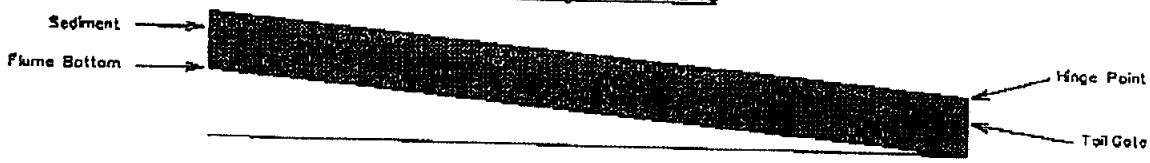
E-3

METHODOLOGY

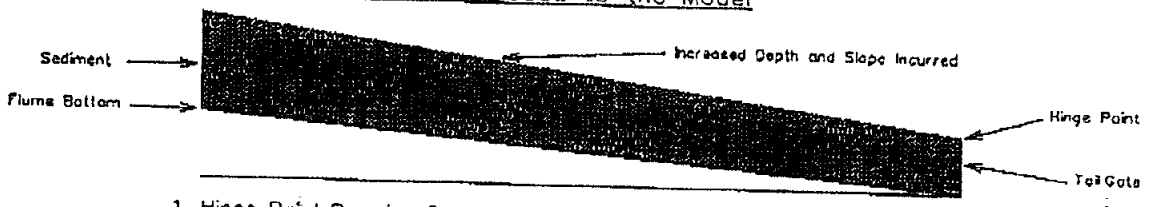
ADDING SEDIMENT TO THE MODEL

Case 1: Adding or Removing Sediment in the Model

Starting Conditions

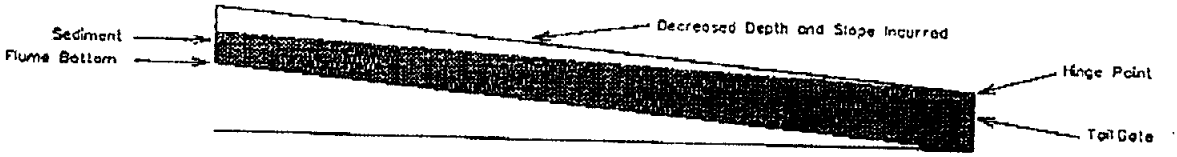


Sediment Added to the Model



1. Hinge Point Remains Constant (Sediment Depth at this Point Remains Fixed)
2. Depth of Sediment Increases in the Upstream Direction
3. Sediment Nears the Top of the Insert in the Upstream Direction
4. Increased Slope of Sediment
5. Increased Energy

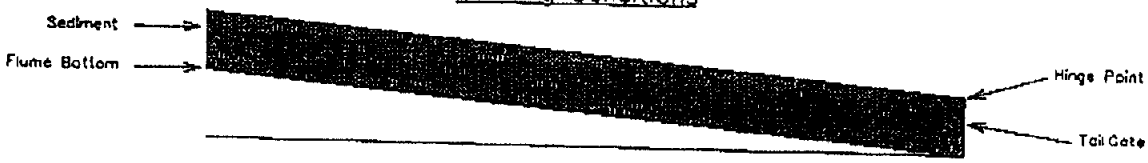
Sediment Removed From the Model



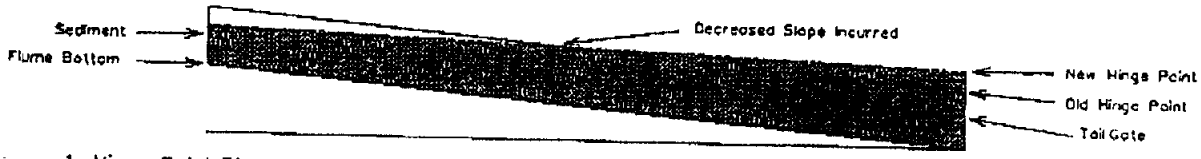
1. Hinge Point Remains Constant (Sediment Depth at this Point Remains Fixed)
2. Depth of Sediment Decreases in the Upstream Direction
3. Sediment Nears the Bottom of the Insert in the Upstream Direction
4. Decreased Slope of Sediment
5. Decreased Energy

