REPORT OF THE
SECRETARY OF NATURAL RESOURCES

STUDY OF MULTIJURISDICTIONAL LAKES

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

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SENATE JOINT RESOLUTION 73: STUDY OF MULTIJURISDICTIONAL LAKES

As requested by the 1986 General Assembly in SJR 73, the Secretary of Natural Resources has examined the needs and problems of inland lakes bordered by multiple political jurisdictions. This report summarizes the findings of the Secretary and proposes means for mitigating problems of the lakes resulting from the geo-political reality of their bordering more than one political subdivision.

Within the Commonwealth, 18 lakes and reservoirs are bordered by more than one political subdivision and have a surface area greater than 200 acres. Together, the water bodies total 134,600 surface acres and touch 27 Virginia counties and 4 cities. Five of these water bodies are federally owned and three share boundaries with other states.

All but one of the study lakes are man-made impoundments originally intended as a resource for electric power production or public drinking water. (The one exception, Lake Drummond, is a natural ecological feature within the Great Dismal Swamp National Wildlife Refuge.) Building dams to form these lakes created miles of shorelines, generally considered attractive property, and immense recreational potential. Use of adjacent lands and pursuit of recreational activities on and around the lakes are not necessarily incompatible with the primary purpose of the water bodies. The necessity to release certain amounts of water to generate power has been, at times, less than desirable for lake property owners and users. In particular, Lake Moomaw experiences extreme differences in water elevation, disrupting recreational opportunities. Negotiating new terms has been successful to mitigate extreme lows in the water elevation at several publicly- and privately-owned lakes and could be pursued elsewhere at the initiation of the affected localities.

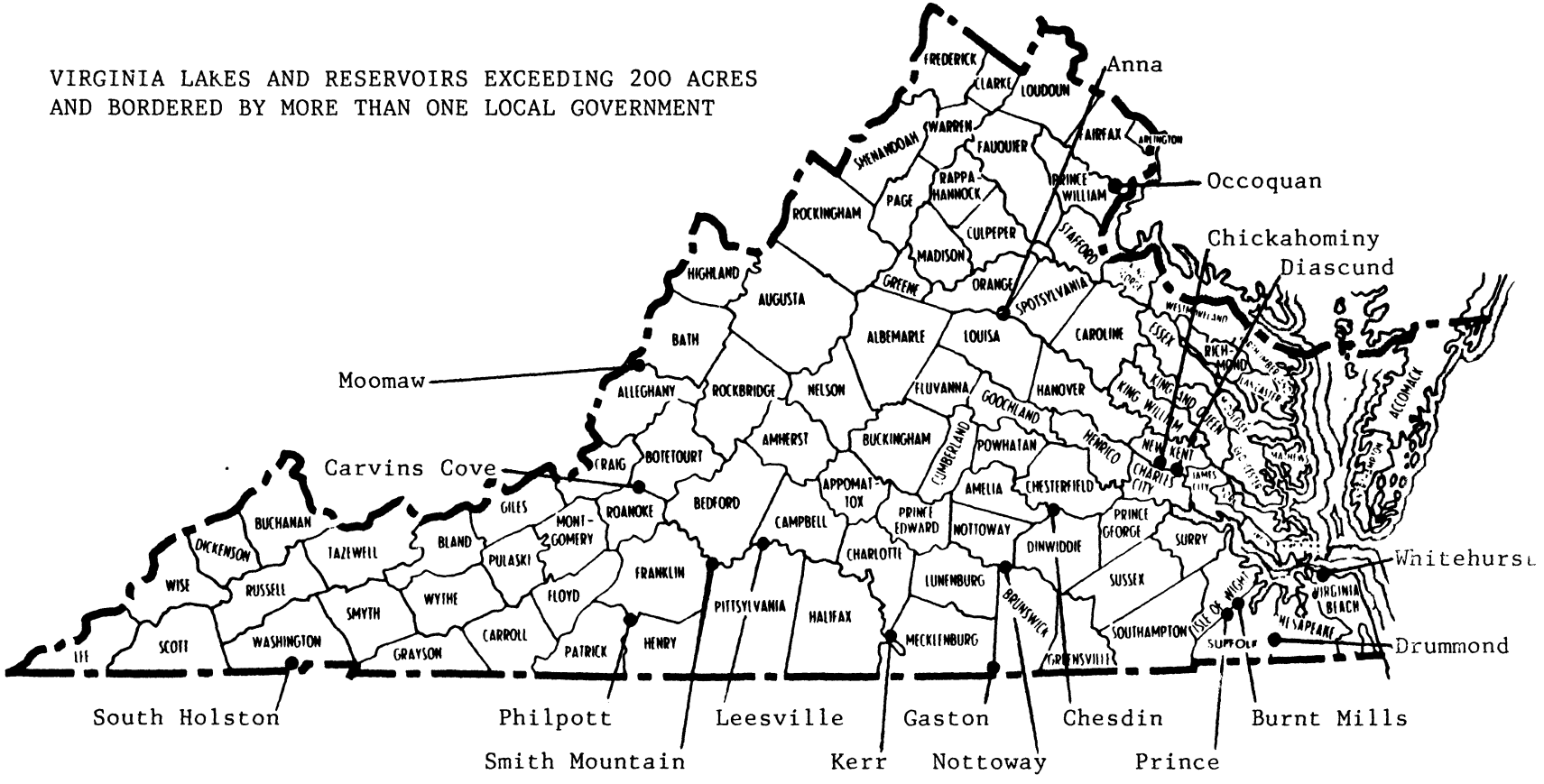
The lakes are significant recreational attractors. In fact, five state parks have been located along the shores of four of the multijurisdictional lakes (Anna, Kerr, Philpott and Smith Mountain). Accommodating recreational uses generally poses no conflict when the use of the water body is power production and public access is provided. When the primary purpose of the impoundment is to supply public drinking water some limitations on the type of recreation may be necessary. Where advantageous for reservoir protection, restriction of swimming, skiing, and gas-powered boats may be required by the water supply owner.

