



2018NHEC

NATIONAL HYDRAULIC ENGINEERING CONFERENCE

AGENDA

Hyatt Regency Columbus
350 North High Street, Columbus, Ohio 43215

Monday, August 27, 2018

8:00am – 5:00pm

TRB AFB-65 Summer Meeting – Open to Public – **Delaware Room A**

TRB AFB-60 Summer Meeting – Open to Public – **Delaware Room B**

AASHTO TCHH Annual Committee Meeting – *Invitation only* – **Delaware Room C**

FHWA Meeting – *Invitation only* – **Delaware Room D**

Day 1: Tuesday, August 28, 2018

8:00am-11:30am

Conference Registration/Sponsor Set Up – **Delaware Foyer**

Workshop A – *Two-dimensional Modeling Best Practices for Transportation Hydraulics* – Scott Hogan, Alan Zundel, and Yong Lai – **Delaware Room A-B**

Workshop B – *NCHRP 14-26 Culvert and Storm Drain System Inspection Manual* – Jesse Beaver – **Delaware Room C-D**

1:00pm-4:40pm – Conference Begins – **Delaware Room A-D**

1:00pm-1:20pm – Opening Remarks – Shad Sargand, Russ Professor and Associate Director of ORITE (time 16:20)

Video URL: <https://www.youtube.com/watch?v=isPWhWNES0c>

1:20pm-1:30pm – Welcome – Dr. M. Duane Nellis, President of Ohio University (time 4:49)

Video URL: <https://www.youtube.com/watch?v=b97CJ3CwqeY>

1:30pm-2:20pm – Keynote Speech – Dave Slatzer, Deputy Director, Division of Engineering, Ohio DOT (time 22:41)

Video URL: <https://www.youtube.com/watch?v=L2Uhcl0DNF4>

2:20pm-3:00pm – Stan Davis Tribute/Mark Miles Award (time 16:07)

Video URL: <https://www.youtube.com/watch?v=ZGMWQM-Hs4s>

3:00pm-3:20pm – Break – **Delaware Foyer**

3:20pm-3:40pm – FHWA Update – Joe Krolak, HIBS-20 Team Leader and Principal Bridge Engineer – Hydraulics (time 18:14)

Video URL: https://www.youtube.com/watch?v=LK4J_YEyB8c

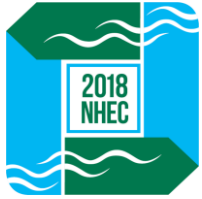
3:40pm-4:00pm – AASHTO Update – Nick Wark, Vermont Agency of Transportation (time 12:24)

Video URL: <https://www.youtube.com/watch?v=LoxYCIPTfbk>

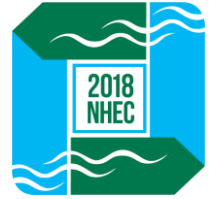
4:00pm-4:40pm – Transportation Research Board Committee Updates – Bea Hunt (AFB-60 and AFB-65) (time 4:31)

Video URL: <https://www.youtube.com/watch?v=Sv9UPeNkPDk>

5:30pm-7:00pm – Ice Breaker/Poster Session – **Peppercorn Room (First floor)**



AGENDA



Day 2: Wednesday, August 29, 2018

6:45am-7:45am – Breakfast (provided) – **Hayes Room, first floor**

8:00am-10:05am

Delaware Room A-B

Session Topic: Culvert Hydraulics – The Practical and Innovative

Moderated by: Mike Hogan

Title	Presenter
<i>Why Bigger is Not Always Better: Culvert Hydraulics</i> (time 20:27) Video URL: https://www.youtube.com/watch?v=5O5y0E2TTSQ	Matthew Johnson
<i>Diffuser Outlet Efficiency: Methods for Demonstrating Increased Capacity</i> (time 18:13) Video URL: https://www.youtube.com/watch?v=57iGmoYM4pU	Alex Mann
<i>Web-based Tool for Evaluating Sedimentation at Multi-Box Culverts</i> (time 31:21) Video URL: https://www.youtube.com/watch?v=tFaAeTZ_PJY	Dave Claman
<i>Fish Passage Barrier Correction at Washington State Highways</i> (time 25:27) Video URL: https://www.youtube.com/watch?v=uVZzGLaWABo	Julie Heilman and Dave Minner
<i>Million Dollar Culvert Rehabilitation</i> (time 23:22) Video URL: https://www.youtube.com/watch?v=dthEdk0tiDI	Timothy Mallette

