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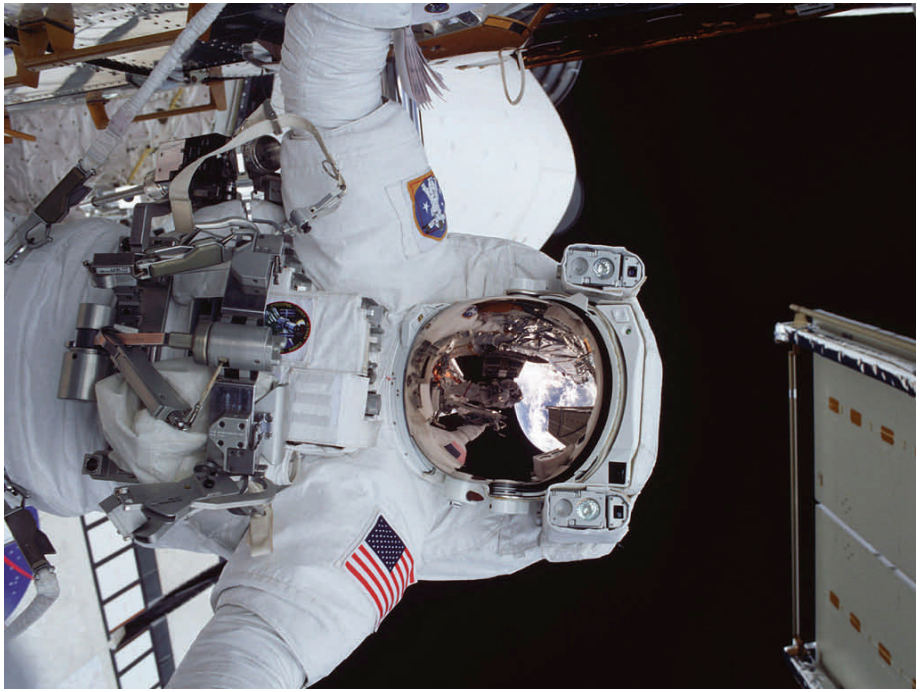
Hudson/Delaware Chapter of SETAC

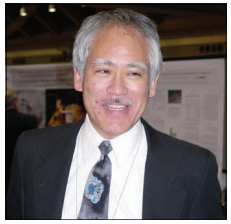
Meet Dr. Richard M. Linnehan
Keynote Speaker at HDC-SETAC's 20th Anniversary Spring Meeting, April 22 & 23, 2004



NASA Astronaut Richard M. Linnehan, DVM

EDITOR'S PEN

By Jon Doi, Aqua Survey, Inc. doi@aquasurvey.com



I would like to thank the current HDC Board of Directors for their tireless efforts at consistently putting together excellent meetings—both the Annual Spring Meetings and Fall Workshops. I also want to thank our 'regular' meeting attendees and HDC members that take the effort to come to our meetings and make them useful and worthwhile. No matter what the level of Board effort occurs, if nobody comes to the meetings, the Chapter cannot be successful. Based on the number of people that come to the meetings, the tremendous contributions of our Corporate Sponsors and the funding of our students' achievements, this Chapter is one of the best chapters in SETAC NA. Thanks to all of you for making this happen!

We are soon coming to our 20th Anniversary Spring Meeting on April 22-23, 2004. We are especially excited at having a 'real live' astronaut as our keynote speaker this year. Dr. Richard Linnehan, a veteran of three space missions, has agreed to talk to our group. Ken (Hayes) and I know Rick through a mutual friend and have been to a Broadway play and dinner with him and another astronaut friend of his. The rest of the Annual Meeting is excellent with engaging speakers in our Platform program, intellectually stimulating short courses, fun and useful outdoor activities and an incredible student poster session. We look forward to seeing you there.

I want to thank our exiting Board members—Paul Paquin, Chuck Shorten and Ken Hayes. All three have been on the Board for multiple terms and both Chuck and Ken have been Chapter Presidents. Paul has headed up the Students Awards Program for a number of years and has done a wonderful job. They have given a lot to our Chapter and I am sure that they will continue to do so. Thanks much, gentlemen, we'll miss you a lot!

Finally, I think that we all should say a prayer or take a moment or two to show our appreciation of our men and women in Iraq and other dangerous places in the world and wish for their safe return.

IN THIS ISSUE

I wish to thank Aqua Survey, Inc. for the time, manpower, and equipment to produce this newsletter. Also thanks to Angela Domanico for doing an excellent job in putting it together in Microsoft Publisher 2000. You can reach me at 908/788-8700 or email me at doi@aquasurvey.com.

HDC MEMBERSHIP POLICY

Keep your HDC membership active with payment of your dues of $15 (or $10 for students). These dues are administered to aid in offsetting various operating expenses that are devoted to communicating the activities of our chapter to our members via program brochures, website and internet announcements, and our biannual newsletters. In order to make this process as easy as possible to our members, there are several ways that you can select to pay the application/ renewal dues.