For purposes of this study, chief administrative officials of the 31 affected local governments, soil and water conservation district chairmen, lake owners and a lake association were

contacted to request a description of lake and shoreline activities and problems. Information received through the responses was supplemented by recent studies from local origin and state agency records of activities and programs for the lakes and their immediate surroundings.

Nearly all of the issues and needs described by respondents or indicated in the reports relate to land use control, restoration or protection of water quality, and law enforcement.

VIRGINIA LAKES AND RESERVOIRS EXCEEDING 200 ACRES
AND BORDERED BY MORE THAN ONE LOCAL GOVERNMENT



VIRGINIA LAKES AND RESERVOIRS EXCEEDING 200 ACRES
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NAME	ACREAGE	OWNER	COUNTIES/CITIES
Anna	9,600	VEPCO	Louisa, Orange, Spotsylvania
Burnt Mills	600	Norfolk	Isle of Wight, Suffolk
Carvins Cove	630	Roanoke City	Botetourt, Roanoke
Chesdin	3,060	Appomattox River Water Authority	Amelia, Chesterfield, Dinwiddie
Chickahominy	7,500	Newport News	Charles City, New Kent
Diascund	1,700	Newport News	James City, New Kent
Drummond	2,500	USF&WS	Chesapeake, Suffolk
Gaston	20,300	VEPCO	Brunswick, Mecklenburg [Warren, Northampton, N.C.]
Kerr (Buggs Island)	48,988	CORPS	Charlotte, Halifax, Mecklenburg [Granville, Vance, Warren, N.C.]
L 'lle	3,400	APCO	Bedford, Campbell, Pittsylvania
Moomaw	2,530	CORPS	Alleghany, Bath
Nottoway (Reservoir)	348	U.S. Army (Pickett)	Brunswick, Nottoway
Occoquan	1,700	Fairfax Co. Water Authority	Fairfax, Prince William
Philpott	2,800	CORPS	Franklin, Henry, Patrick
Prince	900	Norfolk	Isle of Wight, Suffolk
Smith Mountain *	20,000	APCO	Bedford, Franklin, Pittsylvania
South Holston	7,850	TVA	Washington [Sullivan, TN]
Whitehurst	200	Norfolk	Norfolk, Virginia Beach

