



CHI Services and Philosophy

Linking Newtonian physics to Darwinian principles



Computational Hydraulics Int. (CHI) is a civil/environmental engineering software and consulting firm, specializing in the development of advanced modeling. We partner with clients the world over to manage the development of water systems and drainage infrastructure, through technological solutions that help integrate physical, biological and ecosystem data into very long-term sustainable environments. Our aim is to expand our approach from it's strong foundation in Newtonian physics to include and embrace Darwinian principles. We believe that the design of sympathetic water systems greatly impacts the quality of life for humankind and all nature. Using intelligent modeling, planners, engineers and managers can transform drainage infrastructure to create better communities. The environmental sensibilities in PCSWMM foster wider biodiversity of plants and animals and inevitably encourage the development of thriving human societies. Urban water systems can be designed in a way that supports environmental goals, rather than working against them. Nudging the traditional mindset has been difficult – CHI offers professionals the tools to design and manage urban water systems that are less invasive, less disruptive, closer to the natural hydrologic function and thus encourage greater biodiversity. These tools not only facilitate responsible planning and design, but they also ultimately lead to healthier human communities.

PCSWMM is an incredibly efficient and advanced conceptual tool that handles the full spectrum of applications: from simple sizing of drainage elements to helping bring about better aquatic habitats through enhanced environmental planning, design and management of flooding and water pollution. Rather than limiting the scope of our thinking to just Newtonian physics, we direct attention further up the hierarchy of concerns towards ecology and Darwinian principles. In this view a drainage system is an environment that supports diverse life forms and adjusts as the population mix evolves, and which ideally is designed to maximize biodiversity. Planning such a system is challenging and requires building more complex models that support a wider knowledge-base. For instance, estimating the gamut of flow velocities, depths, temperature, pH, turbidity, and chemicals, and finally integrating with aquatic ecosystem models. At a minimum this certainly requires a philosophy of continuous modeling. On the other hand, traditional engineering and its bedfellows have sought to minimize entropy, using simplistic methods that ultimately replace natural habitats with surfaces that are generally abiotic or worse.

CHI Software

CHI has been providing innovative modeling techniques to the engineering community for almost 40 years. PCSWMM is a fast, inexpensive, graphical, spatial decision support system for urban drainage and watershed modeling, and is the best available software solution to complex urban drainage problems. Over 3000 clients use the software on tens of thousands of applications. PCSWMM incorporates a modern, powerful GIS decision support system that works seamlessly with the latest GIS data formats and provides intelligent tools for streamlining model development, optimization and analysis in a comprehensive range of applications. With full support for the latest fully dynamic SWMM hydrology/hydraulics engine, PCSWMM provides a scalable (unlimited model sizes) and complete array of cost-efficient, professional urban drainage system modeling tools. PCSWMM can be customized to suit your organization's specific requirements, irrespective of size.



CHI Consulting

Since 1970, CHI has offered professional engineering services to consulting and public sector engineers on a variety of complex urban and watershed drainage issues. Projects include custom software, model development and review, municipal drainage improvements, and expert testimony, as well as other modeling applications. We frequently provide technical software to the industrial sector active in LEED innovations.

CHI Publications

For over 30 years, CHI has produced unique publications covering innovative practices in urban water systems and watershed management. Best-sellers include a peer-reviewed annual monograph, a comprehensive User's Guide for SWMM software, and a practical manual on the rules of responsible modeling. CHI also offers comprehensive reports, papers, databases and articles online.

CHI Knowledge Base

Having been involved in SWMM model development since the mid 1970's, CHI is a world leader in SWMM. Our repository on SWMM FAQs, articles and papers has created a knowledge base for other professionals to tap into. Browse through our website and search relevant subjects, or ask us a question that we will help answer.

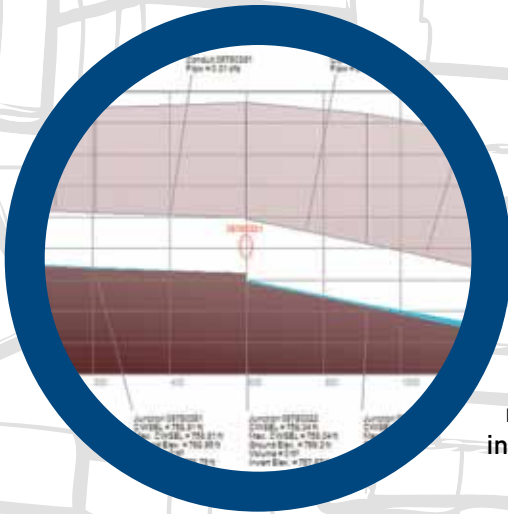
CHI Community

CHI's free list servers provide a forum for subscribers and the community of SWMM and PCSWMM users. Get quick answers to questions and participate in related discussions. Subscribers receive all the e-mails that are sent to the list, and can, in turn, send e-mails to the list. A searchable archive of past questions and answers is available through the SWMM knowledge base as well as for direct search.



