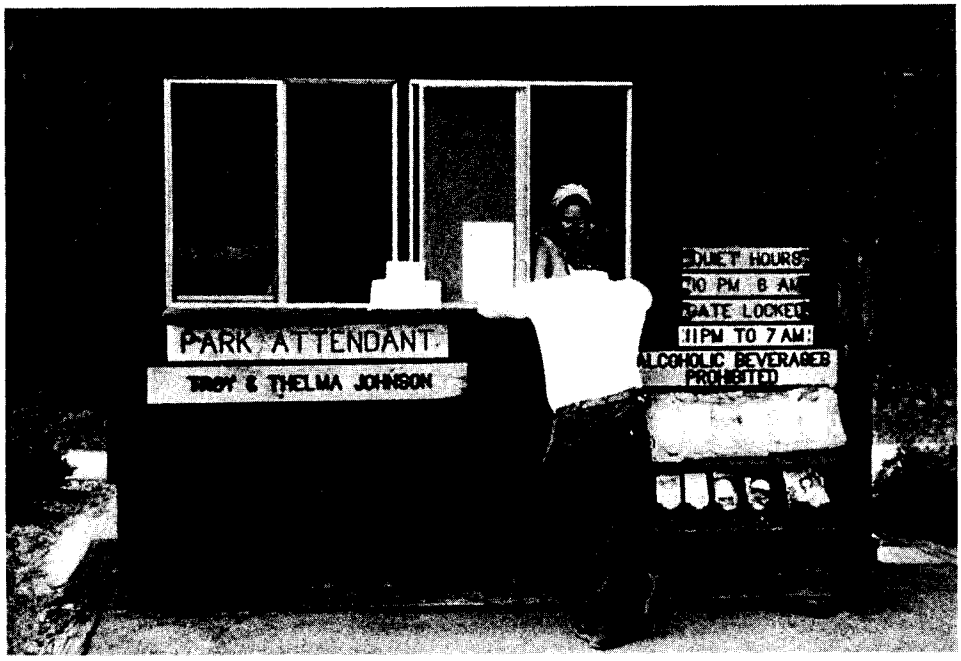
RECNOTES
RECREATION RESEARCH PROGRAM
U.S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION

VOL R-82-1 U. S. ARMY CORPS OF ENGINEERS INFORMATION EXCHANGE BULLETIN March 1982



CAMPGROUND RECEIPT STUDY

*Greg Curtis**

In 1979, the Campground Receipt Study (CRS) was initiated using three Corps projects as test sites (see "Recreation Use Monitoring Study," RECNOTES, Vol R-80-2). The objective of this study is to evaluate the feasibility of using existing camper registration procedures to collect trend data on characteristics of visitors at Corps of Engineers fee campgrounds.

During the 1979 and 1980 tests, campers were registered with the standard fee receipt (ENG Form 4457) and a supplemental CRS form. These two forms were combined in 1981 into ENG Form 4457 (TEST). While in use, ENG Form 4457 (TEST) replaces the standard fee receipt ENG Form 4457 at fee campgrounds within the CRS study (Figure 1).

The 1980 data are used here to illustrate some of the types of information that can be generated from the CRS. It should be pointed out that the 1980 data do not necessarily represent a full season of data collection and may not have been collected at all fee campgrounds at the 14 study projects involved.

During the 1980 season, 14,690 supplemental registration forms were collected at the 14 study projects. The average group size for the sample was 3.75 people with an average length of stay of 3.04 days. The Corps project was the primary destination of 87.3 percent of these groups. Examples of the types of descriptive information that can be generated for data elements such as "primary vehicle" and "camping and noncamping equipment" are presented in Figure 2. These data represent the entire sample of 14,690 registration forms collected.

* Curtis is a Natural Resource Specialist assigned to the Environmental Laboratory under the terms of an Intergovernmental Personel Agreement from Michigan State University.

