

# FY21 RSM Mid-Year IPR

## Sediment Modeling Best Practice Videos: Stanford Gibson (HEC)



**BLUF:** Web videos are the preferred method tech-transfer medium for the emerging generation of USACE sediment modelers. This initiative will develop four(+) sediment modeling videos to help establish best-practices for common RSM applications of HEC-RAS.

### Activities:

1. **Video 1: Draft Published**
  - Navigation Dredging Modeling in HEC-RAS
2. **Video 2: Draft Published**
  - Aligning Mesh for 2D Sediment and Debris Model
3. **Video 3: In Production**
  - Hiding and Armoring Animation
4. **Video 4: Survey**
5. **Bonus Videos:**
  - Four additional Sediment Modeling Videos
  - HEC-RAS 2D Modeling Class

A screenshot of a video player interface. The video content is a slide titled "Regional Sediment Management Sediment Modeling Training Videos". On the left is a video thumbnail of a man speaking. On the right, the text reads: "Modeling Dredging with HEC-RAS Sediment Transport (1D): Part 1 – Basic Minimum Elevation Dredging". Below this, it says "Video by: Stanford Gibson, PhD", "Edited by: Ethan Alquist", and "Funded by: The USACE Regional Sediment Management R&D Program". There are two RSM logos on the slide. The video player controls at the bottom show a progress bar at 20:35 / 20:43, a volume icon, a play button, a closed caption icon, a settings gear, and a full screen icon. The text "US Army Corps of Engineers • Engineer Research and Development Center" is visible in the player's bottom bar.

Regional Sediment Management  
Sediment Modeling Training Videos

Modeling Dredging with HEC-RAS  
Sediment Transport (1D):  
Part 1 – Basic Minimum Elevation Dredging





Video by: Stanford Gibson, PhD  
Edited by: Ethan Alquist  
Funded by:  
The USACE Regional Sediment  
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20:35 / 20:43 US Army Corps of Engineers • Engineer Research and Development Center

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Video	Date ↓	Views	Comments	Likes (vs. dislikes)
 <p>New Observed Sediment Data Capabilities... Several of the HEC RAS manuals are now online (under various levels of construction):...</p>	Jan 15, 2021 Published	549	1	94.1% 16 likes
 <p>Modeling Dredging with HEC-RAS Sedime... This video describes some of the basic "minimum elevation" dredging approaches in...</p>	Jan 3, 2021 Published	916	6	100.0% 26 likes
 <p>HEC-RAS 2D Sediment Modeling HEC just released a beta version of HEC-RAS 6.0, which includes 2D sediment transport...</p>	Dec 23, 2020 Published	3,830	11	100.0% 89 likes
 <p>Align Cells with Flow Direction: HEC-RAS 2D Mesh Add description</p>	Apr 11, 2021 Published	1,334	11	100.0% 36 likes

New Video

**Total Stats: >6,700 Views, 179 "likes"**

<input type="checkbox"/>  <p>HEC RAS Sediment Plotter (Part 1): New 1D Sed... HEC-RAS version 6.0 debuted a new sediment plotter to visualize 1D results. It can do all the thing...</p>	Sep 3, 2021 Published	130	2	100.0% 12 likes
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# Video 3: Hiding and Armoring Animation

# Video 4: Survey



[https://forms.osi.apps.mil/Pages/ResponsePage.aspx?id=unZN\\_HzxUEy5p48xY9J1giyoWkt31PBGhSg1Yw5dJZ9UR E01RFhGT1NVUVIBUIBFT1ZFRENNVTIPVS4u](https://forms.osi.apps.mil/Pages/ResponsePage.aspx?id=unZN_HzxUEy5p48xY9J1giyoWkt31PBGhSg1Yw5dJZ9UR E01RFhGT1NVUVIBUIBFT1ZFRENNVTIPVS4u)

## RSM Sediment Modeling Video Survey

Hi Stanford, when you submit this form, the owner will be able to see your name and email address.

1. Which topic would you prefer for the final video?

- Advanced Dredging with HEC-RAS (mass based methods, spillage, downstream re-introduction features)
- Using Operational Rules to Simulate Reservoir Flushing
- Three Methods to Model Dams/Debris Basins Within a 2D Mesh
- Troubleshooting an HEC-RAS sediment Model: Resolving the "unrealistic vertical adjustment" error

2. Are there other topics you'd be interested in a video on (that HEC is qualified to produce)?

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### Links:



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**Modeling Dredging with HEC-RAS Sedime...**  
This video describes some of the basic "minimum elevation" dredging approaches in...



**HEC-RAS 2D Sediment Modeling**  
HEC just released a beta version of HEC-RAS 6.0, which includes 2D sediment transport...



**Align Cells with Flow Direction: HEC-RAS 2D Mesh**  
Add description



**HEC RAS Sediment Plotter (Part 1): New 1D Sed...**  
HEC-RAS version 6.0 debuted a new sediment plotter to visualize 1D results. It can do all the thing...

<https://youtu.be/7muyCdZLjt4>

<https://youtu.be/Qgjm73NdAZE>

<https://youtu.be/NxXSPg6DVMo>

<https://youtu.be/oTfFdSmXbYQ>

<https://youtu.be/n9gwCx2J3fg>

# FY21 RSM IPR

## District, Title



**What challenges did you face to get your project to implementation and how did you move past them?**

- **Rendering/Computer Resources**

# FY21 RSM IPR

## District, Title



**How is this project benefiting the USACE and Nation?**

- **Outreach – Builds USACE and RSM technical brand**
- **Sediment transport modeling is hard, many models do not predict actual outcomes. COVID made live training difficult. Over 6,000 people accessed draft versions of these videos in <9 months. This will potentially avoid ill-posed designs and project failures due to avoidable modeling errors.**