(18 Lakes, 134,606 Acres, 27 Virginia Counties, 4 Virginia Cities, 4 North Carolina Counties, 1 Tennessee County)

* Lake Organization: Smith Mountain Lake Association Corp.

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LAND USE CONTROL

In Virginia, the State's exercise of land use control is restricted by law to the protection of three sensitive land forms: tidal wetlands, scenic rivers and primary coastal dunes. Even then, localities are authorized to implement the requirements of the law, and the state makes land use decisions only when the locality has not opted to exercise this authority.

Broader authority to plan and manage land development is the delegated responsibility of local government. The General Assembly stated its intent in the enabling legislation, "Planning, Subdivision of Land and Zoning":

> §15.1-427: This chapter is intended to encourage local governments to improve public health, safety, convenience and welfare of its citizens and to plan for the future development of communities to the end that transportation systems be carefully planned; that new community centers be developed with adequate highway, utility, health, educational, and recreational facilities; that the needs of agriculture, industry and business be recognized in future growth; that residential areas be provided with healthy surrounding for family life; that agricultural and forestal land be preserved; and that the growth of the community be consonant with the efficient and economical use of public funds.

The General Assembly established measures for local governments to exercise this authority. The law requires local government to adopt a comprehensive plan and a subdivision ordinance, and to create a local planning commission but stops short of mandating enactment of a zoning ordinance.

Still, most counties and all cities in the Commonwealth have elected to protect existing land uses and manage change by defining what may (or may not) be located in proximity through a local zoning ordinance. Those governments which have not enacted zoning appear to prefer acceptance of potential for incompatibility over "government intervention," and defend the inaction as preservation of property owner rights.

Among the comments received from inquiries about the multijurisdictional lakes, land use was seldom an issue in areas where local governments have enacted zoning ordinances. Where zoning does exist, land use concerns often included complaints of lake users that ignore controlled shoreline buffers, or of upstream activities that accelerate erosion and contribute to polluting run-off.

The lakes where not all bordering localities have adopted land use measures are in rural settings. The pace of development occurring around the lakes in recent years has often startled the rural county leadership. However, the contrast in population and development density between shoreline areas and the remaining, larger parts of the counties may be overlooked by inland communities within the same jurisdiction. This is apparently frustrating to year-round shoreline residents, who often want the services of a developed community, or are distressed with the expanded demand for services by a seasonal influx of visitors. However, many shoreline properties are second homes used for vacations, and the owners' expectations for services are not as high and, in some instances, services beyond police protection are undesired.

The lakes in counties without zoning ordinances include the 3 largest lakes, with hundreds of miles of shoreline. Without protection of land use controls, these lakes are particularly more vulnerable to adjacent uses that potentially jeopardize their economic and environmental value. Consequently, such lakes require more state involvement to assure that local government's reluctance to accept land use authority does not impair state waters or result in health threatening circumstances. Such involvement is generally at the State's initiation and at State expense and includes water quality protection measures. Water quality programs to encourage erosion control and to monitor water conditions are addressed elsewhere in this report.

Whether at state encouragement or other means, the water quality is presently fair to good at lakes without land use protection. However, whether the surrounding counties are able to maximize the return on the shoreline property in terms of environmental management, economic development or recreational potential is highly unlikely.

WATER QUALITY

Restoration or protection of water quality was frequently cited as a concern common to both lake users and owners. The significance of acceptable water quality apparently accompanies the realization that the water bodies' beneficial characteristics are susceptible to activities beyond property or jurisdictional boundaries.

