anticipated trends in outdoor recreational activities; and coordinated and cooperative development of each area in accordance with its best use by participation of all agencies having responsibilities in the field of recreation use, development or management.

SIZE OF ACCESS AREAS—A CONTRIBUTION TO A PANEL ON ACCESS AREAS

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In considering the question of developing parcels of land into public access sites, one becomes very much aware of the fact that he cannot easily advise as to the construction and features of these sites without a complete understanding of the area and topography involved. The panel which you see here is made up of authorities, any one of which might answer the question of access area size much better than I. I might even change my views after hearing further discussion of this pertinent topic. So you should keep in mind that my remarks are very much subject to qualification, depending upon the access problem at hand. I shall attempt to give you a base point, or formula, from which the discussion may revolve.

Probably the first to put our access area requirements into figures, as well as to take a real hard look at the future, was Dick Stroud, in an editorial in the Sport Fishing Institute Bulletin. Here, among many other timely remarks, he made an effort to propose the magnitude of the access problem we face. Looking into the future, he said that we should prepare 10 acres of public access for each 300 acres of reservoir. Of course, Dick realized that these areas need not be the same size, and that it would be desirable if some were larger than others to accommodate various types of uses.

I know that when I first saw these figures, I was inclined to feel that this was more land than would ever be needed for access. I could not imagine that our 150,000 acre Kentucky Reservoir would need 5,000 acres of access area. In the intervening years, and after having more experience with the access problem, I have revised my thinking to nearer agreement. Now, whether or not you agree with the figure of 10 acres of access per 300 acres of water, Stroud has provided us with a figure to work around. Although I would commend those who have initiated an access area program—building areas one at a time as their means would permit them—I believe that we are now at the stage when a plan and complete understanding of what we are doing is essential to the solution of this access problem. We should know what we need, and the goals at which we are shooting.

Just as the need for such a plan applies to the access problem as a whole, I believe that we need some sort of figure to shoot at in terms of the number of acres that should be included in each access area. Since most governmental agencies are not so flush that they can afford to buy more lands than they need, a maximum size area is just as important to determine as a minimum size. The main thing is that the area will be of adequate size to serve present and future needs. The purpose of my discussion is to evaluate this question with respect to the number and acres desirable in each access site.

TYPES OF ACCESS

I would like to confine my discussion to reservoir fishing access, primarily where boat launching facilities are required. The access problem as you will recognize, is much broader than launching alone. Access problems confront us when we deal with multiple use of land and water resources. Hunting access to wildlife producing lands, or even access to a trout stream fishing area, may pose problems when other interests are involved. Even access to warm water fishing streams is becoming a critical problem today, and we must soon come to grips with this question in many of our southern states. I feel, however, that the question of access area size is one which applies mainly to reservoir access where the public already has the right to use the

many acres of water, but where the problem is gaining an access to that water. The problems of access to public or private lands or streams involves a great deal more than a right-of-way to these lands, and I feel that the problem of area size is an altogether different thing in this respect. Therefore, all of my remarks which follow will be in regard to the question of reservoir access sites.

THE PROBLEM IN TENNESSEE

Tennessee has the Tennessee Valley Authority to thank for its start on an access area program. In the process of classifying government lands surrounding reservoirs of the Tennessee system, TVA, in the early 1950's, very wisely saw fit to set aside land for public access. At that time, not a great deal was known about our access area needs on reservoirs in the southeast, and those far-sighted people with TVA were compelled to depend upon the situation at hand to guide them in the size of each of these land parcels that they set aside for access. At the present time, the State of Tennessee has jurisdiction over 269 areas, ranging in size from 0.3 of an acre to 140 acres. Most of the areas are small—over half being less than 5 acres in size. Only about one-fifth of the areas are 10 acres or larger. Only one is over 30 acres. We own in fee, only those lands lying above flood elevation, but we have the use of lands lying below easement, which may at one time or another during the year be flooded. Although we are limited on these easement lands to the construction of parking and launching facilities, we find that they have become a very important part of many of our areas, and we must include this area to show the full potential of the areas that we own. If I were to include only our lands which lie above flood elevation, I would have to say that over 80 per cent of our areas are less than 5 acres in size.

Now that we are well into an access program, we realize how far short we are on space. It must be realized that not all of the topography available in each of the areas is suitable for boat launching and parking. We are still receiving additional areas from TVA, and we are studying very carefully with them the problem of access area size. For the most part, the areas which we are receiving now, and will be receiving in the near future, are two to four times larger than the present average. We carefully study each area with regard to its potential to be certain that the size of the area justifies the development of that particular area at all.

