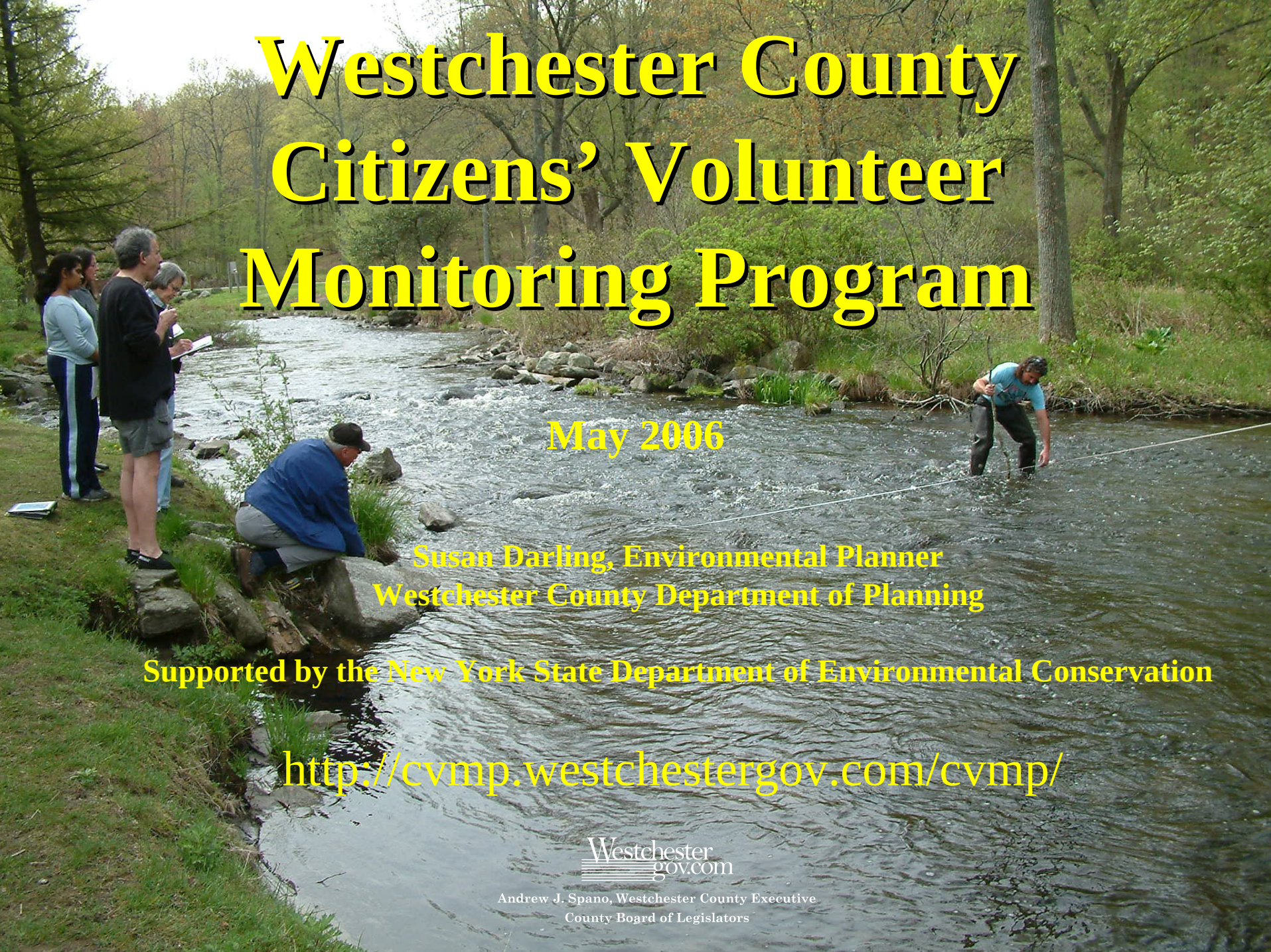


Westchester County Citizens' Volunteer Monitoring Program

May 2006

Susan Darling, Environmental Planner
Westchester County Department of Planning

Supported by the New York State Department of Environmental Conservation

http://cvmp.westchestergov.com/cvmp/

Westchester gov.com
Andrew J. Spano, Westchester County Executive
County Board of Legislators

Westchester County, New York

Westchester County is located just north of New York City

Westchester County Citizens' Volunteer Monitoring Program (WCCVMP)

- New York State Department of Environmental Conservation grant
- Natural Resources Conservation Service
- Westchester County Soil and Water Conservation District

Westchester County Citizens' Volunteer Monitoring Program (WCCVMP)

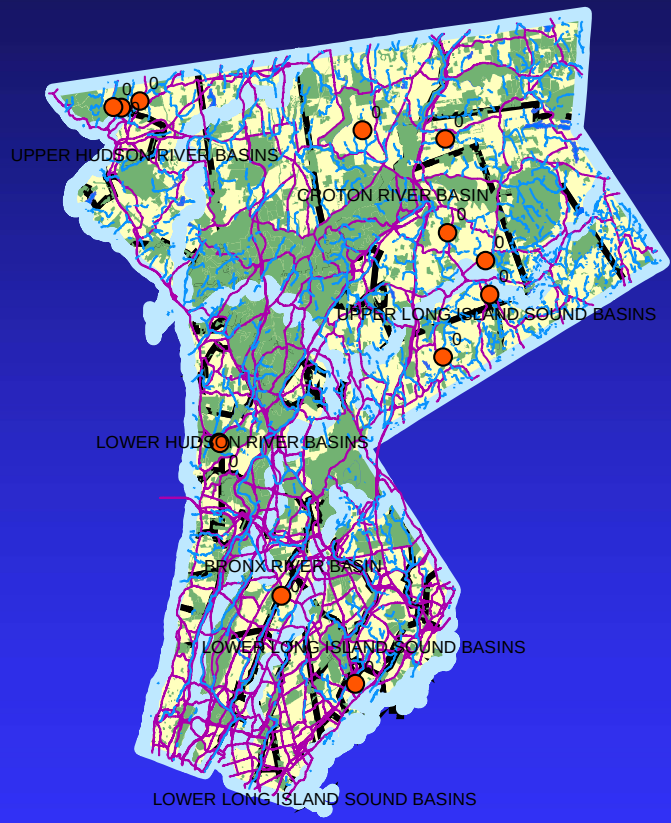
- Goal is to establish a County-wide monitoring program with the following components:
  - River and Stream Monitors
  - Lake Monitors (2004)
  - Monitoring Networks
  - Online Database

