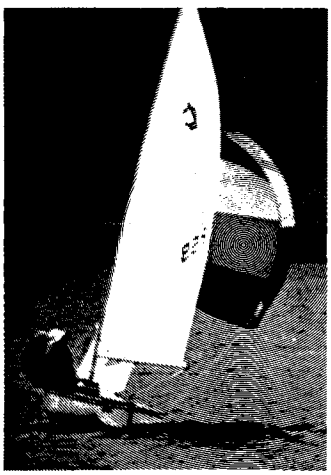
US Army Corps of Engineers
Waterways Experiment Station

RECNOTES
NATURAL RESOURCES RESEARCH PROGRAM

VOL R-91-1 INFORMATION EXCHANGE BULLETIN MAR 1991



Marinas provide a major economic impact to regions around Corps lakes

Economic Impact Analysis as a Tool in Recreation Program Evaluation

by
R. Scott Jackson
US Army Engineer Waterways Experiment Station
and
Dennis B. Propst
Michigan State University

Increased emphasis has recently been placed on the participation of the non-Federal sector in providing recreation opportunities at US Army Corps of Engineers water resource development projects. This initiative requires consideration of values important to public and private recreation program partners at the state and local level. While over 40 percent of recreation areas on Corps projects are managed by non-Federal groups, the agency continues to seek increased participation by non-Federal partners to accommodate increased demand for recreation resources. Many regions of the United States depend, to varying degrees, on recreational expenditures as an important source of economic activity (Alward 1986). Local leaders have placed an increased importance on public recreation opportunities as

an essential ingredient in maintaining economic development through economic activity stimulated by visitor spending.

The Corps of Engineers has traditionally evaluated planned recreation development in terms of direct benefits to the visitor as defined in the National Economic Development Account of the Water Resources Council's Principles and Guidelines (US Water Resources Council 1983). Net benefits included in this type of analysis are defined as the total amount an individual is willing to pay to engage in a recreational activity minus the cost incurred by the visitor to participate in that activity. The unit day, travel cost, and contingent valuation are accepted methods for measuring user benefits. Each method is appropriate for specific applications depending on the level of accuracy needed, availability of data, and planning questions being addressed (Walsh 1986). However, these procedures ignore the impacts to local and regional economies stemming from expenditures made by recreation visitors. These expenditures are important to non-Federal interests when evaluating their potential return on investment in recreation programs.

Economic Impact Analysis

The economic effects of recreation use associated with Corps projects can be viewed as the income and employment which businesses derive as a direct or indirect result of spending by visitors to Corps projects. *Direct* effects include income and employment resulting from direct spending by visitors on goods and services necessary for recreation activities, for instance, the retail purchase of a boat. To meet the increased demand for boats resulting from such sales, boating manufacturers will purchase materials and labor; shipping companies will purchase labor, trucks, gasoline, and other supplies; and boat dealers will purchase labor and supplies in support of their retail sales activities. The income and employment resulting from these secondary purchases are the *indirect* effects of the retail purchase of boats. The income of employees directly and indirectly supporting the sale of boats increases as a result of each boat sold. In turn, this employee income is used to purchase goods and services, and the resulting increased economic activity from employee income is the *induced* effect of the purchase of a boat. Using this example, the sum of direct, indirect, and induced effects fully describes the economic effect of the purchase of a boat. Economic Input-Output (I-O) models are commonly used to predict what the total level of regional economic activity (economic impacts) would be resulting from a change in direct spending.

Economic impact analysis can assist decision-making by providing insights as to how recreation programs affect regional economies. By tracing spending effects throughout an economy, the extent to which various economic sectors are affected can be determined. When trying to integrate a program or project into an economy it is important to determine who will and who will not benefit from it. Using economic impact analysis, a decision-maker is able to predict the effects of various changes in policy or agency expenditures on local economies. This gives the decision-maker the ability to evaluate the potential economic effects of management alternatives and communicate the potential impacts to local interests.

In order to accurately assess the economic effects of recreation management alternatives, it is also necessary to determine how recreation use patterns and resulting visitor spending would change from current conditions in response to the policy alternative. Recreation demand models are commonly used to translate changes in recreation development, resources, and policies into changes in the amount, composition, and distribution of recreation use required in the economic impact analysis process. Figure 1 illustrates the process and associated tasks for assessing the economic effects of recreation management alternatives.

