

# E.D.P. and Fishery Management

**James R. Zuboy, Robert T. Lackey,\*  
Norville S. Prosser, and Raymond V. Corning**

\*Department of Fisheries and Wildlife  
Oregon State University  
Corvallis, Oregon 97331

**Citation:** Zuboy, James R., Robert T. Lackey, Norville S. Prosser, and Raymond V. Corning. 1973. E.D.P. and fishery management. *Virginia Wildlife*. 34(2): 16-18.

**Email:** Robert.Lackey@oregonstate.edu  
**Phone:** (541) 737-0569  
**Web:** <http://fw.oregonstate.edu/content/robert-lackey>

# E. D. P. and Fishery Management

By JAMES R. ZUBOY, ROBERT T. LACKEY,  
NORVILLE S. PROSSER, and  
RAYMOND V. CORNING

**E**FFORTS to improve fishing once consisted of stocking fish or imposing regulations based on only a few, perhaps questionable, facts. With plenty of fishing water and relatively few anglers, this approach was not as bad as it sounds. Nevertheless, today the fisheries manager is faced with tremendous public fishing demands, especially in areas near population centers, and managing by the "seat of the pants" will not suffice.

To meet public demands for fishing, the Virginia Commission of Game and Inland Fisheries initiated an ongoing program for construction of small impoundments, generally near population centers. However, once a lake site has been selected and the dam built, the real work of the fisheries manager begins.

To provide the best possible fishing, Commission biologists must supplement the old standards with the latest management techniques. Even though biologists now have an impressive bag of tricks, the real problem is knowing when to do what—enter E. D. P., *electronic data processing*.

Fisheries managers today often use computers to facilitate data processing. In fact, if you have recently fished one of the Commission-owned lakes, you may have had a creel survey clerk check your catch and record the results on a computer card. This is one part of a state-wide program to improve management of fishing lakes by the employment of electronic data analysis.

Let's look at one of Virginia's intensively fished management units, Lake Brittle, the site of a cooperative research project between the Commission and VPI & SU. Lake Brittle covers 77 surface acres and is located in Fauquier County, approximately 30 miles from Washington, D.C. The lake receives very heavy fishing pressure (nearly 45,000 fisherman hours in 1971) due to its proximity to metropolitan areas. Prior to 1970, creel census at Brittle was a tortuous opera-

Mr. Zuboy and Mr. Lackey are with the Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg. Mr. Prosser and Mr. Corning are with the Fish Division, Virginia Commission of Game and Inland Fisheries.



Photo by David H. Bennett

Results of computer analysis may show need for chemicals to control overpopulation problems or increase fertility.



Photo by William T. Bryson

The ultimate goal of electronic data processing in fishery management—more memorable fishing experiences.

David Bennett Photo



tion. All information on fishing was recorded in long-hand. The district fisheries manager later spent many hours over a desk calculator analyzing data. Often the analysis took so long that it became of little use in his management decisions.

Computerized creel census methods were installed at Lake Brittle in 1970 as a prototype for possible state-wide implementation. Early development work was carried out in cooperation with the Southeastern Cooperative Statistical Unit located at North Carolina State University. A simple computer card on which data were recorded with a soft lead pencil replaced the longhand method of recording. The ready marked cards made subsequent analysis a simple task. Informa-



Photo by James R. Zuboy

Lake Brittle, located in Fauquier County, is the site of a study using computers to improve fishing.

tion recorded on each card included date, type of fishing (boat or shore), how far the fisherman traveled to get to the lake, number of fishermen in the party, total hours fished, species caught, and number and weight of the catch. Later development work has been carried out with punch cards replacing pencil marked type.

The system at Lake Brittle now works in the following manner. Each visiting fisherman is required to stop at a check station before fishing begins, and at the close of a fishing trip. You (the angler) report your catch to the creel census clerk and he punches the information into a computer card. The cards are sent to VPI & SU, where the computer, in a matter of minutes, does what formerly took a man with a calculator many, many hours or days to complete. A tabulated printout of desired information is returned to the fisheries manager within a matter of days (the greatest delay being mailing time!).

