

The Assessment of Stream Discharge Models for an Environmental Monitoring Site on the Virginia Tech Campus

by

Mark Richard Rogers

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science

in

Environmental Engineering

Vinod K. Lohani, Chair
Erich T. Hester
William C. Hession

December 7th, 2012

Blacksburg, VA

Keywords: real-time monitoring, urbanized watershed, stage-discharge relationships,
index velocity method, acoustic doppler current profiler (ADCP), rainfall-runoff ratio
(ROR)

Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Mark Rogers

Description of item under review for fair use: Figure 1.6. Hydrograph and Pollutograph in Mantes-la-Ville France. Source: Bertrand-Krajewski, J.-L., G. Chebbo, and A. Saget. 1998. Distribution of pollutant mass vs volume in stormwater discharges and the first flush phenomenon. Water Research 32(8):2341-2356. Page: 2349

Report generated on: 02-03-2013 at : 13:08:06

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*



Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Mark Rogers

Description of item under review for fair use: Figure 2.1 Sontek Argonaut ADCP. Source: Sontek. 2003. Argonaut-SW System Manual Firmware 9.3. San Diego, CA. Page: 24

Report generated on: 02-03-2013 at : 13:19:45

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*



Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Mark Rogers

Description of item under review for fair use: Figure 2.3 Physical processes and their effects on stage-discharge curve. Source: Herschy, R. W. 1995. Streamflow measurement. Taylor & Francis. Page: 151

Report generated on: 02-03-2013 at : 13:23:46

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

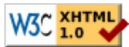
Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*



Draft 09/01/2009

(Questions? Concerns? Contact Gail McMillan, Director of the Digital Library and Archives at Virginia Tech's University Libraries: gailmac@vt.edu)

(Please ensure that Javascript is enabled on your browser before using this tool.)

Virginia Tech ETD Fair Use Analysis Results

This is not a replacement for professional legal advice but an effort to assist you in making a sound decision.

Name: Mark Rogers

Description of item under review for fair use: Figure 4.5. Ideal flow environment for the Argonaut ADCP. Source: Sontek (2003) Argonaut-SW System Manual Firmware 9.3. San Diego, CA. p.40

Report generated on: 02-13-2013 at : 15:05:31

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *in favor of fair use*

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*