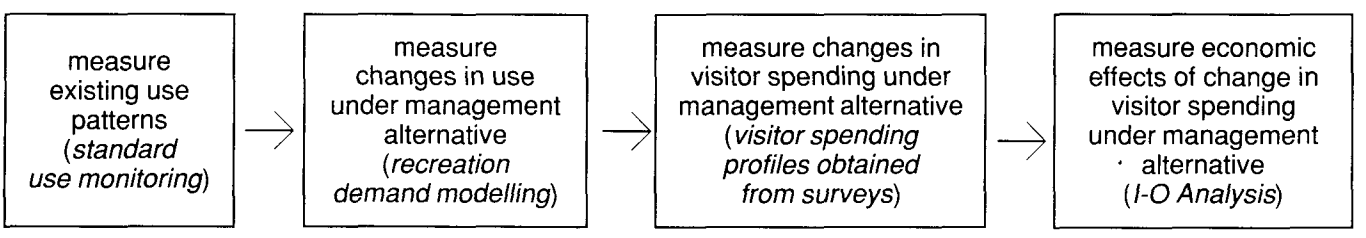


Figure 1. Process for assessing the economic effects of recreation policy alternatives

Currently research is being conducted to develop nationally representative profiles of visitor spending that will allow economic impact analysis to be performed at individual sites without the need for conducting visitor spending surveys. The surveys, which included over 3,000 interviews, were designed to measure the spending of visitors to 14 Corps projects throughout the United States during 1989-90 (Figure 2). Spending was divided into two categories, durable goods such as boats and camping equipment and nondurable goods and services (identified as trip spending) such as gas, food, and lodging. Figure 3 presents a summary of nondurable spending by visitors to projects included in the survey.

Research is currently underway to identify which user groups, for example, campers, day users, and boaters, possess similar spending patterns and to determine whether visitors in different regions of the country have different spending habits. The results of this work will produce a series of visitor spending profiles that will allow the efficient development of regional I-O models to translate changes in recreation use at a Corps project into regional economic impacts.

Applications

The following are examples of the types of applications that could be supported by I-O analysis:

- Determine the economic impact of current recreation use at existing projects.
- Identify the local economic effects of closing a park.
- Evaluate the effect a particular user group, for example, marina boaters, has on the local economy.
- Determine the impact of a trade-off between user groups such as the conversion of a day use area to a marina.
- Identify the effect of changes in recreation resources, for example, reservoir drawdown, on local and regional economies.

Conclusions

Input-Output analysis is an important tool to evaluate the economic implications of management and policy decisions. As non-Federal groups become more active in the Corps recreation program and resource allocation decisions, the Corps needs to improve the capability to identify the regional effects of these decisions. The ongoing research in economic impact analysis will provide the tools to perform this analysis. These regional economic impacts, however, should be viewed as a positive byproduct of Corps projects constructed and managed to support national economic development through the provision of public benefits.

