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90-2-00327-0

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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON DEPARTMENT OF WILDLIFE, Appellant, vs. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. 90-2-00327-0 APPELLANT'S POST HEARING MEMORANDUM

FACTS

The relevant facts in this case are not disputed. The Washington State Department of Wildlife (Department) owns a parcel of land located on Summit Lake in Thurston County. The county created a lake management district (LMD) for the purpose of conducting a water quality survey of this lake. The Department's land was within the boundaries of the LMD and a rate and charge was made against their property by the Thurston County Board of Commissioners in the amount of $3000.00 per year for a period of three years.

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PROCEDURAL HISTORY

A hearing was held before Judge Robert J. Dorn on Sept. 10, 1990, on the Department's appeal of this rate and charge imposed by the county. At that time, the parties narrowed the issue presented to the court for review as to whether the county could subject lands of the state to a rate and charge for the cost of local or other improvements when that land is not specially benefited.

The county contends that a rate and charge does not require a resulting special benefit. The state argues that pursuant to RCW 79.44 lands held by the Department of Wildlife are subject to the imposition of rates and charges only if the land is specially benefited. RCW 36.61.270 provides in part as follows:

> Public property, including state property, shall be subject to the rates and charges to the same extent that private property is subject to them, except that liens may not be foreclosed on the public property, and the procedure for imposing such rates and charges on state property shall conform with the procedure provided for in chapter 79.44 RCW concerning the imposition of special assessments upon state property. (Emphasis added.)

ISSUE

The Court requested additional briefing addressing the following question: What is the procedure in RCW 79.44 that must be complied with in imposing special assessments on public lands?

ARGUMENT

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The following statutes are pertinent to the facts of the instant case:

> All lands . . . held or owned by the state of Washington in fee simple (in trust or otherwise), situated within the limits of any incorporated city . . . may be assessed and charged for the cost of local or other improvements specially benefiting such lands which may be ordered by the proper authorities of any such assessing district and may be assessed by any irrigation district to the same extent as private lands within the District are assessed . . . RCW 79.44.010. (Emphasis added.)

RCW 79.44.020 provides that property held or owned by the state shall bear its proportion of the costs of local improvements in the same manner as other property in the district,

> . . . it being the intention of this act that the state shall bear its just and equitable proportion of the cost of local improvements specially benefiting state lands." RCW 79.44.020. (Emphasis added.)

In 1989, chapter 79.44 RCW was amended to provide the following definition of assessment:

> As used in this chapter, "assessment" shall mean any assessment, rate or charge, levied, assessed, imposed, or charged by any assessing district as defined in RCW 79.44.003, and which assessments, rates or charges by statute are expressly made applicable to the lands of the state." RCW 79.44.004. (Emphasis added.)

The county argues that the procedure provided for in RCW 79.44 concerning the imposition of special assessments upon state property are only those as provided in RCW 79.44.040. The

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court quiered the parties as to whether the fact that this statute was most recently amended in 1989 wouldn't in fact support this position. Perhaps if the notice requirements as provided were adopted as recently as 1989 this might buttress the counties position. However, the 1989 amendment to RCW 79.44.040 was limited to the inclusion of a clause requiring that the petitions signed by the owners of property within a proposed district must include a statement that the final assessment could be higher than that originally estimated so long as it didn't exceed the value of the improvement. This amendment alone suggests that the statute contemplates that public lands require a resulting special benefit. Additionally, the notice provisions of RCW 79.44.040 have been in existence since the original enactment of this legislation, with subsequent amendments, but in substantially the same as provided in the early years of this statute. (A copy of the original legislation and all subsequent amendments are attached for review.)

It is the department's position that RCW 79.44 must be read in its entirety in determing what the procedures are for assessing public lands. The legislative intent is clear in providing that state owned lands are subject to special assessments for local improvements if the land is specially benefited. This is clearly a procedural prerequisite to the imposition of a rate and charge on public lands.

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Furthermore, RCW 79.44.060 talks about procedures for payment of assessments on public lands. This requires the chief officer of an agency of state government to to determine whether an assessing district has complied with all the conditions precedent to the imposition of assessments (which by definition include rates and charges) prior to payment. This statute is a procedural requirement that contemplates that levying districts comply with the restrictions as outlined in RCW 79.44.010 and 020 when assessing public lands.

I have attached as background information an attorney general opinion written on the subject of special assessments and rates and charges. This information provides a rather detailed explanation of these different types of assessments designed to fund local improvements and their respective differences. The opinion concludes that special assessments, being a creature of constitutional law, must result in lands being specially benefitted. However, rates and charges are part of the general police powers of a state which are not subject to this constitutional restriction. However, it must be noted that this opinion did not involve the application and analysis of RCW 79.44. This statue does impose the statutory restriction of a resulting special benefit to all assessments on public lands.

CONCLUSION

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The Department respectfully requests that this Court reverse the decison of the Thurston County Board of Commissioners imposing a rate and charge on its property located on Summit Lake in Thurston County.

Respectfully submitted this 28th day of September, 1990.

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Opinion

Ken Eikenberry — Attorney General of Washington

DIKING, DRAINAGE, AND FLOOD CONTROL--DISTRICTS--COUNTIES--SPECIAL ASSESSMENTS

1. Chapter 85.38 RCW authorizes "special assessments" which may be imposed only on property specially benefitted in accordance with article 7, section 9, of the Washington Constitution as interpreted in case law; this chapter does not authorize the imposition of "rates and charges" based on some standard other than special benefit.

2. Assessments made under chapter 85.38 must be based on the special benefit conferred by a public work or activity on particular property, and may not lawfully be based on the extent of use of public services or other criteria.

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October 6, 1989

Honorable Seth Dawson
Prosecuting Attorney
Snohomish County
Mission Building
3000 Rockefeller Avenue
Everett, Washington 98201

Cite as:
AGO 1989 No. 18

Dear Mr. Dawson:

By letter previously acknowledged, you requested our opinion on the following questions:

1. Does RCW 85.38 authorize "special assessments", which can be imposed only on property specially benefitted in accordance with the special benefit requirement of article 7, section 9 of the Washington Constitution, or does it authorize user rates/charges, which may be imposed in the absence of special benefit?

2. May the assessments authorized by RCW 85.38 be based upon a combination of use theory and benefit theory (i.e., a portion of the assessment based on use and a portion of the assessment based on special benefit)?

3. Are the procedures of RCW 85.38 for adopting district budgets and determining final assessments constitutional in that they afford adequate due process to owners of real property subject to the special assessment?

We answer the first and second questions in the manner set forth in our analysis. We decline to answer the third question for the reason set forth below.

ANALYSIS

Before turning to your first question, it would be helpful to provide some background on special assessments and rates and charges and on the differences between them. Special assessments to pay for local public improvements benefitting specific lands are of ancient lineage. See Bellevue Assocs. v. Bellevue, 108 Wn.2d 671, 674, 741 P.2d 993 (1987); Heavens v. King Cy. Rural Library Dist., 66 Wn.2d 558, 563, 404 P.2d 453 (1965). All special assessments have a common element: they support the construction of local improvements that are appurtenant to specific property and bring a benefit to that property substantially more intense than is conferred on other property. Bellevue Assocs. v. Bellevue, 108 Wn.2d at 674-75.

The court in Weyerhaeuser Timber Co. v. Banker, 186 Wash. 332, 340, 58 P.2d 285 (1936), described the purpose of special districts and special assessments (in that case for flood control) as follows:

> The primary purpose in organizing a flood control district of the kind here is to reclaim, or save, and to benefit particular property. Such districts are analogous to diking, drainage, levee and irrigation districts. The purpose of the improvements contemplated by such projects is either to escape the ravages, or else to secure the benefits, of water and its effects. The powers conferred upon such bodies corporate are not primarily those of government or regulation, or even of taxation, though such powers are conferred to a limited degree as necessarily incident to the main power conferred. The primary and principal power thus granted is that of local improvement of the real estate in the district for the benefit of its owners.

(Citations omitted. Emphasis added.)

The special benefit to the land must be actual, physical, and material. Bellevue Assocs. v. Bellevue, 108 Wn.2d at 675. The measure of the special benefits is "the difference between

the fair market value of the property immediately after the special benefits have attached and its fair market value before they have attached." Id. (quoting Heavens v. King Cy. Rural Library Dist., 66 Wn.2d at 564); see also In re Schmitz, 44 Wn.2d 429, 434, 268 P.2d 436 (1954).

The special benefit requirement is constitutionally based, as pointed out by the court in In re Shilsole Ave., 85 Wash. 522, 537, 148 P. 781 (1915):

> It is the basic principle and the very life of the doctrine of special assessments that there can be no special assessment to pay for a thing which has conferred no special benefit upon the property assessed. To assess property for a thing which did not benefit it would be pro tanto the taking of private property for a public use without compensation, hence unconstitutional. Though the right to levy special assessments for local improvements is referable solely to the sovereign power of taxation, our state constitution, article 7, § 9, expressly limits its exercise to assessments of property benefited.

(Emphasis added.)[1] "In the last analysis," observed the court in Heavens v. King Cy. Rural Library Dist., 66 Wn.2d at 564, "a valid special assessment for a local improvement is merely compensation paid by the property owner for the improved value of his land. If there is no benefit, there can be no assessment."

Special assessments, however, are not the exclusive method of financing local improvements. Improvements necessary to health and safety may be authorized under the police power and paid for other than by local assessment, such as by imposed service or user charges. In such cases, article 7, section 9 is not implicated. See, e.g., Hillis Homes, Inc. v. Public Util. Dist. 1, 105 Wn.2d 288, 299-301, 714 P.2d 1163 (1986); Teter v. Clark Cy., 104 Wn.2d 227, 230-32, 704 P.2d 1171 (1985); Morse v. Wise, 37 Wn.2d 806, 811-13, 226 P.2d 214 (1951).

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[1] Const. art. 7, § 9 provides, in part:

> The legislature may vest the corporate authorities of cities, towns and villages with power to make local improvements by special assessment, or by special taxation of property benefited.

For example, in Morse v. Wise, supra, the City of Chelan had previously constructed a sewer system, largely financed by special assessments. Subsequently, additions and improvements to the system were required, including extensions into previously unserved areas. Acting pursuant to statute, the City combined its water works utility and sewer systems, constructed and installed additions and improvements, and proceeded to collect service charges for water and sewer service to pay for the improvements. Owners who had been assessed for the original improvements objected to paying any part of the cost connected with the construction and installation of additions to the original sewer system, which would serve only new users and would be of no benefit to them nor of any special benefit to their properties.

The court recognized that the owners' objection would have been valid if the City had acted pursuant to the local improvement statutes. The City, however, had acted under a different set of statutes: namely, chapter 193, Laws of 1941. According to the court, the whole concept underlying this latter set of statutes was different from the local improvement district statutes. Under these latter statutes, the City was acting pursuant to the police power granted to it to provide sewer service to protect the health of its inhabitants and to defray the expense by making service charges. 37 Wn.2d at 810-11.

According to the court:

> The statutes pursuant to which the improvements provided for in ordinance No. 210 were made, authorize a different method of furnishing revenue to finance their construction and maintenance than is prescribed by local improvement statutes providing for assessments according to special benefits. Prior to the making of these improvements, the city had no occasion to make a service charge to appellants, as the maintenance costs were paid out of general funds; but under the plan authorized by the act of 1941 and provided by the ordinance, the service charges must be made to defray both construction costs and operation and maintenance. The act does not exclude sewer systems constructed pursuant to local improvement statutes, but it contemplates the raising of revenue by fixing rates and charges for the furnishing of service to all of those served by the system of sewerage as a whole.

Id. at 811. (Emphasis added.)

A similar result was reached in Teter v. Clark Cy., supra. In Teter, the City of Vancouver and Clark County jointly acted to control flooding and pollution problems in Burnt Bridge Creek and its drainage basin. The County, pursuant to RCW 36.89, formed a storm and surface water department for management of the entire

drainage basin. The City passed an ordinance, pursuant to RCW 35.67, which created a storm and surface water utility. The County and City then entered into an interlocal agreement authorizing joint operation, management, and financing of the newly formed water department or utility. The County was designated the principal operator of the joint water utility. 104 Wn.2d at 228-29.

The County subsequently adopted another ordinance, pursuant to RCW 36.89.080, which set the charges to be paid by property owners whose property lies within the drainage basin.[2] Property owners challenged the inclusion of their properties among those to be charged for the operation of the department. Because their properties did not border on Burnt Bridge Creek, appellants argued that they did not specially benefit from the flood control services of the new water department. According to the court, however, an examination of the statutes under which the County and City acted showed that the charges imposed were not special assessments. 104 Wn.2d at 230.

The City acted pursuant to RCW 35.67, which authorizes a city to form and operate a "system of sewerage" and to charge "rates and charges" for the use of such systems. The court noted that this statute's predecessor, which was worded identically, was construed by the court in Morse v. Wise, supra, in which the court held that the predecessor statute authorized the city to act under its police power and that the concept of special benefits was not relevant in that case. 104 Wn.2d at 230-31.

With respect to the County, the Teter court noted that RCW 36.89.030 authorizes counties to "establish, acquire, develop, [and] construct . . . storm water control facilities". The statute authorizes several different methods of funding: (1) issuance of general obligation bonds, RCW 36.89.040; (2) creation of utility local improvement districts and charging of special assessments, RCW 36.89.110; (3) issuance of revenue bonds, RCW 36.89.100; and (4) adoption of a resolution "fixing rates and charges for the furnishing of service to those served or receiving benefits . . . or contributing to an increase of surface water runoff", RCW 36.89.080. See 104 Wn.2d at 232.

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[2] RCW 36.89.080 provides, in part:

> Any [county] may provide by resolution for revenues by fixing rates and charges for the furnishing of service to those served or receiving benefits . . . from any storm water control facility or contributing to an increase of surface water runoff.

The County did not proceed under the special assessment section, RCW 36.89.110. No utility local improvement district was formed. Neither did the County proceed under the first or third methods relating to the issuance of bonds. Rather, the County chose to proceed under the rates and charges method specified in RCW 36.89.080. That section of the statute authorized the County to charge not only for services supplied to property owners, but also based on the properties' contribution to increased surface water runoff.[3] The court held that just as RCW 35.67 grants cities the police power to operate management systems for storm sewers, RCW 36.89 similarly gives counties such police power. 104 Wn.2d at 232.

The court found legislative intent to give the counties such police power in the statute. Significantly, said the court, RCW 36.89 states as among its purposes:

> The storm water control facilities within such county provide protection from storm water damage for life and property throughout the county, generally require planning and development over the entire drainage basins, and affect the prosperity, interests and welfare of all the residents of such county.

104 Wn.2d at 232 (quoting RCW 36.89.020). Furthermore, said the court, the resolutions passed by the County pursuant to RCW 36.89 evidenced an intended exercise of the police power. 104 Wn.2d at 233. The cleanup by the County of Burnt Bridge Creek, along with measures to prevent flooding in the entire drainage basin were, therefore, well within the broad scope of the County's police power as health, safety, or welfare measures. Id.

From the foregoing discussion of special assessments and rates and charges, we can draw the following conclusions: (1) The case law clearly indicates that the Legislature may authorize districts to impose either special assessments or rates and charges. (2) If the Legislature authorizes special assessments, the state constitution (article 7, section 9) requires that the assessments be based on the benefit accruing to specific properties. (3) If the Legislature instead authorizes the imposition of rates and charges as part of the general police power, then this constitutional restriction does not apply. (4) Whether the Legislature has authorized special assessments or rates and charges is a question of statutory construction.

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[3] This method of assessment, based upon both special benefit and contribution to the problem, is the type sought to be imposed by the Snohomish County drainage district that is the specific focus of your question.

With this background discussion of special assessments and rates and charges in mind, we turn next to an examination of RCW 85.38, which is the statute about which you inquire. RCW 85.38 was enacted in 1985. Laws of 1985, ch. 396. The purpose of RCW 85.38 is to provide uniform and simplified procedures for the creation, elections, and operations of various special districts that provide diking, drainage, and flood control facilities and services. RCW 85.38.005. Prior to the enactment of RCW 85.38, the procedures relating to diking, drainage, sewer improvement, and flood control districts were governed by a variety of different statutes, mostly codified in Titles 85 and 86 RCW.[4]

Under RCW 85.38, special diking, drainage, sewer improvement, and flood control districts can be created either by petition of the owners of property within the proposed special district or by resolution of the county in which the proposed special district is to be located. RCW 85.38.020. The governing body of the special district is elected by those who own property within the district. RCW 85.38.010. The authority of the special districts is set forth in RCW 85.38.180. Under that statute, special districts may:

> (1) Engage in flood control activities, and investigate, plan, construct, acquire, repair, maintain, and operate improvements, works, projects, and facilities necessary to prevent inundation or flooding from rivers, streams, tidal waters or other waters. Such facilities include dikes, levees, dams, banks, revetments, channels, canals, and other works, appliances, machinery, and equipment.
>
> (2) Engage in drainage control, storm water control, and surface water control activities, and investigate, plan, construct, acquire, repair, maintain, and operate improvements, works, projects, and facilities necessary to control and treat storm water, surface water, and

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[4] Although these separate statutes survive the enactment of RCW 85.38 and still apply to some extent, much of RCW 85.38 is incorporated by reference into the prior statutes. For example, RCW 85.08.015 provides:

> Diking, drainage, or sewerage improvement districts shall possess the authority and shall be created, district voting rights shall be determined, and district elections shall be held as provided in chapter 85.38 RCW.

A similar provision with respect to flood control districts is contained in RCW 86.09.020.

> flood water. Such facilities include drains, ditches, canals, nonsanitary sewers, pumps, and other works, appliances, machinery, and equipment.
>
> (3) Take actions necessary to protect life and property from inundation or flow of flood waters, storm waters, or surface waters.
>
> . . . .

Although RCW 85.38 establishes the exclusive procedure for the creation and governance of the enumerated special purpose districts, the procedure in RCW 85.38 for funding is mandatory only for special districts created after July 28, 1985 and for special districts, regardless of date of creation, that annex territory under RCW 85.38.200. RCW 85.38.140, .200. Special districts created before July 28, 1985 that have not annexed territory under RCW 85.38.200 have the option of adopting the financing system provided for in RCW 85.38. RCW 85.38.140.

One of the financing systems provided for in RCW 85.38 is a system of special assessments.[5] RCW 85.38.160 outlines the procedure for establishing special assessments:

> (1) The county within which each special district is located shall establish a system or systems of assessment for the special district as provided in this section. A differing system of assessment shall be established for different classes of facilities that a special district provides or will provide, including a separate system of assessment for diking and drainage facilities if both classes of facilities are provided. . . . A system of assessment shall include assessment zones, the acreage included in each assessment zone, a dollar value of benefit or use per acre, and various classes or types of improvements together with a dollar value of benefit or use for an improvement included in each of the classes or types of improvements. The county shall establish which improvements shall be subject to special assessments and shall establish one or more types or classes of such improvements.

(Emphasis added.)

The criteria for imposing special assessments are set forth in more detail in RCW 85.38.150:

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[5] RCW 85.38 also authorizes special districts to issue special assessment bonds or notes. RCW 85.38.230.

(1) Special district special assessments shall be imposed only on real property within the district that uses or will use the special district's facilities or receives or will receive special benefits from the special district's operations and facilities. . . .

(2) Special assessments imposed upon real property, other than improvements, shall be a function of the dollar value of benefit or use per acre and the assessment zone in which the real property is located. Special assessments imposed upon an improvement shall be a function of the dollar value of benefit or use assigned to the type or class of improvements and the assessment zone in which the improvement is located.

(3) Assessment zones shall be established in which each zone reflects a different relative ratio of benefit or use that the real property within such a zone receives, or will receive, from the special district's operations and facilities. That real property receiving the greatest benefits, or which uses the special district's facilities to the greatest extent, shall be placed into class No. 1 and assigned a value of one hundred percent; that real property receiving the next greatest benefits, or which uses the special district's facilities to the next greatest extent, shall be placed into class No. 2 and assigned a lower percentage value; and so on, extending to the class of least benefits or use. That real property receiving no benefits or use shall be designated "nonbenefit." If all real property in the special district is found to have the same relative ratio of benefit or use, a single assessment zone may be established.

(4) Any one or more of the following criteria shall be used in measuring the manifest degrees or ratios of benefit or use: (a) Proximity to the special district's facilities; (b) height above or below dikes and levees; (c) easier accessibility; (d) facility of drainage; (e) minimization of flood or inundation damage; (f) actual flood protection; (g) use of the special district's facilities; and (h) any other criteria established by the county under RCW 85.38.160 that measure manifest degrees of benefit or use from the special district's facilities and operations.

(5) Special assessments may be imposed to pay for the construction, repair, and maintenance of special district facilities and for special district operations. Administrative and operational costs of

the special district shall be proportionally included in these special assessments.

(Emphasis added.)

With this background discussion of special assessments and rates and charges and an overview of RCW 85.38 in mind, we turn now to your first question.

Question 1

Does RCW 85.38 authorize "special assessments", which can be imposed only on property specially benefitted in accordance with the special benefit requirement of article 7, section 9 of the Washington Constitution, or does it authorize user rates/charges, which may be imposed in the absence of special benefit?

As we have seen, the Legislature may authorize local districts to impose either special assessments or rates and charges. Special assessments must be related to special benefits; rates and charges imposed pursuant to a grant of police power need not be. To determine which system of revenue raising the Legislature had in mind for RCW 85.38, we need to examine three factors: (1) the words the Legislature used to characterize the revenue system; (2) the nature of the statutory scheme as a whole; and (3) the basis on which the assessment or charge is imposed.

A. Characterization of the Revenue System. It is a standard rule of construction that if the Legislature uses a term well known to the common law, the Legislature is presumed to have intended it to mean what was understood at common law. State v. Dixon, 78 Wn.2d 796, 804, 479 P.2d 931 (1971); Fransen v. State Bd. of Natural Resources, 66 Wn.2d 672, 674-75, 404 P.2d 432 (1965).

The assessments provided for in RCW 85.38 are specifically and repeatedly referred to as "special assessments". See, e.g., RCW 85.38.060, .140, .150, .160, .170. This is the same term that is used in article 7, section 9 and in the case law. The term has a clear and definite meaning in the constitution and in the case law. As discussed earlier, "special assessments" are assessments imposed on property to support the construction of local improvements that are appurtenant to specific property. To be valid, they must bring a benefit to the property assessed substantially more intense than is conferred on other property. Bellevue Assocs. v. Bellevue, 108 Wn.2d at 674-75.

Nowhere in RCW 85.38, on the other hand, are the assessments ever referred to as "rates and charges". This contrasts with the situation in both Teter v. Clark Cy., supra, and Morse v. Wise, supra, where the applicable statutes specifically authorized the

local districts to impose "rates and charges". The term "rates and charges" also has a definite meaning. It refers to a system of financing a public improvement by a local government, acting pursuant to a grant of police power, by imposing charges unrelated to special benefit. See, e.g., Morse v. Wise, 37 Wn.2d at 810-11.

The Legislature is presumed to intend that a term be construed according to its commonly understood meaning. "Special assessments" has a commonly understood meaning. When the Legislature used the term "special assessments" in RCW 85.38, we must presume that it meant only to authorize "special assessments" that comply with the special benefit requirement of article 7, section 9 of the Washington Constitution.

B. Nature of the Statutory Scheme. The second factor to consider is the nature of the statutory scheme under which the assessments are imposed. In Morse v. Wise, supra, and Teter v. Clark Cy., supra, the local governments sought to finance sewer systems by imposing service charges unrelated to special benefits. Such charges would have been illegal if they had been imposed pursuant to local improvement statutes. But in those two cases, the court found that the local governments acted under a different set of statutes enacted pursuant to their police power to provide sewer service to protect the health of their inhabitants and to defray the expense by making service charges. Therefore, the constitutional requirements of article 7, section 9 did not apply.

Here, the presumption that the Legislature intended to authorize special assessments rather than rates and charges could possibly be overcome if the statutory scheme as a whole clearly indicated a legislative delegation of police power to local districts to provide sewer service to protect the health of their inhabitants and to defray the expense by imposing service charges. However, we do not find such a legislative delegation of police power. Instead, the statute is much more like a traditional local improvement scheme.

The "local improvement" nature of the statute is manifested in a variety of ways. The purpose of the statute is to clarify and standardize the procedures for the creation, elections, and operations of a variety of "special districts". RCW 85.38.005. The purpose of the special districts is primarily related to the construction, maintenance, and operation of "improvements, works, projects, and facilities". RCW 85.38.180; see also RCW 85.38.020, .030, .040, .150, .160. Real property is the basis for voting rights and assessment obligations. See 85.38.010, .150, .160. All these attributes are consistent with a local improvement district plan. See generally 14 E. McQuillin, Municipal Corporations § 38.01 (3d ed. rev. 1987).

Admittedly, RCW 85.38 does have some language similar to that of police power statutes. For example, before a special district can be created, the county in which the legislative district will be located must find "[t]hat creation of the special district will be conducive to the public health, convenience and welfare." RCW 85.38.050. Also, one of the enumerated powers of a special district is to "[t]ake actions necessary to protect life and property from inundation or flow of flood waters, storm waters, or surface waters". RCW 85.38.180(3). On balance, however, we do not think these limited references to public health and welfare are sufficient to authorize the imposition of rates and charges where no specific authority to impose them has been given.

Chapter 160, Laws of 1935, which related to flood control districts, contained similar, isolated references to public health and welfare. Nevertheless, the court in Weyerhaeuser Timber Co. v. Banker, 186 Wash. at 340-42, found that the primary purpose of the act was to benefit the lands within the district. That purpose was disclosed on the face of the act itself. It repeatedly spoke of the "lands" to be included in the district and of the lands "to be benefitted." Id. As with the flood control district statute at issue in Weyerhaeuser, the primary purpose of RCW 85.38 appears to be to benefit the lands within the district rather than to provide for the public health and welfare.

C. Basis on Which the Assessment or Charge is Imposed. The Legislature is presumed to have used the term "special assessments" to authorize the imposition of assessments based on special benefit. Another way this presumption could possibly be overcome would be if RCW 85.38, as the statute did in Teter v. Clark Cy., supra, expressly authorized the local districts to charge based on contribution to the problem addressed by the local improvement. RCW 85.38 does not contain such authority.

RCW 85.38.150(1) provides that the "special assessments shall be imposed only on real property within the district that uses or will use the special district's facilities or receives or will receive special benefits from the special district's operations and facilities." (Emphasis added.) The term "use" is somewhat ambiguous. Is property that "uses" district facilities property that contributes to the need for the facilities? We think not. We believe the Legislature meant the terms "use" and "benefit" to be roughly synonymous. That is, property that benefits from the district's flood control, drainage control, pollution control, or other facilities "uses" those facilities. This conclusion is supported by RCW 85.38.150(2), which provides that the special assessments "shall be a function of the dollar value of benefit or use per acre". Property that contributes to a problem would not necessarily obtain a dollar value from such contribution. Inclusion of the word "use" in RCW 85.38.150(1)

does not, therefore, authorize assessments based on contribution to the particular problem addressed by the local improvements.

In summary, the Legislature used the term "special assessments" rather than "rates and charges" in RCW 85.38. In our opinion, neither the statutory scheme of RCW 85.38 as a whole nor the basis on which the assessments are imposed overcomes the presumption that by using a term with a clear, definite, and well-understood meaning, the Legislature meant to authorize that which is commonly understood by the term. Specifically, we believe the Legislature meant to authorize special assessments, which can be imposed only on property specially benefitted in accordance with the special benefit requirement of the state constitution, rather than to authorize rates and charges, which may be imposed in the absence of special benefit.

Question 2

> May the assessments authorized by RCW 85.38 be based upon a combination of use theory and benefit theory (i.e., a portion of the assessment based on use and a portion of the assessment based on special benefit)?

Our answer to this question is largely contained in our answer to question 1. The assessments authorized by RCW 85.38 are "special benefits", which can be imposed only on property specially benefitted in accordance with the special benefit requirement of article 7, section 9. They must, therefore, be based entirely on special benefit. RCW 85.38 authorizes special assessments based on both "use" and "benefit". In our opinion, however, "use" is synonymous with "benefit". RCW 85.38 does not authorize, nor as a special assessment statute could it permissibly authorize, assessments based on contribution to the problem addressed by the local improvement rather than on the special benefit conferred.[6]

Question 3

> Are the procedures of RCW 85.38 for adopting district budgets and determining final assessments constitutional in that they afford adequate due process

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[6] The proposed benefit/use assessment system outlined in your letter and attachments defines the word "use" in RCW 85.38.150 entirely differently, so that it is synonymous with "contribution" rather than "benefit". As we understand it, the Snohomish County drainage district to which you refer proposes to impose assessments based in part on which properties contribute to the drainage, flooding, or pollution problem. In our opinion, this system of fixing charges is not permissible under RCW 85.38.

to owners of real property subject to the special assessments?

It is the longstanding policy of this office to decline to address the constitutionality of a statute. The reason for this policy is that this office is often called upon to defend the constitutionality of such statutes. Accordingly, we decline to answer your third question.

We trust that the foregoing will be of assistance to you.

Very truly yours,

KENNETH O. EIKENBERRY
Attorney General

Mark S. Green

MARK S. GREEN
Assistant Attorney General

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property purchased by him upon the payment to the State of the amount of balance which his predecessor in interest was obligated to pay.

Legislature to make appropriation

SEC. 3 Where the State has made no lease or contract, or has granted no right with reference to any such lands or any part thereof, against which an assessment has been made for local improvements, the State shall at the next session of the Legislature after such improvement is made, if it still owns the land, appropriate sufficient money to pay for such improvements, or the person entitled to such money may apply to the proper State officers to have such lands sold in the manner provided by law, and if the said lands have not been appraised, the State Land Commissioner shall, upon said application being made, cause the same to be appraised, and the assessment for such improvement shall be added to the appraised valuation of all such tracts owned by the State, and such Land Commissioner shall cause the sale of such lands to be made in the manner provided by law, but no sale shall be made for less than the appraised value, plus the assessment, against the tract to be sold. When such lands are sold, the proper State officers are authorized to pay to the party entitled to receive the same, the amount or amounts of said assessments for local improvements.

Appraisal and sale of lands

Passed the Senate February 5th, 1907.
Passed the House February 28th, 1907.
Approved by the Governor March 5th, 1907.

CHAPTER 74.

[S B 178]

RELATING TO THE PAYMENT OF ASSESSMENTS ON STATE LANDS FOR DIKES, ETC

AN ACT relating to the payment by the state of assessments made on state, school or granted lands for the construction and maintenance of dikes and drains benefiting such lands, and repealing section 2 of chapter 127 of laws of 1905, and making an appropriation therefor

Be it enacted by the Legislature of the State of Washington:

County treasurer shall certify assessments to Land Commissioner.

SECTION 1 The several county treasurers of this State shall, in each year, within thirty days after the tax rolls have been received and filed by them, make up and certify to the Commissioner of Public Lands a list of all State, school and granted lands upon said rolls against which special assessments have been levied under the laws of this State for the construction or maintenance of any diking system or any drainage system constructed and maintained under the laws of this State. Said certificate shall contain (1) a description of the State, school or granted lands by legal subdivisions, (2) the amount of the assessment against each legal subdivision separately stated.

Land Commissioner to certify to State Auditor

SEC. 2 As soon as the said assessments shall become due and payable the Commissioner of Public Lands shall certify to the State Auditor a list of all lands certified to him by the county treasurer, which have not been sold by the State, and his certificate shall contain the same facts as to the land certified by him that the certificate of the county treasurer shall contain as provided for in section one of this act.

Entry on records.

SEC. 3. Upon issuing his certificate to the State Auditor as provided for in section two of this act, the Commissioner of Public Lands shall make a minute upon his records showing the amount paid and charge it to the tract of land against which it was assessed. The valuation of the tract of land benefited by the diking or drainage improvement shall not be raised by or on account thereof, but when any of said land is offered for sale there shall be added to the appraised value of such lands as provided for

Assessment added to appraised value of land

by law the amount of such payments made by the State out of the general fund, which amount so added shall be paid by the purchaser in cash at the time of the sale of said land, and such additional sum shall be turned over to the State Treasurer and placed to the general fund.

Auditor to draw warrants in payment of assessments

SEC. 4 Upon receipt of the certificate of the Commissioner of Public Lands herein provided for the State Auditor shall draw his warrants in favor of the several county treasurers upon the general fund for the payment of such assessments; and when he transmits his warrants he shall certify to the several county treasurers a description of the lands upon which he pays the assessment, the amount paid on each legal subdivision of land.

Estimate of money required

SEC. 5. It shall be the duty of the State Auditor to include in his estimate of the amount of money necessary to be appropriated for the purposes of this act a statement of the amount necessary to pay the assessments certified to him.

Repeal

SEC. 6 Section 2 of Chapter 127 of the Session Laws of 1905 is hereby repealed.

Appropriation $5,000

SEC. 7. There is hereby appropriated out of the general fund the sum of $5,000 to be applied as provided in this act for the payment of assessments heretofore or hereafter made upon State, school or granted lands for the construction or maintenance of dikes or drains.

Passed the Senate February 19th, 1907.
Passed the House February 27th, 1907.
Approved by the Governor March 5th, 1907.

CHAPTER 75

[S B 35]

AMENDING ACT RELATING TO THE INCORPORATION OF ASSOCIATIONS FOR SOCIAL, CHARITABLE AND EDUCATIONAL PURPOSES

AN ACT to amend sections seven and twelve of an act entitled, "An Act to provide for the incorporation of associations for social, charitable and educational purposes," approved March 21, 1895

Be it enacted by the Legislature of the State of Washington:

SECTION 1 That section seven of said act entitled "An Act to provide for the incorporation of associations for social, charitable and educational purposes," approved March 21, 1895, be and the same hereby is amended to read as follows: SEC. 7. The corporation may prescribe by its laws the manner in which, and the officers and agents by whom the purposes of its incorporation may be carried out. The corporation may hold real and personal estate, and may hire, purchase or erect suitable buildings for its accomodation, to be devoted to the purposes set forth in its agreement of association, and may receive and hold in trust, or otherwise, funds received by gift or bequest, to be devoted by it to such purposes. And for the purposes of the corporation shall have power to issue its promissory notes, bonds or other obligations, to be secured by mortgages on its real estate and other property in such manner as may be provided by its by-laws. The board of trustees shall have power to sell or dispose of the whole or any part of the property, either real or personal, which the corporation may from time to time own, and to acquire other property, but shall not sell or dispose of or purchase real estate unless authorized so to do by the vote of two-thirds of all the stock represented or two-thirds of the members present at a meeting called for that purpose, written notice of which shall have been given to all stockholders or members at least thirty days previous thereto by mail, in such manner as shall be provided by the by-laws, which two-thirds vote must comprise at least a majority of all the stock or of the members of the corporation. Such notice shall set forth

Powers

therewith to the satisfaction of the court the sentence may be suspended: *Provided*, That no such sentence or execution thereof shall be stayed to exceed a period of two (2) years, and if at the expiration of the stay of such sentence or at such time prior thereto as the court may deem proper, it shall appear to the satisfaction of the court that such person has complied faithfully with the conditions of his probation, or such suspended sentence, the court may suspend such sentence absolutely, in which case such person shall be released therefrom. If, at any time during the stay of execution of any sentence, it shall be made to appear to the satisfaction of the court that the sentence ought to be enforced, the court shall have the power to revoke the stay of such sentence and execution, and enforce the same, and the term of such sentence shall commence from the date upon which the same is ordered to be enforced

Sentence may be suspended

SEC. 2. Chapter 11 of the Laws of 1907 is hereby repealed.

Ch 11, p 16, L '07, repealed

Passed by the Senate March 2, 1909.
Passed by the House March 9, 1909
Approved March 17, 1909.

CHAPTER 154.
[S. S. B. 338]

RELATING TO ASSESSING OF STATE LANDS FOR LOCAL IMPROVEMENTS.

AN ACT authorizing the assessment for local improvements of certain lands owned by the State of Washington and situated within the limits of incorporated cities, towns, diking or drainage districts, and also authorizing such assessment of leasehold, contractual or possessory interests in tide and other lands owned by the state, situated within such cities, towns or districts and which have been leased or sold under contract, repealing section 1 of chapter 73 of the Session Laws of 1907, relating to local improvement assessments, and declaring an emergency.

Be it enacted by the Legislature of the State of Washington:

SECTION 1. That all leasehold, contractual or possessory interests in any tide lands owned by the State of Washington in fee simple (in trust or otherwise), situated within the limits of any incorporated city or town in this state, and which have been leased by the state, or which are held by any person, firm, association, private corporation or municipal corporation under a contract of purchase from the state, may be assessed and charged for the cost of all local improvements specially benefitting such leasehold, contractual, contractual or possessory interest, which may be ordered by the proper authorities of such city or town; and such leasehold, contractual or possessory interest, for all purposes of the assessment and collection of the cost of any such local improvement, shall be treated as the private property of such lessee or owner of such contractual or possessory interest: *Provided*, That nothing in this section shall be construed to effect the title of the state, nor shall any lien for such assessment attach to the fee simple title of the state.

Interest in land assessable

Limitation

SEC. 2. That when any city has made or caused to be made an assessment for any such local improvement the treasurer of said city shall immediately give notice to the Commissioner of Public Lands of said state, and thereupon said assessment shall become a lien against the leasehold, contractual or possessory interest upon which said assessment is levied, and its collection may be enforced against such interests as provided by law for the enforcement of other local improvement assessments.

Notice of assessment

SEC. 3. When any such tide lands are under lease at the time of the making of any local improvements abutting upon or benefiting the same, and said lands are thereafter offered for sale, any such improvements shall be deemed and considered as improvements upon said land and shall be appraised at their then value as provided by law for the appraisement of improvements upon leased, school and granted lands, and upon the sale of said property the lessee shall be entitled to receive the value thereof as in case of improvements upon school and granted lands: *Provided*, Said lessee has theretofore paid the assessment for said improvements as provided by law.

Assessment considered as improvements

Interest of state in tide land assessed

SEC. 4. That all lands, except tide lands, held or owned by the State of Washington in fee simple (in trust or otherwise), situated within the limits of any incorporated city, town, dike or drainage district in this state may be assessed and charged for the cost of local improvements specially benefitting such lands which may be ordered by the proper authorities of any such city, town, diking, or drainage district: *Provided, however*, That the interest of the state in such property shall not be sold to satisfy the lien of such assessment, but only such interest or contract or other right therein as may be in private ownership shall be subject to such sale: *Provided further*, That when an assessment is made against any land in a diking or drainage district such improvement shall be assessed according to the subdivision thereof.

All state property assessable

SEC. 5. In all local improvement assessment districts in any incorporated city, town, diking or drainage district in this state, property in such district, other than tide lands, held or owned by the state shall be assessed and charged for its proportion of the cost of such local improvements in the same manner as other property in such district: *Provided*, That none of the provisions of this act shall have the effect, or be construed to have the effect to alter or modify in any particular any existing lease of any lands or property owned by the state, or release or discharge any lessee of any such lands or property from any of the obligations, covenants or conditions of the contract under which any such lands or property are leased or held by any such lessee.

Not to affect present contracts

Certificate of assessment

SEC. 6. Upon the approval and confirmation of the assessment roll for any local improvement ordered by the proper authorities of any incorporated city, town, diking or drainage district, the treasurer of such city, town, diking or drainage district shall certify and forward to the Commissioner of Public Lands of the State of Washington (if such lands are within the jurisdiction of said commissioner), or to the State Board of Control (if such lands are occupied by, or used in connection with, any state institution), a statement of all the lots or parcels of land

(other than tide lands), held or owned by the state and charged on such assessment roll for the cost of such improvement, separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, the Commissioner of Public Lands shall charge against each such lot or parcel of land owned or held by the state for sale the amount of the local assessment so certified by such treasurer, and shall then certify said statement to the State Auditor; and the State Board of Control shall cause a proper record to be made in its office of the cost of such improvement upon land occupied by state institutions or used in connection therewith, and shall certify said statement to the State Auditor, and the State Auditor at the next session of the legislature shall certify to the legislature the amount of all local improvement assessments charged against such lands of the state, and the legislature shall provide for the payment of the same, with interest, by appropriation out of the general fund of the state: *Provided*, That no city, town, diking or drainage district shall have jurisdiction to make such local improvement or levy an assessment against any of the lands of the State of Washington until notice of the making of such proposed improvement and the fixing of the time for hearing and confirming the same by the city, town, diking or drainage district has been served upon the Land Commissioner or the Board of Control, as the case may be. Said notice shall be served at least twenty days before the time fixed for said hearing, and an acceptance in writing by said Land Commissioner or the secretary of the said Board of Control, duly filed with said city, town, diking or drainage district, shall be deemed and considered due proof of such service: *And provided further*, That no land belonging to the State of Washington shall be included in any bonding district, and that no penalty shall be provided or enforced against the state, and no interest on the assessment levied to pay for said improvement greater than six per cent per annum shall be taxed to, or allowed by, the state for or on account of making such improvement.

Assessment charged against each lot

Notice to be served, when

Six per cent. interest.

Assessment added to appraised value

SEC. 7 When any land, other than tide lands and lands occupied and used in connection with state institutions, owned or held by the state within incorporated cities, towns, diking or drainage districts in this state, against which local improvement assessments have been paid, as herein provided for, is offered for sale, there shall be added to the appraised value of such land, as provided by law, the amount of the local improvement assessment paid by the state, which amount so added shall be paid by the purchaser in cash at the time of the sale of said land, in addition to the amounts otherwise due to the state for said land, and no deed shall ever be executed until such local assessment has been paid

Application of act

SEC. 8. The provisions of this act shall apply to all municipal corporations, diking and drainage districts, and charter or ordinance provisions to the contrary notwithstanding.

Appropriation for improvements.

SEC. 9. Where the state has made no lease or contract, or has granted no right with reference to any such lands or any part thereof, against which an assessment has been made for local improvements, the state shall at the next session of the legislature after such improvement is made, if it still owns the land, appropriate sufficient money to pay for such improvements, or the person entitled to such money may apply to the proper state officers to have such lands sold in the manner provided by law, and if the said lands have not been appraised, the State Land Commissioner shall, upon said application being made, cause the same, exclusive of benefits, to be appraised, and the assessment for such improvement shall be added to the appraised valuation of all such tracts owned by the state, and such Land Commissioner shall cause the sale of such lands to be made in the manner provided by law, but no sale shall be made for less than the appraised value, plus the assessment, against the tract to be sold. When such lands are sold, the proper state officers are authorized to pay to the party entitled to receive the same, the amount or amounts of said assessments for local improvements,

[See, also, § 3, ch. 73, p. 121, L '07.]

Subrogation

SEC. 10 Whenever any such tide, state, school, granted or other lands situated within the limits of any city, town, diking or drainage district has been included within any local improvement district, by such city, town, diking or drainage district, and the contract, leasehold or other interest of any individual has been sold to satisfy the lien of such assessment for local improvement, the purchaser of such interest at such sale shall be entitled to receive from the State of Washington, on demand, a conveyance of the property purchased by him upon the payment to the state of the amount of balance which his predecessor in interest was obligated to pay.

[See also, § 2, Ch 73, p. 123, L '07.]

Contracts not affected by this act

SEC. 11 Nothing in any of the provisions of this act shall have the effect, or be construed to have the effect, to alter or modify in any particular any existing lease of any lands or property owned by the state or any contract to purchase from the state any of its land or property, or any agreement under which any possessory or contractual interest in any lands of the state may be owned or held by any person, firm, association, private corporation or municipal corporation, or to waive, release or discharge any covenant, stipulation or obligation of any such lease, contract or argeement, and whether the lands involved be tide lands or other lands.

§ 1, Ch. 73, p. 123, L '07, repealed

SEC. 12. That section 1 of chapter 73 of the Session Laws of 1907, relative to the assessment of state school and granted lands for local improvements, is hereby repealed.

Emergency.

SEC. 13. An emergency exists and this act shall take effect immediately.

Passed by the Senate March 11, 1909.
Passed by the House March 11, 1909.
Approved March 17, 1909.

cate thereof in his office. The custodian shall cause all voting machines to be delivered to the polling places in charge of an authorized official who shall certify to their delivery in good order on the certificate furnished therefor. After such delivery the auditor or clerk shall provide proper protection therefor. The custodian shall provide a lantern or proper light for every machine, which light shall be in good order and give sufficient light to enable voters while in the booth to read the ballot labels, and suitable for use by the election officers in examining the counters.

Delivery to polling places

SEC. 24. No candidate for a party nomination shall be the party nominee unless he shall receive a number of votes at least equal to ten per centum of the total number of the party ballots of his party cast at the primary election in the district in which he is a candidate, and no party committee shall fill a vacancy caused by the failure of any of its candidates to receive such required number of votes.

Necessary vote for primary nomination

Vacancies

Passed the House, February 27, 1919.
Passed the Senate, March 10, 1919.
Approved by the Governor March 18, 1919.

CHAPTER 164

[H B 188.]

LOCAL ASSESSMENTS AGAINST STATE LANDS

AN ACT authorizing the assessment for local improvements of lands owned by the State of Washington and situated within the limits of incorporated cities, towns, diking, drainage or port districts, and also authorizing such assessment of leasehold, contractual or possessory interest in tide and other lands owned by the state, situated within such cities, towns or districts and which have been leased or sold under contract.

Be it enacted by the Legislature of the State of Washington:

SECTION 1. That all lands, including school lands, granted lands, escheated lands, tide lands, shore lands, or other lands, (including harbor areas lying between tide or shore lands and outer harbor line) held or owned by the State of Washington in fee simple (in trust or otherwise), situated within the limits of any incorporated city, town, diking, drainage, or port district in this state, may be assessed and charged for the cost of local improvements specially benefiting such lands which may be ordered by the proper authorities of any such city, town, diking, drainage, or port district: *Provided,* that the leasehold, contractual or possessory interest of any person, firm, association, private or municipal corporation in any such lands shall be charged and assessed in the proportional amount such leasehold, contractual or possessory interest is benefited: *Provided, further,* that the interest of the state in such property shall not be sold to satisfy the lien of such assessment, but only such interest or contract or other right therein as may be in private ownership shall be subject to such sale.

State lands benefited by local improvements.

Liability of leased and contracted lands.

SEC. 2. In all local improvement assessment districts in any incorporated city, town, diking,

Charging state for local improvements.

drainage or port district in this state, property in such district, held or owned by the state shall be assessed and charged for its proportion of the cost of such local improvements in the same manner as other property in such district, it being the intention of this act that the state shall bear its just and equitable proportion of the cost of local improvements specially benefiting state lands: *Provided,* that none of the provisions of this act shall have the effect, or be construed to have the effect, to alter or modify in any particular any existing lease of any lands or property owned by the state, or release or discharge any lessee of any such lands or property from any of the obligations, covenants or conditions of the contract under which any such lands or property are leased or held by any such lessee.

Apportioning cost on leaseholds

SEC. 3. Where state lands are under lease, the proportionate amounts to be assessed against the leasehold interest, and the fee simple interest of the state, shall be fixed with reference to the life of the improvement and the period for which said lease has yet to run.

Notice to state of intention to improve

SEC. 4. Notice of the intention to make such improvement, together with the estimate of the amount to be charged to each lot, tract or parcel of land, or other property owned by the state to be assessed for said improvement, shall be forwarded by registered mail to the Commissioner of Public Lands, or to the State Board of Control (if such lands are occupied by, or used in connection with, any state institution), at least fifteen (15) days prior to the date fixed for hearing on the resolution or petition initiating said improvement, as provided by Sections 7892-9 and 7892-10, Remington & Ballinger's Code. Such city, town, diking, drainage or port district, shall not have jurisdiction to order such improvement as to the interest of the state in

Written consent of land commissioner.

harbor areas and state tide lands until the written consent of the Commissioner of Public Lands to the making of such improvement shall have been obtained, unless other means be provided for paying that portion of the cost which would otherwise be levied on the interest of the State of Washington in and to said tide lands, and nothing herein shall prevent the city from assessing the proportionate cost of said improvement against any leasehold, contractual or possessory interest in and to any tide land or harbor area owned by the state: *Provided, however,* that in the case of tide lands and harbor areas within the boundaries of any port district, notice of intention to make such improvement shall also be forwarded to the commissioners of said port district.

Certifying roll to state officials

SEC. 5. Upon the approval and confirmation of the assessment roll for any local improvement ordered by the proper authorities of any incorporated city, town, diking, drainage or port district, the treasurer of such city, town, diking, drainage or port district shall certify and forward to the Commissioner of Public Lands, or to the State Board of Control (if such lands are occupied by, or used in connection with, any state institution), a statement of all the lots or parcels of land held or owned by the state and charged on such assessment roll for the cost of such improvement, separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, or the proportionate amount assessed against the fee simple interest of the state, in case said land has been leased; the Commissioner of Public Lands shall charge against each such lot or parcel of land owned or held by the state, the amount of the local assessment so certified by such treasurer, and shall then certify said statement to the State Auditor;

and the State Board of Control shall cause a proper record to be made in its office of the cost of such improvement upon lands occupied by state institutions or used in connection therewith, and shall certify said statement to the State Auditor, and the State Auditor, at the next session of the legislature shall certify to the legislature the amount of all local improvement assessments charged against such lands of the state, and the legislature shall provide for the payment of the same, with interest, by appropriation out of the general fund of the state: *Provided,* that if said improvement is essential to harbor and waterfront development and improvement, such appropriation may be deducted from the proceeds of rents received from leases of harbor areas and tide lands within port districts wherein the improvement is to be made; *and provided further* that no penalty shall be provided or enforced against the state, and no interest on the assessment levied to pay for said improvement greater than six per cent (6%) per annum shall be taxed to, or allowed by, the state for or on account of making such improvement.

Cost met by legislative appropriation

Penalty and interest

Liens against contractual interests

SEC. 6. When any city, town, diking, drainage or port district has made or caused to be made an assessment against such leasehold, contractual or possessory interest for any such local improvement, the treasurer of said city, town, diking, drainage or port district shall immediately give notice to the Commissioner of Public Lands or to the State Board of Control (if such lands are occupied by or used in connection with any state institution); said assessment shall become a lien against the leasehold, contractual or possessory interest in the same manner as the assessments on other property, and its collection may be enforced against such interests as provided by law for the enforcement of other local improvement assessments: *Provided,*

that said assessment shall not be made payable in installments unless the owner of such leasehold, contractual or possessory interest shall first file with such treasurer a satisfactory bond guaranteeing the payment of such installments as they become due.

Foreclosure of liens

SEC. 7. Whenever any city, town, diking, drainage or port district shall have foreclosed the lien of any such delinquent assessments, as provided by law, and shall have obtained title to such leasehold, contractual or possessory interest, the Commissioner of Public Lands, or the State Board of Control, as the case may be, shall be notified by registered mail of such action and furnished a statement of all assessments against such leasehold, contractual or possessory interest, and such commissioner shall cause the amount of such assessments to be certified to the legislature for payment, and upon the receipt of an assignment from such city, town, diking, drainage, or port district, shall cancel such lease or contract: *Provided, however,* that unless the municipal corporation making said local improvement and levying said special assessment shall have used due diligence in the foreclosure thereof, the Commissioner of Public Lands or the State Board of Control shall not be required to make such certification for a sum in excess of what they deem to be the special benefits accruing to the state's reversionary interest in said property; *and provided further* that if such delinquent assessment or installment shall be against a leasehold interest in tide lands or harbor areas in a port district, the said Commissioner of Public Lands shall notify the commissioners of said port district of the receipt of such assignment, and said commissioners shall forthwith cancel such lease.

Cancellation of leases and contracts

Delinquent leaseholds in port districts

Payment by state for reversion

SEC. 8. If by reason of default in the payment of rentals or installments, or other causes the state

shall cancel any lease or contract against which assessments have been levied as herein provided, the Commissioner of Public Lands and the State Auditor shall cause such assessments or installments as shall fall due subsequent to the cancellation of said contract or leasehold interest to be properly certified to the legislature for payment, the same as if the assessments or installments thereof had been levied on the state's interest in said lands.

Assessments added to sale price of state lands

SEC. 9. When any land, other than lands occupied and used in connection with state institutions, owned or held by the state within incorporated cities, towns, diking, drainage or port districts in this state, against which local improvement assessments have been paid, as herein provided for, is offered for sale, there shall be added to the appraised value of such land, as provided by law, such portion of the local improvement assessment paid by the state as shall be deemed to represent the value added to such lands by such improvement for the purpose of sale, which amount so added shall be paid by the purchaser in cash at the time of the sale of said land, in addition to the amounts otherwise due to the state for said land, and no deed shall ever be executed until such local improvement assessments have been paid, and nothing herein shall be construed as canceling any unpaid assessments on the land so sold by the state, but such land shall be sold subject to all assessments unpaid at the time of sale.

Right of purchaser to assignment of contractual interest

SEC. 10. Whenever any such tide, state, school, granted or other lands situated within the limits of any city, town, diking, drainage or port district, has been included within any local improvement district by such city, town, diking, drainage or port district, and the contract, leasehold or other interest of any individual has been sold to satisfy the lien of such assessment for local improvement, the purchaser of such interest at such sale shall be entitled to receive from the State of Washington, on demand, an assignment of the contract, leasehold or other interest purchased by him, and shall assume, subject to the terms and conditions of the contract or lease, the payment to the state of the amount of the balance which his predecessor in interest was obligated to pay.

Application of act

SEC. 11. The provisions of this act shall apply to all municipal corporations, diking, drainage and port districts, any charter or ordinance provisions to the contrary notwithstanding.

Eminent domain assessments

SEC. 12. The provisions of this act shall apply to all local improvements initiated after the taking effect of this act, including assessments to pay the cost and expense of taking and damaging property by the power of eminent domain, as provided by law: *Provided,* that in case of eminent domain assessments, it shall not be necessary to forward to the Commissioner of Public Lands or to the State Board of Control, as the case may be, notice of the intention to make such improvement, but the eminent domain commissioners, authorized to make such assessment, shall, at the time of filing the assessment roll with the court in the manner provided by law, forward by registered mail to the Commissioner of Public Lands or to the State Board of Control (if such lands are occupied by or used in connection with any state institution) a notice of such assessment, and of the day fixed by the court for the hearing thereof: *Provided,* that no assessment against the state's interest in tide lands or harbor areas shall be binding against the state if the Commissioner of Public Lands shall file a disapproval of the same in court before judgment confirming the roll.

When not binding on state

Passed the House, February 27, 1919.
Passed the Senate, March 11, 1919.
Approved by the Governor March 18, 1919.

the rate provided thereon, and thereupon shall take and hold said property discharged of such trust: *Provided, further,* That property deeded to any city or town which shall become a part of the trust being exercised by the said city for the benefit of any local improvement district fund of the said city shall be exempt from taxation for general, state, county and municipal purposes during the period that it is so held.

Tax exempt

Passed the Senate February 1, 1933.
Passed the House March 7, 1933.
Approved by the Governor March 15, 1933.

CHAPTER 108.

[S B 133]

LOCAL IMPROVEMENTS AGAINST STATE PROPERTY.

AN ACT relating to the payment by the state for local improvements against state property, and amending section 5 of chapter 164 of the Laws of 1919, the same being section 8129 of Remington's Compiled Statutes, and section 6485-5 of Pierce's Code, 1926

Be it enacted by the Legislature of the State of Washington:

Amends § 5, ch. 164, Laws of 1919; §8129 Rem Comp Stat.; §6485 Pierce's Code, 1926.

SECTION 1. That section 5 of chapter 164 of the Laws of 1919, being section 8129 of Remington's Compiled Statutes, and section 6485-5 of Pierce's Code, 1926, be and the same is hereby amended to read as follows:

Section 5. (Section 8129 Remington's Compiled Statutes and section 6485-5 of Pierce's Code, 1926): Upon the approval and confirmation of the assessment-roll for any local improvement ordered by the proper authorities of any incorporated city, town, diking, drainage or port district, the treasurer of such city, town, diking, drainage or port district

shall certify and forward to the commissioner of public lands, or to the state department of business control (if such lands are occupied by, or used in connection with, any state institution), a statement of all the lots or parcels of land held or owned by the state and charged on such assessment-roll for the cost of such improvement, separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, or the proportionate amount assessed against the fee simple interest of the state, in case said land has been leased; the commissioner of public lands shall charge against each such lot or parcel of land owned or held by the state, the amount of the local assessment so certified by such treasurer, and shall then certify said statement to the state auditor; and the state department of business control shall cause a proper record to be made in its office of the cost of such improvement upon the lands occupied by state institutions or used in connection therewith, and shall certify said statement to the state auditor, and the state auditor, at the next session of the legislature, shall certify to the legislature the amount of all local improvement assessments charged against such lands of the state, and the legislature shall provide for the payment of the same, with interest to the next interest due date, by appropriation out of the general fund of the state: *Provided,* That if said improvement is essential to harbor and waterfront development and improvement, such appropriation may be deducted from the proceeds of rents received from leases of harbor areas and tide lands within port districts wherein the improvement is to be made: *And, provided, further,* That no penalty shall be provided or enforced against the state, and the interest upon such assessments shall be computed and paid at the rate paid by other property situated in the same improvement district: *And,*

Statement of assessment-roll against state property

Legislative appropriation

Port districts

No penalty against state.

provided, further, That such interest shall be computed as above specified upon all property which may hereafter be sold by the state as provided in section 8133, Remington's Compiled Statutes and section 6485-9 Pierce's Code.

Passed the Senate February 3, 1933.
Passed the House March 7, 1933.
Approved by the Governor March 15, 1933.

CHAPTER 109

[S B 119]

LOCAL IMPROVEMENTS AND BONDS

AN ACT relating to local improvements and bonds issued therefor, and amending section 3, of chapter 209 of the 1927 Session Laws of Washington, which amended section 3 of chapter 141 of the 1923 Session Laws of Washington.

Be it enacted by the Legislature of the State of Washington:

SECTION 1. That section 3 of chapter 209 of the 1927 Session Laws of Washington, which amended section 3 of chapter 141 of the 1923 Session Laws of Washington be amended to read as follows:

Section 3. Whenever there shall be paid out of a guaranty fund any sum on account of principal or interest of a local improvement bond or warrant, the city or town, as trustee for the fund, shall be subrogated to all the rights of the holder of the bond or interest coupon or warrant so paid, and the proceeds thereof, or of the assessment underlying the same, shall become part of the guaranty fund. There shall also be paid into each guaranty fund the interest received from bank deposits of the fund, as well as any surplus remaining in any local improvement fund guaranteed hereunder after the payment of all outstanding bonds or warrants payable primarily out of such local improvement fund. Warrants

drawing interest at a rate not to exceed six per cent shall be issued, as other warrants are issued by the city or town, against a guaranty fund to meet any liability accruing against it; and at the time of making its annual budget and tax levy the city or town shall provide for the levying of a sum sufficient, with the other resources of the fund, to pay warrants so issued during the preceding fiscal year: *Provided,* That such warrants shall at no time exceed five per cent of the outstanding bond obligations guaranteed by said fund. As among the several issues of bonds or warrants guaranteed by the fund no preference shall exist, but defaulted interest coupons, bonds and warrants shall be purchased out of the fund in the order of their presentation.

Warrants.

How paid

Amount limited

No preference

Every city or town operating under the provisions of this act shall prescribe by ordinance appropriate rules and regulations for the maintenance and operation of the guaranty fund not inconsistent herewith. So much of the money of a guaranty fund as is necessary may be used to purchase certificates of delinquency for general taxes on property subject to local improvement assessments, underlying bonds or warrants guaranteed by the fund, or to purchase such property at county tax foreclosures or from the county after foreclosure, for the purpose of protecting the guaranty fund. Said fund shall be subrogated to the rights of the city or town, and the city or town may foreclose the lien of general tax certificates of delinquency and purchase the property at the foreclosure sale. Whenever the governing authority of any city or town shall foreclose a lien of general tax certificates of delinquency and purchase the property at a foreclosure sale, the court costs and costs of publication and expenses for clerical work and/or other expenses incidental thereto, shall be chargeable to and payable from the "local improvement guaranty fund." After so

Guaranty fund: maintenance and operation

Fund subrogated to rights of city.

Foreclosure action, payment of costs

as a witness in any civil action or proceeding unless the fees be paid or tendered him which are allowed by law for one day's attendance as a witness and for traveling to and returning from the place where he is required to attend, together with any allowance for meals and lodging theretofore fixed as specified herein: *Provided*, That such fees be demanded by any witness residing within the same county where such court of record, judge, commissioner, or referee is located, or within twenty miles of the place where such court is located, at the time of service of the subpoena: *Provided further*, That a party desiring the attendance of a witness residing outside of the county in which such action or proceeding is pending, or more than twenty miles of the place where such court is located, shall apply ex parte to such court, or to the judge, commissioner, referee or clerk thereof, who, if such application be granted and a subpoena issued, shall fix without notice an allowance for meals and lodging, if any to be allowed, together with necessary travel expenses, and the amounts so fixed shall be endorsed upon the subpoena and tendered to such witness at the time of the service of the subpoena: *Provided further*, That the court shall fix and allow at or after trial such additional amounts for meals, lodging and travel as it may deem reasonable for the attendance of such witness.

Passed the Senate February 13, 1963.

Passed the House March 2, 1963.

Approved by the Governor March 9, 1963.

CHAPTER 20.

[S B 115]

ASSESSMENTS AGAINST STATE LANDS

AN ACT relating to assessments against state lands; adding new sections to chapter 164, Laws of 1919 and to chapter 79.44 RCW; amending section 1, chapter 164, Laws of 1919 and RCW 79 44 010; amending section 2, chapter 164, Laws of 1919 and RCW 79 44 020; amending section 4, chapter 164, Laws of 1919 and RCW 79 44 040; amending section 5, chapter 164, Laws of 1919 as amended by section 1, chapter 108, Laws of 1933 and RCW 79 44 050; amending section 1, chapter 205, Laws of 1947 and RCW 79 44.060; amending section 6, chapter 164, Laws of 1919 and RCW 79.44 070; amending section 7, chapter 164, Laws of 1919 and RCW 79.44.080; amending section 8, chapter 164, Laws of 1919 and RCW 79 44 090; amending section 10, chapter 164, Laws of 1919 and RCW 79 44.100; amending section 11, chapter 164, Laws of 1919 and RCW 79 44 130; amending section 12, chapter 164, Laws of 1919 and RCW 79.44.140; amending section 2, chapter 180, Laws of 1919 as last amended by section 1, chapter 15, Laws of 1951, 2nd extraordinary session, and RCW 87 03.025; repealing chapter 154, Laws of 1909; and repealing sections 1 and 2, chapter 58, Laws of 1953 and RCW 79 44 150 and 79 44.160.

Be it enacted by the Legislature of the State of Washington:

New section

SECTION 1. There is added to chapter 164, Laws of 1919 and chapter 79.44 RCW a new section to read as follows:

Assessing district defined

As used in this chapter "assessing district" means:

(1) Incorporated cities and towns;

(2) Diking districts;

(3) Drainage districts;

(4) Port districts;

(5) Irrigation districts; and

(6) Any municipal corporation or public agency having power to levy local improvement or other assessments which by statute are expressly made applicable to lands of the state.

RCW 79 44 010 amended.

SEC. 2. Section 1, chapter 164, Laws of 1919 and RCW 79.44.010 are each amended to read as follows:

Public lands subject to local assessments

All lands, including school lands, granted lands, escheated lands, tidelands, shorelands, or other lands, (including harbor areas lying between tide or shore lands and outer harbor line) held or owned by the state of Washington in fee simple (in trust or otherwise), situated within the limits of any assessing district in this state, may be assessed and charged for the cost of local or other improvements specially benefiting such lands which may be ordered by the proper authorities of any such assessing district and may be assessed by any irrigation district to the same extent as private lands within the district are assessed: *Provided*, That the leasehold, contractual or possessory interest of any person, firm, association, private or municipal corporation in any such lands shall be charged and assessed in the proportional amount such leasehold, contractual or possessory interest is benefited: *Provided, further*, That no lands of the state shall be included within an irrigation district except as provided in RCW 87.03.025 and 89.12.090.

RCW 79 44 020 amended

SEC. 3. Section 2, chapter 164, Laws of 1919 and RCW 79.44.020 are each amended to read as follows:

State to be charged its proportion of cost—Construction of chapter.

In all local improvement assessment districts in any assessing district in this state, property in such district, held or owned by the state shall be assessed and charged for its proportion of the cost of such local improvements in the same manner as other property in such district, it being the intention of this chapter that the state shall bear its just and equitable proportion of the cost of local improvements specially benefiting state lands: *Provided*, That none of the provisions of this chapter shall have the effect, or be construed to have the effect, to alter or modify in any particular any existing lease of any lands or property owned by the state, or release or discharge any lessee of any such lands or property from any of the obligations, covenants

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or conditions of the contract under which any such lands or property are leased or held by any such lessee.

RCW 79 44 040 amended

SEC. 4 Section 4, chapter 164, Laws of 1919 and RCW 79.44 040 are each amended to read as follows:

Notice to state of intention to improve—Consent

Notice of the intention to make such improvement, together with the estimate of the amount to be charged to each lot, tract or parcel of land, or other property owned by the state to be assessed for said improvement, shall be forwarded by registered or certified mail to the budget director and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over such lands at least thirty days prior to the date fixed for hearing on the resolution or petition initiating said improvement. Such assessing district, shall not have jurisdiction to order such improvement as to the interest of the state in harbor areas and state tidelands until the written consent of the commissioner of public lands to the making of such improvement shall have been obtained, unless other means be provided for paying that portion of the cost which would otherwise be levied on the interest of the state of Washington in and to said tidelands, and nothing herein shall prevent the city from assessing the proportionate cost of said improvement against any leasehold, contractual or possessory interest in and to any tideland or harbor area owned by the state: *Provided, however*, That in the case of tidelands and harbor areas within the boundaries of any port district, notice of intention to make such improvement shall also be forwarded to the commissioners of said port district.

RCW 79 44 050 amended.

SEC. 5. Section 5, chapter 164, Laws of 1919 as amended by section 1, chapter 108, Laws of 1933 and RCW 79.44.050 are each amended to read as follows:

Certification of roll—Administrative officer's record.

Upon the approval and confirmation of the assessment roll for any local improvement ordered by the proper authorities of any assessing district, the treasurer of such assessing district shall certify and forward to the budget director and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over the lands, in accordance with such rules and regulations as the budget director may provide, a statement of all the lots or parcels of land held or owned by the state and charged on such assessment roll for the cost of such improvement, separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, or the proportionate amount assessed against the fee simple interest of the state, in case said land has been leased. The chief administrative officer upon receipt of such statement shall cause a proper record to be made in his office of the cost of such improvement upon the lands occupied, used, or under the jurisdiction of his agency.

No penalty shall be provided or enforced against the state, and the interest upon such assessments shall be computed and paid at the rate paid by other property situated in the same improvement district.

RCW 79.44.060 amended.

Payment of assessments—No lien for unpaid assessments

SEC. 6. Section 1, chapter 205, Laws of 1947 and RCW 79.44.060 are each amended to read as follows:

When the chief administrative officer of an agency of state government is satisfied that an assessing district has complied with all the conditions precedent to the levy of assessments for district purposes, pursuant to this chapter against state lands occupied, used, or under the jurisdiction of his agency, he shall pay them, together with any interest thereon from any funds specifically appropriated to his agency therefor or from any funds of his agency which under existing law have been or are required to be expended to pay assessments on

a current basis. In all other cases, the chief administrative officer shall certify to the budget director that the assessment is one properly chargeable to the state. The budget director shall pay such assessments from funds available or appropriated to him for this purpose.

No lands of the state shall be subject to a lien for unpaid assessments, nor shall the interest of the state in any land be sold for unpaid assessments where assessment liens attached to the lands prior to state ownership.

RCW 79.44.070 amended

SEC. 7. Section 6, chapter 164, Laws of 1919 and RCW 79.44.070 are each amended to read as follows:

Enforcement against lessee or contract holder.

When any assessing district has made or caused to be made an assessment against such leasehold, contractual or possessory interest for any such local improvement, the treasurer of said assessing district shall immediately give notice to the budget director and to the chief administrative officer of the agency having jurisdiction over the lands. Said assessment shall become a lien against the leasehold, contractual or possessory interest in the same manner as the assessments on other property, and its collection may be enforced against such interests as provided by law for the enforcement of other local improvement assessments: *Provided*, That said assessment shall not be made payable in installments unless the owner of such leasehold, contractual or possessory interest shall first file with such treasurer a satisfactory bond guaranteeing the payment of such installments as they become due.

RCW 79.44.080 amended

SEC. 8. Section 7, chapter 164, Laws of 1919 and RCW 79.44.080 are each amended to read as follows:

Foreclosure against leasehold or contract interest—Cancellation of lease or contract.

Whenever any assessing district shall have foreclosed the lien of any such delinquent assessments, as provided by law, and shall have obtained title to such leasehold, contractual or possessory interest,

the budget director and the chief administrative officer of the agency having jurisdiction over the lands shall be notified by registered or certified mail of such action and furnished a statement of all assessments against such leasehold, contractual or possessory interest, and the chief administrative officer or budget director shall cause the amount of such assessments to be paid as provided in RCW 79.44.060, and upon the receipt of an assignment from such assessing district, the chief administrative officer shall cancel such lease or contract: *Provided, however*, That unless the assessing district making said local improvement and levying said special assessment shall have used due diligence in the foreclosure thereof, the chief administrative officer and the budget director shall not be required to pay any sum in excess of what they deem to be the special benefits accruing to the state's reversionary interest in said property: *And provided further*, That if such delinquent assessment or installment shall be against a leasehold interest in fresh water harbor areas within a port district, the chief administrative officer shall notify the commissioners of said port district of the receipt of such assignment, and said commissioners shall forthwith cancel such lease.

RCW 79.44.090 amended

Payment by state after forfeiture of lease or contract

SEC. 9. Section 8, chapter 164, Laws of 1919 and RCW 79.44.090 are each amended to read as follows:

If by reason of default in the payment of rentals or installments, or other causes, the state shall cancel any lease or contract against which assessments have been levied as herein provided, the chief administrative officer of the agency having jurisdiction over the lands shall cause such assessments or installments as shall fall due subsequent to the cancellation of said contract or leasehold interest to be paid as provided in RCW 79.44.060, the same as if the assessments or installments thereof had been levied on the state's interest in said lands.

RCW 79.44.100 amended

SEC. 10 Section 10, chapter 164, Laws of 1919 and RCW 79.44.100 are each amended to read as follows:

Assignment of lease or contract to purchasers at foreclosure sale.

Whenever any such tide, state, school, granted or other lands situated within the limits of any assessing district, has been included within any local improvement district by such assessing district, and the contract, leasehold or other interest of any individual has been sold to satisfy the lien of such assessment for local improvement, the purchaser of such interest at such sale shall be entitled to receive from the state of Washington, on demand, an assignment of the contract, leasehold or other interest purchased by him, and shall assume, subject to the terms and conditions of the contract or lease, the payment to the state of the amount of the balance which his predecessor in interest was obligated to pay.

RCW 79.44.130 amended

SEC. 11. Section 11, chapter 164, Laws of 1919 and RCW 79.44.130 are each amended to read as follows:

Local provisions suspended

The provisions of this chapter shall apply to all assessing districts as herein defined, any charter or ordinance provisions to the contrary notwithstanding.

