

Final Report to the Community Foundation for Greater New Haven

A Short Course in River Processes for Environmental Activists and Municipal Officials: Fifth Offering Grant Number 20060112

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Introduction

Environmental protection is, to a large extent, dependent on environmental knowledge. Our attempts to protect and restore natural systems will succeed only to the extent that they are based on an understanding of how those systems function, as well as how that functioning is disrupted by human activity. However, natural systems tend to be complex, multi-faceted, and difficult to understand. The disparity between our inadequate level of knowledge and our need to take action is one of the most significant challenges to sound environmental management.

Many of the decisions that affect the health of the Quinnipiac River (and other water bodies) are made by people or groups who are not specifically trained in environmental science, such as conservation commissions, inland wetland commissions, municipal planners, etc. Even citizens who are heavily involved in river protection and advocacy often have gaps in their understanding of river processes. In judging a particular stream impact or project, decision-makers and advocates must either rely on their own understanding or become dependent on the judgment of “experts” who may or may not share their values.

The Yale Short Course in River Processes – offered for the fifth time this year – is an attempt to increase the scientific literacy of local decision-makers and activists. We do this by providing attendees with the basic scientific concepts and terminology needed to understand and critically evaluate scientific data relevant to the management of the Quinnipiac River. Our focus is not on transmittal of the results of scientific studies on the Quinnipiac (that is being done in other contexts), but rather on providing the basic scientific skills which will enable these important players to be better consumers of scientific results.



Description of Course Activities

This year, the course was advertised exclusively through email announcements, including the CT Environmental Leaders listserv, the Connecticut Association of Conservation and Inland Wetlands Commissions, and the database of previous participants and previous wait lists. In addition, several watershed leaders forwarded the announcement on to their boards or email lists. We achieved our desired class size of 22 participants and had a wait list of at least 5 others. The final participant list is attached to the end of this document. The distribution of participants by affiliation is:

- watershed and environmental organizations: 6
- conservation and inland wetland commissions: 6
- environmental professionals: 3
- other: 7

We offered the Yale Short Course in River Processes in 2 evening sessions and a full-day Columbus Day session, following the schedule below.

Tuesday, October 3, 2006

6:00-6:15: Welcome and Introductions (Shimi Anisfeld)

6:15-7:10: Hydrology (Shimi Anisfeld)

7:10-7:30: Pizza Dinner

7:30-8:20: Hydrology (Shimi Anisfeld)

8:20-8:30: Break

8:30-9:30: Geomorphology (Jim MacBroom)

Wednesday, October 4, 2006

6:00-7:15: Hydrologic and Geomorphic Impacts of Development (Jim MacBroom)

7:15-7:45: Pizza Dinner

7:45-9:00: Water Quality (Shimi Anisfeld)

Monday, October 9, 2006 (Columbus Day)

9:30-10:30: Water Quality (Shimi Anisfeld)

10:30-10:45: Break

10:45-12:15: Ecology (Roy Schiff)

12:15-5:00: Field Trip, with box lunch on the way (Shimi Anisfeld, Jim MacBroom, and Roy Schiff)

The course comprised classroom sessions covering river processes from the perspectives of 4 different scientific disciplines, as well as a field session to allow participants to explore the tools used by these disciplines to assess river health. The classroom sessions included: hydrology and water quality sessions, led by the course director, Shimi Anisfeld; a geomorphology session, led by local river engineer Jim MacBroom; and a biology session, led by river restoration specialist Roy Schiff. All sessions were designed to include both basic concepts of river processes and information on how those processes are changed by human activities. We also covered, to some extent, some of the tools available to minimize or restore the damage caused by human activities, but the focus of the course was on giving participants a fuller understanding of the scientific issues rather than going into technical fixes in detail. In addition, participants were introduced to the

ways that data are collected in each discipline, and the questions to ask when evaluating these data.