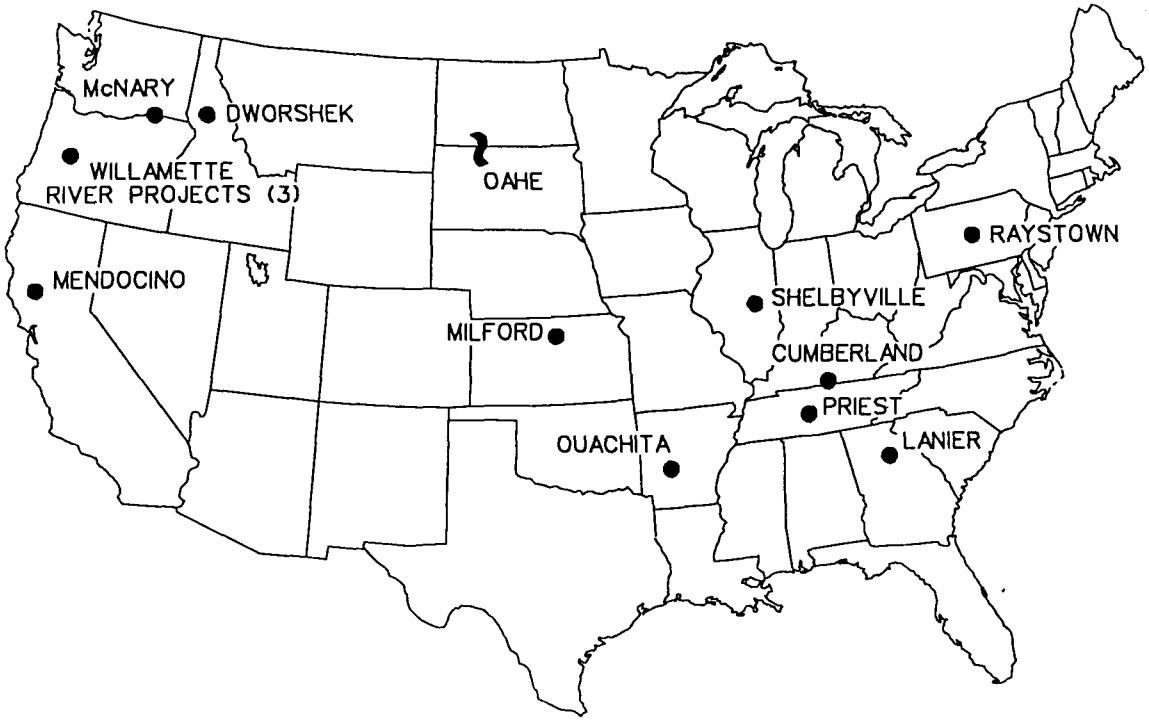
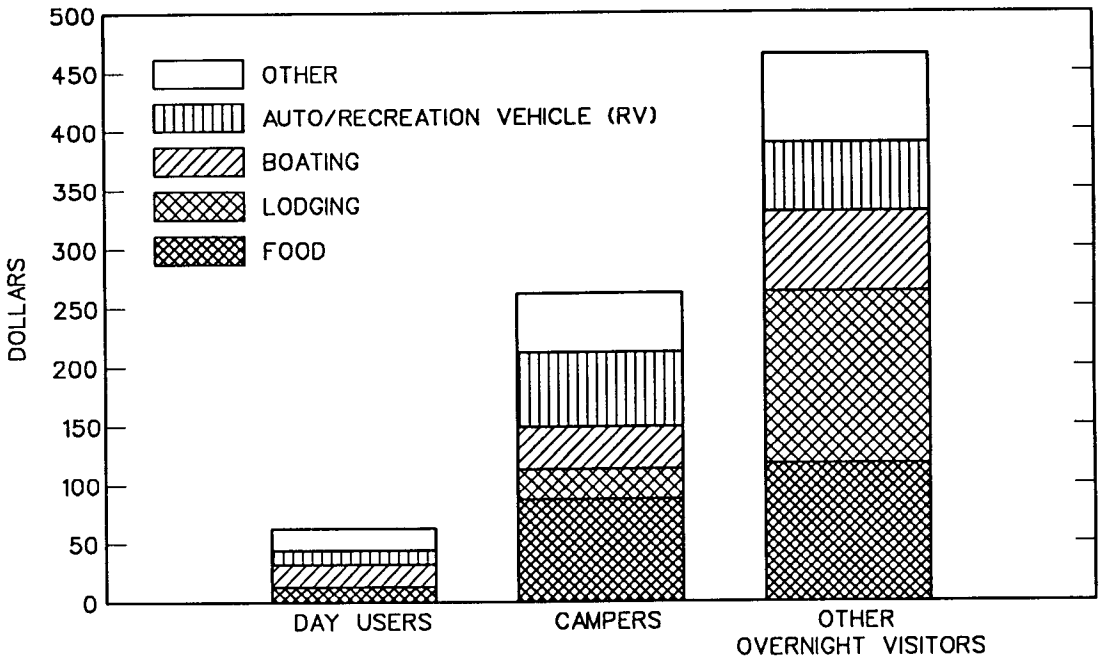


Figure 2. Visitor spending survey sites



NOTE: SPENDING WAS MEASURED ON A PER PARTY VISIT BASIS; OTHER OVERNIGHT VISITORS ARE NONCAMPERS WHO STAYED OVERNIGHT IN CONJUNCTION WITH THEIR VISIT TO THE STUDY SITE.

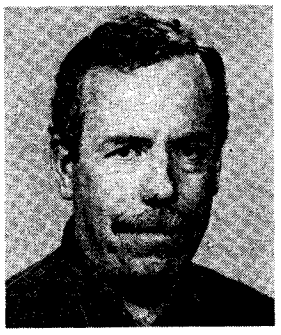
Figure 3. Summary of trip spending for major user groups

References

Alward, G. 1986. "Local and Regional Economic Impacts of Outdoor Recreation Development, Literature Review," President's Commission on Americans Outdoors, Washington, DC.