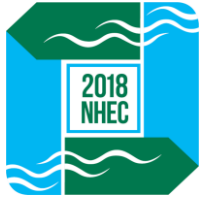
Delaware Room C-D

Session Topic: Coastal Hydraulics – Resiliency for Extreme Events and Changing Seas

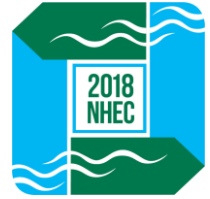
Moderated by: Brian Beucler

Title	Presenter
<i>An Assessment of Hydraulic Damages in Northeast Florida from Hurricane Irma</i> (time 19:50) Video URL: https://www.youtube.com/watch?v=-DA2De-9qno	Raphael Crowley
<i>Fast Tracked Shore Protection along Lake Michigan – A Case Study</i> (time 21:54) Video URL: https://www.youtube.com/watch?v=Ty7YHedXiyU	Saied Saiedi
<i>NCDOT Bridge Superstructure Level III Wave Vulnerability Study Report and GIS Database</i> (time 20:48) Video URL: https://www.youtube.com/watch?v=S14t9ejXmws	Jerry Snead and Ken Ashe
<i>Development of a Physics-Based Model for Predicting Loading on Bridges During Water Wave Attack</i> (time 19:13) Video URL: https://www.youtube.com/watch?v=Mv-Rynlqgfg	Christian Matemu
<i>New Coastal Guidance Development</i> (time 30:34) Video URL: https://www.youtube.com/watch?v=cNe3Ae3mHxw	Scott Douglass

10:05am-10:25am – Break – **Delaware Foyer**



AGENDA



Day 2: Wednesday, August 29, 2018

10:25am-12:05pm

Delaware Room A-B

Session Topic: *Improving Roadway Hydraulic Design Through Innovation and Advanced Tools*

Moderated by: Brian Campbell

Title	Presenter
<i>Assessment of HEC-22 Equations for the Design of Curb-opening Inlets</i> (time 23:39) Video URL: https://www.youtube.com/watch?v=8Gqy_Npc0gY	Muhammad Ashraf
<i>Errors in HEC-22 for Long Curb Inlets and the Challenges for Implementation of Revised Designs</i> (time 21:35) Video URL: https://www.youtube.com/watch?v=gRhJguDR7O8	Saul Nuccitelli
<i>Computation of Hydraulic Jump's Sequent Depth in Sloped Circular Water Pipe</i> (time 23:51) Video URL: https://www.youtube.com/watch?v=0k6RJyqSA1I	Kenneth Edwards
<i>3D CFD Analysis of Hydroplaning Risk and Grate Hydraulic Efficiency</i> (time 29:10) Video URL: https://www.youtube.com/watch?v=Mudev4CLCgE	Marta Sitek

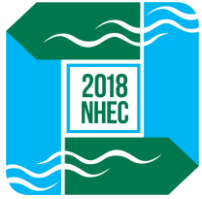
Delaware Room C-D

Session Topic: *Streamlining, Adaptation, and State of the Art Tools for Floodplains*

