

INSTRUCTIONS FOR DOWNLOADING HYDRODYNAMIC INFORMATION FROM THE DSM2 OUTPUT FILES THAT ARE REQUIRED INPUTS FOR THE SURVIVAL MODEL

You need the HEC DSSVue package, which you can download from USACE. You also need the Excel plugin. Installation is painless. I'm giving you very detailed instructions because the directory structure is quite complex. In the instructions, text in **red** indicate the important items to keep an eye out for.

I'm only including the **RoCon current operations** scenario in these instructions, because the workflow for any other scenarios is identical, with the relevant changes to the scenario names.

[Note: There is also an R package called dssrip, which you can get from here: <https://github.com/eheisman/dssrip> and install with devtools. That could potentially automate this whole workflow, but that works only with 32-bit R, and mine is 64 bit. It also has various dependencies, but there's very good documentation on the Github page. You would have to play around with it, I guess.]

1. Current operations

Daily average flow at Sacramento River at Freeport:

Download the following file from the ROC LTO shared Google folder:

COS_011319>**Reclamation_ROConLTO_CurrentOperations_011319_FLOW_POSTPRO.zip**

Unzip the file.

Go to the folder:

Reclamation_ROConLTO_CurrentOperations_011319_FLOW_POSTPRO>dsm2_v8>studies>Reclamation_ROConLTO_CurrentOperations_011319>Output

In the **roconlto_cos_011319_out_flow_PostPro.DSS** file, look for the following record:

Number: **494**
Part A: HYDRO8.0.6
Part B: **RSAC155**
Part C: **FLOW-MEAN**
Part D: 01JAN1921 - 01JAN2003
Part E: **1DAY**
Part F: ROCONLTO_COS_011319

Click on the record and then click on the "**Tabulate in MS Excel**" button with the Excel icon in the top left menu bar. The timeseries of daily average flows will populate in a new Excel workbook.

Delta Cross Channel Operations:

There are three courses of action:

A. *The daily mean flow through the Delta Cross Channel:*

In the same file as above, look for the following record and repeat the last step above:

Number: 163
Part A: HYDRO8.0.6
Part B: DCC
Part C: FLOW-MEAN
Part D: 01JAN1921 - 01JAN2003
Part E: 1DAY
Part F: ROCONLTO_COS_011319

B. *The actual gate operation history:*

Download the following file from the ROC LTO shared Google folder:

COS_011319>[Reclamation_ROConLTO_CurrentOperations_011319_FLOW_SETUP.zip](#)

Unzip the file.

Go to the folder:

Reclamation_ROConLTO_CurrentOperations_011319_SETUP>Reclamation_ROConLTO_CurrentOperations_011319>timeseries>

In the [roconlto_cos_011319.dss](#) file, look for the following record:

Number: 29
Part A: CALSIM-PROCESSED
Part B: DCC
Part C: OP
Part D: 01JAN1920 - 01JAN2003
Part E: IR-YEAR
Part F: 2020D09E_ROCONLTO_COS_011319

This will be an irregular timeseries $\{G(1), G(2), \dots, G(i_1), G(i_2), G(i_3), \dots\}$. G can take on either 0 (gate closed) or 1 (gate open) at any date-time i . For example, $G(i_1)=0$, $G(i_2)=1$, $G(i_3)=1$, $G(i_4)=0$ means that the gate was closed at date-time i_1 , and remained closed until 15 minutes to date-time i_2 , was opened at date-time i_2 , remained open till 15 minutes to date-time i_4 , and then was closed at date-time i_4 . You can use the attached R-script to convert the irregular timeseries to a 15-minute timeseries.

C. *The 15-minute flow timeseries from DSM2:*

Download the following file from the ROC LTO shared Google folder:

COS_011319> [Reclamation_ROConLTO_CurrentOperations_011319_FLOW-A.zip](#)

Unzip the file.

Go to the folder:

Reclamation_ROConLTO_CurrentOperations_011319_FLOW-
A>dsm2_v8>studies>Reclamation_ROConLTO_CurrentOperations_011319>output

In the **ROConLTO_COS_011319_out_flow-A.dss** file, look for the following record:

Number: **39**

Part A: HYDRO8.0.6

Part B: **DCC**

Part C: OP

Part D: 01JAN1920 - 01JAN2003

Part E: IR-YEAR

Part F: 2020D09E_ROCONLTO_COS_011319

Since this is a massive file, if you try to save to Excel as before, it will break. I am in the process of writing a script for this.