

BATTELLE

# Environmental Updates

Highlights of Battelle's International Environmental Leadership

Spring 2003

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# Battelle and IMP Form *New Strategic Alliance*

Since 1995, Battelle has been drawing on its combined expertise in oil and gas operations and technical skills in pipeline integrity, environmental impact assessment, and environmental management to add value to PEMEX, the sixth largest petroleum producing company in the world. As part of Battelle's initial project work for PEMEX, Battelle teamed with the Instituto Mexicano del Petróleo (IMP) and staff from the Universidad Nacional Autónoma de México (UNAM) to conduct an integrated assessment of PEMEX's environmental impacts.

In 1998, Battelle formed an alliance with the IMP, UNAM, and the Universidad Autónoma Metropolitana (UAM) to jointly provide environmental and other services to PEMEX and additional clients in the region. Using expertise in offshore exploration and production operations and environmental impacts, this Alianza has recently initiated a similar investigation of offshore production in the Sonda de Campeche area of Southern Mexico.

On January 13, 2003, Battelle and IMP's respective CEOs, along with the Director General of PEMEX as a witness, signed a new strategic business alliance in Mexico. The focus of this partnership agreement is centered on technology transfer and capacity building between Battelle and IMP in the areas of environment and safety. The new alliance business model motivates both companies to identify existing technologies or propose collaborative development of new technologies that are best suited to address the needs of PEMEX and other potential clients. Ing. Alfonso Ramirez Lavin, Chief of Staff at the IMP, stated "I am excited about the prospects for the innovative business model we are attempting to implement with the Alliance. We will



strengthen both of our institutions as a result and will have an innovative model that we can replicate in other markets around the world. Technology transfer is the key to sustainable development and our Alliance may represent a model for international collaboration

thereby addressing many of the concerns expressed by those who question the true benefits of globalization."

The potential of the new collaboration is limitless. Although the initial focus of the Alliance is on PEMEX, both Battelle and IMP have ambitions in non-oil and -gas areas as well. The hope is that the Alliance will enable the two companies to tackle important environmental issues with a regional impact. Dr. Jon Olson, President of Battelle Mexico, stated, "The challenges are great but the rewards are significant for both institutions. We have all the elements for success in this Alliance including the commitment from senior leadership. We share common principles and a dedication to improving the social condition."

The initial focus of the technology transfer activities between IMP and Battelle will be on eight technologies encompassing environmental laboratory, environmental information systems, pipeline integrity and security systems, environmental assessment, emergency response systems, and remediation management.

For further information, please contact Rick Chidester at (206) 528-3230, [chidesterr@battelle.org](mailto:chidesterr@battelle.org), or Alfonso Ramirez Lavin at 011-52-55-3003-6200, [arlavin@www.imp.mx](mailto:arlavin@www.imp.mx).

## Behind the Scenes of a Successful Partnership: An Interview with Sergio Reyes Luján of the *Instituto Mexicano del Petróleo (IMP)*

In 2002, Dr. Gustavo Chapela Castañares, Director General of the Instituto Mexicano del Petróleo (IMP), asked the physicist Sergio Reyes Luján to become Director of the Institute's environmental area. Sergio has rather unique qualifications that make him a well known environmentalist in Mexico. He has served with distinction as Undersecretary of Environment, was founding President of the National Ecological Institute (the Mexican equivalent of the EPA) and was the fourth Rector General of the Autonomous Metropolitan University in Mexico City. As Undersecretary of the Environment, Sergio established a personal relationship of trust and confidence with U.S. EPA Coordinator Bill Riley that facilitated the negotiation of difficult environmental issues affecting our common border and brought the US and Mexico closer together to find solutions to common problems. Also significant: Sergio served as the signatory representing Mexico on the Montreal Protocols.

Battelle is working closely with Sergio through our Alliance to support his efforts in bringing together the diverse capabilities from across the Institute and formulating a business plan to market those products and services to PEMEX and other clients. "We don't have all the expertise we need in order to meet PEMEX's demands" stated

Sergio. "Our Alliance with Battelle allows us to amplify our product offerings."



**'Our Alliance with Battelle allows us to amplify our product offerings. The Alliance**

**is stronger than the sum of its parts and through our collaboration we will be in a better position to enter into other countries and markets.'**

— Sergio Reyes Lujan

The Alliance is stronger than the sum of its parts and through our collaboration we will be in a better position to enter into other countries and markets."

Through the Alliance, we can tackle important problems with a regional impact. Sergio believes that the most serious environmental challenge facing Mexico is water. "Our aquifers are having a lot of problems due to overexploitation. The second priority issue is deforestation - particularly in the South."

While awareness of environmental problems has increased in recent years, "the importance of the environmental issues has decreased...People are more interested in jobs, security and economy, than in environment...In general, the environmental interests in the U.S. have decreased as well - We don't see the presence of the U.S. in environmental issues internationally," he lamented.

Sergio envisions success for our Alliance, stating that he believes within five years we will be working with state and local governments on water and waste treatment projects. Sergio also believes that "We will be operating together in two or three other countries as well...we will have a flagship laboratory in Veracruz managed in collaboration with Battelle."

For further information, please contact Rick Chidester at (206) 528-3230, [chidesterr@battelle.org](mailto:chidesterr@battelle.org).



# Battelle Opens *Mexico Office*

To aid in technology transfer and in support of its developing business activities, Battelle recently established an office in Mexico: Battelle Mexico S.A. de C.V. - a fully owned Mexican subsidiary. This office will assist in the identification and marketing of business opportunities for the environment sector and other Battelle businesses. It will also support Battelle's goal of excellence in the delivery of services to PEMEX, other parts of the Mexican government, and private industry in Mexico.