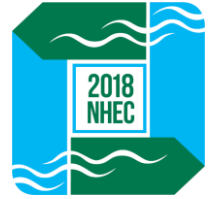
Moderated by: Cynthia Nurmi

Title	Presenter
<i>NCDOT's Partnership With NC Floodplain Mapping Program: Streamlining NFIP Compliance</i> (time 21:09) Video URL: https://www.youtube.com/watch?v=4byHlbaFtKg	Jerry Snead
<i>The Cannon Drive Levee: Coupling Roadway Improvements and Flood Protection at The Ohio State University</i> (time 23:44) Video URL: https://www.youtube.com/watch?v=B1vopHO4I4I	Miles Hebert
<i>State-of-the-art FEMA Map Update With a HEC-RAS 1D/2D Hybrid Model and Validated With TUFLOW</i> (time 21:28) Video URL: https://www.youtube.com/watch?v=incVh6JMS9A	Rachel L. Tereska
<i>New Methods for Floodplain and Floodways Determination Using 2D Models</i> (time 27:08) Video URL: https://www.youtube.com/watch?v=Uqg2n7ttDa8	Scott Hogan

12:05pm-1:05pm – Lunch (provided) – Hayes Room, first floor



AGENDA



Day 2: Wednesday, August 29, 2018

1:05pm-2:45pm

Delaware Room A-B

Session Topic: *Innovation Through New Scour Methodology*

Moderated by: Paul Sharp

Title	Presenter
<i>Revised Clear-Water and Live-Bed Contraction Scour Analysis</i> (time 25:50) Video URL: https://www.youtube.com/watch?v=yydM7_jtk8w	Paul Clopper
<i>Observation Method: A New Tool for the Bridge Scour Engineer</i> (time 22:22) Video URL: https://www.youtube.com/watch?v=uSsioS6eitg	Jean-Louis Briaud
<i>Implementation of the Scour Evaluation Model (SEM)</i> (time 23:10) Video URL: https://www.youtube.com/watch?v=YHnMMr3D7EM	John Schuring
<i>Scour Depth Equilibrium State Design Approach</i> (time 15:22) Video URL: https://www.youtube.com/watch?v=oFB1KtmxYr0	Kornel Kerenyi

Delaware Room C-D

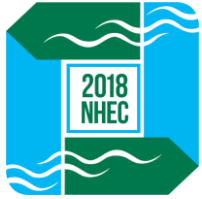
Session Topic: *Advancing Resilient Design With Improved Data and Tools*

Moderated by: Abhi Kapoor

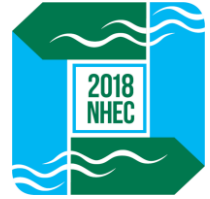
Title	Presenter
<i>HY8 and Toolbox Updates</i> (time 20:12) Video URL: https://www.youtube.com/watch?v=asKix30c6U8	Eric Jones
<i>USGS Streamgage Data and Their Applications</i> (time 23:54) Video URL: https://www.youtube.com/watch?v=zDa_3zSykMA	Thomas Harris
<i>Web Service Resources for Hydrologic and Hydraulic Modeling</i> (time 16:20) Video URL: https://www.youtube.com/watch?v=DcfucHRXnpQ	Eric Jones
<i>ESRI Culvert Collector: Asset Management for Mobile Devices</i> (time 24:24) Video URL: https://www.youtube.com/watch?v=wZqCrXCA-Bw	Matt Retta