WCCVMP Mission

- Create a historical baseline of water quality information throughout Westchester County
- Connect communities with their water resources through education and hands on involvement
- Allow public access to water quality monitoring information for educational purposes

Volunteers

- 17 stream sites in 2005
- 80 adult volunteers
- 5 high school monitoring teams



Stream Monitoring Data

- Chemical
- Physical
- Biological

Physical Conditions

- Surrounding Land Use and Riparian Zone
- Channels, Banks, and Substrate
- Temperature
- Weather
- Stream Size
- Water Appearance
- Algae
- Flow
- Litter

Chemical Conditions

- pH
- Alkalinity
- Salinity
- Nitrate-Nitrogen
- Orthophosphate
- Dissolved Oxygen
- Conductivity
- Turbidity

Biological Conditions

- Mayflies
- Stoneflies
- Caddisflies
- Aquatic Beetles
- Aquatic Worms

Stream Monitoring

- Volunteers monitor one site
- Data is collected weekly from April-October (potential for winter monitoring)

WCCVMP Water Website

at http://cvmp.westchestergov.com/cvmp/

- "Discover"
  - the educational component
- "Explore"
  - the data manipulation component
- Online Database

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- WCCVMP Mission
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- How To Volunteer
- Photo Gallery
- Water Quality Report
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- Water Links
- Resource Materials
- Events Calendar

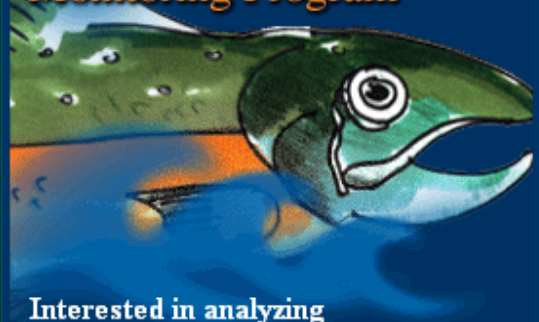
EXPLORE

- Select Table Data
- View Table
- Reset Table Data
- Interactive Mapping
- Charts and Graphs
- Simple Stats

UPLOAD DATA

Westchester County

Citizen's Volunteer Monitoring Program



Interested in analyzing Westchester's water quality? Sign Up to Volunteer!

About Us...

What is this program?

Upload Data Now!

Keep Westchester's Water H_2OK

2006 WCCVMP Training Schedule

Session	Date	Location
1	April 22	Rockefeller State Park, Tarrytown
2	April 29	Hilltop Hanover Farm, Yorktown
3	May 13	Tibbetts Brook Park, Yonkers
4	May 20	Ward Pound Ridge, Cross River

Internet

Online Database

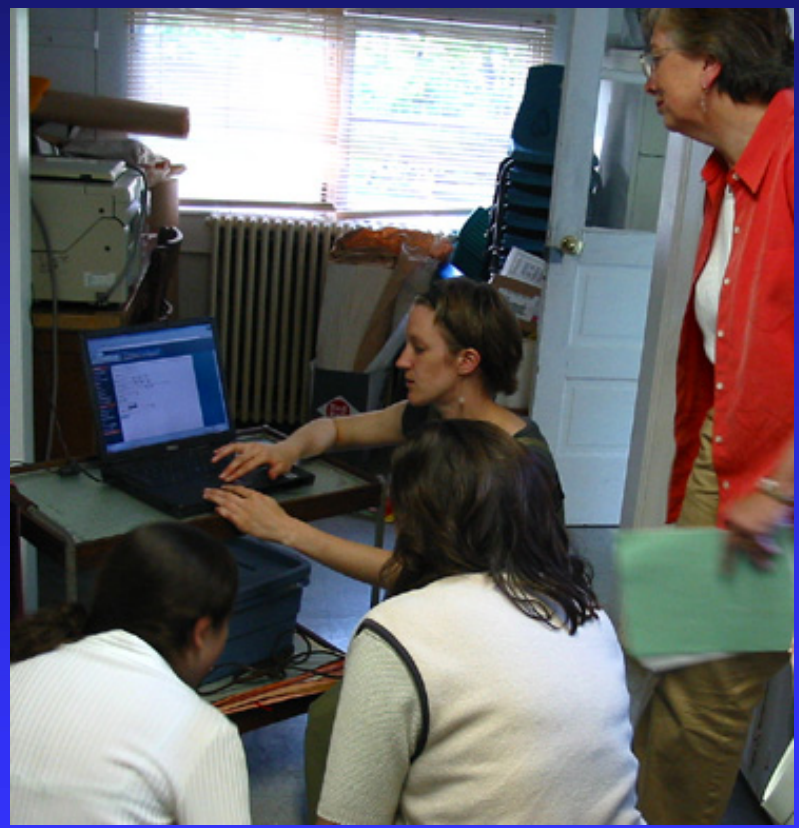
- Central location to store data
- Public access to data
- Display and analyze data
  - Charts
  - Graphs
  - Maps
  - Export to Microsoft Excel