Legislation adopted by the General Assembly in 1946 pioneered pollution abatement in Virginia's waters. The Federal Water Pollution Control Act in 1972 established a national goal of "fishable, swimmable waters." With its enactment, Virginia's efforts expanded to assure that the state would retain responsibility for protection and management of its water resources. Institutional responsibility for water quality is shared by state and local governments and, in some instances, prompted by federal requirements. Significant state programs for controlling point and non-point source discharges into rivers, lakes and streams currently underway are explained below.

Municipal Construction Grants Program.

Since 1958, Virginia has received over $1 billion in federal appropriations to fund the planning, design and construction of publicly-owned wastewater treatment facilities. Beginning in 1972, the federal government was willing to contribute up to 75% of the project costs, with the remainder financed by local and state contribution. This has enabled the construction or upgrade of 118 sewage treatment plants across the state. The benefits of sewage treatment to the health of Virginia's water bodies are immeasurable.

Recently, the diminishing of federal funds has necessitated creativity for continued financing of such projects. In 1985, the Virginia General Assembly established a revolving loan fund to assist localities with sewage plant construction in order that required standards for discharge of treated wastewater can be achieved.

National Pollutant Discharge Elimination System (NPDES).

The State initiated a permitting program for wastewater discharge in 1946. The program was strengthened under the Federal Water Pollution Control Act which required a nationally uniform permit program to control municipal and industrial wastewater discharges, with penalties to enforce compliance.

The State Water Control Board is authorized to implement the national standards in Virginia. It does this through tracking facilities' monthly performance in comparison to the standards and requirements of the individual facility permits.

Non-compliance with permit standards brings enforcement actions that can include penalties and, where appropriate, revocation of permits.

While the confined flow of wastewater discharged from the major municipal treatment plants in Virginia has increased by 40 percent over the last ten years, the amount of oxygen-demanding waste (BODs) has decreased by 35 percent during this same time period.

No-Discharge Certificates.

The State Water Control Board issues No-Discharge Certificates for facilities that do not discharge, but rather store, wastewater. The purpose of such a certificate is to prevent the discharge of wastewater into State waters and the degradation of groundwater quality.

Of the 1700 No-Discharge Certificates in effect, three-fourths are issued for control of wastes from animal feeding operations. The remainder are for a variety of industrial operations. No-Discharge Certificates may also be required for land application of municipal sewage sludge.

Enforcement Activities.

The State Water Control Board specifies conditions under which a discharge into State water bodies can be permitted. The permit conditions reflect the ability of the water body to assimilate the wastewater effluent without taxing the body's recovery or jeopardizing downstream uses of the water. Compliance is measured by regularly-scheduled tracking of facilities' performance and enforced by directives and orders from the State Water Control Board or its Executive Director or referrals to the Office of the Attorney General. Penalties collected are appropriated to the State Literary Fund by the General Assembly.

The State Water Control Board's enforcement powers also authorize the recovery of costs for investigative actions and replacement of fish killed, most often resulting from oil spills.

National Municipal Policy.

The Environmental Protection Agency has stated that by July 1, 1988, all publicly-owned treatment plants must achieve at least a secondary level of wastewater treatment.* Only in proven

*Primary wastewater treatment mechanically removes floating and settable solids from the wastewater. The second level, or secondary treatment, introduces bacteria that consume organic matter in the waste.

examples of financial hardship will an extension beyond this date be granted, and then the locality is subject to a court (not State Water Control Board) enforceable schedule for compliance.

Non-Point Source Pollution Control.

Numerous smaller sources of pollution may reach Virginia waters through indirect means. This principally consists of herbicides, pesticides and eroded soil as run-off from agricultural activities, construction sites and impermeable surfaces (such as parking lots). These non-point sources are addressed largely by the Erosion and Sedimentation Control Law (§21-89.15, Code of Virginia), and the implementation of Best Management Practices. Both are administered by the Division of Soil and Water Conservation. However, the success of each is dependent on local initiative and enforcement.

