

WATER QUALITY REQUIREMENTS AND RELATIONSHIPS
FOR RECREATIONAL USE

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Mr. Chairman and conferees, the Bureau of Outdoor Recreation is pleased to make its interests known concerning water quality requirements and outdoor recreation. When I started this study of water pollution and its relationship to outdoor recreation, I hastily concluded that the title of this paper drew forth an obvious comment, "Of course we need clean water for all forms of water-oriented recreation activities." This statement is generally true. However, after reading numerous recent papers on the broad subject of water pollution and the specific aspects of quality standards for recreation waters, I learned that past answers are not necessarily the best ones and that much remains to be done to obtain adequate solutions. It is also obvious that there are few experts in this relatively new field.

The Bureau of Outdoor Recreation is currently building a Nationwide Outdoor Recreation Plan as a general guide for future planning and action in the field of outdoor recreation. The Plan is intended to serve as an instrument for assuring that a variety of recreation opportunities desired by our people of present and future generations will be available in sufficient quantity and quality to serve them adequately within the range of available resources. An important phase of the Plan involves a comprehensive inventory of the supply of outdoor recreation resources in the United States. Federal, State, county, municipal and private recreational lands, waters and facilities will be recorded. The study will disclose the amounts, types and location of all present recreation lands, waters and facilities, what additional recreation development is now planned, and what potential areas can be identified for recreation development in the future.

This inventory of supply will be matched with a Nationwide demand survey in order to determine the types and location of resources and opportunities which will be required by present and future generations. Determination of the need for available water for outdoor recreation will be an important aspect of this analysis.

One of the most pressing needs in outdoor recreation planning is an expanded research program. Research is one of the important responsibilities of the Department of Interior as well as the Bureau of Outdoor Recreation. When expanded research becomes a reality, one of the priority study items should be the determination of standards for recreation waters. Presently, some of our potentially finest recreation waters are polluted to the point where recreation is restricted or dangerously close to this point. We all

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know that an increasing population will place increasing demands on our fresh water resources. However, we need not go to a future-demand situation. Our current needs are not being met in some areas because of pollution of outstanding rivers and lakes.

Among our Great Lakes, Lake Erie is rapidly losing its value as far as recreation is concerned. Commercial and sport fishermen know this is true. So do swimmers, boaters, lakefront property owners and many naturalists. Walleye pike and cisco have been virtually replaced by less desirable fishes. The commercial fish catch from Lake Erie has dropped from over half the Great Lakes total to less than the catch from Lake Michigan alone. As a result, many commercial fishermen are destitute. Huge algae growths die and wash ashore to form enormous odorous masses around boat docks, lakefront property, and bathing beaches. To make a bad situation worse, debris, logs, lumber and numerous other floating materials litter the shoreline.

All major Lake Erie tributaries are heavily polluted at their mouths and many throughout large reaches of their lengths. Winding through the center of Cleveland, Ohio, the Cuyahoga River flows north to Lake Erie. It is a torpid ribbon of gray sludge marked with large iridescent splotches of oil. Much of the American shoreline of Lake Erie out one to two miles is polluted. The most serious damage in this zone is to recreational uses, particularly swimming and water skiing. It has been estimated by some that even with total pollution control, it would take 25 years to clean up Lake Erie.

No fish can live in the mighty Hudson for ten miles downstream from Albany --just sludge worms, fly larvae, leaches, and maggots. The beautiful Hudson is a fetid dumping ground for 217 major sources of waste.

The Merrimack River in New England is perhaps the most polluted river in the history of man. Through its entire length it averages less oxygen than fish need to live, and below Lowell, Massachusetts, its oxygen content is zero.

To further illustrate, Chicago, with modern treatment facilities, pours wastes into the Illinois Waterway which have a pollution effect equivalent to the discharge of sewage from about 1 million persons and contain solids --natural and synthetic, organic and mineral--amounting to about 1,800 tons per day.

As though to emphasize the seriousness of water pollution in our country, the Potomac River in our Nation's Capital and in its tidal estuary is grossly polluted. The river and estuary are unsafe for water-contact sports. All of the State health and water pollution control agencies, as well as the Federal agencies involved, are deeply concerned for the continued safety of the metropolitan water supply. On October 2, 1965 President Johnson at the signing of the Water Quality Act of 1965, pointed specifically to the Potomac River, recalling that President Theodore Roosevelt used to swim there earlier in the century. "Today, he said,

"the Potomac is a river of decaying sewage and rotten algae. Today all swimmers are gone. They have been driven from its banks."

Getting closer to home in Colorado our own South Platte River is seriously polluted. It will require much time, effort and money before this river is sufficiently cleaned up to support a warm-water fishery and fishing and other outdoor activity along its banks.