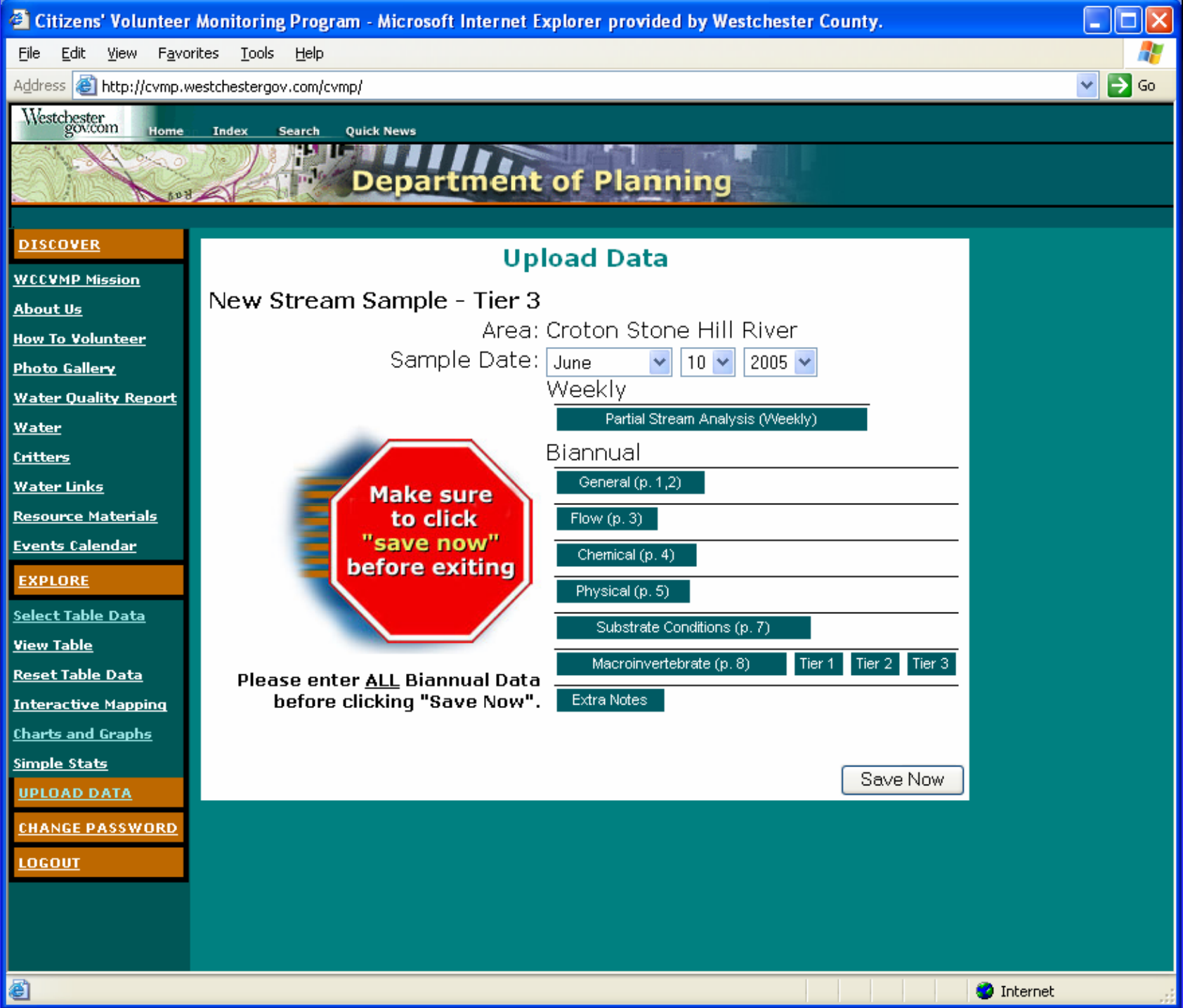
Quality Assurance

- Volunteers receive a Login ID and Password that allows them to enter monitoring results only for their assigned stream stretch sites
- Automatically screens for extreme outliers
- Data must be entered twice to eliminate typing errors
- Quality Assurance Project Plan

Uploading Data

- User-friendly data entry forms
- Individualized training sessions
- Responding to volunteer feedback