For our regional chapter members that are also members of the SETAC NA organization, you can pay your annual Chapter dues when you pay for your annual dues to the SETAC NA organization. For those regional chapter members or nonmembers that are not SETAC NA members, you can maintain your membership by sending the application or renewal that is provided below, downloading a membership application form from our website (www.hdcsetac.org) and sending the dues via check or simply paying by credit card on our website (*new this year*).

Once you have paid your membership dues, you will then only need to pay the lower membership registration fee when attending either our annual Spring conference or our Fall workshop. (Note: If you are a nonmember and attend one of the chapter's functions during the year by paying the nonmember registration fee, this will activate your membership for the remainder of the year.)

If you have any questions, please feel free to contact Larry Lyons, HDC Treasurer, by e-mail (larry.a.lyons@lmco.com), phone (732-494-4075), fax (856-384-1367), or mail (HDC-SETAC, P.O. Box 506, Thorofare, NJ 08086).

2003 Membership Application/Renewal for Hudson/Delaware Chapter

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So what is a mentor? If you ask different people this question you may hear such words as "advisor," "counselor" or "motivator." You may also hear qualifiers such as "trustworthy," "respectful" or "supportive." A good mentor blends these attributes to pave the way for success among students and junior colleagues. Consider the following points:

- *Advisor*: Good advisors must be informed. What are the directions, policies or procedures that are going to lead to success? Advisors must not offer unsolicited advice but should be free with their expertise when appropriate.
- *Counselor*: Good counselors must be good listeners, trying to hear what students or junior colleagues need, even when they can't express it themselves. Counselors present options and opportunities.
- *Motivator*: It is important to know what students or colleagues value and make reasonable efforts to provide for them, especially when high quality work is submitted. Financial reward is one of the best motivators but recognition and acknowledgement of accomplishment can be powerful motivators as well.
- *Trust*: A trusted mentor is someone who will listen to unusual ideas and help find solutions or direction with problems, without negative consequence.
- *Respect*: A respected mentor demonstrates honesty, integrity and a record of success.
- *Support*: Effective mentors provide financial, emotional, spiritual or physical support, or any combination thereof.

Almost anyone can become a teacher, manager or supervisor, but true mentorship requires an additional level of personal and professional commitment. Mentors are not necessarily placed in leadership roles but they often are. There needn't be a significant age difference between mentors and their charges but there often is. Effective mentorship is a worthy goal for every environmental professional, especially as it encourages continued growth and excellence among tomorrow's leaders.

HDC-SETAC is proud to assist in the mentorship of rising environmental professionals. The chapter provides financial support through its annual student awards programs and it provides an avenue for professional presentation in a collegial atmosphere. Its annual meeting and workshop provide important networking and learning opportunities for students and both new and experienced professionals. HDC-SETAC offers a regional connection to like-minded individuals. Consider becoming a mentor yourself.

The view from Sandy Hook, NJ

PRESIDENT'S CORNER

By Betty Jane Boros-Russo, NJDEP

As my year as President of the HDC draws to a close, I can't help but look back on not only the growth and progress of the chapter, but also my own personal professional growth since joining the Chapter. It has been a privilege being part of this chapter while we achieved so many goals, including developing our logo, achieving non-profit status and updating our website. Through the dedication of the HDC-SETAC Board, as well as the generosity of our Corporate Sponsors, we have helped many students of all ages progress and further their knowledge and ambition in the fields of environmental toxicology and chemistry.

With all of these accomplishments, I continue to be amazed by how it all comes together. For our annual meetings, in recent years, we have been to the Stroud Water Research Center, the Prallsville Mills, Sandy Hook, West Chester University, the Meadowlands, and of course, back to the Mills. Each year, as we move from location to location, we are faced with new challenges and new opportunities, dealing with the unique benefits and drawbacks of each location. From a glorious canoe trip down the Delaware River, to the pouring rain at the top of the landfill, we learn, teach and make new contacts and friends. Our intermittent return to the Mill every third year for our annual meeting, gives a sense of comfort and control over the many unknowns that come with putting a two-day meeting together. Through numerous emails, phone calls and board meetings, we reflect on each meeting and diligently look for new ways to improve communication, poster judging, and student feedback. We have incorporated a job fair into our annual meeting, changed and updated our poster evaluation forms and even changed our poster social portion of the meeting to provide better evaluation and feedback to participating students. With all that has been accomplished, I believe that this chapter can continue to improve and grow. One area that we will always strive for is to increase chapter membership and involvement, as well as obtaining additional corporate sponsorship.