1:05pm-5:10pm – *Field Trip A – OSU Cannon Drive Floodwall Project*

2:45pm-3:05pm – Break – Delaware Foyer



AGENDA



Day 2: Wednesday, August 29, 2018

3:05pm-5:10pm

Delaware Room A-B

Session Topic: Bridge Resiliency Through Scour Countermeasures

Moderated by: Laura Girard

Title	Presenter
<i>Utilizing BridgeWatch® for Real-Time Flood Forecasting and Monitoring of Highway Overtopping Sites in Iowa</i> (time 26:08) Video URL: https://www.youtube.com/watch?v=QesH1_IU3Mk	Joe Scannell, Dave Claman, Mike Hogan, Wesley Peck
<i>Drone Based Riprap Imaging and Gradation Measurement</i> (time 17:08) Video URL: https://www.youtube.com/watch?v=21KywcFt7Ps	LeAndra Nelson
<i>An Icebreaker Under Troubled Waters (and Ice Bergs)</i> (time 23:46) Video URL: https://www.youtube.com/watch?v=-egunieWMIQ	Michael Knapp
<i>Low-Cost Scour-Preventing Fairings for Bridges – Permanent Solution for Foundation Rock Scour</i> (time 19:20) Video URL: https://www.youtube.com/watch?v=W7Ht3eWNi_8	Roger Simpson
<i>Underwater Installation of Filter Systems for Scour and Other Erosion Control Measures</i> (time 26:46) Video URL: https://www.youtube.com/watch?v=ZQptftrXznw	Pete Lagasse

Delaware Room C-D

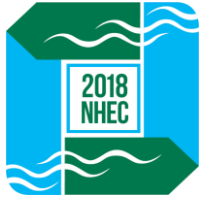
Session Topic: Consideration of Extreme Weather Events in Resilient Design

Moderated by: Brian Beucler

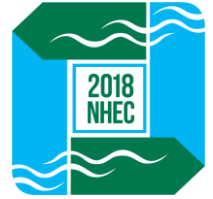
Title	Presenter
<i>Detection and attribution of inland flood change across the United States</i> (time 25:30) Video URL: https://www.youtube.com/watch?v=Qm_LTeUFPRw	Stacey Archfield
<i>Confidence Bounds on Freeboard at Stream Crossings for Evaluating Overtopping Risk</i> (time 17:09) Video URL: https://www.youtube.com/watch?v=IPR5UvNCcUk	Tim Stephens
<i>Discussing the Known and Unknown of Anthropogenic Climate Change and Precipitation Extremes from Resilient Design</i> (time 25:30) Video URL: https://www.youtube.com/watch?v=xAaU3_nYsf4	Jared Bowden
<i>Adapting Global Climate Model Precipitation Projections to Hydrologic Design</i> (time 27:16) Video URL: https://www.youtube.com/watch?v=gCcOE9atnpE	Roger Kilgore
<i>Panel Discussion</i> (time 34:58) Video URL: https://www.youtube.com/watch?v=wnUUL5vwNk8 (Participants (left to right): 1. Roger Kilgore, 2. Jared Bowden, 3. Stacey Archfield, 4. Tim Stephens, 5. Rob Kafelanos, 6. Scott Douglass, 7. Brian Beucler (Moderator).)	Presenters and moderator with Rob Kafelanos and Scott Douglass

5:30pm-7:30pm

TRB AFB-65, TRB AFB-60, and AASHTO TCHH Combined Meeting – Open to Public – **Delaware Room A-B**



AGENDA



Day 3: Thursday, August 30, 2018

6:45am-7:45am – Breakfast (provided) – **Hayes Room, first floor**

8:00am-10:05am

Delaware Room A-B

Session Topic: *Rethinking the Methodology for Stream Stability*

Moderated by: Bea Hunt

Title	Presenter
<i>Right Sizing Stream Stability Analysis</i> (time 27:51) Video URL: https://www.youtube.com/watch?v=s0N879ZN2Qk	Brinton Swift
<i>Stream Stability: Practical Approaches to Sediment Transport at Stream Crossings</i> (time 22:49) Video URL: https://www.youtube.com/watch?v=oFlaA8y2sjk	Holly Yaryan Hall
<i>Advances in 3D CFD Modeling of Scour with Sediment Transport and Analysis of Stream Instability and Channel Migration</i> (time 27:49) Video URL: https://www.youtube.com/watch?v=B7_kkx3WzmE	Steven Lottes
<i>Applying Temporal Bed Shear and Flow Duration Data to Determine Bankfull Width and Stream Stability</i> (time 16:56) Video URL: https://www.youtube.com/watch?v=RmARGCIWDoE	Kornel Kerenyi

Delaware Room C-D

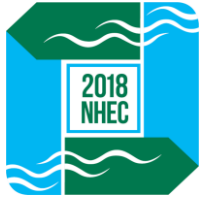
Session Topic: *Workshop C – Flood Frequency Analysis Using Bulletin 17C, Updated Federal Guidelines*