RCW 79.44.140 amended

SEC. 12. Section 12, chapter 164, Laws of 1919 and RCW 79.44.140 are each amended to read as follows:

Application of chapter—Eminent domain assessments

The provisions of this chapter shall apply to all local improvements initiated after June 11, 1919, including assessments to pay the cost and expense of taking and damaging property by the power of eminent domain, as provided by law: *Provided*, That in case of eminent domain assessments, it shall not be necessary to forward notice of the intention to make such improvement, but the eminent domain commissioners, authorized to make such assessment,

shall, at the time of filing the assessment roll with the court in the manner provided by law, forward by registered or certified mail to the budget director and to the chief administrative officer of the agency using, occupying or having jurisdiction over the lands a notice of such assessment, and of the day fixed by the court for the hearing thereof: *Provided*, That no assessment against the state's interest in tidelands or harbor areas shall be binding against the state if the commissioner of public lands shall file a disapproval of the same in court before judgment confirming the roll.

RCW 87 03 025 amended

SEC. 13. Section 2, chapter 180, Laws of 1919 as last amended by section 1, chapter 15, Laws of 1951, 2nd extraordinary session, and RCW 87.03.025 are each amended to read as follows:

Irrigation districts, state lands situated in or taken into. Procedure—Assessments, collection

Whenever public lands of the state are situated in or taken into an irrigation district they shall be treated the same as other lands, except as hereinafter provided. The commissioner of public lands shall be served with a copy of the petition proposing to include such lands, together with a map of the district and notice of the time and place of hearing thereon, at least thirty days before the hearing, and if he determines that such lands will be benefited by being included in the district he shall give his consent thereto in writing. If he determines that they will not be benefited he shall file with the board a statement of his objections thereto.

Any public lands of the state which are situated within the boundaries of an irrigation district, but which were not included in the district at the time of its organization, may be included after a hearing as herein provided.

Whenever the commissioner or any interested person desires to have state public lands included in an existing district, he shall file a request to that effect in writing with the district board, which shall

thereupon fix a time and place for hearing the request and post notice thereof in three public conspicuous places in the district, one of which shall be at the place of hearing, at least twenty days before the hearing, and send by registered mail a copy of the notice to the commissioner. The notice shall describe the lands to be included and direct all persons objecting to such inclusion to appear at the time and place stated and present their objections. At the hearing the district board shall consider all objections and may adjourn to a later date, and by resolution determine the matter, and its determination shall be final: *Provided*, That no such lands shall be included in a district without the written consent of the commissioner of public lands.

Any public lands of the state situated in any irrigation district shall be subject to the provisions of the laws of this state relating to the collection of irrigation district assessments to the same extent and in the same manner in which lands of like character held under private ownership are subject thereto, but collection and payment of the assessments shall be governed solely by the provisions of chapter 79.44 RCW.

New section.

SEC. 14. There is added to chapter 164, Laws of 1919 and to chapter 79.44 RCW a new section to read as follows:

Assessments against public lands, rules and regulations

The budget director shall adopt rules and regulations:

(1) Governing the preparation, certification, and submission of all notices and statements required by chapter 79.44 as now or hereafter amended;

(2) Authorizing and prescribing additional reports, records, and information necessary to achieve budgetary objectives in accordance with chapter 43.88 RCW and any appropriation hereafter made;

(3) Assuring the payment of all assessments properly chargeable to the state; and

(4) Protecting the state against illegal or inequitable assessments.

peal

SEC. 15. The following acts or parts of acts are hereby repealed: (1) Chapter 154, Laws of 1909; (2) section 1, chapter 58, Laws of 1953 and RCW 79.44-.150; and (3) section 2, chapter 58, Laws of 1953 and RCW 79.44.160.

erability

SEC. 16. If any provision of this act, or its application to any person or circumstance is held invalid, the remainder of the act, or the application of the provision to other persons or circumstances is not affected.

Passed the Senate March 5, 1963.

Passed the House March 3, 1963.

Approved by the Governor March 9, 1963.

CHAPTER 21.

[S. B. 121]

MOTOR VEHICLES—USE TAX.

AN ACT relating to revenue and taxation; and amending section 82.12.045, chapter 15, Laws of 1961, and RCW 82.12.045.

Be it enacted by the Legislature of the State of Washington:

82 12 045 ided

SECTION 1. Section 82.12.045, chapter 15, Laws of 1961, and RCW 82.12.045 are each amended to read as follows:

r vehicle ax. ction by ty auditor rector of ses— ttance

In the collection of the use tax on motor vehicles, the tax commission may designate the county auditors of the several counties of the state as its collecting agents. Upon such designation, it shall be the duty of each county auditor to collect the tax at the time an applicant applies for the registration of, and transfer of title to, the motor vehicle, except in the following instances: (1) Where the applicant exhibits a dealer's report of sale showing that the retail sales tax has been collected by the dealer; (2) where the application is for the renewal of registration; (3) where the applicant presents a written statement signed by the tax commission, or its duly authorized agent showing that no use tax is legally due; (4) where the applicant presents satisfactory evidence showing that the retail sales tax or the use tax has been paid by him on the vehicle in question. The term "motor vehicle," as used in this section means and includes all motor vehicles, trailers and semitrailers used, or of a type designed primarily to be used, upon the public streets and highways, for the convenience or pleasure of the owner, or for the conveyance, for hire or otherwise, of persons or property, including fixed loads, facilities for human habitation, and vehicles carrying exempt licenses It shall be the duty of every applicant for registration and transfer of certificate of title who is subject to payment of tax under this section to declare upon his application the value of the vehicle for which application is made, which shall consist of the consideration paid or contracted to be paid therefor. Any person wilfully misrepresenting, or failing or refusing to declare upon his application, such value shall be guilty of a gross misdemeanor.

Each county auditor who acts as agent of the tax commission shall at the time of remitting license fee receipts on motor vehicles subject to the provisions of this section pay over and account to the state treasurer for all use tax revenue collected under this section, after first deducting as his collection fee the sum of fifty cents for each motor vehicle upon which the tax has been collected. All revenue received by the state treasurer under this section shall be credited to the general fund. The auditor's collection fee shall be deposited in the county current expense fund. A duplicate of the county audi-

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and embankments necessary or important therefor or for the protection or preservation thereof, and channel changes therefor and to examine and allow or disallow bills for any work done or materials furnished and to certify all claims allowed to the state auditor.

(6) To publish biennially and before the end of each even numbered year a report of the commission with such cumulative information as may be deemed important and such recommendations as may be deemed desirable for the future operation of the commission.

(7) To collect and compile and to publish, if it is deemed advisable, statistics relative to public highways throughout the state; to collect such information in regard thereto as is deemed expedient; to investigate and determine upon various methods of highway construction adaptable to different sections of the state; to investigate and determine the best methods of construction and maintenance of highways, roads and bridges; to gather and compile such other information relating thereto as shall be deemed appropriate, and to employ highway funds for the purpose of constructing test roads within the state of Washington and conducting investigations and research thereof in the state of Washington or elsewhere; to conduct on any highways, roads, or streets of this state, physical, traffic or other nature of inventory or survey considered of value in determining highway, road or street uses and needs.

(8) To exercise all powers and to perform all duties by any law granted to or imposed upon the state highway board, the state highway commission, the state highway committee, the director of public works by and through the division of highways, the supervisor of highways, and the state highway engineer.

(9) To exercise all other powers and perform all other duties now or hereafter provided by law.

Passed the Senate April 27, 1971.
Passed the House May 10, 1971.
Approved by the Governor May 19, 1971.
Filed in Office of Secretary of State May 20, 1971.

CHAPTER 116
[Engrossed Senate Bill No. 863]
LOCAL IMPROVEMENT DISTRICTS

AN ACT Relating to local improvement districts; amending section 1, chapter 205, Laws of 1947 as amended by section 6, chapter 20, Laws of 1963, and RCW 79.44.060; amending section 35.44.220, chapter 7, Laws of 1965 as amended by section 8, chapter 258,

Laws of 1969 ex.sess., and RCW 35.44.220; amending section 35.43.030, chapter 7, Laws of 1965 as amended by section 2, chapter 52, Laws of 1967, and RCW 35.43.030; amending section 35.43.190, chapter 7, Laws of 1965 and RCW 35.43.190; amending section 35.49.030, chapter 7, Laws of 1965 as amended by section 15, chapter 258, Laws of 1969 ex.sess., and RCW 35.49.030; amending section 35.54.010, chapter 7, Laws of 1965 and RCW 35.54.010; amending section 35.44.020, chapter 7, Laws of 1965 as amended by section 6, chapter 258, Laws of 1969 ex.sess., and RCW 35.44.020; amending section 35.44.140, chapter 7, Laws of 1965 as amended by section 11, chapter 52, Laws of 1967, and RCW 35.44.140; amending section 35.45.020, chapter 7, Laws of 1965 as last amended by section 35, chapter 56, Laws of 1970 ex.sess., and RCW 35.45.020; amending section 35.45.050, chapter 7, Laws of 1965 and RCW 35.45.050; creating a new section; repealing section 35.43.160, chapter 7, Laws of 1965, section 7, chapter 52, Laws of 1967, and RCW 35.43.160; and repealing section 35.43.170, chapter 7, Laws of 1965, section 1, chapter 58, Laws of 1965, and RCW 35.43.170.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Section 1. When real property subject to an unpaid special assessment for a local improvement levied by any political subdivision of the state authorized to form local improvement or utility local improvement districts is acquired by purchase or condemnation by the state or any political subdivision thereof, including but not limited to any special purpose district, the property so acquired shall continue to be subject to the assessment lien.

An assessment lien or installment thereof, delinquent at the time of such acquisition shall be paid at the time of acquisition, and the amount thereof, including any accrued interest and delinquent penalties, shall be withheld from the purchase price or condemnation award by the public body acquiring the property and shall be paid immediately to the county, city, or town treasurer, whichever is applicable, in payment of and discharge of such delinquent installment lien.

Any installment or installments not delinquent at the time of acquisition shall become due and payable in such year and at such date as said installment would have become due if such property had not been so acquired: PROVIDED, That where such property is acquired by the state of Washington, the balance of the assessment shall be paid in full at the time of acquisition.

For the purpose of this section, the "time of acquisition" shall mean the date of completion of the sale, date of condemnation verdict, date of the order of immediate possession and use pursuant

to RCW 8.04.090, or the date of judgment, if not tried to a jury.

Sec. 2. Section 1, chapter 205, Laws of 1947 as amended by section 6, chapter 20, Laws of 1963, and RCW 79.44.060 are each amended to read as follows:

When the chief administrative officer of an agency of state government is satisfied that an assessing district has complied with all the conditions precedent to the levy of assessments for district purposes, pursuant to this chapter against state lands occupied, used, or under the jurisdiction of his agency, he shall pay them, together with any interest thereon from any funds specifically appropriated to his agency therefor or from any funds of his agency which under existing law have been or are required to be expended to pay assessments on a current basis. In all other cases, the chief administrative officer shall certify to the budget director that the assessment is one properly chargeable to the state. The budget director shall pay such assessments from funds available or appropriated to him for this purpose.

Except as provided in section 1 of this 1971 amendatory act no lands of the state shall be subject to a lien for unpaid assessments, nor shall the interest of the state in any land be sold for unpaid assessments where assessment liens attached to the lands prior to state ownership.

Sec. 3. Section 35.44.220, chapter 7, Laws of 1965 as amended by section 8, chapter 258, Laws of 1969 ex.sess., and RCW 35.44.220 are each amended to read as follows:

At the time of filing the notice of appeal with the clerk of the superior court, the appellant shall execute and file with him a sufficient bond in the penal sum of two hundred dollars, with at least two sureties to be approved by the judge of the court, conditioned to prosecute the appeal without delay and, if unsuccessful, to pay all ((costs to which the city or town is put)) reasonable costs and expenses which the city or town incurrs by reason of the appeal. Upon application therefor, the court may order the appellant to execute and file such additional bonds as the necessity of the case may require.

Sec. 4. Section 35.43.030, chapter 7, Laws of 1965 as amended by section 2, chapter 52, Laws of 1967, and RCW 35.43.030 are each amended to read as follows:

This and the following chapters relating to municipal local improvements shall supersede the provisions of the charter of any city of the first class ((inconsistent herewith)).

They shall apply to all incorporated cities and towns, including unclassified cities and towns operating under special charters.

The council of each city and town shall pass such general

CHAPTER 150

[Substitute House Bill No 486]

SECOND CLASS SHORELANDS——SALES TO ABUTTING OWNERS

AN ACT Relating to second class shorelands, and adding a new section to chapter 79 01 RCW

Be it enacted by the Legislature of the State of Washington:

NEW SECTION. Section 1. There is added to chapter 79.01 RCW a new section to read as follows:

(1) The legislature finds that maintaining public lands in public ownership is often in the public interest However, when second class shorelands on navigable lakes have minimal public value, the sale of those shorelands to the abutting upland owner may not be contrary to the public interest: PROVIDED, That the purpose of this section is to remove the prohibition contained in RCW 79.01.470 regarding the sale of second class shorelands to abutting owners, whose uplands front upon the shorelands Nothing contained in this section shall be construed to otherwise affect the rights of interested parties relating to public or private ownership of shorelands within the state.

(2) Notwithstanding the provisions of RCW 79.01 470, the department of natural resources may sell second class shorelands on navigable lakes to abutting owners whose uplands front upon the shorelands in cases where the board of natural resources has determined that these sales would not be contrary to the public interest. These shorelands shall be sold at the fair market value, but not less than five percent of the fair market value of the abutting upland, less improvements, to a maximum depth of one hundred fifty feet landward from the line of ordinary high water

(3) Review of a decision of the department regarding the sale price established for a shoreland to be sold pursuant to this section may be obtained by the upland owner by filing a petition with the board of tax appeals created in accordance with chapter 82.03 RCW within thirty days of the date the department notified the owner regarding the price The board of tax appeals shall review such cases in a "contested case" proceeding as described in chapter 34 04 RCW, and the board's review shall be de novo Decisions of the board of tax appeals regarding fair market values determined pursuant to this section shall be final unless appealed to superior court pursuant to RCW 34.04.130.

Passed the House March 7, 1979.
Passed the Senate March 1, 1979.
Approved by the Governor March 29, 1979.
Filed in Office of Secretary of State March 29, 1979.

CHAPTER 151

[House Bill No 848]

OFFICE OF FINANCIAL MANAGEMENT——STATUTORY DEVOLUTION

AN ACT Relating to state government, amending section 1, chapter 299, Laws of 1961 as amended by section 1, chapter 42, Laws of 1967 ex sess and RCW 3 30 010, amending section 4, chapter 95, Laws of 1895 as last amended by section 1, chapter 144, Laws of 1977 ex sess and RCW 4 92 040, amending section 3, chapter 159, Laws of 1963 as last amended by section 2, chapter 144, Laws of 1977 ex. sess and RCW 4 92.100, amending section 4, chapter 159, Laws of 1963 as amended by section 3, chapter 144, Laws of 1977 ex sess and RCW 4 92 110, amending section 10, chapter 159, Laws of 1963 as last amended by section 6, chapter 126, Laws of 1975 1st ex sess and RCW 4 92.160, amending section 11, chapter 159, Laws of 1963 as last amended by section 2, chapter 228, Laws of 1977 ex sess and RCW 4 92 170, amending section 4, chapter 213, Laws of 1955 as amended by section 7, chapter 106, Laws of 1973 and RCW 8 04 090, amending section 10, chapter 74, Laws of 1891 as amended by section 8, chapter 106, Laws of 1973 and RCW 8 04 160, amending section 5, chapter 165, Laws of 1969 ex. sess. as last amended by section 1, chapter 307, Laws of 1977 ex sess and RCW 13 06 050, amending section 5, chapter 168, Laws of 1971 ex sess and RCW 26 34 050, amending section 28A.10 080, chapter 223, Laws of 1969 ex sess as last amended by section 1, chapter 15, Laws of 1972 ex sess and RCW 28A 10 080, amending section 14, chapter 244, Laws of 1969 ex sess. as amended by section 5, chapter 359, Laws of 1977 ex sess and RCW 28A 41.140, amending section 28A 61 030, chapter 223, Laws of 1969 ex sess as last amended by section 1, chapter 101, Laws of 1974 ex sess and RCW 28A 61 030, amending section 2, chapter 279, Laws of 1971 ex sess as amended by section 3, chapter 331, Laws of 1977 ex sess and RCW 28B 15 031, amending section 10, chapter 36, Laws of 1969 ex sess. as last amended by section 8, chapter 152, Laws of 1977 ex sess. and RCW 28B 16 100, amending section 11, chapter 36, Laws of 1969 ex sess as last amended by section 10, chapter 152, Laws of 1977 ex sess and RCW 28B 16 110, amending section 11, chapter 152, Laws of 1977 ex. sess and RCW 28B.16.112, amending section 20, chapter 36, Laws of 1969 ex sess and RCW 28B 16 200, amending section 4, chapter 120, Laws of 1973 1st ex. sess and RCW 28B 17 040, amending section 28B 50 090, chapter 223, Laws of 1969 ex. sess as last amended by section 4, chapter 282, Laws of 1977 ex. sess and RCW 28B 50 090, amending section 2, chapter 331, Laws of 1977 ex sess. and RCW 28B 50 143; amending section 9, chapter 277, Laws of 1969 ex sess as amended by section 6, chapter 132, Laws of 1975 1st ex sess and RCW 28B-.80 080; amending section 12, chapter 174, Laws of 1975 1st ex sess. as amended by section 1, chapter 86, Laws of 1975–'76 2nd ex. sess and RCW 28C 04 510, amending section 35 04 070, chapter 7, Laws of 1965 as amended by section 5, chapter 110, Laws of 1977 ex. sess and RCW 35.04 070, amending section 35.13 260, chapter 7, Laws of 1965 as last amended by section 1, chapter 31, Laws of 1975 1st ex. sess. and RCW 35 13.260, amending section 35 18 020, chapter 7, Laws of 1965 and RCW 35.18 020, amending section 35 21 600, chapter 7, Laws of 1965 as amended by section 6, chapter 47, Laws of 1965 ex. sess and RCW 35 21.600, amending section 12, chapter 277, Laws of 1977 ex. sess and RCW 35 58.020, amending section 35A 04 080, chapter 119, Laws of 1967 ex. sess. and RCW 35A 04 080, amending section 35A 04.160, chapter 119, Laws of 1967 ex. sess. and RCW 35A 04.160; amending section 35A 05 120, chapter 119, Laws of 1967 ex. sess and RCW 35A 05.120, amending section 35A 08 020, chapter 119, Laws of 1967 ex. sess and RCW 35A 08 020; amending section 35A.12.010, chapter 119, Laws of 1967 ex. sess. and RCW 35A.12 010; amending section 35A.13 010, chapter 119, Laws of 1967 ex. sess. and RCW 35A.13 010, amending section 35A.14 700, chapter 119, Laws of 1967 ex. sess. as amended by section 2, chapter 31, Laws of 1975 1st ex. sess and RCW 35A 14-.700; amending section 35A.44 010, chapter 119, Laws of 1967 ex. sess. and RCW 35A-.44.010; amending section 36.13.030, chapter 4, Laws of 1963 as amended by section 1, chapter 110, Laws of 1977 ex. sess. and RCW 36.13.030; amending section 36 38 020, chapter 4, Laws of 1963 as amended by section 21, chapter 278, Laws of 1975 1st ex. sess. and RCW 36.38.020; amending section 1, chapter 167, Laws of 1974 ex. sess. and RCW 36 57.010, amending section 11, chapter 270, Laws of 1975 1st ex. sess. and RCW

36 57A 010, amending section 25, chapter 270, Laws of 1975 1st ex. sess and RCW 36-57A.150, amending section 11, chapter 120, Laws of 1965 ex sess and RCW 36 78 110, amending section 4, chapter 8, Laws of 1971 ex. sess as last amended by section 6, chapter 144, Laws of 1977 ex sess and RCW 38 52 205, amending section 1, chapter 191, Laws of 1974 ex sess and RCW 39 29 010, amending section 1, chapter 61, Laws of 1969 ex. sess and RCW 39 34 130, amending section 2, chapter 61, Laws of 1969 ex sess and RCW 39 34.140, amending section 3, chapter 61, Laws of 1969 ex sess and RCW 39 34 150, amending section 1, chapter 15, Laws of 1977 ex sess and RCW 39 58 150, amending section 6, chapter 150, Laws of 1941 as last amended by section 3, chapter 33, Laws of 1973 and RCW 40 04 100, amending section 2, chapter 232, Laws of 1977 ex sess and RCW 40 07 020, amending section 4, chapter 246, Laws of 1957 as amended by section 3, chapter 54, Laws of 1973 and RCW 40 14 040, amending section 6, chapter 246, Laws of 1957 as amended by section 4, chapter 54, Laws of 1973 and RCW 40 14-060, amending section 2, chapter 208, Laws of 1957 as amended by section 16, chapter 106, Laws of 1973 and RCW 41 04 036, amending section 5, chapter 59, Laws of 1969 as last amended by section 5, chapter 147, Laws of 1973 1st ex sess and RCW 41.04 230, amending section 5, chapter 39, Laws of 1970 ex sess as last amended by section 4, chapter 136, Laws of 1977 ex sess and RCW 41 05 050, amending section 7, chapter [illegible], Laws of 1969 ex sess. and RCW 41.06.075, amending section 15, chapter 1, Laws of 1961 as last amended by section 1, chapter 152, Laws of 1977 ex sess and RCW 41 06-.150, amending section 16, chapter 1, Laws of 1961 as amended by section 2, chapter 152, Laws of 1977 ex sess and RCW 41 06 160, amending section 3, chapter 152, Laws of 1977 ex sess and RCW 41 06 163, amending section 5, chapter 152, Laws of 1977 ex sess and RCW 41 06.167, amending section 27, chapter 1, Laws of 1961 and RCW 41-06 270, amending section 2, chapter 239, Laws of 1975 1st ex sess and RCW 41.07 020, amending section 38, chapter 274, Laws of 1947 as last amended by section 20, chapter 295, Laws of 1977 ex sess and RCW 41 40 370, amending section 13, chapter 105, Laws of 1975–'76 2nd ex. sess and RCW 41 50 800, amending section 15, chapter 105, Laws of 1975–'76 2nd ex sess and RCW 41.50 802, amending section 4, chapter 5, Laws of 1975–'76 2nd ex sess and RCW 41 58 801; amending section 5, chapter 5, Laws of 1975–'76 2nd ex. sess and RCW 41 58 802, amending section 1, chapter 130, Laws of 1891 as last amended by section 1, chapter 59, Laws of 1969 and RCW 42 16 010, amending section 2, chapter 25, Laws of 1967 ex sess as amended by section 2, chapter 59, Laws of 1969 and RCW 42.16 011; amending section 4, chapter 25, Laws of 1967 ex sess as amended by section 3, chapter 59, Laws of 1969 and RCW 42 16 013, amending section 5, chapter 25, Laws of 1967 ex sess as amended by section 4, chapter 59, Laws of 1969 and RCW 42.16 014; amending section 8, chapter 25, Laws of 1967 ex sess. and RCW 42.16 017, amending and reenacting section 24, chapter 1, Laws of 1973 as last amended by section 1, chapter 104, Laws of 1975–'76 2nd ex sess and by section 7, chapter 112, Laws of 1975–'76 2nd ex. sess and RCW 42.17.240, amending section 3, chapter 60, Laws of 1969 ex sess and RCW 42 26.030, amending section 4, chapter 60, [illegible] of 1969 ex sess as amended by section 1, chapter 40, Laws of 1977 and RCW 42-[illegible]040, amending section 5, chapter 60, Laws of 1969 ex. sess and RCW 42 26 050, amending section 7, chapter 60, Laws of 1969 ex. sess and RCW 42 26 070, amending section 8, chapter 60, Laws of 1969 ex. sess. and RCW 42 26 080, amending section 9, chapter 60, Laws of 1969 ex. sess and RCW 42.26 090, amending section 43 01.050, chapter 8, Laws of 1965 as amended by section 1, chapter 212, Laws of 1967 and RCW 43 01 050, amending section 43 01.090, chapter 8, Laws of 1965 as last amended by section 1, chapter 82, Laws of 1973 1st ex. sess and RCW 43 01 090, amending section 2, chapter 48, Laws of 1974 ex sess. and RCW 43 01.140, amending section 43 03 050, chapter 8, Laws of 1965 as last amended by section 1, chapter 312, Laws of 1977 ex. sess and RCW 43 03 050, amending section 43 03 060, chapter 8, Laws of 1965 as last amended by section 2, chapter 312, Laws of 1977 ex. sess and RCW 43 03 060, amending section 4, chapter 312, Laws of 1977 ex. sess. and RCW 43 03 065, amending section 2, chapter 16, Laws of 1967 ex. sess. and RCW 43 03.120; amending section 6, chapter 16, Laws of 1967 ex. sess and RCW 43 03.150; amending section 12, chapter 16, Laws of 1967 ex. sess. and RCW 43 03 210, amending section 43 08 060, chapter 8, Laws of 1965 as amended by section 1, chapter 16, Laws of 1977 and RCW 43.08.060; amending section 43.08.110, chapter 8, Laws of 1965 and RCW 43.08.110; amending and reenacting section 43.09 050, chapter 8, Laws of 1965 as last amended by section 40, chapter 75, Laws of 1977 and by section 7, chapter 144, Laws of 1977 ex. sess. and RCW 43.09.050;

amending section 1, chapter 17, Laws of 1975–'76 2nd ex sess and RCW 43 09 310, amending section 43 09 340, chapter 8, Laws of 1965 and RCW 43 09 340, amending section 2, chapter 71, Laws of 1971 ex sess as amended by section 2, chapter 146, Laws of 1974 ex sess and RCW 43 10 160, amending section 4, chapter 71, Laws of 1971 ex sess as amended by section 3, chapter 146, Laws of 1974 ex sess and RCW 43.10 180, amending section 5, chapter 71, Laws of 1971 ex sess and RCW 43.10 190, amending section 43 19 1902, chapter 8, Laws of 1965 as last amended by section 3, chapter 21, Laws of 1975–'76 2nd ex sess and RCW 43 19.1902, amending section 6, chapter 21, Laws of 1975–'76 2nd ex sess and RCW 43 19 19052, amending section 6, chapter 104, Laws of 1967 ex sess as amended by section 10, chapter 21, Laws of 1975–'76 2nd ex sess and RCW 43.19.1918, amending section 43 19 1921, chapter 8, Laws of 1965 and RCW 43 19.1921; amending section 2, chapter 159, Laws of 1971 ex. sess and RCW 43-19 500, amending section 10, chapter 167, Laws of 1975 1st ex sess. and RCW 43.19-600, amending section 14, chapter 167, Laws of 1975 1st ex. sess and RCW 43.19 620, amending section 16, chapter 167, Laws of 1975 1st ex sess and RCW 43 19 630, amending section 1, chapter 86, Laws of 1977 ex sess and RCW 43 19 640, amending section 5, chapter 86, Laws of 1977 ex sess and RCW 43.19.660; amending section 11, chapter 179, Laws of 1974 ex sess. and RCW 43 21C.140, amending section 43 30 240, chapter 8, Laws of 1965 and RCW 43 30 240, amending section 1, chapter 239, Laws of 1969 ex sess and RCW 43 41 030, amending section 2, chapter 239, Laws of 1969 ex sess. and RCW 43 41 040, amending section 3, chapter 239, Laws of 1969 ex. sess and RCW 43 41 050, amending section 4, chapter 239, Laws of 1969 ex sess and RCW 43-41 060; amending section 6, chapter 239, Laws of 1969 ex sess and RCW 43.41 080; amending section 8, chapter 239, Laws of 1969 ex sess and RCW 43 41 100; amending section 5, chapter 128, Laws of 1977 ex sess and RCW 43 41 102, amending section 10, chapter 144, Laws of 1977 ex. sess and RCW 43 41 104, amending section 11, chapter 144, Laws of 1977 ex. sess. and RCW 43 41.106, amending section 5, chapter 167, Laws of 1975 1st ex sess and RCW 43 41 130, amending section 15, chapter 167, Laws of 1975 1st ex sess. and RCW 43 41.140, amending section 13, chapter 239, Laws of 1969 ex sess and RCW 43 41 900, amending section 14, chapter 239, Laws of 1969 ex sess. and RCW 43 41 910, amending section 15, chapter 239, Laws of 1969 ex sess and RCW 43.41 920, amending section 16, chapter 239, Laws of 1969 ex sess and RCW 43 41 930; amending section 17, chapter 195, Laws of 1977 ex sess and RCW 43 51A 040, amending section 10, chapter 115, Laws of 1975–'76 2nd ex sess and RCW 43 60A 901; amending section 12, chapter 115, Laws of 1975–'76 2nd ex. sess and RCW 43 60A 903, amending section 43 62 010, chapter 8, Laws of 1965 as amended by section 121, chapter 34, Laws of 1975–'76 2nd ex sess and RCW 43 62 010, amending section 43 62 020, chapter 8, Laws of 1965 and RCW 43 62 020, amending section 43 62 030, chapter 8, Laws of 1965 as last amended by section 61, chapter 75, Laws of 1977 and RCW 43 62-030, amending section 43 62 040, chapter 8, Laws of 1965 as amended by section 25, chapter 278, Laws of 1975 1st ex sess. and RCW 43 62 040, amending section 43.62 050, chapter 8, Laws of 1965 as last amended by section 62, chapter 75, Laws of 1977 and RCW 43 62 050, amending section 7, chapter 74, Laws of 1967 as amended by section 28, chapter 151, Laws of 1977 ex. sess and RCW 43 63A 070; amending section 1, chapter 53, Laws of 1969 ex. sess as amended by section 64, chapter 75, Laws of 1977 and RCW 43 63A 085, amending section 43.78 070, chapter 8, Laws of 1965 and RCW 43.78.070; amending section 43 88 020, chapter 8, Laws of 1965 as last amended by section 4, chapter 83, Laws of 1975–'76 2nd ex sess and RCW 43 88 020, amending section 10, chapter 239, Laws of 1969 ex sess and RCW 43 88 025; amending section 43.88.090, chapter 8, Laws of 1965 as last amended by section 5, chapter 293, Laws of 1975 1st ex. sess and RCW 43 88 090, amending section 43 88 110, chapter 8, Laws of 1965 as amended by section 6, chapter 293, Laws of 1975 1st ex. sess. and RCW 43.88.110; amending section 43 88.160, chapter 8, Laws of 1965 as last amended by section 8, chapter 293, Laws of 1975 1st ex sess. and RCW 43 88.160; amending section 1, chapter 248, Laws of 1969 ex. sess. as last amended by section 109, chapter 169, Laws of 1977 ex. sess. and RCW 43-.88 195; amending section 4, chapter 41, Laws of 1967 ex. sess. as last amended by section 10, chapter 293, Laws of 1975 1st ex. sess. and RCW 43.88.205; amending section 1, chapter 23, Laws of 1977 and RCW 43.88.500; amending section 2, chapter 23, Laws of 1977 and RCW 43 88.505; amending section 3, chapter 23, Laws of 1977 and RCW 43-.88 510; amending section 4, chapter 23, Laws of 1977 and RCW 43 88 515; amending section 2, chapter 25, Laws of 1977 ex. sess. and RCW 43.88A 020;

chapter 25, Laws of 1977 ex sess and RCW 43 88A 030, amending section 4, chapter 25, Laws of 1977 ex. sess and RCW 43 88A 040; amending section 2, chapter 19, Laws of 1977 ex sess and RCW 43 132.020, amending section 3, chapter 19, Laws of 1977 ex. sess and RCW 43 132 030, amending section 4, chapter 19, Laws of 1977 ex. sess and RCW 43 132 040, amending section 5, chapter 19, Laws of 1977 ex. sess and RCW 43-132 050, amending section 6, chapter 36, Laws of 1947 as last amended by section 4, chapter 134, Laws of 1967 ex sess and RCW 44 24 060, amending section 9, chapter 265, Laws of 1969 ex sess and RCW 44 30 050, amending section 9, chapter 130, Laws of 1965 ex sess and RCW 44 33 280, amending section 9, chapter 260, Laws of 1969 ex. sess and RCW 44 39 050, amending section 39, chapter 3, Laws of 1963 ex. sess as last amended by section 8, chapter 235, Laws of 1977 ex. sess and RCW 44 40 040; amending section 9, chapter 373, Laws of 1977 ex sess. and RCW 44 48 090, amending section 5, chapter 150, Laws of 1967 ex sess. as last amended by section 4, chapter 218, Laws of 1977 ex sess and RCW 44 60 050; amending section 7, chapter 204, Laws of 1963 and RCW 46 38 070, amending section 46 68 110, chapter 12, Laws of 1961 as last amended by section 1, chapter 100, Laws of 1975 1st ex. sess and RCW 46 68 110, amending section 25, chapter 83, Laws of 1967 ex sess as last amended by section 14, chapter 317, Laws of 1977 ex sess and RCW 47 26 190, amending section 4, chapter 267, Laws of 1975 1st ex sess. as amended by section 1, chapter 214, Laws of 1977 ex sess and RCW 47 26 281; amending section 1, chapter 139, Laws of 1941 as last amended by section 1, chapter 88, Laws of 1974 ex. sess and RCW 52 36 020, amending section 7, chapter 366, Laws of 1977 ex. sess. and RCW 54 28 055; amending section 77, chapter 62, Laws of 1933 ex sess as last amended by section 1, chapter 75, Laws of 1967 ex sess and RCW 66 08 180, amending section 7, chapter 175, Laws of 1957 as amended by section 2, chapter 110, Laws of 1977 ex sess and RCW 66 08 200, amending section 8, chapter 175, Laws of 1957 as amended by section 3, chapter 110, Laws of 1977 ex sess and RCW 66 08 210, amending section 9, chapter 55, Laws of 1933 as last amended by section 81, chapter 75, Laws of 1977 and RCW 67 16 100, amending section 6, chapter 316, Laws of 1977 ex. sess and RCW 70.48 060, amending section 34, chapter 32, Laws of 1951 as amended by section 3, chapter 175, Laws of 1977 ex sess and RCW 70.79 350, amending section 25, chapter 122, Laws of 1972 ex sess and RCW 70 96A 220, amending section 4, chapter 273, Laws of 1959 as amended by section 11, chapter 189, Laws of 1971 ex. sess. and RCW 72 60 270; amending section 4, chapter 40, Laws of 1977 ex sess and RCW 74.16 430, amending section 75 08 230, chapter 12, Laws of 1955 as last amended by section 33, chapter 327, Laws of 1977 ex sess and RCW 75 08 230, amending section 77.12 280, chapter 36, Laws of 1955 as last amended by section 8, chapter 144, Laws of 1977 ex sess and RCW 77 12 280; amending section 4, chapter 164, Laws of 1919 as amended by section 4, chapter 20, Laws of 1963 and RCW 79.44 040, amending section 5, chapter 164, Laws of 1919 as last amended by section 5, chapter 20, Laws of 1963 and RCW 79 44 050; amending section 1, chapter 205, Laws of 1947 as last amended by section 2, chapter 116, Laws of 1971 ex sess and RCW 79.44 060, amending section 6, chapter 164, Laws of 1919 as amended by section 7, chapter 20, Laws of 1963 and RCW 79 44 070, amending section 7, chapter 164, Laws of 1919 as amended by section 8, chapter 20, Laws of 1963 and RCW 79.44 080, amending section 12, chapter 164, Laws of 1919 as amended by section 12, chapter 20, Laws of 1963 and RCW 79.44.140, amending section 14, chapter 20, Laws of 1963 and RCW 79 44 180, amending section 82 32.340, chapter 15, Laws of 1961 as last amended by section 4, chapter 89, Laws of 1967 ex. sess and RCW 82.32 340, amending section 84 48.110, chapter 15, Laws of 1961 as amended by section 11, chapter 95, Laws 1973 and RCW 84.48.110; decodifying RCW 43 101.910, repealing section 12, chapter 144, Laws of 1977 ex. sess. and RCW 43.41.108, and declaring an emergency.

Be it enacted by the Legislature of the State of Washington:

Section 1. Section 1, chapter 299, Laws of 1961 as amended by section 1, chapter 42, Laws of 1967 ex. sess. and RCW 3.30.010 are each amended to read as follows:

As used herein:

"City" means an incorporated city or town.

"Department" means the designation of an administrative unit of a justice court established for the orderly and efficient administration of justice court business and may include, without being limited in scope thereby, a unit or units for determining one or more of the following: Traffic cases, violations of city ordinances, violations of state law, criminal cases, civil cases, or jury cases.

"Population" means the latest population of the judicial district of each county as ~~((estimated by the Washington state census board and certified to the board of county commissioners on or before May 1, 1962 and on or before May 1st, 1966 and thereafter as))~~ estimated and certified by the ~~((planning and community affairs agency))~~ office of financial management. The ~~((planning and community affairs agency))~~ office of financial management, on or before May 1, 1970 and on or before May 1st each four years thereafter, shall estimate and certify to the board of county commissioners the population of each judicial district of each county

Sec. 2. Section 4, chapter 95, Laws of 1895 as last amended by section 1, chapter 144, Laws of 1977 ex. sess. and RCW 4 92 040 are each amended to read as follows:

(1) No execution shall issue against the state on any judgment.

(2) Whenever a final judgment against the state shall have been obtained in an action on a claim arising out of tortious conduct, the clerk shall make and furnish to the ~~((chief fiscal officer of the executive branch))~~ director of financial management a duly certified copy of said judgment and the same shall be paid out of the tort claims revolving fund

(3) Whenever a final judgment against the state shall have been obtained in any other action, the clerk of the court shall make and furnish to the ~~((chief fiscal officer of the executive branch))~~ director of financial management a duly certified copy of such judgment; the ~~((chief fiscal officer of the executive branch))~~ director of financial management shall thereupon audit the amount of damages and costs therein awarded, and the same shall be paid from appropriations specifically provided for such purposes by law.

(4) On and after September 21, 1977, all claims made to the legislature against the state of Washington for money or property, shall be accompanied by a statement of the facts on which such claim is based and such evidence as the claimant intends to offer in support of the claim and shall be filed with the ~~((chief fiscal officer of the executive branch))~~ director of financial management who shall retain the same as a record. The ~~((chief fiscal officer of the executive branch))~~ director of financial management shall recommend to the legislature whether such claim should be approved or rejected. The legislative committees to whom such claims are referred shall make a transcript or statement of the substance of the evidence given in support of such a claim. If the legislature approves a claim the same shall be paid from appropriations specifically provided for such purpose by law.

No payment of any such claim shall be made in excess of one thousand dollars, and in the event any claim is not adjusted, compromised, or settled and paid by the commission for a sum up to such amount, and within one year from the filing of such claim the same may be filed with the ((~~chief fiscal officer of the executive branch~~)) director of financial management. Contents of all such claims shall conform to the tort claim filing requirements found in RCW 4.92.100 as now or hereafter amended. The ((~~chief fiscal officer of the executive branch~~)) director of financial management shall recommend to the legislature whether such claims should be approved or rejected. If the legislature approves a claim the same shall be paid from appropriations specifically provided for such purpose by law. The payment of any claim by the commission shall be full and final payment upon such claim.

In the event that any valid claim for damages as provided for in RCW 77.12.270 has been refused or has not been compromised, adjusted, settled and paid by the commission within one hundred and twenty days of the filing of the claim for damages with the commission as provided for in RCW 77.12.290, either the claimant or the commission may serve upon the other personally or by registered mail a notice of an intention to arbitrate; said notice shall contain the name of a person, selected as one arbitrator. Within ten days of receiving such a notice to arbitrate the person upon whom such notice was served shall serve personally or by registered mail upon the other party the name of an arbitrator. The two arbitrators, within seven days of the naming of the second arbitrator shall select a third arbitrator, said arbitrator not to be an employee or commissioner of the state game department. In the event that the two arbitrators as selected by the parties to the dispute cannot agree upon a third arbitrator, either party to the dispute may petition the superior court in the county in which the claim arose, asking said court to select the third arbitrator and upon receiving such a petition the court shall appoint a third arbitrator. Any filing fee or court costs arising from the foregoing petition shall be shared equally by the claimant and the department of game.

The award of the arbitrators shall be advisory only; it shall be written and filed with the department of game at its office in Seattle, King county, Washington, not later than ninety days following the naming of the third arbitrator.

In the event that the parties arbitrate no payment shall be made by the commission until the arbitrators shall have made their advisory award. The payment of any claim by the commission shall be full and final payment of the claim.

In the event that any claim is not adjusted, compromised, settled and paid through arbitration or otherwise within one year from the filing of said claim the same may be filed with the ((~~chief fiscal officer of the executive branch~~)) director of financial management. Contents of all such claims shall

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conform to the tort claim filing requirements found in RCW 4.92.100 as now or hereafter amended. The ((~~chief fiscal officer of the executive branch~~)) director of financial management shall recommend to the legislature whether such claims should be approved or rejected. If the legislature approves a claim the same shall be paid from appropriations specifically provided for such purpose by law.

Sec. 177. Section 4, chapter 164, Laws of 1919 as amended by section 4, chapter 20, Laws of 1963 and RCW 79.44.040 are each amended to read as follows:

Notice of the intention to make such improvement, together with the estimate of the amount to be charged to each lot, tract or parcel of land, or other property owned by the state to be assessed for said improvement, shall be forwarded by registered or certified mail to the ((~~budget~~)) director of financial management and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over such lands at least thirty days prior to the date fixed for hearing on the resolution or petition initiating said improvement. Such assessing district, shall not have jurisdiction to order such improvement as to the interest of the state in harbor areas and state tidelands until the written consent of the commissioner of public lands to the making of such improvement shall have been obtained, unless other means be provided for paying that portion of the cost which would otherwise be levied on the interest of the state of Washington in and to said tidelands, and nothing herein shall prevent the city from assessing the proportionate cost of said improvement against any leasehold, contractual or possessory interest in and to any tideland or harbor area owned by the state: PROVIDED, HOWEVER, That in the case of tidelands and harbor areas within the boundaries of any port district, notice of intention to make such improvement shall also be forwarded to the commissioners of said port district.

Sec. 178. Section 5, chapter 164, Laws of 1919 as last amended by section 5, chapter 20, Laws of 1963 and RCW 79.44.050 are each amended to read as follows.

Upon the approval and confirmation of the assessment roll for any local improvement ordered by the proper authorities of any assessing district, the treasurer of such assessing district shall certify and forward to the ((~~budget~~)) director of financial management and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over the lands, in accordance with such rules and regulations as the ((~~budget~~)) director of financial management may provide, a statement of all the lots or parcels of land held or owned by the state and charged on such assessment roll for the cost of such improvement, separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, or the proportionate amount assessed against the fee simple interest of the state, in case said land has been leased. The chief

administrative officer upon receipt of such statement shall cause a proper record to be made in his office of the cost of such improvement upon the lands occupied, used, or under the jurisdiction of his agency.

No penalty shall be provided or enforced against the state, and the interest upon such assessments shall be computed and paid at the rate paid by other property situated in the same improvement district

Sec 179 Section 1, chapter 205, Laws of 1947 as last amended by section 2, chapter 116, Laws of 1971 ex. sess. and RCW 79.44 060 are each amended to read as follows:

When the chief administrative officer of an agency of state government is satisfied that an assessing district has complied with all the conditions precedent to the levy of assessments for district purposes, pursuant to this chapter against state lands occupied, used, or under the jurisdiction of his agency, he shall pay them, together with any interest thereon from any funds specifically appropriated to his agency therefor or from any funds of his agency which under existing law have been or are required to be expended to pay assessments on a current basis. In all other cases, the chief administrative officer shall certify to the ((~~budget~~)) director of financial management that the assessment is one properly chargeable to the state. The ((~~budget~~)) director of financial management shall pay such assessments from funds available or appropriated to him for this purpose

Except as provided in RCW 79 44 190 no lands of the state shall be subject to a lien for unpaid assessments, nor shall the interest of the state in any land be sold for unpaid assessments where assessment liens attached to the lands prior to state ownership

Sec. 180. Section 6, chapter 164, Laws of 1919 as amended by section 7, chapter 20, Laws of 1963 and RCW 79.44 070 are each amended to read as follows:

When any assessing district has made or caused to be made an assessment against such leasehold, contractual or possessory interest for any such local improvement, the treasurer of said assessing district shall immediately give notice to the ((~~budget~~)) director of financial management and to the chief administrative officer of the agency having jurisdiction over the lands Said assessment shall become a lien against the leasehold, contractual or possessory interest in the same manner as the assessments on other property, and its collection may be enforced against such interests as provided by law for the enforcement of other local improvement assessments: PROVIDED, That said assessment shall not be made payable in installments unless the owner of such leasehold, contractual or possessory interest shall first file with such treasurer a satisfactory bond guaranteeing the payment of such installments as they become due.

Sec. 181. Section 7, chapter 164, Laws of 1919 as amended by section 8, chapter 20, Laws of 1963 and RCW 79.44.080 are each amended to read as follows.

Whenever any assessing district shall have foreclosed the lien of any such delinquent assessments, as provided by law, and shall have obtained title to such leasehold, contractual or possessory interest, the ((~~budget~~)) director of financial management and the chief administrative officer of the agency having jurisdiction over the lands shall be notified by registered or certified mail of such action and furnished a statement of all assessments against such leasehold, contractual or possessory interest, and the chief administrative officer or ((~~budget~~)) director of financial management shall cause the amount of such assessments to be paid as provided in RCW 79-.44 060, and upon the receipt of an assignment from such assessing district, the chief administrative officer shall cancel such lease or contract. PROVIDED, HOWEVER, That unless the assessing district making said local improvement and levying said special assessment shall have used due diligence in the foreclosure thereof, the chief administrative officer and the ((~~budget~~)) director of financial management shall not be required to pay any sum in excess of what they deem to be the special benefits accruing to the state's reversionary interest in said property· AND PROVIDED FURTHER, That if such delinquent assessment or installment shall be against a leasehold interest in fresh water harbor areas within a port district, the chief administrative officer shall notify the commissioners of said port district of the receipt of such assignment, and said commissioners shall forthwith cancel such lease.

Sec. 182 Section 12, chapter 164, Laws of 1919 as amended by section 12, chapter 20, Laws of 1963 and RCW 79.44.140 are each amended to read as follows.

The provisions of this chapter shall apply to all local improvements initiated after June 11, 1919, including assessments to pay the cost and expense of taking and damaging property by the power of eminent domain, as provided by law: PROVIDED, That in case of eminent domain assessments, it shall not be necessary to forward notice of the intention to make such improvement, but the eminent domain commissioners, authorized to make such assessment, shall, at the time of filing the assessment roll with the court in the manner provided by law, forward by registered or certified mail to the ((~~budget~~)) director of financial management and to the chief administrative officer of the agency using, occupying or having jurisdiction over the lands a notice of such assessment, and of the day fixed by the court for the hearing thereof: PROVIDED, That no assessment against the state's interest in tidelands or harbor areas shall be binding against the state if the commissioner of public lands shall file a disapproval of the same in court before judgment confirming the roll.

Sec. 183. Section 14, chapter 20, Laws of 1963 and RCW 79.44 180 are each amended to read as follows:

The ((~~budget~~)) director of financial management shall adopt rules and regulations:

(1) Governing the preparation, certification, and submission of all notices and statements required by chapter 79 44 RCW as now or hereafter amended;

(2) Authorizing and prescribing additional reports, records, and information necessary to achieve budgetary objectives in accordance with chapter 43 88 RCW and any appropriation hereafter made;

(3) Assuring the payment of all assessments properly chargeable to the state; and

(4) Protecting the state against illegal or inequitable assessments.

Sec. 184. Section 82.32 340, chapter 15, Laws of 1961 as last amended by section 4, chapter 89, Laws of 1967 ex. sess. and RCW 82 32.340 are each amended to read as follows

Any tax or penalty which the department of revenue deems to be uncollectible, may be transferred from accounts receivable, subject to approval by the director of ((~~budget~~)) financial management, to a suspense account and cease to be accounted an asset: PROVIDED, That any item transferred shall continue to be a debt due the state from the taxpayer and may at any time within twelve years from the filing of a warrant covering such amount with the clerk of the superior court be transferred back to accounts receivable for the purpose of collection: PROVIDED FURTHER, The department of revenue may charge off as finally uncollectible any tax or penalty which it deems uncollectible at any time after twelve years from the date of the filing of a warrant covering such tax and penalty with the clerk of the superior court after the department of revenue and the attorney general are satisfied that there are no available and lawful means by which such tax or penalty may thereafter be collected.

After any tax or penalty has been charged off as finally uncollectible under the provisions of this section, the department of revenue may destroy any or all files and records pertaining to the liability of any taxpayer for such tax or penalty.

The department of revenue, subject to the approval of the state records committee, may at the expiration of five years after the close of any taxable year, destroy any or all files and records pertaining to the tax liability of any taxpayer for such taxable year, who has fully paid all taxes, penalties and interest for such taxable year, or any preceding taxable year for which such taxes, penalties and interest have been fully paid. In the event that such files and records are reproduced on film pursuant to RCW 40.20.020 for use in accordance with RCW 40.20.030, the original files and records may be destroyed immediately after reproduction and such reproductions

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may be destroyed at the expiration of the above five year period, subject to the approval of the state records committee.

Sec 185 Section 84 48.110, chapter 15, Laws of 1961 as amended by section 11, chapter 95, Laws 1973 and RCW 84 48.110 are each amended to read as follows:

Within three days after the receipt of the record of the proceedings of the state board of equalization, the office of ((~~program planning and fiscal~~)) financial management shall transmit to each county assessor a transcript of the proceedings of the board, specifying the amount to be levied and collected on said assessment books for state purposes for such year, and in addition thereto it shall certify to each county assessor the amount due to each state fund and unpaid from such county for the seventh preceding year, and such delinquent state taxes shall be added to the amount levied for the current year. The office of ((~~program planning and fiscal~~)) financial management shall close the account of each county for the seventh preceding year and charge the amount of such delinquency to the tax levy of the current year. All taxes collected on and after the first day of July last preceding such certificate, on account of delinquent state taxes for the seventh preceding year shall belong to the county and by the county treasurer be credited to the current expense fund of the county in which collected.

NEW SECTION. Sec 186. RCW 43.101.910 is hereby decodified.

NEW SECTION Sec. 187. Section 12, chapter 144, Laws of 1977 ex. sess. and RCW 43.41.108 are each hereby repealed.

NEW SECTION Sec. 188. This act is necessary for the immediate preservation of the public peace, health, and safety, the support of the state government and its existing public institutions, and shall take effect immediately.

Passed the House February 21, 1979.
Passed the Senate March 8, 1979.
Approved by the Governor March 29, 1979, with the exception of Section 118, which is vetoed.
Filed in Office of Secretary of State March 29, 1979.

Note. Governor's explanation of partial veto is as follows:

"I am returning herewith without my approval as to one section House Bill No. 848 entitled.

"AN ACT Relating to state government;"

Section 118 of the bill amends RCW 43 41.130 to change reference to "The director of the office of program planning and fiscal management" to "The director of financial management." Because section 12 of Substitute House Bill No 96, chapter 111, Laws of 1979, approved by me on March 26, 1979, made that same change in reference and made other substantive changes in RCW 43.41.130, section 118 of House Bill No. 848 is therefore unnecessary.

With the exception of section 118 which I have vetoed, the remainder of House Bill No. 848 is approved."

the rate of ((six)) eight percent on the unpaid balance of such compensation commencing with the second monthly payment: PROVIDED, That upon application of the injured worker or survivor the monthly payment may be converted, in whole or in part, into a lump sum payment, in which event the monthly payment shall cease in whole or in part. Such conversion may be made only upon written application of the injured worker or survivor to the department and shall rest in the discretion of the department depending upon the merits of each individual application: PROVIDED FURTHER, That upon death of a worker all unpaid installments accrued((, less interest,)) shall be paid ((in a lump sum amount)) according to the payment schedule established prior to the death of the worker to the widow or widower, or if there is no widow or widower surviving, to the dependent children of such claimant, and if there are no such dependent children, then to such other dependents as defined by this title.

Sec. 3. Section 47, chapter 289, Laws of 1971 ex. sess. as last amended by section 54, chapter 350, Laws of 1977 ex sess. and RCW 51.32.190 are each amended to read as follows:

(1) If the self-insurer denies a claim for compensation, written notice of such denial, clearly informing the claimant of the reasons therefor and that the director will rule on the matter shall be mailed or given to the claimant and the director within ((seven)) thirty days after the self-insurer has notice of the claim.

(2) Until such time as the department has entered an order in a disputed case acceptance of compensation by the claimant shall not be considered a binding determination of his or her rights under this title. Likewise the payment of compensation shall not be considered a binding determination of the obligations of the self-insurer as to future compensation payments.

(3) Upon making the first payment of income benefits, and upon stopping or changing of such benefits except where a determination of the permanent disability has been made as elsewhere provided in this title, the self-insurer shall immediately notify the director in accordance with a form to be prescribed by the director that the payment of income benefits has begun or has been stopped or changed. Where temporary disability compensation is payable, the first payment thereof shall be made within fourteen days after notice of claim and shall continue at regular semimonthly or biweekly intervals.

(4) If, after the payment of compensation without an award, the self-insurer elects to controvert the right to compensation, the payment of compensation shall not be considered a binding determination of the obligations of the self-insurer as to future compensation payments. The acceptance of compensation by the worker or his or her beneficiaries shall not be considered a binding determination of their rights under this title.

(5) The director (a) may, upon his or her own initiative at any time in a case in which payments are being made without an award, and (b) shall upon receipt of information from any person claiming to be entitled to compensation, from the self-insurer, or otherwise that the right to compensation is controverted, or that payment of compensation has been opposed, stopped or changed, whether or not claim has been filed, promptly make such inquiry as circumstances require, cause such medical examinations to be made, hold such hearings, require the submission of further information, make such orders, decisions or awards, and take such further action as he or she considers will properly determine the matter and protect the rights of all parties.

(6) The director, upon his or her own initiative, may make such inquiry as circumstances require or is necessary to protect the rights of all the parties and he or she may enact rules and regulations providing for procedures to ensure fair and prompt handling by self-insurers of the claims of workers and beneficiaries.

NEW SECTION. Sec. 4. This act is necessary for the immediate preservation of the public peace, health, and safety, the support of the state government and its existing public institutions, and shall take effect July 1, 1982.

Passed the Senate March 26, 1982.
Passed the House March 25, 1982.
Approved by the Governor April 3, 1982.
Filed in Office of Secretary of State April 3, 1982.

CHAPTER 21

[Engrossed Substitute Senate Bill No. 4824]

AQUATIC LANDS

AN ACT Relating to aquatic lands; amending section 9, chapter 255, Laws of 1927 as amended by section 1, chapter 109, Laws of 1979 ex. sess and RCW 79.01 036; amending section 1, chapter 257, Laws of 1959 and RCW 79.01.038; amending section 13, chapter 255, Laws of 1927 and RCW 79.01 052; amending section 21, chapter 255, Laws of 1927 as amended by section 2, chapter 257, Laws of 1959 and RCW 79.01.084; amending section 22, chapter 255, Laws of 1927 as last amended by section 2, chapter 109, Laws of 1979 ex. sess. and RCW 79.01.088; amending section 1, chapter 55, Laws of 1935 as amended by section 10, chapter 257, Laws of 1959 and RCW 79 01.116; amending section 30, chapter 255, Laws of 1927 as amended by section 11, chapter 257, Laws of 1959 and RCW 79 01.120; amending section 31, chapter 255, Laws of 1927 as last amended by section 12, chapter 257, Laws of 1959 and RCW 79 01 124; amending section 44, chapter 255, Laws of 1927 and RCW 79 01.176; amending section 46, chapter 255, Laws of 1927 as last amended by section 2, chapter 123, Laws of 1971 ex. sess and RCW 79.01.184; amending section 47, chapter 255, Laws of 1927 as amended by section 19, chapter 257, Laws of 1959 and RCW 79 01.188; amending section 53, chapter 255, Laws of 1927 as amended by section 23, chapter 257, Laws of 1959 and RCW 79.01.212; amending section 54, chapter 255, Laws of 1927 as last amended by section 1, chapter 267, Laws of 1969 ex. sess. and RCW 79.01.216; amending section 55, chapter 255, Laws of 1927 as amended by section 25, chapter 257, Laws of 1959 and RCW 79.01.220; amending section 56, chapter 255, Laws of 1927 and RCW 79.01.224; amending section 57, chapter 255, Laws of 1927 as amended by section 26, chapter 257, Laws of 1959 and RCW 79-.01.228; amending section 59, chapter 255, Laws of 1927 as last amended by section 8, chapter 109, Laws of 1979 ex. sess. and RCW 79.01.236; amending section 60, chapter

255, Laws of 1927 as amended by section 28, chapter 257, Laws of 1959 and RCW 79.01 240, amending section 73, chapter 255, Laws of 1927 and RCW 79 01 292, amending section 76, chapter 255, Laws of 1927 and RCW 79 01.304, amending section 78, chapter 255, Laws of 1927 and RCW 79 01 312, amending section 79, chapter 255, Laws of 1927 and RCW 79 01 316; amending section 80, chapter 255, Laws of 1927 and RCW 79 01.320, amending section 82, chapter 255, Laws of 1927 and RCW 79 01 328, amending section 85, chapter 255, Laws of 1927 as last amended by section 5, chapter 73, Laws of 1961 and RCW 79 01 340, amending section 96, chapter 255, Laws of 1927 as last amended by section 6, chapter 73, Laws of 1961 and RCW 79 01 384, amending section 99, chapter 255, Laws of 1927 as amended by section 4, chapter 147, Laws of 1945 and RCW 79 01 396, amending section 102, chapter 255, Laws of 1927 and RCW 79.01 408, amending section 12, chapter 73, Laws of 1961 and RCW 79 01 414, amending section 2, chapter 97, Laws of 1979 and RCW 79 01.525; amending section 195, chapter 255, Laws of 1927 and RCW 79 01.740, amending section 1, chapter 164, Laws of 1919 as amended by section 2, chapter 20, Laws of 1963 and RCW 79.44 010, decodifying RCW 79 01 521; creating new sections, adding new chapters to Title 79 RCW; repealing section 2, chapter 255, Laws of 1927 and RCW 79 01 008, repealing section 3, chapter 255, Laws of 1927 and RCW 79 01 012; repealing section 4, chapter 255, Laws of 1927 and RCW 79 01.016; repealing section 5, chapter 255, Laws of 1927 and RCW 79 01.020, repealing section 6, chapter 255, Laws of 1927 and RCW 79 01.024; repealing section 7, chapter 255, Laws of 1927 and RCW 79.01 028, repealing section 8, chapter 255, Laws of 1927 and RCW 79 01 032, repealing section 11, chapter 255, Laws of 1927 and RCW 79 01 044, repealing section 1, chapter 47, Laws of 1965, section 1, chapter 54, Laws of 1970 ex. sess , section 1, chapter 87, Laws of 1977 ex. sess and RCW 79 01 178, repealing section 92, chapter 255, Laws of 1927 and RCW 79 01.368; repealing section 93, chapter 255, Laws of 1927 and RCW 79 01 372; repealing section 94, chapter 255, Laws of 1927 and RCW 79 01.376, repealing section 95, chapter 255, Laws of 1927 and RCW 79 01 380, repealing section 105, chapter 255, Laws of 1927 and RCW 79 01 420, repealing section 106, chapter 255, Laws of 1927 and RCW 79 01.424; repealing section 107, chapter 255, Laws of 1927 and RCW 79.01 428; repealing section 108, chapter 255, Laws of 1927 and RCW 79 01 432, repealing section 109, chapter 255, Laws of 1927 and RCW 79 01.436; repealing section 110, chapter 255, Laws of 1927 and RCW 79 01 440, repealing section 111, chapter 255, Laws of 1927 and RCW 79 01 444; repealing section 112, chapter 255, Laws of 1927, section 1, chapter 217, Laws of 1971 ex sess and RCW 79 01 448; repealing section 113, chapter 255, Laws of 1927, section 37, chapter 257, Laws of 1959 and RCW 79 01 452; repealing section 114, chapter 255, Laws of 1927 and RCW 79 01.456; repealing section 115, chapter 255, Laws of 1927 and RCW 79.01 460; repealing section 116, chapter 255, Laws of 1927 and RCW 79 01 464; repealing section 117, chapter 255, Laws of 1927 and RCW 79 01.468; repealing section 2, chapter 217, Laws of 1971 ex. sess , section 1, chapter 186, Laws of 1974 ex. sess and RCW 79 01 470, repealing section 3, chapter 186, Laws of 1974 ex. sess. and RCW 79 01.471; repealing section 118, chapter 255, Laws of 1927, section 1, chapter 105, Laws of 1967 ex. sess. and RCW 79.01.472, repealing section 1, chapter 150, Laws of 1979 and RCW 79 01.474, repealing section 119, chapter 255, Laws of 1927 and RCW 79 01.476; repealing section 120, chapter 255, Laws of 1927 and RCW 79.01.480, repealing section 121, chapter 255, Laws of 1927, section 1, chapter 54, Laws of 1969 ex. sess and RCW 79 01.484, repealing section 122, chapter 255, Laws of 1927 and RCW 79 01.488; repealing section 123, chapter 255, Laws of 1927 and RCW 79 01.492; repealing section 124, chapter 255, Laws of 1927 and RCW 79 01 496; repealing section 126, chapter 255, Laws of 1927 and RCW 79.01 504; repealing section 127, chapter 255, Laws of 1927 and RCW 79.01 508; repealing section 128, chapter 255, Laws of 1927, section 1, chapter 97, Laws of 1969 ex. sess and RCW 79 01.512; repealing section 129, chapter 255, Laws of 1927, section 2, chapter 97, Laws of 1969 ex sess. and RCW 79 01.516; repealing section 130, chapter 255, Laws of 1927, section 3, chapter 97, Laws of 1969 ex sess., section 1, chapter 97, Laws of 1979 ex. sess. and RCW 79.01.520; repealing section 131, chapter 255, Laws of 1927 and RCW 79 01.524; repealing section 132, chapter 255, Laws of 1927 and RCW 79 01.528; repealing section 133, chapter 255, Laws of 1927 and RCW 79 01.532, repealing section 134, chapter 255, Laws of 1927 and RCW 79.01.536; repealing section 135, chapter 255, Laws of 1927 and RCW 79.01.540, repealing section 136, chapter 255, Laws of 1927 and RCW 79.01.544; repealing section 137, chapter 255, Laws of 1927 and RCW 79.01.548; repealing section 138, chapter 255, Laws of 1927 and RCW 79 01.552, repealing section 139,

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chapter 255, Laws of 1927 and RCW 79 01 556, repealing section 140, chapter 255, Laws of 1927 and RCW 79 01 560, repealing section 141, chapter 255, Laws of 1927 and RCW 79 01.564, repealing section 142, chapter 255, Laws of 1927, section 39, chapter 271, Laws of 1951, section 9, chapter 73, Laws of 1961, section 1, chapter 79, Laws of 1963, section 1, chapter 228, Laws of 1967, section 1, chapter 123, Laws of 1979 ex sess. and RCW 79 01 568, repealing section 8, chapter 141, Laws of 1979 ex sess. and RCW 79-01 570, repealing section 143, chapter 255, Laws of 1927, section 5, chapter 163, Laws of 1967 and RCW 79 01 572; repealing section 144, chapter 255, Laws of 1927, section 40, chapter 271, Laws of 1951, section 3, chapter 228, Laws of 1967 and RCW 79 01.576, repealing section 41, chapter 271, Laws of 1951 and RCW 79 01.580, repealing section 146, chapter 255, Laws of 1927, section 4, chapter 228, Laws of 1967 and RCW 79 01-.584, repealing section 148, chapter 255, Laws of 1927, section 5, chapter 228, Laws of 1967 and RCW 79 01 588, repealing section 149, chapter 255, Laws of 1927, section 6, chapter 228, Laws of 1967 and RCW 79 01.592, repealing section 150, chapter 255, Laws of 1927 and RCW 79 01 596; repealing section 151, chapter 255, Laws of 1927 and RCW 79.01 600; repealing section 152, chapter 255, Laws of 1927 and RCW 79 01 604; repealing section 153, chapter 255, Laws of 1927 and RCW 79.01 608; repealing section 189, chapter 255, Laws of 1927 and RCW 79 01.716, repealing section 1, chapter 275, Laws of 1981 and RCW 79 01.786, repealing section 2, chapter 275, Laws of 1981 and RCW 79-01.788, repealing section 1, chapter 54, Laws of 1935 and RCW 79 16.130, repealing section 2, chapter 54, Laws of 1935, section 1, chapter 168, Laws of 1959 and RCW 79-.16 140, repealing section 3, chapter 54, Laws of 1935, section 2, chapter 168, Laws of 1959 and RCW 79 16 150, repealing section 1, chapter 105, Laws of 1901 and RCW 79-16 160, repealing section 2, chapter 105, Laws of 1901 and RCW 79.16 161, repealing section 1, chapter 110, Laws of 1901 and RCW 79 16.170, repealing section 2, chapter 110, Laws of 1901 and RCW 79 16.171, repealing section 1, chapter 212, Laws of 1963 and RCW 79.16.172, repealing section 2, chapter 212, Laws of 1963 and RCW 79.16-173; repealing section 1, chapter 387, Laws of 1955 and RCW 79.16.175, repealing section 2, chapter 387, Laws of 1955 and RCW 79 16 176; repealing section 1, chapter 170, Laws of 1913, section 1, chapter 115, Laws of 1937, section 2, chapter 105, Laws of 1967 ex. sess and RCW 79.16 180; repealing section 1, chapter 168, Laws of 1913 and RCW 79.16 190, repealing section 1, chapter 199, Laws of 1955 and RCW 79.16 325, repealing section 2, chapter 199, Laws of 1955 and RCW 79.16 326; repealing section 1, chapter 186, Laws of 1957 and RCW 79.16 375; repealing section 2, chapter 186, Laws of 1957 and RCW 79.16 376; repealing section 1, chapter 183, Laws of 1913 and RCW 79.16-380; repealing section 2, chapter 183, Laws of 1913, section 17, chapter 30, Laws of 1979 ex sess and RCW 79 16 400, repealing section 1, chapter 150, Laws of 1917 and RCW 79 16 405, repealing section 2, chapter 150, Laws of 1917 and RCW 79.16.406, repealing section 1, chapter 70, Laws of 1931 and RCW 79 16 410; repealing section 1, chapter 99, Laws of 1893 and RCW 79 16.430; repealing section 2, chapter 99, Laws of 1893 and RCW 79.16 440; repealing section 3, chapter 99, Laws of 1893 and RCW 79 16 450, repealing section 4, chapter 99, Laws of 1893 and RCW 79.16 460; repealing section 5, chapter 99, Laws of 1893 and RCW 79.16.470, repealing section 6, chapter 99, Laws of 1893 and RCW 79.16.480, repealing section 7, chapter 99, Laws of 1893 and RCW 79-.16 490, repealing section 8, chapter 99, Laws of 1893 and RCW 79 16 500; repealing section 9, chapter 99, Laws of 1893 and RCW 79.16.510, repealing section 10, chapter 99, Laws of 1893 and RCW 79.16.520, repealing section 1, chapter 164, Laws of 1953 and RCW 79.16.530, repealing section 2, chapter 164, Laws of 1953 and RCW 79 16-540, repealing section 3, chapter 164, Laws of 1953 and RCW 79.16.550, repealing section 4, chapter 164, Laws of 1953 and RCW 79.16.560, repealing section 1, chapter 386, Laws of 1955 and RCW 79.16.570; repealing section 2, chapter 386, Laws of 1955 and RCW 79.16.580, repealing section 3, chapter 386, Laws of 1955 and RCW 79.16 590; repealing section 1, chapter 224, Laws of 1929 and RCW 79.20 090, repealing section 2, chapter 224, Laws of 1929 and RCW 79 20.100; repealing section 3, chapter 224, Laws of 1929, section 1, chapter 76, Laws of 1933 and RCW 79 20.110; repealing section 1, chapter 208, Laws of 1907 and RCW 79.20.150; repealing section 2, chapter 208, Laws of 1907 and RCW 79.20.160; repealing section 3, chapter 208, Laws of 1907 and RCW 79-.20.170; repealing section 4, chapter 208, Laws of 1907 and RCW 79.20.180; declaring an emergency; and providing an effective date.

Be it enacted by the Legislature of the State of Washington:

such lands and inundate the same, whenever the commissioner shall deem it necessary for the purpose of erecting, constructing, maintaining, or operating any water power plant, reservoir, or works for impounding water for power purposes, irrigation, mining, or other public use, but no such rights shall be granted until the value of the lands to be overflowed and any damages to adjoining lands of the state, appraised as in the case of an application to purchase such lands, shall have been paid by the person or corporation seeking the grant, and if the construction or erection of any such water power plant, reservoir, or works for impounding water for the purposes heretofore specified, shall not be commenced and diligently prosecuted and completed within such time as the commissioner of public lands may prescribe at the time of the grant, the same may be forfeited by the commissioner of public lands by serving written notice of such forfeiture upon the person or corporation to whom the grant was made, but the commissioner, for good cause shown to his satisfaction, may extend the time within which such work shall be completed.

Sec. 175. Section 12, chapter 73, Laws of 1961 and RCW 79.01.414 are each amended to read as follows:

The department of natural resources may grant to any person such easements and rights in state lands((, tidelands, shorelands, oyster reserves,)) or state forest lands as the applicant applying therefor may acquire in privately owned lands through proceedings in eminent domain. No grant shall be made under this section until such time as the full market value of the estate or interest granted together with damages to all remaining property of the state of Washington has been ascertained and safely secured to the state.

Sec. 176. Section 2, chapter 97, Laws of 1979 ex. sess. and RCW 79.01.525 are each amended to read as follows:

((During the term of an existing lease and in issuing or renewing leases or re-leasing harbor areas pursuant to RCW 79.01.520, the annual rental fee for a harbor area lease shall not increase at a rate of more than six per cent per year, regardless of the reappraised value of the harbor area unless the reappraisal is conducted by an independent fee appraiser who is a member of the Appraisal Institute and designated M.A.I. or a member of the Society of Real Estate Appraisers who is designated S.R.P.A. or S.R.E.A. and who uses local comparable land values.)) From the effective date of this 1982 amendatory act, until July 1, 1983, the annual rental fee for an existing lease, and renewal lease or re-lease of tidelands, shorelands, beds of navigable waters, waterways and harbor areas shall not increase at a rate of more than six percent per year beyond the rental fee in effect on January 1, 1981, for such existing lease, renewed lease or re-lease. Any new lease issued after the effective date of this 1982 amendatory act shall be at a rental rate of not more than six percent per year above the rental rates in effect on January 1, 1981, for

for similar purposes. This rate shall be in effect from the effective date of the lease until July 1, 1983. This section does not apply to geoduck harvesting leases, clam harvesting leases or oyster bed leases which are established by a competitive bid process. When state aquatic lands and harbor areas are used or leased for a dock and are used only for personal recreational use by the upland owner, no rent or fee shall be charged in addition to any rent or fee now being paid by an upland owner. This section shall expire and have no further legal effect after July 1, ((~~1982~~)) 1983.

Sec. 177. Section 195, chapter 255, Laws of 1927 and RCW 79.01.740 are each amended to read as follows:

The ((~~board of state land commissioners, or the commissioner of public lands,~~)) department of natural resources may review and reconsider any of its((~~, or his,~~)) official acts relating to ((~~the public lands of the~~)) state lands until such time as a lease, contract, or deed shall have been made, executed, and finally issued, and the ((~~commissioner of public lands~~)) department may recall any lease, contract, or deed issued for the purpose of correcting mistakes or errors, or supplying omissions.