For the field trip, we visited a tributary of the Quinnipiac River, the Tenmile River at Chatfield Road in Prospect. Due to an unexpected emergency, Jim MacBroom was not able to attend the field trip; his place was taken by Alexander DeWire, a Yale masters student who has extensive experience in geomorphic field assessments. At the beginning of the field trip, participants were broken into 3 groups. Each group spent ~45 minutes with each instructor, affording participants the opportunity to perform macroinvertebrate sampling and field analysis (with Schiff); carry out flow and water quality measurements (with Anisfeld); and take part in measurements of channel shape and substrate (with DeWire).

Participants were given a bound packet containing course materials. This notebook included, for each discipline, copies of the overheads used and suggested readings and websites, as well as unit conversion tables and a list of participant and faculty contact information. For the evening sessions, we provided dinner and drinks, while on Sunday, we provided coffee, breakfast, snacks, drinks, and lunch.



Course Evaluation

At the end of the field trip, we asked participants to fill out an evaluation form, which is attached at the end of this document. The form was returned by 17 participants. Results are shown in the table below.

QUESTION	AVERAGE SCORE (1 = good; 5 = bad)
1a. hydrology lecture	1.2
1b. ecology lecture	1.2
1c. geomorphology lecture	1.1
1d. water quality lecture	1.4
1e. field trip	1.4
2a. pre-course communication	1.3
2b. food	1.4
2c. field trip	1.1
3a. expectations fulfilled?	1.0
3b. recommend to others?	1.0

In addition, written and oral comments received were largely positive. All the written comments received are included below:

- Excellent overview of the significant aspects of river dynamics and the complexities of forces that impact river quality. Essential for any members of inland wetlands commissions. Great job. Many thanks.
- I felt that enough topics were discussed with enough detail to gain real knowledge; in addition, the level was good for filling in gaps, as most people will have some background. I can't recall if you provided this, but if not, a list of resources (intro hydrology book, Jim's River book, etc.) would be most helpful.
- Re the lectures: too much material is presented for the time allotted. Perhaps speed through 2/3 of the material and allow more time for some % of the remaining third.
- Amazing - several year courses packed into 3 days.
- Wonderful course; very informative and useful!
- Chemistry too tough; food rushed. Send websites, acronyms, and source list via email.
- Would like it if you had more time to get through all of slides.
- I would love it if were slightly longer and got a little more in depth.
- Good breaks; well organized.
- Everything was great; thanks for accommodating work schedules by holding classes in evenings and holiday; I wish we had something like this in Mass.
- Great! Wish it could be longer. A follow up.
- Thank you so much. I learned so much and now have at least some intuitive feel for what before were just abstract numbers. Will bring up to P&Z commission as a must-take. Any land use commission member of any kind should attend.

**Yale Short Course in River Processes
2006 Evaluation Form**

1. Please rate each of the following aspects of course content from 1 (very useful) to 5 (not useful):

	<u>very useful</u>			<u>not useful</u>	
a. Hydrology lectures (Shimi)	1	2	3	4	5
b. Ecology lecture (Roy)	1	2	3	4	5
c. Geomorphology lectures (Jim)	1	2	3	4	5
d. Water quality lectures (Shimi)	1	2	3	4	5
e. Field trip	1	2	3	4	5

2. Please rate each of the following aspects of course logistics from 1 (very smooth) to 5 (very problematic):

	<u>very smooth</u>			<u>very problematic</u>	
a. pre-course communication	1	2	3	4	5
b. food	1	2	3	4	5
c. field trip	1	2	3	4	5

3. Please answer yes or no to each of the following questions

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|---|-----|----|
| a. Were your expectations for the course largely fulfilled? | yes | no |
| b. Would you recommend this course to others? | yes | no |

4. Please provide us with feedback on any aspect of the course (feel free to use back as well).

5. Please provide any recommendations of people/organizations to add to our email list for recruitment for next year's course.