

**A Short Course in River Processes for Environmental
Activists and Municipal Officials: Second Offering**

**Final Report to the Community Foundation for
Greater New Haven**

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Introduction

Environmental protection is, to a large extent, dependent on environmental science. 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 judgement of “experts” who may or may not share their values.

The Yale Short Course in River Processes – offered for the second 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, last year’s participants, and last year’s wait list. In addition, several watershed leaders forwarded the announcement on to their boards or email lists. We quickly achieved our desired class size of 20 participants and had to turn away at least 15 others. The final participant list is attached to the end of this document. The distribution of participants by affiliation is:

- conservation and inland wetland commissions: 1
- land trusts and watershed associations: 7
- educators: 2
- environmental professionals: 3
- other: 7

We offered the Yale Short Course in River Processes on 2 Wednesday evenings and one Sunday during October 2003, following the schedule below.

Wednesday, October 15, 2003

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

6:15-7:30: Session I, Hydrology (Shimon Anisfeld)

7:30-8:00: Pizza Dinner (provided)

8:00-9:30: Session II, Hydrology (Shimon Anisfeld)

Wednesday, October 22, 2003

6:00-7:30: Session III, Geomorphology (James MacBroom)

7:30-8:00: Pizza Dinner (provided)

8:00-9:30: Session IV, Ecology (Roy Schiff)

Sunday, October 26, 2003

9:00-10:30: Session V, Water Quality (Shimon Anisfeld)

10:30-11:00: Break

11:00-12:30: Session VI, Water Quality (Shimon Anisfeld)

12:30-5:30: Field Trip, with box lunch on the way (Shimon Anisfeld, James MacBroom, and Roy Schiff)

The course comprised both 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 Yale doctoral student 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. On the field trip, we visited a tributary of the Quinnipiac River (Tenmile River at Chatfield Road in Prospect), where 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 MacBroom).

Participants were given a looseleaf binder containing course materials (a hard copy of this is included as Appendix I). 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 pizza and drinks, while on Sunday, we provided coffee, breakfast, snacks, drinks, and lunch.

I found that the format this year seemed to work better than last year's, in which the course took place over 2 Sundays (the first being a full day of classroom sessions, and the second being half

classroom and half field). While the later parts of the evening sessions were sometimes challenging (the end of a long day for most participants), I believe that in general, participants were better able to absorb the material in this format.

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 16 out of 20 participants. Results are shown in the table below.

QUESTION	AVERAGE SCORE (1 = good; 5 = bad)
1a. hydrology lecture	1.5
1b. geomorphology lecture	1.2
1c. biology lecture	1.5
1d. water quality lecture	1.3
1e. field trip	1.2
1f. readings	1.4
2a. pre-course communication	1.2
2b. food	1.3
2c. field trip	1.1
3a. expectations fulfilled?	yes (100%)
3b. recommend to others?	yes (100%)

In addition, written and oral comments received were largely positive. Hard copies of the evaluations are included in the notebook provided as Appendix I.

**Yale Short Course in River Processes
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 lecture	1	2	3	4	5
b. geomorphology lecture	1	2	3	4	5
c. biology lecture	1	2	3	4	5
d. water quality lecture	1	2	3	4	5
e. field trip	1	2	3	4	5
f. readings	1	2	3	4	5
g. problem set	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

- | | | |
|---|-----|----|
| 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 aspects of the course (feel free to use back as well):