At the close of our April meeting, current Vice President, Chris Nally, will take over as President, and we welcome current Board member, Amanda Maxemchuk to the position of VP. Amanda has been with the board only a few years, but has been an active contributor from the very start. She has been heavily involved in all aspects of the fall workshop and spring meeting, and I'm confident HDC will continue to grow under the leadership of both herself and Chris Nally. Shortly following the spring meeting in April, we will have our election for new board members for the HDC Board of Directors. If you are interested in being a greater part of this organization, please contact any HDC Board member for information. If you choose not to run, we urge you to vote to help us choose our next Board members.

It has been a privilege to lead a chapter, with such a strong commitment to environmental professionalism and ambition of furthering the field of environmental toxicology and chemistry. Thank you for the opportunity to be such an integral part of the Chapter.

Betty Jane Boros-Russo

HDC President 2003-04

Hudson/Delaware Chapter of SETAC

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	Fort Hancock *Sandy Hook, NJ*	Chris Impellitteri Sowmya Govinda	2nd ($200) 3rd ($100)	Univ. of Delaware Seton Hall University
2000	Prallsville Mills *Stockton, NJ*	Erik Carlson Jennifer Saxe Chris Impellitteri	1st ($300) 2nd ($200) 3rd ($100)	NYU Medical Center Univ. of Delaware Univ. of Delaware
2001	West Chester University *West Chester, PA*	Erik Carlson Colette Prophete Joseph Steinbacher Mary Anne Carlotta Jessica Duffy Darlene Bryan Julie McPherson	Grand ($1000) (G) 1st ($300) (G) 2nd ($200) (G) 3rd ($100) (G) 3rd ($100) (U) 1st ($150) (U) 2nd ($75)	NYU Medical Center NYU Medical Center Chesapeake Biological Lab Rutgers University NYU Medical Center Bucknell University Seton Hall University
2002	NJ Meadowlands Commission Environmental Center *Lyndhurst, NJ*	Craig Wolcott Colette Prophete Claudio Sorrentino Jeffrey Thomas Andrea Moore Eva Vagueiro	(G) 1st ($300) (G) 2nd ($200) (G) 3rd ($100) (U) 1st ($150) (U) 2nd ($100 (U) 3rd ($50)	Rutgers University NYU Medical Center NYU Medical Center West Chester Univ. Philadelphia Academy Seton Hall University
2003	Prallsville Mills *Stockton, NJ*	Jessica Duffy Margy Wintermyer Cathy Czerwinski Katarina Czchewicz Erin Laverty Joy Elaine Alfano	(G) 1st ($300) (G) 2nd ($200) (G) 3rd ($100) (U) 1st ($150) (U) 2nd ($100) (U) 3rd ($50)	NYU Medical Center Rutgers University Rutgers University Seton Hall University Philadelphia Univ. Seton Hall University

The HDC will again offer student research awards to participants at its 2004 Annual Meeting in Sandy Hook, NJ. See details of the competition elsewhere in this newsletter. Since no grand prizes have been awarded for the last two years, the Board of Directors has challenged potential manuscript writers to head to their word-processors by increasing the award amount to $1,500, with $1,000 reserved for reimbursement of costs to attend the 2004 SETAC National Meeting accompanied by a $500 cash award. Come on, student writers! You need to do this anyway to graduate, so why not receive an award while you're at it?

What is a Mentor?

By Chuck Shorten, West Chester University

Since 1995, each year the HDC has rewarded students for their high-quality research posters and manuscripts presented at the chapter's annual meeting. We know that there are all kinds of researchers out there, many of whom are your colleagues today. What drives them? Why do some succeed time and time again while others don't seem to reach their goals as easily or as often? Perhaps the bigger question is how can we help students and junior colleagues to succeed consistently? The answer may well lie in effective mentoring.

STUDENT OUTREACH

HISTORY OF STUDENT AWARDS HDC—SETAC 1995-2003

By Chuck Shorten, West Chester University

Since 1995, the Hudson-Delaware Chapter of SETAC has offered cash awards to students who have accepted the challenge of preparing and presenting world-class research posters at our annual meetings. The topics have covered a broad range of environmental concerns and 11 different regional institutions have been represented. We've had doctoral, post-doctoral, master's and undergraduate students present their research and we've sent several winners to National SETAC meetings with their award funds. In 2002, we expanded our student support to undergraduates by offering them a separate prize category, and this year we reached out to even younger age groups by providing judges and awards to high school scientists at the Delaware Valley Science Fairs and a local elementary school. If we keep this up, soon we'll be sponsoring environmental day-camps for pre-schoolers!

HDC SETAC is proud of its students and we would like to take a few column inches to acknowledge our winners of the past nine years. Of course, it is important to thank their faculty mentors as well, without whom their work could not have been completed. Finally, we give special recognition to our corporate sponsors who have bankrolled the student scholarship awards of the Chapter. We are making a difference.