U.S. ARMY—CORPS OF ENGINEERS

SERIAL NUMBER

EXAMPLE

USER PERMIT

U.S. FEE AREA

DISTRICT	PROJECT	REC AREA	SITE NUMBER
1 2	3 4 5 6 7	8 9 10	11 12 13

NAME OF CAMPER (OPTIONAL)	NO. OF PEOPLE IN PARTY	PRIOR VISITS	PRIMARY DESTINATION
	14 15	Y N 16 17	Y N 18 19

CAR LICENSE STATE	CAR LICENSE NUMBER	ZIP CODE	DATE ARRIVED MO DAY YR	EXPECTED DEPARTURE MO DAY	TOTAL NIGHTS PD.
		20 21 22 23 24	25 26 27 28	29 30 31 32	33 34

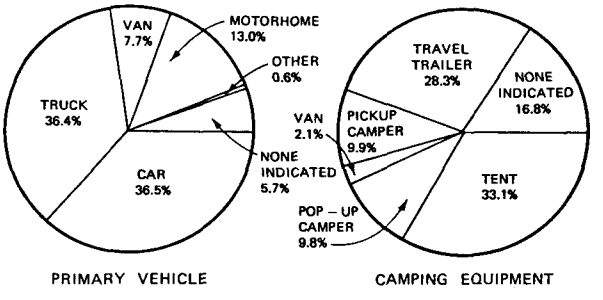
PRIMARY VEHICLE	EQUIPMENT (CAMPING)	EQUIPMENT (NONCAMPING)
35 CAR	40 TENT	45 POWERBOAT
36 TRUCK	41 POP-UP TRAILER	46 SAILBOAT
37 VAN	42 PICKUP CAMPER	47 BOAT TRAILER
38 OTHER	43 TRAVEL TRAILER	48 BICYCLE
39 4 WHEEL DRIVE VEHICLE	44 MOTORHOME (INCLUDES CONVERTED BUSES)	49 MOTORCYCLE
		50 ORV (NONMOTORCYCLE)
		51 OTHER

GOLDEN AGE PASSPORT NO.	TOTAL FEE PAID	ATTENDANT
52	$ 53 54 55 56	

ENG FORM 4457(TEST), Mar 81 FISCAL

(Proponent: DAEN-CWO-R)

Figure 1. ENG Form 4457 (TEST)



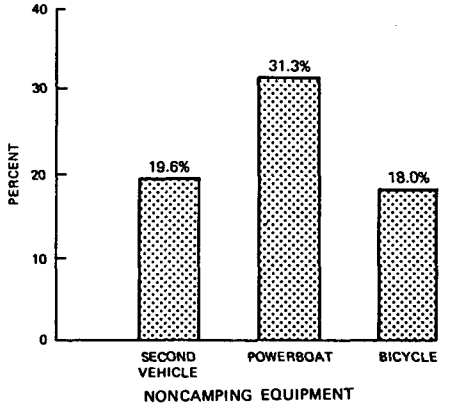


Figure 2. Vehicle and equipment use for total CRS sample

However, these data can also be summarized by site, campground, project, or group of projects for analytical or comparative purposes.

Another use of data collected from the CRS is the identification of the market areas and travel patterns of project visitors. This may be useful to managers in many ways. For example, it may be necessary to direct visitors to other recreation areas because of site closures or overuse. Market area data can help in determining the most effective methods for communicating this information to the visitor. If directional signs are appropriate, travel patterns will help indicate where they should be placed. Market areas and travel patterns can be identified through collection and analysis of zip code information. An example of the type of information that can be generated from these data is presented using visitor zip codes collected at Shenango River Lake, located on the common border of Pennsylvania and Ohio (Figure 3).