The creation of Battelle Mexico will both accelerate the growth of Battelle's oil and gas business and increase Battelle's ability to have a significant impact on issues of importance to Mexico and the U.S. These include the sustainable development of the Gulf of Mexico, the



economic development of Mexico and the region, the resolution of critical environmental problems along the border and elsewhere in Mexico, and the development of a stable, high quality source of energy to support both U.S. and Mexican economic growth.

In the coming years, Battelle, in partnership with IMP, will work closely to help address critical environmental and safety areas

related to expansion, exploration, production, and minimizing environmental contamination.

For further information, contact Dr. Jon Olson, President, Battelle Mexico at (206) 528-3200, [olsonj@battelle.org](mailto:olsonj@battelle.org).



## Battelle and Ohio State University Partner on *New-Tech Bayesian Modeling*

A shared belief in the value of collaborative research has energized a new partnership between Battelle's Measurement and Data Analysis Sciences (MDAS) Product Line and the Spatial Statistics and Environmental Sciences (SSES) Program, Department of Statistics, at The Ohio State University (OSU). Participants have shared recent environmental research through presentations and technical discussions during the fall 2002-winter 2003 academic quarters. Analysis of remote sensing (satellite) data, physical-statistical modeling, and combining monitoring data with model predictions were among the topics. This spring, participants will identify opportunities for collaborative research.

Interest in the power and flexibility of hierarchical Bayesian modeling (HBM), an emerging decision-making and information-synthesis technology, is a central theme of the collaboration. While HBM is not new, only in recent years has it emerged as a practical solution to an array of problems. Its power lies in its probabilistic approach of breaking highly complex, multi-dimensional relationships into conceptually simpler and logically intuitive hierarchies. HBM's flexibility results from its ability to incorporate all available information (data), including but not limited to, qualitative scientific knowledge, disparate data structures, and multiple data sources. Another strength is HBM's accurate characterization of uncertainty, which in turn supports more informed decision-making. As additional information becomes available, this tool facilitates increasingly improved

decision-making over time.

HBM technology is not limited to environmental settings. A recent MSN® article (<http://msn.com.com/2100-1104-984921.html>) suggests that HBMs are integral to the data-search and information-retrieval technologies of companies such as Google and Autonomy. HBMs are also used "...to determine correlations between specific symptoms and diseases, create personal robots, and develop artificially intelligent devices that 'think' by doing what data and experience tell them to do." Microsoft has already incorporated HBM into several existing applications and plans to embed this technology in future software that lets communication devices automatically filter messages and derive strategies for reaching people. Later this year, Intel intends to provide a tool for constructing HBMs. One existing application involves cameras that warn doctors if patients are at near-term risk of suffering a stroke.

Over the past three years, Battelle's MDAS Product Line has developed capability and experience in HBM through EPA project support, internally funded research, and the recent hire of Dr. Christopher Holloman, an experienced HBM practitioner. Participating OSU faculty members - Dr. Noel Cressie, Director of the SSES Program, Dr. L. Mark Berliner, and Dr. Tom Santner - are nationally recognized for scientific contributions in this area.

For more information, contact Dr. Steven Bortnick at (614) 424-7487, [bortnick@battelle.org](mailto:bortnick@battelle.org).

# *Culvert Technology May Help Young Salmon Muscle Their Way Upstream*

Tens of thousands of culverts lie beneath roads in the Pacific Northwest, successfully moving water under the roadbed to preserve the road and prevent flooding. At the same time, many of these same culverts are blocking juvenile salmon from migrating upstream to their habitat where they need to survive and grow.

Pacific Northwest National Laboratory (PNNL), under operation by Battelle, participates in a consortium led by the Washington State Department of Transportation (WSDOT), which includes transportation departments from other West Coast states, including Alaska. The consortium funds a program to find viable retrofits for the culverts in the Pacific Northwest that may be preventing juvenile salmon from completing their life cycles.

The culvert testbed program promises not only to evaluate current and future retrofits, but to do so in a comprehensive way. "This project is a true interdisciplinary project because we're blending the expertise of hydraulics engineers, mechanical engineers, statisticians, fish biologists and fish behavior specialists to find a solution to a problem that faces the entire Northwest and has implications for culverts throughout the country," said Dr. Walter Pearson, PNNL Project Manager. "We're doing this in a systematic,