Case 2: Raising or Lowering the Tailgate

Starting Conditions

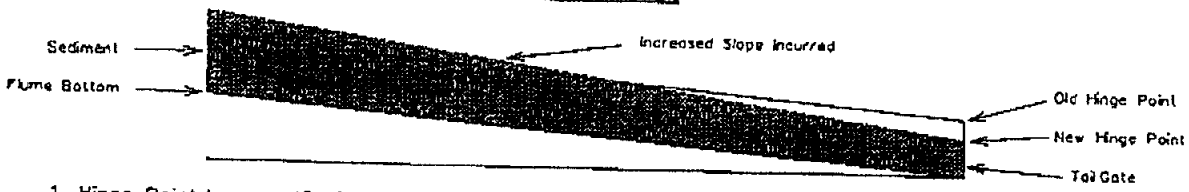


Tail Gate Raised



1. Hinge Point Rises (Sediment Depth at this Point Rises)
2. Depth of Sediment Decreases in the Upstream Direction and Increases in the Downstream Direction
3. Sediment Nears the Bottom of the Insert in the Upstream Direction and Nears the Top in the Downstream Direction
4. Decreased Slope of Sediment
5. Decreased Energy

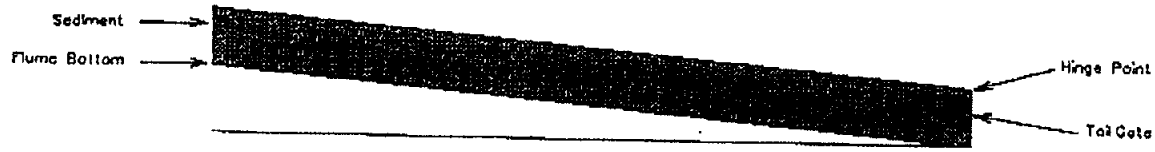
Tail Gate Lowered



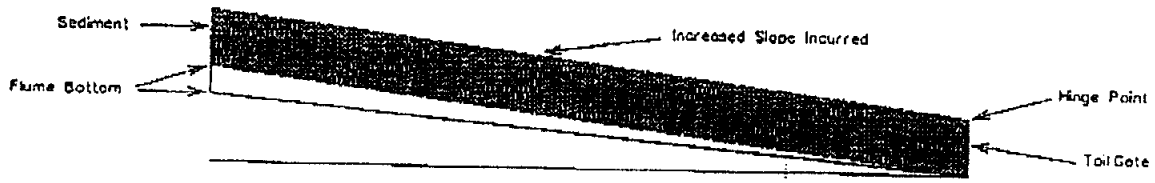
1. Hinge Point Lowers (Sediment Depth at this Point Lowers)
2. Depth of Sediment Increases in the Upstream Direction and Decreases in the Downstream Direction
3. Sediment Nears the Top of the Insert in the Upstream Direction and Nears the Bottom in the Downstream Direction
4. Increased Slope of Sediment
5. Increased Energy

Case 3: Increasing or Decreasing the Slope of the Flume

Starting Conditions

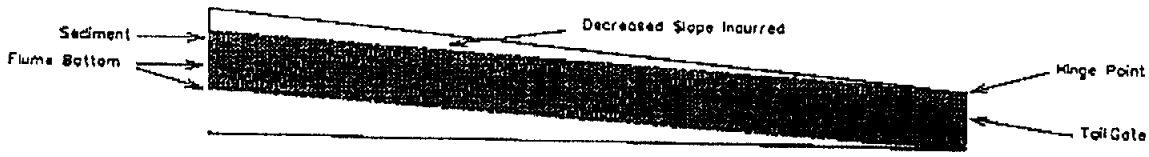


Flume Slope Increased



1. Hinge Point Remains Constant (Sediment Depth at this Point Remains Fixed)
2. Depth of Sediment Remains Constant Throughout
3. Sediment Remains a Constant Distance from the Top of the Insert
4. Increased Slope of the Table Increases the Slope of the Sediment
5. Increased Energy

Flume Slope Decreased



1. Hinge Point Remains Constant (Sediment Depth at this Point Remains Fixed)
2. Depth of Sediment Remains Constant Throughout
3. Sediment Remains a Constant Distance from the Top of the Insert
4. Decreased Slope of the Table Decreases the Slope of the Sediment
5. Decreased Energy

Conclusions

To Increase Energy in the Model:

1. Add Sediment to the Model
2. Lower the Tail Gate
3. Increase the Slope of the Flume

To Decrease Energy in the Model:

1. Remove Sediment From the Model
2. Raise the Tail Gate
3. Decrease the Slope of the Flume

To Level the Water Surface Profile with the Top of the Insert:

1. Add Sediment to Increase the Depth at the Upper End
2. Remove Sediment to Decrease Depth at the Upper End
3. Raise the Tail Gate to Decrease the Depth at the Upper End While Increasing the Depth at the Lower End
4. Lower the Tail Gate to Increase the Depth at the Upper End While Decreasing the Depth at the Lower End