Status of Lake Water Quality.

Lakes are considered temporary geologic features on the earth's landscape. Man-made lakes have a shorter life span than natural lakes because of their shallow depth and placement in areas where man's activities contribute to the accumulation of pollutants. This acceleration of the natural aging process of a lake due to disturbances in the lake watershed is called cultural eutrophication. One half of the 18 large multijurisdictional lakes are currently considered eutrophic. However, to associate the trophic, or aging, status of a lake with water quality impairment is not wholly appropriate. Eventually, all lakes become eutrophic (nutrient enriched and accumulated with silt) or dystrophic (brown water bog).

Data from the Commonwealth's ongoing monitoring program for publicly-owned lakes indicate that the water quality of these multijurisdictional lakes and reservoirs is fair to good with the majority of the lakes supporting all designated uses. In fact, upgrades of municipal wastewater treatment plants through the State administered construction grants program have reduced nutrient loadings and improved water quality in two of these multijurisdictional lakes. The trophic status classification of one of these lakes, Smith Mountain Lake, has improved due to reduced nutrient loadings to the lake following the treatment plant upgrade in Roanoke.

Considerable data collection from lake monitoring provides an on-going examination of water quality. At Smith Mountain Lake, the State Water Control Board monitors 15 locations to measure chlorophyll, pH, dissolved oxygen concentration, and a variety of chemical and physical parameters. In addition, Ferrum College is studying impacts of various land uses on water quality. Data collection for this study has been completed and results are expected in early 1987. Further, a study of fish

populations at Smith Mountain Lake is expected soon from VPI & SU.

There are no known toxics problems in these 18 lakes and reservoirs.

Twelve of these lakes are used for public water supply. A joint 1986 State Water Control Board/State Health Department survey of surface water supplies in Virginia reported that five of these 12 lakes must occasionally treat the water for taste and odor problems associated with algal blooms.

Algal blooms and nuisance aquatic weed growths are common symptoms of nutrient enrichment which, along with siltation, are the most frequently reported water quality problems in these lakes. As mentioned earlier, point source contributions of nutrients to our lakes have been appreciably reduced through construction grant program assistance for upgrades to municipal wastewater treatment plants. Further reductions are anticipated through the State Water Control Board's recent action to establish nutrient standards for wastewater discharge. Therefore, the current lake management focus at both the state and national level is on control of non-point sources of nutrients and sediments in lake watersheds. Depending on the land use patterns within a specific lake watershed, these non-point source contributions are usually agricultural or urban in origin.

Six of the 18 lakes are influenced primarily by agricultural runoff, two by urban runoff and the remaining three by a combination of agricultural and urban non-point sources. Federal financial assistance under the now defunct 208 program assisted the Commonwealth in preparing manuals on best management practices available to control non-point sources of pollution.

Oddly, unbalanced nutrient removal (disproportionate removal of nitrogen and phosphorous) may not be advantageous to fish habitat. Certain lakes, such as Smith Mountain Lake, are said to be "too clean" for supporting large stocks of fish (although recreational anglers have not been known to complain of a shortage.)

State Assistance.

In addition to the previously mentioned lake monitoring programs and state administered federal construction grants program, the Commonwealth of Virginia has many other programs which assist in water quality management of multijurisdictional lakes.

- The State Department of Health regulates drainage from septic tanks by requiring that septic tanks be set back

at least 50 feet from the lake shoreline. Local health departments may increase the setback distance if more stringent regulation is appropriate.

- The Commonwealth prohibits point source discharges immediately upstream of a water supply intake.

- State Department of Health regulates bacterial levels in lakes that are public drinking water supplies.