Initially two zones of influence for Shenango River Lake facilities were identified: counties located within 50 road miles of the lake and counties located within 51 to 100 road miles. The basis for inclusion in either of these zones was the road mileage between each county's major population center and the fee campground at which the data were collected (determined from state highway maps). It was then necessary to identify all zip codes within each of the counties located in these two zones. This was accomplished by referencing the "U.S. Postal Service 1981 National Zip Code and Post Office Directory," which contains a list of zip codes by county for all counties in the United States. A FORTRAN program was written that would tally by county the number of registration forms

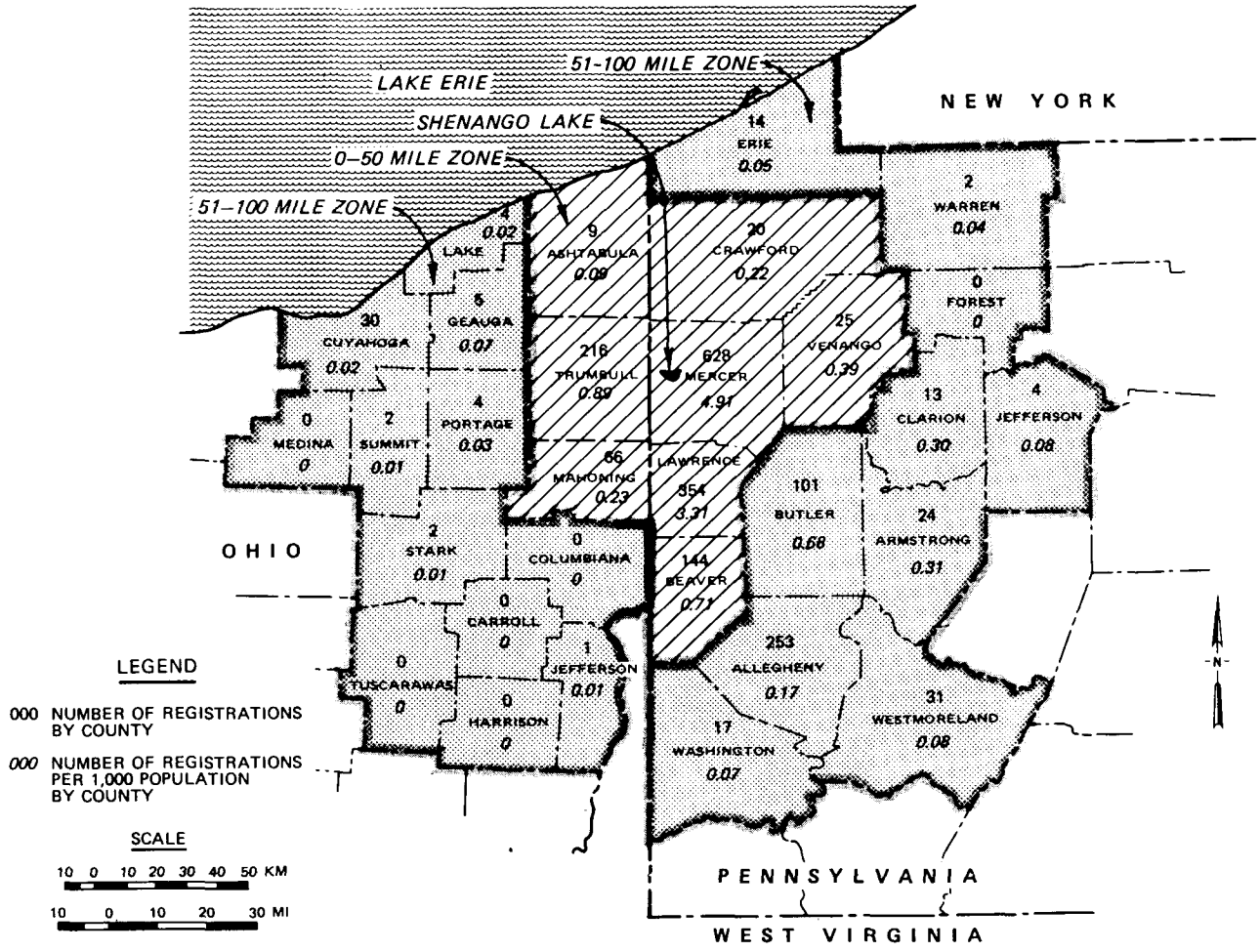


Figure 3. Camper registrations by county

containing zip codes that matched the county lists.