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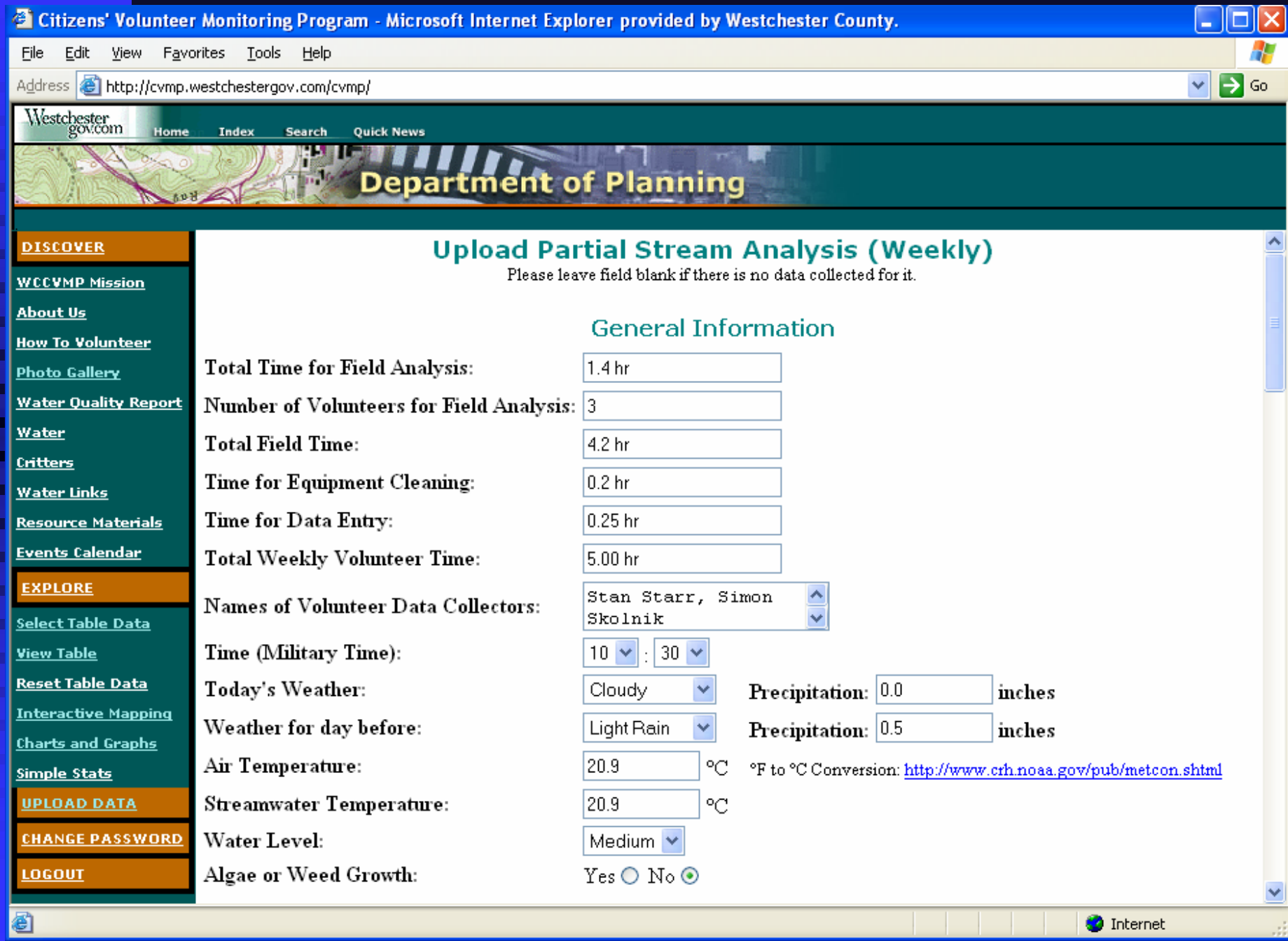
UPLOAD DATA
CHANGE PASSWORD
LOGOUT
Upload Data
New Stream Sample - Tier 3
Area: Croton Stone Hill River
Sample Date: June 10 2005
Weekly
Partial Stream Analysis (Weekly)
Biannual
General (p. 1,2)
Flow (p. 3)
Chemical (p. 4)
Physical (p. 5)
Substrate Conditions (p. 7)
Macroinvertebrate (p. 8) Tier 1 Tier 2 Tier 3
Extra Notes
Make sure to click "save now" before exiting
Please enter ALL Biannual Data before clicking "Save Now".
Save Now
Internet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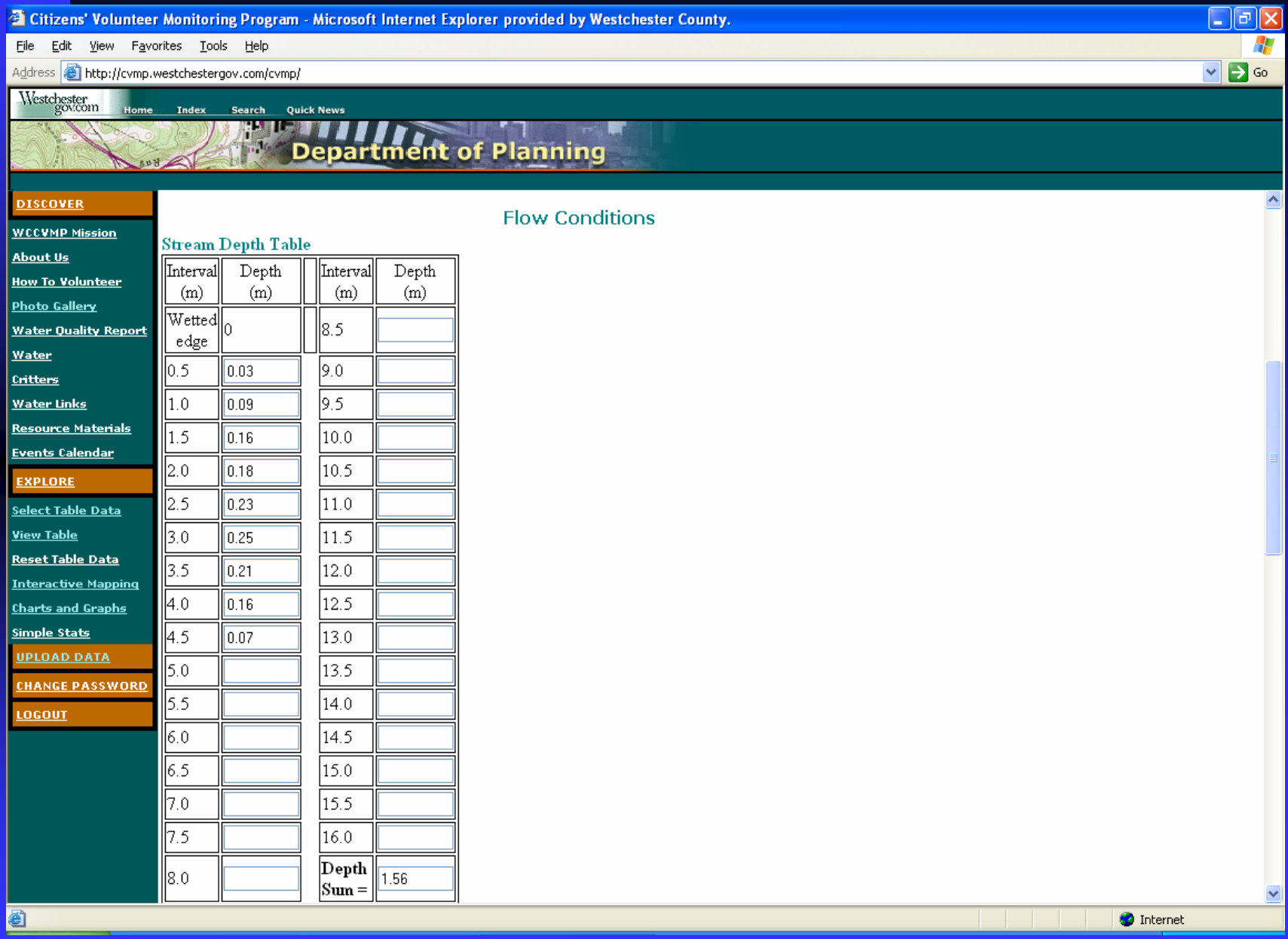
CHANGE PASSWORD
LOGOUT
Upload Partial Stream Analysis (Weekly)
Please leave field blank if there is no data collected for it.
General Information
Total Time for Field Analysis: 1.4 hr
Number of Volunteers for Field Analysis: 3
Total Field Time: 4.2 hr
Time for Equipment Cleaning: 0.2 hr