Wilbert Thomas

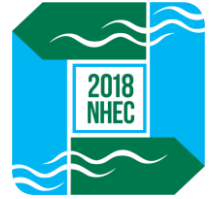
Description:

Bulletin 17C, *Guidelines for Determining Flood Flow Frequency*, was recently published by the U.S. Geological Survey (USGS), as an update to Bulletin 17B. Bulletin 17C uses the Log Pearson Type III frequency distribution applied to stream gage data. Enhancements include the ability to use flow intervals for flood events, better utilization of historical information for events outside the gage record (historic floods), an improved method for determining confidence limits, and improved identification of multiple low flood events. The USGS PeakFQ program includes the new methods in 17C and will be demonstrated in the workshop.

10:05am-10:25am – Break – **Delaware Foyer**



AGENDA



Day 3: Thursday, August 30, 2018

10:25am-12:05pm

Delaware Room A-B

Session Topic: *Ensuring Resiliency Through Stream Stability Countermeasures*

Moderated by: Bea Hunt

Title	Presenter
<i>Rockerries in the River Environment</i> (time 23:06) Video URL: https://www.youtube.com/watch?v=1k-FmoJiTTy	Veronica Ghelardi
<i>Engineered Log-Jams and Dolosse for Streambank Protection</i> (time 24:12) Video URL: https://www.youtube.com/watch?v=IGR8Qp_V_HA	Oscar Suaznabar
<i>Implementation of Bankfull Channels, Vanes, and Weir Structures at Bridge Openings as Alternatives to Traditional Maintenance Practices</i> (time 22:28) Video URL: https://www.youtube.com/watch?v=tLtJOSbEaDQ	Jon Witter
<i>Integrating Nature-Based Resilience for Levee Wave Wash Protection</i> (time 19:05) Video URL: https://www.youtube.com/watch?v=2TQcPjcJb2w	Sachin Mandavkar

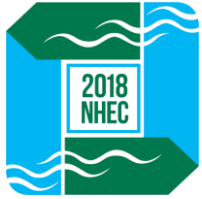
Delaware Room C-D

Session Topic: *Stormwater Management 1*

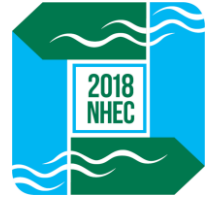
Moderated by: Scott Taylor

Title	Presenter
<i>NCHRP 20-68A Domestic SCAN: Effective Management of Roadside Water – SCAN 16-02</i> (time 27:41) Video URL: https://www.youtube.com/watch?v=Jay4x5ZqjZM	Charles Hebson
<i>If You Can Fit a Ditch, You Can Fit Bioretention!</i> (time 25:22) Video URL: https://www.youtube.com/watch?v=NeKTtXe8Aw	Jon Prier
<i>Water Quality Treatment With Biofiltration Conveyance and Articulating Concrete Blocks</i> (time 24:19) Video URL: https://www.youtube.com/watch?v=h-eB1gmjRe4	Everett Gupton
<i>Early Returns on SCM Inspections: PennDOT Statewide Stormwater Control Measure Program</i> (time 24:27) Video URL: https://www.youtube.com/watch?v=D_XjCKZDTFk	Jeffrey S. MacKay

