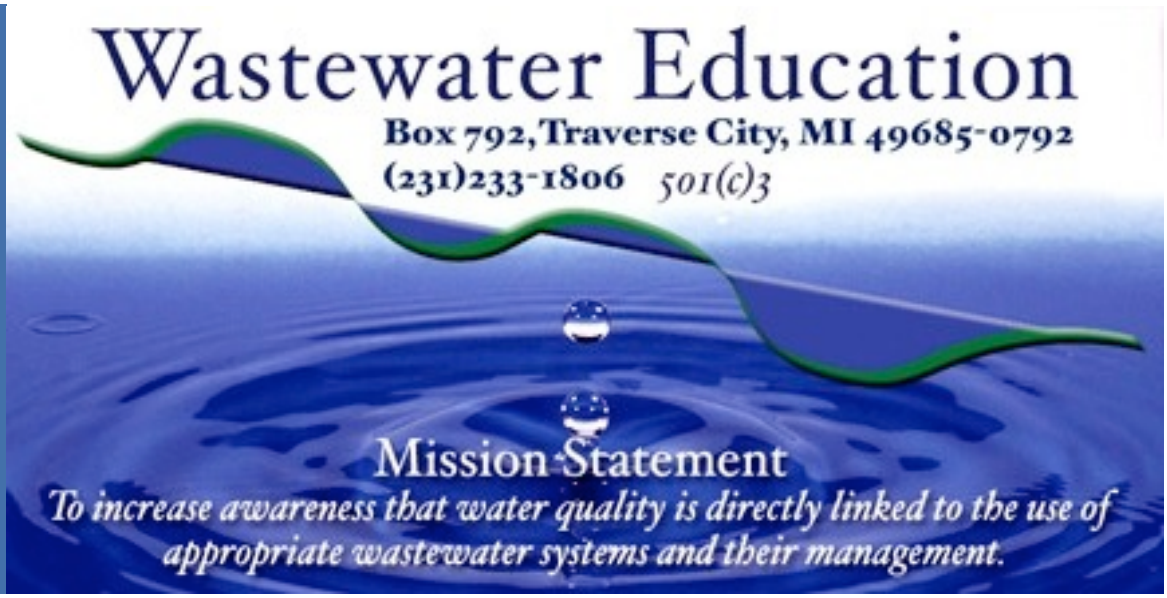
2009 ANNUAL REPORT

March 4, 2010

Less then 1% of all the water on Earth is drinkable.
The human body is 70% water.
EPA Anticipates that by 2013, 36 states will experience local, regional or statewide water shortages.

No longer can we afford to waste water.



New name - same purpose
a year of transition and focus

EPA WaterSense PARTNER

By Scott J. Kendzierski, M.S., R.E.H.S. Board Chair.

As we conduct the 2010 Census, public utilities, local government and local public health agencies anxiously await the results. Regional changing demographics will affect our ability to respond to public and environmental health issues plus our ability to protect what defines our character ~ the pristine patchwork of blue waters.

When we see images of northwest Michigan from space, we marvel at the sheer volume of water resources that we all take so very much for granted.

This organization dates from 2003 and initial support of the Joyce Foundation. Our purpose has always been to engage in activities which change how people think about our impact upon our shared water resources.

Through research programs, public education activities and grant funded resource media, we have sought to increase access to the knowledge base for both industry, water professions, local elected officials, land use planners and the general public.

2009 was a difficult year for all sectors of the Michigan economy. As a consortium of organizations concerned with the constant need to protect public health and quality of life, financial constraints on our ability to respond are difficult to accept.

We will continually be asked to do more with less. We must be willing to embrace new ways to do that.

In 2010 we will provide a broad range of innovative collaborative education offerings with our partners throughout the water, wastewater, environmental health and land use conservation communities.

The time has come to end duplication and overlapping, competing programs and services.

Between 1950 and 2000 the population of the United States doubled - but in the same period the demand for water tripled. Each gallon consumed comes with a price tag which far exceeds a monthly water bill.

This is why we are proud to be an EPA WaterSense Partner.

