

TME

The Military Engineer

The Water Issue

The Water Issue

The world's most abundant resource is also its most precious. The articles featured in this issue of The Military Engineer offer a multi-faceted look at how government and industry are working to solve the water challenges of the 21st century.

48

Contending with Nature

The U.S. Army Corps of Engineers is taking proactive measures to better understand the vulnerability of its assets and projects to the impacts of climate change in order to reduce risk, and increase resilience.

63

Cultural Resources at Risk

With about 10 percent of Department of Defense coastal installations at or near sea level and already vulnerable to flooding and inundation, there are many impacts of rising sea levels that may put significant cultural resources at risk.

51

Permitting and Endangered Species

Obtaining an *Endangered Species Act* certification is a crucial but sometimes overlooked part of *Clean Water Act* permitting, as all construction projects with a federal nexus must comply with the act's Section 7 consultation process.

65

Developing Hydrologic Awareness

The U.S. Army Engineer Research and Development Center maintains a standing Military Hydrology Group to support Department of Defense activities as needed around the world.

53

Eliminating Legionellosis Risk at the National Institutes of Health

The National Institutes of Health has implemented recently issued industry guidance to proactively mitigate the risk of Legionellosis infection from its cooling tower operations.

67

Harnessing the Power of Bacteria

Microbial fuel cell technology is an emerging option for renewable energy production that has demonstrated multiple capabilities, including treating wastewater, powering treatment plants, and monitoring water quality.

55

Solutions for Temporary Closure Systems

Facing requirements to execute major rehabilitations on two dams in Oklahoma, the Tulsa District of the U.S. Army Corps of Engineers sought to assess which temporary closure systems could best satisfy operational needs and reduce risk during project work.

69

Water Assurance and the Army

The U.S. Army Corps of Engineers is helping the U.S. Army meet its water security goals through vulnerability assessments, research and development, and technology demonstration and validation.

57

Where a Dam Ran Through It

In Saginaw County, Mich., a multi-year effort to remove a 165-year-old dam and build a new fish passage has returned the Cass River back to nature.

71

Recycling Resources to Reduce Costs

Marine Corps Recruit Depot San Diego is leveraging proven wastewater treatment technology that, over time, will help the base reduce costs associated with the purchase of potable water and the disposal of used water.

60

An Asset on the Battlefield

The U.S. Army Engineer Research and Development Center continues to invest in basic research projects to ensure that water will become an asset to the military in contingency operations, and not a liability.

73

Turning Water into Water

As many coastal parts of the world face more frequent and more severe water resource challenges, desalination can provide an abundant source of drinking water that is unaffected by drought.



Work on the Kawainui Marsh Environmental Restoration Project in Kailua, O'ahu, overseen by the Hawaii Department of Land and Natural Resources and USACE Honolulu District, began in June 2012. The project was designed to increase populations of endangered waterfowl, create scenic open space, reduce upland runoff to coastal reefs, and remove invasive weeds from the marsh. The Sources Sought Notice was issued in June 2011. The Section 7 approval of the *Endangered Species Act* permit was received in December 2009. USACE HONOLULU DISTRICT PHOTO BY JOSEPH BONFIGLIO

Permitting and Endangered Species

Obtaining an *Endangered Species Act* certification is a crucial but sometimes overlooked part of *Clean Water Act* permitting, as all construction projects with a federal nexus must comply with the act's Section 7 consultation process.

By William Hartwig and Jonathan Deason, Ph.D.

The northern long-eared bat is a tiny creature, measuring less than 4-in and weighing only a few ounces. But last May, it became powerful enough to interfere with logging and pipeline construction throughout the Midwest and Northeast, including in Pennsylvania's Marcellus Shale region.

The U.S. Fish and Wildlife Service (FWS) listed the bat as "threatened" under the *Endangered Species Act* of 1973. The

designation of "threatened" was less serious than "endangered." But it was still sufficient to trigger months of delays—or "protective measures" in federal parlance—for construction operations in affected states.

A year earlier, a major pipeline construction company had seen the possibility of FWS action and wisely conducted field surveys and analysis of its operations' impact on the bat. The goal was to head off delays in the Formal Consultation process as provided by Section 7 of the *Endangered Species Act*. This legislation requires a Formal Consultation if FWS determines a project will adversely affect a listed species. That determination is concluded by a Biological Opinion, in which FWS offers its opinion on whether the project is likely to jeopardize a listed species or destroy or adversely modify a listed species' critical habitat.

By collecting field data in anticipation of FWS' decision, the company avoided at least six months of construction delays stemming from the "threatened" listing.

ENSURING COMPLIANCE

An *Endangered Species Act* certification is a crucial but sometimes overlooked part of *Clean Water Act* permitting. All construction projects with a federal nexus (need for permit, license, loan guarantee or other approval or guarantee) must comply with the *Endangered Species Act* Section 7 process. Essentially, all water-related projects have a federal nexus and even completely private projects with no federal connection must comply with the act's Section 10 regulations on habitat conservation planning if they are to avoid prosecution for harming or harassing an endangered or threatened species.