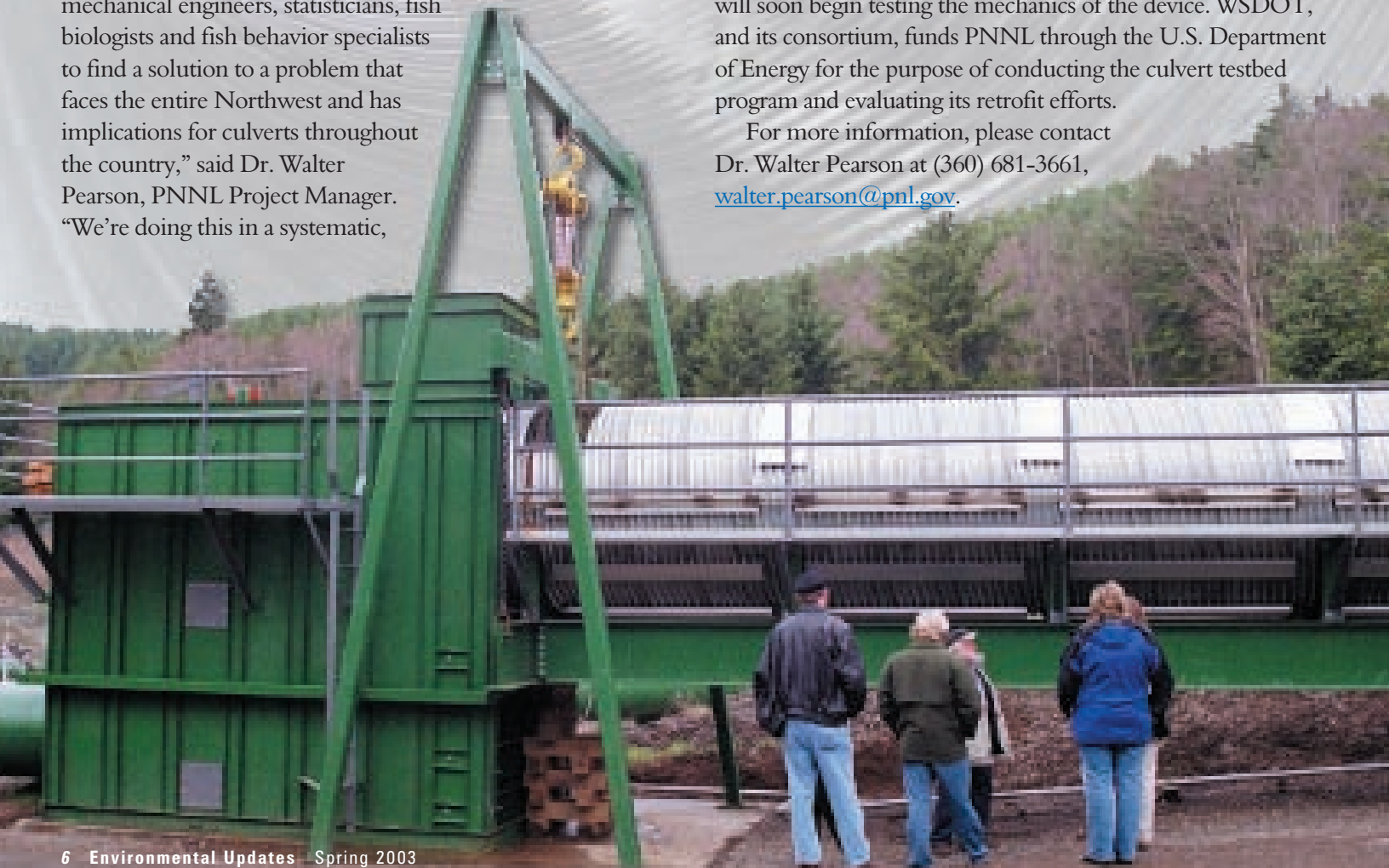
scientific way, using well-designed experiments in a well-engineered facility."

Located at the Washington Department of Fish and Wildlife Skookumchuck Hatchery near Tenino, Washington, the culvert testbed is a physical device, into which scientists can place an active culvert. By changing the culvert's water flow and slope settings, scientists can measure hydraulic conditions, or how water flow interacts with the culvert system, influencing water velocity or creating turbulence. These scientists will also conduct trials with juvenile fish to determine how well fish pass through various retrofit designs.

This new testbed program will enable scientists to set the hydraulics and observe fish behavior and then adjust the hydraulics and observe changes in fish behavior. "There are hundreds of possibilities for bed configurations. A particular design will stop passing fish at some flow or some slope and that's what we'll be looking for," Dr. Pearson stated.

Installation of the testbed is almost complete and researchers will soon begin testing the mechanics of the device. WSDOT, and its consortium, funds PNNL through the U.S. Department of Energy for the purpose of conducting the culvert testbed program and evaluating its retrofit efforts.

For more information, please contact Dr. Walter Pearson at (360) 681-3661, [walter.pearson@pnl.gov](mailto:walter.pearson@pnl.gov).



# Hanford Partnerships Lend Scientific Expertise to Technical Issues

Partnerships with contractors at the U.S. Department of Energy's Hanford Site are bringing scientific expertise from the Battelle-managed Pacific Northwest National Laboratory (PNNL) to a variety of cleanup projects at the site. "The arrangement is mutually beneficial," John LaFemina, PNNL's Environmental Quality Subsector Manager, said. "Hanford contractors access some of the best scientists and facilities in the world, while the scientists work on challenging problems whose outcome will make a difference in our quality of life."

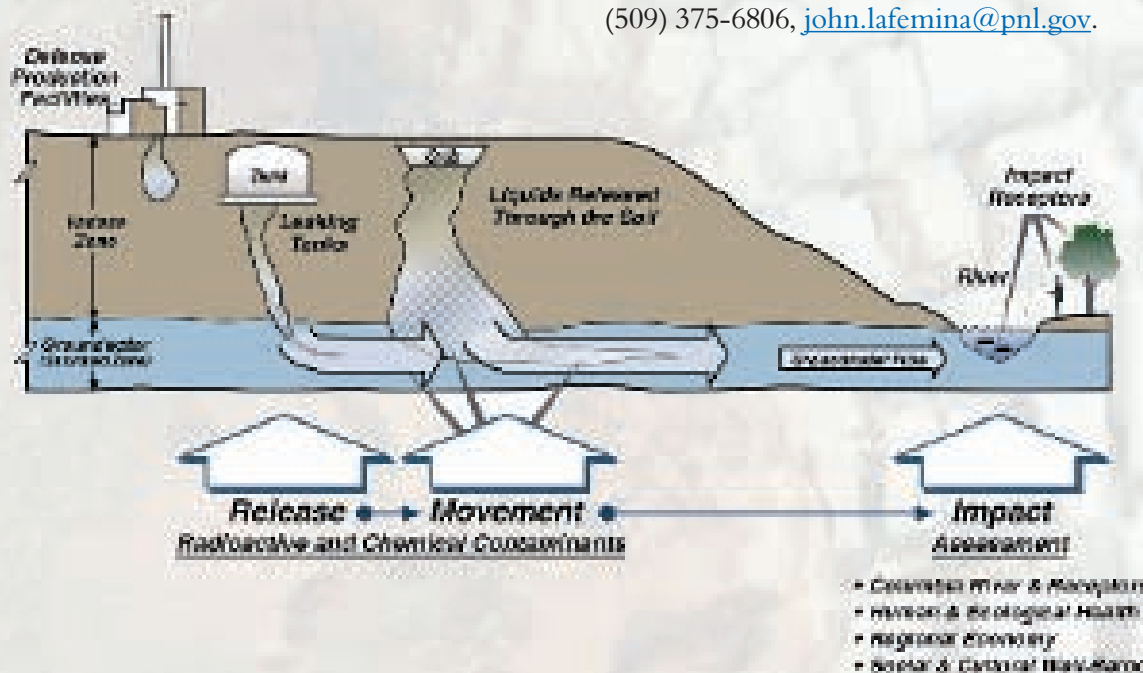
In April 2000, PNNL partnered with the Project Hanford management contractor, Fluor Hanford, Incorporated, to better understand and deal with technical risk and uncertainty in cleanup decisions. Facilitating plutonium stabilization and deepening scientific understanding of spent nuclear fuel to support Fluor's efforts to place the fuel in dry storage have been a focus of PNNL's work. The laboratory's innovative stabilization process for deteriorating "polycubes" of polystyrene and plutonium allowed Fluor to meet critical milestones and avoid extra costs. Analyses of sludge from spent nuclear fuel stored in holding basins are helping Fluor determine operating parameters for storing the radioactive mud.