I have cited only a few examples, but water pollution is a National problem. Across the land, rivers once sweet and unsullied are now so polluted they are good for little more than carrying away the human and industrial wastes that made them that way. Except for the headwaters, almost all of America's rivers are seriously polluted.

Equally destructive is the silent killing of estuaries and their associated fish, plants and animals by pollution. Just as fresh water life, marine life lives precariously close to death. The slightest environmental change can spell doom. And the hand of man has been applied heavily to our estuaries. Factories on or near our shores, cities at the mouths of rivers, and thousands of resort hotels, motels, and summer homes find coastal marshes and tidewater flats convenient places to dispose of garbage, industrial wastes, litter and other debris.

We read and hear much about pollution of recreation waters by industry, municipalities and agriculture. This is understandable, for these are the most common and obvious sources of pollution of recreation waters. However, little has been said about the pollution caused by recreationists and Federal installations. Recreationists themselves often overlook the effect they and their activities have on the quality of recreational waters and associated land areas. Summer homes and cottages in the vicinity of lakes, reservoirs, and streams often present a vexing problem. Many are located in areas remote from adequate sewage treatment facilities. Pollution occurs by seepage from septic tanks, overflow of drainage fields and in some instances, direct discharge of sewage into recreational waters. Pleasure boating has also caused water quality problems, principally through the discharge of sewage in anchorage areas. Deposition of trash, garbage and other materials from pleasure craft is also a source of pollution. Winter sports activities, particularly ice fishing, have proved detrimental to water quality through the deposition of debris on the ice and snow. This problem will become more acute as winter sports activities increase.

Another little recognized source of pollution of recreational waters are Federal installations. Compared to the total of untreated discharges of municipalities and industry, pollution by Federal agencies is very small, less than three percent. However, it is disturbing that there is any, especially when this pollution by government facilities is serious in some locations. Fortunately, Federal installations are making substantial and accelerating progress to end water pollution but the problem still remains in some locations.

What are the effects of water pollution on outdoor recreation? The extreme effects, of course, are prohibition of water-contact activities. This can be caused by a high count of coliform bacteria, indicating the presence of organisms from the digestive tract of warm-blood animals. Or plant nutrients introduced through pollution can cause excessive growth of aquatic plants, which by their presence prevent swimming, water skiing, and boating. When these plants die and decay, they cause secondary oxygen-demanding pollution accompanied by disagreeable tastes and odors. The possibility of the development of toxins from the high density growth, death, and decay of certain types of algae is also very real.

When organic pollution reduces the dissolved oxygen in a stream below four or five parts per million, only rough fish can exist, thereby eliminating any sport-fishing value that might have been present. When the oxygen count reaches zero, anaerobic bacteria take over the job of reducing organic pollutants to inert materials. We then have a septic condition with the familiar dark, evil-appearing, foul-smelling condition characteristic of grossly polluted water in which no fish can live.

Siltation is another common source of pollution. Pollution in the form of silt can change the water environment and in turn, the type of recreation activities engaged in. Silt caused by logging, overgrazing, or farming can change a cold-water fishery to a warm-water fishery.

Pollution can and has caused a considerable loss in recreation activity days and associated economic benefits. In many areas, some of our prime recreational waters have been lost to pollution. With their loss has gone swimming, water skiing, boating, fishing and yes, picnicking, camping, and sightseeing opportunities. Camping, picnicking and sightseeing, while not directly water-oriented activities, are considerably enhanced as an experience by aesthetically pleasing water. Pollution robs the water of its aesthetic value for such activities.

Economic losses associated with the loss of recreation areas are significant. Concessions for boating, swimming, food, drink, and lodging are seriously affected. Service and supply businesses developed to support those water-centered recreation activities are also severely affected. Probably the most damaging effect of polluted recreation waters has been the loss of prime areas near large metropolitan areas where the need is greatest.

At this point, then, I think there is general agreement that water pollution poses a serious threat to the future of water-based recreation. At present the supply of usable recreation water meets the needs of American citizens in many areas. However, there are already sections of the Nation where the supply is severely limited. For example, in the crowded eastern seaboard, opportunity is rapidly being restricted in variety and reduced in quality. There are not enough recreation waters in the right places to meet the demands. This is also true of several large metropolitan pockets elsewhere in the Nation. When water needs for

outdoor recreation are projected in the Nationwide Plan, it will refer to water of a quality suitable for outdoor recreation. This is the crux of the problem. Will sufficient recreational water be available to meet the needs in 1980, 2000, and 2020? These are the years for which the Plan will attempt to ascertain the needs. At the present rate of pollution control and abatement, we may not be able to meet our future requirements. I suspect that most of our presently polluted waters will have to be cleaned up if we are to have adequate acreages in the future. It will require increased and closely coordinated planning of Federal, State, and local governments and the private sector if the task is to be accomplished. The Bureau of Outdoor Recreation is committed to play an important role in this planning. By the year 2010 our national population will double and the overall need for outdoor recreation facilities will triple. Not only will there be more people, but they will have more free time, more money and be more mobile than ever before. Already the increase in need for outdoor recreation developments is surging ahead of population growth. The types of outdoor recreation most people participate in today are rather simple -- walking and driving for pleasure lead the list. However, swimming, picnicking, fishing and boating are among the most popular. What people do now is not necessarily what they want to do in the future. The ORRRC report indicates that more than 20 percent of those surveyed said that while they do not participate in fishing, they would like to. Other activities for which there is a large unsatisfied desire include swimming, boating, and "just going to the beach."

