

**Designing for Aquatic Organism Passage at Road-Stream Crossings
Maine (10 to 13 June 2013)**

Course Objectives

Provide engineers, biologists, hydrologists, and other engaged disciplines the necessary skills to design road-stream crossing structures that will accommodate aquatic organism passage, provide for more natural channel function, and maximize the long-term stability of the structure. The primary design approach is stream simulation.

Monday, June 10

10:00	1. Welcome and Introductions	TBD
10:15	2. Why is ecological connectivity at road stream crossings important	Joan Trial
10:45	3. History of road-stream crossing design approaches and a simple stream simulation example	Dale Higgins
11:15	4. Fluvial processes and channel characteristics important in stream simulation design	Dale Higgins
12:00	Lunch	
1:00	5a. Site assessment: Field measurements and interpretations <ul style="list-style-type: none">• Site maps, channel planform characteristics, longitudinal profiles	Bob Gubernick
2:00	Break	
2:10	5a. Site assessment: Field measurements and interpretations <ul style="list-style-type: none">• Site maps, channel planform characteristics, longitudinal profiles (continued)	Bob Gubernick
3:00	Break	
3:10	<i>Exercise 5a. Introduction to exercise and data: Schafer Tributary. Interpreting geomorphic site assessment data: Channel planform and longitudinal profile</i>	Bob Gubernick All instructors
5:30	Dinner	
7:00	Maine Case studies	Steve Koenig Jed Wright

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Tuesday, June 11

8:00	5b. Stream simulation design <ul style="list-style-type: none">• Reference reach concept, project alignment and profile, site suitability for stream simulation	Bob Gubernick
9:10	Break	
9:20	<i>Exercise 5b. Design project profile and alignment</i>	Bob Gubernick All instructors
10:50	Break	
11:00	6a. Site assessment: Field measurements and interpretations <ul style="list-style-type: none">• Channel cross sections and bed material interpretations	Dale Higgins
12:10	Lunch	
1:10	<i>Exercise 6a. Interpreting geomorphic site assessment data: Channel cross sections and bed material interpretations</i>	Dale Higgins All instructors
2:20	Break	
2:30	6b. Stream simulation design <ul style="list-style-type: none">• Bed material size and arrangement	Brian Austin
3:40	Break	Break
3:50	<i>Exercise 6b. Design bed mix, key features, and bed/bank margins</i>	Brian Austin All instructors
5:00	Dinner	
6:30	Hydraulic modeling tools	Bob Gubernick
7:30	Adjourn	

Wednesday, June 12

8:00-4:30	Field Trip	All instructors
4:30	Dinner	
6:00	Student field data work up	All Instructors

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Thursday, June 13

8:00	Field Data discussion	
8:45	7. Structure selection and design considerations	Brian Austin
9:45	<i>Exercise 7. Structure type selection</i>	Brian Austin All instructors
10:30	Break	
10:45	8. Flood hydrology, discharge estimates, and culvert capacity	Dale Higgins
11:15	9. Sediment entrainment and bed mobility/stability analysis	Dale Higgins
12:00	Lunch	
1:00	<i>Exercise 9: Bed mobility/stability analysis</i>	Dale Higgins All instructors
2:15	Break	
2:25	10. Final design and contract preparation	Brian Austin
3:20	<i>Exercise 10. Final design bed material specifications</i>	Brian Austin instructors
3:50	Break	
4:00	11. Construction	Bob Gubernick
5:00	Adjourn	

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