Year	Meeting Place	Student Winner(s)	Place and Award	Institution
1995	Drexel University *Philadelphia, PA*	Aamir M. Fazil	1st	Drexel University
1996	Prallsville Mills *Stockton, NJ*	Marijane Hooven	1st ($200)	West Chester University
		Laura Briggs	2nd ($100)	Drexel University
		Tong Zhou	3rd ($50)	Rutgers University
1997	Prallsville Mills *Stockton, NJ*	Jennifer Samson	Grand ($1000)	Rutgers University
		Tong Zhou	1st ($200)	Rutgers University
		Siddhartha Mitra	2nd ($100)	VA Inst of Marine Science
1998	Stroud Water Research Center *Avondale, PA*	Linda McGarvey	Grand ($1000)	West Chester University
		Mike Maddigan	1st ($250)	Penn State Harrisburg
1999	National Gateway Recreation Area	Shem Patyna	Grand ($1000)	Rutgers University
		Andrea Raymond	1st ($300)	NYU Medical Center

UPCOMING MEETINGS

HDC-SETAC 20TH ANNIVERSARY SPRING MEETING

By Meeting Co-Chairs, Carolyn Bentivegna, Seton Hall University and Chris Nally, American Aquatic Testing, Inc.

On the 22nd and 23rd of April, the HDC will hold its annual meeting at the Chapel at Fort Hancock and the Howard Marine Sciences Laboratory, located in the Gateway National Recreation Area on Sandy Hook, NJ. Sandy Hook includes seven miles of ocean beaches, salt marshes, dunes, and the waters of Sandy Hook Bay. Fort Hancock, located at the tip of the Sandy Hook peninsula, overlooks the entrance to the New York Harbor and is the northernmost point along the New Jersey Shore. Many of our short courses and activities include hiking in this unique maritime forest, plus trawling, boating, birding and beachcombing. As is customary, on Thursday, our instructional courses will cover a wide array of topics from salt marsh ecology and biology, macroinvertebrate identification, and sediment toxicity testing to analytical chemistry, human ecology of the region, ecological risk assessment and computer modeling of environmental pollutants. Our field activities this year will include two offshore boat trips, coastal birding, beachcombing, Native American related studies, and a lighthouse tour.

On Friday, our platform presentations will also cover a lot of ground with presenters detailing historical fish tissue data collected by the New Jersey Department of Environmental Protection for use as fish consumption advisories. Also, the use of the mobile Trace Atmospheric Gas Analyzer (TAGA), designed to evaluate contamination in both indoor air and ambient air, all on-site in real time, will be presented and discussed. The TAGA bus will be on-site (pending emergency response requirements) and available for examination by interested individuals. Our third presentation will cover how technical data and ecological risk assessments are incorporated into the policy decision process by a senior member of the U.S. EPA's Environmental Response Team.

This year we are also extremely fortunate to have as our keynote speaker, current NASA astronaut, Richard M. Linnehan, D.V.M. (See article on following page). Please make plans to attend both days — we promise that you won't be disappointed!

HDC-SETAC Annual Meeting
Keynote Speaker: Around the world 692 Times

By Ken Hayes, Aqua Survey, Inc.

Come meet this year's annual meeting Keynote Speaker, astronaut Richard M. Linnehan, D.V.M. Dr. Linnehan, a veteran of three space flights, has logged over 43 days in space, including three space walks, totaling 21 hours and 9 minutes. Appearances of active astronauts are rare. Rick has assured me that he will fly into Newark Thursday night to be our Keynote Speaker on Friday, barring any unforeseen operational commitments or mission priorities.

Rick is looking forward to sharing with us his experience as a NASA scientist. Few people that you have ever met—and probably will ever meet—will have his perspective of the world. If you have ever wondered what it would be like to be an astronaut or what motivates a person to leave the safety of the shuttle and step into space untethered… this is your chance to find out…your chance to meet a real adventurer. As a side note, Rick Linnehan, along with Ben Affleck and others, were named to be 2002 People Magazine's "Sexiest Men Alive."

As a graduate of the University of New Hampshire, Rick, received his DVM from Ohio State University of Veterinary Medicine in 1985. He is a member of American Veterinary Medical Association of Zoo Veterinarians, the International Association of Aquatic Animal Medicine and the Association of Space Explorers. He is a Board member of the Texas Marine Mammal Stranding Network and the Tulane/Xavier/NASA Astrobiology Center, New Orleans, Louisiana. Selected by NASA in March of 1992, Dr. Linnehan reported to the Johnson Space Center in August of 1992, where he completed one year of Astronaut Candidate training qualifying him for Space Shuttle flight assignments.

Having Dr. Linnehan as the Keynote continues the tradition of having incredible keynote speakers (e.g., Pulitzer prize winners, Emmy winners, governors…). Rick tells me that he is looking forward to meeting you. For more information about Rick, Google *Richard Linnehan*.

New United Nations Oil Tanker Regulations May Raise Gasoline Prices

By Chris Nally, American Aquatic Testing, Inc.