Sec. 178. Section 1, chapter 164, Laws of 1919 as amended by section 2, chapter 20, Laws of 1963 and RCW 79.44.010 are each amended to read as follows:

All lands, including school lands, granted lands, escheated lands, ((~~tidelands, shorelands,~~)) or other lands, (((~~including harbor areas lying between tide or shore lands and outer harbor line~~))) held or owned by the state of Washington in fee simple (in trust or otherwise), situated within the limits of any assessing district in this state, may be assessed and charged for the cost of local or other improvements specially benefiting such lands which may be ordered by the proper authorities of any such assessing district and may be assessed by any irrigation district to the same extent as private lands within the district are assessed: PROVIDED, That the leasehold, contractual, or possessory interest of any person, firm, association, or private or municipal corporation in any such lands shall be charged and assessed in the proportional amount such leasehold, contractual, or possessory interest is benefited: PROVIDED, FURTHER, That no lands of the state shall be included within an irrigation district except as provided in RCW 87.03.025 and 89.12.090.

NEW SECTION. Sec. 179. A joint legislative committee on aquatic lands shall be convened to study the laws governing the management of state-owned marine lands, shorelands, and harbor areas and the manner in which the department of natural resources has interpreted and administered these laws in fulfillment of management responsibilities. The purpose of the study is to propose legislation which will (1) clearly define aquatic lands;

CHAPTER 242

[Substitute House Bill No 1115]

LEGEND DRUGS—PURCHASE BY HUMANE SOCIETIES AND ANIMAL CONTROL AGENCIES

AN ACT Relating to legend drugs, and adding a new section to chapter 69 41 RCW

Be it enacted by the Legislature of the State of Washington:

NEW SECTION. Sec. 1. A new section is added to chapter 69.41 RCW to read as follows:

Humane societies and animal control agencies registered with the state board of pharmacy under chapter 69.50 RCW and authorized to euthanize animals may purchase, possess, and administer approved legend drugs for the sole purpose of sedating animals prior to euthanasia, when necessary, and for use in chemical capture programs. For the purposes of this section, "approved legend drugs" means those legend drugs designated by the board by rule as being approved for use by such societies and agencies for animal sedating or capture and does not include any substance regulated under chapter 69.50 RCW. Any society or agency so registered shall not permit persons to administer any legend drugs unless such person has demonstrated to the satisfaction of the board adequate knowledge of the potential hazards involved in and the proper techniques to be used in administering the drugs

The board shall promulgate rules to regulate the purchase, possession, and administration of legend drugs by such societies and agencies and to insure strict compliance with the provisions of this section. Such rules shall require that the storage, inventory control, administration, and recordkeeping for approved legend drugs conform to the standards adopted by the board under chapter 69.50 RCW to regulate the use of controlled substances by such societies and agencies. The board may suspend or revoke a registration under chapter 69.50 RCW upon a determination by the board that the person administering legend drugs has not demonstrated adequate knowledge as herein provided This authority is granted in addition to any other power to suspend or revoke a registration as provided by law.

Passed the House April 17, 1989.
Passed the Senate April 10, 1989.
Approved by the Governor May 5, 1989.
Filed in Office of Secretary of State May 5, 1989.

CHAPTER 243

[Substitute Senate Bill No. 5128]

LOCAL IMPROVEMENT DISTRICTS—ASSESSMENTS—NOTICE OF POSSIBLE RATE VARIATIONS

AN ACT Relating to local improvements; amending RCW 35 43 120, 35 43.140, 35 43-.150, 79 44 003, 79 44 040, and 79 44 050, adding a new section to chapter 36 69 RCW; adding a new section to chapter 36 88 RCW; adding a new section to chapter 36 94 RCW; adding a new section to chapter 52 20 RCW; adding a new section to chapter 53 08 RCW; adding a new section to chapter 54.16 RCW; adding a new section to chapter 56 20 RCW; adding a new section to chapter 57.16 RCW; adding a new section to chapter 79 44 RCW; and adding a new section to chapter 87 03 RCW.

Be it enacted by the Legislature of the State of Washington:

Sec. 1. Section 35 43.120, chapter 7, Laws of 1965 as last amended by section 1, chapter 323, Laws of 1981 and RCW 35.43.120 are each amended to read as follows:

Any local improvement may be initiated upon a petition signed by the owners of property aggregating a majority of the area within the proposed district. The petition must briefly describe. (1) The nature of the proposed improvement, (2) the territorial extent of the proposed improvement, ((and)) (3) what proportion of the area within the proposed district is owned by the petitioners as shown by the records in the office of the county auditor, and (4) the fact that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement, or street lighting, adds to the property.

If any of the property within the area of the proposed district stands in the name of a deceased person, or of any person for whom a guardian has been appointed and not discharged, the signature of the executor, administrator, or guardian, as the case may be, shall be equivalent to the signature of the owner of the property on the petition. The petition must be filed with the clerk or with such other officer as the city or town by charter or ordinance may require.

Sec. 2. Section 35.43.140, chapter 7, Laws of 1965 as last amended by section 29, chapter 469, Laws of 1985 and RCW 35.43.140 are each amended to read as follows:

Any local improvement to be paid for in whole or in part by the levy and collection of assessments upon the property within the proposed improvement district may be initiated by a resolution of the city or town council or other legislative authority of the city or town, declaring its intention to order the improvement, setting forth the nature and territorial extent of the improvement, containing a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement, or street lighting, adds

to the property, and notifying all persons who may desire to object thereto to appear and present their objections at a time to be fixed therein.

In the case of trunk sewers and trunk water mains the resolution must describe the routes along which the trunk sewer, subsewer and branches of trunk water main and laterals are to be constructed.

In case of dikes or other structures to protect the city or town or any part thereof from overflow or to open, deepen, straighten, or enlarge watercourses, waterways and other channels the resolution must set forth the place of commencement and ending thereof and the route to be used.

In the case of auxiliary water systems, or extensions thereof or additions thereto for protection of the city or town or any part thereof from fire, the resolution must set forth the routes along which the auxiliary water system or extensions thereof or additions thereto are to be constructed and specifications of the structures or works necessary thereto or forming a part thereof.

The resolution shall be published in at least two consecutive issues of the official newspaper of the city or town, the first publication to be at least fifteen days before the day fixed for the hearing.

The hearing herein required may be held before the city or town council, or other legislative authority, or before a committee thereof. The legislative authority of a city having a population of fifteen thousand or more may designate an officer to conduct the hearings. The committee or hearing officer shall report recommendations on the resolution to the legislative authority for final action.

Sec. 3. Section 35.43.150, chapter 7, Laws of 1965 as amended by section 2, chapter 303, Laws of 1983 and RCW 35.43.150 are each amended to read as follows:

Notice of the hearing upon a resolution declaring the intention of the legislative authority of a city or town to order an improvement shall be given by mail at least fifteen days before the day fixed for hearing to the owners or reputed owners of all lots, tracts, and parcels of land or other property to be specially benefited by the proposed improvement, as shown on the rolls of the county assessor, directed to the address thereon shown.

The notice shall set forth the nature of the proposed improvement, the estimated cost, a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement, or street lighting, adds to the property, and the estimated benefits of the particular lot, tract, or parcel.

NEW SECTION. Sec. 4. A new section is added to chapter 36.69 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 5. A new section is added to chapter 36.88 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a county road improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec 6. A new section is added to chapter 36.94 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district or utility local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 7. A new section is added to chapter 52.20 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 8. A new section is added to chapter 53 08 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 9. A new section is added to chapter 54.16 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local utility district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement, or street lighting, adds to the property.

NEW SECTION. Sec. 10. A new section is added to chapter 56.20 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a utility local improvement district shall contain a statement that actual assessments may vary from

assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 11. A new section is added to chapter 57.16 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district or utility local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

NEW SECTION. Sec. 12. A new section is added to chapter 87.03 RCW to read as follows:

Any notice given to the public or to the owners of specific lots, tracts, or parcels of land relating to the formation of a local improvement district shall contain a statement that actual assessments may vary from assessment estimates so long as they do not exceed a figure equal to the increased true and fair value the improvement adds to the property.

Sec. 13. Section 1, chapter 20, Laws of 1963 as amended by section 14, chapter 234, Laws of 1971 ex. sess. and RCW 79.44.003 are each amended to read as follows:

As used in this chapter "assessing district" means:

(1) Incorporated cities and towns;

(2) Diking districts;

(3) Drainage districts;

(4) Port districts;

(5) Irrigation districts;

(6) Water districts;

(7) Sewer districts;

(8) Counties; and

(9) Any municipal corporation or public agency having power to levy local improvement or other assessments, rates, or charges which by statute are expressly made applicable to lands of the state.

Sec. 14. Section 4, chapter 164, Laws of 1919 as last amended by section 177, chapter 151, Laws of 1979 and RCW 79.44.040 are each amended to read as follows:

Notice of the intention to make such improvement, or impose any assessment, together with the estimate of the amount to be charged to each lot, tract or parcel of land, or other property owned by the state to be assessed ((~~for said improvement~~)), shall be forwarded by registered or certified mail to the director of financial management and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over such lands at least thirty days prior to the date fixed for hearing on the resolution or petition initiating said ((~~improvement~~)) assessment. Such assessing district, shall not have jurisdiction to order such improvement as to the interest of the state in harbor areas and state tidelands until the written consent of the commissioner of public lands to the making of such improvement shall have been obtained, unless other means be provided for paying that portion of the cost which would otherwise be levied on the interest of the state of Washington in and to said tidelands, and nothing herein shall prevent the city from assessing the proportionate cost of said improvement against any leasehold, contractual or possessory interest in and to any tideland or harbor area owned by the state: PROVIDED, HOWEVER, That in the case of tidelands and harbor areas within the boundaries of any port district, notice of intention to make such improvement shall also be forwarded to the commissioners of said port district.

Sec. 15. Section 5, chapter 164, Laws of 1919 as last amended by section 178, chapter 151, Laws of 1979 and RCW 79.44.050 are each amended to read as follows:

Upon the approval and confirmation of the assessment roll ((~~for any local improvement~~)) ordered by the proper authorities of any assessing district, the treasurer of such assessing district shall certify and forward to the director of financial management and to the chief administrative officer of the agency of state government occupying, using, or having jurisdiction over the lands, in accordance with such rules and regulations as the director of financial management may provide, a statement of all the lots or parcels of land held or owned by the state and charged on such assessment roll ((~~for the cost of such improvement~~)), separately describing each such lot or parcel of the state's land, with the amount of the local assessment charged against it, or the proportionate amount assessed against the fee simple interest of the state, in case said land has been leased. The chief administrative officer upon receipt of such statement shall cause a proper record to be made in his office of the cost of such ((~~improvement~~)) assessment upon the lands occupied, used, or under the jurisdiction of his agency.

No penalty shall be provided or enforced against the state, and the interest upon such assessments shall be computed and paid at the rate paid by other property situated in the same ((~~improvement~~)) assessing district.

NEW SECTION. Sec. 16. A new section is added to chapter 79.44 RCW to read as follows:

As used in this chapter, "assessment" shall mean any assessment, rate or charge levied, assessed, imposed, or charged by any assessing district as

defined in RCW 79 44.003, and which assessments, rates or charges by statute are expressly made applicable to lands of the state.

Passed the Senate April 18, 1989.
Passed the House April 13, 1989.
Approved by the Governor May 5, 1989.
Filed in Office of Secretary of State May 5, 1989.

CHAPTER 244

[Substitute House Bill No 1386]
COUNTIES—SMALL WORKS ROSTER

AN ACT Relating to the creation of small works rosters by counties, reenacting and amending RCW 36 32 250, and adding new sections to chapter 36 32 RCW

Be it enacted by the Legislature of the State of Washington

NEW SECTION. Sec. 1. A county may use a small works roster and award contracts under sections 2 through 4 of this act for any project for which the estimated cost is one hundred thousand dollars or less

NEW SECTION. Sec 2. Each county may maintain a small works roster which shall be comprised of all contractors requesting to be on the roster and who are, where required by law, properly licensed or registered to perform work in the state of Washington Whenever possible, the county shall actively solicit participation by women and minority contractors.

NEW SECTION. Sec. 3 Whenever construction is done by contract for which the estimated cost is one hundred thousand dollars or less and the county uses a small works roster, the county shall invite proposals from appropriate contractors on the small works roster. Such invitation shall include an estimate of the scope and nature of the work to be performed as well as materials and equipment to be furnished. Whenever possible, not less than five separate appropriate contractors shall be requested to submit proposals on any individual contract.

Once a contractor on the small works roster has been offered an opportunity to submit a proposal, that contractor shall not be offered another opportunity on any contract until all other appropriate contractors, including minority and women contractors, have been afforded an opportunity to submit a proposal on a contract.

NEW SECTION. Sec. 4. When awarding such a contract for work, the estimated cost of which is one hundred thousand dollars or less, the county shall award the contract to the contractor submitting the lowest responsible proposal.

NEW SECTION. Sec. 5. Sections 1 through 4 of this act are each added to chapter 36.32 RCW.

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Sec. 6 Section 36.32 250, chapter 4, Laws of 1963 as last amended by section 9, chapter 169, Laws of 1985 and by section 1, chapter 369, Laws of 1985 and RCW 36.32.250 are each reenacted and amended to read as follows:

No contract, lease, or purchase may be entered into by the county legislative authority or by any elected or appointed officer of such county until after bids have been submitted to the county upon specifications therefor. Such specifications shall be in writing and shall be filed with the clerk of the county legislative authority for public inspection, and an advertisement thereof stating the time and place where bids will be opened, the time after which bids will not be received, the character of the work to be done, or material, equipment, or service to be purchased, and that specifications therefor may be seen at the office of the clerk of the county legislative authority, shall be published in the county official newspaper: PROVIDED, That advertisements for public works contracts for construction, alteration, repair, or improvement of public facilities shall be additionally published in a legal newspaper of general circulation in or as near as possible to that part of the county in which such work is to be done: AND PROVIDED FURTHER, That if the county official newspaper is a newspaper of general circulation covering at least forty percent of the residences in that part of the county in which such public works are to be done publication of an advertisement of the applicable specifications in the county official newspaper only shall be sufficient. Such advertisements shall be published at least once in each week for two consecutive weeks prior to the last date upon which bids will be received and as many additional publications as shall be determined by the county legislative authority. The bids shall be in writing, shall be filed with the clerk, shall be opened and read in public at the time and place named therefor in said advertisements, and after being opened, shall be filed for public inspection. No bid may be considered for public work unless it is accompanied by a bid deposit in the form of a surety bond, postal money order, cash, cashier's check, or certified check in an amount equal to five percent of the amount of the bid proposed The contract for the public work, lease, or purchase shall be awarded to the lowest responsible bidder, taking into consideration the quality of the articles or equipment to be purchased or leased. Any or all bids may be rejected for good cause. The county legislative authority shall require from the successful bidder for such public work a contractor's bond in the amount and with the conditions imposed by law. If the bidder to whom the contract is awarded fails to enter into the contract and furnish the contractor's bond as required within ten days after notice of the award, exclusive of the day of notice, the amount of the bid deposit shall be forfeited to the county and the contract awarded to the next lowest and best bidder. The bid deposit of all unsuccessful bidders shall be returned after the contract is awarded and the required contractor's bond given by the successful bidder is accepted by the county legislative

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON IN AND FOR THURSTON COUNTY

Court in Session 1:45

Court in Recess 3:30

Cause No: 90-2-327-9
Judge: Robert J. Doran
Court Reporter: Karen Ragsdale
Court Clerk: Judy Williams
Date: 9-10-90

State Department of Wildlife

-VS-

Thurston County Board of County Commissioners

Plaintiff/Petitioner Appeared

Colleen Warren AAG

Counsel Appearing
Catherine Galvin DPA

Counsel Appearing
Defendant/Respondent Appeared

THIS MATTER CAME ON BEFORE THE COURT FOR Review of Board of County Commissioner's Decision

The Court first posed questions to counsel: were the proceedings on the formulation of rates and charges recorded and transcript prepared; what record is before the Court; what consideration can be given to attachments not referred to or incorporated in the affidavits; what is legitimate legislative history.

Following question and answer session, counsel would stipulate that there is no finding before the Board of 'special benefit'. Limited issue is whether the Board acted unlawfully in imposing the charges on Summit Lake. No record will be needed for Court to make a determination.

Counsel to submit additional briefs re 36.61 & 79.44; sequence of the passage of Acts, legislative history with proper certification, with reference to Amendments of '87. Court will disregard affidavits in file.

Ms Warren's brief will be submitted by 9/28. Ms Galvin's by 10/11 and final reply by 10/22.

MICROFILMED

State v. Thurston County
Cause No. 90 2 00327 0

LEGISLATIVE HISTORY OF SHB 63

I. Public property, including state property, was subject to rates and charges as private property was. ~~HB~~ SHB 63, p. 9, lines 10-13. Attachment #1.

II. Amendments to HB 63 were proposed to the House Local Government Committee. Attachment #2.

(a) February 10, 1987 letter from Karen Fraser, Chairman of Board of Thurston County Commissioners. Attachment #3.

1. Proposed language change in Section 10 of HB 63 to clarify the fact that using a rates and charges approach does not include the "special benefit" analysis as required under a special assessment approach.

2. Proposed that "service to be provided" be included as an additional factor which may be considered in classifying the rates and charges.

(b) February 12, 1987 letter from Art Stearns, Supervisor, Department of Natural Resources. Attachment #4.

1. Proposed language to clarify procedures if state property is subject to rates and charges.

2. Proposed language was modified by staff counsel for House Local Government Committee (see attachment #2).

III. Minutes from February 12, 1987 House Local Government Committee hearing. Attachment #5.

(a) Randy Ellison, Department of Game, opposed HB 63 in that the Department was being assessed higher than others.

IV. Minutes from February 13, 1987 House Local Government Committee hearing and executive session. Attachment #6.

(a) Proposed amendments by the Department of Game were discussed. One of the Department of Game's proposed amendments dealt with public uses being exempt from the factors considered in classifying rates and charges. HB 63, p. 9, line 3 - see attachment #2.

V. Minutes from February 19, 1987 House Local Government Committee hearing and executive session. Attachment #7.

(a) The amendments set out in attachment #2 were adopted by the committee.

VI. House Bill Report as reported by Local Government committee on February 19, 1987. Attachment #8.

(a) This report on Substitute House Bill 63 includes an explanation of the rates and charges section:

1. Rates and charges could be imposed in a lake management district in addition to, or in lieu of, special assessments.

2. County legislative authority may reduce rates and charges for low income persons.

3. Revenue bonds may be issued payable from rates and charges.

4. Special procedures to notify the state are provided if state property would be subject to rates and charges.

VII. SHB 63 as passed by House March 2, 1987. Attachment #9.

VIII. Senate Bill Report on SHB 63 as reported by Parks & Ecology Committee, March 23, 1987, and incorporating proposed Senate amendments. Attachment #10.

(a) Language prohibiting consideration of the extent of public uses is deleted from rates and charges and special assessments.

IX. Final Bill Report on SHB 63 as passed by the legislature on April 26, 1987. Attachment #11.

X. SHB 63 as amended by the Senate and as adopted by the legislature. Attachment #12.

(a) Differences between House version and bill as adopted as they relate to rates and charges:

1. Rates and charges imposed on state lands can consider the extent of the public use of these lands.

2. Special procedures to notify the state are provided if state property would be subject to rates and charges.

management districts. More than one lake, or portions of lakes, and the adjacent land areas may be included in a single lake management district. A lake management district may be created for a period of up to ten years.

Special assessments or rates and charges may be imposed on the property included within a lake management district to finance lake improvement and maintenance activities, including (1) The control or removal of aquatic plants and vegetation; (2) water quality; (3) the control of water levels; (4) storm water diversion and treatment; (5) agricultural waste control; (6) studying lake water quality problems and solutions; (7) cleaning and maintaining ditches and streams entering or leaving the lake; and (8) the related administrative, engineering, legal, and operational costs, including the costs of creating the lake management district

Special assessments or rates and charges may be imposed annually on all the land in a lake management district for the duration of the lake management district without a related issuance of lake management district bonds or revenue bonds Special assessments also may be imposed in the manner of special assessments in a local improvement district with each landowner being given the choice of paying the entire special assessment in one payment, or to paying installments, with lake management district bonds being issued to obtain moneys not derived by the initial full payment of the special assessments, and the installments covering all of the costs related to issuing, selling, and redeeming the lake management district bonds.

Sec. 3. Section 3, chapter 398, Laws of 1985 and RCW 36.61.030 are each amended to read as follows:

A lake management district may be initiated upon either the adoption of a resolution of intention by a county legislative authority or the filing of a petition signed by ten landowners or ((twenty-five)) the owners of at least fifteen percent of the ((landowners)) acreage contained within the proposed lake management district, whichever is greater. A petition or resolution of intention shall set forth: (1) The nature of the lake improvement or maintenance activities proposed to be financed; (2) the amount of

H BILL NO. 63

State of Washington 50th Legislature 1987 Regular Session

by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May

Read first time 1/15/87 and referred to Committee on Local Government.

AN ACT Relating to lake management districts; amending RCW 36.61.010, 36.61.020, 36.61.030, 36 61 040, 36.61.070, 36.61.080, 36.61.090, 36.61.100, and 36.61.160; and adding new sections to chapter 36.61 RCW.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON.

Sec 1 Section 1, chapter 398, Laws of 1985 and RCW 36.61 010 are each amended to read as follows:

The legislature finds that the environmental, recreational, and aesthetic values of many of the state's lakes are threatened by eutrophication and other deterioration and that existing governmental authorities are unable to adequately improve and maintain the quality of the state's lakes.

It is the purpose of this chapter to establish a governmental mechanism by which property owners can embark on a program of lake improvement and maintenance for their and the general public's benefit, health, and welfare. Public property, including state property, shall be considered the same as private property in this chapter, except liens for special assessments and liens for rates and charges shall not extend to public property Lake bottom property shall not be considered to be benefited, shall not be subject to special assessments or rates and charges, and shall not receive voting rights under this chapter.

Sec 2 Section 2, chapter 398, Laws of 1985 and RCW 36.61.020 are each amended to read as follows

Any county may create lake management districts to finance the improvement and maintenance of lakes located within or partially within the boundaries of the county. All or a portion of a lake and the adjacent land areas may be included within one or more lake

Attachment #1

authority

Sec. 4 Section 4, chapter 398, Laws of 1985 and RCW 36.61.040 are each amended to read as follows:

Notice of the public hearing shall be published in at least two consecutive issues of a newspaper of general circulation in the proposed lake management district, the date of the first publication to be at least fifteen days prior to the date fixed for the public hearing by the resolution of intention. Notice of the public hearing shall also be given to the owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district by mailing the notice at least fifteen days before the date fixed for the public hearing to the owner or reputed owner of the property as shown on the tax rolls of the county assessor at the address shown thereon. Notice of the public hearing shall also be mailed to the departments of fisheries, game, and ecology at least fifteen days before the date fixed for the public hearing.

Notices of the public hearing shall: (1) Refer to the resolution of intention, (2) designate the proposed lake management district by number; (3) set forth a proposed plan describing: (a) The nature of the proposed lake improvement or maintenance activities; (b) the amount of special assessments or rates and charges proposed to be raised by the lake management district; (c) if special assessments are proposed to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be payable at one time, with the possibility of periodic installments being paid and lake management bonds being issued, or both; ((and)) (d) if rates and charges are proposed to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; and (e) the proposed duration of the lake management district; and (4) indicate the date, time, and place of the public hearing designated in the resolution of intention.

In the case of the notice sent to each owner or reputed owner by mail, the notice shall set forth the estimated amount of the cost of the lake improvement or maintenance activities to be borne by special

reasonable factor or factors, including benefit, use, front footage, acreage, the extent of improvements on the property, the type of improvements on the property, uses to which the property is put, and any other reasonable factor or factors The flexibility to establish rates and charges includes the authority to reduce rates and charges on property owned by low-income persons.

Except as provided in this section, the collection of rates and charges, lien status of unpaid rates and charges, and method of foreclosing on such liens shall be subject to the provisions of chapter 36.94 RCW Public property, including state property, shall be subject to the rates and charges to the same extent that private property is subject to them, except that liens may not be foreclosed on the public property. The total amount of rates and charges cannot exceed the cost of lake improvement or maintenance activities proposed to be financed by such rates and charges, as specified in the resolution of intention. Revenue bonds exclusively payable from the rates and charges may be issued by the county under chapter 39.46 RCW.

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money proposed to be raised by special assessments or rates and charges; (3) if special assessments are to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be imposed at one time, with the possibility of installments being made to finance the issuance of lake management district bonds, or both methods, (4) if rates and charges are to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; (5) the number of years proposed for the duration of the lake management district; and ((~~(5)~~)) (6) the proposed boundaries of the lake management district.

The county legislative authority may require the posting of a bond of up to five thousand dollars before the county considers the proposed creation of a lake management district initiated by petition. The bond may only be used by the county to finance its costs in studying, holding hearings, making notices, preparing special assessment rolls or rolls showing the rates and charges on each parcel, and conducting elections related to the lake management district if the proposed lake management district is not created

A resolution of intention shall also designate the number of the proposed lake management district, and fix a date, time, and place for a public hearing on the formation of the proposed lake management district The date for the public hearing shall be at least thirty days and no more than ninety days after the adoption of the resolution of intention unless an emergency exists.

Petitions shall be filed with the county legislative authority. The county legislative authority shall determine the sufficiency of the signatures, which shall be conclusive upon all persons. No person may withdraw his or her name from a petition after it is filed. If the county legislative authority determines a petition to be sufficient and the proposed lake management district appears to be in the public interest and the financing of the lake improvement or maintenance activities is feasible, it shall adopt a resolution of intention, setting forth all of the details required to be included when a resolution of intention is initiated by the county legislative

No lake management district may be created by a county that includes territory located in another county without the approval of the legislative authority of the other county.

Sec. 6. Section 7, chapter 398, Laws of 1985 and RCW 36.61.080 are each amended to read as follows:

A ballot shall be mailed to each owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district, including publicly owned land, which ballot shall contain the following proposition:

"Shall lake management district No. ..... be formed?

Yes... .....

No ... . "

In addition, the ballot shall contain appropriate spaces for the signatures of the landowner or landowners, or officer authorized to cast such a ballot Each ballot shall include a description of the property owner's property((,-the-number-of-acres--of--such--property, and--the--number--of--feet--of--lake--front-footage,-if-any)) and the estimated special assessment, or rate and charge, proposed to be imposed upon the property A copy of the instructions and the resolution submitting the question to the landowners shall also be included.

Sec. 7. Section 8, chapter 398, Laws of 1985 and RCW 36 61 090 are each amended to read as follows

The balloting shall be subject to the following conditions, which shall be included in the instructions mailed with each ballot, as provided in RCW 36.61 080: (1) All ballots must be signed by the owner or reputed owner of property according to the assessor's tax rolls; (2) each ballot must be returned to the county legislative authority not later than five o'clock p m of a specified day, which shall be at least twenty but not more than thirty days after the ballots are mailed; (3) each property owner shall mark his or her ballot for or against the creation of the proposed lake management district, with the ballot weighted so that the property owner has one vote for ((any-amount-of-property-up-to-one-acre--and--one--vote--for each--additional-acre,-or-major-portion-of-an-acre,-he-or-she-owns-in

the-proposed-lake-management-district-and-one-vote-for-any-amount--up to--fifty-feet,-and-one-vote-for-each-additional-fifty-feet,-or-major portion-thereof,-of-lake-frontage-he-or-she-owns-in-the-proposed-lake management-district)) each dollar of estimated special assessment or rate and charge proposed to be imposed on his or her property; and (4) the valid ballots shall be tabulated and a simple majority of the votes cast shall determine whether the proposed lake management district shall be approved or rejected.

Sec. 8. Section 9, chapter 398, Laws of 1985 and RCW 36.61.100 are each amended to read as follows:

If the proposal receives a simple majority vote in favor of creating the lake management district, the county legislative authority shall adopt an ordinance creating the lake management district and may proceed with establishing the special assessments or rates and charges, collecting the special assessments or rates and charges, and performing the lake improvement or maintenance activities If a proposed lake management district includes more than one lake and its adjacent areas, the lake management district may only be established if the proposal receives a simple majority vote in favor of creating it by the voters on each lake and its adjacent areas. The county legislative authority shall publish a notice in a newspaper of general circulation in a lake management district indicating that such an ordinance has been adopted within ten days of the adoption of the ordinance.

The ballots shall be available for public inspection after they are counted

NEW SECTION. Sec. 9. A new section is added to chapter 36 61 RCW to read as follows

A special assessment, or rate and charge, on any lot, tract, parcel of land, or other property shall not be increased beyond one hundred ten percent of the estimated special assessment, or rate and charge, proposed to be imposed as provided in the resolution adopted in RCW 36 61.070, unless the creation of a lake management district is approved under another mailed ballot election that reflects the weighted voting arising from such increases

Sec. 10. Section 16, chapter 398, Laws of 1985 and RCW 36.61.160 are each amended to read as follows:

All property included within a lake management district shall be considered to be the property specially benefited by the lake improvement or maintenance activities and shall be the property upon which special ~~—~~assessments are imposed to pay the costs and expenses of the lake improvement or maintenance activities, or such part of the costs and expenses as may be chargeable against the property specially benefited The special assessments shall be imposed on property in accordance with the special benefits conferred on the property up to but not in excess of the total costs and expenses of the lake improvement or maintenance activities as provided in the special assessment roll.

Special assessments may be measured by front footage, acreage, the extent of improvements on the property, or any other factors that are deemed to fairly reflect special benefits, including those authorized under RCW 35.51.030. Special assessments may be calculated by using more than one factor Zones around the public improvement may be used that reflect different levels of benefit in each zone that are measured by a front footage, acreage, the extent of improvements, or other factors

Public property, including property owned by the state of Washington, shall be subject to special assessments to the same extent that private property is subject to the special assessments, except no lien shall extend to public property.

NEW SECTION. Sec. 11. A new section is added to chapter 36.61 RCW to read as follows:

Whenever rates and charges are to be imposed in a lake management district, the county legislative authority shall prepare a roll of rates and charges that includes those matters required to be included in a special assessment roll and shall hold a public hearing on the proposed roll of rates and charges as provided under RCW 36.61.120 through 36.61.150 for a special assessment roll. The county legislative authority shall have full jurisdiction and authority to fix, alter, regulate, and control the rates and charges imposed by a lake management district and may classify the rates or charges by any

assessment, or annual special assessments, or rates and charges on the lot, tract, parcel of land, or other property owned by the owner or reputed owner

If the county legislative authority has designated a committee of itself or an officer to hear complaints and make recommendations to the full county legislative authority, as provided in RCW 36.61.060, the notice shall also describe this additional step before the full county legislative authority may adopt a resolution creating the lake management district.

Sec. 5. Section 6, chapter 398, Laws of 1985 and RCW 36.61.070 are each amended to read as follows:

After the public hearing, the county legislative authority may adopt a resolution submitting the question of creating the lake management district to the owners of land within the proposed lake management district, including publicly owned land, if the county legislative authority finds that it is in the public interest to create the lake management district and the financing of the lake improvement and maintenance activities is feasible. The resolution shall also include: (1) A plan describing the proposed lake improvement and maintenance activities which avoid adverse impacts on fish and wildlife and provide for appropriate measures to protect and enhance fish and wildlife((,)); (2) the number of years the lake management district will exist((,)); (3) the amount to be raised by special assessments((,)) or rates and charges; (4) if special assessments are to be imposed, whether the special assessments shall be imposed annually for the duration of the lake management district or only once with the possibility of installments being imposed and lake management bonds being issued, or both, and, if both types of special assessments are proposed to be imposed, the lake improvement or maintenance activities proposed to be financed by each type of special assessment; (5) if rates and charges are to be imposed, a description of the rates and charges and the possibility of revenue bonds being issued that are payable from the rates and charges; and (6) the estimated special assessment or rate and charge proposed to be imposed on each parcel included in the proposed lake management district.

reasonable factor or factors, including benefit, use, front footage, acreage, the extent of improvements on the property, the type of improvements on the property, uses to which the property is put, service to be provided, and any other reasonable factor or factors. The flexibility to establish rates and charges includes the authority to reduce rates and charges on property owned by low-income persons.

Except as provided in this section, the collection of rates and charges, lien status of unpaid rates and charges, and method of foreclosing on such liens shall be subject to the provisions of chapter 36.94 RCW. Public property, including state property, shall be subject to the rates and charges to the same extent that private property is subject to them, except that liens may not be foreclosed on the public property, and the procedure for imposing such rates and charges on state property shall conform with the procedure provided for in chapter 79.44 RCW concerning the imposition of special assessments upon state property The total amount of rates and charges cannot exceed the cost of lake improvement or maintenance activities proposed to be financed by such rates and charges, as specified in the resolution of intention. Revenue bonds exclusively payable from the rates and charges may be issued by the county under chapter 39.46 RCW.

Passed the House April 26, 1987.

Speaker of the House.

Passed the Senate April 8, 1987.

John A. Cherberg
President of the Senate.

IN THE LEGISLATURE
of the

STATE OF WASHINGTON

CERTIFICATION OF ENROLLED ENACTMENT

SUBSTITUTE HOUSE BILL NO 63

Passed the House. March 2, 1987. *Passed the Senate* April 8, 1987.
as amended

Yeas 95 *Nays* 0 *Yeas* 48 *Nays* 1

April 20, 1987: House refused to concur in Senate amendments and asked Senate for conference thereon.

April 23, 1987: Senate insisted on its position and asked House to concur.

April 25, 1987: House insisted on its position and asked Senate for a conference.

Senate refused request for conference, adhered to its position and asked House to concur.

April 26, 1987: House concurred in Senate amendments and passed the bill as amended by the Senate.

Yeas 61 Nays 35

CERTIFICATE

I, Alan Thompson, Chief Clerk of the House of Representatives of the State of Washington, do hereby certify that the attached is enrolled SUBSTITUTE HOUSE BILL NO 63 *as passed by the House of Representatives and the Senate on the dates hereon set forth.*

ALAN THOMPSON, *Chief Clerk*

Attachment #12

management districts. More than one lake, or portions of lakes, and the adjacent land areas may be included in a single lake management district. A lake management district may be created for a period of up to ten years.

Special assessments or rates and charges may be imposed on the property included within a lake management district to finance lake improvement and maintenance activities, including: (1) The control or removal of aquatic plants and vegetation; (2) water quality, (3) the control of water levels; (4) storm water diversion and treatment; (5) agricultural waste control; (6) studying lake water quality problems and solutions; (7) cleaning and maintaining ditches and streams entering or leaving the lake; and (8) the related administrative, engineering, legal, and operational costs, including the costs of creating the lake management district.

Special assessments or rates and charges may be imposed annually on all the land in a lake management district for the duration of the lake management district without a related issuance of lake management district bonds or revenue bonds Special assessments also may be imposed in the manner of special assessments in a local improvement district with each landowner being given the choice of paying the entire special assessment in one payment, or to paying installments, with lake management district bonds being issued to obtain moneys not derived by the initial full payment of the special assessments, and the installments covering all of the costs related to issuing, selling, and redeeming the lake management district bonds.

Sec. 3. Section 3, chapter 398, Laws of 1985 and RCW 36.61.030 are each amended to read as follows:

A lake management district may be initiated upon either the adoption of a resolution of intention by a county legislative authority or the filing of a petition signed by ten landowners or ((twenty-five)) the owners of at least fifteen percent of the ((landowners)) acreage contained within the proposed lake management district, whichever is greater. A petition or resolution of intention shall set forth: (1) The nature of the lake improvement or maintenance activities proposed to be financed; (2) the amount of

~~the proposed lake management district and one vote for any amount up to fifty feet; and one vote for each additional fifty feet; or major portion thereof; of lake frontage he or she owns in the proposed lake management district))~~ each dollar of estimated special assessment or rate and charge proposed to be imposed on his or her property; and (4) the valid ballots shall be tabulated and a simple majority of the votes cast shall determine whether the proposed lake management district shall be approved or rejected.

Sec. 8. Section 9, chapter 398, Laws of 1985 and RCW 36.61.100 are each amended to read as follows:

If the proposal receives a simple majority vote in favor of creating the lake management district, the county legislative authority shall adopt an ordinance creating the lake management district and may proceed with establishing the special assessments or rates and charges, collecting the special assessments or rates and charges, and performing the lake improvement or maintenance activities. If a proposed lake management district includes more than one lake and its adjacent areas, the lake management district may only be established if the proposal receives a simple majority vote in favor of creating it by the voters on each lake and its adjacent areas. The county legislative authority shall publish a notice in a newspaper of general circulation in a lake management district indicating that such an ordinance has been adopted within ten days of the adoption of the ordinance.

The ballots shall be available for public inspection after they are counted.

NEW SECTION. Sec. 9. A new section is added to chapter 36.61 RCW to read as follows:

A special assessment, or rate and charge, on any lot, tract, parcel of land, or other property shall not be increased beyond one hundred ten percent of the estimated special assessment, or rate and charge, proposed to be imposed as provided in the resolution adopted in RCW 36.61 070, unless the creation of a lake management district is approved under another mailed ballot election that reflects the weighted voting arising from such increases.

Sec. 10. Section 16, chapter 398, Laws of 1985 and RCW 36 61.160 are each amended to read as follows:

Whenever special assessments are imposed, all property included within a lake management district shall be considered to be the property specially benefited by the lake improvement or maintenance activities and shall be the property upon which special assessments are imposed to pay the costs and expenses of the lake improvement or maintenance activities, or such part of the costs and expenses as may be chargeable against the property specially benefited. The special assessments shall be imposed on property in accordance with the special benefits conferred on the property up to but not in excess of the total costs and expenses of the lake improvement or maintenance activities as provided in the special assessment roll.

Special assessments may be measured by front footage, acreage, the extent of improvements on the property, or any other factors that are deemed to fairly reflect special benefits, including those authorized under RCW 35 51 030. Special assessments may be calculated by using more than one factor. Zones around the public improvement may be used that reflect different levels of benefit in each zone that are measured by a front footage, acreage, the extent of improvements, or other factors.

Public property, including property owned by the state of Washington, shall be subject to special assessments to the same extent that private property is subject to the special assessments, except no lien shall extend to public property.

NEW SECTION. Sec. 11. A new section is added to chapter 36.61 RCW to read as follows:

Whenever rates and charges are to be imposed in a lake management district, the county legislative authority shall prepare a roll of rates and charges that includes those matters required to be included in a special assessment roll and shall hold a public hearing on the proposed roll of rates and charges as provided under RCW 36.61.120 through 36.61.150 for a special assessment roll. The county legislative authority shall have full jurisdiction and authority to fix, alter, regulate, and control the rates and charges imposed by a lake management district and may classify the rates or charges by any

SUBSTITUTE HOUSE BILL NO. 63
AS AMENDED BY THE SENATE

State of Washington 50th Legislature 1987 Regular Session

by Committee on Local Government (originally sponsored by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May)

Read first time 2/23/87 and passed to Committee on Rules.

AN ACT Relating to lake management districts; amending RCW 36 61 010, 36.61.020, 36 61 030, 36 61.040, 36.61 070, 36 61 080, 36 61.090, 36 61 100, and 36 61 160, and adding new sections to chapter 36.61 RCW

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Sec. 1. Section 1, chapter 398, Laws of 1985 and RCW 36 61 010 are each amended to read as follows

The legislature finds that the environmental, recreational, and aesthetic values of many of the state's lakes are threatened by eutrophication and other deterioration and that existing governmental authorities are unable to adequately improve and maintain the quality of the state's lakes.

It is the purpose of this chapter to establish a governmental mechanism by which property owners can embark on a program of lake improvement and maintenance for their and the general public's benefit, health, and welfare Public property, including state property, shall be considered the same as private property in this chapter, except liens for special assessments and liens for rates and charges shall not extend to public property. Lake bottom property shall not be considered to be benefited, shall not be subject to special assessments or rates and charges, and shall not receive voting rights under this chapter.

Sec. 2. Section 2, chapter 398, Laws of 1985 and RCW 36.61.020 are each amended to read as follows:

Any county may create lake management districts to finance the improvement and maintenance of lakes located within or partially within the boundaries of the county. All or a portion of a lake and the adjacent land areas may be included within one or more lake

authority.

Sec. 4. Section 4, chapter 398, Laws of 1985 and RCW 36.61.040 are each amended to read as follows:

Notice of the public hearing shall be published in at least two consecutive issues of a newspaper of general circulation in the proposed lake management district, the date of the first publication to be at least fifteen days prior to the date fixed for the public hearing by the resolution of intention. Notice of the public hearing shall also be given to the owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district by mailing the notice at least fifteen days before the date fixed for the public hearing to the owner or reputed owner of the property as shown on the tax rolls of the county assessor at the address shown thereon. Notice of the public hearing shall also be mailed to the departments of fisheries, game, and ecology at least fifteen days before the date fixed for the public hearing

Notices of the public hearing shall: (1) Refer to the resolution of intention; (2) designate the proposed lake management district by number; (3) set forth a proposed plan describing: (a) The nature of the proposed lake improvement or maintenance activities; (b) the amount of special assessments or rates and charges proposed to be raised by the lake management district; (c) if special assessments are proposed to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be payable at one time, with the possibility of periodic installments being paid and lake management bonds being issued, or both; ((and)) (d) if rates and charges are proposed to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; and (e) the proposed duration of the lake management district, and (4) indicate the date, time, and place of the public hearing designated in the resolution of intention.

In the case of the notice sent to each owner or reputed owner by mail, the notice shall set forth the estimated amount of the cost of the lake improvement or maintenance activities to be borne by special

assessment, or annual special assessments, or rates and charges on the lot, tract, parcel of land, or other property owned by the owner or reputed owner.

If the county legislative authority has designated a committee of itself or an officer to hear complaints and make recommendations to the full county legislative authority, as provided in RCW 36.61.060, the notice shall also describe this additional step before the full county legislative authority may adopt a resolution creating the lake management district.

Sec. 5. Section 6, chapter 398, Laws of 1985 and RCW 36.61.070 are each amended to read as follows:

After the public hearing, the county legislative authority may adopt a resolution submitting the question of creating the lake management district to the owners of land within the proposed lake management district, including publicly owned land, if the county legislative authority finds that it is in the public interest to create the lake management district and the financing of the lake improvement and maintenance activities is feasible. The resolution shall also include: (1) A plan describing the proposed lake improvement and maintenance activities which avoid adverse impacts on fish and wildlife and provide for appropriate measures to protect and enhance fish and wildlife((;)); (2) the number of years the lake management district will exist((;)); (3) the amount to be raised by special assessments((;)) or rates and charges; (4) if special assessments are to be imposed, whether the special assessments shall be imposed annually for the duration of the lake management district or only once with the possibility of installments being imposed and lake management bonds being issued, or both, and, if both types of special assessments are proposed to be imposed, the lake improvement or maintenance activities proposed to be financed by each type of special assessment; (5) if rates and charges are to be imposed, a description of the rates and charges and the possibility of revenue bonds being issued that are payable from the rates and charges; and (6) the estimated special assessment or rate and charge proposed to be imposed on each parcel included in the proposed lake management district.

No lake management district may be created by a county that includes territory located in another county without the approval of the legislative authority of the other county.

Sec. 6 Section 7, chapter 398, Laws of 1985 and RCW 36.61.080 are each amended to read as follows

A ballot shall be mailed to each owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district, including publicly owned land, which ballot shall contain the following proposition:

"Shall lake management district No. .... be formed?

Yes.. .....

No ... . "

In addition, the ballot shall contain appropriate spaces for the signatures of the landowner or landowners, or officer authorized to cast such a ballot. Each ballot shall include a description of the property owner's property((,-the-number-of-acres--of--such--property, and--the--number--of--feet--of--lake--front-footage,-if-any)) and the estimated special assessment, or rate and charge, proposed to be imposed upon the property. A copy of the instructions and the resolution submitting the question to the landowners shall also be included.

Sec. 7. Section 8, chapter 398, Laws of 1985 and RCW 36.61.090 are each amended to read as follows:

The balloting shall be subject to the following conditions, which shall be included in the instructions mailed with each ballot, as provided in RCW 36.61.080: (1) All ballots must be signed by the owner or reputed owner of property according to the assessor's tax rolls; (2) each ballot must be returned to the county legislative authority not later than five o'clock p.m. of a specified day, which shall be at least twenty but not more than thirty days after the ballots are mailed; (3) each property owner shall mark his or her ballot for or against the creation of the proposed lake management district, with the ballot weighted so that the property owner has one vote for ((any-amount-of-property-up-to-one-acre--and--one-vote--for each--additional-acre,-or-major-portion-of-an-acre,-he-or-she-owns-in

money proposed to be raised by special assessments or rates and charges; (3) if special assessments are to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be imposed at one time, with the possibility of installments being made to finance the issuance of lake management district bonds, or both methods; (4) if rates and charges are to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; (5) the number of years proposed for the duration of the lake management district, and (((5))) (6) the proposed boundaries of the lake management district.

The county legislative authority may require the posting of a bond of up to five thousand dollars before the county considers the proposed creation of a lake management district initiated by petition. The bond may only be used by the county to finance its costs in studying, holding hearings, making notices, preparing special assessment rolls or rolls showing the rates and charges on each parcel, and conducting elections related to the lake management district if the proposed lake management district is not created.

A resolution of intention shall also designate the number of the proposed lake management district, and fix a date, time, and place for a public hearing on the formation of the proposed lake management district. The date for the public hearing shall be at least thirty days and no more than ninety days after the adoption of the resolution of intention unless an emergency exists.

Petitions shall be filed with the county legislative authority. The county legislative authority shall determine the sufficiency of the signatures, which shall be conclusive upon all persons. No person may withdraw his or her name from a petition after it is filed. If the county legislative authority determines a petition to be sufficient and the proposed lake management district appears to be in the public interest and the financing of the lake improvement or maintenance activities is feasible, it shall adopt a resolution of intention, setting forth all of the details required to be included when a resolution of intention is initiated by the county legislative

HOUSE OF REPRESENTATIVES

Olympia, Washington

BILL ANALYSIS

Bill No.: HB 63
Comp. Meas.

Brief Title:
Revising provisions on lake management districts.

Sponsors:
Reps. Unsoeld/Haugen/Cooper/Madsen/Nutley/Belcher

BACKGROUND

Legislation was enacted in 1985 authorizing the creation of lake management districts, which are mechanisms within which special assessments are imposed on real property to finance lake improvement and maintenance programs, such as the removal of weeds.

SUMMARY

The laws relating to lake management districts are altered as follows:

1) Rates and charges could be imposed in a lake management district in addition to, or in lieu of, special assessments. The county legislative authority is granted the authority to reduce rates and charges for low income persons. Revenue bonds may be issued payable from these rates and charges.

2) The signature requirement to initiate the creation of a lake management district is altered from the greater of ten land owners or 25% of the landowners, to the owners of 15% or more of the acreage in the proposed district.

3) The voting scheme to authorize the creation of a district is altered from weighted voting based on acreage and lake front footage, to one vote for each dollar of special assessment or rate and charge proposed to be imposed on his or her property.

4) A special assessment, or rate and charge, may not be increased to an amount greater than 110% of the estimated amount used as the basis for voting to created the district.

5) It is clarified that a variety of factors, including land uses, can be used to measure benefits if special assessments are imposed.

POSSIBLE AMENDMENTS TO HB 63

1. Clarify nature of special assessments --Presented by Thurston County Commissioner Karen Fraser

   On page 8, line 3, strike "All" and insert "Whenever special assessments are imposed, all"

2. Clarify optional method of measuring rates and charges--Presented by Thurston County Commissioner Karen Fraser

   On page 9, line 3, after "put," insert "service to be provided,"

3. Reference existing laws concerning special assessments imposed upon state property into proposed language concerning rates and charges--presented by Art Stearns, DNR (as modified by Lundin)

   On page 9, line 13, after "property" insert "and the procedure for imposing such rates and charges on state property shall conform with the procedure provided for in chapter 79.44 RCW concerning the imposition of special assessments upon state property"

4. Prohibit distictions based upon public use --presented by Dept of Game

   On page 8, line 22, beginning with "Public" strike all the matter down to and including "assessments" on line 24, and insert "((~~Public property, including property owned by the state of Washington, shall be subject to special assessments to the same extent that private property is subject to the special assessments~~)) Publicly-owned property shall be assessed at the same rate as similar privately-owned property within the district without regard to the extent of use of such property by the general public"

   On page 9, line 3, after "is put" insert "except public uses,"

George L. Barner, Jr.
District One
Karen Fraser
District Two
Les Eldridge
District Three

Thurston County Commissioners

Olympia, Washington 98502

(206) 786-5440

February 10,1987

The Honorable Mary Margaret Haugen
Chair, House Local Government Committee
House Office Building Room 331
Olympia, WA 98504

SUBJECT: House Bill No. 63

Dear Represenative Haugen:

We appreciate the House Local Government Committee's attention to House Bill 63, proposing amendments to RCW 36.61. Thurston County was very involved with the initial development of the lake management district legislation codified in RCW 36.61. We have established one lake management district and are in the process of creating another. On the basis of our experience, we strongly support the proposed amendments contained in House Bill 63. We would like to make the following suggestions which we believe will clarify the legislation:

1. Section 10, page 8 (revising RCW 36.61.160)
We are concerned that the existing language of this section may create an unintentional conflict with the Bill's intent of providing a "rates and charges" option in addition to the existing "special assessments" approach. As drafted, the bill retains language in RCW 36.61.160 which states:

> All property included within a lake management district shall be considered to be the property specially benefited... (emphasis added)

By referring to "all property" as necessarily being "specially benefited", this language has the appearance of creating an unintentional contradiction with proposed revisions to allow a"rates and charges" - approach. We have encountered some difficulty with applying the conventional "special benefits" test to lake management situations, and fully support providing the option for an alternative approach.

To clarify this technical but potentially confusing problem, we suggest that Section 10 be constructed similar to Section 11 regarding rates and charges, i.e.. on page 8, line 3 strike the word "All" and insert the following: "Whenever special assessments are imposed,all...

Attachment #3

2. Section 11 (new section on rates and charges)

On page 9, lines 1 through 4, a non-exclusive set of factors for establishing rates and charges is listed. While we understand that other "reasonable" factors may be utilized, we suggest that one additional key factor for LMD rates might be "service provided". From our experience, the "rates and charges" rationale is needed not only to allow low-income exemptions, but also to provide a fundamentally different and more workable option for basing LMD assessments. Specifically including the "service provided" criteria (as in RCW 36.89.080 regarding storm water control) may assist jurisdictions with defining their rate rationale.

We suggest an amendment to read: Insert on page 9 line 3 after the word "put" the following: "service to be provided".

The Board of Thurston County Commissioners appreciates this opportunity to testify and hopes that our experience is helpful in clarifying the lake management district legislation.

Sincerely,

Karen Fraser

Karen Fraser
Chairman
Board of Thurston County Commissioners

cc: Honorable Jolene Unsoeld

WASHINGTON STATE DEPARTMENT OF
Natural Resources

BRIAN BOYLE
Commissioner of Public Lands

OLYMPIA, WA 98504

February 12, 1987

The Honorable Mary Margaret Haugen
Washington State Representative
House Office Building - Room 331
Olympia, WA 98504

Dear Representative Haugen:

I would like to propose an amendment to House Bill 63, which relates to lake management districts. This amendment is similar to one I requested for House Bill 35.

On page 9, line 10 after "." insert "Except as provided in Chapter 79.44 RCW, regarding assessments against public lands," strike "P" and insert "p".

The reason for proposing this amendment is that Chapter 79.44 RCW contains the procedures for assessing public lands. A review of the bill by the Department's Assistant Attorney General revealed several areas of language in HB 63 which are not consistent with those procedures. The amendment clarifies that Chapter 79.44 RCW contains procedures specific to assessments against public lands.

Sincerely,

Art Stearns
Supervisor

AS:ksj

cc: Pat Harper

Attachment #4

Notes

MINUTES - HOUSE LOCAL GOVERNMENT COMMITTEE

Date: February 12, 1987
Time: 8:00 AM
Tape: 12

Members in attendance: See attached roster.

Agenda: Public Hearing

HB 578 - Taxing dist. boundaries
HB 63 - Lake Management dists
HB 545 - Correcting double amendment

Chairman Haugen called the meeting to order and asked staff counsel to briefly explain the bills.

HB 578

Mr. Lundin explained boundaries of a taxing district are established for purposes of imposing property taxes in any year on the first day of March. Property taxes are imposed in December and then collected in the following year.

Trevor Thompson, Dept. of Revenue, testified in opposition to the bill. To adopt the June deadline would require an additional 8 FTE's for the department to implement. He said they did not object to the October 1 date. The bill did not require any additional work on their part, but the time frame in which they must complete their task is cut substantially.

Rep. Beck inquired into how many boundary changes occurred last year. Mr. Thompson said there were about 200 changes in boundaries. The cities report to OFM when they annex. We get a quarterly report from OFM, which brings attention to it, but no specific details.

Stan Finkelstein, AWC, spoke in support of the proposed legislation, because they believe it would resolve some of the problems with regard to $9.15 with annexation and incorporation. When there is a change in a boundary, that change must be achieved prior to March 1 for the district to levy taxes or there

Attachment #5

could be almost 2 years delay in tax receipts. The boundary occurs immediately and also the responsibility of full service. He said they are not unmindful of the problems faced by the Department of Revenue, but did not think it would require an additional 8 FTE's. He said they would prefer to see the bill in tact, but would agree to the proposed amendment.

Fred Saeger, WACO, said that HB 578 presents them with some dilemmas. Primarily it is the assessor that will have to make the adjustments and subsequently, the treasurer. When you stop and think about the process we use for assessing property, first we have to fix the values, then we sit down to do a levy calculation. The districts would like to have the information by September. The property tax system is complex. Occasionally we have an exception and we can deal with, but this usually causes a chain reaction. The assessor's budget isn't the highest priority, and have a difficult time complying with mandated re-assessments to keep the assessments current. Maybe the districts should help pay a portion of the assessors work. If the boundaries are coterminous, our problems are minimized.

HB 63

Steve Lundin, staff counsel explained that legislation was enacted in 1987 authorizing the creation of lake management districts, which are mechanisms within which special assessments are imposed on real property to finance lake improvement and maintenance programs, such as the removal of weeds. The bill changes the signature requirements to owners of 15% or more of the acreage, and also changes the scheme of weighing the votes. This is directly related to the amount they have to pay. The bill also clarifies a variety of factors used to measure benefits.

Rep. Madsen asked the question if a person owned a dairy on the lake, could the assessment be higher than his neighbor who grew carrots, for instance? Mr. Lundin responded that it was his understanding that is in current law now. Specific circumstances could be taken into consideration by the local government jurisdiction. A public hearing is held at which time the question of "fairness" of the assessments could be adjusted.

Karen Fraser, Thurston County Commissioner, explained she had been involved in the 1985 legislation and the implementation on 3 lakes. Of those 3, one has been completed (Lawrence); Patterson Lake voted it down; and Long Lake has just held a hearing. The biggest issue is the need for clarification in flexibility. Each lake is different and has its own special problems.

To respond to Rep. Beck's question, the voting process is changed to reflect acreage. Otherwise, how do you define owners, is that

husband and wife, so do they both get to vote? The 15% was an arbitrary figure that was picked.

Rose Maurer, spoke briefly to support the bill.

Randy Ellison, Department of Game, signed up in opposition to the bill. They objected to that fact that the Department was being assessed higher than others. He said they were not opposed to cleaning up the lake. They have 450 accesses throughout the state and this could be an extremely financial burden.

Rep. Nelson asked if the district took into the account the general benefit that the Department provided. Mr. Ellison did not know the answer.

William Fosdick, resident of Lawrence Lake, said that they felt that 20% of the use came from the Department's access, and therefore they should pay more than just a single property owner. He supported the passage of the bill and the changes with regard to voting.

HB 545

Steve Lundin, staff counsel, summarized the bill. The statute so restricting city and town utility authority was inconsistently amended by two separate laws in 1985.

Chuck Mize, City of Revenue, and representing Randy Scott from the City of Seattle said they both support the bill. As Mr. Lundin explained, this is an attempt to eliminate confusion that arose from the double amendments.

Randy Scott, Seattle City & Light, stated they have no objection to either amendment as they stand alone. It creates a dichotomy for us. There is something missing from the separate amendment, but as a whole they are good.

Executive Session

HB 263

Steve Lundin, staff counsel, briefly described the bill.

Stan Finkelstein, AWC, said that the proposed bill before you was a compromise between current law and the proposed debt. It is a political call. He said they would prefer to see the original bill be adopted but they could live with the proposed amended version.

Bill moved out of committee as a substitute bill. 12 ayes

Notes

MINUTES - HOUSE LOCAL GOVERNMENT COMMITTEE

Date: February 13, 1987
Time: 8:00 AM
Tape: 13

Members in attendance: See attached roster.

Agenda: Public Hearing
1. HB 46 - Excise tax distrib/watercraft
2. HB 238 - Solid waste management/provisions

Executive Session
1. HB 63 - Lake management Dist.

Chairman Haugen called the meeting to order and asked Steve Lundin, staff counsel, to briefly explain the bills.

HB 46

Steve Lundin, staff counsel, explained that counties are authorized to impose an excise tax on certain watercraft at a rate of up to 50 cents per foot per year, if the population of the unincorporated area of the county, together with the population of any city that is a party to an interlocal agreement with the county, equals at least two-thirds of the total population of the county. The interlocal agreement may provide that the county gives some of the tax revenues to municipal corporations that are parties to the agreement and which provide boating safety services.

Albert Angland, City of Medina, said they have their own boat patrol. The bill as stands now does not force King County into sharing that boat tax with the City of Mercer Island. Mercer Island now patrols over half of Lake Washington. He feels they are paying a double tax.

Rep. Ferguson - so are you just asking for the option to negotiate? Mr. Angland said yes, but also creating the ability to go into arbitration if King County does not meet the agreements.

Attachment #6

Ron Dickinson, city attorney, Mercer Island, said they are asking that they be entitled to 25% of the marine patrol excise tax. He felt they were entitled to get half of what the county is getting.

Rep. Haugen asked if they had tried to negotiate? Mr. Dickinson said this bill is very similar to a bill last year and nothing has been accomplished. He said they would have no objection of returning to original language of "municipal corporation" so fire protection districts could be included. The bill now says cities or towns. Mr. Dickinson said this bill could affect other areas such as Moses Lake, Lake Chelan, etc.

Ron Main, King County, stated that he believed this bill was premature. He said they are in the middle of a discussion with Mercer Island to resolve these issues. Mercer Island appears to be continuing to settle this through the judicial systems. Marine patrol services are provided as a regular service. Prior to the enactment of this, King County provided this service out of its own fund. In 1983 approached the legislature with the proposal to authorize counties to impose local option boat tax for boating safety service. In the past Medina and Mercer Island had provided some service. I believe this has been a waterfront police service, rather than a boating safety service. Part of the problem is that we are fighting over a pot of money that is inadequate. We have a new county executive who is committed t working with the cities.

Mr. Main responded to Rep. Zellinsky's question of how much money is being discussed. He said approximately $200,000 is collected countywide.

Stan Finkelstein, AWC, spoke in support of the bill. By way of background, this is the second year this legislation is before the committee. Part of the rub in the original language is that King County does not require that Mercer Island be a part of the agreement, even though Mercer Island does provide the service. This is the second year Mr. Hill has been in charge and the problem is still not resolved. It is time that the counties and cities got together. Now the bill only applies to King County, but eventually it could apply elsewhere.

Pete Spiller, Wash. Fire Commissioner Assn., said that the problem mentioned by the Attorney for Mercer Island is also a concern they have. The language eliminates the possibility of us participating in any agreements. He requested that the original language be returned to include municipal corporation. Second concern is the idea of expanding service to police activities. You are going to add additional activities to a fund that is already underfunded.

Rep. May, prime sponsor of the bill, testified in support of the bill. He noted that this was an agreed upon bill last year. It is true that negotiations have not been going on as aggressively as hoped.

HB 238

Steve Lundin, staff counsel, explained that state law authorizes the UTC to franchise, regulate and supervise garbage and refuse collection companies in the state that operate outside of a city or town. Cities and towns can collect garbage with their own employees or contract with a garbage and refuse collection for such collection, neither of which is subject to UTC regulation.

Rep. Cooper, prime sponsor, stated that this bill had been brought to his attention by Rep. Nutley and the counties. It is all about solid waste flow. It is not clearly defined where the waste goes. That was the original purpose of it. It makes sense to tie it into the comprehensive plan. Consumer protection is a feedback issue. Most individuals do not know where to go with their complaints. As far as how to force compliance is another issue. Some in between ground is needed.

George Cvitanich, Washington Waste Management Association, said he was here reluctantly to speak in opposition to the bill. He proposed that the wording be changed on page 1, line 27 to receive letters of comment, not just complaints. He said there are two other bills being given some attention: HB 115 and SB 5218. In his opinion the language on line 20, page 2 was redundant. He referenced Section 3. The existing state statute does provide a penalty. $1,000 is too high. Does the bill not provide for arbitration? He offered another change on page 4, section 4.

Mr. Cvitanich said there is existing mechanisms now to deal with most of the problems, and therefore he did not feel this bill was needed. If the committee made several changes he could however, live with the bill.

Rep. Nutley said that she did not feel that the system was responsive enough to the public.

Kathleen Collins, AWC, supported the bill. The bill clarifies the intent of the legislation.

Jim Williams, Assn. of Counties, also in support of this bill; said the request for this bill has a direct relationship of concern with the haulers and UTC. In trying to implement priorities of existing statutes we need a line of communication and direct access. The approach that HB 238 is good. He was however somewhat concerned with the penalty provisions. That was

not in our original bill. We have no utility tax or franchise fees. The "tipping fee" is set to cover our costs of operation and maintenance of disposing of the garbage.

Steve McCullum, UTC, said the bill has basically two parts. The cities currently have the option to take over garbage collection. The complaint section we have transferred to our consumer services area. Language in this bill may be redundant. It directs the counties to send us comments or complaints. They do that now. The volume of penalty compliance cases is very low. It is a complex issue. Different jurisdictions have different parts of level. Maybe a move to a system where one entity has all the levers would be better.

Rep. Haugen asked why the fiscal note indicated an increase if they already review the comments submitted by the counties. Mr. McCullum responded that they will have to review the comments and make comparisons to the solid waste plan.

Mr. McCullum suggested that level of penalty be reduced to a maximum of $500. There was some discussion as to when the penalty begins.

Executive Session

Steve Lundin, staff counsel, briefly summarized the bill.

Karen Fraser, Thurston Co. Commissioner spoke to the amendments on page 9, line 3, submitted by DNR. She was not sure as to their intent. Perhaps reading between the lines it would negate the ability from going to rates and charges approach and stay with the LID approach. Lake management districts are not true LIDS. The Game Dept. feels they are being unfairly singled out for fishing launch on lake. The launch handles the higher percentage of these on the lake and we feel they should pay equivalent to two family homes. We disagree with their philosophy.

Ken Sold, DNR, said the purpose of their amendment is to have a procedure of notices and apportionments of assessments. To assess more than separate private owners isn't right. He agreed that the language in 79.44 is not clear, but their Attorney General believed they could use that procedure.

Rep. Bumgarner noted that the assessment on this property would approximate $2,005 and this is just one lake. The Department manages many lakes and if this were to be imposed throughout the state it could cost them over $1 million.

Rep. Nelson asked if it were fair to charge the state for weeds they didn't produce? Karen Fraser responded that if they benefit, shouldn't they pay?

Meeting adjourned.

Notes

MINUTES - HOUSE LOCAL GOVERNMENT COMMITTEE

Date: February 19, 1987
Time: 8 AM
Tape: 15

Members in attendance: See attached roster.

Agenda: Public Hearing

HB 651 - Public funds/authorized investment

Possible Executive Session

HB 63 - Lake management dists.
HB 238 - Solid waste management/provisions
HB 643 - Bonds/special assessment use

Chairman Haugen called the meeting to order and immediately went into executive session.

EXEC SESS
HB 63 - Steve Lundin, staff counsel, briefly explained the bill.

Rep. Cooper moved the amendment on page 8, line 3. This would place a new phrase in existing law to clarify existing language. Amendment adopted.

Rep. Cooper then moved the amendment on page 9, line 3, which; would add another example onto the list of things to take into consider. Rep. Zellinsky asked if this would affect DNR who is already short of money? Amendment adopted.

Rep. Cooper then moved the amendment on page 9, line 13. Rep. Ferguson asked if this is common practice or is this something new being proposed? Mr. Lundin said it was a common practice for special assessments. Amendment adopted.

Rep. Cooper then moved the amendment page 8, line 22, proposed by DNR. Rep. Bumgarner noted that DNR really does not provide an extra charge to the public for stocking the lake. He felt like

Attachment #7

the amendment enabled the Department to continue its program. Rep. Nutley said I think you have to look at it on a statewide basis. Each lake is different and their criteria should be looked at differently. Rep. Ferguson said he would like to see something in between. If it passes, we give the locals a blank check. I think they should pay a little more but not an unlimited amount. Amendment adopted.

Amendment on page 9, line 3 adopted.

Rep. Cooper moved that the amendments be incorporated into a substitute bill and moved out of committee. 12 ayes.

HB 651

Steve Lundin, staff counsel, explained that the bill provides that county treasurers and the state treasurer may invest public funds in their possession in guaranteed interest contracts, deferred adjustment contracts, or annuities, guaranteed under the Washington Insurance Guaranty Association Act or the Washington Life and Disability Insurance Guaranty Association Act.

Rep. Zellinsky, prime sponsor, testified that this came to light where little fire districts can pool their money. This gives an opportunity for the county treasurers to take a look at all the alternatives to get the best for their money.

Brad Van Huizen, Emerald Equities and Insurance, testified in support of the bill. He said this offers one more opportunity for investment. By pooling their money they may be able to get as high as 8% loan interest instead of 5%.

Basil Bradley, American Insurance Company also urged the Committee's support of the bill. He said that all companies tat do business in Washington must belong to the Washington Guaranty Act. There does not appear to be any limit on the guaranty for these types of products.

Karen Shrader, Kitsap County Treasurer, expressed her personal support for any investment options. She suggested 651 as a vehicle. A problem to be addresed is who will address the cost of the system? The existing fee in the bill is inadequate. Rep. Beck asked if she had discussed the fee structure with participants? She said she was in the process of doing that now. Remember, this participation would be at their option.

Doug Lasher, Clark Co. Treasurer, also echoed Karen's comments in support of the bill and proposed amendment. He said the local pool was a new tool and has not really been implemented at the fullest because of the fee structure. Mr. Lasher also proposed an amendment to invest in any kind of investment offered by other taxing district. This would provide uniformity. Rep. Haugen

expressed concern about safeguards. She requested that he provide the committee with a list of the types of investments that they utilize.

Mr. Lasher continued his testimony and said that it costs money to invest if under $25,000. If they participated in pooling in the long run it would be cheaper.

Rep. Cooper asked Mr. Lasher if he would favor language that would say if they did not join now they would have to wait two years. Mr. Lasher responded no.

Fred Saeger, Wash. Association County Elected Officials, said he did not feel that either amendments were controversial.

Executive Session

HB 238

Steve Lundin, staff counsel, briefly explained the bill. Rep. Cooper moved the amendment on page 1, line 27. (Adopted) Amendment moved on page 3, line 28 to decease the fine to $500 from $1000. (Adopted.) Rep. Cooper then moved that the amendments be incorporated into a substitute bill and moved out do pass. (9 ayes 2 no.)

HB 643

Steve Lundin, staff counsel, briefly explained the proposed substitute bill. Bill moved out 11 ayes.

Meeting adjourned.

management districts. More than one lake, or portions of lakes, and the adjacent land areas may be included in a single lake management district. A lake management district may be created for a period of up to ten years.

Special assessments or rates and charges may be imposed on the property included within a lake management district to finance lake improvement and maintenance activities, including: (1) The control or removal of aquatic plants and vegetation; (2) water quality; (3) the control of water levels; (4) storm water diversion and treatment; (5) agricultural waste control; (6) studying lake water quality problems and solutions; (7) cleaning and maintaining ditches and streams entering or leaving the lake; and (8) the related administrative, engineering, legal, and operational costs, including the costs of creating the lake management district.

Special assessments or rates and charges may be imposed annually on all the land in a lake management district for the duration of the lake management district without a related issuance of lake management district bonds or revenue bonds. Special assessments also may be imposed in the manner of special assessments in a local improvement district with each landowner being given the choice of paying the entire special assessment in one payment, or to paying installments, with lake management district bonds being issued to obtain moneys not derived by the initial full payment of the special assessments, and the installments covering all of the costs related to issuing, selling, and redeeming the lake management district bonds

Sec. 3. Section 3, chapter 398, Laws of 1985 and RCW 36 61.030 are each amended to read as follows

A lake management district may be initiated upon either the adoption of a resolution of intention by a county legislative authority or the filing of a petition signed by ten landowners or ((twenty-five)) the owners of at least fifteen percent of the ((landowners)) acreage contained within the proposed lake management district, whichever is greater. A petition or resolution of intention shall set forth: (1) The nature of the lake improvement or maintenance activities proposed to be financed; (2) the amount of

SUBSTITUTE HOUSE BILL NO. 63

State of Washington 50th Legislature 1987 Regular Session

by Committee on Local Government (originally sponsored by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May)

Read first time 2/23/87 and passed to Committee on Rules

AN ACT Relating to lake management districts; amending RCW 36.61.010, 36 61.020, 36 61 030, 36 61 040, 36.61 070, 36 61 080, 36.61.090, 36.61 100, and 36 61 160; and adding new sections to chapter 36.61 RCW

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

Sec. 1. Section 1, chapter 398, Laws of 1985 and RCW 36.61.010 are each amended to read as follows:

The legislature finds that the environmental, recreational, and aesthetic values of many of the state's lakes are threatened by eutrophication and other deterioration and that existing governmental authorities are unable to adequately improve and maintain the quality of the state's lakes

It is the purpose of this chapter to establish a governmental mechanism by which property owners can embark on a program of lake improvement and maintenance for their and the general public's benefit, health, and welfare Public property, including state property, shall be considered the same as private property in this chapter, except liens for special assessments and liens for rates and charges shall not extend to public property. Lake bottom property shall not be considered to be benefited, shall not be subject to special assessments or rates and charges, and shall not receive voting rights under this chapter.

Sec. 2 Section 2, chapter 398, Laws of 1985 and RCW 36.61.020 are each amended to read as follows:

Any county may create lake management districts to finance the improvement and maintenance of lakes located within or partially within the boundaries of the county. All or a portion of a lake and the adjacent land areas may be included within one or more lake

Attachment #8

authority.

Sec. 4. Section 4, chapter 398, Laws of 1985 and RCW 36.61.040 are each amended to read as follows:

Notice of the public hearing shall be published in at least two consecutive issues of a newspaper of general circulation in the proposed lake management district, the date of the first publication to be at least fifteen days prior to the date fixed for the public hearing by the resolution of intention. Notice of the public hearing shall also be given to the owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district by mailing the notice at least fifteen days before the date fixed for the public hearing to the owner or reputed owner of the property as shown on the tax rolls of the county assessor at the address shown thereon. Notice of the public hearing shall also be mailed to the departments of fisheries, game, and ecology at least fifteen days before the date fixed for the public hearing.