12:05pm-1:05pm – Lunch (provided) – Hayes Room, first floor



AGENDA



Day 3: Thursday, August 30, 2018

1:05pm-2:45pm

Delaware Room A-B

Session Topic: *Using Innovative Tools and Methods for Improved Design*

Moderated By: Veronica Ghelardi

Title	Presenter
<i>Truckee River Bridge Scour – Doing It By The Book</i> (time 23:30) Video URL: https://www.youtube.com/watch?v=vmioUZPg4FM	Brad Hartman
<i>Using Computational Fluid Dynamics (CFD) as a Tool to Gain Insights Into Challenging Scour Situations</i> (time 23:03) Video URL: https://www.youtube.com/watch?v=5vu_T6p1lVI	Kevin Flora
<i>In-Situ Scour Testing Device</i> (time 19:17) Video URL: https://www.youtube.com/watch?v=x0Mh1Ji4kNM	Haoyin Shan
<i>Advancements in Bridge Hydraulic and Scour Analyses with Two-Dimensional Hydraulic Modeling</i> (time 20:41) Video URL: https://www.youtube.com/watch?v=GrzIFWAbW38	Scott Hogan

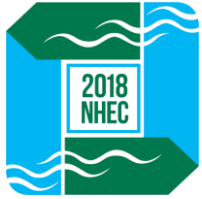
Delaware Room C-D

Session Topic: *Stormwater Management 2*

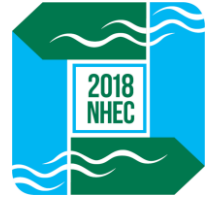
Moderated By: Steve Sisson

Title	Presenter
<i>Benefits of 2-Dimensional Hydraulic Modeling for Enhanced Collaboration: Streamlining Environmental and Engineering Activities</i> (time 22:37) Video URL: https://www.youtube.com/watch?v=Qmo_RtAVbKI	Megan Frye
<i>Integrated Watershed Management Planning: FDOT's Perspective and Vision</i> (time 28:53) Video URL: https://www.youtube.com/watch?v=oy0DFnElZP4	Carlton D. Spirio
<i>NCDOT's Stormwater Research Program</i> (time 23:51) Video URL: https://www.youtube.com/watch?v=AEQ0o7rvyF4	Andrew McDaniel
<i>TMDL Alternatives: A Non-regulatory Approach Success Story in North Carolina – Little Alamance Creek</i> (time 31:03) Video URL: https://www.youtube.com/watch?v=c4ZkPpgv-3Y	Andrew McDaniel

2:45pm-3:05pm – Break – Delaware Foyer



AGENDA



Day 3: Thursday, August 30, 2018

3:05pm-5:10pm

Delaware Room A-B

Session Topic: Culvert Durability and Rehabilitation for Resiliency

Moderated by: Jeff Syar

Title	Presenter
<i>Basics of Culvert Durability</i> (time 23:37) Video URL: https://www.youtube.com/watch?v=RfThokvzFUQ	Kevin White
<i>Re-rounding of Thermoplastic Conduit Under State Route 150 in Jefferson County, Ohio</i> (time 23:54) Video URL: https://www.youtube.com/watch?v=kQXGyCD6zEY	Shad Sargand
<i>Structural Rehabilitation of Invert-Deteriorated Metal Culverts Through Field Concrete Paving</i> (time 25:39) Video URL: https://www.youtube.com/watch?v=LzD-BWD_QgM	Teruhisa Masada
<i>Structural Design Methodology for Spray Applied Pipe Liners in Gravity Storm Water Conveyance Conduits</i> (time 27:38) Video URL: https://www.youtube.com/watch?v=w78He6LEpR0	Mohammad Najafi
<i>Laboratory Testing and Analysis of Geopolymer Pipe-lining Technology for Rehabilitation of Stormwater Culverts</i> (time 21:34) Video URL: https://www.youtube.com/watch?v=1SJxemTIWZM	Joe Royer