Beginning on July 1, 2004, the United Nations will require all ships and ports of the world to comply with tougher international anti-terror procedures adopted after the September 11 attacks on the United States. The new standards require ships and ports to develop plans for assessing threats that could cause significant loss of life and property damage and to adopt security measures to mitigate those risks. The stricter procedures may cause U.S. officials to ban some ships, including oil and gas tankers, from entering U.S. ports if the ship fails the new security standards. These new standards will become effective at the height of the busy U.S. summer driving season, when retail prices for gasoline are historically at their highest during the year.

The United States Coast Guard said that it did not plan any special treatment for international tankers. Agency spokeswoman, Jolie Shifflet, told reporters, "*We aren't taking any different stance on the oil and gas (shipments). Owners and operators of oil and gas tankers should expect to encounter the same kind of inspections as all the other international vessels that are coming into the U.S.*" While turning back a vessel is the most severe response, the Coast Guard could also take less drastic action against violators, such as boarding and inspecting individual ships before allowing them into a port. Shifflet did not say if the Coast Guard is worried that some major oil producing nations might not meet the new security standards, which are being overseen by the London based International Maritime Organization (IMO). Countries reportedly behind schedule in meeting the July 1 deadline include: Saudi Arabia, Nigeria, Indonesia, Kuwait, and the United Arab Emirates.

Recent forecasts of retail motor fuel prices for this summer will likely reach a record high, according to Energy Department estimates. "*The prospects of oil prices diminishing significantly prior to the driving season have weakened, and there is a high likelihood of additional gasoline price increases*," this from the department's Energy Information Administration. This forecast, along with the new heightened security requirements, will most likely make summer gasoline prices the highest in our history.

Update: Ken Hayes recently had lunch with last year's keynote speaker, Stan Waterman. Waterman was working on editing his latest underwater documentary when the Hayes family trooped in for lunch. Waterman thought that the SETAC organization was the right cause and he felt his time was well spent with us last year. Waterman cherishes his speaker's gift, the "shark pipe" that Lisa Baron had custom made for him in Turkey. He wished the whole group well.

that they are successful projects. A conference "*Restoring Greenspace: Using Ecological Enhancement at Region 2 & 3 Contaminated Sites*" is being sponsored by the Wildlife Habitat Council on June 23-25, 2004 at the Hilton Philadelphia City Avenue. The conference will present findings of leading technical experts on benefits and lessons learned based on specific case studies where ecological enhancements have been implemented as interim remediation measures and end uses. The conference will take a first-hand look at projects (via field trip) in which ecological enhancements have been successfully incorporated as part of site restoration efforts. Also, it will provide landowners and regulators with the tools to implement ecological enhancements by identifying contaminated sites where natural technologies can be implemented. More information can be found at www.wildlifehc.org/events/restoringgreenspace.cfm

Vieques Naval Training Range Converted to Wildlife Refuge and Wilderness Area

By Rich Henry, U.S. Fish and Wildlife Service

The former Vieques Naval Training Range (VNTR) included property that was commonly known as the Atlantic Fleet Weapons Training Facility (AFWTF) Inner Range, which comprises approximately 14,500 acres on the eastern end of Vieques, Puerto Rico, including about 900 acres that make up the Live Impact Area (LIA). A variety of readiness training activities have been conducted on the VNTR and near-shore areas since 1947, including ground maneuvering, naval surface fire support, amphibious operations, and air-to-ground target practice (both live and inert). Small arms ordnance training occurred in small arms ranges located throughout the maneuvering areas. Camp Garcia provided support for training exercises, including food service, security, facility maintenance, and fire protection.

On December 28, 2001, Congress mandated that that the Department of the Navy (DON) cease training exercises on Vieques by May 1, 2003 and that VNTR lands be transferred from the DON to the Department of the Interior (DOI) (Public Law 107-107 and 106-398). Congress further directed that the DOI administer these lands as a wildlife refuge under the National Wildlife Refuge Administration Act of 1966, with the exception of the LIA, which Congress directed shall be administered as a wilderness area under the Wilderness Act, but with no public access.

There are considerable natural resources and habitats on the VNTR, and nearly 3000 acres have been designated as conservation zones. However, these lands contain areas that may have been contaminated by past activities that could pose risks to human health and the environment. Potential risks include unexploded ordnance (UXO), and contamination to ground water, surface water, and terrestrial systems with chemicals that may be toxic, bioavailable and/or bioaccumulative. Currently, there are 12 known Resource Conservation and Recovery Act (RCRA) sites and/or areas of concern, and 23 potential hazardous waste sites have been identified from aerial photographs. The assessment and remedial activities of hazardous and/or contaminated sites will follow RCRA and/or Comprehensive Environmental Responsibility and Clean-Up Act (CERCLA) protocols.

Protecting us from Ourselves and Our Enemies: FUDS, UXOs, and WMDs

By Ken Hayes, Aqua Survey, Inc. and Richard Henry, USFWS

This fall, HDC will host a one-day workshop that will detail how lessons learned at Formerly Used Defense Sites has helped to prepare environmental professionals for the defense of our homeland from the acts of terrorists.