Notices of the public hearing shall: (1) Refer to the resolution of intention; (2) designate the proposed lake management district by number; (3) set forth a proposed plan describing: (a) The nature of the proposed lake improvement or maintenance activities; (b) the amount of special assessments or rates and charges proposed to be raised by the lake management district; (c) if special assessments are proposed to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be payable at one time, with the possibility of periodic installments being paid and lake management bonds being issued, or both; ((and)) (d) if rates and charges are proposed to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; and (e) the proposed duration of the lake management district; and (4) indicate the date, time, and place of the public hearing designated in the resolution of intention

In the case of the notice sent to each owner or reputed owner by mail, the notice shall set forth the estimated amount of the cost of the lake improvement or maintenance activities to be borne by special

legislative authority shall have full jurisdiction and authority to fix, alter, regulate, and control the rates and charges imposed by a lake management district and may classify the rates or charges by any reasonable factor or factors, including benefit, use, front footage, acreage, the extent of improvements on the property, the type of improvements on the property, uses to which the property is put except public uses, service to be provided, and any other reasonable factor or factors. The flexibility to establish rates and charges includes the authority to reduce rates and charges on property owned by low-income persons.

Except as provided in this section, the collection of rates and charges, lien status of unpaid rates and charges, and method of foreclosing on such liens shall be subject to the provisions of chapter 36.94 RCW. Public property, including state property, shall be subject to the rates and charges to the same extent that private property is subject to them, except that liens may not be foreclosed on the public property, and the procedure for imposing such rates and charges on state property shall conform with the procedure provided for in chapter 79.44 RCW concerning the imposition of special assessments upon state property. The total amount of rates and charges cannot exceed the cost of lake improvement or maintenance activities proposed to be financed by such rates and charges, as specified in the resolution of intention Revenue bonds exclusively payable from the rates and charges may be issued by the county under chapter 39.46 RCW.

money proposed to be raised by special assessments or rates and charges; (3) if special assessments are to be imposed, whether the special assessments will be imposed annually for the duration of the lake management district, or the full special assessments will be imposed at one time, with the possibility of installments being made to finance the issuance of lake management district bonds, or both methods; (4) if rates and charges are to be imposed, the annual amount of revenue proposed to be collected and whether revenue bonds payable from the rates and charges are proposed to be issued; (5) the number of years proposed for the duration of the lake management district; and (((5))) (6) the proposed boundaries of the lake management district.

The county legislative authority may require the posting of a bond of up to five thousand dollars before the county considers the proposed creation of a lake management district initiated by petition. The bond may only be used by the county to finance its costs in studying, holding hearings, making notices, preparing special assessment rolls or rolls showing the rates and charges on each parcel, and conducting elections related to the lake management district if the proposed lake management district is not created

A resolution of intention shall also designate the number of the proposed lake management district, and fix a date, time, and place for a public hearing on the formation of the proposed lake management district. The date for the public hearing shall be at least thirty days and no more than ninety days after the adoption of the resolution of intention unless an emergency exists.

Petitions shall be filed with the county legislative authority. The county legislative authority shall determine the sufficiency of the signatures, which shall be conclusive upon all persons. No person may withdraw his or her name from a petition after it is filed. If the county legislative authority determines a petition to be sufficient and the proposed lake management district appears to be in the public interest and the financing of the lake improvement or maintenance activities is feasible, it shall adopt a resolution of intention, setting forth all of the details required to be included when a resolution of intention is initiated by the county legislative

No lake management district may be created by a county that includes territory located in another county without the approval of the legislative authority of the other county.

Sec. 6. Section 7, chapter 398, Laws of 1985 and RCW 36.61.080 are each amended to read as follows:

A ballot shall be mailed to each owner or reputed owner of any lot, tract, parcel of land, or other property within the proposed lake management district, including publicly owned land, which ballot shall contain the following proposition:

"Shall lake management district No. ..... be formed?

Yes... .....

No ... . "

In addition, the ballot shall contain appropriate spaces for the signatures of the landowner or landowners, or officer authorized to cast such a ballot. Each ballot shall include a description of the property owner's property((;-the-number-of-acres--of--such--property; and--the--number--of--feet--of--lake--front-footage;-if-any)) and the estimated special assessment, or rate and charge, proposed to be imposed upon the property. A copy of the instructions and the resolution submitting the question to the landowners shall also be included.

Sec. 7. Section 8, chapter 398, Laws of 1985 and RCW 36.61.090 are each amended to read as follows.

The balloting shall be subject to the following conditions, which shall be included in the instructions mailed with each ballot, as provided in RCW 36 61 080: (1) All ballots must be signed by the owner or reputed owner of property according to the assessor's tax rolls; (2) each ballot must be returned to the county legislative authority not later than five o'clock p.m. of a specified day, which shall be at least twenty but not more than thirty days after the ballots are mailed; (3) each property owner shall mark his or her ballot for or against the creation of the proposed lake management district, with the ballot weighted so that the property owner has one vote for ((any-amount-of-property-up-to-one-acre--and--one--vote--for each--additional-acre;-or-major-portion-of-an-acre;-he-or-she-owns-in

the-proposed-lake-management-district-and-one-vote-for-any-amount--up to--fifty-feet;-and-one-vote-for-each-additional-fifty-feet;-or-major portion-thereof;-of-lake-frontage-he-or-she-owns-in-the-proposed-lake management-district)) each dollar of estimated special assessment or rate and charge proposed to be imposed on his or her property; and (4) the valid ballots shall be tabulated and a simple majority of the votes cast shall determine whether the proposed lake management district shall be approved or rejected.

Sec. 8. Section 9, chapter 398, Laws of 1985 and RCW 36.61.100 are each amended to read as follows:

If the proposal receives a simple majority vote in favor of creating the lake management district, the county legislative authority shall adopt an ordinance creating the lake management district and may proceed with establishing the special assessments or rates and charges, collecting the special assessments or rates and charges, and performing the lake improvement or maintenance activities. If a proposed lake management district includes more than one lake and its adjacent areas, the lake management district may only be established if the proposal receives a simple majority vote in favor of creating it by the voters on each lake and its adjacent areas. The county legislative authority shall publish a notice in a newspaper of general circulation in a lake management district indicating that such an ordinance has been adopted within ten days of the adoption of the ordinance.

The ballots shall be available for public inspection after they are counted.

NEW SECTION. Sec. 9. A new section is added to chapter 36 61 RCW to read as follows:

A special assessment, or rate and charge, on any lot, tract, parcel of land, or other property shall not be increased beyond one hundred ten percent of the estimated special assessment, or rate and charge, proposed to be imposed as provided in the resolution adopted in RCW 36.61.070, unless the creation of a lake management district is approved under another mailed ballot election that reflects the weighted voting arising from such increases.

Sec 10 Section 16, chapter 398, Laws of 1985 and RCW 36.61.160 are each amended to read as follows:

Whenever special assessments are imposed, all property included within a lake management district shall be considered to be the property specially benefited by the lake improvement or maintenance activities and shall be the property upon which special assessments are imposed to pay the costs and expenses of the lake improvement or maintenance activities, or such part of the costs and expenses as may be chargeable against the property specially benefited. The special assessments shall be imposed on property in accordance with the special benefits conferred on the property up to but not in excess of the total costs and expenses of the lake improvement or maintenance activities as provided in the special assessment roll.

Special assessments may be measured by front footage, acreage, the extent of improvements on the property, or any other factors that are deemed to fairly reflect special benefits, including those authorized under RCW 35.51 030. Special assessments may be calculated by using more than one factor. Zones around the public improvement may be used that reflect different levels of benefit in each zone that are measured by a front footage, acreage, the extent of improvements, or other factors.

((Public--property,--including--property--owned--by--the-state-of Washington,-shall-be-subject--to--special--assessments--to--the--same extent--that-private-property-is-subject-to-the-special-assessments)) Publicly owned property shall be assessed at the same rate as similar privately owned property within the district without regard to the extent of use of such property by the general public, except no lien shall extend to public property.

NEW SECTION. Sec. 11. A new section is added to chapter 36.61 RCW to read as follows:

Whenever rates and charges are to be imposed in a lake management district, the county legislative authority shall prepare a roll of rates and charges that includes those matters required to be included in a special assessment roll and shall hold a public hearing on the proposed roll of rates and charges as provided under RCW 36.61.120 through 36.61.150 for a special assessment roll. The county

assessment, or annual special assessments, or rates and charges on the lot, tract, parcel of land, or other property owned by the owner or reputed owner.

If the county legislative authority has designated a committee of itself or an officer to hear complaints and make recommendations to the full county legislative authority, as provided in RCW 36.61.060, the notice shall also describe this additional step before the full county legislative authority may adopt a resolution creating the lake management district.

Sec. 5. Section 6, chapter 398, Laws of 1985 and RCW 36 61.070 are each amended to read as follows.

After the public hearing, the county legislative authority may adopt a resolution submitting the question of creating the lake management district to the owners of land within the proposed lake management district, including publicly owned land, if the county legislative authority finds that it is in the public interest to create the lake management district and the financing of the lake improvement and maintenance activities is feasible. The resolution shall also include: (1) A plan describing the proposed lake improvement and maintenance activities which avoid adverse impacts on fish and wildlife and provide for appropriate measures to protect and enhance fish and wildlife((,)); (2) the number of years the lake management district will exist((,)); (3) the amount to be raised by special assessments((,)) or rates and charges; (4) if special assessments are to be imposed, whether the special assessments shall be imposed annually for the duration of the lake management district or only once with the possibility of installments being imposed and lake management bonds being issued, or both, and, if both types of special assessments are proposed to be imposed, the lake improvement or maintenance activities proposed to be financed by each type of special assessment; (5) if rates and charges are to be imposed, a description of the rates and charges and the possibility of revenue bonds being issued that are payable from the rates and charges; and (6) the estimated special assessment or rate and charge proposed to be imposed on each parcel included in the proposed lake management district.

Appropriation: ____
Revenue: ____
Fiscal Note: ____

HOUSE BILL REPORT

HB 63

BY Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May

Revising provisions on lake management districts.

House Committee on Local Government

Majority Report: The substitute bill be substituted therefor and the substitute bill do pass. (12)
Signed by Representatives Haugen, Chair; Cooper, Vice Chair; Beck, Bumgarner, Ferguson, Hine, Nealey, Nelson, Nutley, Rayburn, L. Smith and Zellinsky.

House Staff: Steve Lundin (786-7127)

AS REPORTED BY COMMITTEE ON LOCAL GOVERNMENT FEBRUARY 19, 1987

BACKGROUND:

Legislation was enacted in 1985 authorizing the creation of lake management districts, which are mechanisms within which special assessments are imposed on real property to finance lake improvement and maintenance programs, such as the removal of weeds.

SUMMARY:

SUBSTITUTE BILL: The laws relating to lake management districts are altered as follows:

(1) Rates and charges could be imposed in a lake management district in addition to, or in lieu of, special assessments. The county legislative authority is granted the authority to reduce rates and charges for low income persons. Revenue bonds may be issued payable from these rates and charges. Special procedures to notify the state are provided if state property would be subject to the rates and charges.

(2) Rates and charges, or special assessments, imposed upon state lands cannot consider the extent of the public use of these lands.

(3) The signature requirement to initiate the creation of a lake management district is altered from the greater of ten landowners or 25 percent of the landowners, to the owners of 15 percent or more of the acreage in the proposed district.

Attachment #8

(4) The voting scheme to authorize the creation of a district is altered from weighted voting based on acreage and lake front footage, to one vote for each dollar of special assessment or rate and charge proposed to be imposed on his or her property.

(5) A special assessment, or rate and charge, may not be increased to an amount greater than 110 percent of the estimated amount used as the basis for voting to create the district.

(6) It is clarified that a variety of factors, including land uses, can be used to measure benefits if special assessments are imposed.

SUBSTITUTE BILL COMPARED TO ORIGINAL: The limitations were added measuring assessments or rates and charges on state land. The special procedure to notify the state if state lands were subject to rates and charges was added.

Fiscal Note: Not Requested.

House Committee - Testified For Original Measure in Committee: Karen Fraser, Thurston County Commissioner; Rose Maurer, resident of Lawrence Lake; and William Fosdick, resident of Lawrence Lake.

House Committee - Testified Against Original Measure in Committee: Randy Ellison, Department of Game.

House Committee - Testimony For: We need more flexibility to measure and impose charges on property to fit the particular circumstances of each lake. This establishes a fairer method of voting.

House Committee - Testimony Against: The Department of Game does not have the funds to pay large assessments on rates and charges.

Appropriation:
Revenue:
Fiscal Note:

HOUSE BILL REPORT

SHB 63

BY House Committee on Local Government (originally sponsored by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May)

Revising provisions on lake management districts.

House Committee on Local Government

Majority Report: The substitute bill be substituted therefor and the substitute bill do pass. (12)
Signed by Representatives Haugen, Chair; Cooper, Vice Chair; Beck, Bumgarner, Ferguson, Hine, Nealey, Nelson, Nutley, Rayburn, L. Smith and Zellinsky.

House Staff: Steve Lundin (786-7127)

AS PASSED HOUSE MARCH 2, 1987

BACKGROUND:

Legislation was enacted in 1985 authorizing the creation of lake management districts, which are mechanisms within which special assessments are imposed on real property to finance lake improvement and maintenance programs, such as the removal of weeds.

SUMMARY:

The laws relating to lake management districts are altered as follows:

(1) Rates and charges could be imposed in a lake management district in addition to, or in lieu of, special assessments. The county legislative authority is granted the authority to reduce rates and charges for low income persons. Revenue bonds may be issued payable from these rates and charges. Special procedures to notify the state are provided if state property would be subject to the rates and charges.

(2) Rates and charges, or special assessments, imposed upon state lands cannot consider the extent of the public use of these lands.

(3) The signature requirement to initiate the creation of a lake management district is altered from the greater of ten landowners

Attachment #9

or 25 percent of the landowners, to the owners of 15 percent or more of the acreage in the proposed district.

(4) The voting scheme to authorize the creation of a district is altered from weighted voting based on acreage and lake front footage, to one vote for each dollar of special assessment or rate and charge proposed to be imposed on his or her property.

(5) A special assessment, or rate and charge, may not be increased to an amount greater than 110 percent of the estimated amount used as the basis for voting to create the district.

(6) It is clarified that a variety of factors, including land uses, can be used to measure benefits if special assessments are imposed.

EFFECT OF SENATE AMENDMENT(S): The composition of special assessments or charges on public property could reflect the public use of such property.

Fiscal Note: Not Requested.

House Committee - Testified For Original Measure in Committee: Karen Fraser, Thurston County Commissioner; Rose Maurer, resident of Lawrence Lake; and William Fosdick, resident of Lawrence Lake.

House Committee - Testified Against Original Measure in Committee: Randy Ellison, Department of Game.

House Committee - Testimony For: We need more flexibility to measure and impose charges on property to fit the particular circumstances of each lake. This establishes a fairer method of voting.

House Committee - Testimony Against: The Department of Game does not have the funds to pay large assessments on rates and charges.

VOTE ON FINAL PASSAGE:

Yeas 95; Nays 0; Absent 0; Excused 3

Excused: Representatives Fuhrman, Locke and Padden

SENATE BILL REPORT

SHB 63

BY House Committee on Local Government (originally sponsored by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May)

Revising provisions on lake management districts.

House Committee on Local Government

Senate Committee on Parks & Ecology

Senate Hearing Date(s): March 23, 1987

Majority Report: Do pass as amended.
Signed by Senators Kreidler, Chairman; Rinehart, Vice Chairman; Hansen, Kiskaddon.

Senate Staff: Gary Wilburn (786-7453)
March 23, 1987

AS REPORTED BY COMMITTEE ON PARKS & ECOLOGY, MARCH 23, 1987

BACKGROUND:

In 1985 the Legislature authorized the creation of lake management districts to provide an alternative governmental mechanism for lake improvements and maintenance, to prevent eutrophication and other deterioration. Any county is authorized to create lake management districts for a period of up to ten years. Special assessments may be imposed within the district to finance improvement and maintenance activities including removal of aquatic plants and vegetation, water quality, control of water levels, storm water diversion and treatment, and similar activities. Formation of a district may be initiated either by resolution of the county legislative authority or filing of a petition signed by the greater of ten landowners or the owners of at least 25 percent of the landowners within the proposed district. Following a public hearing upon a petition a proposed ballot must be mailed to each owner describing the number of acres on the owner's property and the amount of lake front footage.

SUMMARY:

The laws relating to lake management districts are altered as follows:

Attachment #10

(1) Rates and charges may be imposed within lake management districts in addition to, or in lieu of, special assessments. Revenue bonds may be issued payable from these rates and charges as well as from special assessments. Existing law under Chapter 79.44 RCW is to govern procedures for imposing rates and charges upon state property.

(2) The extent of public use cannot be considered when imposing rates and charges.

(3) The signature requirement to initiate the creation of the lake management district is altered from the greater of ten landowners or 25 percent of the landowners, to the greater of ten landowners or the owners of 15 percent or more of the acreage in the proposed district.

(4) The voting scheme to authorize the creation of a district is altered from weighted voting based on acreage and lake front footage to one vote for each dollar of special assessment or rates and charges proposed on the voter's property.

(5) A special assessment, or rate or charge, may not be increased to an amount greater than 110 percent of the estimated amount used as the basis for voting to create the district.

(6) Special assessments may be measured considering existing facilities on the property, public and private land use restrictions, square footage of the property, access to the improvement, and other factors.

SUMMARY OF PROPOSED SENATE AMENDMENT:

Language prohibiting consideration of the extent of public uses when imposing special assessments or rates and charges is deleted.

Fiscal Note: none requested

Senate Committee - Testified: Representative Gary Bumgarner; Wallace Kydland, Long Lake Improvement Association; Karen Fraser, Thurston County Commissioner; Randy Ellison, Department of Game; Maryan Reynolds, Lakes Imp. Association; Thomas Clingman, WALPA; William Fozdick, Lake Lawrence Clean-up Comm.

FLOOR SYNOPSIS
SHB 63

REVISING PROVISIONS ON LAKE MANAGEMENT DISTRICTS.

A. WHAT IT DOES

- PROVIDES THAT LAKE MANAGEMENT DISTRICTS MAY IMPOSE RATES AND CHARGES IN ADDITION TO SPECIAL ASSESSMENTS FOR MAKING LAKE IMPROVEMENTS.

- CHANGES THE NUMBER OF OWNERS REQUIRED TO INITIATE FORMATION OF A LAKE MANAGEMENT DISTRICT.

- CHANGES THE WEIGHTING OF BALLOTS IN ELECTIONS FOR FORMATION OF LAKE MANAGEMENT DISTRICTS FROM LAND AREA TO ASSESSED VALUE.

- PROVIDES LIMITS ON INCREASES FOR SPECIAL ASSESSMENTS AND/OR RATES AND CHARGES.

- PUBLIC PROPERTY MUST BE ASSESSED WITHOUT REGARD TO THE EXTENT OF GENERAL PUBLIC USES.

  - EFFECT OF PROPOSED AMENDMENT:

    - DELETES REQUIREMENT THAT PUBLIC PROPERTY BE ASSESSED WITHOUT REGARD TO THE EXTENT OF GENERAL PUBLIC USES.

B. WHY IT IS NEEDED

- LAKE MANAGEMENT DISTRICTS ARE A SIGNIFICANT TOOL FOR PREVENTION OF DETERIORATION, INCLUDING AQUATIC PLANT INFESTATIONS AND STORMWATER CONTROL.

- IMPOSITION OF RATES AND CHARGES AS AN ALTERNATIVE TO SPECIAL ASSESSMENTS WILL PROVIDE GREATER FLEXIBILITY TO CHARGE THOSE LAKEFRONT PROPERTIES WHICH PARTICULARLY BENEFIT BY THE IMPROVEMENTS.

- EXPERIENCE IN INITIAL FORMATION OF DISTRICTS UNDER THE 1985 ELECTION HAS REVEALED CHANGES NEEDED IN THE FORMATION PROCEDURES WHICH THE BILL ADDRESSES.

C. FISCAL IMPACT

NONE ON THE GENERAL FUND.

D. COMMENTS

- THE GAME DEPARTMENT WAS THE SOURCE OF ORIGINAL BILL LANGUAGE RESTRICTING CONSIDERATION OF PUBLIC USES IN THE ASSESSMENT OF PUBLICLY OWNED PROPERTY DUE TO LACK OF FUNDS.

- PROPONENTS OF THE PROPOSED AMENDMENT ARGUE THAT PUBLIC USE OF SUCH LAKES IS A SIGNIFICANT SOURCE OF IMPROVEMENT NEED, AND SHOULD PAY THEIR FAIR SHARE OF SUCH IMPROVEMENTS.

GW:VC9-2

SHB 63 - S Amd
By Comm on Parks and Ecology

On page 8, lines 22 through 24, reinsert all language stricken

On page 8, lines 25 through 27 delete all language beginning with "Publicly" and ending with "public"

On page 9, line 7, delete "except public uses"

FINAL BILL REPORT

SHB 63

BY House Committee on Local Government (originally sponsored by Representatives Unsoeld, Haugen, Cooper, Madsen, Nutley, Belcher and May)

Revising provisions on lake management districts.

House Committee on Local Government

Senate Committee on Parks & Ecology

AS PASSED LEGISLATURE

BACKGROUND:

Legislation was enacted in 1985 authorizing the creation of lake management districts, which are mechanisms within which special assessments are imposed on real property to finance lake improvement and maintenance programs, such as the removal of weeds.

SUMMARY:

The laws relating to lake management districts are altered:

Rates and charges can be imposed in a lake management district in addition to, or in lieu of, special assessments. The county legislative authority is granted the authority to reduce rates and charges for low income persons. Revenue bonds may be issued payable from these rates and charges. Special procedures to notify the state are provided if state property would be subject to the rates and charges.

The signature requirement to initiate the creation of a lake management district is altered from the greater of ten landowners or 25 percent of the landowners, to the owners of 15 percent or more of the acreage in the proposed district.

The voting scheme to authorize the creation of a district is altered from weighted voting based on acreage and lake front footage, to one vote for each dollar of special assessment or rate and charge proposed to be imposed on a property owner's property.

A special assessment, or rate and charge, may not be increased to an amount greater than 110 percent of the estimated amount used as the basis for voting to create the district.

It is clarified that a variety of factors, including land uses, can be used to measure benefits if special assessments are imposed.

VOTES ON FINAL PASSAGE:

House	95	0	
Senate	48	1	(Senate amended)
House	61	35	(House concurred)

EFFECTIVE: July 26, 1987

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON, DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent,	No. 90 2 00327 0 AFFIDAVIT OF MAILING

STATE OF WASHINGTON)
) ss.
COUNTY OF THURSTON)

CATHERINE GALVIN, being first duly sworn on oath, deposes and says:

That on the 5th day of September, 1990, your affiant deposited in the mails of the United States of America a properly stamped and addressed envelope directed to Colleen Warren containing the Brief of Respondent in the above-captioned cause.

Catherine Galvin
CATHERINE GALVIN

SUBSCRIBED and SWORN to before me this 6th day of September, 1990.

Michele S. Sekulich
NOTARY PUBLIC in and for the State of Washington, residing at Olympia.
My commission expires: 1-2-92.

PATRICK D SUTHERLAND
THURSTON COUNTY PROSECUTING ATTORNEY
2000 LAKERIDGE DR SW
OLYMPIA, WASHINGTON 98502
(206) 786-5540

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON DEPARTMENT OF WILDLIFE, Appellant, vs. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. 90-2-00327-0 AFFIDAVIT OF WILLIAM ITH

STATE OF WASHINGTON)
) ss.
County of Thurston)

I, WILLIAM ITH, being first duly sworn on oath, depose and say:

I have been in the appraisal business since 1967. In that capacity, I have acted as a corporate and fee appraiser for various financial institutions. I am currently a Senior Appraiser with the Washington State Department of Wildlife and a Residential Member of the American Institute of Real Estate Appraisers.

I have analyzed the rates and charges assessed by the Thurston County Board of Commissioners on the Washington State Department of Wildlife's property located at Summit Lake. This

EXHIBIT A

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property consists of a 1.9 acre site with 223.18 feet fronting on the south shore of Summit Lake and 194.65 feet on Summit Lake Shore Road N.W. in the northwestern most part of Thurston County. This site slopes northerly from the road to the lake and is currently improved with a public boat launch.

The purpose of this affidavit is to render my opinion as to whether or not the state's property is "specially benefitted" by the "rates and charges" levied by the Thurston County Board of Commissioners for purposes of conducting a water quality testing of Summit Lake.

In order to determine whether such property is benefitted, it is necessary to define the term fair market value. Fair market value is generally defined as the price a piece of property will bring when offered for sale by one who desires but is not required to sell, and is sought by one who desires but is not required to buy, after due consideration of all the elements reasonably effecting the value. In any value analysis, the highest and best use of the site must be established. The highest and best use is usually defined as the reasonable and probable use that supports the highest present value. It is the use from among reasonably probable and legal alternative uses found to be physically probable, appropriately supported, financially feasible, and results in the highest present land value. Based on a cursory examination of those aspects concerning highest and best use of the site, the subject highest

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value would be a single family residential homesite. The water quality testing is merely a precautionary maintenance cost. It will not enhance highest and best use, current use or affect fair market value in any way. It will not add value nor maintain value. It is informational only. Consequently, an estimate of fair market value of the property is not necessary. There is absolutely no increase in value or use to property as a result of such a study.

An analogy, is that of a residential community well. A periodic test of the wells water quality is only prudent. As an example, if there are 10 properties using the well, then each would be expected to pay 1/10 the cost of the testing. It is in everyone's equal interest to determine the well's water quality. If the well were polluted, then the problem becomes one of the costs to cure. The mere fact that the test establishes that the well is polluted does not in any way increase the value of the property. It merely identifies a problem that must be addressed. If one of the properties were found to be a larger contributor to the pollution, then it is reasonable to charge the property a higher cost to cure the problem. It would be premature to assess that owner for excess contribution before the testing could indicate which property was the actual larger contributor.

In my opinion, the testing of the water quality of Summit Lake is a prudent informational exercise that is classified as a

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maintenance cost. The Washington State Department of Wildlife's property will not benefit from the testing and the value to its land will in no way be enhanced.

Furthermore, if a "rate and charge" is to be assessed then the cost of the information gathering should be borne equally by all of the property owners. There is no difference on a proportionate basis between the department's parcel of land and any neighboring parcels in the testing phase.

William Ith

WILLIAM ITH
Senior Appraiser, WDW

SIGNED AND SWORN to before me on September 5, 1990, by William Ith.

Mary E. Nelson

NOTARY PUBLIC
My appointment expires 10/4/92

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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON DEPARTMENT OF WILDLIFE, Appellant, vs. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. 90-2-00327-0 APPELLANT'S TRIAL MEMORANDUM

FACTS

On August 28, 1989, the Thurston County Board of Commissioners (TCBC) adopted Ordinance 9259 creating Thurston County Lake Management District (LMD) #5 for Summit Lake. The purpose of the LMD was to commence a study of the lake's water quality. After creation of the LMD, a roll of "rates and charges" was proposed by the TCBC. The TCBC identified four categories of owners at Summit Lake with the following proposed assessments:

1. Developed Residential: $35/dwelling unit and associated legal lot;
2. Undeveloped Residential: $20/legal lot;
3. Public Access: $3500/legal lot[1];

[1] The Washington State Department of Wildlife (WDW) has the only public access on Summit Lake.

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4. Timberland (20 acres or more): $5/acre.

A public hearing was held on those charges on October 5, 1989. According to the TCBC, the proposed rates reflect the amount of pollution each type of owner contributes to the lake and the amount of benefit each would receive from improved water quality. Since the Washington State Department of Wildlife (WDW) owns the only public access on Summit Lake, the TCBC wrote it is reasonable to charge WDW property at a rate reflecting both the "significant contribution to pollution from public boating, and the significant benefit to public recreational users from improved water quality." The TCBC cited such pollutants factors as increased gas, oil, and garbage in the lake when addressing the issue of pollution. The only documentation offered was a 1988 Thurston County Health Department survey showing that residential and nonresidential properties contributed equally to fecal contamination of the lake. The TCBC, when addressing the issue of benefits accruing to WDW's land, stated only that improved water quality will be a "significant benefit to public recreational users." No specific benefits to WDW land were cited.

The proposed improvements included the conducting of a septic survey and the establishment of a steering committee to develop a water quality improvement plan for Summit Lake.

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Prior to the October 5, 1989 public hearing on "rates and charges", the WDW filed written objections to the proposed rates and charges.

On January 8, 1990, the TCBC approved Resolution 9385 confirming the roll of rates and charges for LMD #5 (Summit Lake). The WDW appealed this resolution which is currently before the Thurston county Superior court for resolution of the following issues:

ISSUES

1. Does RCW 36.61.270 require that any "rates and charges" imposed on public lands specially benefit such lands in accordance with the special benefit requirement of RCW 79.44.010 and 020?

2. If the answer to #1 is yes, is there a special benefit to WDW's land located at Summit Lake from the imposition of the "rates and charges" levied by the TCBC?

3. Has the WDW been assessed and charged for its proportion of the cost of the local improvements in the same manner as other property in the LMD?

ARGUMENT

In 1985, the Washington State Legislature recognized that existing governmental authorities were unable to adequately improve and maintain the state's lakes. Consequently,

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legislation was enacted providing for the creation of LMDs. RCW 36.61.010.

Once a LMD is created, counties are now empowered to impose either "special assessments" or "rates and charges" to finance lake improvement and maintenance activities. RCW 36.61.020. "Special assessments" may not be levied against public or private property unless the improvements financed by the assessment benefit the land being assessed. In contrast, "rates and charges" imposed against private property operate like user fees and don't require the land be specially benefitted. RCW 36.61.270[2] This is not the case for publicly owned state lands.

State property is subject to the imposition of "rates and charges" to the same extent as private property. RCW 36.61.270. The procedure for imposing such "rates and charges" on state property must conform with the procedure provided in RCW 79.44. Id. This statute provides that state lands can only be assessed and charged for the cost of local improvements that specially benefit the land.[3] Assessments, for purposes of this

---

[2] RCW 36.61.270 requires only that the total amount of "rates and charges" cannot exceed the cost of lake improvement or maintenance activities proposed to be financed by such rates and charges, as specified in the resolution of intention.

[3] RCW 79.44.010 reads in relevant part as follows:

> All lands, including school lands, granted lands, escheated lands, or other lands, held or owned by the

(Footnote continues on next page)

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chapter include "rates and charges" levied by counties. RCW 79.44.004.[4] Additionally, public lands can only be assessed and charged for its proportion of the cost of such local improvements in the same manner as other property in a LMD. RCW 79.44.020. It is intended that the state bear its just and equitable proportion of the costs of local improvements specially benefiting state lands. Id.

The special benefit to the land must be actual, physical, and material. Bellevue Assocs. v. Bellevue, 108 Wn.2d 671, 675, 741 P.2d 993 (1987). The measure of the special benefits is "the difference between the fair market value of the property

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(Footnote continued from previous page)

> state of Washington in fee simple (in trust or otherwise), situated within the limits of any assessing district in this state, may be assessed and charged for the cost of local or other improvements specially benefiting such lands which may be ordered by the proper authorities of any such assessing district . . . to the same extent as private lands within the district assessed: Provided, That the leasehold, contractual, or possessory interest of any person, firm, association, or private or municipal corporation in any such lands shall be charged and assessed in the proportional amount such leasehold, contractual, or possessory interest is benefited . . .

[4] RCW 79.44.004 defines assessment as follows

> As used in this chapter, "assessment" shall mean any assessment, rate or charge levied, assessed, imposed, or charged by any assessing district as defined in RCW 79.44.003, and which assessments, rates or charges by statute are expressly made applicable to lands of the state.

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immediately after the special benefits have attached and its fair market value before they have attached." Id. (Quoting Heavens v. King Cy. Rural Library Dist., 66 Wn.2d at 564.)

1. The amount of "rates and charges" imposed by the TCBC does not specially benefit WDW's land at Summit Lake.

Attached hereto as Exhibit "A" is an affidavit of William Ith, a Senior Appraiser with the WDW. In this affidavit, Mr. Ith has attempted to determine whether the department's land has been specially benefited by comparing the fair market value of the land before the lake improvements with the fair market value of this land after the improvements. In Mr. Ith's expert opinion, there would not be any material or significant effect on the fair market value of the WDW parcel of land as a result of the study to be conducted by LMD #5. The reason for this is that the study is a maintenance activity. It does not create value but rather maintains it to some degree. Mr. Ith's opinion is that the highest and best use of that parcel of land is as building sites for single-family residences. The lake improvements will have no substantial effect on the fair market value of this parcel based on its highest and best use. The fact that the site is currently used as a public access boat launch (which is not the highest and best use) does not affect this result.

Thus, the amount of the assessment of WDW's parcel ($3500) is impermissible as it does not specially benefit the state's land.

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2. The "rates and charges" assessed WDW are disproportionate to the "rates and charges" assessed other property owners within the LMD.

The original "rates and charges" roll provided for a rate and charge against developed residential property of $35.00, undeveloped residential property at $20.00 and public access at $3500.00 per year for three consecutive years. The amount of WDW's assessment is clearly disproportionate to the amount assessed on similarly situated parcels in the LMD. The rates and charges scheme also violates the law in that the WDW parcel is not assessed in the same manner as other property in the district.

First, WDW's rate and charge is disproportionate in amount. The WDW parcel is a waterfront parcel. It is assessed at $3500.00; all other waterfront parcels are assessed a maximum of $35.00 if developed and $20.00 if undeveloped. (Timberland is assessed at $5.00 per acre.) Is there anything different or unique about the WDW property, or the special benefits, if any, that will accrue to that property, that would justify an assessment almost 100 times higher? Not according to Mr. Ith. In his opinion, to the extent that the fair market value of the WDW parcel increases as a result of lake improvements, the increase in value to that parcel will be substantially the same on a per-acre basis as the increase in value, if any, to the neighboring parcels. The fact that the WDW property is currently used as a public boat launch has no bearing on the

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benefit to the property in terms of any increase in fair market value. Thus, the presence of the public access boat launch on a portion of the WDW property does not justify assessing the WDW parcel in a different amount than other waterfront parcels.

Second, the assessment is impermissible because the WDW parcel is not being assessed in the same manner as other similarly situated parcels. Here the LMD determined that the charges were based on both potential contribution to pollution and the benefit to property from protecting lake water quality. Here, the LMD determined that the criteria for allocating costs would be whether the land was developed, undeveloped, public access or timber. There is no rational basis for distinguishing between privately owned riparian lands (charged a rate of $20.00/undeveloped and $35.00/developed per parcel) and public land access which is charged at $3,500.00 per year.

The county states that the charges were determined by looking at the potential contribution to pollution from each of these property owners as well as the benefit from protecting water quality. The county made some assumptions that the public's use of this land contributes to a greater share of the pollution. However, it is unable to substantiate at this time the exact source of pollutants. This is the very reason for the establishment of the LMD to identify and pinpoint such sources. The only study done to date was a water quality investigation done in 1988 which indicated that both residential and

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nonresidential contribution to fecal coliform contamination. That study further identified other potential sources of pollutants which included herbicides, fertilizers, and sediment from forestry management as well as boater associated pollutants ions such as oil, gas, garbage and other waste. The county arbitrarily determined that the public's use of this land contributed to the degradation of water quality at a rate of 100 times more than the average residential user. This is without proof of any such scientific or other valid documentation of the contribution to pollution by the parties owning land within this LMD.

Furthermore, the county states that the principal beneficiaries from protecting lake water quality are residential uses. They contend that the state's property, however, should be assessed at a rate which reflects both its contribution to pollution from public boating (which is presently unknown) and the significant benefit to the public from being able to use this lake for recreational uses. The "rates and charges" formula presumes benefits to the public from being able to utilize this lake for recreational use. However, the state does not directly benefit from such a disproportionate division of the imposition of such a charge and should share in the cost of the lake improvement to the same extent as a property owner (assuming a special benefit is conferred.)

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CONCLUSION

The WDW contends that the "rates and charges" levied against its property at Summit Lake is contrary to law because no special benefit occurs resulting in an increase in the value of the property. Furthermore, assuming a benefit can be established, the department cannot be required to bear any more than its proportional share of the cost of such local improvements specially benefiting the states land. Therefore, the department requests that this court annul the "rates and charges" imposed by the TCBC against the WDW's property at Summit Lake or in the alternative modify the amount to that assessed other private property owners in the LMD.

Respectfully submitted this 5th day of September, 1990.

KENNETH O. EIKENBERRY
Attorney General

COLLEEN G. WARREN, WSBA #16506
Assistant Attorney General
Attorneys for Appellant

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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON, DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent,	No. 90 2 00327 0 AFFIDAVIT OF TOM CLINGMAN

STATE OF WASHINGTON)
) ss.
COUNTY OF THURSTON)

TOM CLINGMAN, being first duly sworn on oath, deposes and says:

1. I am currently the Lake Program Manager with the Thurston County Public Works Department. I am a resident of Thurston County and I am competent to testify as to all matters contained in this affidavit and do so on my own personal knowledge.

2. My duties as Lake Program Manager consist of the formation and management of Lake Management Districts within Thurston County and other lake activities.

3. As Lake Program Manager, I assisted the Board of Thurston County Commissioners in forming Lake Management District No. 5 for Summit Lake, and I assisted the Board in

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THURSTON COUNTY PROSECUTING ATTORNEY
2000 LAKERIDGE DR SW
OLYMPIA, WASHINGTON 98502
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developing the rates and charges for Lake Management District No. 5.

4. The Department of Health conducted a study on the water quality of Summit Lake. The fecal coliform level was used as an indicator of contamination of the lake water. Residents of Summit Lake are using the lake as their primary drinking water source. When the Health Department conducted a sampling of the lake water, they found that the water failed to reliably meet state drinking water standards.

5. Summit Lake's water quality was of concern to the Board since that water is the primary drinking source for residents on Summit Lake and because of the extensive use being made of Summit Lake for recreational purposes.

6. The Summit Lake property owners petitioned the Board for the formation of a Lake Management District to protect the community drinking water supply, recreational and aesthetic values, and fisheries.

7. In developing the rates and charges, the substantial recreational boating and shoreline use provided by the Department of Wildlife's public boat ramp was reviewed and its potential contribution to pollution was assessed. Potential sources of pollution include nutrients, oil and gas, garbage and other wastes, and erosion from the heavily used recreational site. Benefit of maintaining the lake's high water quality for contact recreational activities provided by the Department of Wildlife property was also considered. While the greatest degree of potential problem and benefit was found to accrue to residential and timberland uses in the watershed,

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the intensity of use of the subject property was a significant factor in potential contamination and benefit from the program.

8. In assessing the amount of pollution caused by users of the public boat ramp, various authoritative documents (see attached) concerning power boat discharge were referred to in investigating potential sources of water quality problems.

9. After analyzing the intensity of use of the Department of Wildlife's boat ramp and the contribution to pollution from public boating, I recommended to the Board that 14% reflected the Department of Wildlife's proportionate cost of Lake Management District No. 5.

Tom Clingman

TOM CLINGMAN

SUBSCRIBED and SWORN to before me this 5th day of September, 1990.

Tamara K. Sutherland

NOTARY PUBLIC in and for the State of Washington, residing at Olympia.
My commission expires: 5/31/91.

(WORK\PLD\WILDLIFE.AFF)(CBG/vwt)

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POWERBOAT ENGINE DISCHARGES AS A NUTRIENT SOURCE IN HIGH-USE LAKES

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ABSTRACT

Fuels for modern internal combustion engines contain nitrogen and phosphorus compounds as additives (e g., alkyl phosphate, amine phosphate, etc.). In addition, nitrogen oxides are formed from atmospheric gases during combustion. In the case of marine engines, exhaust gases and incompletely burned fuel and oil are discharged directly into the water. In situ enclosure experiments were conducted to quantify nitrogen and phosphorus additions from two- and four-cycle outboard engines per liter of fuel consumed. The modern two-cycle outboard engine added to test tanks 8,600 mg carbon dioxide, 300 mg total nitrogen, and 1.0 mg total phosphorus per liter fuel consumed. A motorboat census was conducted on Twin Lakes, Kootenai County, Idaho, throughout the 1986 boating season and annual fuel consumption was estimated. Phosphorus and nitrogen loading to Twin Lakes from motorboat engine discharges were calculated and are low when compared to loading from other sources.

INTRODUCTION

Recreational boating is a potential source of water quality problems, if only because of the quantity of boats involved. In 1983, 9.2 X 10^6 boats were registered in the United States (Commandant Coast Guard, 1984); and a conservative estimate of gasoline consumption by outboard motors was 4.02 X 10^9 liters (Hanchey and Holcomb, 1985). In two-cycle outboard engines built before 1972 the crankcase drained directly into the water, resulting in wastage of 10 to 40 percent of the fuel (Muratori, 1968). Although still relatively inefficient, two-cycle outboards since 1972 have included devices that recycle the oil/gas mixture collecting in the crankcase (Jackivicz and Kuzminski, 1973). Almost all outboard engines discharge exhaust gases containing hydrocarbons, carbon monoxide, carbon dioxide, nitrous oxides, sulfur oxides, aldehydes, lead, and other compounds directly into the water (Hare and Springer, 1973).

A number of studies have addressed various effects of motorboats on aquatic systems. Yousef (1974) and Yousef et al. (1980) found that a 50 horsepower (hp) outboard has an effective mixing depth of 4.5 m and that agitation and mixing by motorboats can destratify a lake and increase turbidity. Water phosphorus concentration increased 55 percent (at least temporarily) in one test lake. English et al. (1963) measured oil, lead, and phenol as a function of outboard use and related outboard wastes to domestic use of water, fish toxicity, and tainting of fish flesh. Shuster (1974) measured fuel wastage and examined microbial growth rates in engine exhaust products and found the growth rate to be limited by available oxygen. Boating Industry Associations (1975) examined lake response to motorboat use over an 18-month period. While those investigators did not find a significant change in most of the chemical and biological parameters measured, including nitrogen and phosphorus, they measured whole-lake effects where a relatively subtle and short-term change in nutrient loading may not be detectable.

One study directly measured exhaust products of outboard engines (Hare and Springer, 1973). Although the objective of that study was to measure the atmospheric contributions of outboard engine exhausts, the experimental design allowed the calculation of the fraction of exhaust constituents retained after being bubbled through water in a separate system. Hare and Springer estimated that in 1971 as much as 600,000 kg of nitrogen oxides from outboard engine exhausts were retained in U.S. waters; they did not measure phosphorus or organic nitrogen.

We have found no studies that address outboard engines as a direct nutrient source to lakes, yet motorboat discharges are a potentially significant source of phosphorus and, especially, nitrogen to a lake's nutrient budget. Although crude oil contains less than 0.1 percent nitrogen (Lochte and Littman, 1955) and some of this is removed during refining, both nitrogen and phosphorus compounds (such as alkyl phosphate, amine phosphate, alkyl ammonium dialkyl phosphate, etc.) are added to gasoline as

detergents, anti-icing and antirust agents, and deposit modifiers (Camin, 1971). Phosphorus concentrations in gasoline may be as high as 12.6 mg/L (Bartsch, 1972). In addition to being found in gasoline additives, nitrogen compounds are formed from atmospheric gases during the combustion process (Owen, 1984). Because most marine exhaust gases are bubbled through the water, some enhancement of nitrogen and phosphorus concentrations in lakes receiving heavy motorboat use is possible.

The goal of this study was to determine the importance of powerboat engine discharges as a nutrient source. Specific objectives were (1) to determine chemical (nutrient) response of lake water to powerboat exhaust; (2) to partition nutrient loading to Twin Lakes, Idaho, by source; and (3) to extrapolate powerboat exhaust impacts to lake management.

METHODS

Powerboat engine experiments were conducted in triplicate in four closed bottom enclosures made of 6-mil polyethylene plastic formed into 2.13 m long x 0.91 m wide x 0.81 m deep bags. The enclosures were fastened to a floating dock on Twin Lakes in Kootenai County, Idaho, and rinsed and filled with lake water before each trial. One enclosure served as a control; the following three outboards were run in the other enclosures: (1) a 9.5 horsepower, two-cycle, 1970 Johnson; (2) a 9.8 horsepower, two-cycle, 1977 Mercury; and (3) a 9.9 horsepower, four-cycle, 1985 Honda. Regular gasoline was used in all engines but mixed 50:1 with two-cycle oil for the Johnson and Mercury outboards.

The three trials were conducted during August 1986. During each trial the outboards were run for an 8-hour period at low speed (approximately 10 percent throttle) with the propellers removed; water samples were collected from each of the four enclosures as well as from the lake adjacent to the enclosures. Samples were collected every two hours and immediately analyzed for carbon dioxide, alkalinity, pH (Corning Model 7 meter with glass electrode), conductivity and temperature (YSI meter), and oxygen (YSI meter). Additional samples were collected in acid-washed polyethylene bottles and frozen for later analysis of total phosphorus and total soluble phosphorus (stannous-chloride method), Kjeldahl-nitrogen, nitrate-nitrogen (ultraviolet spectrophotometric screening method), and total organic carbon (combustion-titration method). During one trial, in addition to the above, water samples were collected both before the test run and after 4, 8, and 12 days. These were analyzed for chlorophyll *a*, biomass, zooplankton numbers and composition (modified 10 L Schindler trap), and phytoplankton numbers and composition (inverted microscope method). Except where noted otherwise, all analyses were conducted according to Standard Methods (1985). Total fuel consumption for each outboard was determined after each 8-hour trial. Parameter change per liter fuel consumed was determined by plotting response versus time and linear regression.

Motorboat use of Twin Lakes was determined by census techniques similar to those used for fisheries creel surveys. Five volunteer homeowners conducted "instantaneous" counts of motorboats on the lake several times each week during the 1986 boating season. Approximate engine size and whether the boat was under way was recorded. These data were stratified by weekend/weekday and analyzed separately for large and small motors and for Upper and Lower Twin Lakes according to Scheaffer et al. (1979) to determine total annual boat-hours on Twin Lakes. Average rated horsepower weighted by estimated hours under way was determined by a survey of homeowners. Annual fuel consumption was then calculated for large (>45 hp) and small (<45 hp) motors using estimated consumption rates (liters gasoline per brake horsepower-hour) and composite load factors (to convert rated horsepower to brake horsepower) from Hare and Springer (1973).

Nitrogen and phosphorus loading from other sources to Twin Lakes were determined for water year 1986. Surface flows and rainfall plus dryfall were quantified and analyzed for total phosphorus and Kjeldahl- and nitrate-nitrogen. Septic loading was estimated based on a shoreline survey (Panhandle Health District, 1977), a survey of homeowners, and Cantor and Knox (1985). Anaerobic internal phosphorus loading was calculated from the increase in hypolimnetic phosphorus concentration during summer stratification. Aerobic internal phosphorus loading was approximated from sediment release rates determined for nearby Liberty Lake, Washington (Mawson, et al. 1983). Nutrient loading from these sources is discussed in more detail in Falter and Hallock (1987).

RESULTS

Enclosure Experiments

During each of the three 8-hour tests, the Honda, Mercury, and Johnson outboards consumed an average of 5.30, 6.48, and 17.03 liters of fuel, respectively. Visually, the Honda enclosure changed little throughout the test; the Mercury and Johnson enclosures both became milky with floating oily globules by the first sample period (brown in the

Mercury enclosure and black in the Johnson). Both two-cycle enclosures smelled strongly of gas and oil.

Both total organic carbon and carbon dioxide increased dramatically during the test (Fig. 1). The four-cycle Honda caused the largest increase in carbon dioxide (from an ambient concentration of 4.3 mg/L to 54.0 mg/L after 8 hours); the Johnson caused the smallest change (4.3 to 16.8 mg/L). The rate of change decreased as the concentration in the containers increased, resulting in underestimates of carbon dioxide loading rates. Four days after running the engines, carbon dioxide concentrations in all enclosures had decreased sharply but not quite to ambient levels. At 12 days, carbon dioxide in the Johnson enclosure was slightly higher than levels in the other enclosures. All outboards added considerable oxidizable carbon per liter fuel consumed (Table 1).

Results of pH and oxygen measurements mirrored the carbon dioxide results (Fig. 2). The Mercury and Honda enclosures decreased from a pH of 6.5 to a low of less than 5.0, while the Johnson decreased to a low of 5.3. After 8 hours, oxygen levels were 3.4, 4.4, and 5.6 mg/L for the Honda, Mercury, and Johnson enclosures, respectively. Twelve days after the test run, both pH and oxygen were lowest in the Johnson enclosure. Alkalinity fell to 10 mg/L from ambient levels of about 14 mg/L and did not recover even after pH had returned to near ambient. Conductivity increased from 19 umhos to 26 umhos after the eight hour test but returned to ambient levels after four days. Temperature increased slightly (4°C) in all treatment enclosures.

Phosphorus increased slightly in the Mercury and Johnson enclosures and not at all in the Honda enclosure (Table 1). Total soluble phosphorus concentrations were very low and no significant trend could be seen.

Total Kjeldahl-nitrogen and especially nitrate-nitrogen increased dramatically in both two-cycle enclosures and increased slightly in the four-cycle Honda enclosure (Fig. 3). The increases corresponded to 91 mg total nitrogen per liter fuel consumed for the Honda, 300 mg/L for the Mercury and 180 mg/L for the Johnson (Table 1).

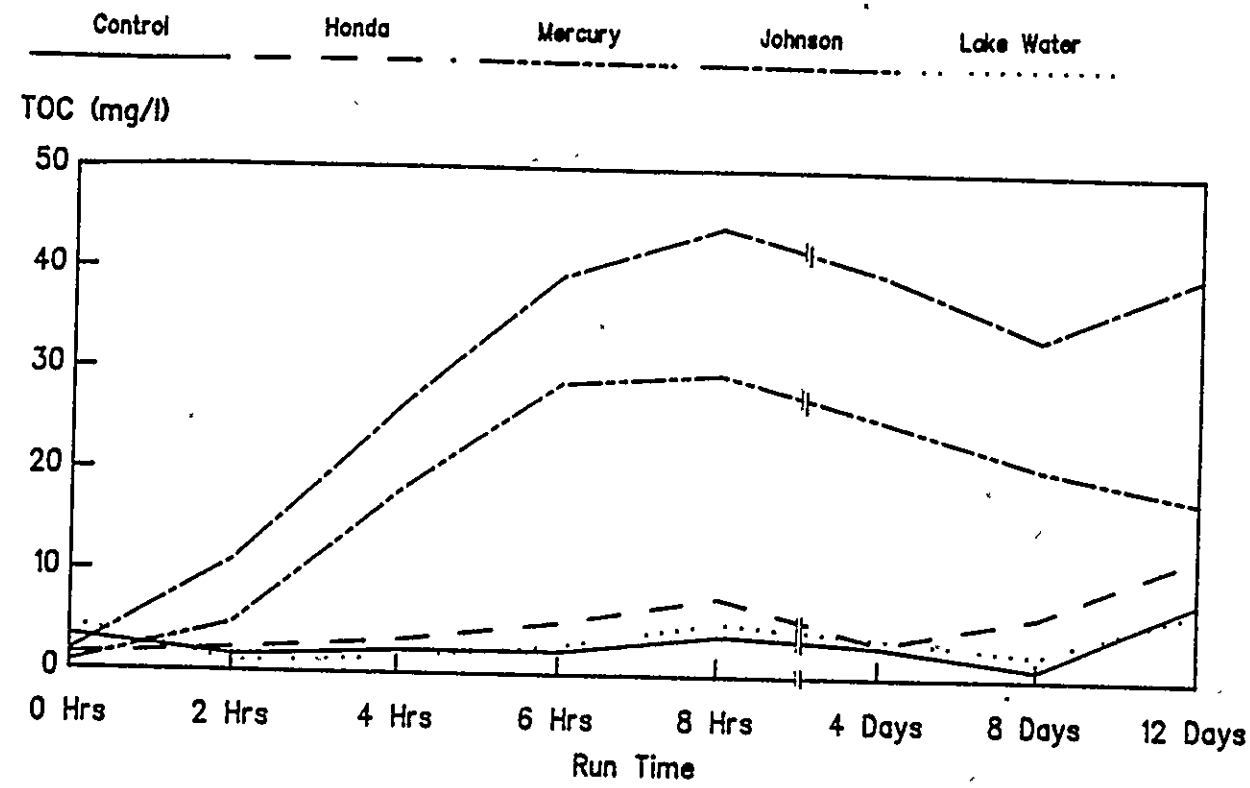
The biological response was moderate considering the concentrated nature of the tests (volume of fuel consumed per water volume in the enclosures was perhaps 300 times annual lake loading). After 12 days, chlorophyll a levels had decreased to less than half the prerun levels in all treatment enclosures (Fig. 4). No consistent shift was observed in phytoplankton species composition or in total phytoplankton biovolume. Algae counting, especially the micro-algae, was difficult in the treatment enclosures because of the presence of tiny oil droplets. Total numbers of zooplankton declined slightly in the two-cycle enclosures; but, because of the patchy distribution of zooplankton, the actual response of this community to outboard exhaust was not clear. Because of the relatively small enclosures used we were unable to replicate zooplankton samples without adversely affecting population sizes Percent loss on ignition increased over four times in the two-cycle enclosures and not at all in the four-cycle Honda enclosure (Fig. 4).

Nutrient Loading to Twin Lakes

Estimated direct nutrient loading from motorboats was quite small. In total, motorboats spent 17,519 hours under way during a four-month season (50 hrs/ha). Most of these hours (11,583) were from motors larger than 45 horsepower. During the busiest part of the season and on the busiest section of the lake, boat densities reached 0.24 boats/ha on weekends and 0.08 on weekdays. The average rated horsepower of boats under way was 82 (although the average horsepower of motors owned by Twin Lakes homeowners was 68). Annual gasoline consumption on Twin Lakes by all motorboats in 1986 was 227,418 ± 66,105 liters. (The 95 percent confidence interval is derived from uncertainties in boat use rates based on the census and does not include variations in gasoline consumption rates per boat.) Nutrient loading from motorboat exhaust was 0.22 kg/yr total phosphorus and 68 kg/yr total nitrogen.

Table 1.—Water chemistry changes (mg) per liter gasoline consumed ±2 standard errors.

	HONDA (4-CYCLE) 1985	MERCURY (2-CYCLE) 1977	JOHNSON (2-CYCLE) 1970
Carbon dioxide	14,202 ± 3,448	8,594 ± 1,936	1,154 ± 275
Kjeldahl-nitrogen	26.3 ± 13.9	63.9 ± 16.7	42.9 ± 9.0
Nitrate-nitrogen	64.6 ± 20.7	235.8 ± 40.1	137.4 ± 36.4
Oxygen	−1,278 ± 136	−835 ± 96	−219 ± 21
Total organic carbon	1,663 ± 1,505	7,843 ± 1,916	4,202 ± 514
Total phosphorus	0 ± 0.09	0.98 ± 1.45	0.87 ± 0.54



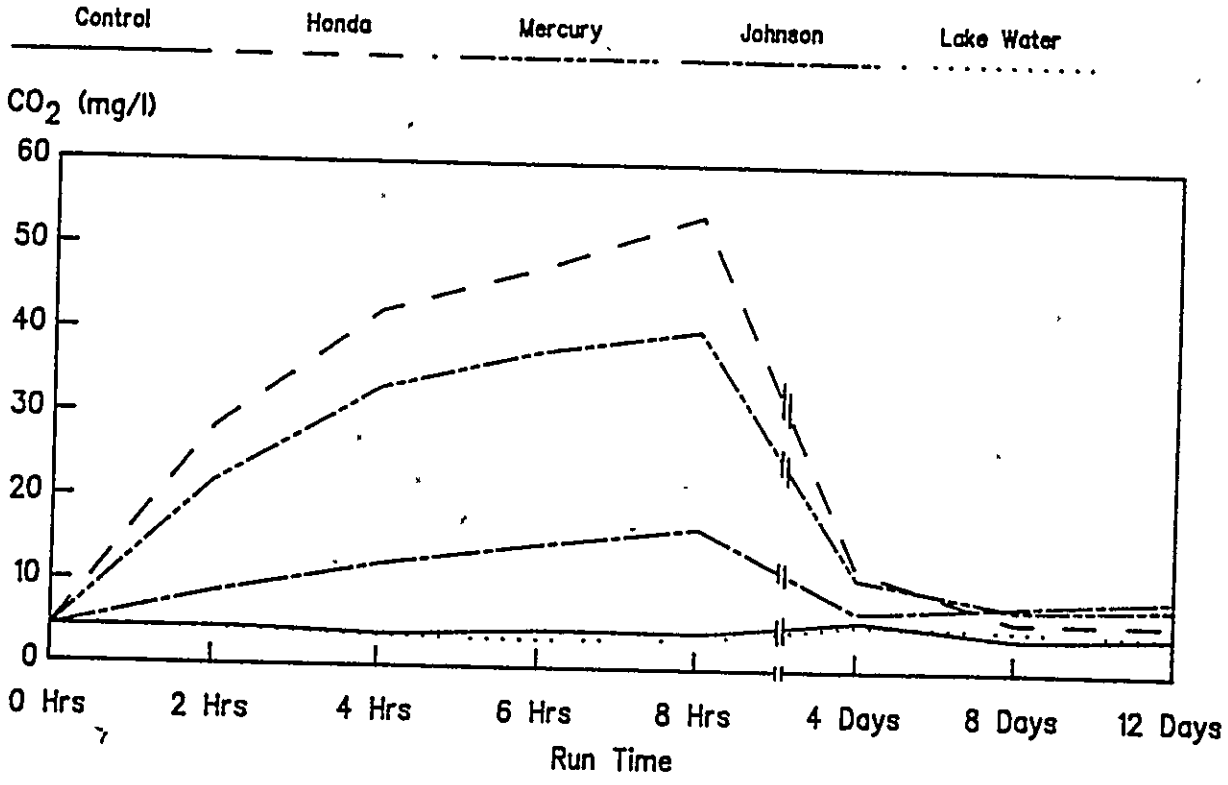
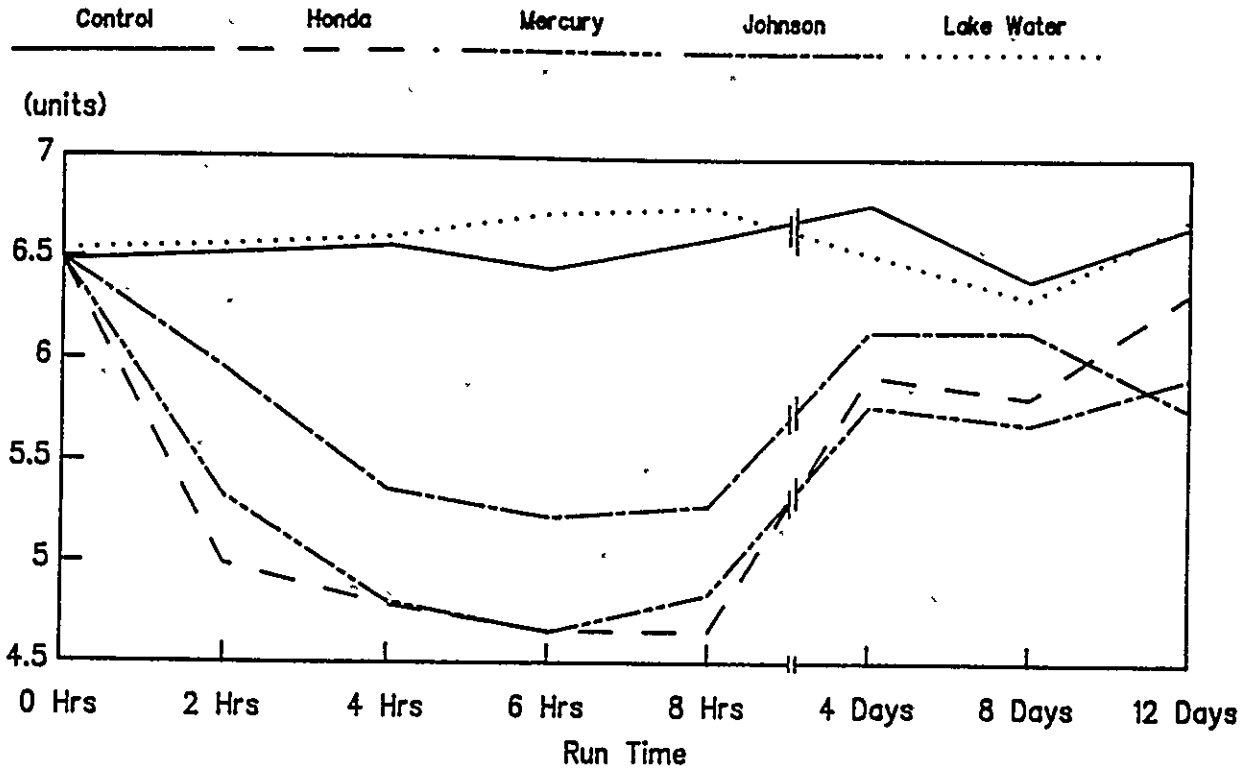


Figure 1.—Total organic carbon and carbon dioxide response to outboard motor operation in enclosures. Motors were operated for the first eight hours.



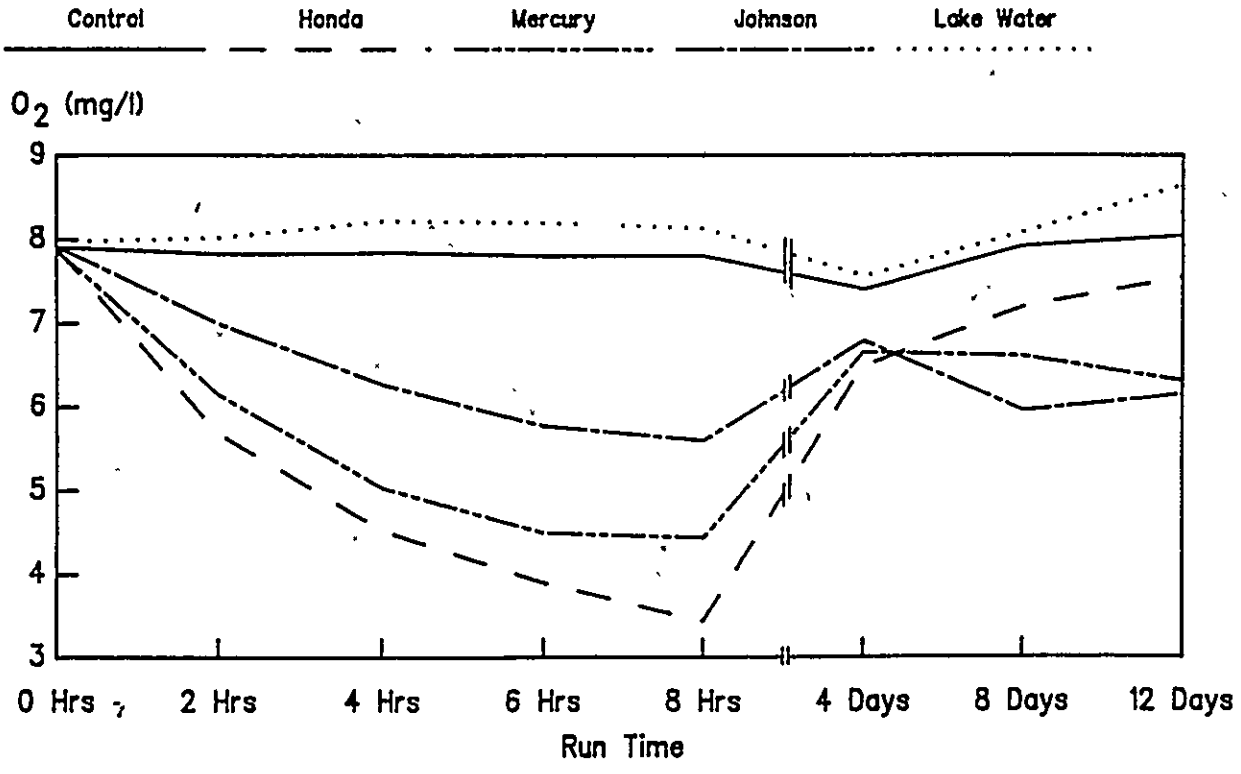
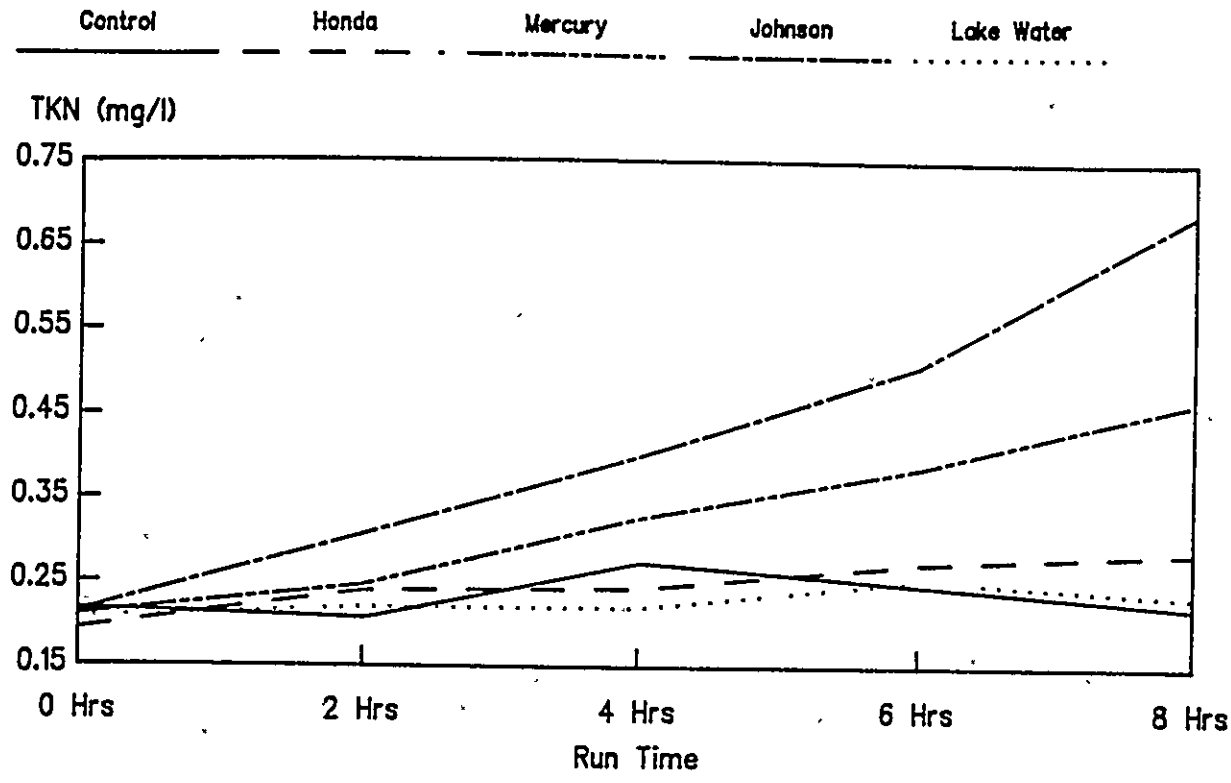


Figure 2.–pH and oxygen response to outboard motor operation in enclosures. Motors were operated for the first eight hours.



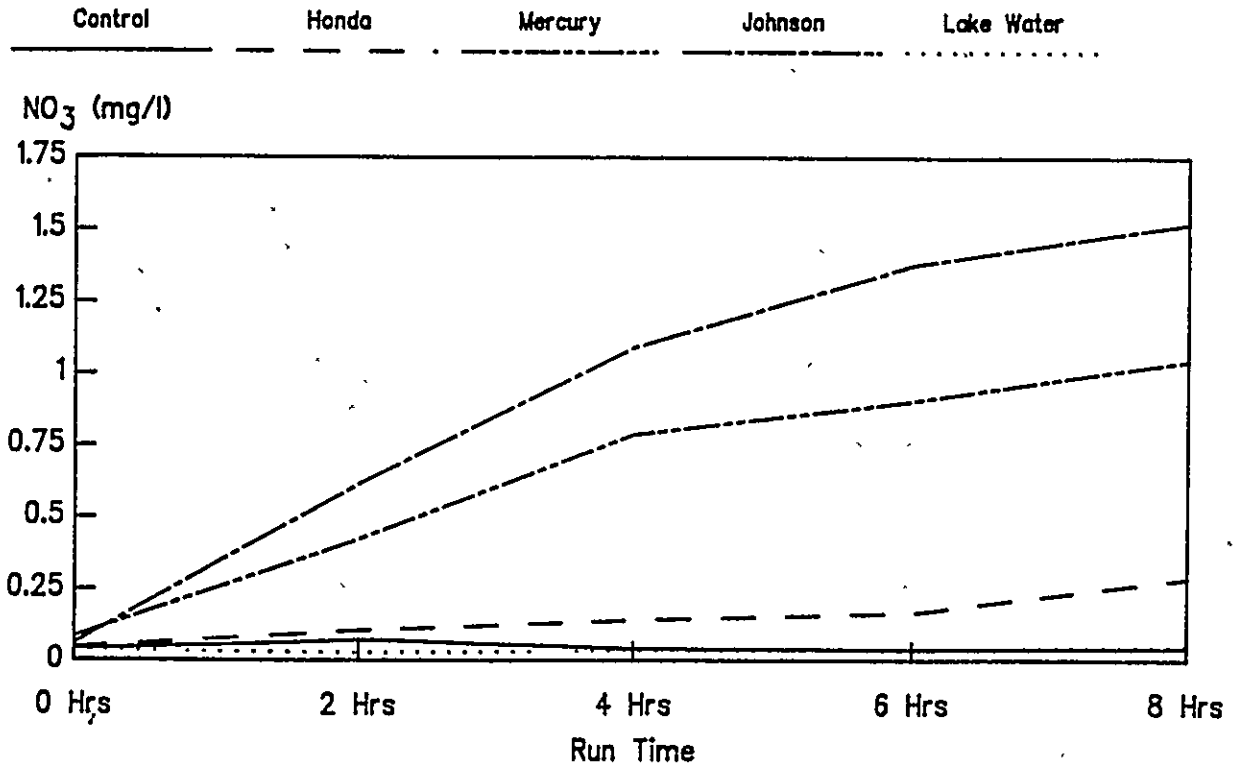
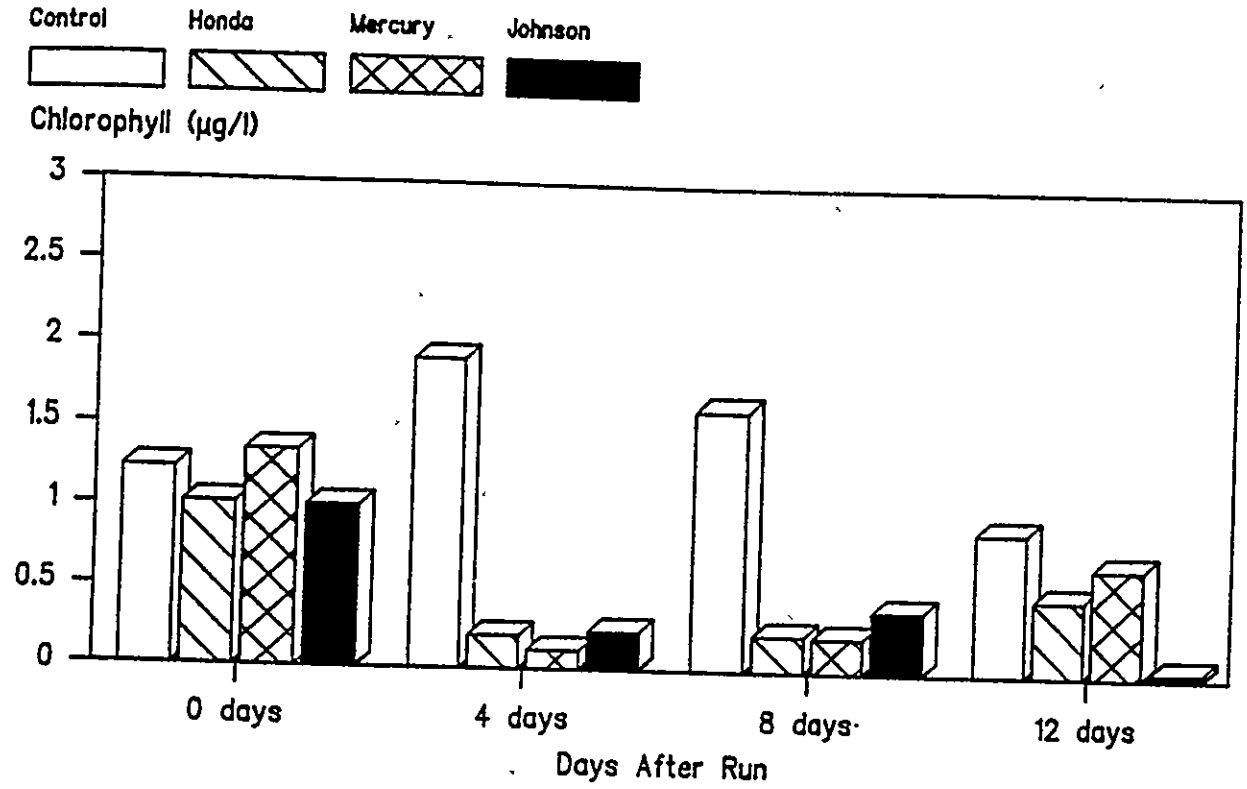


Figure 3.—Kjeldahl-nitrogen and nitrate-nitrogen response to outboard motor operation in enclosures. Motors were operated for eight hours.



