Rating Curve

# Introduction

Rating curve defines the relationship between the depth and flow. It is often used to define the boundary condition of an outfall,

* Flow into a treatment plant
* Split a model into sub models, and model the flow condition at the split locations

In InfoWorks ICM, the easiest way to add a rating curve to an outfall is to convert it to a screw pump.

A screenshot of a diagram

Description automatically generated

1. Make a copy of the outfall
2. Change the existing outfall to a break node
3. Add a pump link
4. Change it to screw pump and set the on/off base level the same as the break node
5. Update the head discharge table with the rating curve

# Example Model

A simple model with rectangle outfall pipe is modeled in both InfoWorks and SWMM5.

A screenshot of a computer

Description automatically generated

The results are shown as a scatter plot of depth vs velocity as shown in the following figures,

* **Orange** is the normal depth calculated from Manning’s equation

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# Example Model

A simple model with rectangle outfall pipe

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It is modeled in both InfoWorks ICM, and SWMM5.

As shown in the following figures,

* **Orange** is the normal depth calculated from Manning’s equation
* **Green** is critical depth calculated from the flow
* **X** is simulated results from the model

A comparison of a graph

Description automatically generated with medium confidence

For free outfall, InfoWorks ICM and SWMM5 show similar results, it is the lower of the Yn and Yc.

Since InfoWorks doesn’t have a normal outfall condition, a screw pump with a rating curve is used, and it shows similar results as SWMM5.

A comparison of a diagram

Description automatically generated with medium confidence