What type of information is returned to the manager? He gets a complete breakdown of all catch data by species. For instance, the computer tells the manager the total number and weight of bluegill taken from the lake, the number and pounds caught per acre, and the

average number and pounds caught per hour. The manager will have this information for every species and a total for all species.

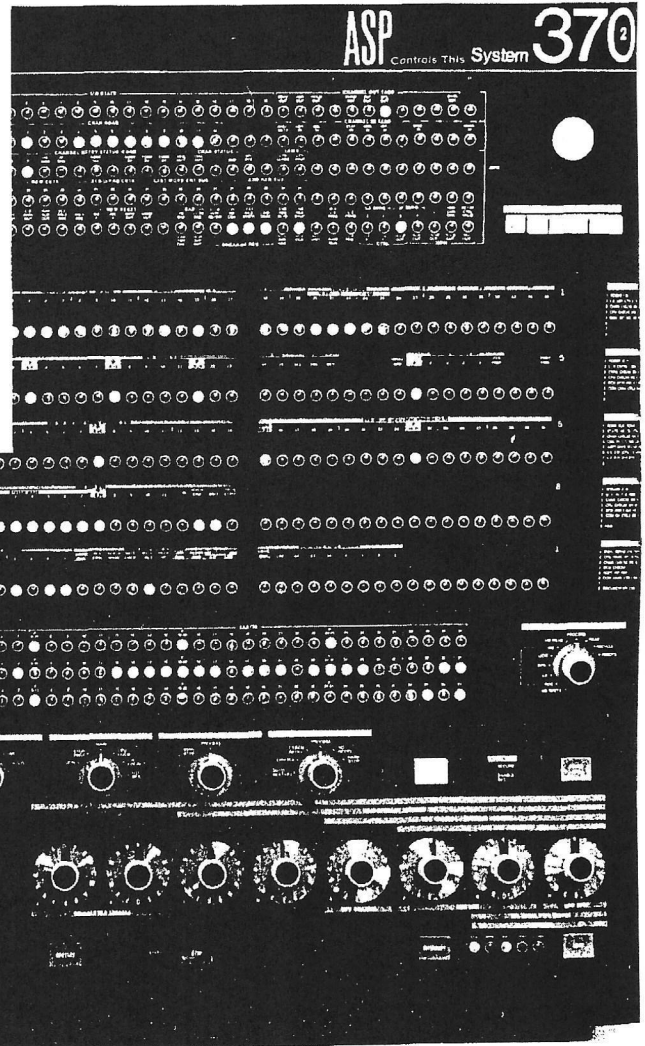
**How Does All This Improve Fishing?**

Consider a fishery such as Lake Brittle, which is owned and managed by the Commission. Suppose the creel census showed that there was an exceptionally large number of bass present at a particular time. The current creel limit on bass could be liberalized to capital-

stocking.

The method of constant creel data survey is especially valuable for determining the success or lack of success for any fish stockings made during a given year.

Lakes such as Brittle often become overpopulated with stunted panfish. The computer analysis would indicate when the average size of panfish was declining and the manager would be prepared to take corrective action before major stunting had taken place. In a stunting situation, selectively eliminating part of the



Data from computer cards sent directly to VPI & SU are fed in, and printouts carefully analyzed to spot trends in the fishery. Computer does in seconds what once took biologists weeks to accomplish.



ize on the presence of an abnormally large population. When the analysis shows that the catch of bass is leveling off, the prior creel limit could be reestablished. Then again, suppose bass are numerous but not of the desired size. This may then call for a minimum size limit regulation to allow the bass to obtain a larger average size. On the other hand, the analysis might indicate an extremely poor year class of bass. This might warrant a temporary reduction in the creel limit and additional

stunted population would allow the remaining fish to grow to a larger size. However, to make such a decision the manager needs good up-to-date data, the kind provided by computerized creel census methods.

So, next time you wearily walk up to that creel census station in order to have your catch checked, think of the possible benefits to your future fishing. You are helping the Commission to scientifically manage the lake and provide the best possible fishing.