FACTORS GOVERNING ACREAGE

Number and Size

A given body of water is destined by its location and recreational potential to support a certain number of man-hours of fishing. The ultimate program for any particular reservoir would be a number of well distributed access points. The program must have a beginning and for a while, the number of developed sites will be below optimum. In these cases the fewer areas will likely receive heavier use and should be larger—that is, the areas developed first may need to be among the larger areas planned.

It is recognized that any land acquisition and development program must have an evolution—areas must be added a few at a time until the optimum number is reached. This is particularly true in the construction phase, and where effort at construction must be spread over a number of lakes. In such cases where a few areas must serve the needs for a few years, the first areas should be among the larger ones planned. As more areas are added, they need not be as large. A well planned program will undertake land acquisition at once, while sites are available. The sites with the greatest parking capacity should be developed first. Proximity to population centers and fishing waters also means better use of the first developed areas.

Parking Space

The primary need for space in lake access area development is for parking cars with boat trailer attached. The amount of space necessary for parking depends first upon the number of cars that may use the area in peak season. Next, the acres necessary to provide that parking will depend upon the topography of the area. Probably the most efficient car-trailer parking would be

served by a large rectangular space where the car-trailers could park parallel to one another with forward exit to make backing unnecessary. About 40 car-trailer units per acre can be accommodated in this manner. This much flat space may not often be available, however, and parking may be found here and there. Roadside parking may be necessary to accommodate car-trailers some days. Many drivers will be wasteful of parking space.

If lake shores are generally flat, one to four acres will probably be adequate for parking. In many cases, however, the topography will probably be broken and four to eight acres will be needed to provide composite parking. Covenient approaches to the launching ramps may require one-half acre of space alone.

Associated Uses

Fishermen are outdoorsmen. It is not practical to prepare an access area program without providing space for camping. Practically every area, no matter how small, will be used at one time or another for camping. The public will demand camping space, and the well-planned program will include it from the beginning.

Camping is one use of access sites that primarily benefits fisherman. It is likely that all access area campers are fishermen. Even boat ramps, for which purpose all areas are built, serve many nonfishermen, but camping is one way to benefit fishermen primarily.

Camping, along with picnicking, is an associated use of access areas that should be considered when acreage is being planned. At least one area of every three should be large enough to allow camping. Providing that topography and shade are adequate, each camping area should provide room for up to five camps at one time. An occasional area, one or two on each lake, should accommodate as many as twenty. Location of desirable camp sites depends as much upon shade and topography as upon space. No formula can be proposed by which to arrive at space necessary for five camp sites. This must be determined by site inspection. However, if the area is desirable at all for camping, three to ten additional acres will provide all the camping and picnicking space necessary for most areas. Space that may be needed at some future date for expansion of parking facilities should never be included in this acreage set aside for these associated uses. It may serve these uses temporarily, but no permanent type structures should be placed here.

While development for further associated uses may be beyond the jurisdiction of Game and Fish agencies, other governmental agencies, or even private interests, may seek to add swimming beaches, playgrounds, or other facilities. These uses should not be allowed to interfere with the primary purpose of the area. Where the potential and funds and means are present, however, additional space should be allowed beyond that necessary for access alone.

Topography

The topography of the access site will very likely govern the uses to which the area is put. If the site is relatively level, almost any part of it may be used for parking. If the terrain happens to be steeply sloping, more space will be required, between the parking area and launching ramp. In instances where the land is quite broken, the parking area may have to be divided into several parts to accommodate as many car-trailer combinations as may use the area on peak days. Any development program should anticipate all future parking needs, and space should be maintained for this purpose.

Relatively steep land may be used to good advantage for camping and picnicking areas. Some terracing may be desirable to provide small, well drained sites for each camp, but this is making excellent use of the land available.

Adjacent Land Use

Buffer strips are desirable on both sides of the access site to provide protection for private land on either side of the area. This is particularly necessary when adjacent land use is for homes or cottages. In Tennessee, where the access area program began with small areas, considerable difficulty has been experienced when development has been attempted near a fine lake shore home. Once it became necessary to install boat launching facilities, these ad-

jacent land owners complained that such development would distract from their privacy, and would lower the real estate value of their property. Such conflict could in practically all cases be avoided by buffer strips along either side of the actively used access area.

The effectiveness of the buffer strip, of course, depends upon the type of cover established. A stand of mature trees would probably necessitate a smaller strip, while open fields might require a strip up to 1,000 feet wide. It is suggested that 10 acres, more or less, be added where needed to the size of each area to serve as a buffer. In many cases more will be required. It is also imperative that access area construction proceed at the earliest possible date, so that in all cases possible, access development precede real estate development.

Shoreline Available

The total usefulness of an access area site for public access to a reservoir will, to a large extent, depend upon the shape of the access area available. An access area can serve all of the uses thus far discussed, with as little as 50 feet of its perimeter fronting on the lake. The area is not, however, serving its full purpose unless at least one-fourth of its perimeter opens on the lake shore.

