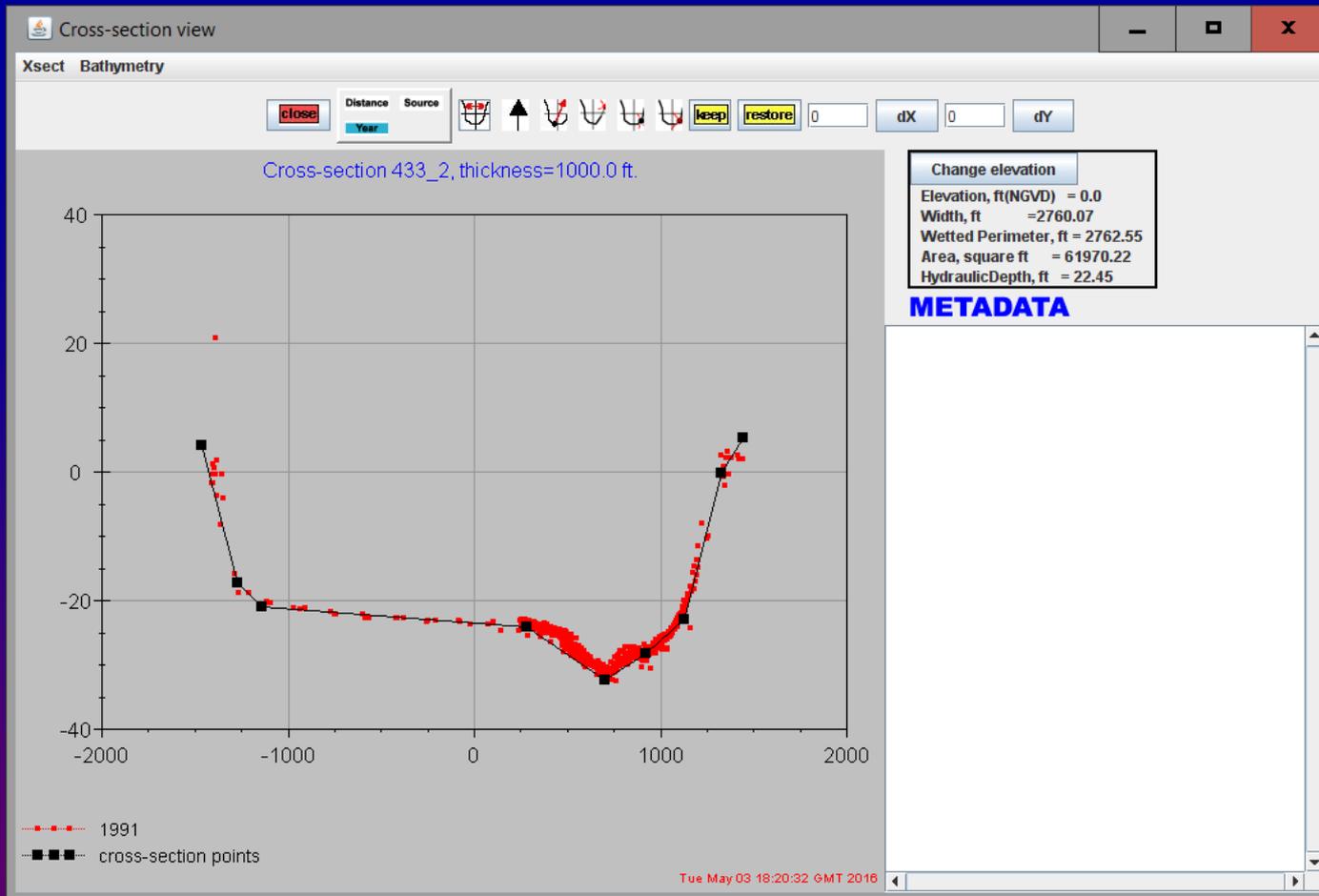
# Sample Profile



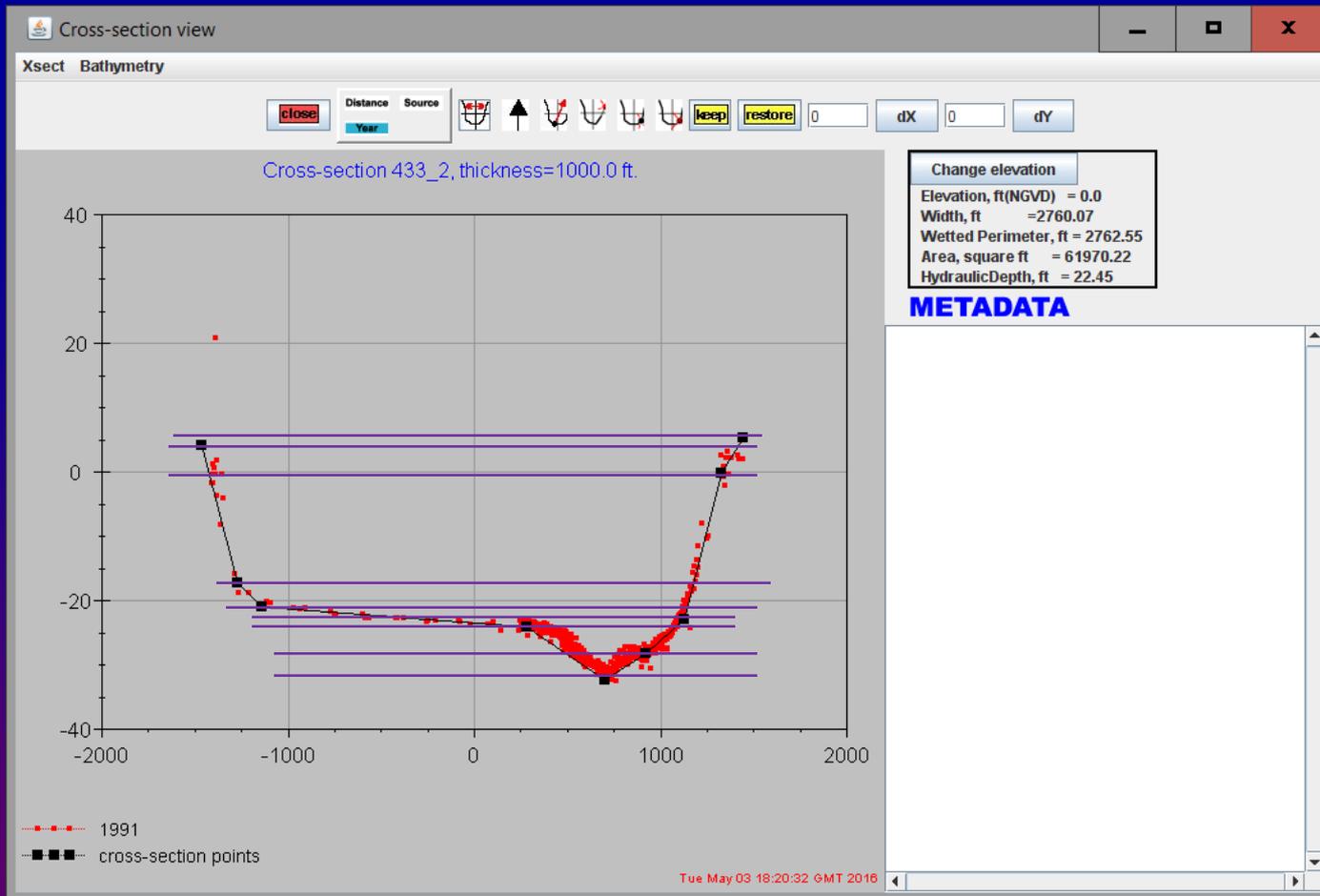
# Sample Profile



# How Did CSDP Work?



# How Did CSDP Work?



# Summary

- The proposed approach makes defining levels much easier, and calculated area more accurate.
- The post-processing script is very helpful and convenient to make sure DSM2 calculated areas are close enough to the values from DEM.

**Thank you!**

**Questions**

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