- With the exceptions of Lake Drummond which does not have a dam and Chickahominy Lake which has a dam lower than the height regulated by the Dam Safety Act, dams for these large multijurisdictional lakes are inspected for structural safety by either the Division of Soil and Water Conservation or the appropriate federal regulatory agency.

- Preimpoundment assessments of nutrient loadings and potential problems are prepared as a part of the 401 certification process for proposed impoundments in the Commonwealth.

- Various cost sharing programs exist for Best Management Practices to control urban and agricultural runoff such as those administered by the Division of Soil and Water Conservation and the Soil Conservation Service administered Rural Clean Water Act programs.

- State Water Control Board assistance was given in the formation of the Virginia Lakes Association for the purpose of fostering transfer of technical information on lake management among lake owner associations.

- The Commonwealth participates in the Environmental Protection Agency's Clean Lakes Program, which has provided over $2.7 million in federal funds matched by $2.4 million in State and local funds for identification of lake problems and restoration of lakes. Eleven of these multijurisdictional lakes qualify for assistance and have been included in the State Water Control Board's priority ranking for eligibility under this program. One of these reservoirs, Lake Chesdin, has received over a million dollars in local, state, and federal funds to address the non-point source agricultural contributions to sedimentation and nutrient enrichment of this eutrophic reservoir.

- The Commission of Game and Inland Fisheries participates with the localities and the lake owner in control of the aquatic weed Hydrilla in Lake Gaston.

- A federal 205 (j) grant was awarded by the State Water Control Board to the West Piedmont Planning District Commission for the development of a prototype lake management plan and ordinances for land use and erosion control. The final report for this Smith Mountain Lake Shoreland Study has been completed and submitted to the Environmental Protection Agency.

Need for Additional Local Involvement.

As evidenced by the foregoing examples, the State and federal governments have provided substantial assistance programs for lake protection and restoration. However, in many cases the missing link is lack of local involvement in lake watershed management. Local jurisdictions have not fully utilized their authority to control sources of nutrient and sediment loads to lakes. Scientifically, it has been shown that it is the pollution in the immediate vicinity of a water body that most impacts water quality conditions.

Many jurisdictions provide local shoreline protection and reduce agricultural and development runoff and erosion through zoning. Lake protection is less expensive and easier to implement than lake restoration activities initiated after the fact. Therefore, local governments indicating a desire to achieve this type of lake protection may need assistance in the development of ordinances to control non-point sources of pollution. Model ordinances, such as those prepared by the West Piedmont Planning District Commission under 205 (j) grant funding, can be extremely useful.

LAW ENFORCEMENT.

Comments on the number of boating accidents and the lack of local authority to cross political boundaries indicate that law enforcement may be problematic on multijurisdictional lakes.

In recent years, approximately one-third of the boating accidents on public waters have occurred on the 18 multijurisdictional lakes. The number of accidents since 1980 has remained relatively stable except at Smith Mountain Lake.

The number of accidents on any particular lake does not appear to be solely a function of size. For example, from 1980-85, 6 accidents were reported on South Holston Lake and on Lake Chesdin, although Chesdin is less than one-half the size of Holston. Further, although Leesville Reservoir is roughly the same size as Lake Chesdin, only one accident was reported there within the same time period.

Rather, the data suggests that the number of boaters in relation to a lake's size strongly correlates to the frequency of accidents. The extreme is demonstrated by the boating accident record for Smith Mountain Lake. Accidents on this single impoundment accounted for nearly half (46%) of the accidents on all of the lakes for which comparable data exists for the six year period of 1980-85.

Drinking of alcoholic beverages is a likely contributor to boating accidents. The Commission on Game and Inland Fisheries is addressing this issue in a separate report in response to HJR 60.

Both game wardens and local officers are responsible for law enforcement on lakes that are public waters. Local enforcement officers are hampered by the inability to determine jurisdictional boundaries and pursue offenders into waters of a neighboring locality. Section 15.1-131.3 of the Code of Virginia offers a remedy, providing that local governing bodies may enter into reciprocal agreements for "cooperation in the furnishing of police services."