Prior to September 11, 2001, environmental professionals were focused on the identification and clean up of environmental problems related to our historic and modern societal activities. These activities included military programs aimed at protecting our homeland. Formerly Used Defense Sites (FUDS) are real properties that were owned, leased, possessed, or otherwise under the operational control of the Secretary of Defense. Due to changing military technologies, goals, and strategies, many defense sites are being targeted for closure and conversion to civilian use. Prior to conversion, environmental evaluation and restoration procedures must be applied to protect public health and the environment. As of 2002, former defense properties (2,823 sites) were identified as requiring environmental response actions at an estimated cost of 14 billion dollars. Many FUDS represent clean-up challenges similar to other industrial and hazardous waste sites. However, many have been left with unexploded ordnances (UXOs), as well as contamination from chemical/biological warfare agents and other weapons of mass destruction (WMDs). These conditions present a special kind of challenge to those involved with the site clean up, as well as for future users of the site.

After September 11, 2001, environmental professionals began to focus on the early detection of warfare agents and WMDs in the air, water and food supply of the United States. Many of the tools and technologies that have been used to detect, characterize and remediate contaminants at hazardous waste sites and FUDS are now being used to detect, characterize, and deter the malevolent acts of saboteurs.

This intensive course will place you in a room with key government and private sector experts who will provide you with crucial information needed to safely and effectively conduct investigations at FUDS.

Thank You, 2004 Corporate Sponsors

By Larry Lyons, Lockheed Martin/REAC

A "round of applause" is in order to our "2004 Corporate Sponsors" acknowledged on the back page of this newsletter. Our continued success and growth is made possible with the generous support of our "Corporate Sponsors." The funding allows our chapter to provide quality conferences and workshops at a reduced cost to our members, and aids in paying for many behind-the-scenes operating expenses. This funding also permits us to offer an attractive student award program for undergraduate and

graduate students. It also sponsors awards at the Delaware Valley Science Fair, a regional science fair for high school students.

If you would like to join this distinquished list of "Corporate Sponsors," please feel free to contact me at 732-494-4075 or by E-mail (lalyons@EQsolutions.com). You can choose to be a Full Corporate Sponsor with a contribution of $500 or an Associate Corporate Sponsor with a contribution of $250.

REGULATORY UPDATES

DREDGING AND TREATABILITY PILOT LOWER PASSAIC RIVER RESTORATION PROJECT UPDATE

By Lisa Baron, NJDOT/OMR

Lisa Baron, Office of Maritime Resources/ New Jersey Department of Transportation (OMR/ NJDOT) OMR/NJDOT, USEPA and the USACE are conducting a Dredging and Treatability Pilot as part of the Lower Passaic River Restoration Feasibility Study. Previous newsletters have described, in detail, the Federal and State partnership formed to complete a Feasibility Study for the lower 17-mile stretch of the Passaic River. In order to collect information to evaluate remedial alternatives to cleanup and restore the Passaic, a Dredging and Treatability Study has been a top priority for OMR and EPA.

The pilot was officially initiated in October, 2003, where the consultant team (EarthTech, Malcolm Pirnie and Aqua Survey) began preparation of a Dredging Technology Review Report and a series of work plans to conduct field work in preparation of pilot implementation. These documents, currently under agency review, will soon be on our website – www.ourpassaic.org.

The dredging pilot will take place within the Harrison Reach of the River. Aqua Survey, OMR, USEPA and Earth Tech recently conducted side scan sonar and bathymetric surveys within the reach to determine the best location for the 1½- acre dredging area. Once the specific location is determined, 15 sediment cores will be collected to characterize the sediments (planned for early May). Chemical and geotechnical analyses of these cores will characterize the material to be removed for decontamination and identify concentrations in sediments that will then be

Superfund process, and the practical aspects of conducting a scientific investigation. Also, in a field and laboratory setting, the science students collected data for the EPA and prepared a report detailing their findings. Currently, this data is being evaluated and used, along with the data collected the previous year, to evaluate remedy effectiveness.

ENVIRONMENTAL TIDBITS

ENVIRONMENTAL REMEDIATION WITH NATURE MIND

By Chuck Nace, U.S. EPA

When one thinks of environmental remediation, visions of earth-moving machinery, impervious caps, and pump and treat systems come to mind. These focus on the remediation part…but what about the environmental part? The environmental part of Superfund and Brownfield redevelopment is often primarily focused on ensuring that the appropriate cleanup goals are met to protect public health and the environment. Granted, this is a very important aspect and in itself is great for the environment! However, unless a wetland area is impacted, there is generally limited focus on creating or enhancing ecological habitat. Recently, there has been a push by both the private sector and governmental agencies to include nature in redevelopment plans. This can be seen in both the number of redeveloped sites that have included greenspace areas in projects aimed primarily with human activity in mind, such as parks, hiking trials, and athletic fields. But it can also be seen at the other ends of the spectrum, where office complexes being built on former Brownfield sites are incorporating storm-water retention areas that are wildlife-friendly and where land that would otherwise be undevelopable from a human usage perspective, such as landfills, are being returned to productive use for wildlife.