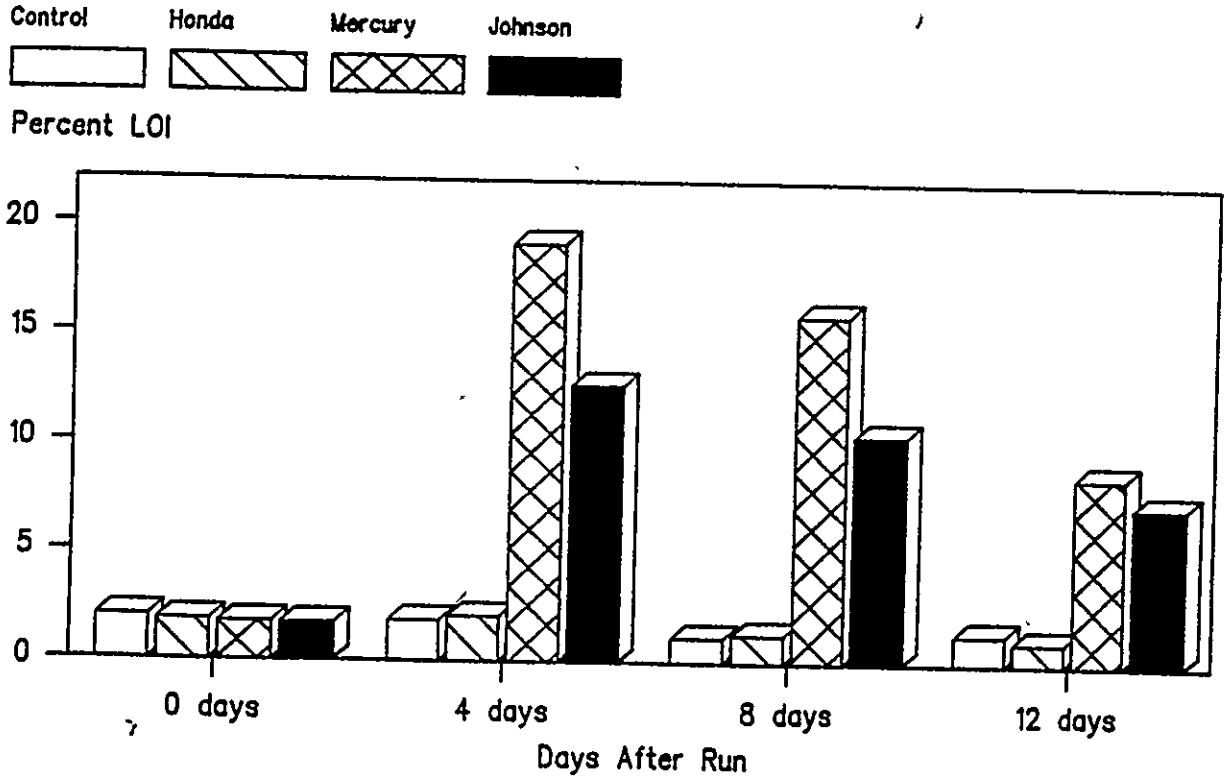


Figure 4.—Chlorophyll *a* and percent loss on ignition in enclosures before operating outboards, and 4, 8, and 12 days after operating outboards for 8 hours.

inorganic carbon loading was at least 1,954 kg/yr. We did not estimate the indirect nutrient loading of phosphorus or nitrogen from enhanced water circulation and sediment disturbance.

Twin Lakes received loadings of 2.20 g/m^2/yr total nitrogen and 0.25 g/m^2/yr total phosphorus in water year 1986 (Table 2). Tributaries contributed the highest percentage of both nitrogen (60 percent) and phosphorus (57 percent) to the lake's annual loading, while the contribution from motorboats was less than 1 percent for both nitrogen and phosphorus.

DISCUSSION

Experimental Design

The three outboards tested should not be viewed as replicates but as representatives of the small engine types available. The new four-cycle Honda was the most efficient and the pre-1972 Johnson was the least efficient based on both gas consumption and carbon dioxide production. Extrapolations to whole-lake effects were based on the Mercury, which we consider most representative of outboards currently in use. Because the total gasoline consumption calculation included inboard engines, which are more similar to the four-cycle Honda than to the Mercury, estimates of nitrogen and phosphorus loading could be liberal (high) and estimates of carbon dioxide loading could be conservative.

Because we were unable to obtain test propellers for all engines, we removed the propellers from all outboards during the tests. This may have affected the results for two reasons: (1) there was no load on the engines, and (2) exhaust bubbles were not broken up. However, an examination of the data in Hare and Springer (1973) indicates little relationship between load or propeller action and nitrogen oxides in solution per gasoline volume consumed.

The effect of outboard motor exhaust on carbon dioxide (Table 1) was underestimated because the increase of carbon dioxide in the enclosures was not linear with time (Fig. 1). This phenomenon was likely a result of a pH-carbon dioxide interaction: as pH dropped (because of increasing carbon dioxide) less carbon dioxide entered solution. Ideally, a flow-through system should be used to monitor changes in dissolved inorganic carbon (DIC).

Total carbon loading and total nitrogen loading may also have been underestimated because we did not measure carbon monoxide (CO) or nitrous oxide (NO). Carbon monoxide loading is significant but is lower than carbon dioxide loading (Hare and Springer, 1973). Nitrous oxide loading is probably small compared to other forms of nitrogen

Biological Response

Although the biological response was peripheral to this study, our results indicated that short-term effects of outboard exhaust are minor. This was surprising considering the appearance of the two-cycle enclosures. The water in both enclosures was milky and smelled strongly of gasoline even 12 days after the test. These results support the conclusions of Boating Industry Associations (1975) with respect to the effects of boating on biota. Nevertheless, long-term effects (greater than 18 months) of continuous and concentrated recreational boating need to be evaluated.

Nutrient Loading

Although inorganic carbon is seldom considered to be a limiting nutrient, several authors have reported that photosynthetic rates in aquatic angiosperms are sensitive to the availability of dissolved inorganic carbon (Adams et al. 1978; Titus and Stone, 1982; and Wetzel, 1983). The time of year this is most likely to occur, late summer afternoons, is also when motorboat densities are greatest In addition to directly adding carbon dioxide and organic carbon, motorboats agitate the water. Wetzel (1983) states that low velocity currents can increase photosynthesis by disrupting the stagnant boundary layer; this process increases DIC diffusion rates. The in-

Table 2.—Nutrient sources to Twin Lakes, water year 1986 (Oct. 1, 1985 to Sept. 30, 1986).

SOURCE	TOTAL NITROGEN (KG)	PERCENT OF TOTAL	TOTAL PHOSPHORUS (KG)	PERCENT OF TOTAL
Tributaries	4,649	59 7	495	56.8
Cattle	240	3.1	39	4.5
Precipitation	2,326	29.9	120	13 8
Wastewater	499	6.4	93	10.7
Internal	—	—	124	14.2
Motorboats	68	1	0.2	~0
Total	7,782 kg 2 20 g/m^2/yr		871 kg 0.25 g/m^2/yr	

fluence of motorboats on macrophyte or phytoplankton access to dissolved inorganic carbon is beyond the scope of this study.

Outboard engines may contribute 1.2×10^6 kg nitrogen and 3,949 kg phosphorus to U.S. waters annually, based on our results and estimated gasoline consumption by outboards in 1983 (Hanchey and Holcomb, 1985). Phosphorus loading is clearly insignificant compared to other sources. Nitrogen loading from outboards will be minor in all but the most heavily used lakes. Twin Lakes, Idaho, which had only a four-month boating season in 1986, received less than 1 percent of its nitrogen loading from motorboats. If boating were as extensive year-round on Twin Lakes as it was from mid-June to mid-August, boat use rates would be 330 hrs/ha/yr and nitrogen loading from motorboats could be as high as 0.15 $g/m^2/yr$ or 6.4 percent of total annual loading.

In this paper we have reported nutrient loading from outboard exhaust based on estimated gasoline consumption. However, fuel consumption is difficult for lake managers to measure. Figure 5 relates mean rated horsepower and boat use rates directly to nitrogen loading. The relationship between rated horsepower and fuel consumption has been approximated from Hare and Springer (1973).

Although direct phosphorus loading from outboard exhaust is insignificant, nitrogen loading, while small, should be considered by managers of high-use lakes or lakes with low nitrogen loading rates. Other questions remain about the impact of motorboats on lakes For example: how do lakes respond to the resuspension of bottom sediments and associated phosphorus caused by boat wash? Are pH levels affected by sustained boat use? What are the long-term effects of motorboats on biota? What effect does inorganic carbon loading from motorboat exhaust have on aquatic flora, especially in already rich waters?

This study is not intended as an endorsement of a particular outboard engine manufacturer. However, four-cycle ouboards (or electric trolling motors) obviously contribute less nitrogen to lake waters than do two-cycle outboards. All internal combustion engines should be properly maintained, both for the sake of efficiency and the health of the aquatic environment.

CONCLUSIONS

1. In 1986, motorboats were run 18,000 hours on Twin Lakes, Idaho, (50 hrs/ha) in a four-month season; fuel consumption was 230,000 liters. At the

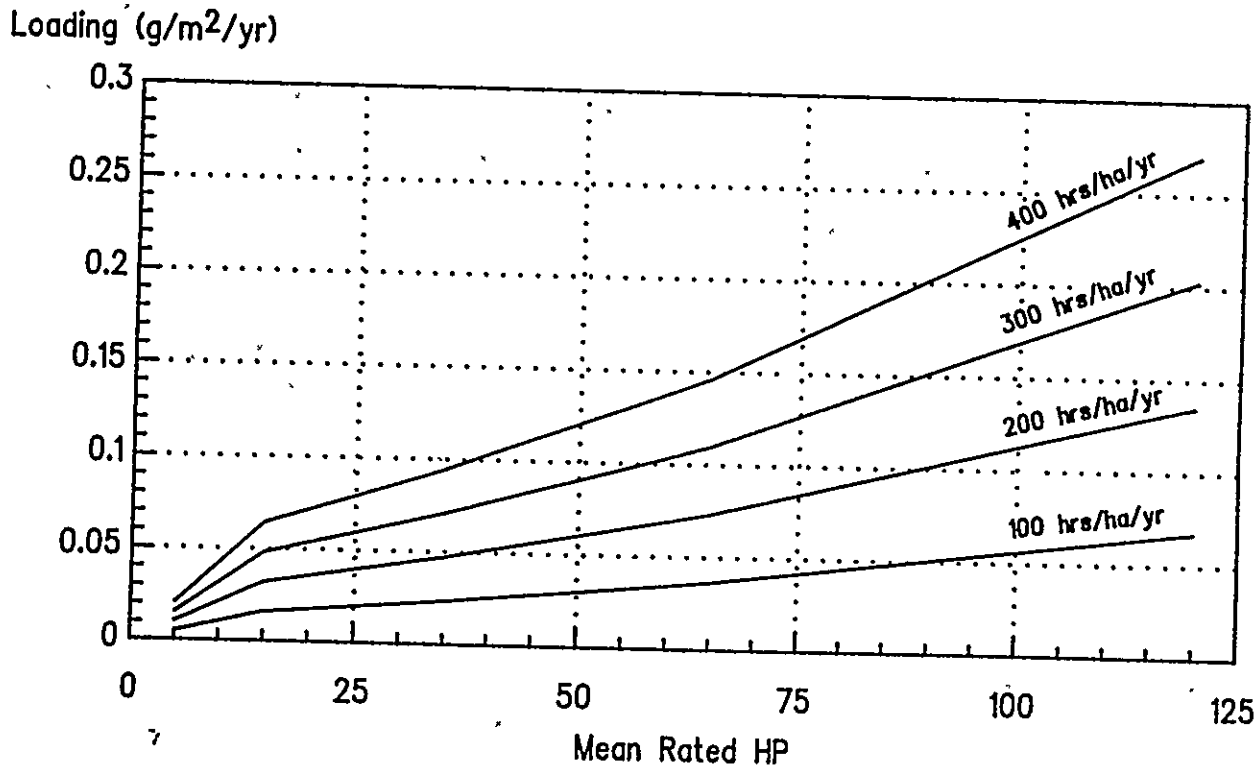


Figure 5.—Areal total nitrogen loading as a function of mean rated horsepower and outboard motor use.

peak of the season, boat density reached 0 24 boats/ha on weekends and 0.08 on weekdays.

2. Phosphorus loading from outboard engine exhaust is insignificant (~1 mg P per liter fuel consumed). Nitrogen loading from outboard engine exhaust was ~300 mg per liter fuel consumed.

3. Nitrogen loading from outboard exhaust is minor in northern lattitude lakes with short boating seasons but may be near 0.15 $g/m^2/yr$ in high-use southern lakes.

4. Nitrogen loading to Twin Lakes in 1986 from outboard engine discharges was 0.019 $g/m^2/yr$.

5. Large quantities of inorganic carbon are added to lakes by motorboats (>8,600 mg carbon dioxide per liter fuel consumed).

6. The biological response in our enclosures was moderate. Considering the concentrated nature of our tests, it is unlikely that even high boat use will affect a lake's biota in the short term. The effects of long term powerboat use are unknown.

7. Four-cycle outboards are cleaner-burning and more efficient than two-cycle outboards, although they produce more dissolved inorganic carbon. All internal combustion engines should be tuned regularly to increase fuel efficiency and reduce emmisions, including nutrients.

REFERENCES

Adams, M. S., P. Guilizzoni, and S. A. Adams. 1978. Relationship of dissolved organic carbon to macrophyte photosynthesis in some Italian Lakes. Limnol. Oceanogr. 23(5).912-19.

Bartsch, A. F. 1972. Role of phosphorus in eutrophication. EPA-R3-72-001. U.S. Environ. Prot. Agency, Washington, DC.

Boating Industry Associations. 1975. Analysis of pollution from marine engines and effects on the environment. Summary Rep. EPA 670-2-75-064. U.S. Environ. Prot. Agency, Washington, DC.

Camin, D. L. 1971. Gasoline. Pages 339-61 in F. D. Snell and L. S. Ettre, eds. Encyclopedia of Industrial Chemical Analysis. Interscience Publ., New York.

Cantor, L. W., and R. C. Knox. 1985. Septic Tank System Effects on Ground Water Quality. Lewis Publ. Inc., Chelsea, MI.

Commandant of the Coast Guard. 1984. Boating statistics 1983. COMDTINST M16754.1E. U.S. Coast Guard, Washington, DC.

English, J. N., G. N. McDermott, and C. Henderson. 1963. Pollutional effects of outboard motor exhaust – laboratory studies. J. Water Pollut. Control. Fed. 35(7):923-31.

Falter, C. M., and D. Hallock. 1987 Limnological study and management plan for Upper and Lower Twin Lakes, Kootenai County, Idaho. Technical Completion Report to Twin Lakes Improvement Ass. and Idaho Water Resour. Res. Inst., Univ. of Idaho, Moscow.

Hanchey, C. M., and M. C. Holcomb. 1985. Transportation energy data book: edition 8 ORNL-6205. Oak Ridge Nat. Lab. TN.

Hare, C. T., and K. J. Springer. 1973. Exhaust emissions from uncontrolled vehicles and related equipment using internal combustion engines. Part 2: outboard motors. U.S EPA Contract EHS 70-108. PB-220 399 Nat. Tech. Inf. Serv., Springfield, VA.

Jackivicz, T. P., Jr. and L. N. Kuzminski. 1973 A review of outboard motor effects on the aquatic environment. J. Water Pollut. Control Fed. 45(8):1759-70.

Lochte, H. L., and E R. Littman. 1955. The Petroleum Acids and Bases. Constable Co. Ltd., London.

Mawson, S. J., H E. Gibbons, W. H. Funk, and K. E Hartz. 1983. Phosphorus flux rates in lake sediments. J. Water Pollut. Control Fed. 55(8).1105-10.

Muratori, A. 1968. How outboards contribute to water pollution. The Conservationist 22(6).6-8, 34.

Owen, K. 1984. Fuels for spark-ignition engines. Pages 773-817 in G. D. Hobson, ed. Modern Petroleum Technology, Part 2. John Wiley and Sons, Chichester, England.

Panhandle Health District I. 1977. Kootenai and Shoshone Counties shoreline survey report. Coeur d' Alene, ID

Scheaffer, R L., W Mendenhall, and L. Ott. 1979. Elementary Survey Sampling, 2nd ed. Duxbury Press, CA.

Shuster, W. W. 1974. Control of pollution from outboard engine exhausts· a reconnaissance study. EPA 670/2-74-063. U.S. Environ. Prot. Agency, Washington, DC.

Standard Methods for the Examination of Water and Wastewater. 1985. 16th edition. Am. Public Health Ass., New York.

Titus, J. E., and W. H. Stone. 1982. Photosynthetic response of two submersed macrophytes to dissolved inorganic carbon concentration and pH. Limnol. Oceanogr. 27(1):151-60.

Wetzel, R. G. 1983. Limnology, 2nd Edition. Saunders College Publ , Philadelphia.

Yousef, Y. A. 1974. Assessing effects on water quality by boating activity. EPA· 670/2-74-072. U.S. Environ. Prot. Agency, Washington, DC.

Yousef, Y. A., W. M. McLellon, and H. H. Zebuth. 1980. Changes in phosphorus concentrations due to mixing by motorboats in shallow lakes. Water Res. 14·841-52.

Water Pollution By Outboard Motors

"THE British have demonstrated that 15 tons of oil, dropped into a calm sea can cover eight square miles in less than a week . . ." (Rienow, 1967). Based on rough estimates, over 200 times that amount of oil is discharged from outboard motors annually in the United States.

In May of 1967 President Johnson ordered a Cabinet-level study of oil contamination problems on both the catastrophic and routine levels. Incidents such as the "Torrey Canyon" disaster led to this order. Although the catastrophic disasters make the newspaper headlines, the everyday low-level water pollution by fuels is rarely publicized. Yet, this source of pollution may destroy an entire oyster industry because *Nitzschia* (the diatom food of the oyster) will not survive where a surface film of oil exists. When a plankton population is damaged or destroyed, the food chain of the aquatic animal life is disrupted.

English and others have shown that tainting of fish flesh occurs at a fuel-usage level of eight gallons of outboard motor fuel per million gallons of lake water per season. An increase in the threshold odor number of the water was noted when approximately one gallon of fuel was consumed per million gallons of lake water per summer season. A threshold odor number of three is considered as objectionable to most people. Some studies of the effects of oils and refinery wastes on fish and other animals have been reported in the *Journal of the Water Pollution Control Federation*, but few of these involve algae.

In most case studies, it has been shown that oil has an adverse effect on fish growth and longevity. Shelford (1917) has shown that fish tend to be attracted to gas polluted water, only to be harmed by it. Algae, depending upon species, may increase or decrease in refinery ponds (Minter, 1964, Gaits and others, 1936). Alekgandrova and others (1959) have shown that the flora in streams change when the stream is used for the discharge of petroleum and other wastes. Attached marine algae in the littoral zone may be immune to oil spills which remain on the surface (Clendenning, 1958) but these algae are not representative of the taxa composing the phytoplankton of fresh waters. A lake study by Reimann (1962) has shown that oil in water attaches to the surface of unicellular plankton. Gaitson and others (1936) reported that even the more dilute extracts of crude oil inhibit cultures of diatom algae (*Nitzchia Closterium*) after a few days' exposure. These extracts also cause a considerable stimulation of bacterial growth which is significant in that these organisms are competitors with algae for nutrients found in the water. The severe mortality rates of intertidal organisms from emulsifying oil films and

A portion of the support for this research was granted under PL89-379 through the Office of Water Resources Research Department of the Interior.

How Outboards Contribute To Wat

ACCORDING to the most reliable estimates available, nearly 7½ million marine engines were in use on pleasurecraft in this country in 1966.

Outboard engines accounted for almost 6,800,000 of these — over 90 per cent of the total — with the remainder being inboard gas or diesel engines. Any study of pollution of waters by marine engines, therefore, should have its greatest emphasis on outboards. These sturdy engines have been used in this country for nearly fifty years. Their low cost and light weight have allowed many to enjoy the pleasure of motor boating, who could otherwise not afford it. Present day models have proven to be dependable and versatile and their popularity shows no sign of waning. They will very likely dominate the power boating field for a long time to come.

Over 98 per cent of all outboards in use are of the two-stroke cycle type. Inboard engines and inboard/outboards are all, except for a very small percentage, of the four-stroke cycle type. In understanding just how an engine can discharge pollution into the water in which it operates, a basic knowledge of engine operation is necessary.

Most of us know that all internal combustion engines discharge exhaust gases formed by the combustion of fuel. The results of these exhaust discharges are most evident in urban areas, such as Los Angeles and New York City, which have been experiencing an ever increasing smog problem. The greatest part of this exhaust-created smog is, of course, generated by automobile engines which are almost entirely of the four-stroke type.

Both four-stroke and two-stroke engines produce power in the same basic manner — combustion of a fuel and air mixture in the cylinder causing the piston to be forced downward under pressure and this energy being in turn transmitted to the drive shaft via connecting rods and crankshaft. The difference in the two engines is that in the two-stroke engine every downward stroke of the piston is a power stroke, whereas, in the four-stroke engine, only every other downstroke is a power stroke. In theory then, a two-stroke engine should deliver double the power of a four stroke engine for the same number of revolutions. In fact, however, this is not quite the case. The two-stroke engine combines in one stroke exhaust and intake, and in the other, compression and ignition. In a four stroke engine, each of these functions is accomplished in a separate stroke. Combining functions has its disadvantages. For one thing, since the exhaust and intake ports are open at the same time, there is a loss of unburned fuel mixture via the exhaust port. This is one reason for the smoky exhaust on two-stroke engines. Two stroke engines, also, must operate at considerably lower compression ratios than four stroke and get less power per quantity of fuel consumed.

Two-stroke engines do have one big a

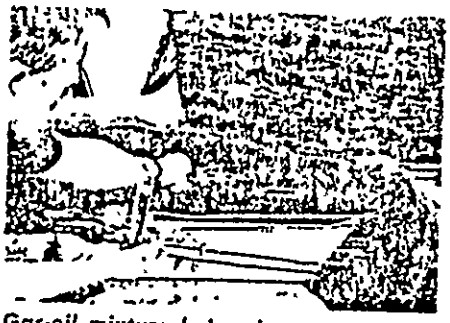
Unused Motor Fuels Are Polluting Lakes At A Much Greater Rate Than Has Been Realized. The Authors Tell Of The Effects

by Ronald Stewart, *Atmospheric Sciences Research Center, State University of New York, Albany*

H. H. Howard, *Department of Biology, Skidmore College, Saratoga*

coastal areas was reported by George (1961).

Ordinarily thin films of oil do not kill diatoms in the underlying water, but it does affect their reproduction. Part of this effect may be due to the increased oxygen demand created by the presence of oil, although films less than .0001 cm in thickness do not affect the rate of solution of oxygen. About 3,300,000 milligrams of oxygen are required for the complete oxidation of one liter of mineral oil. Such an amount would deplete the oxygen in 12,600 gallons of sea water. Zobell (1963) quotes from one experimental result in which 100 milligrams of a medium grade commercial oil was dispersed in a liter of oxygenated water as a fine emulsion. Forty-seven per cent of the oil disappeared during the first 13 days. As the ambient temperature was lowered, the rate of oil disappearance decreased markedly until at about 5°C, little or no oil disappeared. Obviously, oils from motor boats are not dispersed in this concentration, but neither are they well mixed (i.e., not a fine emulsion). Thus, the oxygen content of the first few centimeters is probably depleted, at least temporarily.



Gas-oil mixture being drawn from exhaust

English (1963) has shown that outboard motor exhaust-water contains an average of 105 grams/gal of non-volatile oil, 57 grams/gal. of volatile oil, 0.53 grams/gal of lead and 0.60 grams/gal of phenols.

It was assumed that the non-volatile oil was lubrication oil and the volatile oil was gasoline. About 80 per cent of the non-volatile oils were removed by coagulation, sedimentation and filtration. None of the volatile oils were removed. By tracing the passage of the lubrication oil through the outboard motor by infrared analysis, English also was able to show that some of the waste material had not undergone decomposition. This is understandable because unburned fuel is discharged directly through the engine.

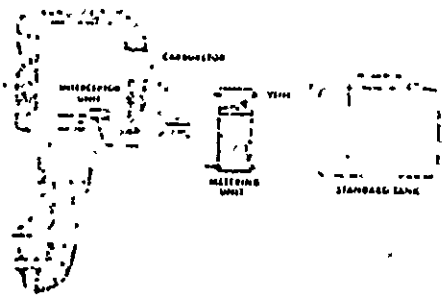
Pollution

by Alex Muratori, Jr., *President, Mountain Industries, Inc., Lake George*

vantage, and that is their light weight per horsepower produced — an essential feature in outboards.

But the peculiarity of two-stroke engines, which makes them a serious source of pollution, is the way the internal engine parts are lubricated. In most four-stroke engines, lubrication is provided by oil delivered under pressure to the necessary parts. This oil is stored in the crankcase and is added to as needed, independently of the fuel supply.

In the great majority of two-stroke engines, and in all two-stroke outboards, the lubricating oil is mixed directly with the gas and placed in the fuel tank. All fuel added must have the same proportion of oil. The gas-oil-air mixture then enters the crankcase before being transferred to the combustion chambers and some of the gas-oil mixture condenses on the internal parts of the engine. Since gas is more volatile than oil, it is partially revaporized, leaving the essential engine parts coated with a light film of oil. This process goes on continually while the engine is in operation. Consequently, more and more of this gas-oil mixture accumulates in the crankcase. If the excess were not removed it would soon cause the engine to malfunction, possibly resulting in damage. Therefore, in most cases valves are provided which permit the extra gas-oil mixture to enter the exhaust passage and be discharged into the water. This is a greatly simplified explanation of what goes on in the engine



Schematic of pollution control device

That outboards discharge an oily mixture into the water will not exactly come as startling news to the average outboard owner. Although he may not know its exact origin, he knows it's there because he sees it and smells it, and if he swims in the same general area he can generally taste it. He accepts it as a fact of outboard operation. It would probably surprise him to learn that he could be wasting as much as 40 per cent of his fuel. It is entirely possible, particularly at trolling speeds, that four out of every ten gallons used, can be, and often are, discharged directly into the water, unburned, not only causing considerable pollution, but resulting in a direct loss to the outboard owner.

The amount of discharge varies with different makes and sizes of outboards. Forty per cent is extreme, but 10 to 20 per cent waste is quite common. A conservative estimate of the total wastage, established by extensive tests both in the laboratory and in actual use, would be

Case Study of the Amount of Fuel Discharge on Lake George

Lake George is located on the south east edge of the Adirondack Mountains Although it is 51 km. long, for the purposes of this study, only the area below the Narrows and including Northwest Bay, will be included This area is approximately 22.4 km. by 2.6 km. with a mean depth of 17.6 m. and a maximum of 58 m. There are 76 km. of shoreline. The winter population of this area is about 4,500 persons, but it is expected that this number will triple within the next fifty years. The summer population in this very popular tourist area is over 40,000 persons, and this is expected to double within the next fifty years There is also a large transient population which includes over 1,500 people on an average summer day. It is obvious that the population explosion will not miss Lake George.

Along with the population explosion is an increase in the use of most recreational facilities and especially an increase in boating. At present there are twenty-five marinas selling fuel within this given area. Approximately 300,000 gallons of outboard fuel are sold annually between Northwest Bay and Lake George Village. This represents a fuel level usage of over one gallon per million gallons of lake water per season. This is sufficient to raise the thin hold odor level.

The trend of outboard motor fuel sales has been increasing as the following data from one representative marina indicates:

1959	17,500 gallons
1960	16,660 gallons
1961	22,600 gallons
1962	20,700 gallons
1963	23,000 gallons
1964	23,700 gallons
1965	25,500 gallons
1966	25,000 gallons

The owner of this marina stated that in 1959 he sold about 50 per cent of all outboard motor fuel sales in his area Since that time, new marina facilities have opened and his sales have dropped to about 25 per cent of the total. Allowing for this change in percentages, the above figures represent a tripling of fuel sales over the last eight years. It is obvious that if the rate continues, the Lake waters could have a semi permanent hydrocarbon odor within eight years.

Snell (1966) has shown that between 10 per cent and 35 per cent of outboard fuels are normally discharged into the cooling water exhaust stream as unburned wastes from several leading outboard motors. This represents a minimum of 30,000 gallons of fuel being discharged into Lower Lake George each season at these present rates Because Lake George exchanges about 10 per cent of its volume annually, a considerable portion of this fuel is left to contaminate the aquatic life. Allowing for a gas to oil mixture ratio of 50:1, the decomposition of the oil alone would require the total oxygen content of 30,000,000 gallons of lake water These calculations do not take into consideration accidental spills, inboard bilge pump wastes, etc. Outboard pollution may explain why some of the bays in Lake George are turbid. Usually the stirring of the bottom sediments by the action of outboard motors is blamed, but the turbulent mixing is relatively shallow and reaches the bottom only in very

(Continued on page 34)

10 per cent of all outboard fuel used Since nearly one billion gallons of outboard fuel are sold annually, we can see that at least 100 million gallons of unburned outboard fuel are being discharged every year into the navigable waters of this country. Translated into money this is approximately $50 million, a collective out-of-pocket loss to all outboard operators.

Why not then, collect this wasted fuel before it is discharged and reuse it? Actually, due to new developments, this can and is being done with some engines There are a number of reasons why some practical method was not developed sooner to accomplish this. First of all, it is only in recent years that a sense of urgency has emerged towards determining and eliminating all sources of pollution; secondly, in the case of outboard fuel discharges, certain technical problems had to be solved before the waste fuel could be reused. The major problem was the heavy proportion of oil in the discharged fuel. Normal mixtures are approximately 25 parts gasoline to one part oil, or, 50 parts gasoline to one part oil. Analysis of the crankcase drainage shows it generally varies in proportion from 10 parts gasoline to one part oil to 5 parts gasoline to one part oil. In some cases, at high speeds the proportion of oil can be even greater, but the total return at this time is very low. If this mixture were collected and then added directly to the fuel tank it would cause rough operation and quickly fouled plugs This was actually tried by several experimenters who soon abandoned the idea because of poor results. Furthermore, it is only in recent years that engine manufacturers have been recommending the lighter 50 to one mixes. With the increased use of these lighter mixes, it has become practical to reuse the wasted fuel by metering it into the fuel flow at some point between the tank and the carburetor. This results in supplying an engine, using an original mixture of 50 to 1 with a mixture of approximately 10 to 1 using the reclaimed fuel. Such a mixture is perfectly acceptable to the engine and actually results in improved lubrication.

The operation appears simple enough. Fuel normally wasted from the crankcase is diverted from the exhaust and fed into the engine fuel supply line. Actually the process is somewhat more complicated. Although the problem of diverting the waste fuel from the exhaust is an easy operation on most engine models, there are some makes that require considerable disassembly to make the attachment. In reusing the waste fuel, a special metering and mixing device must be used. This was developed only after thousands of hours of tests and experiments. But the fact remains, that in almost every case there are now means available to eliminate the needless waste of fuel and the consequent pollution of the waters. Cost of installing the unit will normally be recovered through savings on fuel in one season's operation

Undoubtedly, the major reason that pollution by outboards has been overlooked as a serious problem is because of the manner in which this pollution is discharged into the water. Since it is ejected with the exhaust gases, underwater, and in the vicinity of the propeller, it is difficult to detect except at very low speeds The liquid exhaust discharges from an outboard traveling at 20 miles per hour

(Continued on page 31)

Water Pollution By Outboard Motors

(Continued from page 8)

shallow waters. However, if the oxygen level is reduced, biological degradation is reduced and contaminants may accumulate.

The above estimates of fuel pollution are based on available data for a population in 1967. If the predicted population trend is followed, the pollutant level will continue to rise until the smell and taste of gasoline and oil will be noticeable in fish and water supplies. It is obvious that this cannot be allowed to continue. Economically this means a loss of the pure waters which attract tourists. Direct economic loss to the boat owners in lost fuel is $20,000, to say nothing of the increase in slicks which may mar boats and discourage swimmers.

An accumulation of oil can take years to reach the level of contamination to various aquatic life. If we wait for this level to be reached before studying the problem, it may take just as many years to correct our mistakes.

Commentary

It is important that the public become aware of all types of pollution in an effort to reach the goals of programs such as the Pure Waters program of New York State. The existence of this one form of pollution is being debated by several organizations. We commend the efforts of Outboard Marine who have embarked on a million-dollar research program to improve the performance of their products. We condemn the approach of representatives of the Boating Industry Association who state that the use of outboard motors does not have a harmful effect on water quality, especially when the manufacturers of said motors think that a substantial financial investment in research programs is worthwhile.

Private recreation assistance

A new edition of "Private Assistance in Outdoor Recreation" is now available. It is a directory of organizations providing aid to individuals and public groups.

The 68-page booklet, compiled by the Bureau of Outdoor Recreation, lists the names and addresses of private organizations and associations which offer technical and educational recreation assistance for more than 20 categories of activities.

The booklet is designed to help landowners, organizations and private investors interested in developing outdoor recreation areas and facilities that will meet ever-increasing public recreational demands.

The booklet is available for 30¢ from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Earl Brockway retires

Earl D. Brockway, District Director for Lands and Forests, District 11, retired this spring. Earl graduated from the New York State Ranger School in 1926. He went to work with the International Paper Company in forest engineering work where he cruised and mapped some 770,000 acres of forest land in Newfoundland. After this venture, he returned to the New England area to work on similar projects in New Hampshire, Vermont, Maine and New York for the next four years.

He began work with the Conservation Department on land survey and acquisition work in the Catskill Park area in October, 1930 and remained there until May, 1934, when he went on leave of absence from the Department to accept a position as superintendent of a C.C.C. Camp at Middleburg. He continued here for the next seven and a half years with tree planting, forest stand improvement and road improvement as his primary responsibilities along with fire control, insect and pest control, water hole construction, fencing of State lands and wildlife and stream improvement p

In November of 1941, Earl went with the U.S. Army Engineers in Alabama, where he served as a representative in connection with construction at various field offices throughout the States of M Mississippi and parts of Georgia nessee and Florida. He remained January of 1946, when he returned Department and became District Ranger in Bath.

Promoted to District Director in Keepsie in November of 1947, he this capacity until his retirement.

Earl has long been active in bird work and in local groups interested landscape and outside garden beautification and he has always maintained active interest in archeology. His friends and colleagues wish him a ant and well deserved retirement.

One million power line m

There are more power lines in future. An estimated 14,815 mi new extra-high voltage transmissio *—requiring almost one million ac land*—will have to be construc the eight years from 1968 to 19 projected power requirements ar vide reliable electric service. Most in the east central, north central, west regions of the United States half have already been programm are under consideration by various ties or pools for completion in th '60's or early '70's.

The estimate includes only line a capacity of 345,000 volts or hig does not cover the additional thou of miles of lower voltage transm and distribution lines with accompa increasing use of electricity by ex customers and extension of electric vice to new homes and business an dustries. And if many small line built instead of fewer higher ca lines, the cost in money and land w even greater.

There are now approximately 2 miles of overhead transmission li the United States. In just one year (1966, latest for which figures are a able) 15,525 miles of new extra-high age lines were added to the Ame landscape—2,693 miles of 230,00 lines, 2,508 miles of 345,000 volt and 933 miles of 500,000 volt lines T lines required some 476,872 acres of

tection Agency (Projects WP-01141-02 and 170 90 ELL), and the Public Health Service (Career Development Award No 1K4-GM35397-02) provided partial support.

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REFERENCES

1. Patterson, J. W., and Brezonik, P. L., "Discussion—Toxicity Measurements in Activated Sludge" *Jour San Eng Div, Proc. Amer Soc. Civil Engr*, 95, 775 (1969).
2. Yon, S. C., and Moyer, J. L., "Use of Chemical Dispersants in the Enumeration of Bacteria in Activated Sludge." *Appl Microbiol*, 16, 1070 (1968)
3. Genetelli, E. J., "DNA and Nitrogen Relationships in Bulking Activated Sludge" *Jour Water Poll Control Fed*, 39, R32 (1967)
4. Weddle, C. L., and Jenkins, D., "The Viability and Activity of Activated Sludge" *Water Res* (G B), 5, 621 (1971)
5. Symons, J. M., and McKinney, R. E., "The Biochemistry of Nitrogen in the Synthesis of Activated Sludge" *Sew & Ind Wastes*, 30, 874 (1958).
6. Gaudy, A. F., "Colorimetric Determination of Protein and Carbohydrate" *Ind Water Wastes*, 7, 17 (1962)
7. Wuhrmann, K., "Effect of Oxygen Tension on Biochemical Reactions in Sewage Purification Plants" In "Advances in Biological Waste Treatment," W. W. Eckenfelder, Jr., and J. McCabe (Eds.), Pergamon Press, London, Eng (1963).
8. Busch, A. W., and Kalinski, A. A., "The Utilization of the Kinetics of Activated Sludge in Process and Equipment Design" In "Biological Treatment of Sewage and Industrial Wastes," Reinhold Publ Co., New York, N. Y. (1956)
9. Lenhard, G., *et al*, "The Measurement of Dehydrogenase Activity of Activated Sludge." Proc. 2nd Intl Conf Water Poll Res., Tokyo, Japan (1964).
10. Buckstegg, W., "Determination of Sludge Activity A Possibility of Controlling Activated Sludge Plants" Proc. 3rd Intl Conf. Water Poll Res., Munich, Ger (1966)
11. Patterson, J. W., *et al*, "Measurement and Significance of Adenosine Triphosphate in Activated Sludge" *Environ. Sci & Technol*, 4, 569 (1970)
12. Stauthamer, A. H., "Determination and Significance of Molar Growth Yields" In "Methods in Microbiology," J. R. Norris and D. W. Ribbons (Eds.), Academic Press, New York, N. Y., Vol. I (1969).
13. Forrest, W. W., "Energetic Aspects of Microbial Growth." In "Microbial Growth," 19th Symp. Soc. Gen. Microbiol.," P. Meadow and S. J. Pirt (Eds.), Cambridge Univ. Press, Eng (1969).
14. Hamilton, R. D., and Holm-Hansen, O., "Adenosine Triphosphate Content of Marine Bacteria." *Limnol. & Oceanog.*, 12, 319 (1967).
15. D'Eustachio, A. J., and Johnson, D. R., "Adenosine Triphosphate Content of Bacteria." *Fed Proc.*, 27, 761 (1968)
16. D'Eustachio, A. J., *et al*, "Rapid Assay of Bacterial Populations" *Bacteriol. Proc.*, 21, 13 (1968).
17. D'Eustachio, A. J., and Levin, E. I., "Levels of Adenosine Triphosphate During Bacterial Growth" *Bacteriol. Proc.*, 67, 121 (1967)
18. Strange, R. E., *et al*, "Effect of Starvation in Adenosine Triphosphate Concentration in *Aerobacter aerogenes*" *Nature*, 199, 55 (1963)
19. Forrest, W. W., and Walker, D. J., "Control of Glycolysis in Washed Suspension of *Streptococcus faecalis*" *Nature*, 207, 46 (1965).
20. Forrest, W. W., and Walker, D. J., "Synthesis of Reserve Materials for Endogenous Metabolism in *Streptococcus faecalis*" *Jour Bacteriol*, 89, 1488 (1965)
21. Forrest, W. W., "Adenosine Triphosphate Pool During the Growth Cycle in *Streptococcus faecalis*" *Jour Bacteriol*, 90, 1013 (1965)
22. Kao, I. C., *et al*, "ATP Pools in Pure and Mixed Cultures." *Jour Water Poll Control Fed*, 45, 926 (1973).
23. Chiu, S. Y., *et al*, "Kinetic Model Identification in Mixed Populations Using Continuous Culture Data" *Biotechnol & Bioeng*, 14, 207 (1972)
24. Chiu, S. Y., *et al*, "Kinetic Behavior of Mixed Populations of Activated Sludge" *Biotechnol & Bioeng*, 14, 170 (1972)
25. Chiu, S. Y., Ph.D. dissertation, Kansas State Univ., Manhattan (1972)
26. "Standard Methods for the Examination of Water and Wastewater" 12th Ed., Amer. Pub Health Assn., New York, N. Y. (1965)
27. Kobayashi, T., and Tabuchi, T., "A Method Employing a Tribasic Sodium Phosphate Buffered Reagent for Estimating Semimicro Qualities of Reducing Sugar." *Japanese Agr Chem.*, 28, 172 (1954)
28. Selkov, E. E., "Self Oscillations in Glycolysis, I A Simple Kinetic Model" *European Jour Biochem.*, 4, 79 (1968)
29. Sinclair, C. G., and Topiwala, H. H., "Model for Continuous Culture Which Considers the Viability Concept" *Biotechnol. & Bioeng.*, 12, 1069 (1970).
30. Cassell, E. A., *et al*, "Population Dynamics and Selection in Continuous Mixed Cultures" *Jour Water Poll Control Fed.*, 38, 1398 (1966)

A review of outboard motor effects on the aquatic environment

THOMAS P. JACKIVICZ, JR., AND LAWRENCE N. KUZMINSKI

THERE HAS BEEN increased emphasis on the possibility that outboard motor operation could be a significant nationwide source of pollution[1] An exposure to the reasons this problem may exist and the current research on the problem could prove beneficial to those concerned with the preservation of the nation's natural resources This review will restrict itself in scope to a discussion of the reasons that outboard motor usage has become a concern to those interested in the preservation of our natural resources

MAGNITUDE OF WATERCRAFT USAGE

The Boating Industry of America (BIA) and the National Association of Engine and Boat Manufacturers' (NAEBM) annual estimated boating figures for 1968 and 1970 are given in Table I[2,3] These figures show that over 85 percent of the recreational boats in use were in the outboard boat class and the rowboat class usually powered by outboard motors. Sailboats that do not use inboard power are often propelled by outboard motors in harbor areas. Inclusion of these as possible users of outboard motors would bring the total to over 92 percent of all recreational boats that use or are capable of using outboard motors as a means of propulsion

Perhaps the most interesting figure in Table I is that of gasoline consumed This figure does not include oil that is premixed with the gasoline for lubrication of two-cycle engines At a conservative ratio of 50 parts of gasoline to 1 part of oil, this would mean that an additional 20 mil gal (75.7 mil l) of lubricating oil were consumed annually by outboard motors during operation in 1968 and 1970

OPERATION OF A TWO-CYCLE ENGINE

Over 98 percent of all outboard motors in use are of the two stroke cycle type[3,4] The remaining 2 percent of the engines are the four-stroke cycle type and electric. A description of the operation of a two-stroke cycle engine and the sites of emissions from such engines will be presented

Both four-stroke and two stroke engines derive their power in similar ways The combustion of a gasoline-oil and air mixture within the cylinder results in appreciable gas pressure on the piston resulting in a downward motion This energy is transmitted to the drive shaft by the crankcase and connecting rods The drive shaft has a propeller connected to it that accepts the drive shaft torque and propels the watercraft

In the two stroke engine every downward stroke is a power stroke, whereas, in the four-stroke engine only alternate downward strokes produce power. The two-stroke engine must combine exhaust and intake in one stroke and compression and ignition in the other Because intake and exhaust are accomplished in the same stroke, a deflector is often constructed on the piston to prevent the incoming fuel-air mixture from passing across the cylinder and out the exhaust manifold along with the burned gases Even with the use of the deflector, efficient charging of the cylinder is difficult to achieve without fuel losses[4-7] Unburned fuel is released with the exhaust gases below the surface of receiving waters and may be one reason for the smoky exhaust of two-stroke engines[4] Figure 1 shows the intake and exhaust arrangements for two outboard motors[4,8] The deflection techniques used to prevent mixing of incoming

TABLE I.—Estimates of Boating and Outboard Motor Usage[1,3]

Item	Year	
	1968	1970
Persons participating in recreational boating	42.2 ×10⁶	44.1 ×10⁶
Total recreational boats	8.4 ×10⁶	8.8 ×10⁶
Outboard boats plus rowboats	7.3 ×10⁶	7.6 ×10⁶
Sailboats with no inboard power	0.6 ×10⁶	0.6 ×10⁶
New outboard motors sold	0.50×10⁶	0.43×10⁶
Outboard motors in use	7.0 ×10⁶	7.2 ×10⁶
Gasoline consumed (gal)	1.0 ×10⁹	1.05×10⁹*

* Estimated
Note: Gal×3.785=l

fresh fuel with the exhaust gases are different for the two engines and may result in varying efficiencies of cylinder scavenging between the engine manufacturers

In addition to the number of strokes per cycle, two- and four-stroke engines differ in the manner of lubrication of internal parts. In a two-stroke engine, the fuel-air mixture is forced into the cylinder by the pressure that the downward power stroke of the piston places on the fuel vapors in the crankcase. This is commonly called crankcase scavenging and requires that the crankcase be airtight; consequently, a lubricant cannot be admitted directly to the crankcase. The lubricating oil for a two stroke engine must, therefore, be mixed directly with the gasoline in a ratio recommended by the manufacturer. When the fuel-air mixture enters the crankcase some of this fuel mixture will condense on the internal parts of the engine inside the crankcase. The gasoline partially revaporizes, leaving a thin oil film coating the engine parts. This oil then serves to lubricate the internal parts. During the operation of the engine, this process goes on continuously, and if an excess oil film were allowed to build up, a pool of oil and gasoline would accumulate at the bottom of the crankcase. Eventually, this excess would cause a condition known as hydraulic lock and lead to malfunction resulting in engine damage. To avoid such damage most two-cycle engines are provided with valves in the crankcase for the drainage.

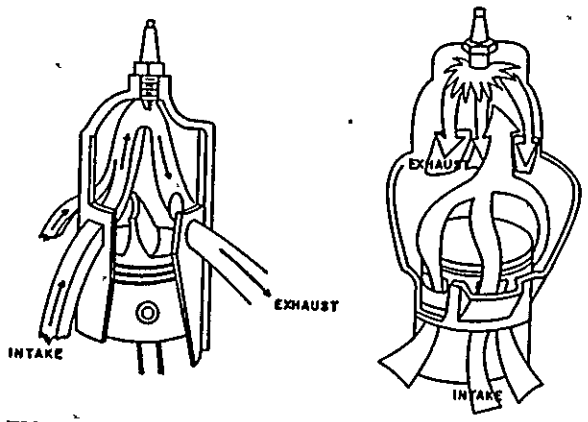

FIGURE 1.—Diagrammatic representation of various intake and exhaust designs for two-stroke outboard motors.[8,9]

of this extra gasoline-oil mixture. A 1969 study determined that the two-cycle engine's open crankcase design or crankcase scavenging is highly inefficient.[10]

The crankcase drainage from many of the older models is discharged directly into the receiving waters. However, one manufacturer[11] has stated that all of its engines of 40.0 hp (30 kw) and above have, for several years, recycled their crankcase drainage. Devices that direct this drainage back to the crankcase are being incorporated industrywide into all 1972 models.[1,12,13] This recycling of crankcase drainage may decrease the quantity of materials that the new outboard motors discharge into the receiving waters, however, there will still be over 7 mil outboards operating without any recycling of crankcase drainage. Compounds from these outboard engines could be emitted to receiving waters by passing unburned or altered fuel across the cylinder and from drainage of excess liquids in the crankcase.

Efficiency of Operation

Investigators have shown that various compounds can pass through an outboard engine and into receiving waters without being burned in the cylinder.[4,14-19] Various engine liquid and solid (in the form of particulate matter) emissions and exhaust gases are passed to the receiving waters in the vicinity of the propeller. The propeller's mixing action rapidly disperses these materials throughout the receiving waters. The quantity of the discharged substances is dependent on several variables and conditions. These can be summarized as follows.

Manufactured conditions.

1. Size of motor (horsepower rating),
2. Deflector design,
3. Intake and exhaust design,
4. Size of crankcase, and
5. Recycling apparatus.

Operating variables.

1. Fuel mixture (gasoline-oil ratio),
2. Speed of operation (trolling to full throttle), and
3. Tuning of engine.

TABLE II.—Percent of Original Fuel Found in Outboard Motor Exhaust

Investigator	Unburned Fuel	
	Range (%)	Average (%)
Murators[4]	up to 40	10 to 20
Parker[15]	up to 56	—
Snell[5]	10 to 33	—
Shuster[17]	4 to 30	—
Ferren[14]	1 to 55	27*

* Mean value

A discussion of the manufactured conditions and operating variables and how they relate to the quantity of compounds emitted by outboard motors into receiving waters will be presented. It has been pointed out that the crankcase recycling apparatus is being installed by outboard motor manufacturers in all new engine models.[1,12,13] In many of the older models, the recycling apparatus was not installed by the engine manufacturer, but in recent years recycling devices[14] have been made available to the boating public. These devices recycle crankcase drainage back into the engine for burning.

Several investigators have attempted to assess the quantity of liquid emissions that pass through the two-stroke outboard motor engine into receiving waters.[4,14-16] Table II is a summary of these findings and shows the relative inefficiency of two-cycle outboard motor engines that do not practice recycling.

Variations in Engine Efficiency

The range of percentages of original fuel found in outboard motor exhausts is rather broad, and the causes for such an extensive range can be related to the manufactured conditions and operating variables. A review relating the contribution of each engine variable and condition to the quantity of unburned fuel passed into receiving waters is presented herein.

Motor size. The motor size in this review shall be synonymous with the horsepower rating assigned to the outboard engine by the manufacturer. Investigators in Florida[19]

TABLE III.—Percentage Fuel Waste for Various Age and Horsepower Outboard Motors[10]

Regular Crankcase*			Small Crankcase†		
Year	Rating (hp)	Fuel Waste (%)	Year	Rating (hp)	Fuel Waste (%)
1959	50	53 1	1959	40	1 56
1961	40	31 25	1966	50	1 56
1963	5	1 57	1967	95	2 34
1964	60	51 7	1968	125	2 00
1965	33	31 25			

* All motors operated at 1,500±100 rpm
† All motors operated at 600±100 rpm
Note: Hp×0 7457 = kw.

noticed that the most inefficient burn of fuel occurred in the smallest [4 0 hp (3 0 kw)] outboard motor tested for emissions Shuster's tests[12] showed that the lowest quantity of emitted materials (4 percent of original fuel) came from a higher horsepower outboard motor [33 0 hp (24 6 kw)] when it was tuned and speeding Ferren[10] collected data on the quantity of fuel wasted by outboard engines of different age, horsepower rating, crankcase size, and engine speed Table III presents Ferren's findings and indicates that for a given crankcase size and engine speed, motors having a higher horsepower rating waste a greater amount of fuel than do the smaller

TABLE IV.—Percent Unused Fuel Versus Engine Speed of Operation[12,10]

Motor Speed (rpm)	Unused Fuel (%)			
	9 2 hp Motor*	50-hp Motor*	Untuned 33-hp Motor†	Tuned 33-hp Motor†
800	20	14	—	—
1,000	19	25	30 51	26 06
1,250	21	15	—	—
1,500	—	14	—	—
2,000	18	—	7 11	6 00
2,500	14	—	7 45	—
3,000	9	0 5	—	2 97
4,000	5	—	—	—
4,800	3	—	—	—
5,000	—	0 5	—	—

* 1965 model studied by Ferren[10]
† 1968 model studied by Shuster[12]
Note: Hp×0 7457 = kw

motors. In a similar series of experiments,[12] two 1965 outboard motors [9 2 and 50 0 hp (6 9 and 37 kw)] were tested over a range of engine speeds. Table IV indicates that there are differences in fuel wasted between the two horsepowers at given identical speeds. From the literature reviewed, it seems as though a limited amount of data are available on the relationship of horsepower rating and the quantity of fuel emitted to receiving waters. The results obtained by the Florida investigators[10] contradict those of Stillwell and Gladding as interpreted by Ferren[10]

Design factors To prevent the incoming fuel vapors from passing across the cylinder and out the exhaust ports, two-stroke cycle engine manufacturers often construct a deflector on the top of the piston A review of the literature has failed to produce any data on the relationship between deflector design and the quantity of fuel vapor that passes unburned through the cylinder The intake and exhaust design for the cylinder may have a significant bearing on the quantity of unburned fuel vapor that reaches the receiving waters. Figure 1 depicts two different intake and exhaust schemes for two manufacturers of outboard motors. The relative effectiveness of each scheme is unknown because the manufacturers have not published any data on the merits of either system

Other available techniques are designed to prevent fuel vapors from passing into the exhaust ports One such technique is called pressure-pulse tuning,[6] which is achieved by tuning the exhaust ports so that a controlled amount of fresh-fuel charge is momentarily forced into the exhaust manifold This allows additional fresh fuel to enter from the intake side Then, at a precise instant before the exhaust ports close, a reverse pressure pulse is fed back into the manifold forcing the escaping fuel back into the cylinder, trapping the fuel inside as the port closes, and creating a "super-charging" effect from the exhaust side The manufacturer notes that "the net power gain from the recovered fresh scavenging fuel plus the increased combustion efficiency from the super-

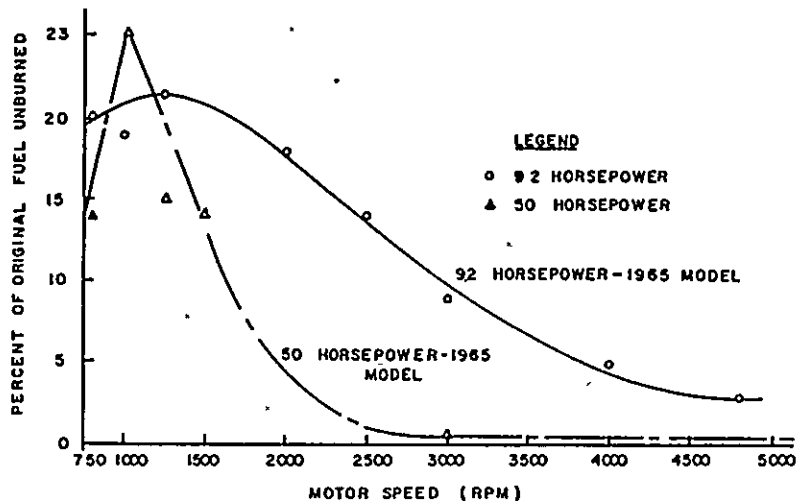

FIGURE 2.—Percent of original fuel passing through outboard engines as a function of motor speed.[10]

charging effect adds as much as 20 percent more power and a cleaner exhaust "[6]

Ferren[10] noted that the outboard motor engines with smaller crankcases were markedly more efficient A possible explanation for the smaller crankcase engines being more efficient is that the fuel vapors are not retained for as long a period within the smaller crankcases as they are in the regular crankcases. With a decreased detention time, fuel vapors have less time to condense on the walls of the crankcase and in time form a gasoline-oil pool at the bottom of the crankcase Ferren[10] ran the regular crankcase engines at 1,500±100 rpm and the small crankcase engines at 600±100 rpm, but it is felt by the reviewers that this difference in engine speed may have had a bearing on the test results This conclusion is based on the plots of fuel waste versus engine speed for a 9.2 and 50 0 hp (6 9 and 37 kw) outboard motor as shown in Figure 2 (derived from the data in Table IV). This figure indicates that the percent of fuel wasted at 600 (by extrapolation) and 1,500 rpm for both engines is not identical, therefore, a comparison of Ferren's[10] data in Table III for large and small crankcase outboard engines must be reviewed with caution The differences in fuel wasted between engines operated at 600 and 1,500 rpm from Figure 2 seem to range from 5 to 10 percent When comparing average values for the data presented in Table IV, the difference in fuel wasted between regular and smaller crankcases was 32 48 percent This difference is considerably greater than the 5 to 10 percent difference than results from engine speed alone The reviewers concluded from this information that crankcase size did become an important factor in the quantity of liquid emissions released by outboard engines into receiving waters.

Recycling. Recycling shall mean the recycling of crankcase drainage back to the outboard engine, fuel tank, or any other chamber and not into the receiving waters One such recycling device is manufactured by the Goggi Corporation, Staten Island, N. Y.[14] With the Goggi system, the unburned fuel or bleed-off from the crank-

case is drained under pressure from the bottom of the crankcase before being discharged into the exhaust housing and forced into the mixing chamber. Within the mixing chamber, the drainage from the crankcase is combined with fuel entering the chamber from the normal fuel storage tank. The resultant metered fuel is then drawn into the engine in the normal manner and reused. The unit is a metering chamber, completely separate from the outboard motor and the fuel storage tank.[11]

The procedure that another manufacturer uses to accomplish recycling takes the oil that normally accumulates in the crankcase of two-cycle outboards and forces it through a system that returns the excess lubricant to the combustion chamber. The oil is then mixed and burned with the regular fuel charge.[13]

Muratori[4] states that crankcase drainage is not recycled directly back to the fuel tank because of the heavy portion of oil in the drainage liquid. Normal gasoline oil ratios generally range from 25 1 to 50 1. Analysis of crankcase drainage shows the ratio generally varies from 5:1 to 10 1 and in some cases, such as at higher speeds, the proportion of oil in crankcase drainage can be even greater.[4] Lussier reported[20] that the oil content of the fuel mixture discharged from the crankcase into receiving waters varies from 22 to 65 percent of the total oil fed the two stroke cycle engine. If this mixture were to be collected and added directly to the fuel storage tank, it would eventually cause rough operation and quickly fouled plugs. The practice of adding the drainage directly back to the fuel storage tank was tried by several experimenters who abandoned the idea because of poor results.[4] It has been only during more recent years that engine manufacturers have recommended the lighter 50 1 mixes. With the increased use of these lighter mixes, it has become more practical to reuse the wasted fuel by metering it into the fuel flow at some point between the tank and the carburetor. This results in supplying an engine using an original mixture of 50 1 with a mixture of approximately 40 1 using the reclaimed fuel. Such a mixture is perfectly acceptable to the engine and actually results in improved lubrication.[4] The same author[4] reported that the cost of installation of a recycling unit would normally be recovered through savings on fuel during one season's operation.

Snell[16] conducted tests on the amount of fuel saved and the increase in running time for two crankcase drainage recycling devices (*A* and *B*). The following is a summary of his findings[16]:

1. Device *A*, at engine idling speeds of 650±100 rpm, returned over 30 percent of the fuel drawn in by the engine.
2. Using Device *B* at an engine speed of approximately 1,000 rpm, and under load in gear by a test propeller, the running time was approximately 68 8 percent greater than running time without this device.
3. Running time using Device *B* at an engine speed of 2,000 rpm was found to be 66 7 percent greater than running time without it.
4. When Device *B* was connected, running time at an engine speed of 3,000 rpm was found to be 41 7 percent greater than when it was not connected.
5. Concentration of oil in the fuel mixture remaining in the feed tank was found to remain unchanged while the motor was running. The oil concentration increased by an insignificant amount when the motor was stopped.

From the data available on recycling devices, it seems that the incorporation of such devices on older outboard motors would greatly reduce the quantity of compounds emitted into receiving waters. A bill[1] has been submitted before the Congress of the U S that would require that two-cycle outboard motors used on vessels or any other watercraft on navigable waters be equipped with or modified to use the lastest available technology to prevent polluting of the waters. Recycling reportedly is being used in all motor sizes of the 1972 models.[1] One manufacturer has pointed out that all of its engines of 40 0 hp (30 kw) and above have recycled their crankcase drains for several years.[11]

Swift[13] stated that for the past 4 yr, a majority of engines down through 40 hp (30 kw) have been drainless. He further added that "all major brands in all horsepower ratings, are now being manufactured with a feature eliminating crankcase drains."

Speed of operation. The speed of operation of an outboard motor engine has been shown to affect the quantity of compounds emitted into receiving waters.[4,17,18,20] Schuster's[17] tests on a 33 hp (25-kw) motor showed that the greatest quantity of original fuel released to receiving waters was over 30 percent and occurred when the engine was untuned and running at a low engine speed of 1,000 rpm, while the least amount released was under 3 percent and was experienced at a higher engine speed of 3,000 rpm. Schuster[17] noted from his experimental data (Table IV) that the quantity of compounds emitted from both a tuned and untuned 33-hp (25 kw) engine decreased with increasing engine speeds.

Ferren[18] reported that for two 1965 outboard motor models crankcase drainage from both low and high horsepower engines increased at lower speeds of operation and seemed to peak at engine speeds of 1,000 to 1,250 rpm (idling and trolling speeds). Muratori's[4] studies revealed that at trolling speeds, as much as 40 percent of the original fuel mixture could be wasted to the exhaust manifold. Muratori[4] also found that at these low speeds of operation some compounds could be detected because of their taste, odor, and visibility.

Lussier[20] reported on tests that were run at different engine speeds on marine outboard engines of different model, age, horsepower rating, and motor condition. The engine speeds for these experiments varied from 600 to 5,000 rpm, and the results obtained on fuel wasted (passing into receiving waters) are shown in Table V. At engine speeds less than 1,000 rpm, 50 percent of the engines wasted more than 10 percent of the original fuel, whereas, at speeds greater than 2,500 rpm, 100 percent of the engines tested wasted over 10 percent of the original fuel. This indicates that engines run at speeds less than 1,000 rpm seem to be more efficient than engines run at speeds greater than 2,500 rpm. This contradicts the findings of other investigators.[4,17,18] Based on the findings of these various researchers,[4,17,18,20] the reviewers concluded that outboard motors seem to run more inefficiently at lower engine speeds than they do at higher speeds.

TABLE V.—Percent Original Fuel Wasted During Outboard Motor Operation In Relation to Engine Speeds[20]

Speed of Operation (rpm)	Percent of Engines Tested Wasting Fuel Percentage Listed
Less than 1,000	50% engines below 10% fuel wasted
1,000 to 2,500	40% engines above 30% fuel wasted
Greater than 2,500	100% engines above 10% fuel wasted

Engine characteristics. Most outboard motors are designed to operate at peak efficiency for certain gasoline-oil ratios. Should a lubricating oil not specified for use in a two cycle engine or an insufficient quantity of oil be added to the fuel mixture, the following problems may occur: (*a*) the engine will not idle properly, (*b*) the motor speeds will be lower than normal, and (*c*) the motor will overheat. In addition to these problems, should a nonrecommended gasoline or an excess of oil be added to the fuel mixture, the outboard motor engine could run irregularly or miss.[21] This contradicts the earlier statement of Muratori[4] stating that a mixture of approximately 40 1 using reclaimed fuel is perfectly acceptable to an engine and actually results in improved lubrication of engines whose original fuel mixture was recommended at 50 1. Lussier[20] reported that misproportioning the gasoline-oil mixture could result in improper fuel combustion through fouling of the spark plugs. Improper idling and misfiring of an outboard motor engine could cause the fuel mixture in the engine's cylinder to be partially burned, resulting in an increase of compounds being discharged into receiving waters.

Ferren[18] concluded from the data presented in Table III that ages of motors manufactured before 1968 had little to do with the quantity of fuel wasted. Discussion has been addressed herein to the fact that outboard motors that practice recycling of crankcase drainage are markedly more efficient and emit fewer compounds into receiving waters. For engines manufactured before 1968, age may have no bearing on the quantity of compounds emitted; however, this may not be true when comparing the pre-1968 engines with the more recently manufactured outboard motors that practice recycling.

Lussier[20] reported that the operation of an improperly tuned engine resulted in fuel wastage as much as 15 percent more than that obtained from normal operation of the same engine in a perfectly tuned condition. Lussier[20] also stated that failure to make necessary replacements such as spark plugs, ignition points, and other fuel system parts, results in further incomplete fuel combustion, as does a carburetor that is adjusted to feed a mixture too rich in fuel. A reconnaissance study by Schuster[17] showed that at low speeds (1,000 rpm) a tuned 33 hp (25-kw) outboard motor emitted 26.06 percent of its fuel. This figure increased to 30.51 percent when the motor was untuned. However, at a higher speed (2,000 rpm), the differences in tuning were not so pronounced (7.11 percent fuel wasted for the untuned motor and 6.00 percent fuel wasted for the tuned outboard engine).

It was concluded by the reviewers that, based on limited data, the quantity of compounds emitted by outboard motors to receiving waters is less for engines that are tuned and use a fuel mixture recommended by the manufacturer than for engines operating in an untuned condition using a fuel mixture other than that recommended by the manufacturer.

OUTBOARD MOTOR FUEL

Although outboard motors have been in use for many years, the majority of research on the emissions of outboard motors has been conducted in the past decade. Because of recent advances in analytical instrumentation, it is anticipated that current research will add to the understanding of the quality and quantity of outboard motor emissions and of the fate and effects of these emissions in the aquatic environment.

All substances emitted by outboard motors are derived from a fuel mixture that consists of gasoline with or without its additives and lubricating oil. Gasoline contains mainly hydrocarbons from the C_4 to C_{10} range. Over 100 compounds have been identified in gasoline, these include normal and branched alkanes, cycloalkanes, and alkylbenzenes.[5,22,23] The detonation characteristics of hydrocarbon fuels are improved by the addition of various chemicals. The most common additive is tetraethyl lead, usually in the range of 1 to 3 cu cm/gal (0.26 to 0.80 cu cm/l).[22,24] The average lead content of gasolines sold in the U. S. has been placed at 2 g/gal (0.52 g/l).[25] To prevent accumulation of lead oxides in the combustion chamber, scavengers such as ethylene dibromide and ethylene dichloride are added to commercial antiknock fluids.[22-24]

Lubricant oils used in four-stroke engines vary in their number of carbon atoms from 26 to 38,[22] and contain elements such as zinc, sulfur, phosphorus, and other unspecified additives.[26] The lubricating oil most commonly used in two cycle outboard motors is different in detergent composition from oils used in four-cycle engines. Outboard motor oils use organic detergents that are biodegradable, while oils for four-cycle engines use metallic detergents that are not biodegradable.[12]

Manufacturers of outboard motors recommend the use of leaded gasolines in two-cycle outboard motors because unleaded gasoline has caused numerous problems.[27] An official of MIA has been quoted on the use of unleaded gasolines in two-cycle outboard motors as saying, "In a two-cycle engine—especially the high powered, high-output units—the phosphorus additive has been proven to be disastrous, and engines have been ruined by continuous all-out use in just a short time."[27]

TABLE VI.—Various Compounds Found in Outboard Motor Exhausts[16,19-21]

Author	Oil:Gasoline	Operation (hr)	Compound/Fuel Consumed					
			Nonvolatile Oil (g/l)	Volatile Oil (g/l)	Lead (g/l)	Phenol (g/l)	BOD (g/l)	COD (g/l)
Kempf *et al*[19]	1:25	—	5 to 7	—	—	—	—	110
	1:50	—	2.5 to 3.5	2 to 3	0.03 to 0.05	0.16 to 0.2	—	60
	1:100	—	2 to 3	—	—	—	—	60
English *et al*[20]	1:16	—	28	15.0	0.14	0.16	42*	114
Vogel[20]	1:20 and 1:25	—	8 to 10	—	—	—	—	—
Fberan Eberhorst[21]	1:24	—	9 to 23	—	—	—	—	—
	1:50	—	4 to 11	—	—	—	—	—
Environmental Engineering, Inc.[16]	1:50	1	—	—	—	—	1.05	2.50
	1:50	4	—	—	—	—	4.20	11.5
	1:50	8	—	—	—	—	9.00	19.00

* Ultimate BOD seeded with settled river water.

COMPOUNDS EMITTED DURING OPERATION

In addition to the gases (water vapor, carbon oxides, nitrogen, and sulfur) from the combustion chamber, hydrocarbons, and lead compounds in the unburned fuel mixture, complexed particulate lead compounds, hydrocarbons derived from rearrangement (cracking or synthesizing reactions), and partial oxidation products can be expected to be discharged below the water surface. With the exception of research on the percentage of raw fuel passing through an engine, a minimal amount of work has been done on qualifying and quantifying the substances in outboard motor-exhausted water. Considerable achievement has been made in the identification of materials emitted from four-cycle engines, and it is expected that some of these same compounds are present in the exhausted water.

Hydrocarbon compounds. Various investigators have reported values for the volatile and nonvolatile fractions of oil, phenols, lead, chemical oxygen demand (COD), and biochemical oxygen demand (BOD) in outboard motor-exhausted water, and their findings are shown in Table VI. A BOD value for the gasoline of outboard motor fuels was found to be 0.078 g/gal (21 mg/l).[22] Mention of the various hydrocarbons in gasoline included normal and branched alkanes, cycloalkanes, and alkylbenzenes.[5,22,23] Zajic *et al*[23] examined specific hydrocarbons for their BOD values and found that n-hexane and n-heptane both had a BOD of 0 mg/l. As the length of the paraffinic hydrocarbon chain increased, the BOD increased up to a BOD of 60 mg/l for the longest chain tested, n-heptadecane.

In addition to the COD values reported[19,20,29] for the exhausted water, the engine condensates for some engines used by the military have a reported COD value of 900 to 2,000 mg/l.[16] It should be noted that all the COD values presented are not a true representation of all the hydrocarbon compounds present because the aromatic and straight chained aliphatic compounds in gasoline motor-exhausted water and engine condensates are not oxidized in the standard COD test.[25]

Of the 1 bil gal (3.8 bil l) of gasoline consumed annually by outboard motors, it has been estimated that 100 to 160 mil gal (380 to 600 mil l) of fuel are wasted into receiving waters.[1] Shuster[17] reported that if one takes a discharge of 400 ml of exhaust products/30 min of outboard motor operation as typical of an average day operation, this may be connected to a

figure represented by population equivalent. Assuming that the products contain 85 percent biodegradable carbon, the discharge based on 1 engine-day would be equivalent to a population of 400 people. Both of these figures for fuel wasted annually and the 24-hr organic carbon population equivalent have been questioned as to validity.[36]

Many organic compounds have been reported in automobile (four-stroke engine) exhaust gases. The separation and identification of hydrocarbons in automobile exhaust gases has been accomplished by numerous investigators.[37-44] Their findings indicate that literally 100 or more hydrocarbon compounds can be emitted in the exhausts of internal combustion engines. Many of these will not persist for long periods of time in water because of their immiscibility, volatility, biodegradability, and the effects of weathering, but others may persist for extended periods of time.