Bank fishing is important on reservoirs, particularly where the shore line is steep and cut by current. For the most part, bank fishing at other points is limited. Where bank fishing is popular, public fishing access to this type of shoreline should be emphasized. At other points, inclusion of shoreline in access site is of value to the area from the camping standpoint. There is also a possibility that property with parallel boundaries on the access area and on the lake may be used by interests in conflict with the access area. Therefore, it is important to close access boundaries on the lake side wherever possible.

CONCLUSIONS

Basically, an access area is a boat launching site with space for parking car-trailers that use it and a public road to the site. If an adequate number of areas are available, no site should be less than three acres in size—five acres would be better—provided the land is all usable. There may be instances where an area of only one or two acres is available. For the most part, areas of this size should be avoided. However, if such an area provides the only available access to a popular fishing spot, it should be developed for basic use, including all of the parking space possible. Such a small area, however, should be developed only after all effort has failed to provide a larger and better site nearby.

In cases where private real estate development has a head start on access development, only a few potential access sites may be available for acquisition. In this case, the basic area size should be increased by two or three times, depending upon the planned need for the entire reservoir. These comments are intended to refer only to hunting and fishing access. Recommended area sizes will, in no cases, support a certain amount of use by pleasure boaters, water skiiers, and other purposes. In Tennessee, our program is designed primarily to benefit all fishermen and hunters, but it is likely that other users provide as much pressure as the fishermen for whom the areas were built. In areas where a considerable amount of pleasure boating and skiing is anticipated, the basic area size should be enlarged considerably. The capacity of the area can be also improved by providing more than one ramp. The question, however, of development for access other than fishing and hunting is left without other comment, but should not be overlooked in any broad program.

As much additional use as possible should be planned into access development. Landscape and topography will be factors in the associated uses included. Most states may find it wise to take advantage of these two resources wherever they are available. Camping and picnicking are associated uses that are of primary benefit to fishermen and should be included. At least three to ten acres should be added for this purpose.

Particularly where private development may precede access construction, provision should be made for buffer strips on any side that will front a private home or cottage. Width of the buffer will, of course, depend upon the land-

scape and topography, and the size of the basic area. It should be at least 300 feet wide and may need to be 1,000 feet. Larger areas will require less buffer. Areas up to five acres in size may require up to ten acres in buffer. As can be seen, adequate planning will minimize the necessity of such costly buffer zones. On the other hand, access development may be impossible without buffers in populated shores.

Topography may not need to be a consideration on many sites, but may be of great importance on others. Many reservoirs in the south are located in sharp terrain, and many access points may need to be in precipitous areas. In these cases, two or three acres may be required to provide one acre of parking. Much of the land added to accommodate this feature, however, may serve for camping or picnicking, or even buffer. Probably no more than one or two acres on large areas could ever be considered waste. Additional land involved would, in most cases, be very small.

Access areas on any one reservoir should average ten acres in size. This does not include buffer strips. Larger and smaller areas should be interspersed according to anticipated use patterns.

Panel discussion on access areas presented at the fourteenth annual meeting of the Southern Division of the American Fisheries Society, Biloxi, Mississippi, October 26, 1960.

SURVEYS FOR FISHERMAN ACCESS IN GEORGIA

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The need and development of access areas on lakes and streams is a universal problem in fisheries. Surveys to provide information on fisherman access areas in existence, type of area, and potential use of these areas is basic for a state program of actual access area construction. In order to obtain maximum usage for access area construction, they should be located strategically to provide the widest possible range of use. The access survey can provide this basic data.

In some instances where fisherman demand for access areas is high, enough locations may already be present to satisfy this demand. In other instances, fisherman demand may well be justified for access to utilize potential recreational areas of lakes and streams. In Georgia, we have experienced both of these situations. The answer to inquires from sportsmen regarding access may be found through survey data on hand outlining the numbers of access areas and type available to the public.

Information on access already in existence, if made available to the public, will help to solve local problems and increase utilization of potential fisheries. In some instances potential areas already in existence, but not well known, are by-passed for other locations where good fishermen access is publicized. Proper usage may partly be a problem of information dissemination.

A program for distribution of available access area information, with accurate map locations and enumerated facilities, provide a vital role in maximum utilization of the fishery. Such information on lakes and streams with public use areas will be a real guide to the fishermen and help direct usage to these locations.

Accurate and useable publications of available access areas resulting from fisheries surveys may be as important as actual construction, and certainly form a solid basis for access building programs of the future.

Fisheries Survey

A state wide fisheries survey initiated by the Georgia Game and Fish Commission in 1956 has recently been completed. Included in the survey along with standard biological and chemical investigations and fish distribution, was a specific objective to obtain information on fish camps, access areas, and boat launching facilities; and to provide accurate mapping locations of these fisherman facilities.