PNNL also offers solutions for Fluor's Groundwater Protection Program. Through long-term data collection and mathematical modeling, researchers have developed a

systems model of the Hanford site that provides an integrated view of the hydrogeologic, chemical contaminant, and radiological contaminant conditions in the subsurface. The model, which is being used to predict the composite impact of Hanford's waste sites on the environment, helps Fluor prioritize contaminated subsurface sites to consider technology options and to examine various scenarios for movement of contaminants.

Last fall, PNNL and the CH2M HILL Hanford Group agreed to work together on technology identification, development, and planning in support of Hanford tank cleanup and closure. PNNL helps its partner evaluate supplemental technologies for packaging transuranic materials (those that have a higher atomic number than uranium) for disposal at the Waste Isolation Pilot Plant, and for treating low-activity wastes from Hanford's tanks. This specialized technical expertise helps CH2M HILL meet its performance incentives, according to Tom Brouns, the PNNL relationship manager. Another partnership was created when Bechtel National Inc., builder of the Hanford Waste Treatment Plant, contracted directly with Battelle to develop and demonstrate the major chemical and physical processes in the plant. Battelle will test a variety of processes to help Bechtel run the facility at optimal levels.

For more information, contact John LaFemina at (509) 375-6806, [john.lafemina@pnl.gov](mailto:john.lafemina@pnl.gov).





# Battelle's Partners – Vital to Success of Environmental Technology Verification Program

Organized around six technology centers, the Environmental Technology Verification (ETV) program of the U.S. Environmental Protection Agency (EPA) has to date verified the performance of more than 200 commercially available technologies, thus quickening the pace at which they are used in the marketplace. Battelle partners with the EPA in managing the Advanced Monitoring Systems (AMS) Technology Center, which verifies technologies that monitor natural species and contaminants in air, water, and soil. In turn, Battelle's partnerships with other organizations ensure the Center's success.

The ETV program employs third-party, quality-assured verification testing to accelerate the implementation of environmental technologies. Buyers and users rely on ETV performance data to make informed purchase and application decisions. Battelle's AMS Center partners have provided: sites and operating personnel for verification tests; reference measurements which form the basis for technology verification; funding; and an expert peer review of test plans and verification reports.

Among Battelle's partners for AMS Center verification tests are:

**Massachusetts Department of Environmental Protection (DEP).** The DEP funded verification of four continuous emission monitors (CEMs) for mercury, which were tested at a pilot-scale combustion system, under varying mercury concentrations, particulate loading, and flue gas composition.

**National Oceanic and Atmospheric Administration (NOAA).** NOAA's Center for Coastal Environmental Health and Biomolecular Research in Charleston, South

Carolina, was the host site for a verification test of multi-parameter water probes. NOAA personnel assisted Battelle in developing the test plan, supervised daily test activities, and collected reference samples for analysis.

**U.S. Army.** For a verification test of a multi-metal CEM, the U.S. Army's Construction Engineering Research Laboratory provided a hazardous waste incinerator as a test facility, and supplied reference measurements, data reduction assistance, and personnel to operate the test facility.

**U.S. Department of Energy (DOE).** DOE's National Energy Technology Laboratory (NETL) provided the host site and personnel with a verification test of 13 monitors that continuously measure fine particulate mass and species in ambient air. NETL also invited the public and other interested parties to tour the test site and observe the technologies in operation during a Technology Field Day.

**Electric Power Research Institute (EPRI).** EPRI has contributed funding for a verification test of ammonia CEMs to be scheduled at a coal-fired power plant during Spring/Summer 2003.

**City of Columbus, Ohio.** At a water treatment facility managed by the city's Division of Water, two rounds of testing verified the performance of five continuous on-line turbidimeters.

For more information on AMS Technology Center verification tests, verified technologies, and opportunities for partnership, please contact Ms. Helen Latham at (614) 424-4062, [lathamh@battelle.org](mailto:lathamh@battelle.org).



Photos courtesy South Florida Water Management District.