In recognition of the importance of conserving some of our purest of recreation waters, legislation has been introduced in Congress calling for establishment of a National System of Scenic Rivers. This legislation has been introduced in Congress calling for establishment of a National System of Scenic Rivers. This legislation is designed to preserve, reclaim, and make available for the benefit of all the American people, specifically chosen segments of the Nation's diminishing free-flowing rivers. This program would guarantee for America a remnant of her heritage of unspoiled, unpolluted, free-flowing rivers. In this area a portion of the Rio Grande is one such river being considered.

It is thus apparent that water is a focal point for outdoor recreation. Most people seek water in which to swim or fish; or which to boat; along which they can walk, picnic, or camp, or just look at. People also want to recreate close to home. Two out of three Americans now live in metropolitan areas and by the year 2000, three out of four will. It is here that the need for most types of outdoor recreation is centered. It is here where the greatest need for recreation waters is and will be. It is here where most of the pollution occurs. It becomes obvious then, that we cannot afford polluted recreation waters if we are to meet our recreation needs.

Ridding our recreation waters of pollution is one of our primary tasks. But an equally important task which should be undertaken as soon as possible is the establishment of uniform standards for quality of recreation waters. Currently we are faced with a maze of conflicting

regulations and standards. It is an understatement to say that there is a lack of agreement among research and management people about what constitutes clean recreation water. Refinement of water quality standards for the various water-oriented recreation activities and their adoption by all agencies concerned is necessary before a workable solution can be found to pollution control in recreation waters. Water quality standards for recreation vary considerably among agencies responsible for determining whether certain types of water-oriented recreation is permissible. Some beaches are allowed to remain open through the water quality may be lower than that at other beaches which have been closed by another agency. Why do public officials permit water-skiing in waters polluted to the extent that swimming is prohibited? The answer lies in increased research by Federal, State and local governments and private industry. Our universities could also do much to help in this problem. Once adequate criteria are developed, then they must be applied effectively and uniformly. One of our principal problems concerning the use of standards is the reluctance by regulatory agencies, particularly at the local level to apply them effectively, if at all. The best standards will accomplish nothing without effective application!

Pollution of recreation waters is serious and its future effect could be even more damaging. What then is needed? First of all, one level of government or one agency cannot solve the problem. It will require an untiring effort on many fronts. Federal, State and local government, private industry, the educational community and an overwhelming grass roots support of the people are needed to effectively clean up our recreation waters and to prevent further pollution.

It is not enough to maintain the status quo. Right now the clean water advocates are running neck and neck with the polluters. We must greatly increase our efforts and plan on cleaning up those potentially fine recreation waters that have been allowed to deteriorate for far too many years. This must be done to meet our future needs. Continued degradation of water resources in urbanized areas will place greater recreational use pressure on the fewer remaining acceptable water areas. People will have to travel even greater distances in quest of suitable water oriented recreation activities. These trends must be reversed if suitable recreation waters are to be found in the future.

Much closer coordinated planning of Federal, State, and local governmental agencies, and private enterprise is necessary if the program is to succeed. You, the states, the Federal Water Pollution Control Administration and the Bureau of Outdoor Recreation should play a major leadership role in this planning. Real coordinated planning is necessary to avoid confusion and expensive duplication of effort. However, if this program is to be fully effective it must have the support of a large segment of the population. This support can only be gained through an accelerated program of information and education by all levels of government, schools, industry, agriculture, and conservation groups. The public must be shown the wisdom of clean recreation water in the clearest of terms. The people should be encouraged to learn how municipal and industrial wastes are

handled in their community. They should be urged to let elected officials at local, State and Federal levels know they want strong anti-pollution laws, and want them enforced. Lastly, they should be encouraged to join action groups to foster pollution controls.

Control of pollution of recreation water is not impossible. Many fine examples of what can be done are available.

For a century, Pennsylvania's 130-mile Schuylkill River, which empties into the Delaware River at Philadelphia was described as "too thick to navigate and too thin to cultivate." Some ship captains refused to dock at Philadelphia because of corrosion from this contaminated stream.