Of all the possible oxidation products that could be formed from the partial oxidation of gasoline in both two- and four-stroke engines, perhaps the phenolic family has been the most troublesome from the pollution standpoint.[45-47] English *et al.*[39] and Kempf *et al.*[28] were able to measure 0.16 and 0.16 to 0.2 g phenol/l of fuel consumed, respectively, in motor-exhausted water. In addition to phenols, other compounds found in the partial oxidation products in automotive exhausts include alcohols, aldehydes, esters, ketones, and acid derivatives.[45] DesRosiers[24] reported concentrations of 10 to 15 mg/l of formaldehyde in the condensates from military engines.

Preliminary investigations on the identification of hydrocarbons in exhausted water are being conducted at the University of Massachusetts, Amherst.[49] To date this work has been confined to the gas chromatographic separation and mass spectrometer analysis of samples such as a raw fuel mixture (50 parts gasoline:1 part lubricating oil), a standard mixture of known hydrocarbons, extracts of motor-exhausted water, and extracts of raw water. Numerous separate hydrocarbon peaks have become evident in the raw fuel mixture and the exhausted water extract gas chromatograms. Tentative identification of these hydrocarbons has been accomplished, and present work includes the confirmation of these various identifications with mass spectrometer data, supplemented with gas chromatographic retention time data.

Lead compounds. Manufacturers of outboard motors recommend the use of leaded gasolines, because the phosphorus additives in unleaded gasolines may cause problems of piston failure.[50] English *et al.*[39] and Kempf *et al.*[28] were able to measure 0.14 and 0.03 to 0.05 g lead/l of fuel consumed, respectively, in exhausted water. This figure of 0.14 g of lead/l as measured by English *et al.*[39] was only 22 percent of the lead originally present in the fuel mixture. The quantity of particulates (the most significant fraction of these are lead compounds[44,45]) that are emitted in automotive exhausts varied between 0.22 and 3.2 mg/g of gasoline burned with an average value of 0.78 mg/g.[46] Research conducted on automobile exhausts indicates that approximately 70 to 80 percent of lead burned in the engine is exhausted to the atmosphere, while 20 to 30 percent remained in the lubricating oil and exhaust system.[48]

Conclusions

Two-stroke outboard motors have been shown to discharge a variety of compounds into receiving waters. The most notable of these is raw fuel. Other compounds measured in outboard motor exhausted water include nonvolatile oil, volatile oil, lead, and phenols. The ranges of these materials in grams per liter of fuel consumed was from 2 to 28, 2 to 15, 0.03 to 0.14, and 0.16 to 0.20, respectively.[19,20-21]

These compounds may enter receiving waters in either or both of two ways; one is the passage of fuel across the cylinder during the intake and exhaust stroke, and the other is the drainage of the liquid pool in the crankcase into the exhaust manifold. The major portion of the compounds is attributed to the drainage of crankcase liquids.

The quantity of compounds emitted to receiving waters is not a constant for all engines as shown by previous findings.[4,15-18] These findings indicate that up to 55 percent of the original fuel can be discharged into receiving waters. An average value for this quantity has been estimated at between 10 to 20 percent.[4] The wide range in engine efficiencies can be attributed to a number of factors that include: (*a*) size of motor, (*b*) intake and exhaust design, (*c*) size of crankcase, (*d*) speed of operation, (*e*) tuning of engine, and (*f*) recycling of crankcase drainage. Deflector designs may also influence the quantity of compounds in the exhaust water; however, no data have been published to relate various designs. The age of the engines manufactured before 1968 apparently has no bearing on the quantity of emitted compounds. However, some engines manufactured during and after 1968 incorporate recycling devices, and reduce the quantity of compounds ejected into receiving waters.

In 1970, an estimated 100 to 160 mil gal (380 to 600 mil l) of raw fuel was discharged into the nation's waterways, and this loss of fuel has been estimated to represent over a $50 mil loss to the boating public.[4] It is anticipated that current outboard manufacturing plans for incorporating recycling devices on all new 1972 engines[5] will reduce the quantity of substances that the newer engines will eject into receiving waters. Despite this effort there may be over 7 mil older outboards in operation in 1972 that do not practice the recycling of crankcase drainage. It is these motors and their emissions that may pose a threat to the aquatic environment.

Although recycling may eliminate crankcase drainage from entering a waterway, raw fuel may still pass through the cylinders during the combined intake and exhaust stroke of two stroke outboard engines. Data available on the percent reduction of compounds discharged by recycling devices is limited. These devices should be researched further before establishing the conclusive merits (from both the financial and pollutional standpoints) of recycling devices.

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References

1. Nelson, G., "Statements on Introduced Bills and Joint Resolutions—S 2096." *Congressional Record*, Proc. and Debates of the 92nd Congress, First Session, 177, 94 (June 18, 1971).
2. "The Boating Business—1968." Boating Ind. Amer., Chicago, Ill. (1968).
3. "Boating 1970—A Statistical Report on America's Top Family Sport." Natl. Assn. of Engine and Boat Manufacturers, Greenwich, Conn. (1970).
4. Muratori, A., Jr., "How Outboards Contribute to Water Pollution." *The Conservationist*, 6, 6 (1968).
5. Jennings, B., and Obert, F., "Internal Combustion Engines, Analysis and Practice." Intl. Textbook Co., Scranton, Pa. (1947).
6. "Evinrude 1971." Outboard Marine Corp., Evinrude Motors Div., Milwaukee, Wis. (1971).
7. Stewart, R., and Howard, H., "Water Pollution by Outboard Motors." *The Conservationist*, 6, 6 (1968).
8. "1970 Mercury." Brunswick Corp., Mercury Marine Div., Fond du Lac, Wis. (1970).
9. "1970 Johnson is the Way to Go." Outboard Motor Corp., Johnson Motors Div., Waukegan, Ill. (1970).
10. "Pollution Factors of Two Cycle Outboard Marine Engines." Stillwell and Gladding, Inc., New York, N. Y. (Oct. 20, 1969).
11. Lincoln, R., Manager of Environmental Engineering, Outboard Marine Corp., Milwaukee, Wis., Personal communication. (Jan. 27, 1971).
12. Swift, J., "Remarks at Press Conference." Ann. Kiekhaufer Mercury Press Conf., Page, Ariz. (Jan. 18, 1971).
13. "Oil Drains Eliminated from Mercury Outboards." Public Relations Dept., Brunswick Corp., Mercury Marine Div., Fond du Lac, Wis. (1971).
14. "Your Outboard Will Go a Lot Further." Goggi Corp., Staten Island, N. Y. (Undated).
15. Parker, F., "Transcript of Test Results." Bureau of Commercial Fisheries, Miami, Fla. (Undated).

16 "Outboard Motor Tests Using Petrosave and KleenZaust Devices." F. Snell, Inc., New York, N Y (1965)
17. Shuster, W "Control of Pollution from Outboard Engine Exhaust. A Reconnaissance Study." *Water Poll. Control Ser*, No. 15020, EPA, Washington, D C (1971)
18 Ferren, W. "Outboard's Inefficiency is a Pollution Factor." *Natl Fisherman*, 4C (April 1970)
19 "Effect of Power Boat Fuel Exhaust on Flordia Lakes." Environmental Engineering, Inc, Gainsville, Fla (1970)
20 Tuoster, D, "Contribution of Marine Outboard Engines to Water Pollution" Tech Support Div, EWQA, Dept of the Int, Washington, D C. (Sept 1970)
21 "Mercury Outboards, Operation and Maintenance Manual" Brunswick Corp., Mercury Marine Div., Fond du Lac, Wis. (1970).
22. Roberts, J, and Caserio, M, "Basic Principles of Organic Chemistry" W. A Benjamin, Inc., New York, N Y (1964)
23 "Effects of Pollutants from Interstate Route 291 on the Greater Hartford Water Supply" Rept. by Vollmer Associates, New York, N Y., to Connecticut Dept of Transportation (June 8, 1970)
24. Hirschler, D, *et al*, "Particulate Lead Compounds in Automotive Exhaust Gas." *Ind & Eng Chem*, 49, 1 (1957)
25 "Symposium on Environmental Lead Contamination" Publ No 1440, USPHS, Washington, D C (1966)
26 Kawahara, F, "Laboratory Guide for the Identification of Petroleum Products," EW-PCA, Dept of the Int, Cincinnati, Ohio (1969)
27. Cady, H, "Pollution Free Gasoline Power to Outboards?" *Boston Sunday Globe* (May 9, 1971)
28 Kempf, T, *et al*, "Pollution of Waters by Motorized Operations, Especially Outboard Motors" Rept *26, Jour of the Assn. for Water, Ground & Air Hygiene*, Gustav Fischer Verlag Stuttgart (Ger) (1967)
29 English, J, *et al*, "Pollutional Effects of Outboard Motor Exhaust—Laboratory Studies." *Jour Water Poll Control Fed*, 35, 923 (1963)
30. Vogel, H, "Oil Contamination of Surface Water by Small Shipping," *Schweiz. Zeits Hydrol.* (Switz), 25, Fasc. 1 (1963)
31. Liberan Ebersbrost, R, "The Pollution of Water by Outboard Motors." *Ost Wasserw* (Austria), 17, 18 (1965)
32 "Report on Fifty Substances and Their Effect on the Beneficial Uses of Water" State Water Poll. Control Bd, Publ No 16, Sacramento, Calif (1956)
33. Zajic, J, *et al*, "Biological Oxygen Demand and Chemical Oxygen Demand Analyses on Paraffinic Hydrocarbons" Univ Western Ontario, London, Ont, Canada (Undated)
34 DesRosiers, P, "Potable Water from Engine Exhaust Gases." Sanitary Sci Branch Rept., U.S. Army Res. and Development Lab, Fort Belvoir, Va (1967).
35. "Standard Methods for the Examination of Water and Wastewater." 13th Ed., Amer. Pub Health Assn., New York, N Y. (1971)
36 Taylor, L, "The Outboards Victim or Villain?" *Sports Afield*, 116, 6, 82 (1971)
37 Stevenson, R, "Rapid Separation of Petroleum Fuels by Hydrocarbon Type" *Jour Chromatog Sci*, 9, 257 (1971)
38 Papa, L, *et al*, "Gas Chromatographic Determination of C_5 to C_{12} Hydrocarbons in Automotive Exhaust" *Jour Gas Chromatog*, 6, 270 (1968)
39 Dimitriades, B, and Seizinger, D, "A Procedure for Routine Use in Chromatographic Analysis of Automotive Hydrocarbon Emissions." *Environ Sci & Technol*, 5, 223 (1971)
40 Sanders, W., and Maynard, J, "Capillary Gas Chromatographic Method for Determining the C_4-C_{12} Hydrocarbons in Full Range Motor Gasolines." *Anal Chem*, 40, 527 (1968)
41 Swartz, R, *et al*, "Resolution of Complex Hydrocarbon Mixtures by Capillary Column Gas Chromatography—Composition of the 80°-180°C Aromatic Portion of Petroleum" *Jour Gas Chromatog*, 5, 251 (1967)
42 Seizinger, D, "High Resolution Gas Chromatographic Analysis of Auto Exhaust Gas." *Instrument News*, 18, 11 (1967)
43 Jeltes, R, and Veldink, R, "The Gas Chromatographic Determination of Petrol in Water" *Jour Chromatog*, 27, 242 (1967)
44 Bellar, T, and Sigsby, J, Jr, "Direct Gas Chromatographic Analysis of Low Molecular Weight Substituted Organic Compounds in Emissions." *Environ Sci & Technol*, 4, 150 (1970)
45 Huet, M, "Water Quality Criteria for Fish Life" Presented at the 3rd Seminar on Biological Problems in Water Poll, III W (1962).
46. Aquatic Life Advisory Committee of the Ohio River Valley Water Sanitation Commission, "Aquatic Life Water Quality Criteria Third Progress Report." *Jour Water Poll Control Fed*, 32, 65 (1960)
47 Burttschell, R, *et al*, "Chlorine Derivatives of Phenol Causing Taste and Odor" *Jour Amer. Water Works Assn*, 51, 205 (1959).
48 Sterm, A, *et al*, "Air Pollution III—Sources of Air Pollution and Their Control" Academic Press, New York, N Y (1968)
49 "The Effect of Outboard Motor Exhausts on Water Quality and Associated Biota of Small Lakes." Rept No 15 51451, Div Water Poll Control, Massachusetts Water Resources Commission (1970-73)
50 "Manufacturers' Warning" Brunswick Corp., Mercury Marine Div, Fond du Lac, Wis. (1971)

Specific removal patterns in activated sludge system design

ROBERT L. IRVINE, ROBERT T. KREGAN, WILLIAM D LANGLEY, AND RONALD C. CATCHINGS

THE INTENT of this paper is three fold. (*a*) to discuss the general design of biological reactors in terms of present day techniques and possible future modifications of these techniques, (*b*) to demonstrate how information of specific removal patterns for known waste constituents can be used to design completely mixed activated sludge systems, and (*c*) to compare the volumes of reactor systems designed from detailed and overall removal patterns Data obtained from the Environmental Engineering Laboratory at Texas A & M University, College Station, will be used for this purpose

DESIGN OF BIOLOGICAL REACTORS

This discussion will be devoted entirely to completely mixed biological reactors In the terminology of the sanitary engineer, such systems are referred to as activated sludge systems. Such systems include biological reactors whose mixing characteristics range from plug flow to completely mixed The terminology does not include no-recycle reactors such as lagoons The biological literature may use the word chemostat to describe a completely mixed biological reactor In such instances a no-recycle, completely mixed reactor is most probably being described In chemical engineering terminology, a completely mixed biological reactor is usually called a continuous-flow, stirred tank reactor (CFSTR) Here the mixing is understood to be complete for either a no recycle or recycle system. Simple confusions in terminology of this type have helped to keep sanitary engineers and chemical engineers apart The facts are that problems exist independent of the terminology used in solving them and that solutions to these problems must come from joint efforts.

A simple review of reaction kinetics is necessary to tune the chemical engineer's nomenclature to design procedures presently being utilized by sanitary engineers Consider the following reaction system:

Reaction Equations	Rate
$Y_{11}A_1 + Y_{21}A_2 + Y_{31}A_3 + \cdots + Y_{n1}A_n = 0$	r_1
$Y_{12}A_1 + Y_{22}A_2 + Y_{32}A_3 + \cdots + Y_{n2}A_n = 0$	r_2
$\vdots$	$\vdots$
$Y_{1m}A_1 + Y_{2m}A_2 + Y_{3m}A_3 + \cdots + Y_{nm}A_n = 0$	r_m

(1)

where

Y_{ij} = stiochiometric coefficient for the ith component in the jth reaction (Y_{ij} is positive for products, negative for reactants, and zero for catalysts),
A_i = the ith component,
n = number of components,
m = number of reactions, and
r_i = rate of the ith reaction.

Equation 1 can be rewritten as

$$\sum_{i=1}^{n} Y_{ij}A_i = 0 \quad j = 1, \ldots m \qquad (2)$$

The rate of formation of any component, r_{fi}, can be written as

$$r_{fi} = \sum_{j=1}^{m} Y_{ij}r_j \quad i = 1, \ldots n \qquad (3)$$

The functional form of the reaction rates are usually determined experimentally, and, for dilute water systems, are generally dependent on temperature and the concentrations of all components That is,

$$r_i = r_i(T, C_1, C_2, \ldots, C_n) \qquad i = 1, \ldots m \qquad (4)$$

POLLUTIONAL EFFECTS OF OUTBOARD MOTOR EXHAUST—FIELD STUDIES

John N. English, Eugene W. Surber, and Gerald N. McDermott

A preliminary study, conducted in the laboratory with tanks of water, showed that outboard motor exhausts damage the quality of water in a variety of ways (1). The most noticeable damaging effects were unpleasant taste and odor in the water and off-flavoring of fish flesh.

Polluting effects after a short intense period of motor operation were determined in the laboratory investigation. The effects of natural purification by biological degradation or loss of volatile pollutional materials to the atmosphere such as would occur to some degree in an actual situation were not studied. The findings of a field study in which these factors were considered are presented here.

Conduct of Study

A motor lake, a motor pond, and a control pond (Table I) were utilized in the study. All are filled by surface drainage from adjacent grassland areas. Water inflow approximated water losses during the study and overflow was negligible so that essentially the same water remained throughout the investigation. The average water temperature was 25°C.

The motor lake is privately owned, and outboard motors are operated primarily for water skiing on weekends and holidays. The relationship between the volume of lake water and motor use was such that detectable water quality damage was anticipated on the basis of the previously cited laboratory study. A fairly accurate record was kept at the lake by outboard motor operators who recorded the date, amount of fuel consumed, quantity of oil per gallon of gasoline used, whether gasoline was leaded or unleaded, motor horsepower, and time of operation. Project personnel stationed at the lake on weekends and other motor use times for the first month of the study obtained the cooperation of the boaters. Essentially the same people operated the same outboard motors during the study. The fuel consumed contained regular grade leaded motor gasoline. One-half pint to one-fifth pint of oil was added to each gallon (63 to 25 ml/l) of gasoline. An average fuel to oil ratio of 23 to 1 was calculated from total quantities of fuel and oil used in the motors.

On the motor pond, outboard motors were operated solely by project personnel and accurate fuel consumption records were maintained. Four outboard motors were used, a 10-hp 1960 model, an 18-hp 1960 model, a 10-hp 1959 model, and a 5.4-hp model built between 1939–1949. Special test propellers were used, which allowed the motors to reach optimum operating conditions under full load (4,100 to 4,200 rpm) while the boat moved at a very slow surface speed; thus wave action and violent maneuvering of the boat in the small pond were avoided. Six popular brands of regular grade leaded motor gasoline and outboard motor lubricating oil were used as fuel. One-half pint of oil was added

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TABLE I—Water Body Characteristics and Outboard Motor Use Data

Water Body	Area (acres)*	Volume (mil gal)†	Average Depth (feet)‡	No Motors Operated	Horsepower of Motors§
Motor Lake	6 89	24.4	11	6	30 to 75
Motor Pond	0 96	1.7	5.4	4	5 4 to 18
Control Pond	0 5	1.0	6	0	0

* Divide by 2.47 to obtain hectares
† Multiply by 0.00379 to obtain cu m.
‡ Multiply by 0.3048 to obtain m.
§ Multiply by 1.014 to obtain hp (metric).

to each gallon (63 ml/l) of gasoline which is a fuel to oil ratio of 17 to 1.

The study consisted of periodic collection of water and fish samples from each of the three bodies of water. Water samples were analyzed for hydrocarbons, threshold odor, chlorine demand, chemical oxygen demand, and lead. A tasting panel tested cooked fish samples for off-flavor.

Results

Odor

Threshold odor levels of water samples collected from the motor lake, motor pond, and control pond were determined by the procedure outlined in Standard Methods (2). Odor leve were determined before and aft water samples were exposed to labor tory-simulated water treatment pro esses. Simulation of water treatm processes consisted of alum coagul tion, sedimentation, filtration with coarse grade filter paper, and chlorin tion to a free residual of 0 1 mg after a 1-hr contact period. The r lationships between threshold odo number for treated and untreat samples from the motor lake and t motor pond and the daily fuel co sumption are shown in Figures 1 a 2. Since there was no consistent tre in the threshold odor number for u

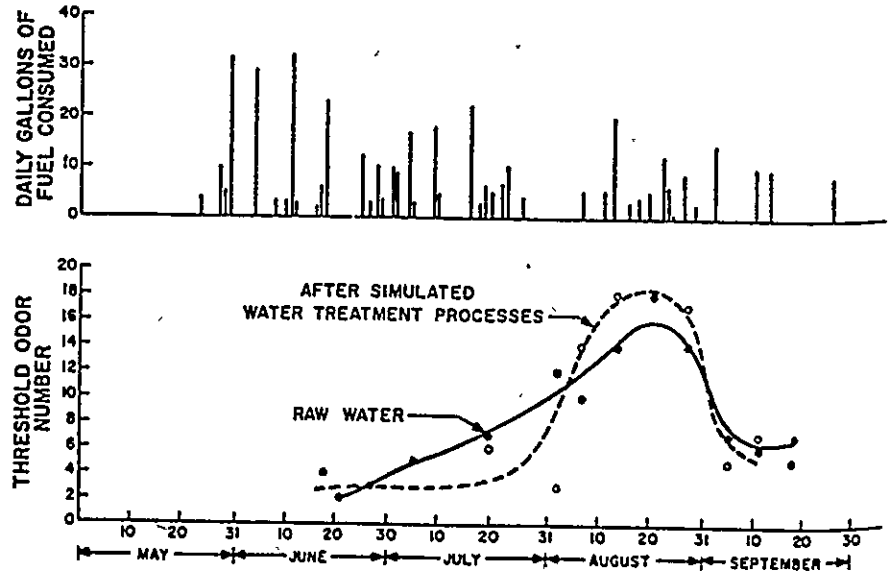

FIGURE 1.—Daily fuel consumption and threshold odor number for the motor lake. Multiply gal by 3 8 to obtain liters.

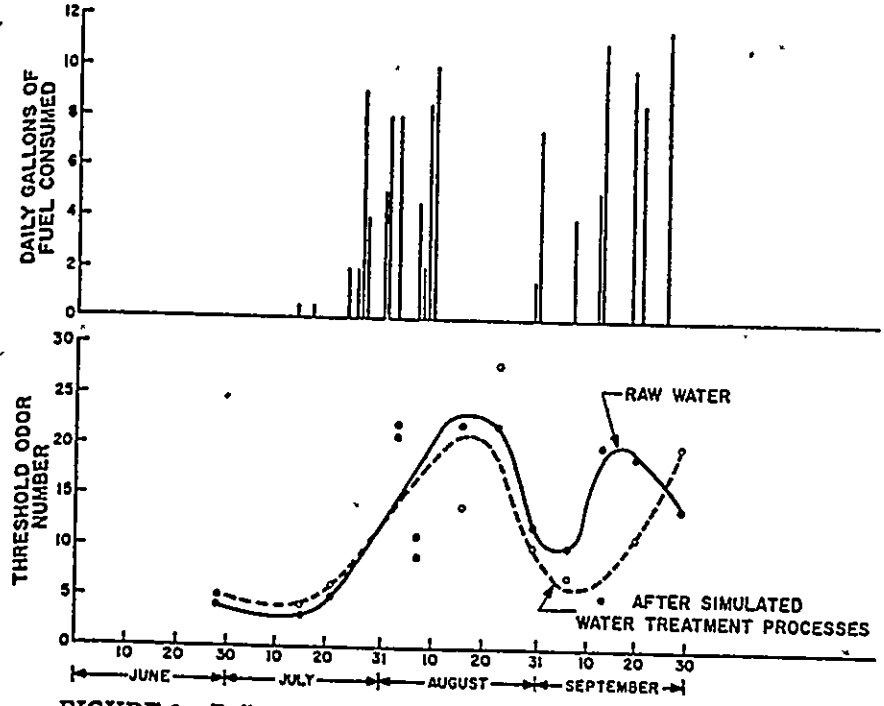

FIGURE 2.—Daily fuel consumption and threshold odor number for the motor pond. Multiply gal by 3.8 to obtain liters.

treated samples collected from the control pond, the samples were combined to give an average baseline threshold odor number of 4 with which to compare odor values from the motor lake and motor pond. The control pond water samples exposed to the simulated water treatment processes increased in threshold odor number during the last week of August. This appeared to be due to chlorination of algae. Control pond water sampled during that period was much more turbid and a darker green than the previous samples. An algae count was made at this time of water samples from both the control pond and the motor lake. The total algae count for the control pond samples was approximately 33,000 cells/ml, while that for the motor lake was 500. Blue-green algae in the control pond accounted for 31,000 cells and consisted almost entirely of *Aphanizomenon*.

The data indicate that exposure of the water samples to the simulated water treatment processes did not significantly reduce their threshold odor number. The threshold odor number of motor pond water samples increased during heavy outboard motor operations and decreased when operations halted.

"Musty," "moldy," "earthy," and "wet vegetation" were general terms used by panel members to describe the odor of the water from the three bodies of water. During intense motor operation some panel members described the odor of the motor pond water as "refinery effluent," "oily," and "musty oil;" however, the majority of the panel members described the odor as "musty" and "earthy."

Carbon Chloroform Extracts (CCE)

The organic material in the motor lake, motor pond, and control pond water was recovered from dilute solution by activated carbon adsorption. Approximately 100 gal (380 l) of water collected by dipping 5-gal (19-l)

bottles below the water surface were brought to the laboratory, composited in a tank, and passed upward at 100 ml/min through a small activated carbon column. The carbon was air-dried and extracted with chloroform in a soxhlet extractor. After the chloroform was evaporated, the extract was weighed and then separated into aliphatic, aromatic, and oxygenated hydrocarbons by chromatography on silica gel. Isooctane was used to desorb aliphatic hydrocarbons, benzene for aromatic hydrocarbons, and a chloroform methanol mixture for the oxygenated compounds.

Data from a previous study (1) indicated that the oil discharged from outboard motors is partially oxidized, but is composed almost entirely of long-straight-chain aliphatic hydrocarbons with a trace of aromatic hydrocarbons. This oil shows up in the aliphatic and aromatic fractions of the CCE. Total CCE, aliphatic plus aromatic fractions, and daily fuel consumption data for the motor pond ar shown in Figure 3. The quantity o combined aliphatic and aromatic frac tions remained relatively constan throughout the study, even though th total CCE increased as hydrocarbon fuel constituents were discharged int the water and decreased when out board motor operation was halted.

Figure 4 shows daily fuel consumption and CCE data for the motor lake The first three CCE samples were obtained by the method used for the motor pond and the control; however, during the latter part of July a standard-size carbon filter (3) was located at the lake site and approximately 2,000 gal (7.6 cu m) of water were pumped through it over a 1-week period for each CCE sample. The flow through the filter was approximately 1/4 gpm (950 ml/min). The significant break in the data may be due to the more efficient adsorption of organic material by the smaller, lower flow rate carbon filter. There

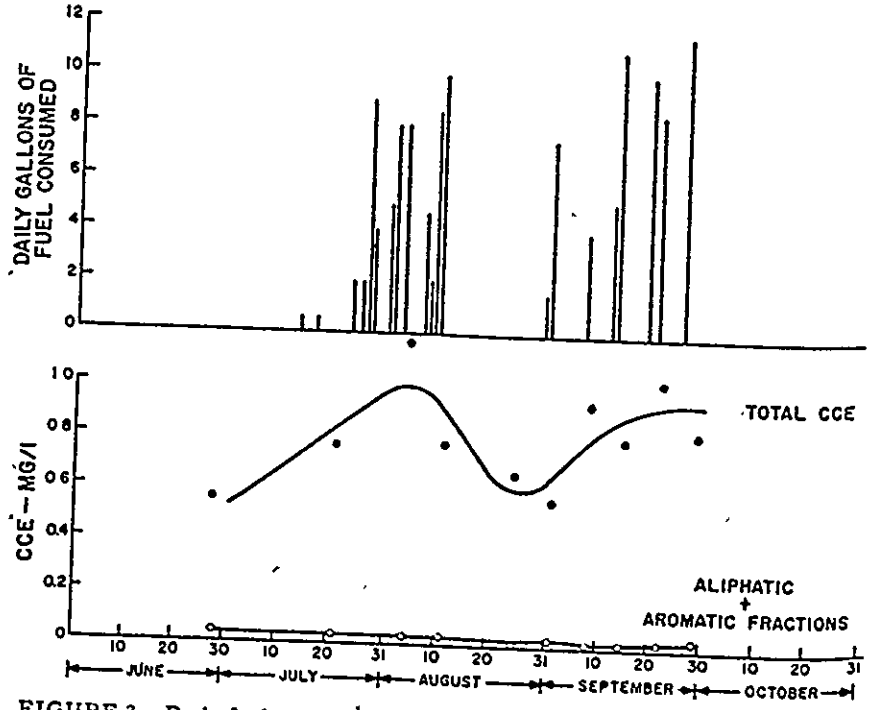

FIGURE 3.—Daily fuel consumption and Carbon Chloroform Extracts (CCE) for the motor pond. Multiply gal by 3 8 to obtain liters.

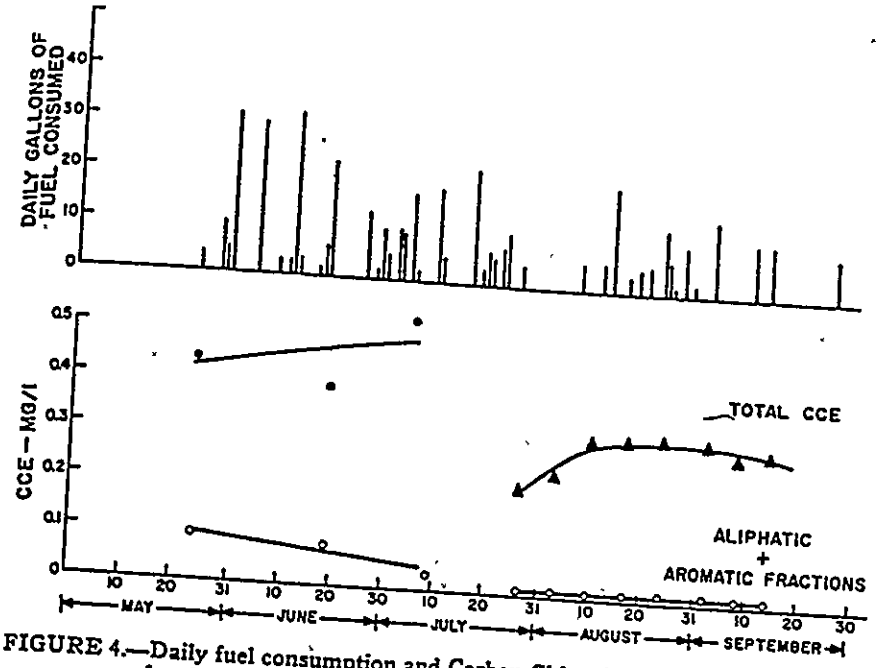

FIGURE 4.—Daily fuel consumption and Carbon Chloroform Extracts (CCE) for the motor lake. Multiply by 3.8 to obtain liters.

was no definite trend in the CCE extracts from the control pond; the average was 0.39 mg/l. The combined aliphatic plus aromatic fractions averaged 5, 4, and 8 percent of the total CCE for the motor lake, motor pond, and control, respectively.

Samples of bottom muds from the motor lake, motor pond, and control pond were taken periodically with an Ekman sampler. The muds were dried at room temperature and extracted in a soxhlet extractor with chloroform. The aliphatic fraction was separated by chromatography on silica gel. A crystalline material, which had a melting point of 114°C and was assumed to be sulfur, was present in the aliphatic fraction. The aliphatic material was isolated from the sulfur by repeated washing with small quantities of cold petroleum ether. There was no trend in the total mud-chloroform-extract data or aliphatic fractions for the motor lake and control pond. The lake bottom mud averaged 1.9 mg of total extract per gram of dry solids and 0.34 mg of aliphatic material per gram of dry solids; the control pond averaged 1.8 mg total and 0.09 mg aliphatic. The total mud extract from the motor pond increased from 6.6 to 13.3 mg/g of dry solids and the aliphatic from 0.24 to 0.41 mg/g of dry solids over the summer.

COD and Chlorine Demand

COD determinations were made on water samples collected from the motor lake, motor pond, and control pond. There were no significant trends in the data. The average COD values for the motor lake, motor pond, and control pond were 13, 32, and 31, respectively.

Figure 5 shows that the chlorine demand data, a by-product of the odor studies, followed a pattern similar to the CCE for the motor pond. The chlorine demand of the motor pond water increased during intense motor operation, decreased when motor operation was halted, and increased again when motor operation was resumed. The chlorine demand of the lake water increased slightly during the summer.

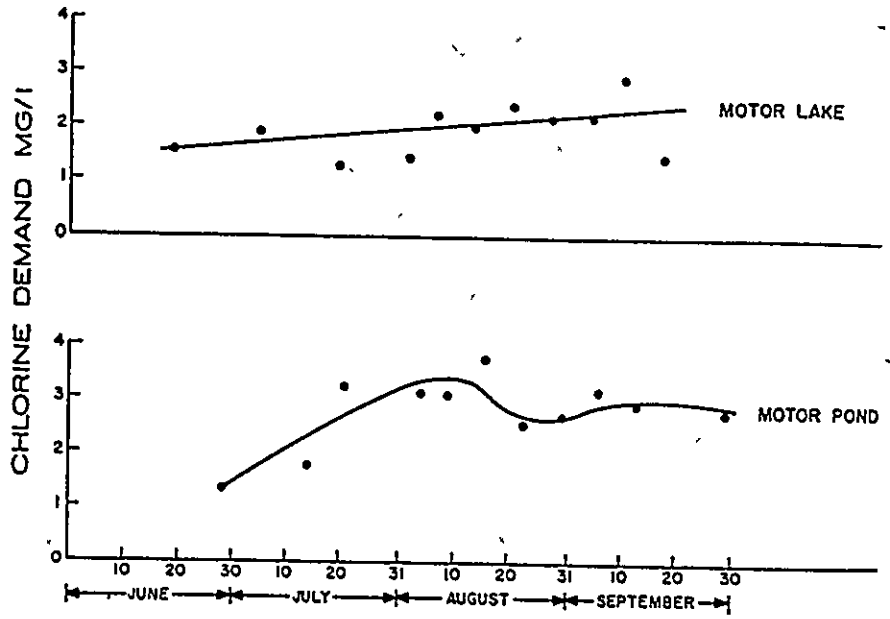

FIGURE 5.—Chlorine demand of the motor lake and motor pond waters.

The control pond water chlorine demand averaged 3.2 mg/l. As used in this paper, chlorine demand is the amount of chlorine that must be added to the water to obtain a free chlorine residual of 0.1 mg/l after one hour contact at 20°C.

Fish Tainting

Experiments were conducted to determine whether the flesh of fish contained in liveboxes in the motor lake and motor pond would acquire an objectionable flavor. Liveboxes were stocked with adult bluegills (*Lepomis macrochirus*), 6- to 7-in. (15.2- to 17.8-cm) long and weighing approximately 1/5 lb (90.7 g) each. The liveboxes were located at various points in the lake. The boxes were 2 ft × 2 ft × 2 ft (0.6 m × 0.6 m × 0.6 m) and constructed of a 2-mesh or 4-mesh galvanized hardware, cloth-covered wooden frame. The top was of 1/2-in. (1.27 cm) plywood with a 10-in. × 10-in. (25.4-cm × 25.4-cm) trap door for servicing the fish. The liveboxes were originally anchored at the water surface; however, many of the fish were injured when brushed against the hardware cloth by waves from out board motor operation. The fish became fungused and died. To escape the waves and being hit by the outboard motors, the boxes were lowered 4 ft (1.2 m) below the water surface. In addition to the liveboxes, a 500-gal (1.9 cu m) tank containing about 75 fish was located on a dock and the lake water was pumped in and out at 10 to 20 gpm (40 to 80 l/min).

Fish were removed from the motor lake or motor pond and the control pond at intervals of about two weeks throughout the taste tests. The fish were scaled, and the head and entrails removed. The fish were fried with vegetable oil and cracker meal in an electric frying pan at 370°F (188°C), or baked in a 350°F (177°C) oven for 20 min. When cooked, each fish was divided in fourths each of which was wrapped in foil, coded, and kept warm for the taste panel. A taste panel of 12 members had been selected from the laboratory staff. Platters containing the fish samples were given to panel members, who were asked to

TABLE II — Fish Flesh Tainting Observations in the Motor Lake

Source	Days Exposure	Fuel (gal./mil gal of water)*	Type of Cooking	Number of Observations in Each Category of Off-Flavoring			Percent Positive (Slight and Strong)
				None	Slight	Strong	
Lake	26	6.8	Fried	34	2	0	06
Control	26	—	Fried	12	0	0	00
Lake	47	10.8	Fried	18	13	5	50
Control	47	—	Fried	9	3	0	25
Lake	68	12.4	Fried	14	8	2	42
Lake Tank	27	12.4	Fried	7	4	1	42
Control	68	—	Fried	6	6	0	50
Lake	83	14.0	Fried	12	8	4	50
Lake	83	14 0	Baked	1	2	9	92
Lake Tank	42	14.0	Fried	5	5	2	58
Control	83	—	Fried	10	2	0	17
Control	83	—	Baked	8	4	0	33
Lake	99	15.8	Fried	7	4	1	42
Lake	99	15.8	Baked	3	5	4	75
Lake Tank	58	15.8	Fried	9	3	0	25
Lake Tank	58	15.8	Baked	7	2	3	42
Control	99	—	Fried	11	1	0	08
Control	99	—	Baked	8	2	2	33
Lake	111	16 6	Fried	9	2	1	25
Lake	111	16.6	Baked	4	5	3	67
Lake Tank	70	16.6	Fired	9	3	0	25
Lake Tank	70	16.6	Baked	5	5	2	58
Control	111	—	Fried	9	3	0	25
Control	111	—	Baked	9	2	1	25

*Equivalent to cu m/mil cu m.

record their taste reactions. The field conditions and a summary of panel members' reactions to the motor lake, motor pond, and control pond fish are reported in Tables II and III, respectively.

Interpretation of the tainting observations was made on the basis of the number of positive responses. To judge the magnitude of off-flavor, the positive responses were categorized into slight and strong. Because the positive responses on the control fish showed no trend throughout the season, all were combined to give an average "baseline" positive response against which to compare the tests from the motor lake and motor pond. The control data showed an average positive response of 18 percent for fried fish and 30 percent for baked fish.

A definitely greater occurrence of off-flavor in the fish from the motor pond and motor lake is indicated when total observations are considered. This appraisal of the results was confirmed by statistical evaluation; the *chi* square test was used to estimate the likelihood that the differences in number of positive responses for the motor pond and motor lake fish as compared to the control fish occurred by chance alone (Table IV). A *chi* square value of 3.84 infers that the chances are only 1 in 20 that the observations were due to chance alone; higher values indicate even less chance. The statistical parameters for fish exposed to

TABLE III.—Fish Flesh Tainting Observations in the Motor Pond

Source	Days Exposure	Fuel (gal/mil gal of water)*	Type of Cooking	Number of Observations in Each Category of Off-Flavoring			Percent Positive (Slight or Strong)
				None	Slight	Strong	
Pond boxes	20	18.2	Fried	3	3	6	75
Control	63	—	Fried	8	4	0	33
Pond wild	34	37.5	Fried	8	7	8	65
Control	77	—	Fried	12	0	0	00
Pond wild	40	37 5	Fried	6	3	3	50
Pond wild	40	37.5	Baked	2	6	4	83
Control	83	—	Fried	10	2	0	17
Control	83	—	Baked	8	4	0	33
Pond boxes	35	60.4	Fried	4	3	5	67
Pond boxes	35	60 4	Baked	2	3	5	80
Control	111	—	Fried	9	3	0	25
Control	111	—	Baked	9	2	1	25
Pond boxes	44	72 1	Fried	6	2	4	50
Pond boxes	44	72.1	Baked	1	1	10	92
Control	120	—	Fried	8	0	0	00
Control	120	—	Baked	8	4	0	33

* Equivalent to cu m/mil cu m

the motor lake and motor pond water in liveboxes indicate that the differences in off-flavor were highly unlikely to have occurred by chance alone. For the fish in the tank, however, the differences were not so marked, perhaps because the exposure period in the tank was considerably less than in the liveboxes.

Lead

Water samples from the motor lake and motor pond were collected and analyzed for lead throughout th study. The method used was a dith ozone extraction procedure coupl with final analysis by the polarograp Recovery tests performed by addi known concentrations of lead to th lake water showed that quantitativ recovery at low lead levels could n be achieved by this procedure. Th results did show, however, that sample containing 10 μg/l would giv a discernible wave on the polarogram All the samples analyzed had less tha 10 μg/l of lead.

TABLE IV.—Statistical Evaluation of Fish Tainting Observations

Water	Fish Exposure Method	Fish Cooking Method	Chi-Square Value
Motor Lake	Liveboxes	Fried	4 42
		Baked	12 7
	Tank	Fried	1.74
		Baked	3 08
Motor Pond	Liveboxes	Fried	20.80
		Baked	22 67

Samples of bottom muds were co lected with an Ekman dredge from th motor lake and motor pond and ana lyzed for lead. The muds were air dried and ground to pass a 50-mes screen. The dried mud was heate with 25-percent nitric acid to incipien boiling and filtered through a sintere glass funnel. The filtrate was evap rated to dryness, suspended in distill water, heated, and refiltered. The fi trate was analyzed for lead by a dith

some extraction procedure followed by a final analysis by the polarograph.

No lead was detected in the bottom muds of the motor lake. Before any outboard motors were operated, 16 μg of lead per gram of mud were detected in the bottom mud of the motor pond. A mud sample analyzed near the end of the investigation indicated 1.8 μg of lead per gram of mud. If 1.8 μg of lead per gram of bottom mud is used as a basis, a rough calculation indicates that lead would be present in a concentration of approximately 0.03 mg/l if the lead in the mud was dispersed uniformly throughout the water. The results of a previous study (1) and the fuel consumption data for the motor pond indicate this is in excess of that which might be contributed by the outboard motors. Because a relatively large amount of lead was detected in the bottom mud before outboard motor operation, it appears there was some extraneous source of lead. The reasons for the large amount of lead in the motor pond and the difference in the two assays are obscure.

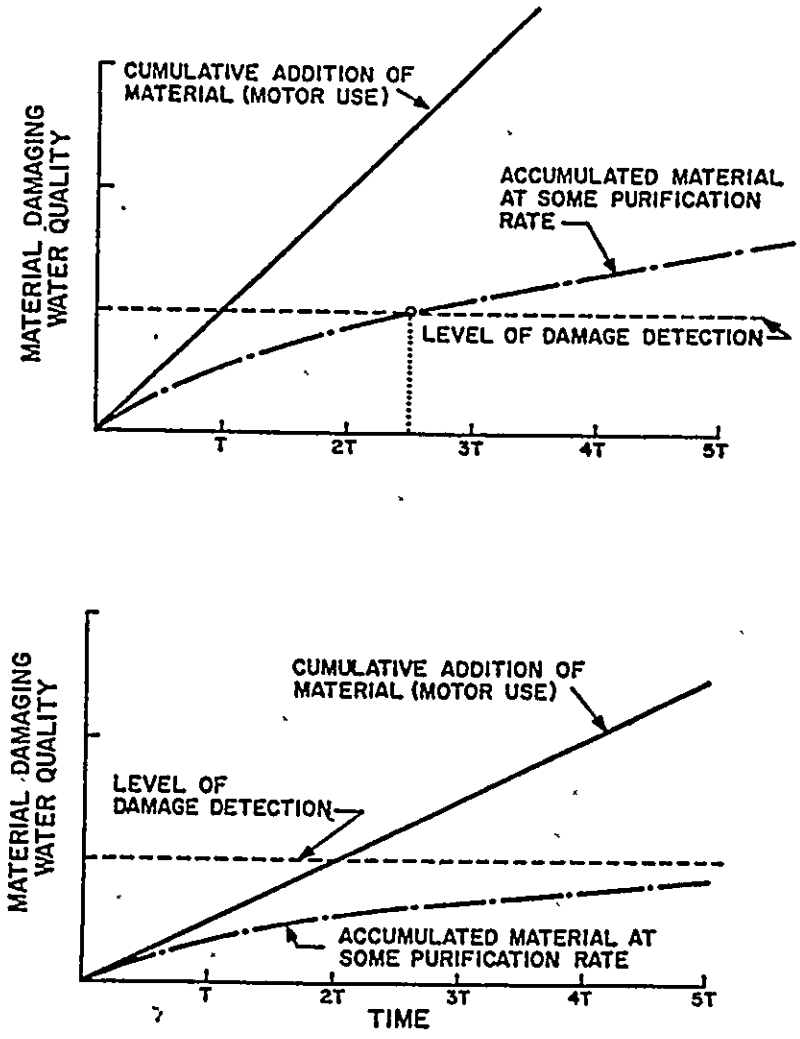

FIGURE 6.—Hypothetical relationship between the rate of motor use and the quantity of pollutional material damaging water quality.

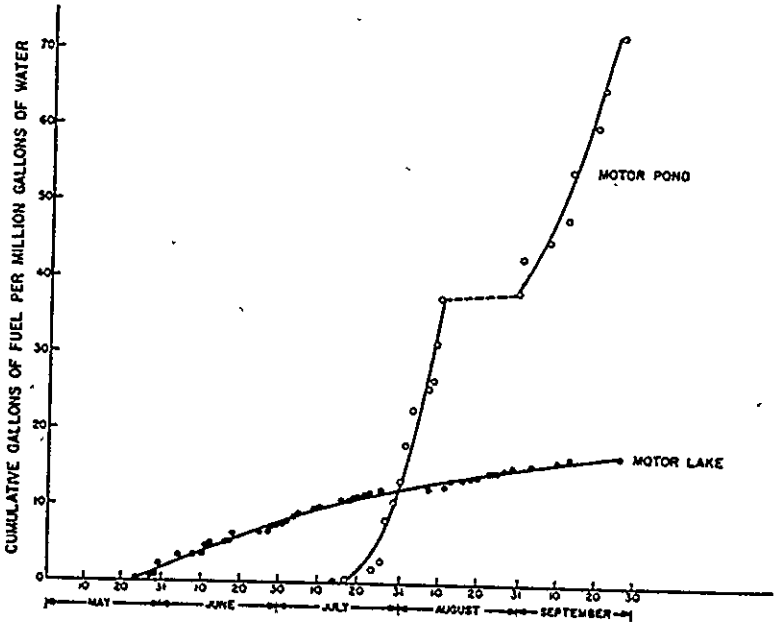

FIGURE 7.—Fuel consumption rates for the motor lake and motor pond. Volume quantities are equivalent to cu m/mil cu m.

The data indicate that the amount of lead contributed to the water by outboard motor exhausts is insignificant. Inasmuch as outboard motors were operated in the motor lake during previous boating seasons and no lead was detected in the bottom muds during this investigation, it would appear that the amount of lead contributed to bottom muds by outboard motor exhausts is also insignificant; however, because there appeared to be an extraneous source of lead in the motor pond bottoms a confirmation of this observation was not possible.

Discussion

Two factors determine the level of accumulation of water-damaging materials in a body of water, i.e., the rate at which pollutional materials are added to the water, and the rate of removal by natural purification processes (biological degradation). The hypothetical relationship of these two factors is illustrated in Figure 6. Two rates of motor use and two rates of purification are assumed in the graphs. In the upper graph the rate of motor use is twice that in the lower graph and a damaging effect is noted at 2.5 *T*. In the lower graph a damaging effect may never occur, even though the total quantity of material added is greater than the quantity producing an effect with the first assumed rates.

In this investigation two fuel-use rates were used. The rate of fuel use at the motor lake was not under control but weekly average fuel consumption was rather steady over the season (Figure 7). The fuel-use rate is equal to the slope of the lines of cumulative fuel consumption. At the motor pond a rate of fuel use was selected at which it would be fairly certain that the damaging level of accumulation would be reached even if a high rate of natural degradation of pollutants existed. Operation of the motors in the motor pond was suspended for a period of several weeks in the middle of the season, when all the fish exposed in liveboxes suddenly died. It could not be established whether the fish died as a result of exposure to the exhaust pol-

...ted water or because of a bacterial infestation. Bacterial infestation was observed in dead fish but whether it took place after or before death of the fish could not be determined. The live boxes were restocked and fish were immediately infected with *Cytophaga columnaris* bacteria and died. A period of no motor operation occurred while ridding the pond of the disease and restocking the fish. A slightly lower fuel-use rate was employed when operations were continued.

The odor, CCE, and chlorine demand of the motor lake and motor pond waters increased over the summer as the cumulative quantity of fuel consumed by the outboard motors rose. The rate of increase was greater in the motor pond than in the motor lake, which corresponds to more intense operation of outboard motors in the motor pond. If the rate of increase of these parameters is approximated by straight lines (Figures 1, 2, 3, 4, and 5) and this rate is coordinated with the corresponding fuel-use rates, an approximation can be made of the increase in these parameters per quantity of fuel consumed per million gallons of water (Table V). The figures are inconsistent in that lower fuel-use rates show higher contributions in some instances. They may serve a useful purpose, however, in estimating the order of magnitude of potential water quality damage in other situations.

The fish flesh had no detectable offodor when fuel consumption reached 8 gal/mil gal (cu m/mil cu m) of water; when the fuel consumed increased to 10.8 gal/mil gal (cu m/mil cu m) of water a definite tainting had occurred. The threshold level of tainting is therefore within the range of these two values at the fuel-use rate employed in the motor lake. The threshold value was estimated graphically by a plot showing the percent of positive responses against fuel consumption. With a baseline positive response of 18 percent for the control, such a graph indicates a threshold level for fish tainting of approximately 8 gal of fuel/mil gal (cu m/mil cu m) of water.

TABLE V.- Contribution of Odor, CCE, and Chlorine Demand

Pond or Lake	Daily Fuel Use Rate* (Gal/mil gal of water)	Increase per Gallon of Fuel per Million Gallons of Water		
		Threshold Odor Number	CCE (µg l)	Chlorine Demand (mg l)
Motor Lake	0.17	1 5	—	0 05
Motor Pond	1.7	0 4	8	0 03
Motor Pond	1 3	0 5	9	—

* Equivalent to cu m/mil cu m.

In the motor pond, a higher fuel-use level of 18 gal of fuel/mil gal (cu m/mil cu m) of water produced severe fish flesh tainting. In the laboratory investigation preceding this field study, where time for biological degradation of pollutants was minimal, tainting was quite strong at a fuel-use level of about 3 gal/mil gal (cu m/mil cu m) of water. These combined observations indicate that fish flesh tainting is probable during a summer season at a fuel-use rate of 0.17 gal/mil gal (cu m/mil cu m) of water if the fuel-use level exceeds about 8 gal/mil gal (cu m/mil cu m) of water. Experiments covering a range of fuel-use rates could perhaps provide more refined figures. This combination of rate and level is suggested, however, as a guideline in the control of fish flesh tainting. Because of the risks involved, trial control under these conditions in real situations appears to be a logical step in dealing with this potential problem.

During this study water temperatures averaged 25°C. Since temperature has an effect on the processes of natural purification and water temperature varies throughout the United States during the boating season, this

factor should be kept in mind when applying fuel-use data to a particular situation.

Fuel-use is the best available parameter of the potential pollution contribution of outboard motors. However, it is recognized that fuel is not a material of constant composition. The ratio of fuel to oil used may vary by a factor of 3. Outboard motors manufactured in recent years use ratios of fuel to oil as high as 50 to 1. The fuel to oil ratios of 23 to 1 in the motor lake and 17 to 1 in the motor pond are close to the 1959 national average fuel to oil ratio (4). As the number of motors using less oil become more prevalent estimates of pollution contribution based on fuel-use may have to be revised.

Summary

Measurements were made of materials contributed by outboard motor exhausts, and their damaging effects on the quality of water used for particular purposes. The investigation was conducted with three bodies of water: a privately-owned motor lake where outboard motor boats were operated primarily for water skiing; a motor pond where outboard motors were operated by the project personnel; and a control pond. Tainting of fish flesh was demonstrated, and the threshold of occurrence was estimated at a combined fuel-use level of 8 gal/mil gal (cu m/mil cu m) of water and a daily fuel use rate of 0.17 gal/mil gal (cu m/mil cu m) of water. The increase in threshold odor number of the water due to motor use was between 0.5 and 1.5 per gallon of fuel consumed per million gallons (cu m/mil cu m) of water. The concentration of C materials also showed an increase ing outboard motor operation. A n imum CCE concentration of abou μg/l was indicated for each gallo fuel per million gallons (cu m/mi m) of water.

Acknowledgments

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References

1. English, J. N. McDermott, G. N., Henderson, C., "Pollutional Effects Outboard Motor Exhaust—Laborat Studies." THIS JOURNAL, 35, 7, (July 1963).
2. "Standard Methods for the Examinat of Water and Wastewater." 11th E Amer. Pub. Health Assn., New Y (1960).
3. "Tentative Method for Carbon Chlo form Extract (CCE) in Water *Jour Amer. Water Works Assn.* 2, 223 (Feb. 1962).
4. "Boating—1959: The Nation's Top Fa ily Sport." A statistical rep jointly prepared by the Outboard Bo ing Club of America, Chicago, Ill., the National Association of Eng and Boat Manufacturers, New Yor

POLLUTIONAL EFFECTS OF OUTBOARD MOTOR EXHAUST—LABORATORY STUDIES

John N. English, Gerald N. McDermott, and Croswell Henderson

Boating is one of America's most popular family recreational activities. The number of persons that participated in recreational boating more than two times per season during 1959 was estimated to be 39 million (1). The majority used boats propelled by outboard motors which numbered over 5.8 million. Water sports, such as water skiing, motor-boat cruising, and motor-boat racing, have contributed to this vast interest in pleasure boating. Users of outboard motor boats favor high horsepower motors for their boating activities. The average horsepower of motors sold in 1959 was 23.7 (24.0 hp-metric) (1).

In the United States 336 mil gal (1.3 mil cu m) of gasoline and 22 mil gal (83,400 cu m) of lubricating oil were consumed by outboard motors in 1959 (1). Much of this gasoline was regular grade, leaded, motor gasoline, and the oil was largely a straight non-additive lubricating oil.

Conditions favor absorption of the materials discharged in the underwater exhaust of outboard motors. Expected pollutants are hydrocarbon fuel constituents, either unaltered or partially oxidized, and lead from the anti-knock fluid.

This paper presents results of a preliminary study designed to:

1. Measure the quantities of certain polluting materials such as oil, lead, and phenol present in water in which outboard motors are operated; and
2. Determine the effects of the waste products from outboard motors on (*a*) the quality of water for domestic use and domestic water treatment processes, and (*b*) fish, particularly with regard to toxicity to fish and tainting of fish flesh.

Throughout this paper, OME water is used as an abbreviation for outboard motor exhaust water. The observations are expressed on a per-gallon-of-fuel-consumed basis to permit estimates of water quality damages from the motor exhausts on the basis of fuel consumption and water volume.

Method of Study

For this study, low-horsepower outboard motors were operated in tanks of water in the laboratory. Two outboard motors were used, a 5 4-hp (5.5 hp-metric) motor built between 1939–1949 and a 10-hp (10.1 hp-metric) motor 1960 model.

The fuel consisted of a mixture of a regular grade, leaded, motor gasoline and an outboard motor lubricating oil. One-half pint of oil was added to each gallon of gasoline.

The outboard motors were operated in two tanks, a 65-gal (246 l) capacity

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The paper was presented at the Annual Meeting of the Central States Water Pollution Control Association in Springfield, Ill., June 7–9, 1961.

TABLE I.—Experimental Operations

Test Series	Motor (hp)	Number of Runs	Average or Range of Factors During Runs					
			Water in Tank (gal)	Duration of Run (min)	Fuel Consumed (ml)	Speed of Motor (rpm)	Initial Water Temp (°C)	Increase in Temp. (°C)
A	5.4	5	50	20–25	500	Full Throttle 2,100	10–21	2–7
B	5.4	4	380	100–112	3,000	Full Throttle 2,100	27–28	5–7
C	10	2	340	49–60	3,000	½–¾ Throttle	23–28	7–9

Note: Multiply hp by 1.014 to obtain hp-metric; gal × 3.79 = l.

stainless steel tank, 27 in. (69 cm) in diameter and 30 in. (76 cm) deep, and a 500-gal (1,890 l) capacity aluminum tank, 5 ft (1.5 m) in diameter and 3 ft (0.9 m) deep. The 5.4-hp (5.5 hp-metric) motor was operated at full throttle during all tests. The 10-hp (10.1 hp-metric) motor, because of extreme splashing of the tank contents at full throttle, was operated at half to three-fourths throttle.

The OME water was sampled by dipping one liter glass-stoppered reagent bottles under the surface of the water during turbulent mixing of the tank contents.

Operations and Results

Individual Polluting Materials

Eleven test runs were made. These were grouped into three series of tests (A, B, and C) depending on which motor was used and the volume of water in which it was operated. The experimental operational data for each series are shown in Table I.

Quantitative analyses data for the polluting materials in the OME water are shown in Table II. The quantity of volatile and non-volatile oil was determined by extracting the OME water with carbon tetrachloride and determining the amount extracted with a pycnometer (2). The COD and phenol data were obtained by using the procedures outlined in Standard Methods (3). The lead determination consisted of digesting the oily material in the sample by refluxing with nitric acid, evaporating the sample to dryness, and then determining the lead in the residue by polarographic procedures (4).

The average percent of fuel constituents found in the OME water was as follows: non-volatile oil, 54; volatile oil, 2. These values are based on the assumption that the non-volatile oil in the OME water was the lubricating oil in the fuel and volatile oil was the gasoline in the fuel. The percent of lead found in the OME water was 22.

TABLE II.—Composition of OME Water

Test Series	Average Quantity Pollutants Present (g/gal fuel consumed)				
	Oil		Lead	Phenols	COD
	Non-volatile	Volatile			
A	117	71	0.25	0.38	450
B	105	37	0.46	0.42	410
C	93	62	0.87	0.99	437
Average	105	57	0.53	0.60	432

Note: g/gal ÷ 3.79 = g/l

This value is based on a figure of 2.60 g lead/gal (0.7 g/l) of gasoline.

The effect of passage through the outboard motor engines on the lubricating oil in the fuel mixture was studied by infrared analysis. The oil, before passage through the engines, is composed almost entirely of long straight-chain aliphatic hydrocarbons with a trace of aromatic hydrocarbons. The infrared transmission curves for oil recovered from OME water show the same type of material; however, the distinct presence of carbonyl groups show oxidation. This would indicate that the lubricating oil passing through the motor is partially oxidized.

A long-term BOD study of the OME water was conducted using the two-bottle dilution technique suggested by Orford (5). Settled Ohio River water was used as seed material. The data indicated that the ultimate BOD of the OME water was 160 g/gal (41.2 g/l) of fuel consumed.

Data obtained from threshold odor tests conducted on the OME water indicated that approximately 1.3 mil gal of odor-free dilution water per gallon of fuel consumed (343,300 l/l) are required to reach a threshold odor number of one.

Studies were conducted to determine the rate of oil exhausted into the water when the 5.4-hp (5.5 hp-metric) motor was operated at constant speed. The accumulation of contaminants in the OME water was approximately proportional to the duration of motor operation. This indicated little sweeping out of contaminants and no tendency to lower absorption rates as contaminants accumulated.

Effects of OME Water on Domestic Water Quality

The possible damaging effects of the products exhausted from outboard motors to the quality of water for domestic use and to domestic water treatment processes were determined by measuring (*a*) interference with coagulation and sedimentation, (*b*) the ability of water treatment processes to remove oil and odor, (*c*) the chlorine demand, and (*d*) the carbon demand.

Interference with coagulation and sedimentation processes was determined by coagulating various concentrations of the OME water with alum. The apparatus and procedure used were similar to those employed by Cohen (6). The results indicated that the concentrations of the OME water likely to reach a domestic water treatment plant would not adversely affect the coagulation and sedimentation processes.

The ability of water treatment processes to remove odor was determined by coagulating, settling, filtering, and chlorinating an OME water equivalent to 750 gal of dilution water per gallon (198 l/l) of fuel. The initial threshold odor number before treatment was 480. After treatment, which included chlorination to a 0.5 mg/l combined chlorine residual, the threshold odor number of the OME water remained at 480; the quality of the odor was slightly changed, however. Addition of greater quantities of chlorine to produce a 0.1 mg/l free chlorine residual reduced the threshold odor number to 200 and further changed the quality of the odor.

About 80 percent of the non-volatile oil was removed by coagulation, sedimentation, and filtration; however, none of the volatile oil was removed by these processes.

The chlorine demand of an OME water equivalent to 750 gal of dilution water per gallon (198 l/l) of fuel was determined by coagulating, settling, and filtering a portion of the water. Samples were taken and dosed with increasing quantities of chlorine. The residual-chlorine curve for the OME water is shown in Figure 1. Approximately 8 g of additional chlorine per gallon (2.1 g/l) of fuel consumed are

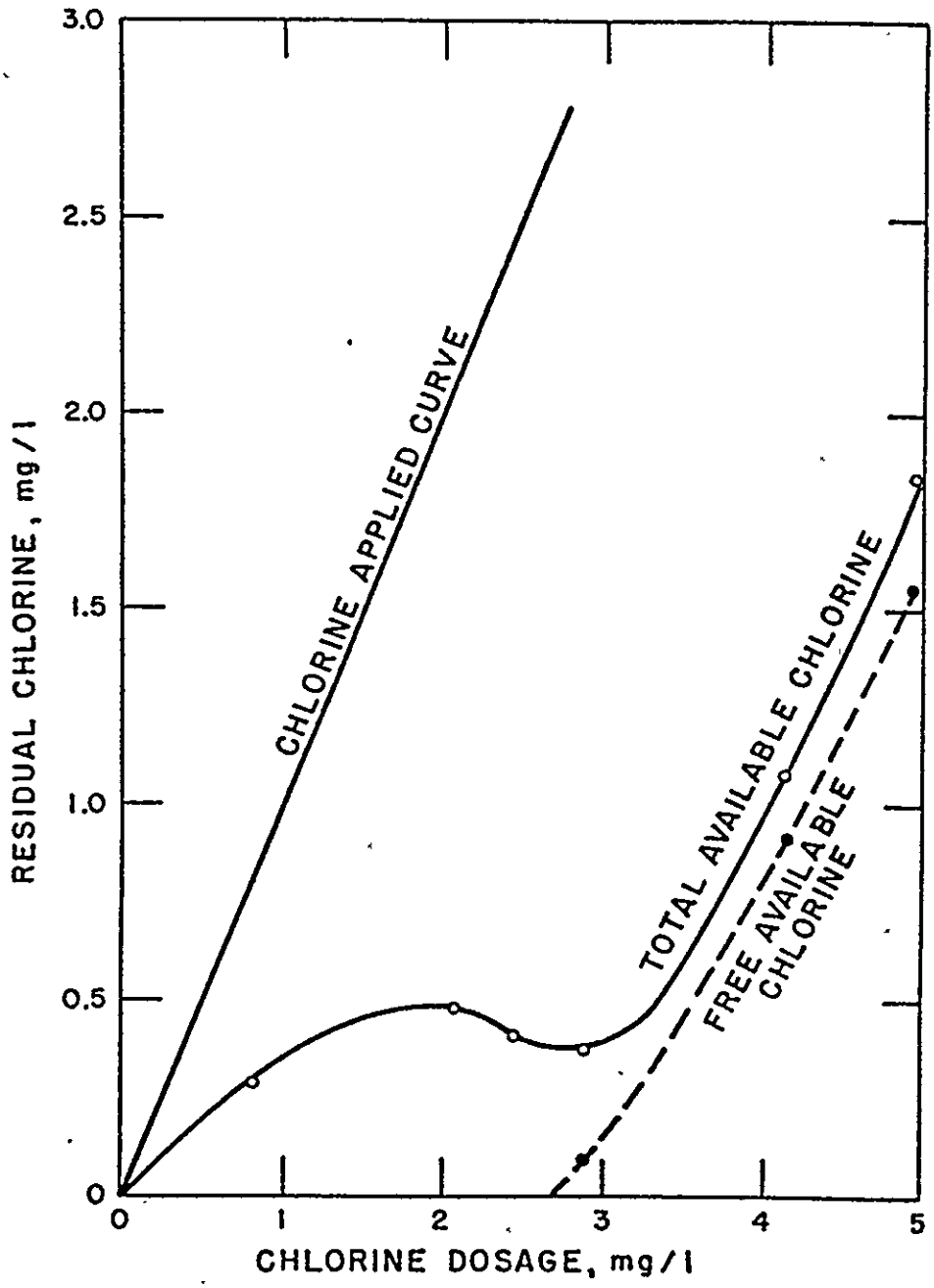

FIGURE 1.—Residual chlorine curve for OME water.

required to obtain a free available chlorine residual of 0.1 mg/l after a 1-hr contact period in the OME water.

The carbon demand of the OME water was determined by treating an OME water equivalent to 7,500 gal of dilution water per gallon (1,980 l/l) of fuel with varying amounts of activated carbon. The suspensions were rapidly stirred for 30 min. The carbon was removed by filtering the suspensions through columns of fine glass wool.

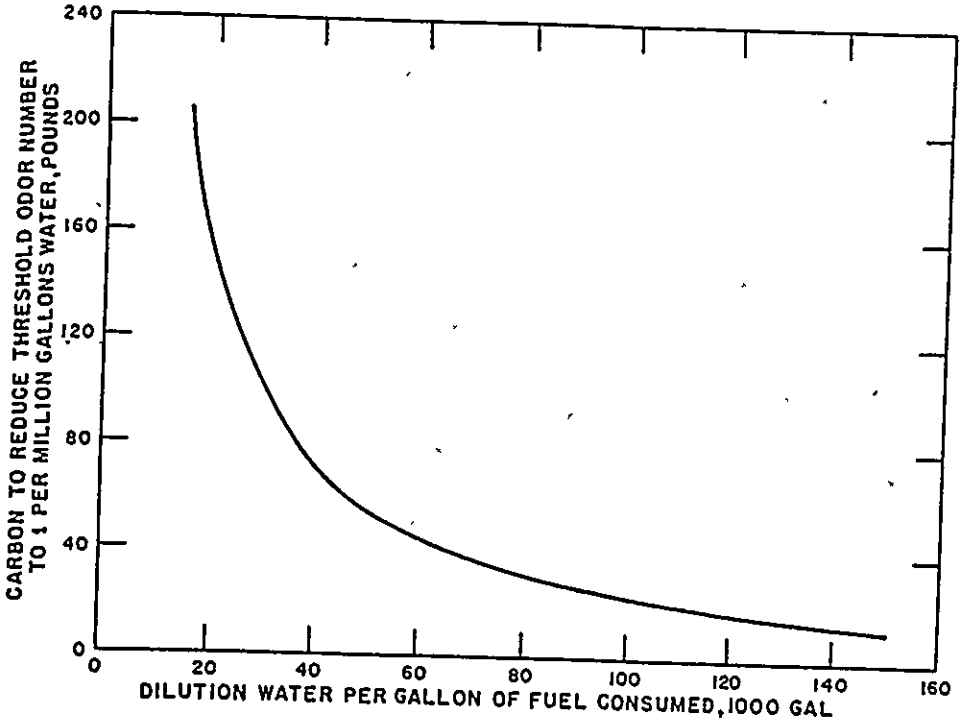

FIGURE 2.—Carbon demand of OME water.

Samples of the filtrate were used for threshold odor determinations. These data were then used to plot an adsorption isotherm according to Freundlich's equation ($X/M = KC^{1/N}$). Calculation of the parameters K and $1/N$ for this line provides a means for constructing a graph from which the dose of carbon required to reduce the threshold odor of an OME water to an acceptable level can be obtained. Such a graph is shown in Figure 2.

Toxicity to Fish and Tainting of Fish Flesh

Bioassays were conducted to determine the acute or short-term toxicity of the OME water using two common species of fish. Additional bioassays were conducted to determine how long the toxicity remained in the OME water upon standing, and a long-term continuous-flow bioassay was conducted to determine possible chronic toxicity.

Conventional biossays were made to determine the acute toxicity of duplicate 10-l samples of each concentration of OME water (3). The test fish were fat-head minnows (*Pimephales promelas*), averaging 2½ in. (6.4 cm) in length and 1½ g in weight, and bluegills (*Lepomis macrochirus*), averaging 2¼ in. (5.7 cm) in length and 2 g in weight. Five fish were used in each exposure jar. The dilution water was a prepared soft water with the following characteristics:

TABLE III.—Acute Toxicity of OME Water

Sample	Fish Species	Dilution at Which Half the Fish Die (gal water/gal fuel consumed)			
		Exposure (hr)			
		24	48	72	96
1	Fat-head minnows	1,700	1,700	1,700	1,700
	Bluegills	1,300	1,600	1,600	1,600
2.	Fat-head minnows	1,700	1,800	1,800	1,800
	Bluegills	1,600	2,500	2,500	2,500
3.	Fat-head minnows	1,900	1,900	1,900	1,900

Note: gal water/gal fuel × 3.79 = l/l.

DO, 8 mg/l; pH, 7.4; alkalinity ($CaCO_3$), 18 mg/l; hardness ($CaCO_3$), 20 mg/l; temperature, 25°C. Results for several OME water samples are shown in Table III. The two species of fish were of approximately equal sensitivity. Decreases in the toxicity of OME water upon aging are shown in Table IV. In one experiment, a sample of the OME water that stood at room temperature for four days was non-toxic to fish, indicating that the toxic material was not highly persistent. Acute and chronic toxicity values for simultaneously conducted static and continuous flow tests are shown in Table V. This experiment showed little chronic or accumulative effect on fish.

Experiments were conducted to determine whether the flesh of fish exposed to the OME water would acquire an objectionable flavor. Adult bluegills (*Lepomis macrochirus*) and white crappies (*Promoxis annularis*), 6- to 7-in. (15 to 18 cm) long and weighing approximately 0.2 lb (91 g) each, were exposed to continuously renewed solutions of the OME water diluted with Cincinnati tap water that had been passed through a carbon filter to remove chlorine and taste and odor. In four of the five experiments, flow meters and pumps were arranged to automatically renew test solutions every 100 min. Three or 4 fish were added to 10 l of test solution and removed for taste tests after a 1- or 2-weeks' exposure The fifth experiment was arranged for a 20-hr solution renewal with 15 fish in 200 l of test solution. Three fish were removed for the taste tests after 2, 3, and 4 weeks of exposure.

TABLE IV.—Decrease in Acute Toxicity of OME Water Upon Aging

Age of OME Water (days)	Dilution at Which Half the Fish Die (gal water/gal fuel consumed)			
	Exposure (hr)			
	24	48	72	96
Fresh	1,700	1,800	1,800	1,800
1	1,600	1,600	1,600	1,600
2	1,200	1,200	1,200	1,200
4	No Fish Mortality			

Note: gal water/gal fuel ÷ 3.79 = l/l.

TABLE V.—Acute and Chronic Toxicity of OME Water

Type of Test	Dilution at Which Half the Fish Die (gal water/gal fuel consumed)					
	Exposure					
	24 hr	48 hr	96 hr	5 day	10 day	15 day
Static	1,900	1,900	1,900	—	—	—
Continuous Flow	1,900	1,900	2,200	2,400	2,400	2,500

Note gal water/gal fuel ÷ 3.79 = l/l.

The fish removed for taste tests were scaled, and the head and entrails removed. Each fish was separately wrapped in aluminum foil and baked in a 350°F (177°C) oven for 20 min. After removal from the oven, each fish was divided in half and bones and fins were removed. Each half was rewrapped in foil, coded, and kept warm in readiness for the taste panel composed of 12 members selected from the laboratory staff. Platters containing fish exposed to different concentrations of OME water and control fish were given to panel members, who were asked to record taste and odor reactions. Experimental conditions and a summary of taste panel members' reactions are reported in Table VI.