There are many reasons why this is happening, but one of the main forces that is encouraging this type of redevelopment is the public's desire for greenspace. As leisure time increases in the population, people increasingly want open space to enjoy the natural world. Going hand-in-hand with the desire of the public for recreational areas that present an environment for observing wildlife is the desire by companies to portray a "green" image. The combination of these two forces is also spurring government agencies to incorporate and encourage ecological enhancements as part of remedial actions.

Although providing ecological enhancements as part of site remediation is not a totally new concept, there is still much to be learned about when ecological enhancements should be included and what the best approach is for ensuring

Local High Schools Involved in Remedial Process at a Superfund Site

By Rich Henry, U.S. Fish and Wildlife Service

The Torch Lake Superfund Site is located in the Keweenaw Waterway in the Upper Peninsula of Michigan. From 1890 to 1969, copper mining and processing activities produced wastes (including stamp sands) that were deposited in the lake and along the shoreline, filling about 20 percent of the basin volume. The EPA characterized mine wastes, surface water, sediment, and groundwater for the Site and, in 1998, selected a "No Action" remedy for Torch Lake sediment. This included the installation of a soil cap over shoreline deposits of stamp sands and the establishment of a vegetative cover to stabilize the soil. Construction of the soil and vegetation cap was initiated in September 1998 and by the fall of 2002, three distinct areas had been covered with a six-inch cap of sandy loam, and seeded with barley (*Hordeum vulgare*), rye (*Secale cereale*), clover (*Trifolium* sp.), and other perennial grasses and wildflowers. It is anticipated that construction of the remedy in other areas will be completed by 2008.

The remedy was evaluated by monitoring the establishment and development of the vegetative community and its ability to stabilize the soil cap. In addition, the habitat created was evaluated in terms of its ability to attract and support wildlife. In August 2002, a field investigation was conducted by scientists from the EPA Region 5 (Chicago, IL), the Natural Resource Conservation Service (Houghton, MI), the EPA's Environmental Response Team (Edison, NJ) and the Fish and Wildlife Service (Edison, NJ) to characterize the ecological setting of the remediated areas of the site. This included a small mammal, bird and plant survey, and an evaluation of soil fertility, plant biomass, plant root penetration, and percent soil coverage by vegetation.

The remedy and investigative activities are highly visible to the surrounding communities and generated considerable interest and public comment. Consequently, the EPA Project Manager felt it was important to actively involve the community in the remedial process. High School science teachers were invited to participate in a 2-day workshop facilitated by Michigan Tech University and the Western Upper Peninsula Center for Science, Mathematics, and Environmental Education, in Houghton, MI. Teachers from four local schools received information on the Site and the remedial process, as well as training regarding the field and laboratory procedures used. They also received equipment and supplies along with technical and logistical support to conduct an investigation similar to the study performed the previous year. Each teacher was assigned one of the remediated areas. They returned to their classrooms in the fall and incorporated the Site into their science curriculum. Their student had an opportunity to learn about the mining industry and the associated environmental concerns, the

exposed following dredging.

Dredging activities, planned for the summer of 2005, will remove approximately 5,000 cubic yards of material to be decontaminated by several technologies to produce beneficial use end products. Highly contaminated sediment will be treated by thermal destruction and sediment washing technologies to create cement, lightweight aggregate, glass and manufactured soil.

This pilot will evaluate the performance of environmental dredging technology, monitor sediment transport during dredging, and determine the effectiveness and economic viability of decontamination technologies in preparation of potential full scale operations. For more information about the Lower Passaic River Restoration Project, please visit our website, www.ourpassaic.org or call Lisa Baron at 609/530-4779.

What's Going on in Our Region?

Sandy Hook, New Jersey— High Diversity in Small Spaces

By Amanda Maxemchuk, Lockheed Martin/REAC

Greater than 50% of the world's population lives within 50 miles of the coast, and it is predicted that approximately 75% of the population will live within the coastal zone by 2025. Such a high density of people is associated with the overdevelopment of coastal regions. The result of overdevelopment, in turn, is the loss of habitat, habitat diversity, and community diversity. Fortunately, there are areas which are protected from such a tragic fate. One of those areas is the Gateway National Recreation Area, which includes Sandy Hook, New Jersey — the site of this year's HDC-SETAC spring meeting.

Sandy Hook is a barrier spit that stretches about 6.5 miles into New York Harbor. It is an ecological gem amidst the surrounding sea walls, boardwalks, oceanfront homes, industrial ports, and cities. Centuries ago, the surrounding area was inhabited by the Lenni Lenape Indians, who hunted and fished along the highlands of the Navesink River and visited

Sandy Hook for other natural resources, including cedar trees for dugout canoes, clams, beach plums, and fish. For more information about Native Americans on Sandy Hook, be sure to register for the "*Modern Eye for the Native Guy*" short course offered at this year's spring meeting.

