Technical Memorandum

Date: Aug 29, 2018

To: **Dean Ruiz**

From: **Tom Burke, Hydrologic Systems**

CC:

Subject: **Location of DSM2 Cross-Sections**

Hi Dean, DWR does not provide a map showing the location of the cross-section that are used in their DSM2 model. What they provide, and what we used for our comparison of the 2018 surveyed cross-sections to the internal DSM2 cross-sections, is the DSM2 node and channel map.

DSM2 characterizes the Delta by subdividing each of the rivers and sloughs into a series of interconnected channel reaches, or channel segments. Each channel segment is bounded by an upstream and downstream node. Each channel segment has an identifying number. Each of the nodes that divide the segments has in identifying number as well.

The DSM2 model represents the geometry of each of these channel segments with one or more cross-sections. The cross-sections are not plotted anywhere, they are only listed in the DSM2 model input files. This input file listing provides the geometric properties of the cross-section, the channel reach it is applies to, and its location from the upstream node as a percent of the total channel segment length. Given the lack of an available map from DWR, I have provided a list of the exact DSM2 channel cross-sections that were used on our comparison. That data is shown below in Table 1.

The table below lists the DSM2 cross-sections that were used in the analysis, and the 2018 survey location that it was compared to.

A key to the columns in Table 1:

- Site - the location of the 2018 bathymetric survey cross-section.

- Channel No. - The DSM2 Channel Segment where the Site is located.

- Distance - The percent of the total channel segment length that identifies the DSM2 cross-section that was used in the analysis. This is not an arbitrary number, it is the exact number that is used in the DSM2 model to identify the DSM2 cross-section. This was selected from the DSM2 input file because it is the closest cross-section to the 2018 bathymetric survey site.

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Table 1 - DSM2 Channels Used For The Cross-Section Comparison

Site	Channel No.	Distance
OR-1	59	0.064
OR-2	60	0.793
OR-3	61	0.86
OR-4	65	0.435
OR-5	68	0.793
OR-6	71	0.51
SUG-1	183	0.479
SUG-2	183	0.479
MR-1	126	0.613
MR-2	126	0.613
MR-3	126	0.613
MR-4	126	0.613
MR-5	126	0.613
MR-6	126	0.613
MR-7	126	0.613
MR-8	126	0.613

Below is a section of the DSM2 input file that shows the DSM2 channel cross-section data. The Channel Number is in the first column, and the channel distance is in the second column. This was all the information that we used to locate the DSM2 cross-section, neither we or DWR have developed and cross-section maps for this data. Given the data provided in the table, it is not necessary. Anyone who is even vaguly familiar with DSM2 will be able to scroll down through this file to get to the cross-section that we have identified in the table above.

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XSECT_LAYER
CHAN_NO   DIST      ELEV       AREA     WIDTH  WET_PERIM
8         0.913   -9.849       0.0       0.0        0.0
8         0.913   -4.779     356.5     140.6      141.4
8         0.913    23.22    6614.7     306.1      316.3
8         0.913    23.53    6707.7     307.1      317.4
9         0.419   -9.919       0.0       0.0        0.0
9         0.419   -3.859     503.7     166.1      167.2
9         0.419    21.38    6400.2     300.8      311.2
9         0.419    24.25    7276.2     309.3      320.2
11        0.583  -12.609       0.0       0.0        0.0
11        0.583   -9.669     165.1     112.5      113.0
11        0.583    20.29    5695.5     256.5      269.1
16        0.843  -16.139       0.0       0.0        0.0
16        0.843  -13.749      68.8      57.6       57.8
16        0.843  -12.579     169.9     116.0      116.5
16        0.843  -12.399     192.4     128.9      129.4
16        0.843  -10.929     446.2     216.3      217.4
16        0.843    15.75    8199.4     364.5      375.0
16        0.843    16.63    8518.6     367.1      377.8
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Please let me know if you need any additional information.

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