US Water Resources Council. 1983. "Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies," US Government Printing Office, Washington, DC.

Walsh, R. G. 1986. "Recreation Economic Decisions: Computing Benefits and Costs," Venture Publishing, Inc., State College, PA.



R. Scott Jackson is a research biologist at the US Army Engineer Waterways Experiment Station. He conducts research that addresses a wide variety of recreation planning and management issues. Mr. Jackson received a Bachelor's degree from Northern Michigan University and a Master's degree from Texas A&M University. He is currently involved in research to assess the regional economic impacts of recreational use of Corps of Engineers water resource development projects.

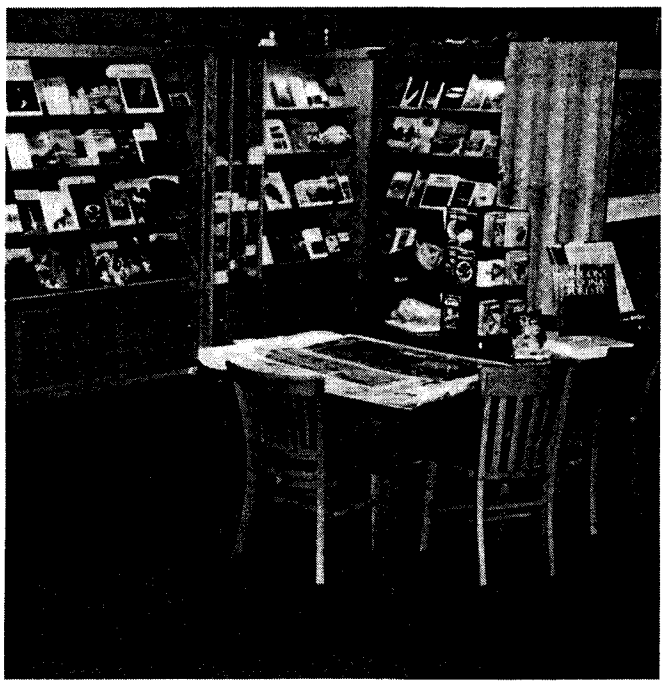
Dr. Dennis Propst is an assistant professor in the Department of Park and Recreation Resources, Michigan State University where he conducts research and teaches both undergraduate and graduate courses. His primary research interests are economic impacts of recreation and tourism and the social psychology of recreation and tourism behavior. He obtained his Ph.D. in Forest Resources at Virginia Polytechnic Institute and State University in 1979. In 1976 he received an M.S. degree in Wildland Recreation Management from the College of Forestry, Wildlife and Range Sciences, University of Idaho. He received a B.S. degree in 1973 in biology from the College of William and Mary in Williamsburg, VA.

Cooperative Associations Provide Low-Cost Benefits to Corps Visitor Centers

by
J. Patrick Barry
Bonneville Lock and Dam Visitor Center
Portland District

It took encouragement from Headquarters, US Army Corps of Engineers; many hours of planning by District, Division, and project staff; and about a year, but the result has been worth the effort. The result is one of the first cooperative association bookstores in a Corps visitor center.

The bookstore is located in the Bradford Island Regional Visitor Center at Bonneville Lock and Dam on the Columbia River. This Type A visitor center attracts about one-half million people annually. Many people come to see one of the two massive powerhouses or the navigation lock. However, the biggest attraction by far is the view of salmon, shad, and steelhead migrating up the fish ladder. Special underwater viewing windows provide visitors a fish's eye view of the ladder from a large, comfortable room. This underwater viewing room has helped make Bonneville one of the most popular visitor centers in Oregon. The new bookstore is located in the underwater viewing room.



Bookstore in Visitor Center at Bonneville Lock and Dam

The good location combined with high visitation and a receptive attitude among project, District, and other Corps employees helped attract the cooperative association to Bonneville. The association, the Northwest Interpretive Association or NWIA (formerly Pacific Northwest National Parks and Forests Association) is a nonprofit, educational institution.

Their service filled an obvious need. Visitor center employees have been inundated for years by requests from visitors for books and other materials about electricity, natural and cultural history, and other topics interpreted at Bonneville Lock and Dam. Interpreters were able to provoke interest, but were not able to direct curious visitors toward easily accessible additional information. Having a bookstore in the building provides visitors with another way to satisfy their curiosity and desire to learn.