## Battelle Partnership Contributes to Everglades Restoration Effort

The South Florida Ecosystem Restoration effort is the largest environmental undertaking occurring anywhere in the world. In order to “get the water right” the leaders of this effort, the US Army Corps of Engineers (the Corps) and the South Florida Water Management District (the District), have hired Battelle to provide them with the best available science, and innovative technologies necessary to make informed decisions and initiate appropriate actions to preserve and protect the South Florida ecosystem while providing for the water-related needs of a region. Known as the Comprehensive Everglades Restoration Program (CERP), the program is a shared federal and state effort with the cost of restoration estimated to be 12 to 15 billion dollars over the next 20 to 30 years. The District and the Corps have awarded Battelle’s Coastal Resource and Environmental Management and Safety (CREMS) group three significant contracts relevant to the Everglades Restoration program.

The Everglades was once a vast, free-flowing river of grass extending from the Kissimmee chain of lakes to Florida Bay. Wildlife such as wading birds, panthers and manatees were abundant, and the sub-tropical wetlands supported a rich diversity of plants, fish and other animals. Over the past 50 years, the landscape has been dramatically altered from the construction of more than 1,700 miles of canals and levees, a population increase to over 6 million people, expanded agriculture and other development. This has interrupted the Everglades’ natural sheetflow and resulted in a loss of more than half the original Everglades wetlands, a 90 percent reduction in the wading bird population, numerous species placed on the endangered or threatened species list, and an infestation of invasive plants. The South Florida Ecosystem has been seriously degraded by disruptions to its natural hydrology.

The CERP, the world’s largest ecosystem restoration effort, is designed to restore, protect, and preserve the water resources of Central and South Florida. An adaptive assessment approach is being used to evaluate and assess restoration progress by comparing new monitoring data to restoration targets (performance measures) and to existing baseline data. Within CERP, the role of Restoration Coordination and Verification (RECOVER) is to organize and apply scientific and technical information to support the objectives of the program as effectively as possible.

Last year, on behalf of the RECOVER program, the Corps contracted with Battelle to develop an inventory of the existing and relevant monitoring efforts throughout South Florida. This included water quality, and hydrologic as well as biological monitoring data projects. Recently, the District hired Battelle to evaluate and analyze the data and determine which studies could serve as baseline data for the CERP. This information will then be used to establish the baseline for the CERP Monitoring and Assessment Plan as well as identify the gaps in data to determine future monitoring needs.

The District also recently awarded Battelle with a multi-year Science and Engineering contract to provide science services in environmental science, toxicology, chemistry, quality assurance/quality control, and technical writing to assist the District in carrying out its CERP and water resource responsibilities. These responsibilities include conserving and developing water supply, protecting and improving water quality, mitigating impacts from flood and drought, and restoring and preserving natural resources. As a partner in these significant projects, Battelle’s scientific expertise will assist the SFWMD as it carries out its CERP mandate and water resource mission.

For additional information, please contact Ms. Sally Yozell at (561) 656-6302, [yozells@battelle.org](mailto:yozells@battelle.org).

# Battelle and Partners Lead Pioneering Study of Carbon Sequestration - A Key Climate Change Mitigation Technology

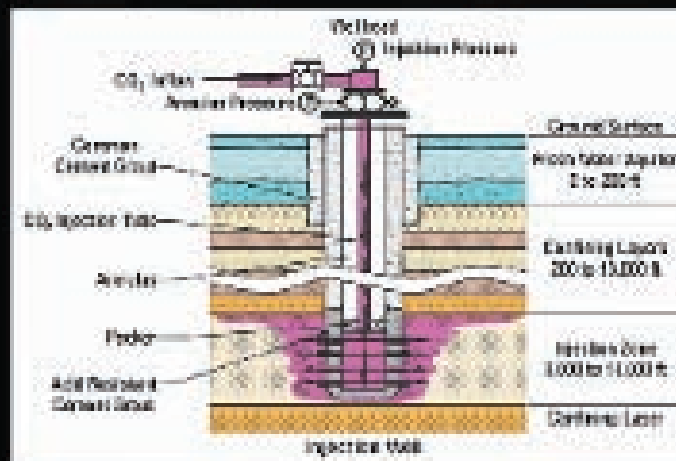
Concerns about climate change are stimulating groundbreaking research on advanced technologies designed to reduce greenhouse gas emissions, which are believed to contribute to global warming. Battelle scientists and engineers are deeply engaged in the process of developing some of these technologies from fuel cells to biomass energy systems. Battelle is also focusing significant resources on developing climate change solutions applicable to fossil fuel based electricity generation plants. Battelle and a consortium of partners believe that developing innovative solutions that will allow us to simultaneously reduce greenhouse gas emission, will also enable us to make substantial progress in addressing climate change and be able to enjoy a healthy and robust economy. A possible solution is to capture and permanently sequester carbon dioxide (CO<sub>2</sub>), the principal greenhouse gas of concern. CO<sub>2</sub> would be captured from flue gases, pressurized into a near-liquid state, injected into wells drilled 800 meters or more below the surface of the earth, and thereby permanently isolated under dense,

impenetrable rock formations known as caprocks. In addition to fossil fuel fired electric power plants, this capture and sequestration technology can also be used to control greenhouse gas emissions from other large industrial CO<sub>2</sub> sources such as refineries, cement plants and even future hydrogen production facilities for fuel cell powered vehicles.

Battelle is now leading a major climate change mitigation research project on permanent underground storage (geologic sequestration) as a technique for safely and

permanently disposing of CO<sub>2</sub>. Announced by the Secretary of the U.S. Department of Energy in a major speech last November, the 18-month, \$4.2 million study of the potential of geologic storage of CO<sub>2</sub> will take place at the Mountaineer coal-fired power plant owned by American Electric Power (AEP) in New Haven, West

## An Example of Injection Well Design



Virginia - in the heart of the largest concentration of fossil fuel fired power plants in the United States. Study results will enhance the understanding of geology along the Ohio-West Virginia corridor and surrounding areas of

the Midwest, where deep, thick saline sandstone formations may provide secure underground storage for captured CO<sub>2</sub>.