Results of the tallies are presented in Figure 3. Of the 2042 forms, 1462 (71.6 percent) had zip codes from counties within the 50-mile zone of influence; 507 (24.8 percent) had codes from counties within the 51- to 100-mile zone of influence, and 73 (3.6 percent) had codes from outside these areas.

One aspect of the zip code tallies that was unexpected was the very large proportion of registration forms with zip codes from Pennsylvania. The 50-mile zone in Pennsylvania accounted for 57.3 percent of all zip codes recorded. An additional 22.5 percent occurred in the 100-mile zone. This means nearly 80 percent of all the recorded zip codes came from portions of the two zones within Pennsylvania. Ohio's 50- and 100-mile zones accounted for 14.3 percent and 2.4 percent, respectively. That is, only 17 percent of the total came from Ohio counties within the two zones. Clearly, visitors from Pennsylvania were the dominant users of the study area during the 1980 CRS.

With the inception of the CRS, many new types of data became available for Corps recreation and resource planners, designers, and managers. Information obtained in the CRS can assist decision-makers conducting a wide range of analyses. These include:

- Determining whether existing facilities are meeting current user needs.
- Deciding whether a master plan update is needed.
- Determining and coordinating staffing requirements using peak use period analysis.
- Establishing resource capacity-control criteria through comparisons between field observation and site visitation figures.
- Assisting in the development of management plans to more evenly distribute facility and site usage.
- Determining the impact of external factors such as fuel cost and availability on recreation use patterns.

The potential applications of systematically collected trend data, beyond those data already being collected using the existing ENG Form 4457, are many and varied in function and in their levels of application. These data can be used effectively at the project, District and Division level, and, as data are finally aggregated, at the OCE level for planning and management purposes.

While the CRS has been initiated at a representative sample of Corps projects, it is recognized that there may be a need to collect the same information at other projects. However, ENG Form 4457 (TEST), an accountable form, can only be used at those projects presently authorized by OCE. The supplemental form has been revised to be consistent with ENG Form 4457 (TEST) and is compatible with the Recreation Analysis Program (RAP), a computer program developed for data analysis. Any District or project desiring to analyze visitor characteristics using the CRS procedure can do so by using this supplemental form in conjunction with RAP.

With the establishment of the CRS, the Corps has a data base founded on a representative sample of Corps projects. Where once only broad generalizations could be made regarding changes in Corps project use, the CRS data base introduces a new degree of specificity for evaluating policy and management options. With the CRS data base, not only can current use patterns be examined, but changes over time in visitor use patterns or visitor characteristics can be monitored and evaluated, which will result in the formulation of more responsive management decisions at all levels within the Corps.

For further information on the CRS or the RAP computer program, contact Dr. A. J. Anderson, Manager, RRP (601) 634-3657 or FTS 542-3657.

A THANKS TO RANGERS

December 1981

Office of the Chief of Engineers
Department of the Army
Washington, DC 20315
USA

Dear Sir:
My husband and I have recently spent one year traveling extensively throughout the USA. We not only enjoyed the hospitality of your most beautiful country and her people, but we were most grateful to your organization for the beautiful campsites which were provided by the Corps, the facilities thereon and last but not least, the Rangers were most helpful, kind, interesting, and very patient. We should be grateful if you would pass to your Rangers our sincere thanks. We will have no hesitation in recommending your installations to our countrymen traveling the USA.

Yours most sincerely,
R. W. and N. B. Parry
2 Charity Farm
Wades Lane
Shotley, Ipswich, Suffolk
England

RECREATION RESOURCE MANAGEMENT BULLETIN

Last Spring, Slippery Rock State College coordinating with several Federal land management agencies, began quarterly publication of a Recreation Resource Management Bulletin. This publication is designed to serve the needs of the field and staff personnel of Federal and state land management agencies. Each issue will include:

1. A lead article designed to stimulate the reader's thinking or to inform about critical recreation-resource management issues.