The Portland District Natural Resource Management Section drafted a cooperative agreement with NWIA. As a result of the agreement, NWIA employees operate the bookstore inside the visitor center. Bookstore employees mostly handle sales, but also assist park rangers by providing some interpretation and information for visitors. In the future, NWIA employees may conduct interpretive walks and talks and present audiovisual programs.

There have been other benefits too. In addition to providing books and interpretation for visitors, another full-time person is on the scene to assist visitors. Before the agreement, the room where the bookstore is located was only staffed part-time. Now the presence of the bookstore employee provides more security. NWIA has also donated books to a staff library used to prepare programs and answer visitor questions.

Another benefit will be seen in the future. All donations placed in the NWIA donation box may be used by the association to improve visitor center facilities. In times of tight budgets, it may be very helpful to have the cooperative association use donated funds to purchase a projector, a display, or new brochures.

The Corps assisted with the construction of shelves and creation of storage space. Lights, telephone, and computer network connections were also provided for the association.

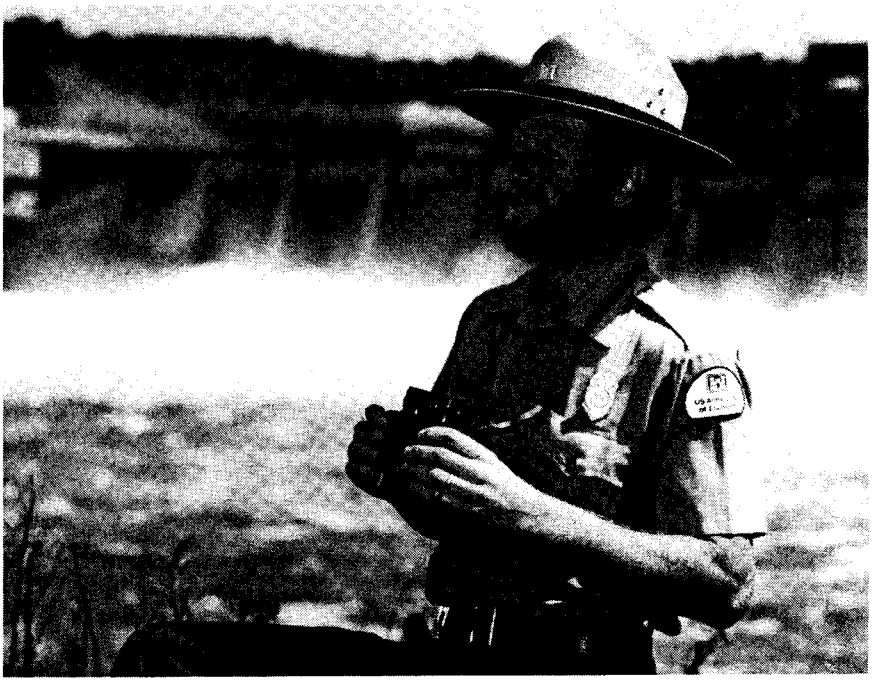
The bookstore opened in May 1990 and by the end of the first summer of operation, it seemed likely that the bookstore would succeed. Sales were lower than originally anticipated, but still enough to more than cover the association's costs. Lower sales may be attributed to the fact that visitation is different due to construction of a second navigation lock on the project. Also, the process of refining the inventory is still underway. Having a better selection of products may improve sales.

Book selection is done by association and Corps staff and the visitor center supervisor approves all items before they are put out for sale. One of the dozens of titles carried is a history of Bonneville Lock and Dam, written by the North Pacific Division Historian.

Although the US Forest Service and the National Park Service have been using cooperative associations for many years, they are fairly new to the Corps. A regulation pertaining to cooperative associations is in the draft stage but should be finalized soon. Cooperative associations exist throughout the United States. To set up a cooperative agreement, contact a nearby National Park Service or Forest Service office and ask for a directory of cooperative associations in the region.

At Bonneville Lock and Dam, working with a cooperative association has provided many benefits. This is an opportunity to improve interpretive services without increasing expenditures. In this age of tight budgets, that really makes sense.