A dozen years ago, Pennsylvania started to rehabilitate the Schuylkill. In two years the 47 coal mines which poured two million tons of coal washings into the headwaters of the river each year had installed desilting systems. From Reading downstream, every city along the Schuylkill put up a new sewage plant or enlarged existing ones. Philadelphia invested 80 million dollars, and local industries spent an additional 40 million to complete the job.

Now, they are swimming and boating on the Schuylkill once more. Municipalities using the river for their water supply report more economical operation of their purifying plants; industries which formerly were forced to develop their water supplies from wells are using Schuylkill water again.

Water pollution abatement on the North Platte River in Wyoming is probably one of the most outstanding examples in the Nation. Wyoming cleaned up this river in a decade. In this experience, we have proof that the cities and industries of any State can achieve clean water if they have the will to do so, and if the State's leaders show the way.

The effort began in 1955 under Governor Simpson, now a United States Senator. Governor Simpson appointed Arthur E. Williamson as the State's pollution abatement chief, and strongly supported his persuasive efforts to clean up the North Platte.

In 1948, the Public Health Service stated that the North Platte was so grossly polluted that it was doubtful that recovery ever could be made. By 1954, the river had deteriorated further. However, through Mr. Williamson's persistent efforts, Wyoming improved the quality of the North Platte without intervention by Federal authorities, and without legal abatement enforcement proceedings.

The cost to industry has been high but residents and businessmen have found that the investment was sound. Land values along the river have increased from \$240 an acre 10 years ago to \$1,500 an acre. Residents now are proud of their river and recreation activities have returned.

Other important examples can be shown. Dramatic progress has been made

along the Missouri River, where 10 years ago not one major city treated its sewage. Today, Sioux City, Omaha, Kansas City and St. Joseph all have treatment plants operating or under construction, and meat packing plants have done a significant clean up. St. Louis a few years ago voted a \$95 million bond issue for waste treatment. The Shell Oil Company plant at Anacortes, Washington has installed a complete treatment system to avoid polluting waters in the area and to protect local commercial and sport fisheries. Kaiser Steel at Fontana, California, reclaims mill wastes in a settling and recycling system which keeps its water needs to a minimum. The beautiful Willamette River in Oregon is being cleaned up; even the grimy Ohio is getting a bath.

The Water Quality Act of 1965 has been an important factor in accelerating the program by (1) establishing the Water Pollution Control Administration, (2) requiring each State to signify its intent within a year, to establish water quality standards by June 30, 1967, and to submit a plan for enforcing those standards, and (3) permitting the Federal Government to step in with its own rules if the State fails to set standards or sets standards deemed unsuitable by the Water Pollution Control Administration. The Act also authorized \$150 million a year in Federal grants to help States and communities to build sewage treatment plants--an increase of \$50 million over the presently authorized ceiling.

Still, with all these efforts, much more is needed if we are to truly control water pollution in the United States.

If, as predicted, outdoor recreation activities triple in the next 50 years and if future recreationists are to fully enjoy their outdoor experiences, we must have clean water. Yes, there is and will be an increasing need for truly clean recreation waters.

The Nation must work harder if we are to succeed. Much more money must be invested in city and industrial waste treatment plants. We need intensive research to develop more efficient techniques of water treatment. And equally important, we need better enforcement of strong pollution laws at the Federal, State and local level.

President Johnson, in his speech at the signing of the Water Quality Act of 1965, said, "I believe that with your help and your continued cooperation, water pollution is doomed in this century." He also said with the signing of the Act, "I pledge you that we are going to reopen the Potomac for swimming by 1975. And within the next 25 years, we are going to repeat this effort in the lakes and streams and other rivers across this country."

I am certain all of us share in the President's views. His remarks must offer a real challenge to all of you who work so closely with the problem of water pollution. Your accomplishments in developing new waste treatment systems and control methods have been clearly proved. The challenge that faces you is the same as that facing the Nation. America has the capability; it must redouble its efforts.

RECENT WATER LEGISLATION - 1967

A special session on Recent Water Legislation was arranged since the New Mexico State Legislature had recently adjourned after having considered many water proposals and passing several of them.

Mr. Harlan Flint, Special Assistant Attorney General, assigned to the State Engineer Office, and Mr. Hoyt Pattison, State Representative from Curry County, presented many of the high points in connection with this legislation. The two papers were followed by discussion periods on the various aspects of water law and the application of the law to the management of the water of New Mexico.

The papers presented on the following pages are:

1967 Water Legislation

by F. Harlan Flint

General Counsel, State Engineer and
Interstate Stream Commission
Santa Fe, New Mexico

Water Legislation - 1967

by Hoyt Pattison

Representative from Curry County -- New
Mexico State House of Representatives,
Farm Operator, Farm Manager, and Registered
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