Moreover, funding for local law enforcement, particularly in rural counties, strains to increase the number of law enforcement officers commensurate with the seasonal population. State funding for local sheriff departments is based on year-round population. The seasonal increase in residents is not calculated in funding formulas. Consequently, county staffs are more likely to concentrate efforts on services more on land than on water, for which game wardens share enforcement responsibilities.

Litter in and around the lakes is considered a law enforcement problem by officials from communities bordering Smith Mountain Lake and South Holston Lake. Smith Mountain Lake area residents have held a clean-up day to remove litter from the streets and shoreline. Through the State's Division of Litter Control, funding is available to localities for litter control programs. Perhaps communities with resources such as lakes that attract numbers of people, yet need care to protect their attractiveness, should give special programmatic attention to lakeside areas in their litter control plans.

Boating Accidents, 1980-1985

	'80	'81	'82	'83	'84	'85
On Public Waters	95	68	62	98	77	108
On Selected Study Lakes*						
Diascund Reservoir	0	0	1	0	1	0
Gaston Reservoir	3	0	2	3	2	3
Kerr or Buggs Island Lake	5	1	2	5	4	3
Lake Chesdin	1	2	1	1	1	0
Leesville Reservoir	0	0	0	0	0	1
Philpott Reservoir	0	3	0	1	0	0
Smith Mountain Lake	12	16	7	5	13	23
Chickahominy Lake	0	1	1	0	0	0
Holston Reservoir	1	1	0	1	1	2
Lake Anna	7	1	3	7	6	4
Occoquan Reservoir	2	0	2	0	0	3

*Comparable data not available on all lakes included in this study.

CONCLUSIONS AND RECOMMENDATIONS

Problems and needs cited by the owners and users of the 18 multijurisdictional lakes relate to land use, water quality and law enforcement. Only one problem mentioned, the lack of local enforcement officers' authority to cross political boundaries, is strictly a function of multiple jurisdictions. The other problematic situations described in response to state inquiry are not characteristic solely of communities along water bodies bordered by more than one political jurisdiction.

Admittedly, addressing and resolving conflicts may be complicated by the geo-political factor, requiring considerable communication and coordination. The regional planning district commissions provide an appropriate forum for addressing concerns shared by multiple jurisdictions. Unfortunately, however, the regional boundaries of the planning district disect lakes in several instances.

Although counties around Smith Mountain Lake are in separate districts, the regional format has facilitated the counties interest in managing the lake resources. The West Piedmont Planning District Commission staff has worked with numerous state and local parties to develop the Smith Mountain Lake Shoreline Management Plan. The plan suggests a series of actions to protect and enhance the land and water resources of Smith Mountain Lake. The first recommendation, creation of a 4-county Policy Advisory Board, has been accepted and is now preparing to become operational. Its charge is to recommend strategies and coordinate implementation of actions approved for management of Smith Mountain Lake's resources.

Another example of intergovernmental cooperation to address common concerns is the Upper Occoquan Sewer Authority. The localities neighboring the Occoquan Reservoir depend on the impoundment for drinking water and wastewater discharge. The mutual need appears to maintain the local governments' focus on cooperative protection and planned use of the resource.

Low water levels, problematic at some lakes, usually result from the operation of the impoundment for its primary intent (e.g. electric power production). Low water conditions may be exaggerated during drought conditions when releases are necessary to maintain water quality and deter algal blooms in public water supply areas downstream.

Although not yet a problem, reduced flows upstream from lakes could diminish water levels in lakes, particularly during drought seasons in areas where many users draw from lake tributaries. There is no regulatory authority to provide or establish minimum flow.

Water quality problems are often symptons that land use is not being effectively monitored by local government. The relation of water quality to land use is often recognized by lake owners and users. However, directing land use to improve water quality is not always viewed as a management alternative. Instead some localities expect state assistance to relieve water quality problems that can be attributed to local government's negligence to control land use decisions that degrade water quality. Failure to establish land use controls can allow slightly injurious individual decisions to result in detrimental cumulative impacts.