Pat Barry is Supervisory Park Ranger at the Bonneville Dam Visitor Center. He has worked for the Corps since 1983. Prior to that he was an interpreter for the National Park Service and a teacher. Pat has a Master of Science degree in Park and Recreation Administration from California State University, Sacramento, and a Bachelor of Science degree in Biology and Environmental Science from Post College, Long Island University.

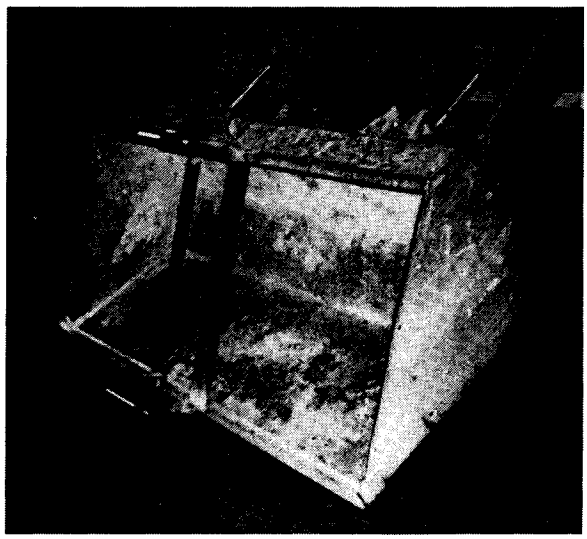


Maintenance personnel removing light pole from its base so that the light fixture can be lowered for service. The bracket shown in this photo was the first version designed in which a "come-a-long" was used to clamp the pole at the top of the bucket.

Bracket Assists Security Light Repairs

by
Bonnie F. Bryson
Taylorsville Lake
Louisville District

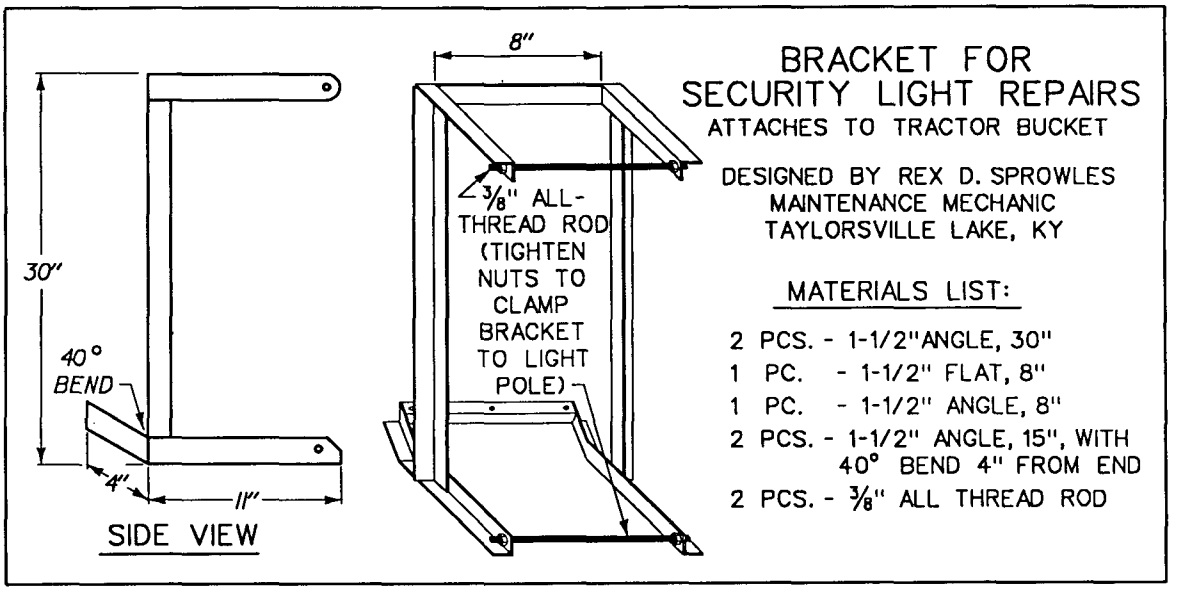
A bracket fabricated by maintenance mechanic Rex D. Sprowles at Taylorsville Lake, Kentucky, has made servicing of security lights there both safer and easier. The Taylorsville project has numerous outdoor security lights mounted on 35-foot-tall aluminum poles. Previously these lights were accessed by setting up scaffolding or renting a bucket truck to reach lights at locations where placement of scaffolding was impractical.