"The study is intended to demonstrate whether deep geologic formations can provide safe and permanent storage for CO<sub>2</sub> in the Ohio River Valley region," stated Battelle's Neeraj Gupta, project principal investigator. He and his colleagues will conduct a seismic survey within an 8-15 kilometer radius of Mountaineer to study the underground rock formations. A 3,000 meter well will be drilled to help researchers look at the geologic characteristics of underground structures, an important step toward determining whether or not they are suitable for CO<sub>2</sub> sequestration. Data will be used for simulations and risk assessments, as well as to design future injection and monitoring plans. Injection of CO<sub>2</sub> would not occur until the results of the study's current phase have been completely evaluated. If the research demonstrates that underground storage is safe, practicable, affordable, and effective at this site, the project partners may progress to planning and constructing a first of a kind integrated CO<sub>2</sub> capture and sequestration system.

Deep saline reservoirs are attractive for CO<sub>2</sub> storage because they are found across large parts of the United States and many large industrial CO<sub>2</sub> sources are located directly above these very attractive CO<sub>2</sub> sequestration reservoirs. The AEP/Battelle report findings will indicate whether rocks above possible disposal areas are sturdy enough and sufficiently free of interconnected fractures to assure that carbon dioxide cannot gradually escape. Although the risks of leaks or adverse impacts are low, one purpose of the study is to design risk mitigation strategies

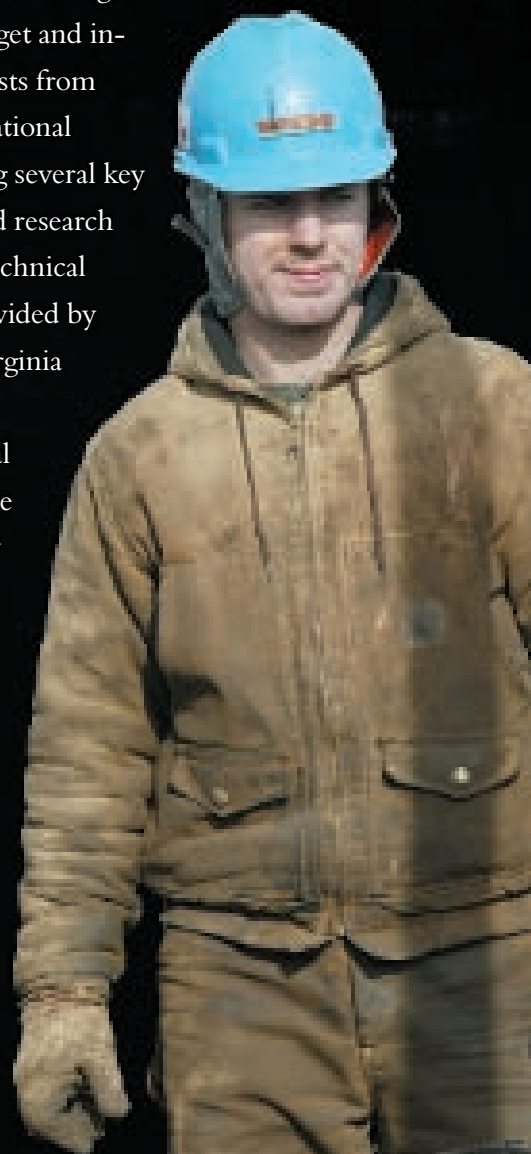


even for these very unlikely scenarios.

The importance of this research is underscored by the impressive consortium of partners that is supporting AEP and Battelle. DOE's National Energy Technology

Laboratory (NETL) provides \$3.2 million of the total budget, while AEP, BP, the Ohio Coal Development Office of the Ohio Department of Development, and Schlumberger are contributing the remainder of the budget and in-kind support. Scientists from Pacific Northwest National Laboratory are leading several key tasks in this integrated research project. Additional technical expertise is being provided by experts from West Virginia University, the Ohio Division of Geological Survey, the Ohio State University, and many field service vendors.

For additional information, contact Neeraj Gupta at (614) 424-3820, [gupta@battelle.org](mailto:gupta@battelle.org), or Jim Dooley at (301) 314-6766, [dooleyj@battelle.org](mailto:dooleyj@battelle.org).



## Battelle Partners with Central State University to Incubate Clean, Green Products

The need to move "green" technologies into the marketplace more quickly inspired a partnership between Battelle's Environmental Technology Commercialization Center and Ohio's Central State University (CSU) to launch the National Environmental Technology (NET) Incubator in January, 2001. The Incubator provides start-up firms and entrepreneurs access to laboratories and equipment, discounted office space, business support, and advanced information to help them bring new technologies to market, and offers CSU students valuable experience. AMR Technologies, the NET Incubator's first tenant, has "graduated" and expects to move into the National Composite Center in Kettering, Ohio to complete development of a thermoplastic piece using waste fly ash as a filler material. Fly ash produces plastic products of light weight, high strength and impact resistance - characteristics desired by, for example, the recreational vehicle market. Technologies like AMR's that improve efficiencies in the use of materials or energy are in demand because they increase competitiveness.

Another tenant, Global Neighbor, is developing a battery-operated, environmentally friendly lawnmower. Their innovative design dramatically lowers energy requirements, which inspired four students in CSU's Manufacturing Engineering Department to create plans for a manual push version of the mower. The Incubator and the Department applied to the National Collegiate Inventors and Innovators Alliance for a grant to file for patents on intellectual property developed by the students as well as for funding to develop the mower prototype.



CSU students in the College of Business and Industry, under the direction of Professor Ted Sampson, will perform market research studies for the three incubator companies: Global Neighbor, Welco and New Concept Solutions. These partnerships among CSU and the Incubator tenant companies provide real-world experience for students and assist the entrepreneurs. Funding from the Delphi Foundation in Dayton supports these practical educational experiences.