CHI Workshop Training

CHI offers self-paced web workshops, in-house training sessions, and classroom style workshops at over 30 locations throughout North America, Europe and overseas. Workshops are conducted in English or French, over a 2, 3 or 4 day period. Attendees obtain the relevant continuing education certification.



CHI Model Review

With more than 30 years experience developing, distributing and supporting the best possible modeling software, CHI has the expertise to help you optimize your modeling projects. CHI can review your models and provide feedback to help ensure the efficiency and accuracy of your model, and expose any anomalies which, in turn, will save time and money.



CHI Conferences

The Stormwater and Urban Water Systems Modeling Conference is an annual international event. Started originally in 1972 as the SWMM Users Group Meeting, it is an excellent forum for engineers, scientists, modelers and Administrators, involved in water pollution control and water systems design and analysis.

CHI Support

Equipped to handle your questions about storm water management and urban drainage systems CHI provides unlimited modeling support through e-mail and telephone, helping clients access training and certification. Regular documentation updates and blogs are also available from CHI.



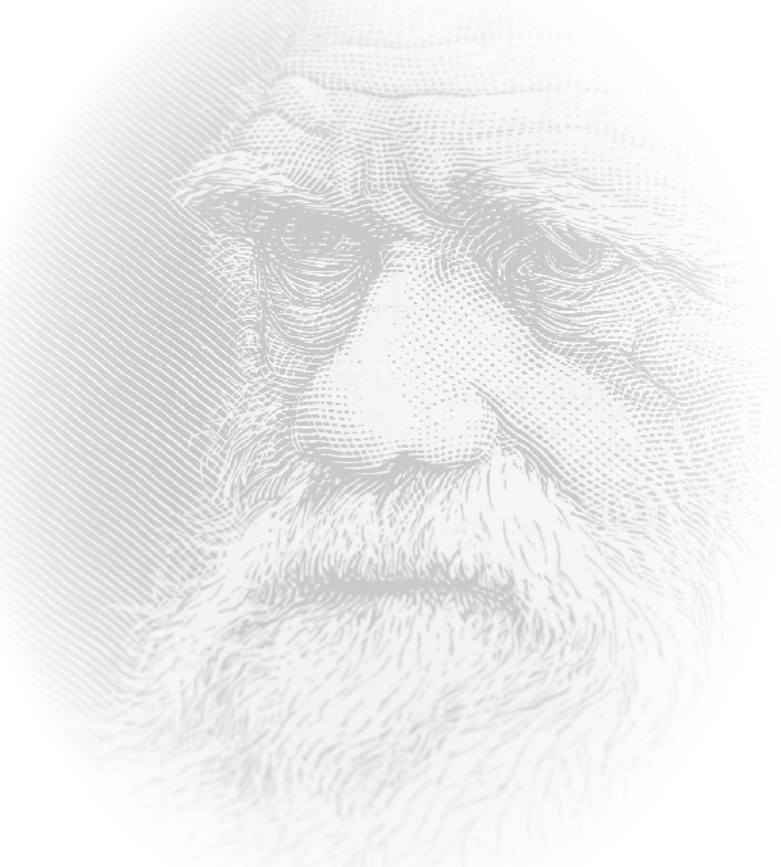


Global thinking about urban water systems is changing and we are now placing higher emphasis on ecological outcomes such as restoration of cold-water fisheries. Unfortunately, traditional tools are not up to the required job, however PCSWMM is capable of linking to these new directions – Newtonian physics underpins our model hierarchy, in which chemistry overlies physics (to be followed in turn by biochemistry, biology, ecology and population dynamics). Finally, Darwin covers very long term transitions. CHI's philosophy helps move your design up the hierarchy to reach better goals:

- develop models with an ecology ethos
- restore more natural habitat
- respect biological equity
- maximise biodiversity
- restore cold-water fisheries
- re-create nature/wild life values in cities
- build macroscopic models
- use multi-threaded models
- reduce our dependence on end-of-pipe solutions.

Licensed under the Professional Engineers of Ontario, CHI actively works with and provides services to professionals involved with innovative urban drainage modeling tools and techniques. CHI does not compete with our clients (mostly civil environmental consulting engineers), but rather complements them. Our primary services include:

- software for urban drainage and watershed management modeling
- custom in-house software for municipalities, agencies, consulting companies and industry
- short courses on urban drainage management modeling
- technical support for SWMM and PCSWMM
- international consulting on urban drainage and watershed related issues
- the annual International Conference on Urban Water Systems Modeling
- technical books relating to urban drainage and watershed management.



I wanted to let you know how much I enjoyed the modeling workshop. I've been to numerous technical workshops through years and this was by far the most useful and well-run. I came away with exactly what I'd hoped to come away with a combination of an appreciation for the theory and hands-on time with the program. Thank you. I told my boss it was an excellent use of County funds to send me.

D.L., Fairfax, VA, USA

I am very impressed with CHI's responsiveness and the value provided by PCSWMM in comparison with competing SWMM based products.

D.H., Seattle, WA, USA

Thank you for a great effort at bringing the SWMM community together to keep us all in the loop. Given our increasing use of SWMM, we will likely make this an annual event for one or more of our staff from the water management group.

M.H., Toronto, ON, Canada



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