Where localities have enacted zoning ordinances, water quality protection should be a consideration in the implementation of local authority. Prevention and protection is less costly than remedial action.

The land use and water quality problems described to the state as part of this study appear to be solvable with existing local government authority or through programs administered by state agencies. Problem resolution may not be satisfactory to all parties, particularly where goals for the lake or desired uses are incompatible. In localities without zoning ordinances, erosion and sediment control enforcement and increased implementation of Best Management Practices should be pursued by local governments to protect land and water resources.

Realization of the National Municipal Policy and Clean Water Act goals will provide additional maintenance of water quality favorable to lakes. A minimum of secondary level sewage treatment will continue to improve the lake's ability to sustain the living resources and offer recreational potential.

The number of boating accidents has remained stable in recent years except at Smith Mountain Lake. Observers suggest the accident rate is related directly to the large recreational population and alcohol use while boating. Reducing the risks to public safety and personal property likely could be achieved by increasing lake patrol, particularly during the summer months. Increasing lake law enforcement personnel at any of the lakes, and particularly at Smith Mountain Lake, should be discussed jointly by the responsible state and local parties.

Increasing the service of state game wardens on lakes would be possible with the General Assembly's reallocation of resources to the Commission on Game and Inland Fisheries. Until this is accomplished the Commission should explore temporary assignment of wardens to Smith Mountain Lake during high activity months in an effort to increase enforcement and boating safety.

Certainly, all local sheriff departments are encouraged to assure services are commensurate with the seasonal activity and

population. Law enforcement offices in communities surrounding multijurisdictional lakes desiring to upscale services could realize economic savings through reciprocal agreements as provided in §15.1-131.3 of the Code.

Specific recommendations and suggestions are listed below for consideration by local governments adjacent to lakes and to agencies responsible for applicable programs.

- The State's program for monitoring and protecting water resources and encouraging erosion control should acknowledge the lack of zoning ordinances in certain jurisdictions.

- The state should continue to provide water quality monitoring, particularly at Smith Mountain Lake and other lakes that are not protected by land use controls along the immediate shoreline and/or areas adjacent to upstream tributaries.

- At nearly every lake there is concern that the natural process of siltation may be expedited by adjacent and/or upstream land development and careless agricultural practices. Local soil and water conservation districts need to ensure lake management and protection are incorporated into the process for approving erosion and sediment control plans. The local approval of agricultural and forestal districts should incorporate encouragement for using Best Management Practices to minimize runoff and soil loss.

- Louisa County should consider the need for public access to the lake before private development negates the opportunity. If purchase of property is unfeasible, alternatives (e.g. easement) may offer local residents recreational opportunities until shoreline property can be acquired.

- Discussions of law enforcement difficulties and cooperative solutions such as that offered by §15.1-131.3 of the Code would be advantageous to counties surrounding multijurisdictional lakes, particularly Lake Anna, Smith Mountain Lake and Kerr Lake.

- The State recognizes the difficulty of planning for future water supply, and urges continued local involvement in the State Water Control Board's development of regional water plans.

- Hydrilla improves water quality and fish habitat, but frustrates many recreational boaters. Lake users should recognize the somewhat conflicting desires for certain lakes and the related benefits or disadvantages of hydrilla. The Commission on Game and Inland Fisheries should consider developing guidelines for hydrilla management in state

waters and, as appropriate, in privately-owned lakes coordinating with other agencies through the Council on the Environment.

- Local governments should take opportunities to remind lake users and residents to be cognizant of controlled buffers along shorelines, such as that at Nottoway Reservoir.

- At certain lakes (such as Philpott) the noise of "jet boats" is annoying residents and lake owners. Local law enforcement officers and state game wardens should cooperatively develop and implement a strategy for dealing with this complaint.