2. A section detailing innovative means of managing recreation resources and their users more effectively.

3. A research update section outlining the essential information included in current and previous research efforts (this section will present the research in the format being used in Slippery Rock's soon-to-be-published Recreation Resource Management Digest, a compilation of research done in recreation resource management).

4. A problems-and-solution section detailing solutions to problems posed from the field. A new problem will be posed in each issue with a call for solutions implemented by others.

5. An agency briefs section outlining information on special areas that are of interest to personnel of the various contributing agencies (this will enable other agency personnel to be informed of new developments in sister agencies).

6. A legal and legislative section will outline issues at the Federal level and selected state efforts that impact park and resource managers.

7. A new publications section will identify new books and other publications of value to park and resource managers.

8. Notices of training, symposiums, conferences, and similar meetings of value to park and resource managers.

9. Other information that appears to be of value.

Subscription to the Recreation Resource Management Bulletin is $10.00 a year for four issues. Interested persons should send subscription requests to :

Recreation Resource Management Bulletin
Department of Parks and Recreation
Slippery Rock State College
Slippery Rock, PA 16057

DID YOU KNOW . . . .

The WES laboratory complex is the principal research, testing, and development facility of the U.S. Army Corps of Engineers. Its mission is to conduct research and development studies in support of the civil works and military missions of the Office, Chief of Engineers (OCE), and other Federal agencies through the operation of four laboratories (Environmental, Hydraulics, Geotechnical, and Structures).

Topics studied include the broad fields of hydraulics, soil mechanics, earthquake engineering, soil dynamics, concrete, engineering geology, rock mechanics, pavements, expedient construction, nuclear and conventional weapon effects, protective structures, vehicle mobility, environmental relationships, aquatic plants, water quality, recreation and natural resources, dredged material research, and nuclear and chemical explosives excavation.

Much of the work performed at WES is funded through directed allotted monies from the OCE Civil Works Research and Development budget. Research topics and priorities are determined through the Research User Needs System (refer to ER 70-2-6, Jan 82).

The Research User Needs System was developed to ensure that research is responsive to actual field needs. At the heart of the system is input from you—the field personnel. If you feel you have a problem that may be solved through research and that the solution may have Corps-wide applications, you can submit a mission problem statement to CDR, USACE (DAEN-CWR-W), ATTN: R&D Coordinator, Washington, D. C. 20314, or to your district's Research and Development Coordinator. A mission problem statement simply states the problem, why solution is important, and how you think the research could help. If you should require assistance in preparing a mission problem statement concerning recreation resource issues, contact WES, Program Manager, Recreation Research Program (WESEV); P. O. Box 631; Vicksburg, MS 39180) and/or to OCE (Technical Monitor, Recreation Research Program, DAEN-CWO-R, Washington, DC 20314).

A ROLE FOR RESEARCH IN MASTER PLANNING

*R. Scott Jackson**

During the past year, Recreation Research Program (RRP) researchers have participated in a number of studies that are being incorporated into the Corps' master planning process. The studies included determination of carrying capacity for both land and water-based recreation activities, use estimation surveys conducted at a lake and a series of navigation pools, a demand study for expansion of marina facilities at a lake in Iowa, and the benefit valuation of a rafting river in Arizona.

These studies were made in response to requests for assistance in conducting analytical studies in support of both initial project master plans and master plan updates. The applications of analytical techniques in support of project planning and management provided an opportunity to apply the results of research while providing support to master planning efforts. In some instances this analytical support can mean the difference between a District contracting out an entire master plan or preparing the master plan utilizing in-house staff.