The last ice age (approximately 35,000-12,000 years ago) was the most important glacial event to the formation of Sandy Hook. It was during this period that the headlands were formed, which supplied the sediments that would form Sandy Hook. Wind and wave activity eroded the headlands, and the Sandy Hook spit began to appear 4,000 years ago. Since that time, Sandy Hook has become an island five times, always re-connecting to the mainland with sediments deposited by the littoral, or longshore, current. Within the last few decades, sediment transport processes have been interrupted by the development of a sea wall just south of Sandy Hook, and now the connection with the mainland is maintained by beach replenishment.

Some of the first visitors to Sandy Hook were birds that carried seeds from the mainland. Vegetation began to grow, stabilizing the wind-blown and wave-washed sands. The plants, mostly hearty grasses, trapped the sand grains. The accumulation of sand grains buried the vegetation, but more vegetation grew. The cycle led to the formation and enrichment of sand dunes.

The primary sand dunes largely reduced erosion, however, extreme tides and storms resulted in overwash, carrying sand to the interior portion of the spit and widening it as sand deposited along the bayside. The enrichment of the sand from dead plant material allowed the establishment of thickets, shrubs, and trees behind the dune ridge, and included beach plum, winged sumac, wild black cherry, eastern red cedar, holly, and poison ivy. These species provided more stabilization.

Salt marshes developed in much the same way. Seeds carried by birds and drifting sands were deposited, and vegetation established on the mud flats. Nutrients were provided by incoming tides. Today, more than 200 acres of marsh can be found on Sandy Hook, dominated by cordgrass in the low marsh and salt hay, rushes, saltwort, and orache in the high marsh. Freshwater marshes are found in the interior of the spit, and saltwater marshes are found along the bay side. Fresh water for the interior marshes is supplied by rainwater and underground springs. To learn more about salt marshes, be sure to attend the salt marsh ecology short course offered at this year's spring meeting.

On the bay side of the spit, buffered from the Atlantic Ocean and fed by the Shrewsbury and Navesink Rivers, the Sandy Hook Bay estuary was formed. This ecotone, or ecological gradient, supports a wide diversity of plants, fish, and

invertebrates. The mixing of saltwater and freshwater results in a nutrient rich "soup" which supports high productivity. The habitats within the estuary serve as a nursery and feeding ground for many species. Both morning and afternoon cruises will be offered at the spring meeting to participants who would like to see and learn more about the estuary.

Sandy Hook supports a wide variety of coastal habitats, from ocean to beaches, to sand dunes to closed grassland areas, to backdune forests to salt and freshwater marshes to estuary. All of these amazing sites are within hiking distance of each other and are a nice escape from the concrete and asphalt which is part of our everyday lives. So whether you're a beach bum, avid bird watcher, casual wildlife observer, or just looking for a good place to hike, Sandy Hook is a place you must visit. The HDC-SETAC spring meeting is a perfect opportunity to take advantage of experiencing all of this beauty, and learn about it, as well. In addition to the courses mentioned above, courses on bird migrations, macrobenthic invertebrates, the tragedy of common use of natural resources, and an early morning birding adventure will be offered. We hope to see you there! If you can't make it, for more information refer to "*The Hook Book – A Guide to Common Marine Organisms of Sandy Hook*," published by the New Jersey Marine Sciences Consortium, Sandy Hook, New Jersey.

Hayes Receives Award for Being a 2003 Top Newsmaker

By Jon Doi, Aqua Survey, Inc.

Ken Hayes demonstrates water security technology to Congressman Rush Holt, Ph.D.

On April 1, 2004, Ken Hayes, President of Aqua Survey, Inc. and HDC-SETAC Board Member, received an award for being one of 25 top newsmakers for the year 2003. Hayes received the award at a black-tie event, hosted by Engineering News-Record (ENR), held at the Marriott Marquis—Times Square. Ken is receiving recognition for his contribution to homeland security. His patented IQ-Tox Test™ was the only method verified by Battelle Memorial Institute, under contract to EPA, to be able to rapidly detect chemical and biological agents that saboteurs might choose to contaminate drinking water. Agents such as Ricin, Botulinum, Soman, VX, cyanide and others were tested. The IQ-Tox Test™ was the only technology of the eight technologies studied by Battelle to be able to detect all of the agents tested below the agent's human lethal dose level (the concentration of an agent in a glass of water that would kill a 154 pound person). "*There are a lot of people over the years who have helped to make the IQ-Tox Test™ technology successful, and when I accepted the award, I accepted it for all of us. Although awards are nice, an even greater affirmation is knowing that the technology is being used today in this post 9-11 world to help thwart terrorists in such major cities as New York and San Francisco,*" reflected Hayes.