Public water supply and treatment facilities consume over 56 billion kilowatt-hours annually. Enough electricity to power over 5 million homes for a year. Over 80% of that energy is used just to move water back and forth in pipes - and that includes anyone who has their own onsite well and septic. We need to recoup and reuse that energy

Our education purpose encompasses 'water' - plain and simple! Although our emphasis is on rural, small town northern Michigan, our programs are relevant statewide and beyond.

On average each of us now consumes 70-100 gallons of precious water a day - 1600 glasses of expensive clean water.

It comes from somewhere. It goes somewhere. Returning it in as pristine condition as it began is what we do.

Building Bridges
regulators, professionals, property owners

By Dendra J. Best Executive Director

Probably the least understood, and least appreciated infrastructure system is that which is indispensable to life in northwest Michigan - the complex relationship between our soils structures and the water veins and arteries which connect it all together.

In 2009, we spent several amazing months working with the wonderful students at Mill Creek Elementary helping them discover exactly where their water comes from and where it goes once it returns to the soil.

We wonder how many adults have the same appreciation for the biological, chemical, physical and geological processes that over the past millions of years have created the miraculous, complex soil we call 'dirt'?

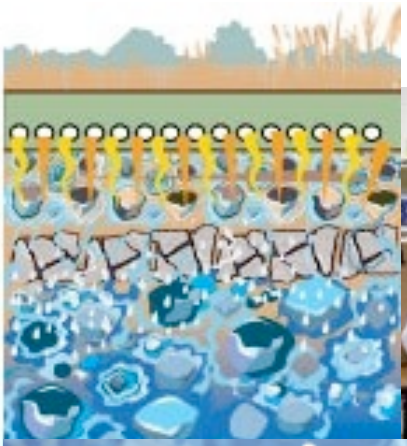
Ask yourself this question - name another substance that sustains life other than soil and water? What would life be like in this region if we had neither? Or if either became so inaccessible or contaminated it became useless?

Our purpose is to provide audience appropriate education; to create a forum where different technologies, treatment research and cost comparisons can be discussed; to bring the best information from our national and state affiliations. We can and should learn from others.

In 2009, I became the Chair of Michigan Water Environment Association's newly renamed Decentralized Wastewater Committee. All the organizations we are affiliated with share the concern: how to overcome the barriers to acceptance of decentralized, small community systems, shared neighborhood systems and advanced treatment technologies. Of equal concern is the absence of a simple means for individual property owners to obtain low interest loans for repairs or replacement. Both USEPA and WERF are seeking to encourage innovative solutions. As champions of public health, and the environment, finding a simple solution in 2010 is high on our list of priorities.

We have an obligation to be educators, to explain why we have public health regulations. Implementation of public health sanitation rules is one of the single greatest influences on the rise in life expectancy in the 20th century.

Bill Crawford - Benzie-Leelanau Health Dept. Board Treasurer
Dan Thorell - (shown below) Grand Traverse Co Health Dept.



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Wastewater Education

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The toilet is not a trash can or is it.....?
Why is a wastewater organization interested in pharmaceuticals?
Where do you think all of them go after we've consumed them?
Whether it's your back yard system or the municipal treatment plant - what your body doesn't consume ends up going down here >

Why is a wastewater organization concerned about pharmaceuticals?

Because bacteria are the stuff of life. By Bill Crawford MSA. R.S.

Imagine a world without bacteria - does that sound like a good thing? Not so!

The miracle of how the natural world runs like clockwork often relies on the tiniest of organisms working on the microscopic level to ensure all living creatures -soils, waters and us, consume, digest and excrete nutrients. These same organisms are natures vacuum cleaners,garbage disposals and undertakers.

The creation of antibiotics has saved lives - no question! But overuse and the addition of antibiotics to a multitude of products has unintended consequences - killing off 'good' bacteria and development of resistant harmful bacteria. Why does this matter? Because septic systems and treatment plants rely on beneficial bacteria to clean water and return it to the water cycle.

Over 290,000 man made chemical products now inhabit our daily lives. Most end up going down the toilet or drain - either via us or our manufacturing processes. When we started to hear from service providers that they were finding 'dead' septic tanks; and when the incidence of feminized fish species became increasingly reported - we wanted the same answers as the people calling us. The smoke is there but thus far precious little ability to put a finger on the fire.