The experiments indicated that a definite tainting of fish flesh occurred even with large quantities of water per gallon of fuel consumed. In all the rapid flow-through experiments (100 min), most panel members indicated a definite oily taste in the flesh of fish that had been exposed for a week to the OME water equivalent to 37,700 gal water/gal (9,950 l/l) fuel consumed. In the experiment in which the test solution was less rapidly re-

TABLE VI.—Fish Flesh Tainting Observations

Experimental Conditions	Dilution Water (gal/gal fuel consumed)	Taste								
		Not Objectionable			Slightly Objectionable			Strongly Objectionable		
		Exposure (wk)								
		1	2	4	1	2	4	1	2	4
3 Bluegills/10l*	37,700	0			1			11		
	94,300	7			4			1		
	377,000	8			4			0		
	Control	12			0			0		
3 Bluegills/10l*	37,700	3			2			7		
	94,300	8			2			2		
	377,000	8			3			1		
	Control	10			2			0		
3 Crappie/10l*	37,700	1			7			4		
	94,300	7			4			1		
	377,000	10			2			0		
	Control	11			0			1		
4 Bluegills/10l*	37,700		2			1			9	
	94,300		2			5			5	
	377,000		6			6			0	
	Control		12			0			0	
15 Bluegills/200l†	37,700		8	7		2	2		2	3
	34,300		8	11		2	1		2	0
	377,000		9	5		1	5		2	2
	Control		8	8		4	4		0	0

*100-min renewal.
†20-hr renewal.
Note: gal water/gal fuel ÷ 3.79 = l/l.

newed (20 hr), tastes in fish flesh were less pronounced. Apparently a loss of the taste-producing materials occurs with time. This loss may be due to volatilization, precipitation, or chemical or bacterial breakdown.

Hypothetical Application of Results

Estimates were made of the most critical relationship between fuel consumption and volume of water. These estimates involve assumptions of surface area per boat, average water depth, hours of operation per day, fuel consumption rates, length of boating season, and storage time of the water in the lake. Biological destruction, precipitation, and volatilization of the polluting materials were also considered since they have great influence on build-up of materials during the boating season. Two situations were assumed: (*a*) a critical dilution situation, and (*b*) an extreme-critical dilution situation. Estimates of fuel consumption and volume of water for each

TABLE VII.—Estimated Volume of Dilution Water per Gallon of Fuel Consumed

Factor	Extreme-Critical Dilution	Critical Dilution
Water area per boat (sq ft)	40,000	250,000
Average water depth (ft)	5	10
Motor operation (hr/day)	2	2
Fuel consumption (gph)	0.5	0.5
Accumulation period (days)	90	10
Dilution water (gal/gal fuel consumed)	16,000	2,000,000

Note: sq ft × 0.09 = sq m; ft × 0.3 = m, gph × 3.79 = l/hr; gal/gal fuel ÷ 3.79 = l/l

TABLE VIII.—Average Concentration of Pollutants in Receiving Water at Assumed Extreme-Critical Situation

Pollutant	Concentration (mg/l)
Oil, non-volatile	1.7
Oil, volatile	0.94
Lead	0 0087
Phenols	0 01
Chemical Oxygen Demand	7.1

of these situations are shown in Table VII.

The estimated maximum density of boats for the extreme-critical situation was one boat per surface area 200 by 200 ft (61 by 61 m). This seemed a minimum for manuevering the boat for recreational purposes. An average lake water depth of 5 ft (1.5 m) average motor operation of 2 hr/day over a 90-day season, and average gas consumption of 0.5 gph (1.9 l/hr) were assumed. Based on these assumptions, the volume of water per gallon of fuel consumed is approximately 16,000 gal (61 cu m).

For the critical situation, a motor population density of one boat per 500 by 500 ft (152 by 152 m), an average water depth of 10 ft (3 m) average motor operation of 2 hr/day, and average gas consumption of 0.5 gph (1.9 l/hr) were assumed. In addition, it was assumed that biological destruction, volatilization, and settling limited accumulation of materials to a 10-day contribution. Based on these assumptions, the volume of water per gallon of fuel consumed is approximately 2 mil gal (7,600 cu m).

Table VIII shows that the average estimated concentration of various pollutants in receiving water at the assumed extreme-critical situation is small. It would be even smaller at the assumed critical situation. Nevertheless, in certain situations each increment must be considered if the sum of the sources of pollution produces an objectionable condition. Outboard motor exhaust pollution is unique in that it may occur at or near the domestic water supply intake from a lake or river. Thus, there would be limited dilution and little time for the sources of natural purification to exert their effects.

A summary of the damaging effects of outboard motor exhaust on the quality of water for use as a domestic supply is shown in Table IX.

The recommended quantity of dilution water per gallon of fuel consumed that will protect aquatic life is estimated as 10 times the quantity that produces 50-percent fish mortality and is approximately 19,000 gal (72 cu m). A dilution of 16,000 gal water/gal (4,-

TABLE IX.—Damaging Effects of Outboard Motor Exhausts on Quality of Water for Use as a Domestic Supply

Damaging Effect	Terms of Measurement	Observations
Odor	Dilution water required for odor control per gallon of fuel consumed	0 6 to 1.3 mil gal
Carbon Demand	Quantity of activated carbon required per gallon of fuel consumed for assumed extreme-critical condition	180 lb/mil gal
Chlorine Demand		Negligible
Interference with coagulation and sedimentation		Negligible

Note: mil gal × 3,790 = cu m; lb/mil gal × 0 0006 = kg/cu m.

200 l/l) fuel consumed (the extreme-critical dilution) may have a significant toxic effect on fish life. An estimate of the dilution corresponding to detection of an unpalatable taste by half of the observers is based on graphic extrapolation of the results in Table VI by methods applicable to odor in water. This value was placed at 300,000 gal water/gal (79,100 l/l) fuel consumed. Tainting of fish flesh under the extreme-critical dilution situation would be even more significant than the toxicity effect.

Summary and Conclusions

A preliminary appraisal of the pollutional contribution of outboard motors was made by operating low-horsepower outboard motors in small tanks of water in the laboratory. Data indicate that exhausts from outboard motors have a variety of polluting effects. Based on the results of this study, an estimate of the total quantity of fuel constituents contributed to water by outboard motor exhausts in the United States in 1959 was made. These values were placed at 3 to 13 mil gal (11,400 to 49,300 cu m) of gasoline, 7 to 15 mil gal (26,500 to 56,900 cu m) of oil, and 0.2 to 0.7 mil lb (0.09 to 0.3 ml kg) of lead. The quantity of water diluting the exhaust materials is of major significance. Unusually low water volume per unit of fuel consumed appears to be necessary for severe pollution to result from outboard motor operation alone.

A field study of the actual contributions of materials by outboard motor exhausts and their damaging effects on quality of water for particular uses is planned. The project should be carried out where the ratio of motor operation (fuel consumption) to volume of water is high and could be calculated approximately. The persistence or build-up of the pollutants and their damaging effects under field conditions would be important aspects of the study.

Acknowledgments

The authors are appreciative of the assistance of Morris B. Ettinger who originally suggested conducting this study. Our thanks are also due to A. E. Lemke and Q. H. Pickering for their help with the fish toxicity and fish tainting studies.

References

1. "Boating—1959; The Nation's Top Family Sport." Statistical report jointly prepared by the Outboard Boating Club of America and the National Association of Engine and Boat Manufacturers.
2. Levine, W. S., Mapes, G. S, and Roddy, M. J., "Direct Extraction-Pycnometer Method for Oil Content of Refinery Effluents." *Anal. Chem.*, 25, 1840 (1953).
3. "Standard Methods for the Examination of Water and Wastewater." 11th Ed., Amer. Pub. Health Assn., New York (1960).
4. Hawkins, R. C., and Thode, H. G., "Polarographic Determination of Copper, Lead, and Cadmium in High-Purity Zinc Alloys." *Ind. and Eng. Chem.*, 16, 71 (1944).
5. Orford, M. C., Rand, M. C., and Gellman, I., "A Single Dilution Technique for BOD Studies." *Sewage and Industrial Wastes*, 25, 3, 284 (Mar. 1953).
6. Cohen, J. M., "Improved Jar Test Procedure." *Jour. Amer. Water Works Assn.*, 49, 11, 1425 (Nov. 1957).

TRAVEL ARRANGEMENTS TO HONOLULU

The Federation will arrange for group air travel at reduced rates to Honolulu for the Reconvened Session (Oct. 14–16) following the Seattle meeting. Contact the Federation office for detailed information.

SEDIMENT METALS ACCUMULATION IN A SUBURBAN LAKE

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ABSTRACT

Lake Hopatcong is a 1,087 ha lake located in the suburban New York metropolitan area in Sussex and Morris Counties, N J., and is the head waters of the Musconetcong River in the Delaware River Drainage Basin. The lake watershed is 5,483 ha in area with 71 percent forested and 25 percent in high-density residential development that is clustered around the immediate shoreline of the lake. The recreational use of the lake is extremely heavy, with an excessive number of large motor boats. Also, stormwater from the residential areas empties directly into the lake via storm sewers and direct runoff. Preliminary analysis of selected sediment samples indicated substantial levels of metals (especially lead) in the surficial sediments. As part of a Sec. 314 Lake Restoration study a series of 30 shallow sediment core samples were taken at various locations throughout the lake. These were analyzed for lead, aluminum, iron, zinc, mercury, cadmium and percent of solids .The results indicated significant concentrations of lead and zinc in the most recent sediments as compared to the background levels in the older and deeper sediments. Also, the spatial distribution of sediment metals within the lake was investigated to attempt to identify their sources The implications of these findings and management implications based on the information are discussed.

INTRODUCTION

Several authors have investigated the origin of lead and zinc in surface waters and sediments. Lead in surface water is assumed to originate primarily from the use of leaded gasolines in the internal combustion engine (Kuzminski and Hogan, 1974). A major contributor of zinc in the environment comes from automobile tires (Christensen and Guinn, 1979). The routes by which high concentrations of lead and zinc contaminate sediments of lakes and streams include surface runoff from streets in urban-suburban areas, the use of leaded gasoline in outboard motors, and atmospheric fallout.

Kuzminski and Hogan (1974) indicated that the use of leaded gasolines in outboard motors was the major source of lead in lake sediments. However, Sartor et al. (1974) and Whipple and Hunter (1977) found that the most prevalent metals in street runoff were lead and zinc. Also, in New Jersey, Wilbur and Hunter (1975) investigated the concentrations of heavy metals in urban stormwater runoff and found lead and zinc to predominate. Christensen and Guinn (1979) quantitatively related concentrations of lead and zinc in urban runoff to the levels of zinc in automobile tires and lead in gasoline.

Preliminary analysis of selected sediment samples from Lake Hopatcong, New Jersey indicated substantial levels of lead and zinc in the surficial sediments. As part of a Section 314 Lake Restoration Study, a series of 35 shallow sediment cores was taken at various locations throughout the lake. Thirty of these

cores were stratified by depth. The top strata, at the water-sediment interface, and the deepest strata at the bottom of each core were analyzed for lead, zinc, aluminum, iron, mercury, and cadmium. The results for lead and zinc are reported here since these could be most easily related to man's activities in the watershed. The objectives of these analyses were to determine overall concentration of metals in the Lake Hopatcong sediments, their spacial distribution, and whether the lead and zinc accumulation in the sediments could be related, through time, with the development in the watershed and the lake's recreational use. Also, the suitability for disposal of materials to be dredged was evaluated.

MATERIALS AND METHODS

Lake sediment samples were collected from 35 locations within Lake Hopatcong (Fig. 1). These sites were selected on the basis of their proximity to marinas, major sources of surface runoff, and areas of possible future dredging. Also, samples were taken from the open water areas away from the intensive use areas and away from shoreline influence.

Core samples were taken by using a brass sediment core sampler fitted with a plastic (cellulose acetate butyrate) core tube liner. The depth of the cores ranged from 9 cm to 51 cm depending upon the firmness of the sediments. The core samples were stored in an upright position then returned to the laboratory and frozen for preservation and ease of handling.

Subsamples were taken by removing 2.54 cm from the top and bottom of each core. These subsamples were analyzed for lead, zinc, cadmium, iron, aluminum, and mercury as described in Standard Methods (1980). The results of the lead and zinc analysis are presented here since lead and zinc concentrations were of particular interest in this study. In addition, four composite core samples were analyzed by the EP toxicity procedure (Standard Methods, 1980) to determine the propensity for the lead to leach into the water from the sediment.

RESULTS

The results of the core strata analyses for lead and zinc are given in Table 1 and summarized in Table 2. In the surficial sediments a mean lead concentration was 243 mg kg^{-1} dry weight. However, the values ranged from 12 mg kg^{-1} to 684 mg kg^{-1}. (One value of 1,220 mg kg^{-1} was not included in this average because it came from a dredged area.) The mean lead concentration of the bottom core strata was 19.4 mg kg^{-1} dry weight. In relation to the value of this mean the range (3-70 mg kg^{-1}) is also large. The difference between the mean surficial value of 243 mg kg^{-1} and the mean bottom value of 19.4 mg kg^{-1} was statistically significant ($t = 6.80$).

A similar pattern was observed in the zinc data. The mean concentration of zinc in the surficial sediments was 1,034 mg kg^{-1} dry weight with a range of 41 to 8,430 mg kg^{-1} compared to a mean concentration in the bottom core strata of 140.1 mg kg^{-1} with a range of 15 to 544 mg kg^{-1}. The difference between the mean surficial value of 1,034 mg kg^{-1} and the mean bottom value of 140.1 mg kg^{-1} was statistically significant ($t = 5.07$).

It was expected that sediment concentrations of lead would be the highest where considerable stormwater enters the lake or where there was exceptional motor boat traffic. Though this was generally the case, the data was not definitive, as expected. However, the general pattern is present.

Four control stations (No.'s 12, 15, 16 and 23, Fig. 1) were located generally away from the influences of stormwater discharges and marina facilities. The mean surficial lead concentrations of these stations were 52.2 mg kg^{-1} (range 11.6-95.3). The surficial lead concentrations from the nearshore stations where the influences of stormwater runoff and excessive motor boat traffic would be felt were 314 mg kg^{-1} (range 43.1-1,220).

The data on zinc distribution within the lake was more definitive. The mean surficial zinc concentration at the control stations was 147.8 mg kg^{-1} (range 41-247 mg kg^{-1}). The surficial zinc concentration at

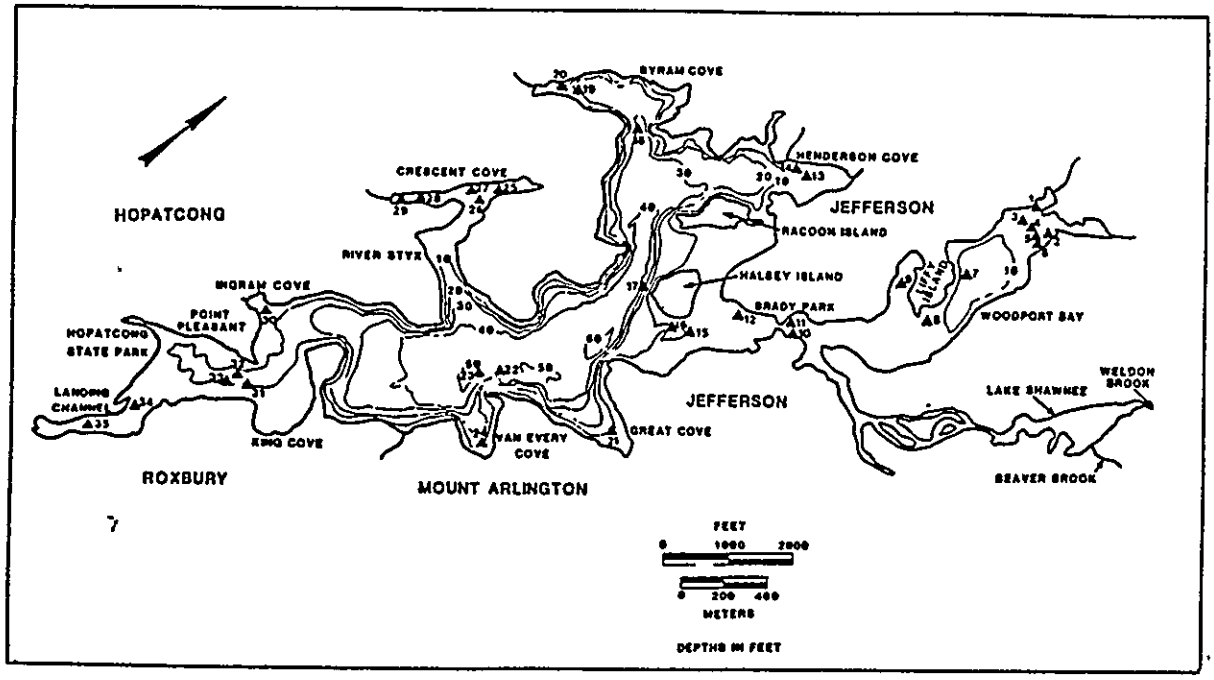


Figure 1.—Location of sediment core samples in Lake Hopatcong, N.J.

the nearshore stations was 1,286.8 mg kg^{-1} (range 124–8,430). As expected, the locations that received stormwater runoff from suburban land uses showed considerably higher concentrations of zinc in the surficial sediments. It is interesting to note that core No. 30, taken in Ingram Cove, showed a surficial zinc concentration of 8,430 mg kg^{-1}. This site receives two direct stormwater discharges from Lakeside Drive, the main highway to Hopatcong Borough and the most heavily travelled road in the lake basin.

To determine the leachability of lead into the water column (leachate analysis for zinc was not done) an EP toxicity analysis of four composite sediment cores was performed. These data are presented in Table 3. Under the conditions of the EP toxicity analysis (pH 5) no significant amounts of lead appeared to leach into the liquid phase. The lead appears to be tightly bound to the sediment particles and is relatively insoluble under these conditions.

DISCUSSION

The accumulation of lead and zinc in the sediments of Lake Hopatcong over time is evident from the data presented. Thirty percent of Lake Hopatcong's 13,500 acre watershed is covered with high and low density residential and commercial development, most of which is in the immediate vicinity of the lake. Stormwater from this developed area is, for the most part, carried directly to the lake without detention or retention. The residential/commercial development has occurred over the last 50 years. Comparison of the lead and zinc concentrations from the top and bottom of the 30 cores show a 12-fold increase in lead concentrations and a 7.5-fold increase in zinc concentrations. The assumption that the lead and zinc concentrations at the bottom of the cores represent the predevelopment condition may not be the case, because of the variation in the depth of the cores and the probable variation in rates of sedimentation from place to place in the lake. However, the assumption that the surficial strata were deposited later than the deeper strata is a reasonable assumption and makes the sediment surface to bottom comparison valid.

The origin of the zinc in the surficial sediments can be directly related to surface runoff from the streets in the developed area. However, the origin of the lead in the Lake Hopatcong sediments is not as clearly defined by the data. Lead probably comes from the use of the internal combustion engine. However, it reaches the lake sediments via three routes: fallout from the atmosphere, runoff from the streets, and the use of leaded gasoline in outboard motors. Obviously, some lead is contributed from all three sources, but the data does allow for estimating the proportion from each route.

The failure of the lead to leach into the liquid phase during the EP toxicity extraction procedure indicates that under the test conditions the lead either is bound

Table 1.—Concentrations of lead and zinc in surficial and bottom strata from cores taken in Lake Hopatcong, N.J. under strata column (S) = surficial, (B) = bottom and number is depth of bottom strata in core. All concentrations in mg kg^{-1} dry weight.

Core No.	Strata (cm)	Concentration mg kg^{-1} Lead	Zinc	Core No.	Strata (cm)	Concentration mg kg^{-1} Lead	Zinc	Core No.	Strata (cm)	Concentration mg kg^{-1} Lead	Zinc
1	S	126	381	12	S	70	185	24	S	134	304
	B-30	55	256		B-23	4	16		B-17	16	66
2	S	314	889	13	S	469	1730	25	S	345	821
	B-27	10	163		B-30	13	52		B-28	6	55
3	S	168	586	14	S	684	2300	26	S	445	2010
	B-27	5	115		B-30	11	131		B-33	9	130
4	S	105	832	15	S	32	118	28	S	352	1080
	B-24	16	544		B-28	4	19		B-34	10	146
5	S	72	609	16	S	12	41	29	S	406	619
	B-29	7	174		B-20	3	15		B-29	17	119
6	S	156	556	18	S	297	978	30	S	237	8430
	B-30	54	396		B-43	13	155		B-32	14	131
8	S	279	585	19	S	287	794	31	S	400	984
	B-24	70	241		B-48	15	182		B-51	14	36
9	S	171	355	20	S	262	895	33	S	46	833
	B-26	7	28		B-24	22	163		B-29	18	78
10	S	140	762	21	S	43	124	34	S	600	1410
	B-32	30	202		B-19	7	65		B-20	69	183
11	S	197	487	23	S	95	274	35	S	1220	2450
	B-29	14	57		B-9	32	145		B-22	1110	1680

Table 2.—Summary of lead and zinc data in core samples from Lake Hopatcong. All concentrations given in mg kg^{-1} dry weight.

Statistic	Surficial Sediments			Bottom of Core		
	Depth	Lead	Zinc	Depth	Lead	Zinc
N	29	29*	29	29	29	29
Range	NA	12-684	41-8430	9-51 cm	3-70	16-544
Mean	NA	243	1034	28.9	19.4	140.1
Standard Deviation	NA	177	1522	8.6	18 8	114 9

*Core No. 35 was eliminated from analysis.

Table 3.—EP toxicity leachate analysis for lead in four composite cores compared to lead concentrations in sediments.

Core Number	Lead Concentration In Sediment (mg Kg^{-1} dry wt.)	Lead Concentration In Elutriate (mg l^{-1})
7	31 2	0 009
22	90 7	0.026
27	20.6	0.007
32	13.0	<0 005

to the sediments or is insoluble. EP toxicity data for other metals indicate that the dredged materials are suitable for disposal without any unusual precautions.

The effect that the high concentrations of lead and zinc have had on the biota of Lake Hopatcong or the Lake Hopatcong ecosystem is not clear. Preliminary fish tissue samples and water column samples have not shown accumulations of lead and zinc. However, the mobility of these metals in the Lake Hopatcong system is still being studied.

The contribution of lead from outboard motors used in Lake Hopatcong is a difficult problem to address. One of the major recreational activities on the lake is motor boating. Approximately 15,000 boats are registered on the lake. The best answer may be converting outboard motors to unleaded gasolines.

In managing urbanizing watersheds the contribution of metals and other pollutants in nonpoint surface runoff has to be addressed. Currently considerable attention is being given to controlling the quality of stormwater runoff. The work of Wanielista et al. (1982), Whipple and Hunter (1980), Whipple et al. (1981) and Whipple (1981) have shown that passive treatment of stormwater can substantially improve the quality of stormwater.

The Watershed Management Plan for the Lake Hopatcong Basin (Lake Hop. Reg. Plann. Board, 1983) calls for stormwater quality management as an integral part of the Plan.

REFERENCES

Christensen, E., and V. Guinn 1979. Zinc from automobile tires in urban runoff. J. Environ. Eng. Div. Proc. Am. Soc. Civ. Eng. 105: 165-9

Kuzminski, L., and W. Hogan. 1974. Heavy Metals in the Water and Sediment of Lakes in Western Massachusetts. III. Lead. Dep. Civ. Eng. Univ. Mass. Amherst.

Lake Hopatcong Regional Planning Board. 1983. Lake Hopatcong Management Study. Landing, New Jersey.

Sartor, J , G. B. Boyd, and F. J. Agardy. 1974. Water pollution aspects of street surface contaminants. J. Water Pollut. Control Fed. 46· 458-67.

Standard Methods for the Examination of Water and Wastewater. 1980. 15th ed. Am. Pub. Health Ass., Washington, D.C.

Wanielista, M P., Y.A. Yousef, and J.S. Taylor. 1982. Stormwater management to improve lake water quality. EPA-600/2-82-048 U.S. Environ. Prot. Agency, Washington, D.C.

Whipple, W , Jr. 1981. Dual purpose detention basins in stormwater management Water Resour. Res. Bull. 17: 642-6.

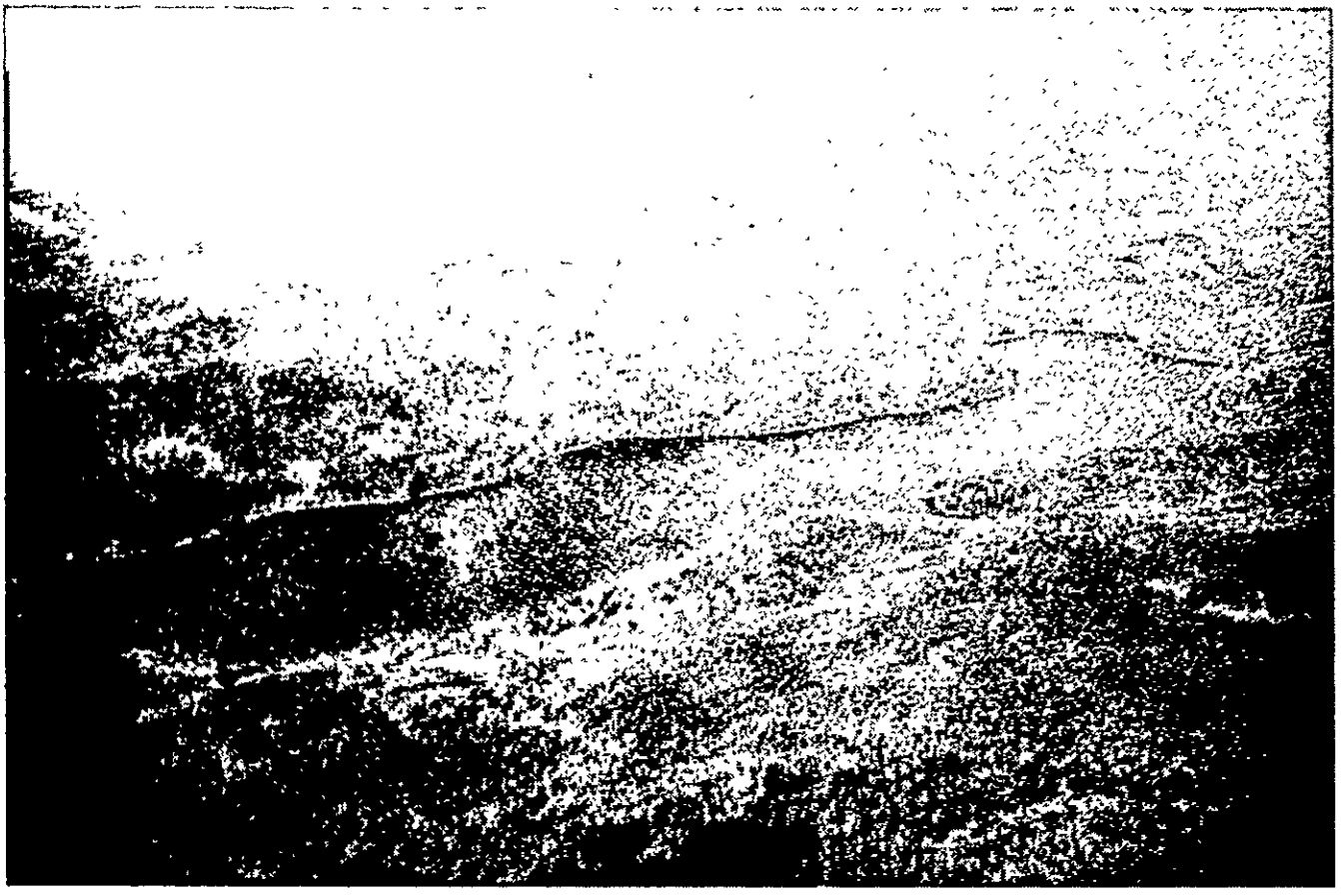
Whipple, W., Jr., and J.V. Hunter. 1980. Detention Basin Settleability of Urban Runoff Pollution. Water Resour. Res. Inst. Rutgers Univ., New Brunswick, N.J.

Whipple, W., Jr., W.H. Clement, and S.D. Faust. 1981. Modeling of Alternative Criteria for Dual Purpose Detention Basins. Water Resour. Res. Inst , Rutgers Univ., New Brunswick, N.J.

Wilbur, W.G. and J.V. Hunter. 1975. Pages 45-34 *in* Proc. No. 20, Urbanization and Water Quality Control Am. Water Resour. Ass. Washington, D.C

SUMMIT LAKE:
WATER QUALITY INVESTIGATION

EVALUATION of its USE as DRINKING WATER



Thurston County, Washington May 1988

Prepared by- Susan Davis

APPENDIX D

THURSTON COUNTY HEALTH DEPARTMENT

Environmental Health Division

SUMMIT LAKE WATER QUALITY INVESTIGATION --
EVALUATION OF ITS USE AS DRINKING WATER

THURSTON COUNTY, WASHINGTON

Prepared By
Susan Davis, R.S.
Thurston County Health Department
Environmental Health Division

MAY 1988

This study was funded through the Thurston County general fund in the interest of preserving public health.

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The 9 Summit Lake residents who cheerfully endured our monthly visits to their docks and faucets.

Lynn Gooding and Linda Hofstad, Thurston County Environmental Health Specialists, who continued the study while I was on maternity leave.

Gene Stover, Summit Lake resident, who faithfully collected water samples each month and motored us out to the monitoring stations in the middle of the lake under all weather conditions.

Mike Clark, Thurston County Health Department microbiologist, who coordinated and performed much of the laboratory analysis.

Indra Michalovskis and Herta Peterson, Thurston County Health Department medical technologists, who assisted in the laboratory analysis.

Randy Coots, Thurston County Environmental Health Specialist, who performed the chemical analysis.

Ron Towle and Ken Brown, Thurston County Planning Department graphics staff, who prepared the maps and graphics for this report.

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All those who reviewed the draft report and provided many helpful comments and suggestions.

And finally, to all Summit Lake residents and property owners, my sincere appreciation for the tremendous support and input you provided during the study!

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EXECUTIVE SUMMARY

I. GENERAL

The Summit Lake study was a ten month investigation of the water quality of Summit Lake. It was conducted by Thurston County Health Department staff with assistance from a representative of the Summit Lake Community Club. Untreated lake water is used for domestic purposes by most residents in the basin, therefore bacteriological quality was the main emphasis of the study.

Summit Lake is a 528 acre lake in the northwestern corner of Thurston County. It has a mean depth of 53 feet and a maximum depth of 100 feet. Water enters the lake via numerous springs, seeps, seasonal streams, and ephemeral streams (flow only in response to rainfall). The outlet of the lake is Kennedy Creek, which flows to the north and discharges into Totten Inlet. The outlet is regulated by flashboards.

The drainage area of the lake is 2.8 square miles, and the terrain is steep and rugged with slopes up to 80%. Groundwater is not available in quantities sufficient to fulfill household requirements throughout much of the basin. As a result residents utilize lake water, springs, and shallow wells for drinking water. Steep slopes, shallow soil depths, and shallow or perched water tables make siting of septic systems extremely difficult.

At the present time there is no watershed management plan in place to protect the water quality of the lake. There is also no uniformity in the design, operation, or maintenance of individual water systems to insure safe drinking water.

The purpose of this study was to document problems or risks associated with the current practice of withdrawing lake water for domestic use. The study was designed to obtain information about the following:

- o general water quality of the lake,
- o bacterial water quality of the near shore areas,
- o bacterial water quality at depths where domestic water withdrawals are generally located,
- o bacterial loading from surface waters entering the lake.

The lake was sampled for bacterial and general water quality parameters at eight shoreline stations and two deep water stations. The bacterial condition of the drinking water was determined by sampling taps at eight residences around the lake. Nine creeks which flow into the lake and Kennedy Creek which flows out of the lake were monitored for flow and sampled for general parameters. Bacterial analysis of stormwater was done for two rainfall events during the study.

II. CONCLUSIONS

- o Summit Lake met the bacteria standard established by Washington State Department of Ecology for general use lakes.
- o Fifty-five percent of the drinking water samples analyzed did **not** meet the total coliform bacteria standard established by the Washington State Department of Social and Health Services for drinking water.
- o Creeks and the road drainage system contributed to the bacterial loading of the lake, but did not account for all of the contamination. Other sources include failing septic systems, private subsurface drainage systems, wildlife, pet wastes, clearing and construction site run-off, and recreational activities.

III. RECOMMENDATIONS

The primary recommendation is to resolve the domestic water supply situation by developing an approvable water system. The first task should be to initiate a study which identifies all potential drinking water alternatives available to Summit Lake property owners and presents cost estimates associated with each alternative.

The second recommendation is to develop and implement a lake protection strategy. It should address all non-point sources of contamination identified in the basin in order to preserve the water quality of the lake.

Active participation by the residents and property owners at Summit Lake is critical to resolving the drinking water problem and establishing a successful lake protection program. Much of the planning and program development can be done through workshops with community committees and county staff. Funding sources will have to be obtained to pay for major elements in the recommendations. Formation of a lake management district and grant sources are two potential funding mechanisms that should be investigated.

I. PURPOSE OF THE STUDY

The purpose of this study was to document problems or health risks associated with the current practice of withdrawing lake water for domestic use. The Thurston County Health Department recognized the potential public health risks posed by consumption of untreated surface water, and initiated this preliminary study in October 1986. It was the intent of the study to determine the extent of any problems found, identify sources of contamination, initiate corrective actions, and make recommendations for future needs.

II. BACKGROUND INFORMATION

A. PAST MONITORING EFFORTS

Concern over the rising number of residents on the lake and the precarious drinking water situation spurred the Thurston County Health Department and the Summit Lake Community Club to undertake a bacteriological sampling study from 1975 through 1978 using 8 sampling sites. When the study was complete, there was considerable discussion and a polling of the residents regarding the installation of a community sewer system. The project was not pursued.

In 1982 the Summit Lake Community Club instituted a monthly monitoring program where they sampled 4 of the 8 sites used in the earlier study. This effort has continued up to the present.

In August and September of 1984, the Health Department contracted with Entranco Engineering to perform a septic system leachate survey at Summit Lake using a device called the Kerfoot leachate detector. The edge of the entire shoreline was walked or rowed while operating the detector. Water samples were also taken at regular intervals as a second method of detection. While the detector measured very low leachate concentrations at only two locations along the shoreline, the bacteria sample results showed several suspect areas.

In April 1985 a sanitary survey was done by Health Department staff in the suspect areas identified during the 1984 leachate survey. As a result of this work some septic system failures were identified and corrected. Two private subsurface drainage systems ("French drains") were found to

be periodically intercepting drainfield effluent and transporting it directly to the lake. Corrections were made.

The Health Department began monthly sampling in April 1985 at the four sites used in the 70's study not being sampled by the community club. Recognizing that surface bacterial sampling could provide only a limited amount of information about the lake and its watershed, the Health Department made a grant application to the Washington Department of Ecology early in 1986 for the purpose of expanding the scope of the study. Although a grant was not awarded, the Health Department was authorized by the Board of County Commissioners to proceed with a modified version of the grant proposal. The study was funded through the Health Department's general operating budget.

B. CURRENT DOMESTIC WATER SUPPLY SITUATION

Summit Lake is the drinking water source for the majority of the residences and seasonal cabins on the lake. A typical individual domestic water system includes a weighted water intake pipe near the bottom of the lake some distance from shore, a pump located in a pumphouse on shore, a pressure tank, and a piping system to the faucet. There are a few water systems that use a method of filtration, and a few that include disinfection. The majority of the systems, however, do not provide treatment of any kind. Most of those residents not using lake water for drinking purposes utilize shallow wells, springs, or bottled water. In addition to its use as a water source, the lake is also used for a variety of recreational activities such as boating, swimming, fishing, and water skiing.

At the present time there is no watershed management plan in place to protect the water quality of the lake. There is also no uniformity in the design, operation, and maintenance of the individual water systems that would insure residents safe drinking water. In February 1987, the Thurston County Health Department issued a Public Health Advisory (Appendix G) advising residents and property owners not to consume raw lake water.

C. FEATURES OF THE STUDY AREA

Summit Lake is a 528 acre lake in the northwestern corner of Thurston County. It has a mean depth of 53 feet and a maximum depth of 100 feet. Water enters the lake via numerous springs, seeps, seasonal streams, and ephemeral streams (flow only in response to rainfall). The outflow of

the lake is Kennedy Creek, which flows to the north and discharges into Totten Inlet. The outlet is regulated by flashboards.

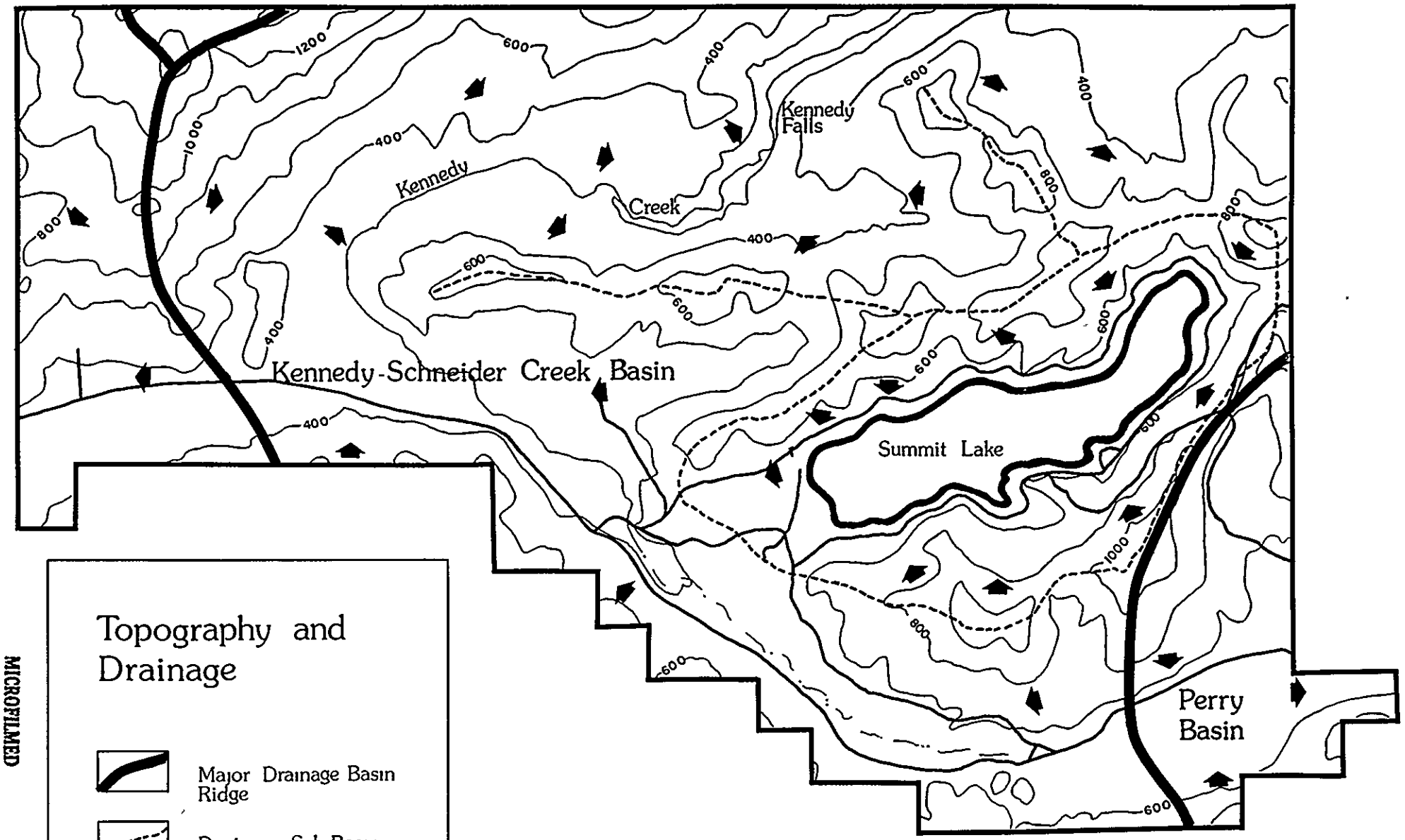
The drainage area of the lake is 2.8 square miles, and the terrain is steep and rugged with slopes up to 80%. The lake elevation is approximately 500 feet, and the surrounding ridges are as high as 1200 feet. Figure 1 shows the topography and watershed area of the Summit Lake basin.

The lake basin was formed by volcanic activity during the geological period called the Tertiary Period from 55 million to one million years ago. During the Quaternary Period, the Salmon Springs glacier moved into the Summit Lake area. When the glacier retreated an ice dam formed at the west end of what is now the lake. As the trapped ice block slowly melted it formed Summit Lake. The meltwater from the retreating glacier deposited sand and gravel in much of the area to the west of the lake through which Kennedy Creek now flows.

The basalt bedrock formation produces very little groundwater. Wells drilled in this formation produce between 0 to 10 gallons per minute. The recessional gravels to the west form a more productive aquifer that can produce between 10 to 50 gallons per minute. Figure 2 illustrates the groundwater availability in the area. Because groundwater is not available in sufficient quantities throughout much of the watershed, residents utilize lake water, springs, and shallow surface water wells for drinking water.

Steep slopes, shallow soil depths, and shallow or perched water tables make siting of septic systems extremely difficult at Summit Lake. The predominant soil type in the watershed is a reddish silty clay loam of the Olympic soil series. It is identified as "Rough Mountainous Land" on the Soil Series Map, Figure 3. It developed from weathered basalt bedrock, and ranges in depth from a few inches to a few feet. A gravelly loam of the Delphi soil series is found along approximately one-third of the lake shoreline. It developed from glacial deposits and is mixed with weathered basalt fragments in this area. A shallow water table is associated with this soil type where it occurs near the lake.

Under current zoning and platting regulations and the Shoreline Master Program, contiguous lots in common ownership on Summit Lake must conform to tract size and frontage standards. A preliminary investigation of the existing platted waterfront parcels indicates that there are approximately 400 waterfront lots around the lake as defined by current regulations. Of the 400 lots, an estimated 195



Topography and Drainage

Major Drainage Basin Ridge

Drainage Sub-Basin Ridge

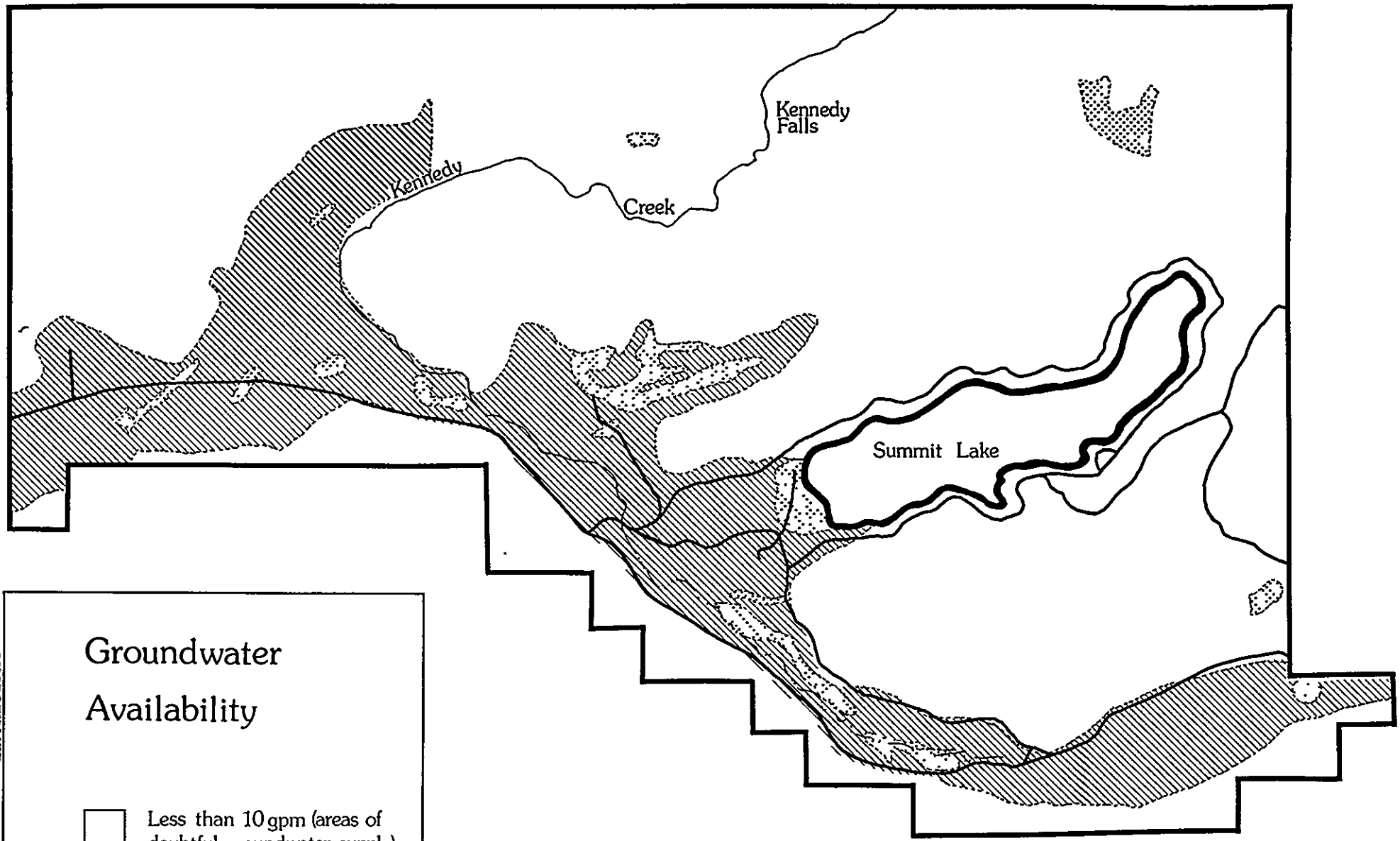
Direction of Flow

north

0 2000 feet

scale

Fig.1 Pg.6



Groundwater Availability

- Less than 10 gpm (areas of doubtful groundwater supply)
- 10-50 gpm (generally meets domestic and small irrigation demands)
- Depressions (poorly drained soils)

Sources. Geology and Groundwater Resources in Thurston County, Department of Conservation, Division of Water Resources Water Supply Bulletin #10, 1966.

Soil Survey of Thurston County, Northern Part, Supplemental Report, Soil Conservation Service, 1974

north

0 2000 feet

scale

Fig.2 Pg.7

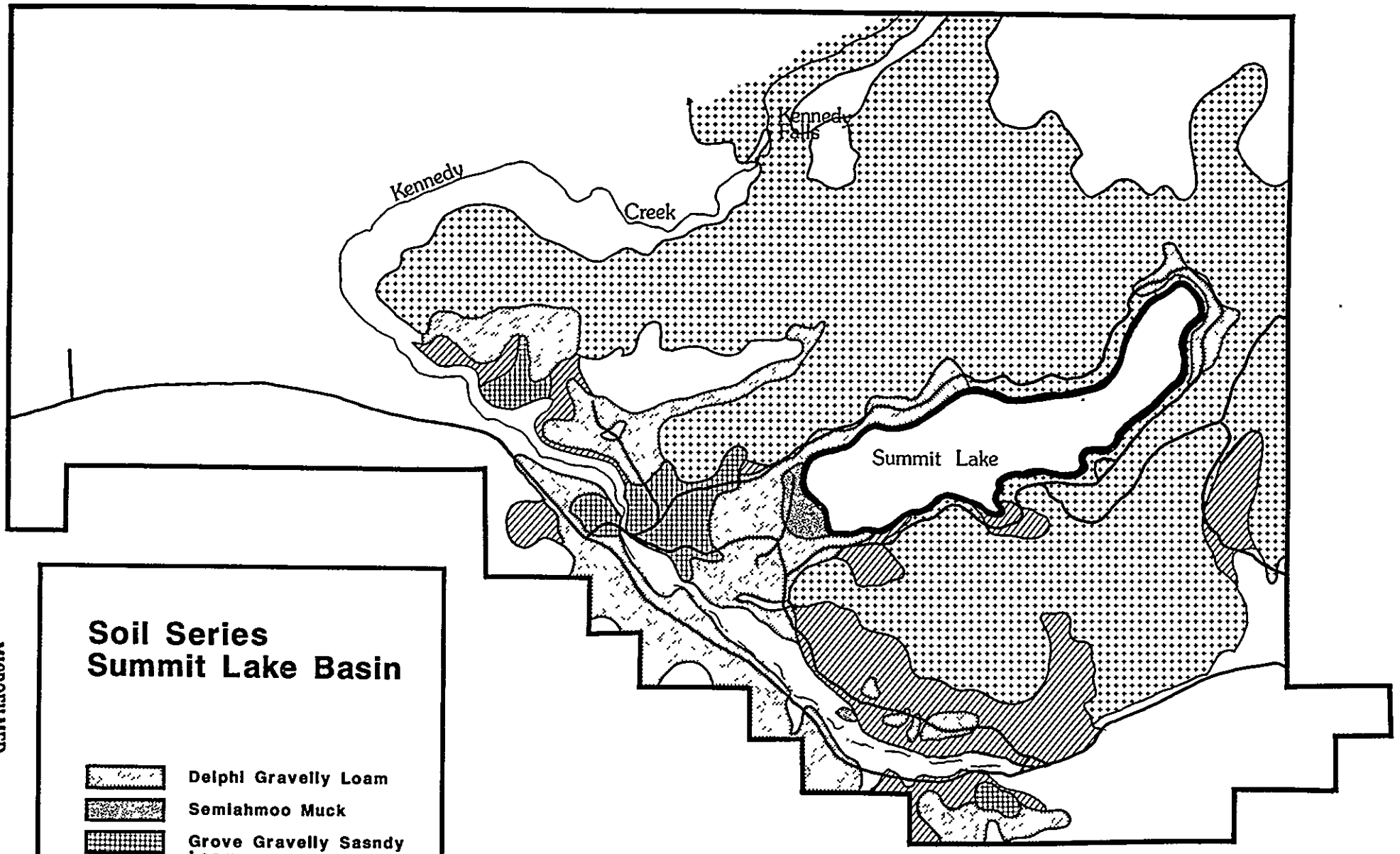


Fig.3 Pg.8

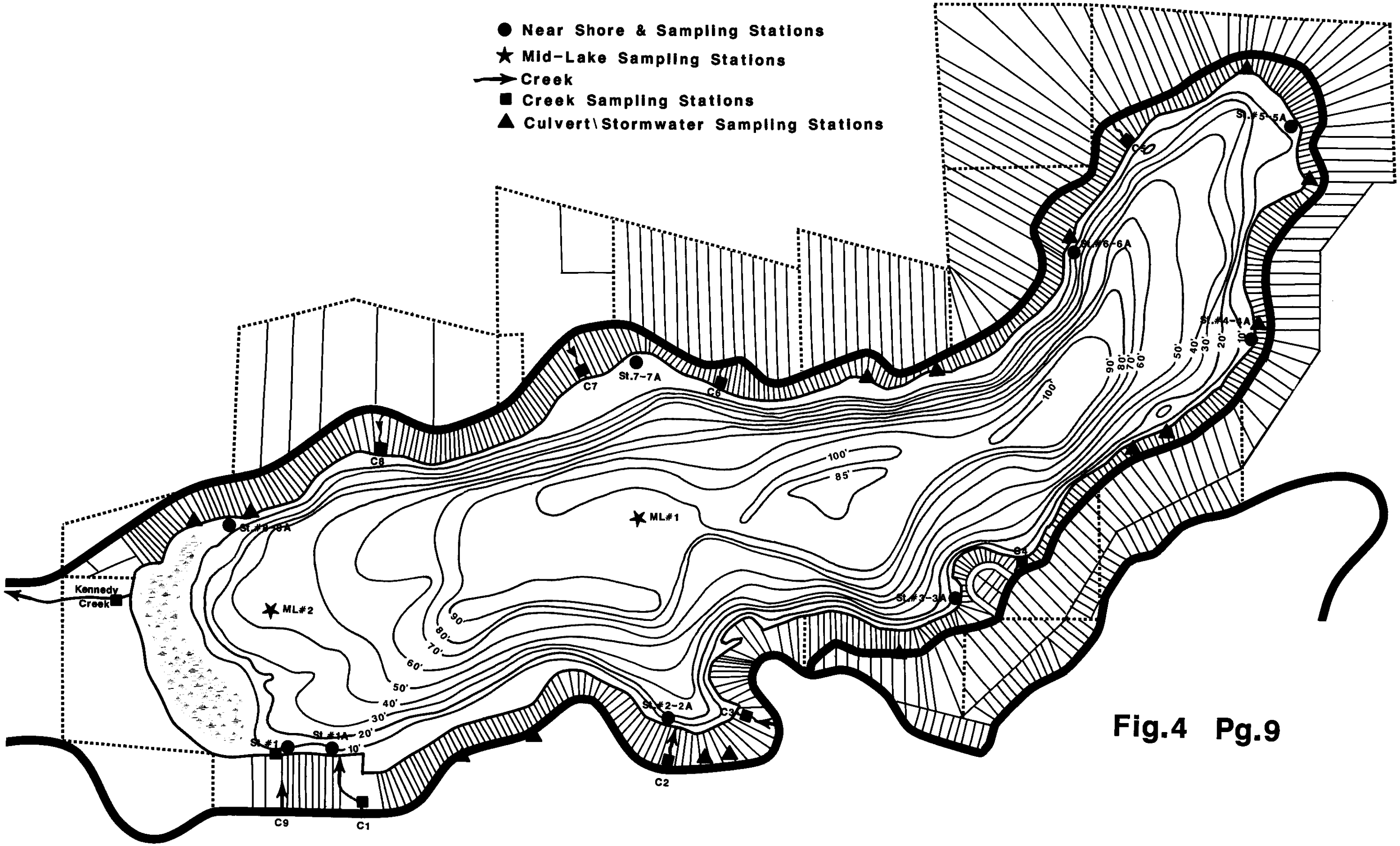


Fig.4 Pg.9

are occupied by full-time residences. Approximately 160 lots are used for seasonal and recreational purposes, and 45 remain undeveloped.

There are 3 waterfront community areas on the lake, and the Washington Department of Wildlife maintains a public access on the south shore. The Boy Scouts of America operate a 126 acre camp along the west end of the lake. In addition to the waterfront lots, there are 210 platted lots on the upslope side of the road that encircles the lake. Most of the remaining land within the watershed is in commercial timber production.

Over the years the number of full-time residences has been increasing. Many cabins which were built as summer retreats are now being occupied year-round. In many cases the sewage disposal systems installed years ago for that purpose have not been upgraded to handle the increased usage when these conversions takes place. There is a large percentage of sewage systems in use around the lake that are considered substandard based on current standards.

III. MONITORING PROGRAM

A. OBJECTIVES

The study was designed to obtain and evaluate information about the following:

- o general water quality of the lake;
- o bacteriological water quality of the near shore areas;
- o bacteriological water quality at depths where domestic water withdrawals are located; and
- o bacterial loading from surface waters entering the lake.

B. SAMPLING SITES (Refer to Figure 4)

Two mid-lake stations were monitored once per quarter at the surface and at depth. These stations were established to determine the general condition of the lake and to preliminarily determine if water withdrawal from a midlake area could be considered a viable drinking water option.

Mid-lake station ML#1 was located in the middle of the lake at the widest section where the depth is approximately 85 feet. This location was used to determine the general condition of the lake.

Mid-lake station ML#2 was located near the west end of the lake in an area approximately 40 to 50 feet deep. The Health Department received reports that boating activities during summer months were creating turbidity and sediment problems for domestic lake water withdrawals in this area. This location was selected to document any water quality problems and differences between this area and deeper areas of the lake.

Eight near-shore lake stations, identified as stations #1 through #8, were sampled monthly. The stations chosen were the same stations used during the late 1970's study, with the exception of two. In these two cases the exact locations were changed but the new stations were kept in the same general area of shoreline. It was desirable to use the same stations as those used in the 1970's study so that sample results could be compared. Although the use of different laboratory methods limited the comparability of sample results from the two studies, a comparison was made and is discussed later in this report. The stations were spaced at relatively equal distances around the lake. All near-shore samples were taken off private docks approximately a foot below the surface of the water.

To determine the bacterial quality of the lake at the depths where domestic water withdrawals are typically located, private tap water was sampled monthly. Tap water sampling stations are identified as #1A through #8A. Tap water samples and near-shore samples were collected at the same address, with the exception of Station #1 and #1A. The tap sample site for Station #1A was located at a residence 9 lots to the east of the near-shore station #1. This was the closest residence to the near-shore station that had a lake-water withdrawal system rather than a well.

Through observations and residents' knowledge, it was determined that the locations of the water system intake pipes sampled were between 1.5 and 40 feet deep and between 10 and 50 feet from shore. This appeared to be representative of most water intake locations around the lake. Water was allowed to flow for three minutes before the tap samples were collected in order to flush the water distribution system and get representative samples.

Stations #1-1A, #4-4A, and #5-5A were intentionally located near areas of known or suspected contamination problems to see if these sample results would be significantly different than results from those stations believed to be in "cleaner" areas.

To determine the contribution of bacterial contamination

from the watershed, 9 streams, referred to as C1 through C9, were monitored monthly. Additionally road culverts that discharge stormwater to the lake were sampled during two separate rainfall events.

C. PARAMETERS

The parameters measured at the 2 midlake stations and the 8 near-shore stations were the following:

- o temperature in degrees Celsius (surface and depth)
- o conductivity in micromhos (surface and depth)
- o secchi disk visibility
- o total coliform bacteria (surface)
- o fecal coliform bacteria (surface)

In addition to the above parameters, dissolved oxygen and nitrate were sampled from the surface and depth at the midlake stations.

Tap samples were analyzed for total and fecal coliform bacteria.

The streams were monitored for the following:

- o flow in cubic feet per second (cfs)
- o temperature in degrees Celsius
- o conductivity in micromhos
- o fecal coliform bacteria

The stormwater culvert samples were analyzed for fecal coliform bacteria only.

Temperature, secchi disk visibility, nitrate, and stream flow were used to obtain basic information about the lake and its tributaries. Similar water temperatures from the lake surface to the bottom indicates the lake is well-mixed or is able to be well-mixed. As the surface water becomes warmer than the lower water, the layers become resistant to vertical mixing and the lake becomes "stratified". Secchi disk visibility is a measure of the clarity of the water and relates to the amount of algae and other suspended matter present. Bacteriological sampling was used to identify bacterial contamination problems. Conductivity is a measure of the water's capacity to conduct an electric current, and can be used to estimate the amount of dissolved matter in the water. Increases in specific conductivity unrelated to natural conditions can indicate the addition of pollutants to the water.

Methods of analyses are listed in Appendix A.

IV. WATER QUALITY STANDARDS FOR DRINKING WATER AND LAKE CLASS WATERS

This report deals primarily with the lake as a drinking water source. Most of the water systems at Summit Lake are individual household systems, and therefore are not required to comply with the drinking water standards established in Washington Administrative Code 248-54 regulating public water supplies. However, the intent of the regulation is to protect human health by imposing standards that assure safe, high-quality drinking water. The application of these standards to Summit Lake, a common water source for many people, is clearly appropriate.

The bacterial analysis of a water sample entails examination for the presence of coliform bacteria. While the coliform bacteria is not generally considered a pathogen, its presence is used by health organizations worldwide as an indicator for the possible presence of other disease causing organisms. Fecal coliform bacteria are a specific type of coliform bacteria living in the intestines of warm-blooded animals, and are found in fecal waste from humans and other warm-blooded animals. When found in water, it is evidence of contamination by human or animal waste.

There are two laboratory methods for determining the presence of coliform bacteria. One is a membrane filter (MF) method where the water is filtered through a membrane, and the bacteria are allowed to grow on this filter. This method provides a representative count of the coliform bacteria found in the sample, and is reported as the number of organisms present per 100 milliliters of sample. Samples taken during this study were analyzed primarily by this method.

The second analysis method is a statistical analysis called the Most Probable Number (MPN) method. The samples taken during the 1970's study were analyzed by this method. Three sets of three test tubes containing liquid growth media were inoculated with specific amounts of the water sample. The formation of gas indicated the presence of coliform bacteria. Through a statistical computation, the number of tubes showing gas formation indicated the number of bacteria present in the sample.

As stated in W.A.C. 248-54-175, "(b) The maximum contaminant level for coliform bacteria is as follows:

(i) When the membrane filter test is used, the number of coliform bacteria shall **not** be greater than:

(A) One per one hundred milliliters as the average of all samples tested each month;

(B) Four per one hundred milliliters in two or more samples when less than twenty samples are tested each month; or
(C) Four per one hundred milliliters in more than five percent of the samples when twenty or more samples are tested each month."

In this study each sampling station was evaluated as an individual water system and criteria (A) was applied.

The arithmetic mean (or average) total and fecal coliform values were calculated by summing the sample results and dividing by the number of samples taken. The average values are used later in this report to compare sample results to the drinking water standards discussed above.

In 1987 the Environmental Protection Agency proposed a revision of the total coliform standard to 0 organisms per 100 ml. This proposed change in the drinking water standard is currently under public review and has not been adopted as of this writing. Theoretically there should be no coliform organisms found in drinking water to conclude that it is safe for consumption. The sample results from this study are compared to the current total coliform standards.

Water quality standards for freshwater lakes are found in the Water Quality Standards for Surface Waters of the State of Washington (W.A.C. 173-201-045). These standards are established to protect characteristic uses of lakes, such as recreation, fishing, and irrigation. They are not intended to provide the degree of protection necessary for potable water. For bacterial standards it states, "Fecal coliform organisms shall not exceed a geometric mean value of 50 organisms/100 ml with no more than 10 percent of samples exceeding 100 organisms/ 100ml".

Geometric mean values were calculated by taking the Nth root of the product of the sample results. Since many of the sample results were zero, it was necessary to add a value of one to each sample result in order to obtain the most accurate geometric mean value. The geometric mean values calculated were used later in this report to compare the creek and lake sample results to the water quality standards that apply to freshwater lakes.

V. FINDINGS

A. GENERAL WATER QUALITY

The mid-lake stations were monitored in December, March, and June. The data collected is included in Appendix B.

The study was designed to monitor a limited number of parameters. Due to equipment limitations, it was not possible to construct complete surface to bottom profiles for temperature, dissolved oxygen, and specific conductivity. However, based on the information collected during this study and the information presented in Water Supply Bulletin 42, the following observations can be made:

- All mid-lake station samples failed to meet the drinking water standard for total coliform of less than 2 organisms per 100ml. The sample results ranged from 4 to 8 total coliform per 100 ml, and the average value was 5.

  The average value of 5 coliform organisms at the mid-lake stations was not significantly different than the near-shore stations average coliform value of 13.8.

- The general water quality standard for freshwater lakes requiring a geometric mean value of greater than or equal to 50 fecal coliforms per 100ml was easily met at the mid-lake stations. The geometric mean value was 1.9, and no samples exceeded 100 organisms per 100ml.

- The water quality at Mid-lake Stations #1 and #2 was very similar, based on the limited parameters measured. It was not determined if or what effect boating had on the domestic water supplies along the western end of the lake.

- The lake is thermally stratified during summer and early fall.

- The dissolved oxygen concentration declines in the hypolimnion (lower waters where the temperature is typically cooler and mixing is poor) during stratification.

- Nitrate concentrations in the lake appear to be greatest during the winter months. This is an expected condition since aquatic plants and algae utilize this nutrient for growth during the spring

and summer months. Nitrate is removed from the water column and converted to plant material. Also, during the winter months, rainfall adds nitrogen to the lake from the atmosphere and from surface run-off.

- Secchi disk visibility readings (or water clarity) ranged from 14.5 feet in December to 24.6 feet in June. The increased summertime visibility reading is likely due to improved measurement factors such as lack of cloud cover, higher position of the sun, and decreased roughness of the water.

- In June it was observed that the epilimnion (surface layer of water in the lake having somewhat uniform temperature) was 21 feet deep with the thermocline extending beyond 30 feet. Records in Water Supply Bulletin 42 show the thermocline extending to approximately 55 feet in September 1971.

- The December 1986 monitoring data showed that the specific conductivity was 21% lower at Mid-lake Station #1 than at Mid-lake Station #2. Temperature and specific conductivity were both significantly different between the two mid-lake stations. A possible explanation for this occurrence is the following: A large amount of water, possibly run-off generated by high rainfall during the 43-day period preceding the monitoring (15.6 inches), entered and moved through the lake toward the outlet. That "slug" of water, having different characteristics, had reached Station #2 when monitoring was done, but had not yet reached Station #1.

  That same month, near-shore stations 2, 3, 7, and 8 had specific conductivity readings 42 to 117% higher than the highest average mid-lake stations reading. (Near-Shore data is found in Appendix C.) December also had the highest monthly average bacterial results for both near-shore and tap stations, however, the stations with higher specific conductivities did not correspond with those having higher bacteria counts in all cases. Stormwater run-off and suspension of lake sediment in the near-shore areas due wind and wave action are two possible causes of the increased specific conductivities and bacterial densities observed.

B. BACTERIAL WATER QUALITY AT NEAR-SHORE AND TAP STATIONS

The bacteriological data collected from the near-shore and tap stations are presented in Appendix C and D respectively. Tables 1 and 2 summarize the total coliform data and fecal coliform data respectively. The average total coliform value at the near-shore stations was 13.2, and was 6.7 at the tap stations. These are relatively low values and would be acceptable for a recreational use lake. The presence of coliform bacteria, however, is an indicator of the possible presence of disease-causing organisms and is not acceptable in a drinking water supply. Eighty-four percent of the near-shore samples and fifty-five percent of the tap samples did not meet the drinking water standard for total coliform bacteria.

The presence of fecal coliform bacteria indicates more specific sources of contamination than does the presence of total coliform. Fecal coliform bacteria originate in the intestines of warm-blooded animals. Sources would include such things as failing septic systems, leachate from pit privies, pet wastes, and wildlife. Fifty percent of the near-shore samples and twenty-two percent of the tap samples had fecal bacteria present.

Figure 5 shows the arithmetic mean values for total and fecal coliform at all the stations. Most of the stations had very similar bacteriological results. Stations 1,4, and 5 were located next to known or suspected sources of contamination, however, the graph shows little difference in the bacteria levels between these and the other stations.

The average total and fecal coliform values at near-shore Station #3 were the highest of all the stations sampled. This station was located in a small shallow bay that has some private subsurface drainages, road drainages, and a small ephemeral creek discharging into it. Poor mixing and low dilution in this area may have allowed bacteria to build up in the water column and sediments. The tap water results from Station #3A were the lowest of all the station results. The water intake is located over 40 feet from shore and about 40 feet deep, based on information from the resident. This places the intake in an area of greater dilution and mixing than the dock sampling area. Even though Tap Station #3A had the lowest average total coliform value of all tap stations, 33% of its samples still did not meet drinking water standards.

The average total and fecal coliform values for each near-shore station were higher than the corresponding tap station values at all except stations 2/2A . It appears that the domestic water intakes are less directly influenced by upland drainage, surface run-off, and suspension of lake sediment by wave and wind action than the near-shore surface water. However the intakes are still subject to contamination. Figures 6 and 7 are monthly average total and fecal coliform values for the near-shore and tap stations respectively plotted with the amount of rainfall received during the sampling period. Rainfall for the sampling period was calculated beginning with the day after the last sampling run up to and including the day of the next sampling run. The rainfall data is presented in Appendix E.

Increased bacterial densities in the near-shore samples appear to be in response to increased rainfall, as seen in Figure 6. A similar correlation between rainfall and bacterial densities is not apparent for the tap samples, Figure 7. Only during the extremely heavy rainfall in November/December did the bacteria counts in tap samples noticeably increase.

Figures 8 and 9 show comparisons of data collected at near-shore stations during the 1970's study and this study. The MPN method was used to analyze samples for coliforms during the 1970's study, and the membrane filter technique was used for this study. The results obtained from two different methods of analysis are not directly comparable, and were therefore compared in the manner shown.

The distribution of total coliform organism densities seen in the samples were similar in both studies (Fig. 8). The graph shows there is a slight redistribution from the two highest density categories and the 0-5 category to the 6-10 and 11-25 categories. There is roughly an equal percentage of samples showing degradation as there are showing improvement. This implies that there has been no significant increase in the total coliform densities in the lake water since the 1970's study.

Figure 9 shows a 9% decrease in the 0-5 fecal coliform category and an 8% increase in the 6-10 category. This may be an indication that contamination sources have increased or it may simply be the result of differences between the two studies or the indiscriminate categories chosen to make this comparison. The increase is, however, one that deserves noting, and should be followed over time.

Table 1

SUMMARY OF **TOTAL COLIFORM** RESULTS
AT NEAR-SHORE AND TAP STATIONS
(Tap stations are identified by an "A" behind the number.)

STATION	NO.OF SAMPLES	RANGE	ARITHMETIC MEAN	GEOMETRIC MEAN	% OF SAMPLES >1 T.C./100ml
1	10	0 - 46	18	10.7	90%
1A	8	0 - 20	5.75	4.8	87.5%
2	10	2 - 22	7.2	6.5	100%
2A	10	0 - 240	25.8	3.4	50%
3	8	2 - 170	50.5	18.9	100%
3A	6	0 - 6	1.7	1.8	33%
4	9	0 - 12	5.6	5.1	89%
4A	9	0 - 12	2.9	2.6	55.5%
5	9	0 - 18	7.6	5.4	78%
5A	8	0 - 26	7	3.3	50%
6	10	0 - 8	2.8	2.8	70%
6A	10	0 - 6	2.6	3.0	80%
7	9	0 - 16	4.7	3.2	55.5%
7A	8	0 - 6	2	2.2	50%
8	9	0 - 72	15.3	8.7	89%
8A	10	0 - 10	2.2	1.9	30%
SUMMARY	**143**	**0 -240**	**10.1**	**4.2**	**69%**

Table 1 Summary

AVERAGE at Near-Shore Stations - 13.2
AVERAGE at Tap Stations - 6.7
GEOMETRIC MEAN value at Near-Shore Stations - 6.2
GEOMETRIC MEAN value at Tap Stations - 2.8

84% of the Near-Shore samples (62 of 74 samples) did not meet drinking water standards.
55% of the Tap samples (38 of 69 samples) did not meet drinking water standards.

Table 2

SUMMARY OF FECAL COLIFORM RESULTS
AT NEAR-SHORE AND TAP STATIONS
(Tap stations are identified with an "A" behind the number.)