Improved design for the bracket

Now maintenance personnel simply attach a tractor bucket to the light pole by means of a bracket fabricated for that purpose. The light pole is then detached from its base, enabling maintenance personnel to use the tractor bucket to lift and then tilt and lower the pole so that the light fixture can be serviced from the ground. These lightweight aluminum poles can be easily maneuvered with the tractor. This system of accessing the lights for service has proven to be quicker, safer, and more cost effective than the methods previously used.

For further information, call (502) 477-8882.



Natural Resources Technical Support (NRTS) Program

The NRTS Program was initiated in FY 87 to provide rapid technical assistance for field problems associated with recreation and natural resources management in the US Army Corps of Engineers (USACE). The program is an Operations and Maintenance (O&M) funded program. Assistance is limited to Corps activities associated with operating O&M projects, problems existing during the planning or engineering phases of renovations, or alterations to operating O&M projects.

To request assistance, a letter to the Manager of the NRTS Program at the following address is required:

Commander and Director
US Army Engineer Waterways Experiment Station
ATTN: Mr. J. L. Decell, CEWES-EP-L
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

In the request, you should name the project and state the nature of the problem and the type of assistance required. If you have been in contact with a technical person at the US Army Engineer Waterways Experiment Station (WES) who has knowledge of your problem, you may request that individual by name. The request should identify a point of contact in your organization and a telephone number. Upon receipt of your letter, the request will be directed to the proper technical staff member at WES for response.

Assistance under NRTS is provided at no cost to the user and is limited to 7 man-days, including travel. The results of the assistance provided will be formally transmitted to your organization by the Manager, NRTS. In cases where assistance is needed very rapidly, telephone requests are honored, but must be followed up by a letter. When the results are needed rapidly, advance copies are forwarded by FAX and followed up with a formal response.

In addition to this direct assistance to the FOAs, NRTS activities also include technology transfer, such as workshops, and the publication and distribution of RecNotes, an information exchange bulletin. Technology maintenance is also a NRTS function; it assures that the direct assistance provided is state of the art.

This issue features three articles; the first article discusses economic impact analysis as a tool in recreation program analysis. Such an analysis can assist decision-making by providing insights as to how recreation programs affect regional economies. Cooperative associations are featured in the second article—a report on a successful cooperative agreement that enabled the Northwest Interpretive Association to operate a bookstore at the Bradford Island Regional Visitor Center at Bonneville Lock and Dam on the Columbia River. The final article gives details on the fabrication of a bracket to assist in security light repairs. Also included is information on the Natural Resources Technical Support (NRTS) program and the HQUSACE Natural Resources Management Perspective spotlight on environmental management.

NATURAL RESOURCES RESEARCH PROGRAM

This bulletin is published in accordance with AR 25-30. It has been prepared and distributed as one of the information dissemination functions of the Environmental Laboratory of the Waterways Experiment Station. It is primarily intended to be a forum whereby information pertaining to and resulting from the Corps of Engineers' nationwide Natural Resources Research Program can be rapidly and widely disseminated to Headquarters, and Division, District, and project offices as well as to other Federal agencies concerned with outdoor recreation. Local reproduction is authorized to satisfy additional requirements. Contributions of notes, news, reviews, or any other types of information are solicited from all sources and will be considered for publication so long as they are relevant to the theme of the Natural Resources Research Program, i.e., to improve the effectiveness and efficiency of the Corps in managing the natural resources while providing recreation opportunities at its water resources development projects. This bulletin will be issued on an irregular basis as dictated by the quantity and importance of information to be disseminated. The contents of this bulletin are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products. Communications are welcomed and should be addressed to the Environmental Laboratory, ATTN: J. L. Decell, U.S. Army Engineer Waterways Experiment Station, (CEWES-EP-L), 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, or call AC (601) 634-3494.

LARRY B. FULTON
Colonel, Corps of Engineers
Commander and Director

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
3909 HALLS FERRY ROAD
VICKSBURG, MISSISSIPPI 39180-6199

OFFICIAL BUSINESS
CEWES-EP-L

BULK RATE
U.S. POSTAGE PAID
Vicksburg, MS
Permit No. 85

HQUSACE Natural Resources Management Perspective

Environmental Management

In my March 1990 "Historic Times" RecNotes article, I discussed the renewed focus on environmental management. I focused on the natural resources piece of the environmental picture—the North American Waterfowl Management Plan and the President's "No Net Loss of Wetlands" goal. In this article I will address the environmental compliance side of environmental management. Environmental compliance as used here will refer to statutory and regulatory requirements. Examples are the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response Compensation & Liability Act (CERCLA), and the Toxic Substances Control Act (TSCA).