Time for Data Entry: 0.25 hr
Total Weekly Volunteer Time: 5.00 hr
Names of Volunteer Data Collectors: Stan Starr, Simon Skolnik
Time (Military Time): 10 : 30
Today's Weather: Cloudy Precipitation: 0.0 inches
Weather for day before: Light Rain Precipitation: 0.5 inches
Air Temperature: 20.9 °C °F to °C Conversion: http://www.crh.noaa.gov/pub/metcon.shtml
Streamwater Temperature: 20.9 °C
Water Level: Medium
Algae or Weed Growth: Yes No
Internet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CHANGE PASSWORD
LOGOUT
Flow Conditions
Stream Depth Table
Interval (m) | Depth (m) | Interval (m) | Depth (m)
Wetted edge | 0 | 8.5 |
0.5 | 0.03 | 9.0 |
1.0 | 0.09 | 9.5 |
1.5 | 0.16 | 10.0 |
2.0 | 0.18 | 10.5 |
2.5 | 0.23 | 11.0 |
3.0 | 0.25 | 11.5 |
3.5 | 0.21 | 12.0 |
4.0 | 0.16 | 12.5 |
4.5 | 0.07 | 13.0 |
5.0 | | 13.5 |
5.5 | | 14.0 |
6.0 | | 14.5 |
6.5 | | 15.0 |
7.0 | | 15.5 |
7.5 | | 16.0 |
8.0 | | Depth Sum = | 1.56
Internet