Before the U.S. Army Corps of Engineers (USACE) issues a Section 404 permit, which concerns the discharge of dredged and fill material into waters of the United States (rivers, lakes, streams and most wetlands), the agency is required to obtain an endangered species sign-off from FWS. Other approvals, such as archeological and

ESA: IT AIN'T OVER TILL IT'S OVER

It is not difficult to find recent examples of delayed construction projects due to a confluence of water and ESA regulations. Last July, for example, reports emerged that the tiny Hine's emerald dragonfly had blocked efforts of officials in Lockport, Ill., to expand the public water supply. In August, concern about the endangered snuffbox mussel forced Lake County, Ohio, to stop work on a \$27 million bridge over the Grand River.

And in an especially instructive example, this past November, it was revealed how an unsigned July 2015 letter from FWS' Phoenix office to USACE was causing major problems for a planned development near Tucson, Ariz. Back in 2006, USACE had issued a *Clean Water Act* permit to the developer but construction never began due to the housing crisis. A new company subsequently took over the project. Then last year, about nine years after the 2006 permit approval, FWS took another look at the project's impact on imperiled species along the neighboring San Pedro River. Its letter last year suggested a reasonable chance that two endangered species (a cuckoo and garter snake) exist on the proposed site. FWS also raised new concerns about impact to the endangered jaguar.

USACE's 2006 report had concluded that impact to the jaguar was unlikely, but subsequently, the federal government designated land in and adjacent to the site as critical jaguar habitat. Finally, FWS' 2015 letter raised concerns about the development's potential indirect impacts on the species from groundwater pumping. These include degraded water quality, erosion, habitat destruction, flooding and alteration of stream channels.



Snuffbox mussels collected from West Virginia.
FWS PHOTO

Any company seeking USACE approval would be wise to focus on *Endangered Species Act* compliance early. Although it is statutorily mandated for the Consultation Process to be completed within 135 days, it often takes longer and, in some cases, much longer.

state water clearances, are usually not overly complicated or time-consuming.

But the *Endangered Species Act* is different. It is powerful legislation and has significant potential to cause regulatory problems and legal headaches. Any company seeking USACE approval would be wise to focus on *Endangered Species Act* compliance early. Although it is statutorily mandated for the Consultation Process to be completed within 135 days, it often takes longer and,

in some cases, much longer. It should be noted that USACE does not set the policy; its responsibility is implementation.

From a legal standpoint, the *Endangered Species Act* is a very good litigation hook for anyone opposing a particular project. That is because there is little leeway in its provisions. Even if an endangered species is not proven to be present in an area—but reasonably suspected—an analysis is necessary. Moreover, a proper *Endangered Species Compliance Study* is almost always time-consuming, particularly in wetland areas as they often provide important habitat for multiple species including many listed as endangered or threatened. Compliance must include every endangered or threatened species and normally should include those species being studied for possible listing, as well as any designated critical habitat for those species. The study must cover each species' distinctive life pattern in which they grow, mate, migrate and hibernate.

ADDITIONAL CONSIDERATIONS

Another important consideration is that *Endangered Species Act*-related issues can limit a company's ability to conduct certain activities during the year. For example, turtle nesting seasons may conflict with preferred times for construction activities in lacustrine wetlands. These constraints should be accounted for early in the process.

Finally, even beyond "threatened" and "endangered" species, it often is advisable for an entity requesting a Section 404 permit to include declining species. Such a study, conducted early, can help the entity get out front of FWS designations that take place prior to the project's conclusion.

It must be emphasized that FWS reserves the right to update its *Endangered Species Act* review at any time prior to approval of a 404 permit. If new listings are completed or a new sighting of an existing listed species occurs prior to permit approval (or where the permit had expired), FWS will review the impact of the yet-to-be-approved project on each threatened or endangered species.

PLAN EARLY AND ACCORDINGLY

Enacted during the Nixon Administration, the *Endangered Species Act* is more than 40 years old. For decades, there have been efforts to weaken it; each time the result was the same: failure. The legislation is not going anywhere. Companies over the years have attempted many creative ways to get around the act's regulations. Those have invariably failed—usually at a cost to the companies of significant legal fees, fines, regulatory delays and cost overruns.

Our recommendation is to conduct field surveys and review scientific literature as soon as your project is contemplated. Record every decision made to avoid or minimize impacts on listed and currently studied endangered or threatened species. And plan a robust effort to compensate for those impacts that cannot be avoided. Expect the Section 7 process to take upwards of six months and plan accordingly.

TME

William Hartwig, formerly a Regional Director and Chief of the National Wildlife Refuge System U.S. Fish & Wildlife Service, and Jonathan Deason, Ph.D., formerly Director of the Office of Environmental Policy & Compliance, U.S. Department of the Interior, are Senior Advisors, Dawson & Associates. They can be reached at 410-827-3323, or bhartwig@dawsonassociates.com; and 202-994-4827, or jdeason@dawsonassociates.com.