Overall, our Natural Resources Management program environmental compliance record looks pretty good. Facilities at our operating projects are rarely cited for violating environmental laws and regulations. For example, US Environmental Protection Agency (EPA) records for the first quarter of FY 91 show only 10 notices of violation at over 460 operating projects. However, I, and several of you, have expressed a little nervousness about our record, wondering if it would withstand closer scrutiny.

The Chief of Engineers must have had similar thoughts. In July 1990 he asked the Engineer Inspector General (EIG) to evaluate the Corps' management of internal environmental responsibilities, that is, to look at our own back yard. That evaluation is ongoing and many of you have probably worked with the EIG teams since they started visiting selected Divisions/Districts and projects. Their final report will be issued in the July to December 1991 time frame, but I want to report a preliminary finding to you now. That is, in the words of the EIG staff, we have "many great USACE team members who get a job done using good judgement and common sense."

In January we sent you a tool to couple with that good judgement and common sense that impresed the EIG. That tool is the Environmental Review Guide for Operations (ERGO). ERGO is a protective, self-assessment approach to environmental protection and legal compliance. It provides a comprehensive compliance "snapshot," identifying a project's environmental compliance strengths, weaknesses, and specific problems. A steering committee of project, District, and Division operational personnel is the driving force behind ERGO. The steering committee consists of Lloyd Williamson, Chairman (CESAW-CO-RK), Deborah Chenoweth (CEMRD-CO-R), Michael Dupes (CESAJ-PD-ES), and Loren Mason. Dr. Diane Mann of CERL is our ERGO project coordinator.

At the same time, Districts were directed to establish operations environmental compliance coordinators to provide a focal point for coordinating environmental compliance efforts in Corps operations activities.

ERGO parallels Air Force and Army compliance assessment systems. We asked each Division to test ERGO by applying it at one or more projects in each District this fiscal year. Following this test, we will finalize ERGO for phased Corps-wide implementation starting in FY 92. Please take a close look at ERGO and let us know, through your operations environmental compliance coordinators, how we can improve the manual for you.

ERGO is an asset in finding problems, but it is only one part of the overall environmental compliance "big picture." We are currently looking at the need for clearer, more specific guidance on relevant legal and regulatory requirements. I know that the existing general guidance needs updating and that additional guidance is needed to create a contemporary, comprehensive package that addresses the full range of environmental laws and regulations. This is particularly true when individuals are personally liable for their actions. Managers must be well informed of their legal and regulatory responsibilities. You'll be seeing more on this topic in the near future.

Obviously we have to do more than identify deficiencies; we need to correct them, and in many cases this involves funding. In an effort to link deficiency detection with deficiency correction, we also revised the FY 93 budget guidance to include an Environmental Compliance matrix. In situations where outyear funding is appropriate, you will now be able to specifically identify environmental compliance funding needs within District funding target levels.

We also need training in environmental assessment, compliance, and program management. Our military counterparts are assembling a list of environmental management training available within and outside the government. Upon completion, we will share that list with you. We have also proposed two new PROSPECT courses specifically oriented toward environmental management at operating projects.

Another part of the picture is leadership and administration. As this goes to press, the Chief of Engineers is wrestling with the question of who should be in charge of the HQUSACE facilities environmental compliance program? Once that question is answered and the role clearly defined, we will take a look at the USACE organizational structure and figure out how guidance should be issued and how reporting information should be transmitted throughout Civil Works, R&D, Real Estate, and Logistics elements. One objective will be to attain consistency with EPA, DoD, and DA guidance, and consistency in the execution of guidance between the various "stovepipes" and organizational levels of USACE.

My bottom line on the environmental compliance side of environmental management is that we have a long way to go to reach Secretary of Defense Cheney's goal of becoming the Federal leader in environmental compliance and protection. However, we are moving in the right direction and gaining momentum. I'm optimistic that we will succeed because to quote Secretary Cheney, "The effort begins and ends with our people." We have the right people in our Natural Resources Management family to accomplish this mission.

Darrell E. Lewis

DARRELL E. LEWIS
Chief, Natural Resources
Management Branch,
HQUSACE