Use Estimation Procedures

Analyses of historic and current visitation patterns are a major requirement when updating master plans. This allows the conversion of historic trends to future projects. Unfortunately, many projects estimate recreation visitation from outdated survey data. In 1979, The Waterways Experiment Station (WES) published Technical Report R-79-1 entitled "A Handbook for Conducting Recreation Surveys and Calculating Attendance at Corps of Engineers Projects." While this report provides guidance in developing and administering a standardized survey program, some project managers have requested additional assistance in preparing survey schedules, training interviewers, preparing contracts, and analyzing survey results. In response, the RRP has developed the capability for providing the required technical support, to analyze survey data. The surveys should ideally be done one or two years prior to the initiation of a master plan update to ensure that planning and management decisions including recreation area closure and consolidation are based on the most accurate visitation estimates possible.

*Jackson is a Biologist assigned to the Resource Analysis Group, Environmental Resources Division, of the Environmental Laboratory.

Campground Use Monitoring Program

At most reservoir projects, a large percentage of manpower and development costs are allocated to fee campgrounds. In addition, these areas are most prone to obsolescence due to changing trends in recreation equipment and behavior. The Campground Receipt Study (described in another article in this issue) developed a low-cost program that can provide user profiles for fee campgrounds. The profile of campground users includes information on home zip code (location), number in party, length of stay, type of camping and other recreation equipment used, and the campsite used. The program utilizes camper-registration personnel to collect information from visitors using a modified fee receipt and a computer program developed at WES to analyze the data. The program was tested at 18 fee campgrounds during FY 80 and was found to be an accurate low-cost method to monitor trends in recreation use. By instituting this program at a project scheduled for master plan update, information could be generated to help determine the need for particular facilities (e.g., tent pads and RV hookups) and to evaluate the need for expansion based on historic use levels.

Carrying Capacity Analysis

A method for determining optimum carrying capacity levels and techniques for addressing carrying capacity related problems are identified in WES Instruction Report R-80-1, "Recreation Carrying Capacity Handbook, Methods and Techniques for Planning Design and Management." This methodology will allow the incorporation of carrying capacity analysis into the evaluation of all existing recreation areas as well as lake areas open to boating use. In addition to identifying optimum carrying capacity levels, the procedure can be used to evaluate the impact of facility reduction or expansion or of various design and management alternatives on recreation carrying capacity. RRP staff recently assisted the Pittsburgh District in applying the procedures in an analysis of boating capacity at Youghioghney River Lake; additional applications are sought to allow a complete evaluation of the methodology under various conditions.

Operation and Maintenance (O&M) Cost Tracking

In an effort to gain greater control and accountability over resources used in the performance of O&M work at Corps recreation areas, a

computerized Workload/Cost-Tracking System was pilot tested at selected Corps projects during 1979 and 1980. The information generated from this system allows the planner or manager to isolate O&M costs including labor, equipment, fuel, and overhead by recreation area and in some cases by facility, as in the case of sanitary facilities. This information can be used to determine which recreation areas are inefficient to operate and maintain and to provide support for decisions on park closure and consolidation. In addition, the O&M cost-tracking system can provide a basis for forecasting budget requirements for future years while taking into account changes in the quantity and location of facilities.

Interpretation Planning

Interpretation is recognized as an effective management communication tool for eliciting desired visitor behavior. As interpretation programs become an integral part of the overall project management function, the need for systematic incorporation of interpretation into the master planning process becomes greater.

The RRP has evolved techniques to develop and evaluate interpretive objectives and has identified the advantages and disadvantages of various interpretive media. These topics are addressed in a recently released WES Instruction Report R-81-1 entitled "A Guide to Cultural and Environmental Interpretation in the U.S. Army Corps of Engineers." Interpretive audience-analysis techniques are being developed to evaluate the effectiveness of a wide variety of interpretive media and facilities. These will be distributed along with "how-to" materials on related topics as supplements to the Instruction Report. These techniques allow for the overall evaluation of a project interpretation program and its ability to meet management of communication goals and objectives.

These are just some of the areas in which RRP staff has the experience and the capability of assisting Corps District or project personnel in preparing or updating project master plans. Incorporation of information or improved analysis techniques from recently completed or ongoing research activities can not only provide a better master plan, but can also ensure research products are responsive to field needs. For further information concerning such assistance, please contact Dr. A. J. Anderson, Manager, RRP (601/634-3657 or FTS 542-3657

RRP DIVISION/DISTRICT CONTACTS

To facilitate further communication among field elements, a listing of the appointed RRP contacts and their FTS telephone numbers are provided below.