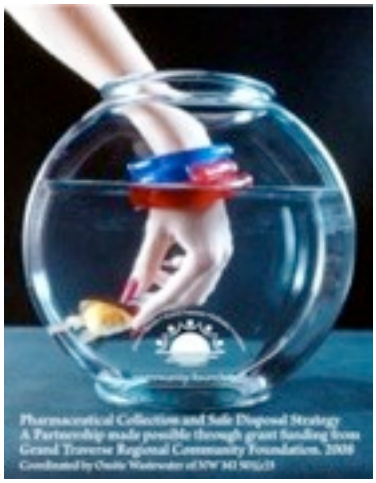
The sheer volume of available research and conflicting data seemed daunting. But with the assistance of a planning grant from Grand Traverse Regional Community Foundation a regional RxTeam now exists to try to coordinate information. We are actively seeking collaborative funding to put in place a safe collection and disposal strategy. Our first priority is to prevent dumping or flushing of unwanted and outdate medicines. Our Executive Director and Technical Engineering Consultant Dr. Richard Otis, gave a professional Paper on this subject, available from our web site, at the 2009 NOWRA Conference.

And to keep both the RxTeam and the public up to date on current activities an RxTeam web site has been created at the link shown below. Several local pharmacies now participate in a "Take It Back" program. Area County Resource Recovery and Household Hazardous Waste Events will accept non-controlled substances. A "Safe Disposal Fact Sheet" is also available on our web site.

The ongoing issue of safe disposal is still a challenge for narcotics, controlled substances and illegal drugs such as methamphetamine and crack cocaine. Such compounds fall under the strict guidelines of the US Drug Enforcement Agency and local law enforcement.

The image we chose as our RxTeam logo is a stark reminder and warning.

We are 70% water.
We have life because of our water rich planet.



WE are the goldfish in the bowl!

http://nwmirxteam.wordpress.com

Place Based Education=Water Stewardship

in the 21st. century, it is estimated 36 states will face chronic water shortages. Patrick Donovan R.S

All The Water There Ever Will Be Goes Through YOU and Goes Through Me!

Tell me and I'll listen. Show me and I'll see. But let me learn for myself and I'll remember!

In 2009, through generous grant funding from two local Foundations, 4th. and 5th. Grade students at Mill Creek Elelementary School taught themselves about where their water supply comes from. They followed the water cycle from atmosphere, to Lake Michigan, to their schools water well, to their own human water composition, and out to their school septic system!

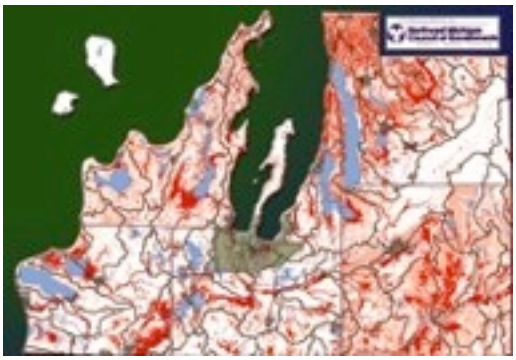
It was hilarious, it was fun! It included measuring 30+' of imaginary intestines, making personalized T-shirts and puppets, doing the math and building and operating a scale model of the school water well, calculating how MUCH water the class and school uses in a day, and where water goes once it's been used - back into the Water Cycle!

For the month of March, students learned about the local environment and how their actions have an impact. Shown above is the culmination where students built Williamsburg Creek in the classroom! In the process of their own experiments, students taught themselves about the impact of erosion, storm water run-off and pollution of surface water.

And what better way to reinforce the message than by retelling that story in their own words? And even better - to do it in song!

Local professional musician Dan Hall assisted students to write their own music and lyrics for the Mill Creek Water Story - the enchanting and startling results can be seen and heard on our web site at www.wastewatereducation.org

But be warned - your toes will surely tap to the Bad Bacteria Blues!



If we learn anything from standing on the river bank or lakeshore it is that all water is connected - no one person owns it ..... we all do.

Watershed/Aquifer Based Wastewater Planning
what goes around comes around - again, again, again.

In 2009 the first phase of an ongoing Regional Wastewater and Water Resource Infrastructure Report was published both as a CD and online at our web site.

