NESDI Program Releases FY12 Year in Review Report

Annual Report & Second Stormwater Meeting Close Out Another Successful Year

THE NAVY ENVIRONMENTAL Sustainability Development to Integration (NESDI) program has released its annual report, entitled "NESDI FY12 Year in Review Report: It Ends With Integration." As the name implies, the NESDI program is committed to promoting its successful projects and, more importantly, integrating the technologies, enhanced industrial processes, and other the results of its projects to the Navy end user community. And the Year in Review Report is one such method for doing so.

The report contains a financial review of program expenditures as well as insights into projects that were particularly successful in demonstrating the use of an innovative technology, or collecting critical information to enhance the efficiency of environmental management programs. From finding a method to distinguish background from anthropogenic sources of perchlorate to determining the effects of military expendable materials in the marine environment, the report provides insights into some of the most successful NESDI projects.

The technologies, studies, and models highlighted in this report support the Fleet through efficient and effective execution of environmental programs.

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NESDI FY12 Case Studies

THE FOLLOWING TEN projects are presented in case study form in the FY12 Year in Review report:

PROJECT	DESCRIPTION
1. Sea Floor Cable Removal (#347)	This project is focused on providing the Navy and the regulatory community with pertinent information with which to make scientifically based decisions on the disposition of out-of-service seafloor cables, as well as to the siting and installation of new seafloor cable projects.
2. Implementation of Forensic Approaches to Address Background Perchlorate Source Identification & Characterization at Navy Facilities and Ranges (#437)	The results of this project will aid end-users in determining whether perchlorate at or near their facility is of natural or synthetic origin. Identifying the source of perchlorate will guide environmental stewardship programs, and in some cases, will help to avoid unnecessary remediation.
3. Demonstration of Lime Application at Navy Open Detonation Sites (#445)	This project demonstrated the application of hydrated lime to Navy venting areas as a Best Management Practice to destroy any explosive residue that may potentially reside in surface soils.
4. Environmental Effects of Military Expendable Material (MEM) (#462)	This project is in the process of quantifying and analyzing three categories of MEM commonly found on training ranges, and determining what, if any, threats these materials pose to the environment.
5. Nanocrystalline Cobalt Phosphorous Electroplating as a Hard Chrome Alternative (#348)	This project team is testing an electrolytic hard chrome plating process for aircraft components that does not utilize hexavalent chromium, a known carcinogen.
6. Automated Assessment of Coral Reefs (#425)	This project validated an innovative suite of equipment to monitor and assess the impacts of Navy activities on nearby coral communities. The equipment provides real-time data, eliminating the need for divers to collect this information.
7. Evaluation of Re-suspension Associated with Dredging, Extreme Storm Events and Propeller Wash (#448)	This project provided information on how bottom sediment may be disturbed and resuspended by propeller wash (the motion of water produced by a ship's propeller) and how potentially contaminated sediments resuspended by propeller wash are transported in Navy harbors.
8. Modeling Tool for Navy Facilities to Quantify Sources, Loads, and Mitigation Actions of Metals in Stormwater Discharges (#455)	This project demonstrated and validated the WinSLAMM stormwater management model to help Navy installation managers identify potential sources of metals–particularly copper and zinc–in stormwater runoff.
9. Demonstration and Validation of Sediment Ecotoxicity Assessment Ring Technology for Improved Assessment of Ecological Exposure and Effects (#459)	The technology demonstrated in this project is expected to provide an improved ability to discern actual ecological risk at sediment remediation sites. The technology also shows promise in surface water applications such as realistic assessment of adverse effects from time-varying stressors.
10. Tertiary Treatment and Recycling of Waste Water (#464)	In an effort to reduce potable water consumption, this project team constructed a man-made, enhanced wetland to demonstrate and validate on-site reclamation and beneficial reuse of wastewater.

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concerns and support the implementation of resultant solutions. There are many ways to participate in the NESDI program, including:

- Submitting and validating environmental needs
- Reviewing technologies already under development
- Supporting transition efforts in your organization or at your installation
- Acting as a Principal Investigator on a NESDI project
- Providing demonstration sites for various NESDI projects
- Staying up-to-date by regularly visiting the program's web site
- Hosting one of our In-Progress Reviews (IPR) or field visits to aid in our technology integration efforts

The NESDI program is the Navy's environmental research and development demonstration and validation program, sponsored by the Chief of Naval Operations Energy and Environmental Readiness Division (CNO N45) and managed by the Naval Facilities Engineering Command. The mission of the program is to provide solutions by demonstrating, validating and integrating innovative technologies, processes, materials, and filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Fleet readiness.

For a hardcopy of the NESDI program's FY12 and other Year in Review reports, please contact Lorraine Wass at 207-384-5249 or ljwass@surfbest.net. An electronic (pdf) version of the report can also be downloaded from the program's web site at www.nesdi.navy.mil.

CONTACT

Leslie Karr
Naval Facilities Engineering and Expeditionary Warfare Center
805-982-1618
DSN: 551-1618
leslie.karr@navy.mil

Second NESDI Stormwater In-Progress Review Connects Puget End Users with Program Personnel & Investigators

IN AN EFFORT to address the ongoing challenges of effectively managing stormwater at Navy facilities, the NESDI program convened a meeting of stormwater end users, researchers and policymakers in Silverdale, Washington on 28–29 November 2012.

In addition to personnel from the program's resource sponsor organization (CNO N45), end users from across the Puget Sound's Navy community joined NESDI personnel in person and over the phone to ensure existing projects and future investments are properly focused, efficiently executed, and successfully integrated.

Nearly four dozen participants attended or dialed in to hear briefings about ongoing projects and to provide valuable feedback to Principal Investigators. One of the projects discussed included a new effort to identify sources of copper and zinc in stormwater runoff through the use of a Graphical Information System infrastructure combined with a pollutant transport tool. Another project is applying the marine Biotic Ligand Model for copper–a method that has already been developed and validated for protection of sensitive saltwater organisms–for use with salmonids and forage fish.

Attendees also toured the Puget Sound Naval Shipyard (PSNS) to see firsthand the environment in which many NESDI projects must operate. The group met with the environmental manager and staff at the shipyard, and most notably, toured the shipbreaking operations in one of the shipyard's drydocks to better understand the challenges associated with opacity (particulate matter emissions) and other issues. Several NESDI projects have been funded to address this issue. The first–an Initiation Decision Report (IDR)–identified the best available alternatives to oxy-fuel cutting to bring daily opacity levels below air quality limits. The IDR recommended the use of MagneGas™ in place of propane for hot cutting, and a follow-on project was initiated to demonstrate this technology. Another technology identified by the IDR was cold cutting–a process that eliminates opacity and the basis for another follow-on project. Another NESDI project being conducted aboard PSNS is experimenting with ways to increase the efficiency and lower the operating cost of one of the shipyard's Oily Water Treatment System.

The NESDI program's other IPRs will be held this year during the weeks of 6–10 May in Port Hueneme, California and 10–14 June in Jacksonville, Florida. For more information, contact Cindy Webber at cynthia.webber@navy.mil and 760-939-2060.