LMVD	Clyde Redmon/LMVCO-R	542-5885
Memphis	Doug Gray/LMMOD-O	222-3461
New Orleans	Zain Terzi/LMNOD-R	687-2353
St. Louis	Robert S. Wilkins/LMSOD-R	273-5667
Vicksburg	B. J. Woods/LMKOD-M	542-5300
MRD	Donald Dunwoody/MRDOP-R	864-7284
Kansas City	Michael Carey/MRKOD-RR	758-3252
Omaha	Blaine Cunningham/MROOP-R	864-4127
NAD	Charles Stone/NADPL-R	264-7031
Baltimore	Theodore Schaefer, Jr./NABOP-PO	922-3693
New York	Simeon Hook/NANEN-E	264-4662
Norfolk	Karl Kuhlmann/NAOEN-RE	827-3766
Philadelphia	Jeffrey Radley/NAPEN-E	597-4833
NCD	E. Carl Brown/NCDCO-MO	353-7762
Buffalo	James Bennett/NCBED-P	473-2180
Chicago	Gerald Greener/NCCCO-O	353-6431
Detroit	Esther Fordree/NCECO-O	226-6809
Rock Island	George Hardison/NCROD-R	386-6332
St. Paul	James Holleran/NCSED-ER	725-7574
NED	Lawrence Blake/NEDVE	839-7504
NPD	John D. Tyger/NPDPL-ER	423-3829
Portland	Dick Kopecky/NPPOP-RM	423-6070
Seattle	Doug Bailey/NPSOP	399-3440
Walla Walla	Jim Brown/NPWOP-RM	442-5632
ORD	Sherman R. Gee/ORDCO-R	684-3803
Huntington	Michael White/ORHOP-R	924-5607
Louisville	Dave French/ORLPD-R	352-5774
Nashville	Ron Rains/ORNOP-R	852-5115
Pittsburgh	Peter Colangelo/ORPOP-R	722-6870
SAD	Gerald Purvis/SADCO-R	242-6746
Charleston	John Carothers/SACEN-E	677-4258
Jacksonville	Charles Smith/SAJEN-E	946-2400
Mobile	Kearney Windham/SAMOP-R	534-2596
Savannah	David Wahus/SASPD-R	248-5325
Wilmington	Daniel Grimsley/SAWCO-R	671-4826
SPD	James D. Sears/SPDPD-R	556-8775
Los Angeles	Ruth Chase/SPLED-E	798-5418
Sacramento	Fred Kindel/SPKED-M	448-3120
San Francisco	Robin Mooney/SPNED-E	556-5370
SWD	Mark King/SWDCO-R	729-2435
Albuquerque	Andrew J. Rosenau/SWACO-OR	474-1387
Fort Worth	Perry Robinson/SWFOD-M	334-2705
Galveston	Ernie Wittig/SWCED-E	527-6492
Little Rock	Dale Leggett/SWLCO-L	740-5673
Tulsa	Van Thornton/SWTOD-R	736-7340

This bulletin is published in accordance with AR 310-2. 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 Recreation Research Program can be rapidly and widely disseminated to OCE 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 as long as they are relevant to the theme of the Recreation Research Program, i. e., to improve the effectiveness and efficiency of the Corps in providing recreation opportunity at its water resource development projects. This bulletin will be issued on an irregular basis as dictated by the quantity and importance of information to be disseminated. Communications are welcomed and should be addressed to the Environmental Laboratory, ATTN: A. J. Anderson, U.S. Army Engineer Waterways Experiment Station, P.O. Box 631, Vicksburg, Mississippi 39180, or call AC 601, 634-3657 (FTS 542-3657).

TILFORD C. CREEL
Colonel, Corps of Engineers
Commander and Director

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