The Report will be updated as a means to track the actual cost of providing wastewater service and recycling water back to surface and groundwaters. Benzie, Leelanau, Antrim, Emmet, Charlevoix and Grand Traverse County provided data which enabled GIS mapping for all new construction, replacement and failed septic systems since 2002. With assistance from Northwest Michigan Council of Governments, overlay maps were prepared showing critical areas of water-related impact including the location of existing municipal sewer systems.

The resulting resource contained current comprehensive research and technical papers to assist communities in making wastewater decisions.

This project was made possible by funding from :

The Joyce Foundation

Focus On The Future

in the 21st. century, water professionals will be in high demand

By Robert Paulus REHS

"You can't sacrifice water quality for energy efficiency. They work together to achieve both goals," *Dr. Raymond Ehrhard.P.E., BCEE. Research Associate in the Dept of Energy, Environmental, and Chemical Engineering located at Washington University in St. Louis, Missouri. Dr. Ehrhard manages the Water and Wastewater program initiated by Electric Power Research Institute (EPRI)*

When Dr. Ehrhard gave a presentation for our organization he focused on the 'water~energy nexus' - the relationship between the need for reliable clean water supply for power generation. The irony is that water conservation is rarely linked to the growing demand for electricity.

In the 21st. century those individuals with skills honed to meet the growing demand for both will have their pick of high paying jobs. EPA anticipates that within 3 years 36 states will be experiencing water shortages. Here, in water rich northwest Michigan, some may argue there is little need to practice water resource management. The fact is that Michigan could, and should, be on the cutting edge of training the next generation of environment resource professionals.

Our organization exists to provide access to education opportunities for both students , local officials and industry practitioners shown here.

In 2009 our Executive Director participated in the Crystal Lake Watershed Association 'Walk-A-Bout'. Betsie Lake Utility Authority plant in Frankfort, MI treats both municipal and domestic septage.

We provided courses to wastewater service providers for Continuing Septage Education credit hours. Shown bottom left is Board Member and Grand Traverse Co. Sanitarian Dan Thorell giving a course on soil composition and drip dispersal systems.

As a result of our initiative, there are now four NSF™ accredited Proctors and eight additional Certified Onsite Wastewater System Inspectors in MI.

In 2009 we continued to distribute thousands of copies of Water=Energy - our biannual education publication. Both the 2006 and 2008 editions are available on our web site. Over 30,000 pages were downloaded from our main web site in 2009. The site continues to grow and develop with the addition of Podcasts, a Blog, Twitter and FaceBook page.

Education is what we do. Why? Because we are passionate about the vital role wastewater professionals play in protecting and improving the environment. And because fewer people are enrolling in water environment and wastewater professions than are currently retiring. At a time when we need skilled individuals more than ever - it's up to organizations like ours to step up!

About WERF
The Water Environment Research Foundation is a nonprofit organization that helps utilities and corporations preserve water environment and protect human health by providing science and technology research to enhance management of our water resources.

5TH ANNUAL WERF RESEARCH FORUM
December 8, 2009

A Resource For The Latest Research

bringing the world to northwest Michigan

By John C. Sych AICP

On December 8, 2009, in the spirit of providing access to the latest on wastewater,stormwater and water quality research, WERF gave permission to our organization partnered with the Great Lakes Water Studies Institute at Northwest Michigan College. to host both tracks of the WERF Virtual Research Forum, at the NMCe Great Lakes Campus, Hagerty Center, Traverse City. Featured topics included:

- Trace Compounds in My Wastewater: organics and emerging concern about Rx products require comprehensive research to assess the risk. While the science is advancing, local actions based on current knowledge will help. This session dealt with selection and monitoring of trace organics through wastewater treatment, effluent discharge, and biosolids.
- Climate change and energy efficiency: Impacts of Climate Change on the Wastewater Sector -Municipalities are being confronted with questions about climate change regarding mitigation and adaptation strategies that could have effects on delivery of service, cost, infrastructure decisions, and receiving water quality. This session discussed strategies to develop sufficient flexibility and resilience to deal effectively with increased uncertainty.
- Nitrogen greenhouse gas emissions from plant operations. Energy Efficiency - Best Practices: attendees learned firsthand what wastewater treatment plants across the country and around the world are doing to reduce energy consumption and their carbon footprint. Experts shared take-home lessons from a 100% energy self-sufficient treatment plant, the latest innovations in co-digestion to increase your energy potential, and a new generation of engines that harness the energy in treatment byproducts.
- Microbial fuel cell technology has moved out of the lab into the field. Two Award winners discussed their accomplishments and how far they've come in their efforts to harness this technology for the generation of power from wastewater treatment. Of particular local interest was the demo project using winery waste!
- Building Livable Communities with Green Infrastructure Moderator: Jeff Moeller, P.E., Senior Program Director, WERF. Green infrastructure and low impact development are gathering steam as sustainable means of managing urban stormwater and providing community and environmental benefits.

WERF research and tools can help effectively implement these practices in our community. This is just one example of how our organization builds partnerships locally, at the state level, nationally and internationally.

THE GRAND VISION
Land Use & Transportation Strategy

Growth Happens

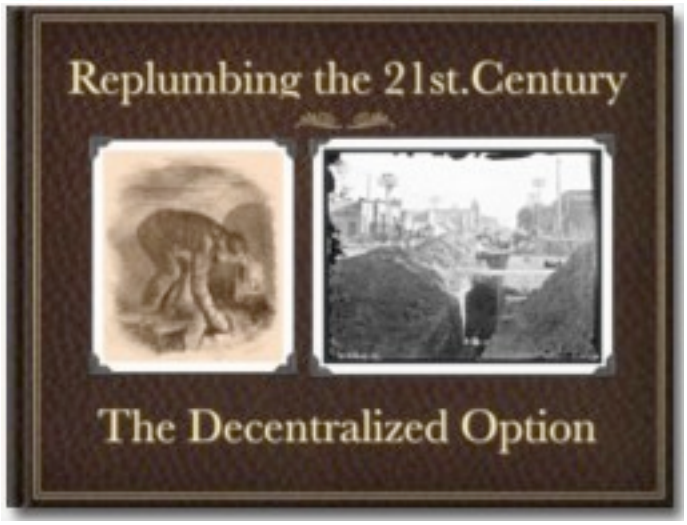
"The Grand Vision is a planning effort designed to develop a citizen-led blueprint for growth that will secure the future prosperity and quality of life in our region for generations to come: www.thegrandvision.org

Our organization participates in several of the Grand Vision activities but our priority is **Water Quality** "We value our clean lakes and rivers as the core of a healthy, natural environment and as the source of scenic beauty, recreation and a healthy economy: A Grand Vision Core Value"

With growth comes change. We can choose to do nothing, in which case the future may bring something that changes our regional character completely, or we can shape the inevitable growth. We can compliment our rural way of life, maintain our centers of culture and commercial vibrance and, at the same time, utilize innovation and integration of 21st. Century water resource technology. Self powering infrastructure; plants that use micro turbines and high tech battery storage that, combined with solar and wind, can use the wastewater generated to, in turn, generate power for our communities. It's already happening elsewhere. Why not here?

"Even though this is my field of expertise as an environmental engineer, I learned many tools I will put into place in my office and home to reduce both my water and electricity consumption.

I had no idea of what the connection is between drops and watts!"



Informed Decisions respecting the intelligence of the public

By Daniel R. Thorell, M.S., R.S.

Although our organization presents to a wide variety of audiences, and ages ranging from 4 - well matured, we abide by one simple precept. We talk with and to our audience - never down to them.

It is an unfortunate fact that professional agencies fall far too easily into jargon and 'siloing' of information - the 'oh that's FAR too technical for those folks to understand!'
We are in the education business - our only proviso is finding a way to make information easily accessible and understandable. So, yes, we have taught hydrology to 4th. Graders who understood 'hypoxia' enough to write a song about it! At the other end of the scale we have taught the complex physics of soil movement to prospective Inspectors.

There is a wealth, an often overwhelming wealth, of information available. Our organization reviews current research, archives reference materials, keeps up to date on current technical publications. We took our traveling exhibit to several locations in 2008-2009 where it was viewed by over 12,000 people. We distribute so many pieces of printed material, produced either by us or sent by other organizations, that we've stopped trying to keep a count.