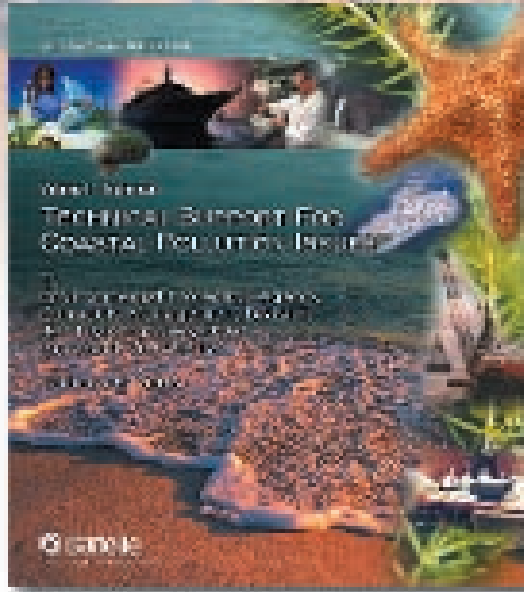
In 2002, the Incubator held its first National Business Plan Competition. The third place winner, Crystal IS, recently received \$1.16 million from the Department of Defense to further develop their aluminum nitride semiconductor, which could be used to make blue-light emitting diodes (LEDs), high-density optical data storage, as well as high-power and high-temperature devices. Jerry Mahone, Executive Director of the NET Incubator, stated that, "This year's Business Plan Competition was bigger and better than last year's inaugural event. Business plans were received from a larger geographic area and the quality rivaled the quality of those evaluated last year. The diversity of technologies this year also exceeded those we received last year." The business plan competition was cosponsored by the Miami Valley Economic Development Coalition and the Ohio Department of Development, Office of Energy Efficiency. Global Neighbor was the winner of the competition which was held at Central State University on April 14, 2003.

For further information, please contact Mr. Harry Stone at (513) 362-2602, [stoneh@battelle.org](mailto:stoneh@battelle.org).

# Battelle Wins \$20 Million EPA Coastal Pollution Issues Contract

Battelle's long-standing reputation as a national leader in coastal and marine resources management recently landed a \$20 million contract with the U.S. Environmental Protection Agency (EPA) Ocean and Coastal Protection Division (OCPD). Over the next five years, Battelle will provide EPA headquarters and regional offices with expertise in:

- environmental, ecological, and human risk assessments;
- ocean dumping and disposal, and dredged material management;
- database development and modeling;



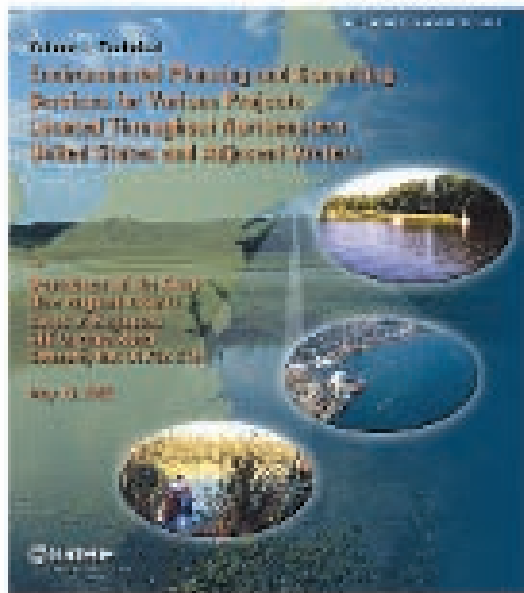
- technical and public outreach activities; and
- pollution control and mitigation.

Mark Curran, Program Manager, notes, "This award marks Battelle's sixth consecutive contract with EPA's ocean and coastal pollution program and demonstrates Battelle's continued technical leadership in coastal and marine resources management."

For more information regarding Battelle's support to EPA's ocean and coastal pollution program, please contact Brent Ache at (603) 448-3100, [ache@battelle.org](mailto:ache@battelle.org).

# Battelle Wins Third Consecutive U.S. Army Corps Contract

Battelle was recently awarded a \$15M, 5-year Environmental Planning and Consulting Services contract with the U.S. Army Corps of Engineers, New England District. This is Battelle's third consecutive contract of this type with the New England District. The work will involve: support for the Corps' major environmental missions, including operations and maintenance of the nation's waterways, flood control, environmental restoration, watershed management, environmental compliance and



remediation of contaminated sediments. Karen Foster, Battelle's Program Manager, stated, "We are thrilled to be selected for this contract and look forward to continuing to build on our valued relationship with the Corps."

For additional information, contact Ms. Karen Foster at (781) 952-5370, [foster@battelle.org](mailto:foster@battelle.org).

## Battelle Announces Key Hires

Dr. Christopher May has joined the Battelle-managed Pacific Northwest National Laboratory as a senior research engineer in the Marine Sciences Division. Dr. May will extend existing ecosystem assessment and restoration capabilities in the marine and nearshore environment into freshwater ecosystems with a focus on watershed analysis, stormwater management, non-point-source pollution issues, and salmonid habitat assessment. Dr. May has served as a researcher and adjunct faculty member at the University of Washington and Western Washington University, as a private consultant, and as a technical advisor to the U.S. Navy and Department of Defense for stormwater and watershed management issues.

Dr. May has been principal investigator on projects ranging from a study to evaluate the impacts of urbanization on aquatic ecosystems and the effectiveness of stormwater

best management practices for the Watershed Management Institute and EPA to the Kitsap and Jefferson County Salmonid Refugia Projects to identify and evaluate potential salmonid habitat conservation areas for endangered salmon. Dr. May holds a Ph.D. in environmental science and engineering from the University of Washington, a MS in industrial engineering and management from the University of Minnesota, and a BS in marine engineering from the United States Naval Academy.