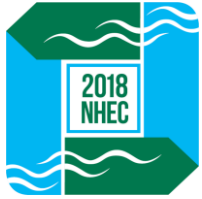
Delaware Room C-D

Session Topic: Stormwater Management 3

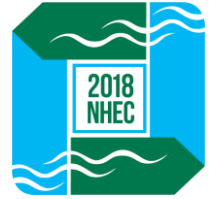
Moderated by: Wesley Peck

Title	Presenter
<i>Evaluating Stormwater Controls for Stormwater Pollution Prevention Plans</i> (time 22:54) Video URL: https://www.youtube.com/watch?v=eM7uC-jPS1k	Wesley Zech
<i>Evaluating Sediment Removal Efficiency of Catch Basin Inserts (CBIs) as a Post-Construction Water Quality Tool for Ohio Roadways</i> (time 21:09) Video URL: https://www.youtube.com/watch?v=WAc5y4pKjIA	Wesley Zech
<i>Characterizing Particle Size Distribution and Trash in Stormwater Runoff from Ohio's Roads</i> (time 22:21) Video URL: https://www.youtube.com/watch?v=jdFoYvbE6V0	Ryan Winston
<i>Use of Two-Dimensional Hydraulic Modeling for Design of Erosion Countermeasures</i> (time 23:28) Video URL: https://www.youtube.com/watch?v=QT-qjin50LM	Daniel Hoffman
<i>Effects of Precipitation Patterns on Sediment, Nutrient, and Biofilm Dynamics in an Acid Mine Drainage Stream</i> (time 18:38) Video URL: https://www.youtube.com/watch?v=4eggIDw2nMY	Jennie Branch

3:05pm-5:10pm – **Field Trip B – FHWA ISTD Soil Erosion Resistance Demonstration**



AGENDA



Day 4: Friday, August 31, 2018

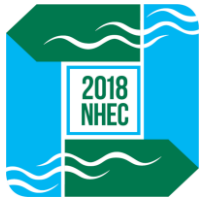
6:45am-7:45am – Breakfast (provided) – **Hayes Room, first floor**

Delaware Room A-D

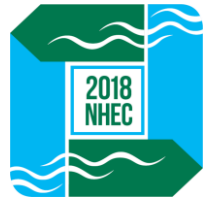
8:00am-10:00 am – **Advanced Hydraulic Modelling**

Moderated by: Scott Hogan

<i>Two-Dimensional Hydraulic Modelling with Tidal Boundary Conditions</i> (time 23:01) Video URL: https://www.youtube.com/watch?v=w0j9SJGNNjA	Jeff DeGraff
<i>Right Sizing The I-69 Bridge over the Ohio River at Evansville, Indiana</i> (time 21:00) Video URL: https://www.youtube.com/watch?v=5ac3mz4XJh8	Corinna Goodwin
<i>Hydraulic Design & Permitting of a 5,000-ft Long Crossing of the Illinois River Utilizing 1D (HEC-RAS) and 2D (SRH-2D) Modelling</i> (time 31:54) Video URL: https://www.youtube.com/watch?v=Y927tSQWSkk	Tony Comerio
<i>Scour Evaluation Comparison of SRH-2D & HEC-RAS</i> (time 22:29) Video URL: https://www.youtube.com/watch?v=4xZZUMu42fU	Don Hendon
10:00am-10:20am – Break – Delaware Foyer	
Delaware Room A-D	
10:20am-12:00 noon – Advanced Hydraulic Modelling (continued)	
Moderated by: Scott Hogan	
<i>NCDOT Realizing the Benefits and Challenges of Adopting 2D Modelling</i> (time 23:34) Video URL: https://www.youtube.com/watch?v=Pb14OvoYjQE	Matthew Lauffer and Ken Ashe
<i>Utilizing SRH-2D to Improve Cost Efficiencies and Design Process for the Colorado Department of Transportation</i> (time 34:41) Video URL: https://www.youtube.com/watch?v=HddSMnsSJQ0	Steven Griffin
<i>Importance of Large Scale Roughness in 2D Model Development</i> (time 24:14) Video URL: https://www.youtube.com/watch?v=nFz3_jjTi3I	Brice Stafne
<i>SAMPLE: A 3D Flow Modeling Procedure for Hydraulic Engineers</i> (time 30:00) Video URL: https://www.youtube.com/watch?v=0Fc_r7q7dU0	Yong Lai
Closing Remarks (time 2:34) Video URL: https://www.youtube.com/watch?v=XFRI_vHePfc	Jeff Syar and Cynthia Nurmi



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