We have given presentations about individual wastewater system design, operation and maintenance, energy/water conservation, pharmaceutical disposal issues, rural and urban decentralized wastewater options and the economic and environmental cost benefits of decentralized wastewater technology.

We have produced PodCasts about elementary level wastewater education, GIS data logging and management of systems, recycling of tires for system treatment beds, and the dire condition of our nation's infrastructure.

In 2008-2009 over 60,000 pages were viewed on our web site. but please bear with us during 2010 as we transition to the much simpler title of WasteWaterEducation.org You will find us under that name on FaceBook. You can follow us on Twitter or join the water professional groups we belong to on LinkedIn. Once a month we send out our e-News letter. Following a survey, you may chose in which format you prefer to receive it - plain text for ADA compliance or graphic.The network of professional memberships and associations our Executive Director and Board belong to is a rich assembly of resources with a dedication to sharing that network of knowledge.

In 2009 we exhibited and presented at the Grand Traverse Home Builders Association Home Expo and became a nonprofit affiliate member of HBAGTA and participated in the GreenBuild conference.

In 2009 we have trained 4 Michigan Certified NSF Onsite Wastewater Accreditation Examiner Proctors and **9** new onsite system inspectors. A major part of that ongoing training is how to effectively communicate with the public. A full listing of those who completed the accrediation is available on our web site.

As part of World Water Monitoring Day we produced a short video, available for viewing on our web site, from the beautiful songs created by Dan Hall and the students at Mill Creek Elementary School. The main theme could not be more important or fitting to our purpose ~ "All The Water That We Have Today, Is All The Water That We'll Have Tomorrow...."

As we look forward to 2010 significant partnerships and collaborations will increase our ability to inform the public. Through the generous grant award of FreshWater Future, a series of public education events are planned - both online and at linked locations. A series of water professions career seminars are planned for regional high schools as well as the opportunity for communities to talk to each other about their shared water concerns. *If you, your organization or community has an idea for how to make best use of the internet based conferencing service please contact either our Executive Director or any of the Board.*

In 2010
how can we assist you

Too often the wastewater industry and wastewater systems are viewed as an environmental problem.

Our purpose is to increase public awareness that the wastewater profession sees itself as a vital part of protecting public health, public infrastructure, water resources and our irreplaceable water environment.

Our purpose is to increase appreciation, at all levels of community planning, of the financial, environmental and political advantages in current wastewater advanced technology options.

Our purpose is to encourage a holistic approach to land use planning which emphasizes the role of water recycling and recharge while balancing the risks posed to watersheds and aquifers.

Our purpose is to utilize 'plain english', graphically rich, explanations of the amazing chemical, physical and biological processes constantly employed by Mother Nature to recycle water - with a little help from us.

Our purpose is to provide relevant education training to all community sectors: school children, those thinking of a future career, those needing specific training - and those who are motivated to discover what's new in the field.

Our purpose is to work within, or create, collaborative partnerships. In these financially challenging times, not to work as a team is indefensible. Not to access the best in current applied knowledge is equally indefensible.

Our purpose is to be quick to adapt, quick to see the opportunities for cost effective delivery of services, quick to use technology to communicate and allow sharing ideas and experiences.

Our purpose is to constantly draw the line which connects property owners with energy consumption, with water conservation, with water and wastewater infrastructure, with the responsibility of all of us to **take** responsibility!

Our purpose is to encourage individual property owners, both residential and commercial, to properly maintain their systems and accept we all have the same responsibility to the environment regardless of system size.

A special note of gratitude to Freshwater Future of Petoskey, MI. A grant from this exemplary organization enabled the purchase of an additional iMac computer, upgraded Adobe software and a 50 site distance learning license.

Many 2010 programs would not be possible without this funding.

We look forward to using this equipment to build new, and strengthen old, partnerships

Sign Up To Receive Information About Our Upcoming Education Events And Seminars

During 2010 we are transitioning to our new web site. During this time the old contact email will still reach us at: secretary@michigan-onsitewastewater.org

Or just give us a call at 231 233 1806. Or mail your contact info to us with a note of how you would prefer us to contact you: email, phone or FAX.

Send an email
To: nwmowtf@me.com
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