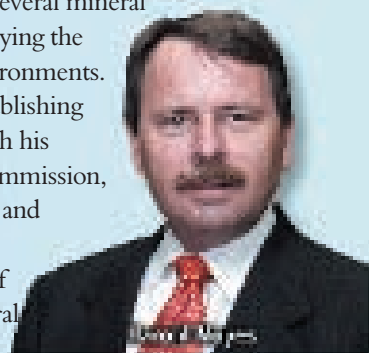
Dr. May can be reached at (360) 681-4556, [christopher.may@pnl.gov](mailto:christopher.may@pnl.gov).



Christopher May

Dr. Harold Noyes has also joined the U.S. Department of Energy's Pacific Northwest National Laboratory as Chief Scientist for the Field Hydrology and Chemistry group. Dr. Noyes' primary responsibility will be to establish joint research programs with the University of Alaska and the Department of Energy at Fairbanks. He also will pursue relationships with private firms, such as Alaska Native corporations. Noyes has many years experience with Alaskan issues. He served fourteen years as Chief Geologist and Manager of Natural Resources for Doyon Limited, an Alaska Native corporation and the largest private landowner in the United States. At Doyon, he was instrumental in establishing several mineral exploration firms focused on applying the latest technologies in remote environments. Noyes has been influential in establishing federal and state programs through his service to the Alaska Minerals Commission, the Alaska Division of Geological and Geophysical Surveys Advisory Committee, and the University of Alaska Fairbanks School of Mineral Engineering Advisory Board. Dr. Noyes has a Ph.D. in geology and geochemistry from the Massachusetts Institute of Technology and an MBA from the University of Chicago.

Dr. Noyes can be reached at (509) 376-8308, [harry.noyes@pnl.gov](mailto:harry.noyes@pnl.gov).



## CREMS Opens New Chesapeake Bay Area Office

Battelle's Coastal Resource, Environmental Management and Safety (CREMS) product line has opened a new regional office in Annapolis, MD. This new office enables Battelle to be more responsive to Baltimore area clients such as the U.S. Environmental Protection Agency

(EPA), the U.S. Army Corps of Engineers (USACE), and the National Oceanic and Atmospheric Administration (NOAA) Chesapeake Bay Program. Battelle's new Baltimore area presence will allow us to better serve these clients within the Mid Atlantic region by providing technical solutions in areas such as ecological risk assessment, natural resource damage assessment, environmental monitoring, environmental forensics, EIA/EIS, dredged material management, environmental analytical chemistry, and environmental information management systems (EMIS) support.

Heading up Battelle's Chesapeake Bay area office is Ms. Debra Walker, a registered Environmental Manager with over 26 years of experience in environmental management, NEPA compliance, and public outreach for civil works, military, facilities planning, and transportation projects.

The location of this new Maryland office is 410 Severn Avenue, Suite 305B, Annapolis, MD 21401. For more information on consulting or technical services in the Baltimore area, please contact Ms. Debra Walker at (410) 990-9233, [walkerdb@battelle.org](mailto:walkerdb@battelle.org).



Debra Walker

# Battelle Sponsors Contaminated Sediments Conference in Venice, Italy

## *September 30 - October 3, 2003*

Contaminated freshwater and marine sediments are a significant environmental problem worldwide. A better understanding of their nature, the risks they pose, and their potential solutions will be explored at the Battelle-sponsored Second International Conference on Remediation of Contaminated Sediments, in Venice, Italy, 30 September - 2 October, 2003. The city, where sediments remediation efforts are underway, is an ideal setting.

Although some contaminants have been banned or restricted, and discharge of others has been reduced, industrial and municipal sources continue to release contaminants to surface waters, while urban and agricultural areas produce polluted runoff. Harmful contaminant levels can persist for years and adversely affect human health and the environment. When navigational dredging produces contaminated sediments that require in situ confinement or confined disposal facilities, the financial costs can be staggering. Treatment technologies are emerging, but costs must be reduced to make them viable alternatives. Developing better technologies for handling and treating contaminated sediments, and designing practical and cost-effective sediments-management practices is a concern for sediments and remediation experts who will find the conference a stimulating and professionally valuable gathering.

Battelle has organized this conference in response to the success of the first one, which was held in Venice in 2001 and attended by 450 experts in the field from 40 countries around the world. Augusto Porta and Rob Hinchee will chair the 2003 conference, which is co-sponsored

by the Italian Ministero dell'Ambiente e Tutela del Territorio. Cooperating organizations are Agenzia Nazionale per la Protezione dell'Ambiente (ANPA), Autorità Portuale di Venezia, Central Dredging Association (CEDA), DHI Water and Environment, Environment Canada, International Association of Ports and Harbors (IAPH), Journal of Soils and Sediments, PIANC: International Navigation Association, U.S. Army Corps of Engineers Center for Contaminated Sediments (CCS), and U.S. Environmental Protection Agency.

Registration and the plenary session open the conference on Tuesday evening (30 September). The technical program will deal with characterization; ecological and human-health risk assessment; in situ treatment; dredging; beneficial reuse; natural recovery; and specialized treatment methods. The exhibit area will be open every day. The Intermediate SedNet Conference, which is scheduled for Venice on 29-30 September, ends at 5:00 p.m. on the 30th, enabling participants to move on to the opening of the Contaminated Sediments Conference at 6:00 p.m.

Information on abstract submission, registration, and the conference schedule can be found at [www.battelle.org/sedimentscon](http://www.battelle.org/sedimentscon).



# Battelle Environmental Updates Spring 2003 Information

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