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7.5		16.0	
8.0		Depth Sum =	1.56

Calculate Depth Sum

Depth Sum **Total Cross Sectional Area**

1.56 m X 0.5 = 0.78 m^2

Velocity Table

Left Side	27.0	sec
Left Side	23.0	sec
Center	55.0	sec
Center	53.0	sec
Right Side	67.0	sec
Right Side	69.0	sec
SUM:	294.0	sec
Average Time (sum/6):	49.0	sec

Calculate Average Time

(Distance / Average Time) x 0.85 = Avg Underwater Velocity

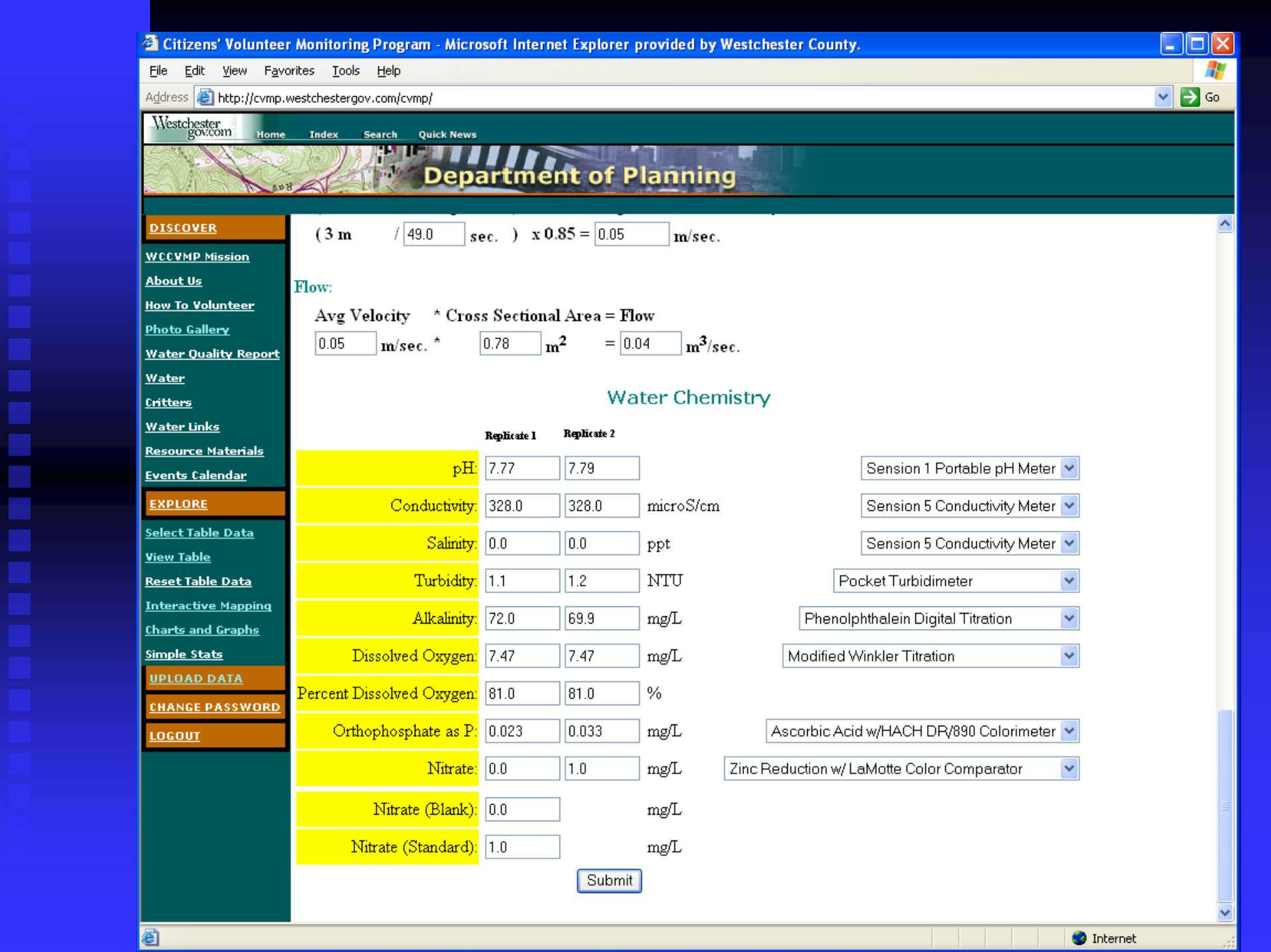
(3 m / 49.0 sec.) x 0.85 = 0.05 m/sec.

Flow:

Avg Velocity * Cross Sectional Area = Flow

0.05 m/sec. * 0.78 m^2 = 0.04 m^3/sec.

Internet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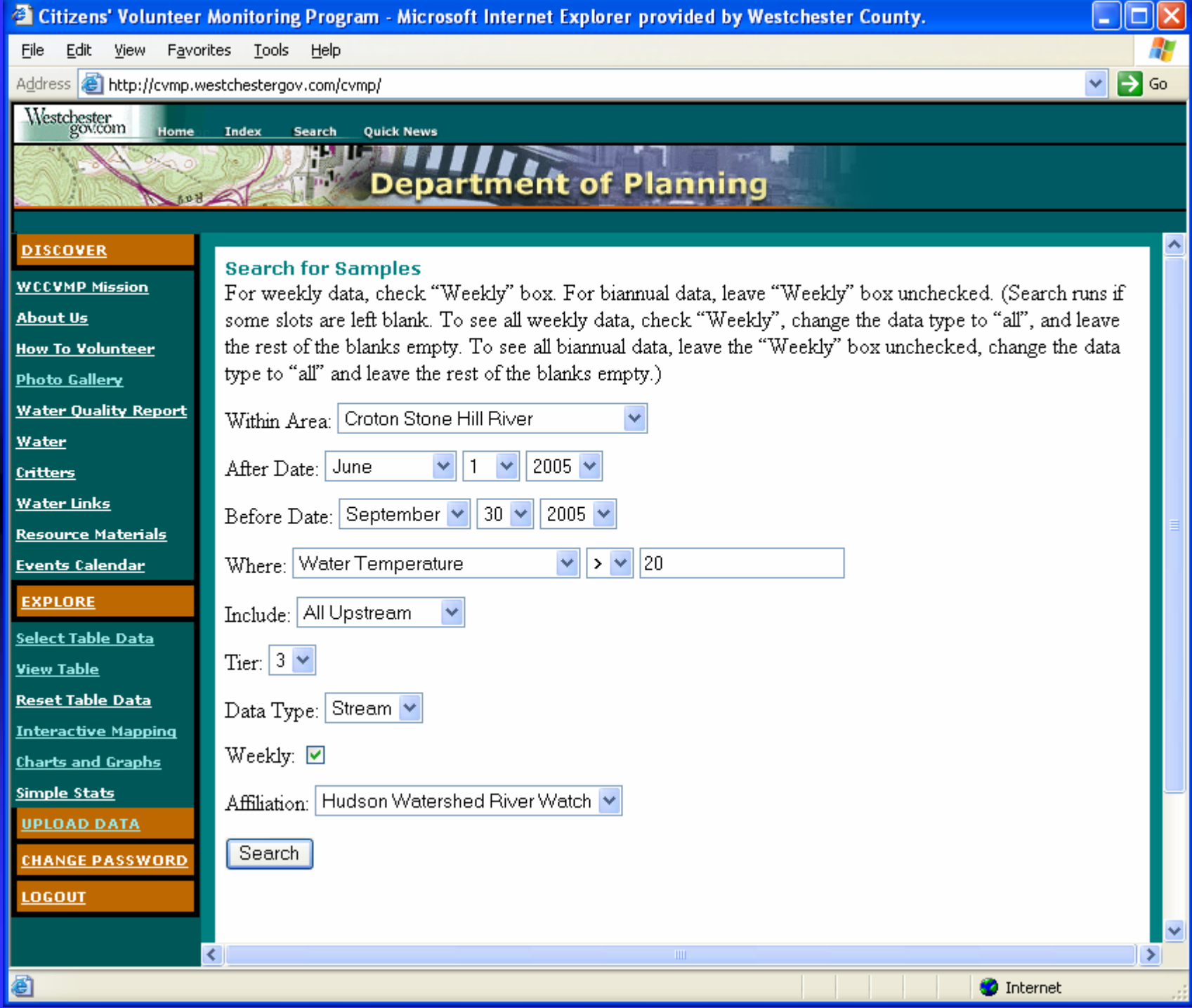
(3 m / 49.0 sec.) x 0.85 = 0.05 m/sec.
Flow:
Avg Velocity * Cross Sectional Area = Flow
0.05 m/sec. * 0.78 m2 = 0.04 m3/sec.
Water Chemistry
Replicate 1
Replicate 2
pH: 7.77 7.79 Sension 1 Portable pH Meter
Conductivity: 328.0 328.0 microS/cm Sension 5 Conductivity Meter
Salinity: 0.0 0.0 ppt Sension 5 Conductivity Meter
Turbidity: 1.1 1.2 NTU Pocket Turbidimeter
Alkalinity: 72.0 69.9 mg/L Phenolphthalein Digital Titration
Dissolved Oxygen: 7.47 7.47 mg/L Modified Winkler Titration
Percent Dissolved Oxygen: 81.0 81.0 %
Orthophosphate as P: 0.023 0.033 mg/L Ascorbic Acid w/HACH DR/890 Colorimeter
Nitrate: 0.0 1.0 mg/L Zinc Reduction w/ LaMotte Color Comparator
Nitrate (Blank): 0.0 mg/L
Nitrate (Standard): 1.0 mg/L
Submit
Internet

WCCVMP Water Website "Explore"

- Select Table Data
- View Interactive Maps
- Create Charts and Graphs
  - Pie
  - Bar
  - Line
- Calculate Simple Statistics
  - Linear Regression
  - t-test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Search for Samples
For weekly data, check "Weekly" box. For biannual data, leave "Weekly" box unchecked. (Search runs if some slots are left blank. To see all weekly data, check "Weekly", change the data type to "all", and leave the rest of the blanks empty. To see all biannual data, leave the "Weekly" box unchecked, change the data type to "all" and leave the rest of the blanks empty.)
Within Area: Croton Stone Hill River
After Date: June 1 2005
Before Date: September 30 2005
Where: Water Temperature > 20
Include: All Upstream
Tier: 3
Data Type: Stream
Weekly:
Affiliation: Hudson Watershed River Watch
Search
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Download Export
Summarize Rows
Average Rows
Summarize by Reg
Name AFFILIATION User ID ID Chem. Repl. No. Macro Repl. No. Total Vol. Time TIME Sample Date Weather PRECIP Past Weather PASTPRECIP Air Temperature °C
A->Z
Croton Stone Hill River WCCVMP 16 754 1.0 1.0 5.05hr 9:45 2005-09-03 Clear 0.0 Clear 0.15 20.5
Croton Stone Hill River WCCVMP 16 754 2.0 2.0 5.05hr 9:45 2005-09-03 Clear 0.0 Clear 0.15 20.5
Croton Stone Hill River WCCVMP 16 755 1.0 1.0 4.4hr 9:45 2005-09-10 Clear 0.0 Clear 0.0 17.7
Croton Stone Hill River WCCVMP 16 755 2.0 2.0 4.4hr 9:45 2005-09-10 Clear 0.0 Clear 0.0 17.7
Croton Stone Hill River WCCVMP 16 783 1.0 1.0 5.0hr 10:30 2005-09-17 Cloudy 0.0 Light_Rain 0.5 23.8 ME
Croton Stone Hill River WCCVMP 16 783 2.0 2.0 5.0hr 10:30 2005-09-17 Cloudy 0.0 Light_Rain 0.5 23.8 ME
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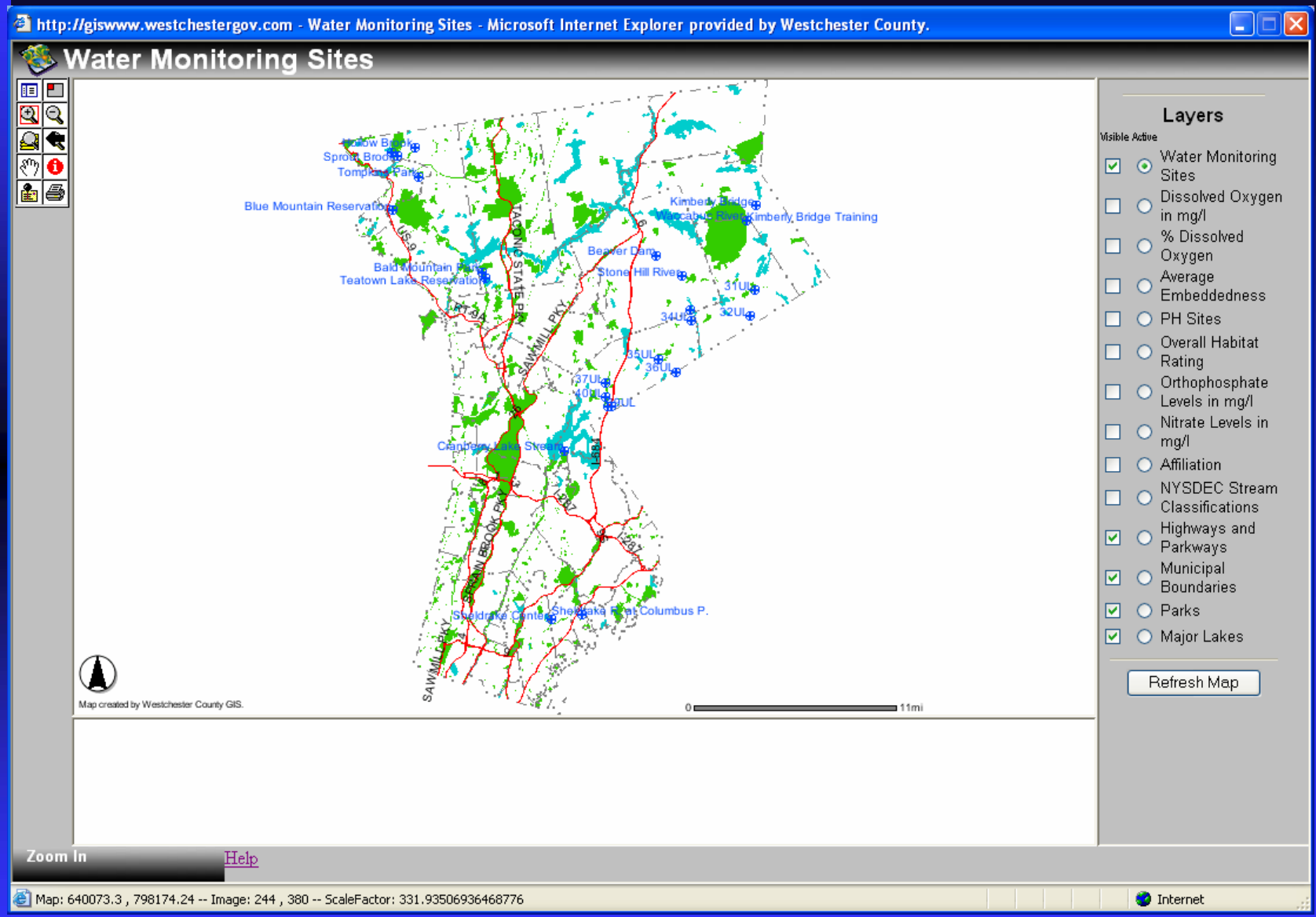
http://giswww.westchestergov.com - Water Monitoring Sites - Microsoft Internet Explorer provided by Westchester County.
Water Monitoring Sites
Layers
Visible Active
Water Monitoring Sites
Dissolved Oxygen in mg/l
% Dissolved Oxygen
Average Embeddedness
PH Sites
Overall Habitat Rating
Orthophosphate Levels in mg/l
Nitrate Levels in mg/l
Affiliation
NYSDEC Stream Classifications
Highways and Parkways
Municipal Boundaries
Parks
Major Lakes
Refresh Map
Blue Mountain Reservation
Teatown Lake Reservation
Kimberly Bridge Training
Beaver Dam
Stone Hill River
Cranberry Lake Stream
Sheldrake Center
Sheldrake River Columbus P.
TACONIC STATE PKY
SAWMILL PKY
SPRAIN BROOK PKY
Map created by Westchester County GIS.
0
11mi
Zoom In
Help
Map: 640073.3 , 798174.24 -- Image: 244 , 380 -- ScaleFactor: 331.93506936468776
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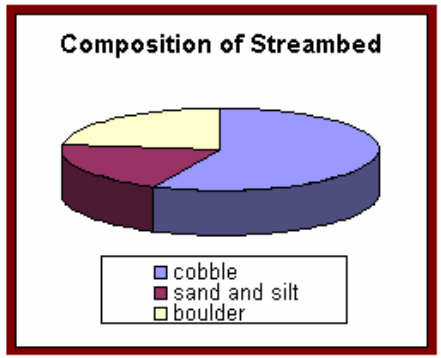
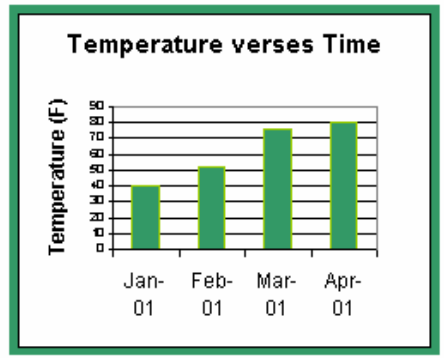
PIE CHART



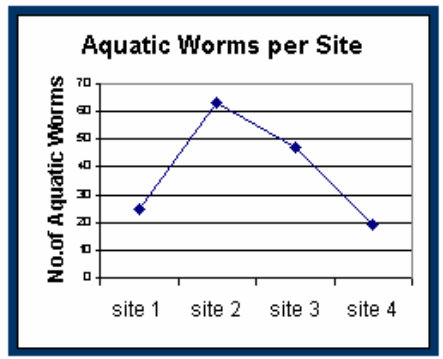
Create Now

BAR GRAPH



Create Now

LINE GRAPH



Create Now

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Questions?

Westchester County Citizens' Volunteer Monitoring Program

A Presentation at the 2006 National Monitoring Conference

San Jose, California

May 10, 2006

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