STATION NO.	NO. OF SAMPLES	RANGE	ARITHMETIC MEAN	GEOMETRIC MEAN
1	10	0-30	9.4	4.8
1A	9	0-10	2.0	2.0
2	10	0-10	2.2	2.2
2A	10	0-138	14.8	2.7
3	9	0-98	22.9	5.9
3A	6	0	0	0
4	9	0-6	1.3	1.8
4A	9	0-2	0.2	1.1
5	10	0-10	2.4	2.1
5A	9	0-8	1.1	1.4
6	10	0-6	1.2	1.6
6A	10	0-2	0.4	1.2
7	10	0-8	1.2	1.5
7A	9	0	0	0
8	10	0-48	7.6	4.0
8A	10	0-2	0.4	1.2
SUMMARY	**150**	**0-138**	**4.2**	**1.9**

Table 2 Summary

AVERAGE at Near-Shore stations - 5.9
AVERAGE of Tap stations - 2.6

GEOMETRIC MEAN value at Near- Shore stations - 2.6
GEOMETRIC MEAN value at Tap Stations - 1.4

Percent of Near-shore samples with fecal contamination - 50% (39 of 78)
Percent of Tap samples with fecal contamination - 22% (16 of 72)

FIGURE 5.
COLIFORM DATA FROM NEAR-SHORE AND TAP STATIONS
OCTOBER 1986-JULY 1987

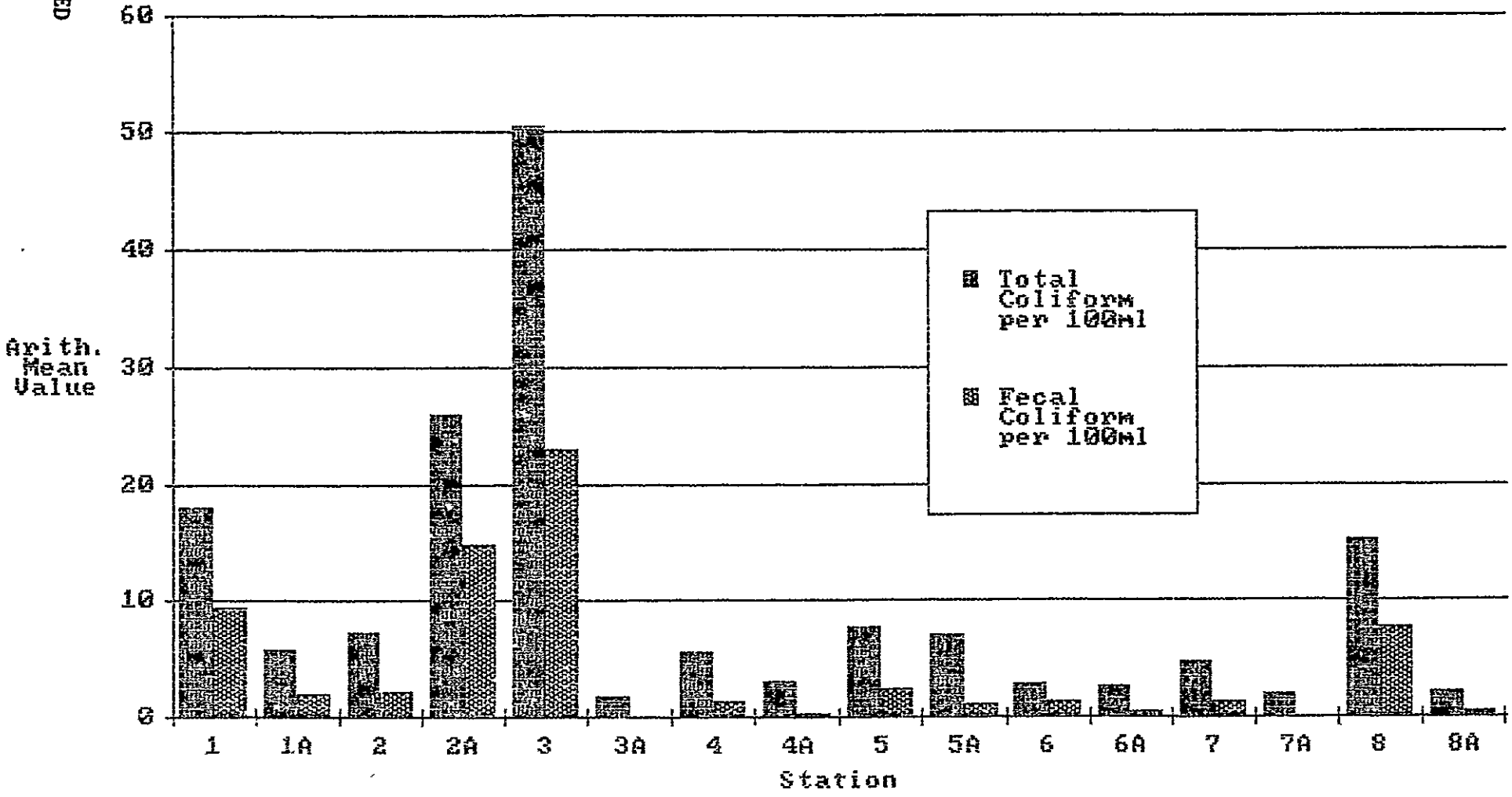


FIGURE 6. NEAR-SHORE STATIONS DATA BY MONTH

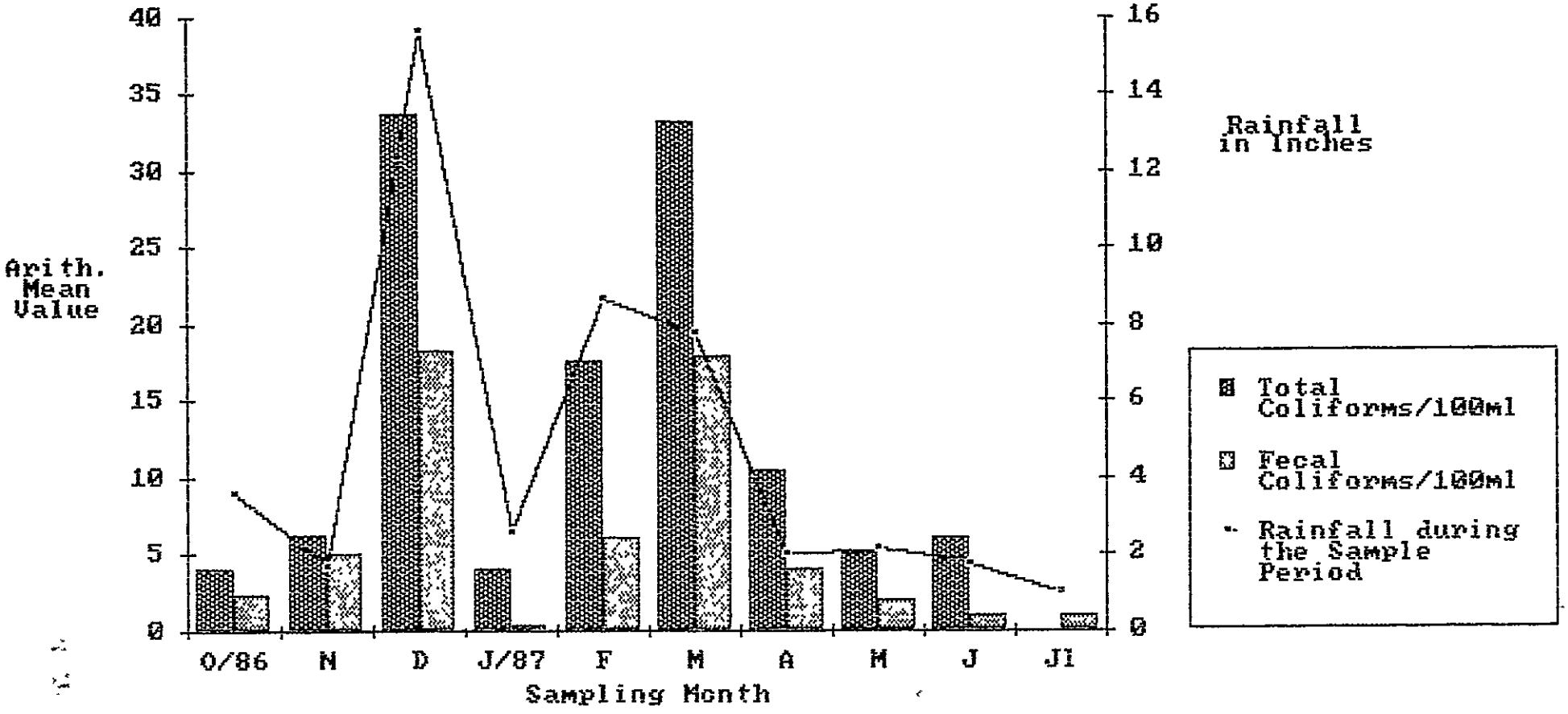


FIGURE 7. TAP STATIONS DATA BY MONTH

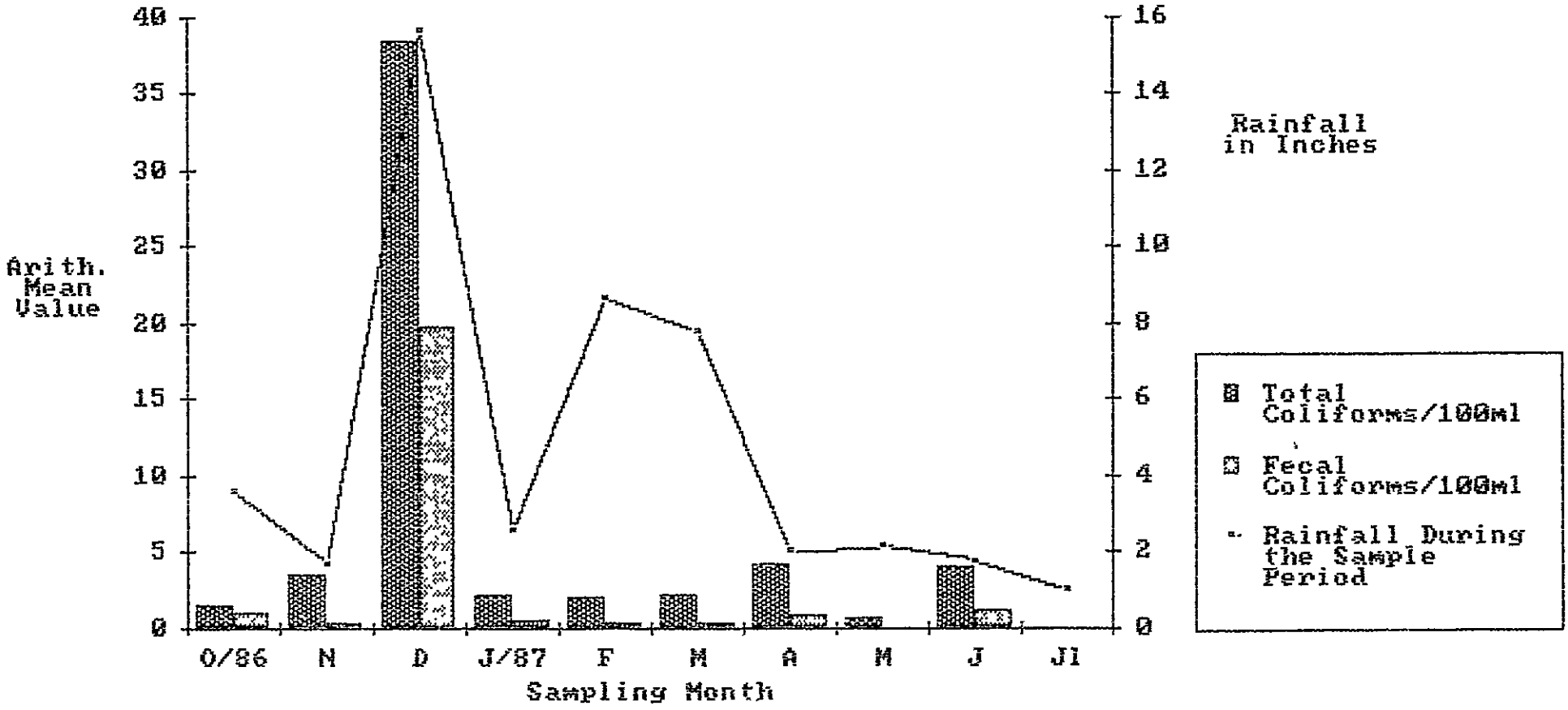


FIGURE 8.
COMPARISON OF TOTAL COLIFORM RESULTS FROM TWO STUDIES

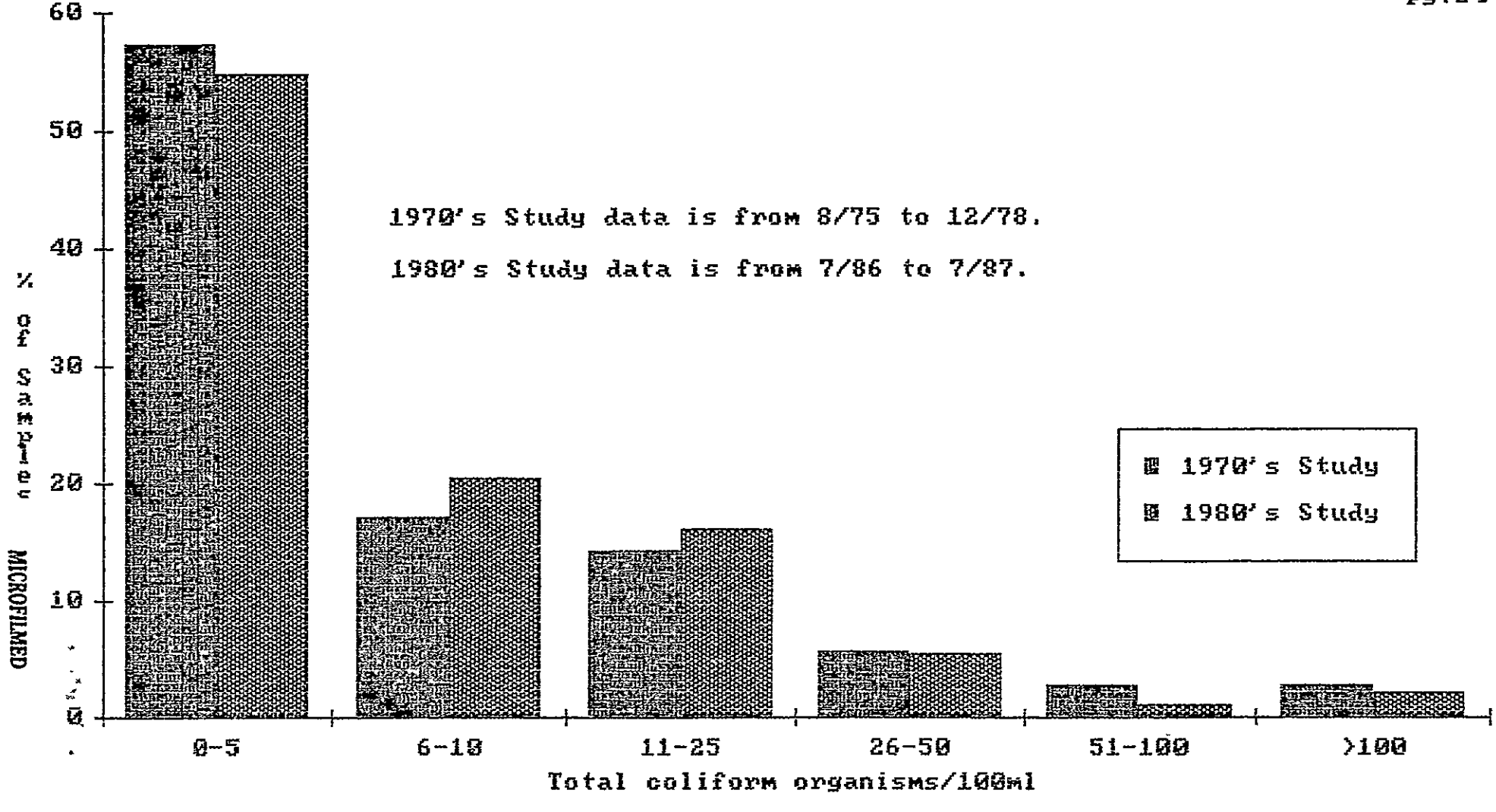
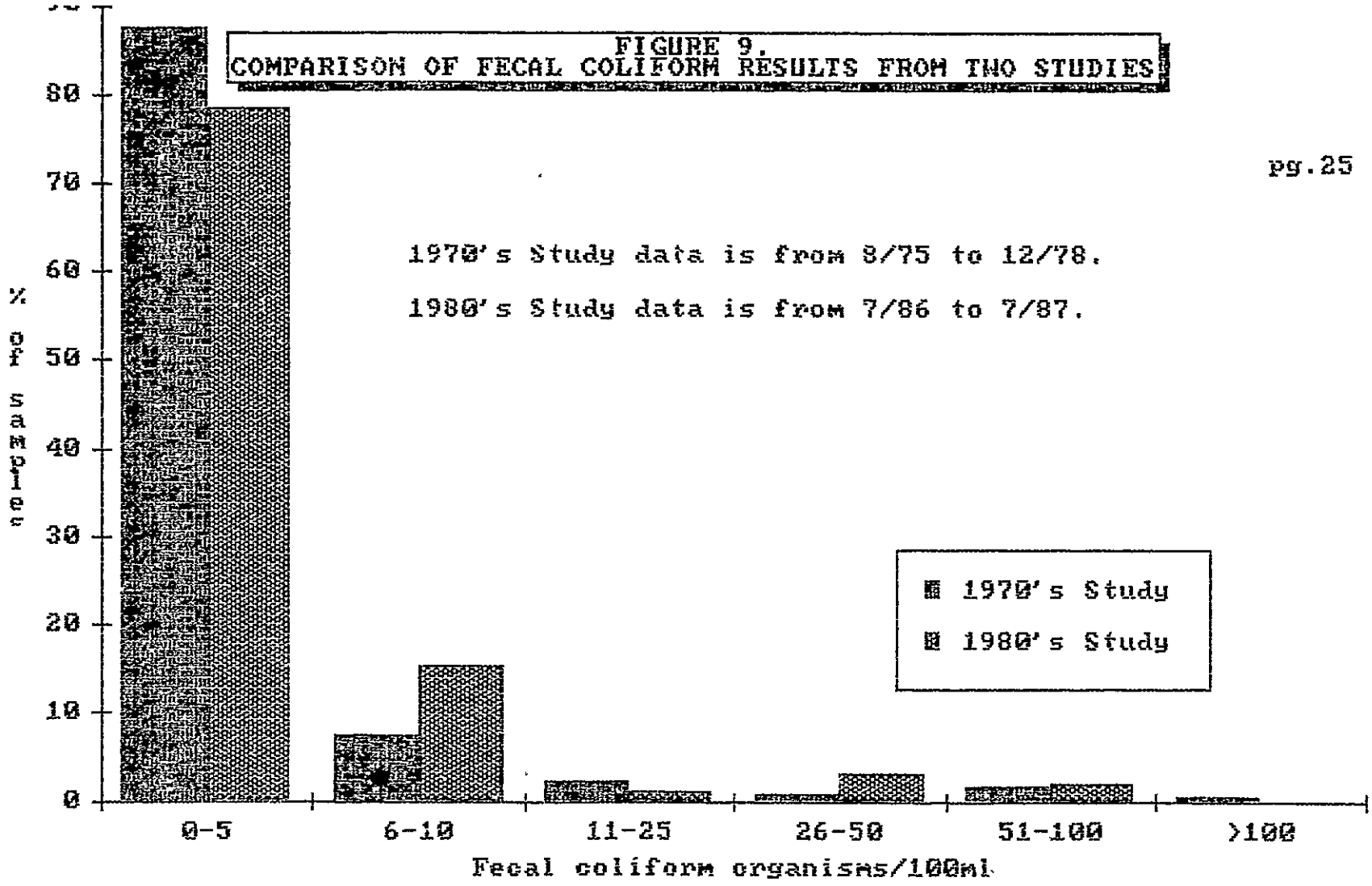


FIGURE 9.
COMPARISON OF FECAL COLIFORM RESULTS FROM TWO STUDIES



C. BACTERIAL WATER QUALITY AND LOADING FROM CREEKS

As discussed earlier, the state fecal coliform standard for lake class waters and the tributaries to lakes is as follows:

Fecal coliform organisms shall not exceed a geometric mean value of 50 organisms/100ml with not more than 10 percent of samples exceeding 100 organisms/100ml.

The data collected from the creeks is in Appendix F. Table 3 summarizes the bacteriological data.

TABLE 3

SUMMARY OF BACTERIOLOGICAL DATA FROM CREEK MONITORING

CREEK	# OF SAMPLES	AVERAGE FC/100ML	GEOMETRIC MEAN FC/100ML	% OF SAMPLES EXCEEDING 100FC/100ML
KENNEDY	10	21.6	7.0	10.0
C1	8	30.6	3.6	12.5
C2	8	10.3	5.7	0
C3	9	4.9	2.6	0
C4	7	10.3	4.6	0
C5	5	1.2	1.5	0
C6	5	85.0	5.7	20.0
C7	6	7.2	3.7	0
C8	9	130.3	12.0	22.0
C9	7	179.4	25.4	28.6

All of the creeks had geometric mean values below 50 per 100ml, but 4 creeks violated the second part of the standard allowing not more than 10% of the samples to exceed 100 organisms/100ml. These four creeks are not unlike the other five in characteristics. Most of the creeks originate above the developed residential areas, receive water

collected in the county road ditches, and flow between residential lots to discharge to the lake. The origin of the fecal coliform bacteria appear to be non-point sources such as natural erosion and wildlife, road run-off, pets, septic systems, run-off from clearing and construction activities, and subsurface drainage systems.

Creek C9 had the highest geometric mean fecal coliform value of the ten creeks monitored. This creek is a culverted creek which receives a large amount of run-off from several private residential properties via the road drainage ditch. It also contributes significant amounts of sediment to the lake as evidenced by the delta formation at the mouth of the culvert.

During the study, stream flows were measured when creek samples were taken in an attempt to estimate fecal coliform loading to the lake. It became evident that it was not possible to identify and quantify all sources contributing to the total loading. The only conclusion that can be drawn from this effort is that the sources of bacterial contamination are non-point in origin and difficult to quantify.

D. STORMWATER RUN-OFF MONITORING

Road culverts and creeks discharging to the lake were sampled for fecal coliform bacteria during two separate storm events. This was done to determine the general bacterial condition of the stormwater entering the lake.

Eighteen culverts and creeks were sampled on 12/22/86 when 1.57 inches of rain fell in a 3-day period. On 2/2/87 twenty-six culverts and creeks were sampled when 3.39 inches of rain fell in a 3-day period. The sampling data is presented in Table 4.

Although the geometric mean value was within the water quality standard at 18.6, ten of the forty-four samples collected (23%) had fecal coliform results greater than 100 organisms per 100 milliliters. Collectively the stormwater samples violated the water quality standard. However, these results indicate less contamination than the results of a similar sampling of road drainages done for a Henderson Inlet study. The geometric mean fecal coliform value of the that data was 123 (n=36). The lower value from the Summit Lake sampling is probably due to limited land use activites occurring in the upper watershed.

While fecal coliform bacteria was the only parameter measured during the storms, turbidity and sedimentation were

other observed impacts to the lake through the road drainage system. The pollutants intercepted and transported to the lake by the road ditches and culverts originate from human activities on the adjacent and up-slope properties and naturally occurring contaminants as well as those directly resulting from road use and maintenance.

TABLE 4

STORMWATER SAMPLING DATA

Sampling Location	Sampling Date		Geometric Mean Value
	12/22/86	2/2/87	
N. Shore lot #88	130	5	25.5
N. Shore lot #78	--	15	15 *
Creek C8 mouth	>1000	15	122.5
Creek C8 at road	--	0	0 *
Creek C7	25	0	5
Creek C6	60	1025	248
Summit Lake lot #262	150	0	12
Summit Lake lot #249 (com. pk.)	65	20	36
Summit Lake lot #213	15	45	26
Summit Lake lot #194	0	0	0
Summit Lake #168	--	215	215 *
Summit Lake lot #147 (com. pk.)	0	75	8.7
Summit Lake lot #141	500	5	50
Summit Lake lot #113	40	75	54.8
Summit Lake lot #85	--	0	0 *
Summit Lake lot #76	--	0	0 *
Creek C4	5	10	7.1
Summit Lake lot #17	--	0	0 *
Creek C3	25	75	43.3
Summit Lake Tract 65	5	--	5 *
Summit Lake Tracts 63 &64	--	5	5 *
Summit Lake Tract 48	--	0	0 *
Creek C2	0	10	3.2
Culvert at road near mailboxes 623-635 S.L.S. Rd.	--	55	55 *
Summit Lake Tracts 18 & 19 at road	>1000	560	748.3
Creek C1	25	0	5
Creek C9	>1000	220	469

No. of Samples - 44 Geometric Mean - 18.6

* Value represents one sample only.

Most of the road drainage around Summit Lake is collected in bare earth ditches and directly discharged to the lake through culverts. Given the existing physical difficulties at Summit Lake such as narrow public road right-of-way, steep slopes, shallow bedrock, and large quantities of run-off during storm events, it may not be possible to construct facilities such as grass-lined swales and detention ponds throughout the whole basin. However, it is apparent that the existing system is conducive to the transport of pollutants to the lake, and it should be evaluated and improved whenever possible.

A series of highway run-off studies conducted by the University of Washington for the Washington State Department of Transportation from 1978 through 1982 found that other pollutants such as heavy metals and organic compounds were transported with suspended sediments. The studies demonstrated that pollution could be reduced through the use of vegetated drainage channels.

In 1987 the Public Works Department established a policy of no herbicide use for control of roadside vegetation within the Summit Lake basin. This was a direct result of increased sensitivity and knowledge of potential stormwater impacts.

VI. CONCLUSIONS

o Summit Lake met fecal coliform standard established in W.A.C. 173-201-045 for general lake class water.

o Untreated drinking water obtained from the lake consistently did **not** meet the total coliform bacteria standard established in W.A.C. 248-54. Fifty-five percent of the drinking water samples analyzed did not meet the standard. The potential for transmission of water-borne illnesses is evident.

o Within the range of existing domestic water intake locations, depth and/or distance from shore did not decrease the risk of drawing substandard drinking water.

o Although 55% of the tap samples did not meet bacteriological drinking water standards, they were less affected by run-off and shoreline activities than the near-shore station surface samples.

o A comparison of the data obtained from this study and a study done in the late 1970's suggests that total coliform densities in the lake have remained relatively

unchanged. However there is some evidence that fecal coliform densities may be increasing. This crude comparison may not be entirely accurate, but deserves some consideration.

o The small tributaries did contribute fecal coliform bacteria to the lake, but did not account for all of the bacteria measured leaving the lake via Kennedy Creek. There were numerous unidentified and unquantified sources that accounted for the remainder of the bacterial loading. These sources include failing septic systems, private subsurface drainage systems, wildlife, pet wastes, clearing and construction site run-off, road run-off, recreational activities, and others.

o The road drainage system was found to transport fecal coliform bacteria from a variety of non-point sources to the lake during rainfall events. The existing systems is also conducive to the transport of sediments and other contaminants to the lake.

o Even with implementation of the most rigid non-point pollution program it is unlikely that untreated lake water would be safe for human consumption. This is due to the presence of natural background contaminants that exist and the wide variety of human activities occurring within the basin.

VII. RECOMMENDATIONS

The results of this study suggest that two distinct issues must be addressed. The first and most pressing issue is the public health implications of using the lake for drinking water. The second issue is how to protect the general water quality of the lake. Based on this study the following actions are recommended:

1. The Public Health Advisory issued in February 1987 (Appendix G) should remain in effect until residences in the Summit Lake basin are served by an acceptable drinking water system.

2. A study should be done which identifies all potential drinking water alternatives available to Summit Lake property owners and presents cost estimates associated with each alternative. It may be valuable to investigate options for sewage disposal at the same time. However, a sewer system can not eliminate all contamination sources contributing to the lake and will not result in safe drinking water.

3. A lake protection strategy should be developed and implemented. The strategy should include the following:

- Establish a Geologically Sensitive Area designation for the basin through the Thurston County Board of Health whereby specific requirements for new and existing sewage disposal systems can be instituted.

- Develop criteria for private subsurface drainage installations

- Develop requirements for controlling run-off and contamination from construction sites

- Institute best forestry practices guidelines for the basin to prevent increased run-off and sedimentation and pollution

- Make recommendations for pet (and livestock) waste handling

- Evaluate the existing road drainage system and maintenance program, and implement water quality improvement designs and practices whenever possible. Encourage resident participation in programs such as Public Work's "Owner Will Maintain" program.

Other topics that could be included in the lake protection strategy which were not addressed during this study are such things as:

- aquatic weed control,
- limits on the use of detergents containing phosphates,
- education on pesticide and fertilizer use, and promotion of alternatives.

4. There should be strict enforcement of existing regulations and ordinances by all County departments.

5. There should be a mechanism to provide funding for failing septic system repairs in those cases where financial resources are lacking.

6. Additional investigative study should be done in the following areas:

- Wider range of parameters for water and sediment analyses if the lake is proposed as the source for a community drinking water system,

- Bacterial sampling at depth off-shore,
- Aerial surveying to identify contamination sources

7. Continue and expand the on-going cooperative volunteer water quality monitoring program

Active participation by the residents and property owners at Summit Lake is critical to resolving the drinking water problem and establishing a successful lake protection program. Much of the planning and program development can be done through workshops with community committees and county staff. However, funding sources will have to be obtained to pay for major elements in the recommendations. Formation of a lake management district and grant sources are two potential funding mechanisms that should be investigated.

COUNTY CONTACT PERSONS

NAME	DEPT	PHONE	RESPONSIBILITY
Susan Davis	Env. Health	754-4111	Summit Lake Study
Tom Gibbs	Env. Health	786-5463	On-site Sewage Systems
Phil Brinker	Env. Health	786-5462	Public Water Systems
Tom Clingman	Public Works	786-6662	Lake Mgnt. Districts
Jim Bachmeier	Public Works	786-5495	Road Maintenance
Steve Morrison	Planning	786-5554	Watershed Planning
David Hanna	Planning	786-5554	Shoreline Permits Zoning & Platting Regs

REFERENCES

American Public Health Association. Standard Methods for Examination of Water and Wastewater, 16th Ed., 1985.

Lind, Owen T. Handbook of Common Methods in Limnology, 1974.

National Oceanic and Atmospheric Administration. Local Climatological Data 1986 and 1987, Olympia, Washington.

Noble J.B. and Wallace E.F. Geology and Ground-Water Resources of Thurston County, Washington, Vol. 2, Washington Division of Water Resources, Water Supply Bulletin 10, 1966.

Taylor, Marilou M. The Henderson / Eld Inlet Water Quality Study, Thurston County Human Services Department, December 1984.

Thurston County Assessor's Records. 1987, Thurston County, Washington.

Thurston County Planning Department. Summit Lake Sub-Area Plan, October 1977.

United States Department of Agriculture. Soil Survey, Thurston County, Washington, No. 6, Series 1947, 1958.

Wallace, Eugene F. and Molenaar, Dee. Geology and Ground-Water Resources of Thurston County, Washington, Vol.1, Washington Division of Water Resources, Water Supply Bulletin 10, 1961.

Washington State Department of Ecology. Data on Selected Lakes in Washington, Part 2, Water Supply Bulletin 42, June 1974, pp. 38-40.

Washington State Department of Transportation. Characterization of Highway Run-off in Washington State, WA-RD-39.6, Interim, December 1980.

Washington State Department of Transportation. Guide for Water Quality Impact Assessment of Highway Operations and Maintenance, WA-RD-39.14, Interim, September 1982.

APPENDIX A.

METHODS OF ANALYSES

Field Methods

Temperature and conductivity were measured with a Yellow Springs Instrument model 33 S-C-T combined salinity/ conductivity/temperature meter. The range of this instrument, as it applied to this study, was 0 to 500 micromhos per centimeter, with an accuracy of ± 6 percent.

Visibility was measured with a ten-inch diameter secchi disk painted with opposing black and white quarters.

Flow was measured with a Marsh-McBirney model 201 portable current meter. Flow was calculated using the formula: Q(flow) = A(area) * V(velocity).

Dissolved oxygen was measured in the field using a modified Winkler method organized in a LaMotte field test kit.

Laboratory Analysis

Total and fecal coliform bacteria samples collected during this study were analyzed in the Thurston County Health Department laboratory. The membrane filter technique described in Standard Methods for the Examination of Water and Wastewater, 16th Edition, was the method used.

Nitrate-nitrite analysis was performed in the Health Department lab using the cadmium reduction method outlined in Standard Methods for the Examination of water and Wastewater, 16th Edition, pp. 394-396.

APPENDIX B.

MID-LAKE STATIONS DATA

Mid-Lake # 1 (East)					Mid-Lake # 2 (West)				
DECEMBER 30, 1986									
Depth	Temp	Cond	DO	NO3	Depth	Temp	Cond	DO	NO3
0 M	8	35	>10	.14	0 M	7.5	45	>10	.14
1	7.9	35			1	7.5	45		
2	7.9	35			2	7.75	47		
3	7.9	35			3	7.75	47		
4	7.9	37			4	7.75	47		
5	7.9	37			5	7.75	47	10	.13
6	7.9	38			6	7.75	48		
7	7.9	39			7	7.75	48		
8	7.9	39			8	7.75	48		
9	7.9	39	10	.14	9	7.75	45		
10	7.9	39			AVG	7.7±.1	47±1.2 (n=10)		
AVG	7.9±.03	37±1.8 (n=11)							
Total Coliform 4					Total Coliform 8				
Fecal Coliform 4					Fecal Coliform 2				
Visibility 14.5 feet					Visibility 15 feet				

MARCH 18,1987									
Depth	Temp	Cond	DO	NO3	Depth	Temp	Cond	DO	NO3
0 M	8	38	>10	.086	0 M	8	35	>10	.088
1	8	35			1	7.9	35		
2	8	35			2	7.9	35		
3	8	35			3	7.9	35		
4	8	35			4	7.9	36		
5	8	35			5	7.9	37		
6	8	35			6	7.9	37		
7	8	38			7	7.9	38		
8	8	38			8	7.8	38		
9	8	38			9	7.8	38		
10	7.8	38			10	7.8	39	>10	
11	7.8	38			11				
12	7.8	39			12				
13	7.8	39			13				
14	7.8	39	>10	.085	14				.083
Total Coliform 4					Total Coliform 4				
Fecal Coliform 2					Fecal Coliform 0				
Visibility 22 feet					Visibility 23.5 feet				

Mid-Lake # 1 (East)					Mid-Lake # 2 (West)				
			JUNE 17,1987						
Depth	Temp	Cond	DO	NO3	Depth	Temp	Cond	DO	NO3
0 M	18	45	9.6	.033	0 M	19	45	9.6	.028
1	17.8	46			1	18	46		
2	17.8	46			2	18	46		
3	17.8	47			3	18	47		
4	17.8	47			4	18	47		
5	17.5	48			5	17.9	48		
6	17.5	48			6	17.8	48		
7	17.3	49			7	17.8	48		
8	17.2	49			7.8			9.9	.033
9	17	49							
10	15.1	46			Total Coliform 1 Positive Tube				
11	14.8	45			Fecal Coliform 0				
12	14	44			Visibility 24.6 feet				
13	12	42							
14	11.8	42	6.0	.054					
Total Coliform 1 Positive Tube									
Fecal Coliform 0									
Visibility 24.6 feet									

AVERAGE Total Coliform Value - 5/100ml
(n=4 and standard deviation = ± 2)

GEOMETRIC MEAN Fecal Coliform Value - 1.9/100ml (n=6)

APPENDIX C. NEAR-SHORE STATIONS DATA

October 28, 1986

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	0	0
2	14.25	40	14.5	41	bottom 15'	2	0
3	--	--	--	--	--	--	--
4	14.5	40	14.75	41	bottom 5'	12	6
5	--	--	--	--	--	0	0
6	14.5	40	14.75	41	bottom 15.5'	4	4
7	--	--	--	--	--	2	0
8	14.75	39	14.5	39	bottom 4.5'	8	6
AVERAGE						4	2.3

November 17, 1986

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	11	39	11	39	--	32	30
2	11	39	11	40	13.5'	4	4
3	11.75	38	11.75	38	--	2	2
4	11	38	11.5	39	--	4	0
5	11	37	11	37		4	0
6	11	35	11	39	--	0	0
7	11.5	37	11.5	38	--	0	0
8	11.5	35	11	35	bottom	4	4
AVERAGE						6.2	5

December 1986

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	8	35	7.75	35	bottom .5m	46	26
2	7.75	63	7.75	70	--	10	4
3	7.5	77	7.75	70	bottom 1.5m	152	92
4	7.25	53	7.75	53	--	12	2
5	7.75	39	--	--	bottom <2'	16	8
6	7.75	39	7.75	40	12'	8	6
7	8	102	7.75	102	bottom 1m	10	0
8	8	70	8	70	--	16	8
AVERAGE						33.7	18.2

January 20, 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	6.1	32	5.5	34	bottom .66m	4	0
2	6	32	6.4	36	bottom 4.25m	2	0
3	6	32	6	32	bottom 1.5m	20	2
4	6.25	32	6.5	33	bottom 1.5m	2	0
5	6.5	33	6.5	33	bottom .25m	0	0
6	6.9	34	6.7	35	bottom 4m	0	0
7	7	35	6.8	35	bottom 1m	0	0
8	7	33	6.7	32	bottom 1m	CG	0
AVERAGE						4	.2

February 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	2	0
2	7	50	6.75	52	bottom 16'	6	0
3	--	--	--	--	--	38	0
4	6.5	45	6.5	45	bottom 1.75m	2	0
5	--	--	--	--	--	18	0
6	7	34	6.9	45	bottom 16'	2	0
7	--	--	--	--	--	0	0
8	6	32	6	32	--	72	48
AVERAGE						17.5	6

March 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	30	18
2	7.9	32	8.0	39	bottom 17'	10	2
3	--	--	--	--	--	170	98
4	8.1	34	8.0	34	bottom 5.7	4	2
5	--	--	--	--	--	16	10
6	8.1	34	8.0	36	bottom 16'	2	0
7	--	--	--	--	--	16	8
8	8.0	34	7.8	35	--	18	6
AVERAGE						33.2	18

April 15,1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	24	8
2	11.1	48	10.9	48	bottom 15.8'	22	10
3	--	--	--	--	--	16	6
4	11.0	41	11.1	40	bottom 4.9'	8	2
5	--	--	--	--	--	2	2
6	11.0	41	11.1	42	bottom 15.0'	0	0
7	--	--	--	--	--	6	2
8	10.5	85	10.2	89	bottom 3.3'	6	2
AVERAGE						10.5	4

May 19, 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	20	8
2	15.5	43	16.0	45	bottom 14.8'	4	0
3	--	--	--	--	--	4	4
4	16.0	43	16.0	44	bottom 5.3'	0	0
5	--	--	--	--	--	8	4
6	16.0	44	15.9	45	bottom 13.8'	2	0
7	--	--	--	--	--	0	0
8	15.0	43	15.0	43	bottom 3.9'	2	0
AVERAGE						5	2

June 16, 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	4	0
2	17.3	43	17.5	47	bottom 14.8'	10	5
3	--	--	--	--	--	2	2
4	17.8	44	18.1	45	bottom 4.9'	6	0
5	--	--	--	--	--	4	0
6	18.0	43	18.0	46	bottom 13.8'	2	0
7	--	--	--	--	--	8	2
8	16.0	43	16.0	43	bottom 3.9'	12	2
AVERAGE						6	1

July 1987

STATION	SURFACE Temp	SURFACE Cond	BOTTOM Temp	BOTTOM Cond	Visibility	COLIFORM Total	COLIFORM Fecal
1	--	--	--	--	--	TNTC	4
2	24.1	51	21.0	50	bottom 14.8'	2	0
3	--	--	--	--	--	TNTC	0
4	--	--	--	--	--	--	--
5	--	--	--	--	--	TNTC	0
6	23.5	50	21.0	50	bottom 13.1'	8	2
7	--	--	--	--	--	TNTC	0
8	23.0	50	22.8	50	bottom 4.1'	0	0
AVERAGE						--	.9

-- means sample not taken
TNTC means "To Numerous To Count" and resampling is required to identify the bacteria type
CG means "Confluent Growth" and also requires resampling to identify the bacteria type
NOTE: TNTC and CG results were not included in computing averages

APPENDIX D. TAP STATIONS DATA

TOTAL COLIFORMS PER 100ML

STATION NO.	SAMPLING MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1A	*	4	20	2	4	2	6	0	8	TNTC
2A	4	0	240	4	6	0	4	0	0	0
3A	*	0	4	6	0	0	0	*	*	*
4A	0	0	12	2	4	4	0	0	4	*
5A	*	20	26	0	0	0	8	2	0	TNTC
6A	2	4	2	2	2	6	0	2	6	0
7A	*	0	4	2	0	0	6	0	4	TNTC
8A	0	0	0	0	0	6	10	0	6	0
AVERAGE	1.5	3.5	38.5	2.2	2	2.2	4.2	0.6	4	--

FECAL COLIFORMS PER 100 ML

STATION NO.	SAMPLING MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1A	*	2	10	0	0	2	0	0	4	0
2A	2	0	138	4	2	0	2	0	0	0
3A	*	0	0	0	0	0	0	*	*	*
4A	0	0	2	0	0	0	0	0	0	*
5A	*	0	8	0	0	0	2	0	0	0
6A	2	0	0	0	0	0	0	0	2	0
7A	*	0	0	0	0	0	0	0	0	0
8A	0	0	0	0	0	0	2	0	2	0
AVERAGE	1	0.2	19.7	0.5	0.2	0.2	0.7	0	1.1	0

* No sample taken
TNTC (Too Numerous To Count) - Requires resampling for identification of bacteria type.
NOTE: TNTC results were not included in computing averages.

APPENDIX E.

RAINFALL DATA FOR 1986/87 STUDY PERIOD

SAMPLING PERIOD	RAINFALL (INCHES)
9/25 - 10/28	3.54
10/29 - 11/17	1.66
11/18 - 12/30	15.62
12/31 - 1/20	2.56
1/21 - 2/17	8.68
2/18 - 3/18	7.79
3/19 - 4/15	2.0
4/16 - 5/19	2.12
5/20 - 6/16	1.75
6/17 - 7/21	0.99

Reference - National Weather Service Office, Olympia,WA

APPENDIX F

CREEK MONITORING DATA

Creek	Flow (cfs)	Temp. (C)	Specific Conductivity (microhms)	Fecal Coliform /100ml
			September '86	
NO FLOW IN ALL CREEKS				
			October '86	
C1	.14	12.5	71	215
C2	.06	11.5	45	35
C3	.12	12	75	24
C4	NF			
C5	NF			
C6	NF			
C7	NF			
C8	.04	12.9	93	>1000
C9	NM			CG
Kennedy	NM	13.7	48	5
			November '86	
C1	.02	10	68	0
C2	.02	9	45	5
C3	.04	9.5	59	2
C4	NF			
C5	NF			
C6	NF			
C7	NF			
C8	.01	10.5	58	7.8
C9	NM	--	--	185
Kennedy	12.29	10	40	2
			December '86	
C1	1.67	7.2	42	5
C2	.68	7.5	32	10
C3	2.78	8	41	0
C4	1.94	8	45	5
C5	.48	8.2	45	0
C6	.77	8.5	91	410
C7	1.07	8.7	102	25
C8	1.39	8.5	78	105
C9	NM	--	--	>1000
Kennedy	18.80	7.7	33	70

Creek	Flow (cfs)	Temp. (C)	Specific Conductivity (microhms)	Fecal Coliform /100ml
			January '87	
C1	.16	4.7	35	0
C2	.06	5.5	30	0
C3	.29	6.2	40	0
C4	.08	7	40	0
C5	.03	7.7	41	0
C6	.15	7.7	39	15
C7	.02	8	75	0
C8	.11	7.2	45	0
C9	NM	--	--	5
Kennedy	12.53	6	32	5
			February '87	
C1	.61	7	50	0
C2	.49	7	41	2
C3	.96	7.2	56	0
C4	.80	7	40	6
C5	.38	7.7	55	4
C6	.48	8	42	0
C7	.04	8	40	0
C8	.43	7.7	39	12
C9	NM	--	--	38
Kennedy	17.3	6.5	32	2
			March '87	
C1	.28	7.8	51	0
C2	.35	7.5	30	2
C3	.75	7.8	38	0
C4	.75	8	40	8
C5	.28	8	35	2
C6	.50	8.5	50	0
C7	.09	8.5	81	4
C8	.32	8.5	50	16
C9	NM	--	--	16
Kennedy	21.1	8	34	6

Creek	Flow (cfs)	Temp. (C)	Specific Conductivity (microhms)	Fecal Coliform /100ml
			April '87	
C1	.03	10.2	58	25
C2	.07	9.1	40	20
C3	.09	9.1	222	2
C4	.06	9.0	92	1
C5	.01	9.0	51	0
C6	NM	--	--	0
C7	.01	9.5	330	2
C8	.04	9.9	71	0
C9	NM	--	--	--
Kennedy	NF	12.6	49	6
			May '87	
C1	NM	11.3	56	0
C2	NM	11.0	44	8
C3	.01	11.5	47	6
C4	NM	13.0	52	4
C5	NF			
C6	NF			
C7	NM	14.0	55	12
C8	NM	11.5	50	32
C9	NM	--	--	12
Kennedy	.04	15.0	45	0
			June '87	
C1	NF			
C2	NF			
C3	NM	12.5	50	10
C4	NM	--	--	48
C5	NF			
C6	NF			
C7	NF			
C8	NF			
C9	NF			
Kennedy	.01	15.8	49	10
			July '87	
C1 - C9	NF			
Kennedy	NM	23.0	52	110

* NF - Not Flowing OR Dry
* NM - Not Measured
* -- Not Tested

THURSTON COUNTY HEALTH DEPARTMENT

ENVIRONMENTAL HEALTH DIVISION
2000 Lakeridge Dr. S.W.
Olympia, Washington 98502
(206) 786-5455
Patrick M. Libbey, Director

TO: Summit Lake Residents and Property Owners using raw lake water as a source of drinking water

FROM: Charles D. (Don) Leaf R.S.
Director, Environmental Health Division
Gary Goldbaum M.D., Consulting Health Officer

DATE: February 6, 1987

PUBLIC HEALTH ADVISORY

YOU ARE HEREBY NOTIFIED AND ADVISED NOT TO USE RAW LAKE WATER FOR DRINKING, PREPARATION OF UNCOOKED FOODS, AND OTHER TYPES OF CONSUMPTION SUCH AS TEETH-BRUSHING.

EXPLANATION

I. Health Advisory

Based on the water sample results, the Thurston County Health Department advises lake residents and property owners not to use raw lake water as a source of drinking water. The potential for disease transmission has been documented by this Department, however no illnesses resulting from the consumption of Summit Lake water have been reported to this Department to date. It is the intent of this advisory to prevent an out-break of water-borne illness due to consumption of raw lake water.

Water for human consumption should be obtained from a safe source with known water quality. If the lake is the only source of water available to you, intermediate steps should be taken to disinfect any water to be used for drinking, cooking, and teeth-brushing. While disinfection will not remove chemical contaminants such as pesticides or fuels, it will reduce the risk of illnesses caused by organisms such as bacteria, viruses, and protozoa.

Interim measures for obtaining or preparing safe drinking water are listed in Section IV. Information on disinfection procedures for preparing drinking water is available from the County Health Department and can be obtained by calling 786-5455. Please ask for the brochure

entitled "Safe Drinking Water in Emergencies" by the U.S. Department of Health, Education, and Welfare.

Whole-house disinfection and filtration systems are available from local suppliers, and questions regarding their effectiveness, cost, etc. should be directed to the manufacturers and sales representatives of such units.

Long term solutions to the problem of safe drinking water at Summit Lake have not been considered, and the Health Department has no recommendations at this time. The problem, however, is a lake-wide condition and a community decision appears to be necessary.

II. Water Quality Monitoring Program

Thurston County Health Department, in conjunction with the lake community group, has been monitoring the bacterial water quality of Summit Lake since April 1985. Since November 1985 water samples have been collected on a monthly basis both from faucets and from docks at regular locations around the lake.

In Fall of 1986 the Health Department expanded the monitoring program to include measuring lake temperature, conductivity, and clarity and monitoring streams flowing into the lake. Although this monitoring is expected to continue through August 1987, there is sufficient data at this point to release preliminary findings and recommendations to lake residents.

III. Findings

The over-all bacteriological quality and water clarity of the lake is excellent when compared with the standards established for recreational waters. **However, results from faucets sampled indicate that bacteriological drinking water standards cannot be consistently met in domestic systems drawing water directly from the lake without any type of disinfection.** For example, only 38% of 29 faucet samples taken during the months of October '86 through January'87 met the established safe drinking water standard of not greater than 1 coliform bacteria per 100 milliliters of sample.

We have found that the water quality is being impacted by such things as on-site sewage systems, road and driveway run-off, run-off from cleared denuded lots, underground lot drainage systems, and recreational activities as well as natural sources such as wildlife. While it is possible to reduce the impacts of some of these sources, it is impossible to completely eliminate all of them and assure a safe drinking water supply from the lake.

IV. Interim Recommendations for Drinking Water
(in order of preference)

1. Hauling water from a safe, approved source; i.e. City of Olympia

2. Boiling for 10 - 15 minutes

* 3. Chlorination with household bleach with 5.25% available chlorine; ex. Purex or Chlorox.
Mix 8 drops of bleach per gallon of water. Let stand for at least 30 minutes at room temperature before using.

* 4. Tincture of Iodine
Mix 20 drops of iodine per gallon of water. Let stand at room temperature for at least 30 minutes before using.

* Double the amount of chemical added if water is cloudy.

A brochure entitled "Safe Drinking Water in Emergencies" by the U.S. Department of Health, Education, and Welfare describes the procedures listed above and is available from the Thurston County Health Department.

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON, DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent,	No. 90 2 00327 0 BRIEF OF RESPONDENT

I. STATEMENT OF FACTS

Lake Management District (hereinafter LMD) No. 5 for Summit Lake was initiated by petition by owners of acreage within the proposed LMD. Appendix A-1. Resolution No. 9162 was adopted on April 17, 1989, and notice of a public hearing scheduled for May 30, 1989, on the proposed LMD No. 5 was given in accordance with RCW 36.61.040 and RCW 79.44.040. Appendix A-2. The State of Washington Department of Wildlife (hereinafter WDW) filed an objection to the proposed LMD No. 5. Appendix A-3. The Board of Thurston County Commissioners (hereinafter Board) held a public hearing on May 30, 1989, on the proposed LMD No. 5 to hear comments and objections on the formation of LMD No. 5. On July 3, 1989, the Board adopted Resolution No. 9217 submitting the establishment of LMD No. 5 to a vote of property owners. Appendix A-4. On August 28,

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1989, the Board adopted Ordinance No. 9259 creating LMD No. 5, and set a date for hearing objections to the proposed roll of rates and charges, Resolution No. 9260, for October 5, 1989. Appendix A-5.

The WDW filed a written objection to the proposed roll of rates and charges, Appendix A-6, and on October 5, 1989, the Board held a hearing to consider objections on the roll of rates and charges. Appendix A-7. On January 8, 1990, after consideration of the objections on the proposed rates and charges, the Board adopted Resolution No. 9385, which confirmed the roll of rates and charges, and Ordinance 9384, which prescribed interest and penalties for late payments of the rates and charges for LMD No. 5. Appendix A-8. On January 22, 1990, the Board sent a letter to WDW concerning WDW's objections to the LMD rates for WDW property. Appendix A-9. On February 9, 1990, the WDW filed a Notice of Appeal objecting to the rates and charges as they affect WDW's property.

II. STANDARD OF REVIEW

The WDW has requested the Court to review the Board's legislative determination of the rates and charges for LMD No. 5 as they apply to property owned by WDW on Summit Lake. The applicable standard of review in reviewing a legislative decision is the arbitrary and capricious test. Teter v. Clark Co., 104 Wn.2d 227, 704 P.2d 1171 (1985). Arbitrary and capricious action has been defined as wilful and unreasoning action which was taken in disregard of the facts and circumstances involved. State v. Ford, 110 Wn.2d 827, 755 P.2d 806 (1988). However, action "when exercised honestly and upon

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due consideration where there is room for two opinions, however much it may be believed that an erroneous conclusion was reached", does not give rise to arbitrary and capricious action. Sweitzer v. Industrial Ins. Comm., 116 Wash. 398, 401, 199 P. 724 (1921).

"A legislative determination will be sustained if the Court can reasonably conceive of any state of facts to justify that determination." Teter at 234-235. For the Court to find that the Board's action in establishing the rates and charges was unreasonable as it relates to WDW's property, Resolution No. 9385 must be "'clearly and plainly'" unreasonable. Id. at 235.

III. ARGUMENT

A. WDW's First Objection:

Factors used in imposing rates and charges.

The factors used in imposing rates and charges for LMD No. 5 are based on reasonably known factors as required under RCW 36.61.270, a copy of which is attached hereto as Appendix B. RCW 36.61.270 states in pertinent part that

> [t]he county legislative authority shall have full jurisdiction and authority to fix, alter, regulate, and control the rates and charges imposed by a lake management district and may classify the rates or charges by any reasonable factor or factors, including benefit, use, front footage, acreage, the extent of improvements on the property, the type of improvements on the property, uses to which the property is put, service to be provided, and any other reasonable factor or factors.

(Emphasis added).

The Board, as the county legislative authority, applied several factors in determining the roll of rates and charges

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for LMD No. 5. These factors included use and benefit which are two of the factors reflected in RCW 36.61.270:

(1) Use: The use of the lake and property surrounding the lake made by the various classes of properties designated in Resolution No. 9385 was correlated to the potential contribution to pollution by each property classification. It was determined by the Board that access to Summit Lake by the WDW public boat ramp significantly contributed to the pollution of Summit Lake's water supply in the form of oil and gas, garbage and other wastes associated with boat and recreational use.

(2) Benefit: WDW's property receives benefit from the protection of Summit Lake's water quality by protecting the general public's health and welfare when using the lake for recreational purposes. Protection of the lake's water quality provides not only for a safer and healthier environment for the general public, but the water quality has an impact on fish and wildlife as well.

The factors used by the Board in establishing the rates and charges for LMD No. 5 follows the purpose established by the legislature when Chapter 36.61 RCW was promulgated. The legislature found that "environmental, recreational, and aesthetic values" of lakes within Washington were deteriorating, and that the legislature desired to establish a mechanism by which lakes could be improved for the "general public's benefit, health, and welfare." RCW 36.61.010. When the Board confirmed the roll of rates and charges for LMD No. 5, it was for the purpose of benefiting the general public, to

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protect the water quality of the lake (as the lake is the major source of drinking water for residents of Summit Lake), and to benefit recreational activities. Resolution No. 9385. Moreover, as depicted in RCW 36.61.020, water quality is specifically stated as one of the purposes for creation of a lake management district.

Therefore, the Board based the rates and charges for LMD No. 5 on reasonable factors which included use and benefit in order to preserve the water quality of Summit Lake in accordance with Chapter 36.61 RCW.

B. WDW's Second Objection:

Computation of Rates and Charges.

Equal consideration was given to both state-owned property and privately-owned property in computing the rates and charges for LMD No. 5. The Board followed the statutory requisite that the state is to bear its just and equitable proportion of the cost of the LMD benefiting state lands. RCW 79.44.020. The Board looked to the intensity of use of WDW's land relative to contribution to pollution, and the benefit that improved water quality would have to the general public which the WDW's property serves.

As a general rule, rates established by a municipality "are presumptively reasonable." Faxe v. Grandview, 48 Wn.2d 342, 352, 294 P.2d 402 (1956). WDW, as the party challenging the rates, has the burden of proving that the rates adopted by the Board were unreasonable. Id.; Accord Lincoln Shiloh Associates v. Mukilteo Water District, 45 Wn.App. 123, 724 P.2d 1083 (1986). The burden of proof will not be met "when the

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regulation is reasonably consistent with the statute being implemented." Kaiser Aluminum v. Pollution Control Board, 33 Wn.App. 352, 354, 654 P.2d 723 (1982).

In developing the rates for LMD No. 5, the Board classified the property in the Summit Lake watershed into four categories: (1) developed residential, (2) undeveloped residential, (3) public access, and (4) timberlands. The rates for each property classification were based on the amount of contribution to pollution to Summit Lake and the benefit derived from improved water quality. Based on the intense use that the WDW's property is given for recreational purposes, and given the fact that power boat engine discharges oil and fuel directly into the water, the Board determined that fourteen percent was WDW's proportionate cost of the LMD. Affidavit of Tom Clingman, Appendix C. Moreover, in determining WDW's rates the Board considered the fact that sanitation facilities located on WDW's property were an additional source which impacted Summit Lake's water quality. Davis, Summit Lake: Water Quality Investigation, Thurston County Health Department, May, 1988, Appendix D.

The Board was not bound to charge all property classifications the same rate. According to the Supreme Court in Morse v. Wise, 37 Wn.2d 806, 226 P.2d 214 (1951), the establishment of classifications and the charging of different rates for the several classes is not unreasonable and does not violate the requirement of equality and uniformity. "Only a practical basis for the rates is required, not mathematical precision." Teter at 238. Therefore, the Board's adoption of

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the rates for WDW's property is consistent with the intent of Chapter 36.61 RCW and Chapter 79.44 RCW.

C. WDW's Third Objection:

Rates and Charges Exceed Benefit.

The WDW did not object under RCW 79.44.010 that the proposed rates and charges exceeded benefit received at the hearing prior to adoption of the rates and charges for LMD No. 5. RCW 36.61.150 states that the "decision of a county legislative authority upon any objection" regarding the assessments for a lake management district (whether by special assessment or by rates and charges) may be appealed. This statute allows an appeal to be made of a decision of the legislative authority on an objection which was brought prior to confirmation of the assessment roll. This issue was not brought before the Board. Since the WDW did not make a timely objection concerning RCW 79.44.010, the Board did not make a decision regarding this issue, and, therefore, WDW is foreclosed from appealing this issue.

However, if the Court deems that WDW may raise this issue on appeal, WDW's application of RCW 79.44.010 does not apply. Special benefit is not mandated when rates and charges is the chosen funding mechanism for a lake management district.

In creating LMD No. 5, the Board acted pursuant to Chapter 36.61 RCW which authorizes a County to create lake management districts for "the general public's benefit, health, and welfare." RCW 36.61.010. Several methods of funding lake management districts are provided under this statute: (1) creation of a local improvement district and imposition of

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special assessments (RCW 36.61.020), (2) issuance of lake management district bonds (RCW 36.61.260), and (3) imposition of rates and charges (RCW 36.61.270). The Board did not create a local improvement district and impose special assessments nor did the Board issue lake management district bonds. See Teter, 104 Wn.2d 227. Rather, the Board selected rates and charges as the method of funding LMD No. 5.

"Benefit" as used in RCW 79.44.010 and RCW 36.61.270 should not be confused with "special benefit" as used in special assessments. Special assessments are used to construct local improvements that are appurtenant to specific property and bring a benefit to that property substantially more intense than is conferred on other property. Bellevue Assocs. v. Bellevue, 108 Wn.2d 671, 674-75, 741 P.2d 993 (1987). The measure of the special benefits to property as a result of a local improvement is the difference in the fair market value of the property before and immediately after the improvement. Doolittle v. City of Everett, 114 Wn.2d 88, ____ P.2d ____ (1990). If the Board had proceeded under the special assessment portion of Chapter 36.61 RCW, then the assessment to the WDW property would be based on the special benefit, as defined above, accruing to their property. However, since the Board proceeded under the rates and charges portion of this statute, the restriction of special benefit does not apply as the term "rates and charges" refers "to a system of financing a public improvement by a local government, acting pursuant to a grant of police power, by imposing charges unrelated to special

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benefit. See, e.g., Morse v. Wise, 37 Wn.2d at 810-11." AGO 18 (1989).

The appellants in the Morse case objected to payment of rates and charges for sewer service which "would be of no conceivable benefit to them." 37 Wn.2d at 810. In Morse, the court upheld the imposition of rates and charges as part of the city's police power, and held that the concept of special benefit did not apply. Id. at 810-811.

Likewise, in the Teter case, the appellants property was included in the rates and charges for operation of a storm and surface water department. The appellants argued that they did not specially benefit from the services of the new water department. Id. at 229. The court agreed with the appellants in that a special assessment could only be charged against property specially benefited by the project. Id. at 230. However, the court held that the charges imposed were not special assessments but were rates and charges. Id. The court reasoned that the county acted under their police power granted by the legislature for the health, safety, and welfare of the residents "even though appellants do not receive any specific 'service'". Id. at 234. Similarly, in our case, the Board acted under their police power which was granted to them under Chapter 36.61 RCW for the health and welfare of the general public. The general public, which WDW serves, is benefitted by the improvement to Summit Lake's water quality even though WDW may not directly receive a benefit. Therefore, the concept of special benefits is not relevant to this case as rates and charges are not special assessments requiring special benefits.

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IV. CONCLUSION

Based on the foregoing, the Respondent respectfully requests that the Court confirm the roll of rates and charges for LMD No. 5 as they affect the Appellant's property; that pursuant to RCW 36.61.150 the Appellant pay all costs incurred by Respondents because of the appeal; and that Appellant pay interest in accordance with Resolution No. 9384 adopted by the Board on January 8, 1990, which prescribes interest and penalties for late payments of rates and charges for LMD No. 5.

DATED this 5th day of September, 1990.

PATRICK D. SUTHERLAND
PROSECUTING ATTORNEY

By: Catherine B. Galvin
Catherine B. Galvin
Deputy Prosecuting Attorney
#15476

(WORK\PLD\WILDLIFE)(CBG/llo)

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AGENDA ITEM SUMMARY

Title: Approve Resolution of Intent for Summit Lake LMD

Agenda Item Number:

Submitted by: D. Durig/T. Clingman

Dept. of Origin: Public Works

Type of Action Needed:

Date Submitted: 4/12/89

Execute Contract

For Agenda of: 4/17/89

Pass Resolution X — APPROVED 4.17.89 Res. of Intent #9162

Class of Item:

Pass Ordinance — Consent

Pass Motion — Timed 9:45 a.m.

Other — DATE — Department

Expenditure Required: -0-

List of Exhibits: Staff report #89-095, resolution, petitions, notice to property owners, legal

Amount Budgeted: -0-

Clearance of other concerned Dept: Prosecuting Attorney

Appropriation Required: -0-

Approved for Agenda:

DISCUSSION: 110 petition signatures have been submitted in support of initiating a Lake Management District for Summit Lake. The petition effort was sponsored by the Summit Lake Community Club. The petitions represent 17% of the 631 properties within the proposed District.

The LMD funds would support a number of non-point pollution control activities. The initial activities, to be funded in part by a grant from the Centennial Clean Water Fund, are:

- Septic system survey and enforcement;
- Boater and homeowner education on preventing pollution; and
- A future action plan to reduce pollution from other sources.

The second two years of the three-year LMD would support continued action on the program initiated through the 1989-1990 grant project. If the LMD is formed, the petition requests that an LMD Steering Committee appointed by the Board to make recommendations on work program and budget issues.

The District is proposed for three years. All properties in the Summit Lake watershed would be included, with residential properties paying $35/year, timberlands paying $5/acre per year, and the Department of Wildlife paying $3,500. Details of the rate proposal are included in the staff memorandum.

Staff proposes that the Board use its authority under RCW 36.61 to initiate the LMD process, as has been done for the other LMD proposals. The petitions indicate a substantial degree of property owner interest in the proposed LMD.

RECOMMENDATION:

1. Set a date for the initial public hearing on proposed Lake Management District #5. Hearing date must allow 30 days notice to the Department of Wildlife regarding their proposed charges. (As an alternative, the Board could set a work session on the LMD proposal prior to setting the hearing.)
2. Adopt the Resolution of Intention for the proposed Lake Management District #5.

MEMORANDUM
STAFF REPORT NO.89-095
AGENDA DATE: APRIL 17, 1989

TO: Thurston County Commissioners
FROM: Public Works Department
SUBJECT: Resolution of intent for Summit Lake LMD

DISCUSSION:

Property owner support for initiating LMD
Petitions signed by owners of approximately 110 properties have been submitted in support of initiating a Lake Management District for Summit Lake. The petition was drafted by the Community Club's Water Committee, in conjunction with Public Works staff and Sue Davis from Environmental Health, and circulated to all property owners by the Summit Lake Community Club. The petitions represent 17% of the 631 properties within the proposed District. The proposed LMD and non-point pollution control options have also been the subject of several community meetings at Summit Lake and the Courthouse.

Purpose of LMD
The purpose of the LMD would be to protect Summit Lake from pollution which could harm drinking water, swimming, fishery and other uses. The LMD funds would support a number of non-point pollution control activities identified by the 1988 Summit Lake study and the community. The initial activities, to be funded in part by a grant from the Centennial Clean Water Fund, are:
- Survey of all septic systems and water supplies around the lake;
- Enforcement action to initiate replacement of failing septic systems identified in the survey;
- Boater and homeowner education on preventing pollution;
- Develop an action plan to reduce pollution from other sources identified by the community; and
- Lake water quality monitoring.

Staff has initiated negotiations with the Department of Ecology on the Summit Lake grant. A draft agreement will be forwarded for Board comment at the end of May, with final Board and DOE approval anticipated by the end of July. The sanitary survey and other activities would be initiated this summer.

The second two years of the three-year LMD would support continued action on the program initiated through the 1989-1990 grant project. If the LMD is formed, the petition requests that an LMD Steering Committee be appointed by the Board to make recommendations on work program and budget issues.

Boundary
Because all properties in the watershed are potential sources of pollution, the proposed District boundaries are the watershed for Summit Lake (see map attached to sample petition.) The watershed for Summit Lake is relatively compact, with only 1,377 acres in the watershed for the 529 acre lake.

Charges

Proposed charges to property in the Lake Management District (LMD) are based on both potential contribution to pollution and benefit to property from protecting lake water quality. The proposed rate structure recommended by staff is slightly modified from the petition proposal on advice of the Prosecuting Attorney's Office: On their advice, "residential" lots are divided between developed and vacant lots and charged based on relative benefit (i.e.. $35/year for developed lots and $20/year for vacant platted lots.) The rate rationale is summarized as follows:

1. Contribution to pollution: Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management; and boater-associated pollution including oil and gas, garbage and other wastes.

2. Benefit from program: The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. The Department of Wildlife and those using the public access will benefit from the activities of the District through protecting water quality and reducing potential health conflicts.

3. The categories of property and proposed LMD charges are as follows:

a.) Developed Residential: $35/dwelling unit included associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The approximate total amount and percentage of total charges paid by each property category is:

Category	Annual charge	Sub-Total	% of total
Developed Residential	$35/dwelling unit	$12,950	51% of total
Undeveloped Residential	$20/legal lot	5,180	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$5/acre ($100 - $2,255 per ownership)	3,955	15% of total
ESTIMATED TOTAL		25,585	

The proposed charges per parcel and the total contributions by category bear a reasonable relationship to the contribution to problem and/or benefit from the various properties as described above. The hearings provided by RCW 36.61 will provide an opportunity to refine the proposed rates prior to final Board approval.

Definition of "legal lot"

Many Summit Lake property owners have more than on Assessor's parcel. The platted shoreline lots are generally have 45-50 feet of lake frontage. In many cases, these contiguous ownerships of more than one lot cannot be sold or developed separately due to Shoreline Master Program regulations. These regulations require that contiguous platted lots predating the Shoreline Program which are in the same ownership must be kept in one ownership unless both new lots would have at least 100 feet of shoreline frontage. Staff recommends that the following definition of "legal lot" be used for the proposed LMD roll of rates and charges: "Legal lot is defined as lots of legal size and dimension under applicable land use law." Staff has analyzed ownerships around the lake and prepared a property roll for the LMD based on "legal lots": The roll may be refined and corrected at the various hearings during the LMD process.

Recommendation:

Staff recommends that the Board initiate the formation process for Thurston County Lake Management District #5 for Summit Lake. Staff proposes that the Board use its authority under RCW 36.61 to initiate the LMD process, as has been done for the other LMDs. The petitions would serve to document property owner interest in the proposal: Using the Board authority to initiate the LMD precludes the need for County staff to verify each petition submitted.

The following actions are recommended:

1. Set a date for the initial public hearing on proposed Lake Management District #5. The hearing date must allow at least 30 days notice of the Department of Wildlife regarding their proposed charges. All property owners within the proposed District will receive mailed notice of the hearing.
2. Adopt the Resolution of Intention for proposed Thurston County Lake Management District #5.

Daniel F. Durig

Daniel F. Durig, Director
Department of Public Works

TO: All Summit Lake Property Owners
SUBJECT: Public Hearing on Proposed New Lake Management District
DATE OF HEARING:
PLACE OF HEARING:

NOTICE IS HEREBY GIVEN that the Board of Thurston County Commissioners will hold a public hearing on
at
to consider the formation of Lake Management District #5 for Summit Lake in Thurston County, Washington as proposed in Resolution _____. Those wishing to testify should appear and be heard. If unable to attend, written comments should be sent to the Clerk of the Board of Thurston County Commissioners, 2000 Lakeridge Drive S.W., Room 269, Olympia, Washington 98502, and should be received no later than 5:00 p.m., _____, 1989. Questions may be directed to Tom Clingman, Program Manager, at 786-5485.

PURPOSE OF HEARING

The purpose of the hearing is to receive testimony on whether Lake Management District #5 (LMD #5) should be established and to consider the activities to be funded with the LMD revenues. The County Commissioners set this public hearing after receiving a petition from Summit Lake property owners requesting that the County initiate the LMD formation process. The LMD process also includes a mail-in ballot of all property owners. It is anticipated that a ballot will be mailed in June, along with detailed voting instructions.

PROPOSED PLAN FOR LMD #5

Comments are solicited on the following proposed plan for LMD #5 as contained in Resolution _____:

1. The purpose of the proposed Lake Management District is to protect community drinking water supply, recreation, aesthetic values and fisheries by protecting Summit Lake water quality. Specific activities to be funded are:

a.) Survey on-site septic systems and enforce septic regulations;
b.) Develop a non-point pollution action plan for Summit Lake;
c.) Initiate implementation of the action plan; and
d.) Lake water quality monitoring.

2. The proposed boundary is the watershed of Summit Lake as depicted on the map signed by the County Commissioners on _____ and maintained in custody of the Thurston County Public Works Department.

3. The District is proposed for a duration of three years.

4. The proposed formula for annual rates and charges to property is:

a.) Developed Residential: $35/dwelling unit included associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined

as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

5. Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

Explanation of Proposed Charges

Proposed charges to property in the Lake Management District (LMD) are based on both potential contribution to pollution and benefit to property from protecting lake water quality as follows:

1. Contribution to pollution: Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to proximity to the lake, steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management; and boater-associated pollution including oil and gas, garbage and other wastes.

2. Benefit from program: The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. Contact recreation sports (available to all - shoreline residents and upland residents) also will benefit from protecting Summit Lake water quality.

The approximate total amount and percentage of total charges paid by each property category is:

Category	Annual charge	Sub-Total	% of total
Developed Residential	$35/dwelling unit	$12,950	51% of total
Undeveloped Residential	$20/legal lot	5,180	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$5/acre ($100 - $2,255 per ownership)	3,955	15% of total
ESTIMATED TOTAL		25,585	

<owner name>
<owner address>
<owner city> <owner state>

STATEMENT OF PROPOSED CHARGES TO PROPERTY
FOR PROPOSED THURSTON COUNTY LAKE MANAGEMENT DISTRICT #5
(SUMMIT LAKE)

Records of the Thurston County Assessor indicate that you are the owner of the following parcel(s) within the proposed Lake Management District #5. Proposed annual charges for the parcel(s) are as follows:

LMD Lot Number	Assessor Parcel Number(s)	Class of Property	Proposed Annual Charge
<parcel number>	<class>	<class>	<assessment$>

Note: The definition of "parcel" used for the proposed LMD is based on "legal lots" according to land use regulations rather than the original platted lot lines or the Assessor's parcels. If you have questions, please call Tom Clingman at 786-5485.

THUCOU0010000202004063010000222207

PETITION TO THE THURSTON COUNTY COMMISSIONERS
TO FORM A LAKE MANAGEMENT DISTRICT
FOR SUMMIT LAKE

We, the undersigned Summit Lake property owners, request that the Thurston County Commissioners initiate the process for forming a Lake Management District (LMD) for Summit Lake. The LMD funds (along with State grant funds) would finance projects for protecting Summit Lake from non-point pollution.

(NOTE: Signing the petition does not affect a property owner's right to vote for or against the proposed Lake Management District. If the LMD process is initiated, each property owner will be sent a mail-in ballot to vote for or against the proposal.)

1. Purpose of the Lake Management District:
The purpose of the proposed Lake Management District is to protect our community drinking water supply, recreation, aesthetic values and fisheries by protecting Summit Lake water quality. Specific activities to be funded are:
a.) Survey on-site septic systems and enforce septic regulations;
b.) Develop a non-point pollution action plan for Summit Lake;
c.) Initiate implementation of the action plan; and
d.) Lake water quality monitoring.

2. Boundary:
The proposed boundary of the District is the watershed of Summit Lake.

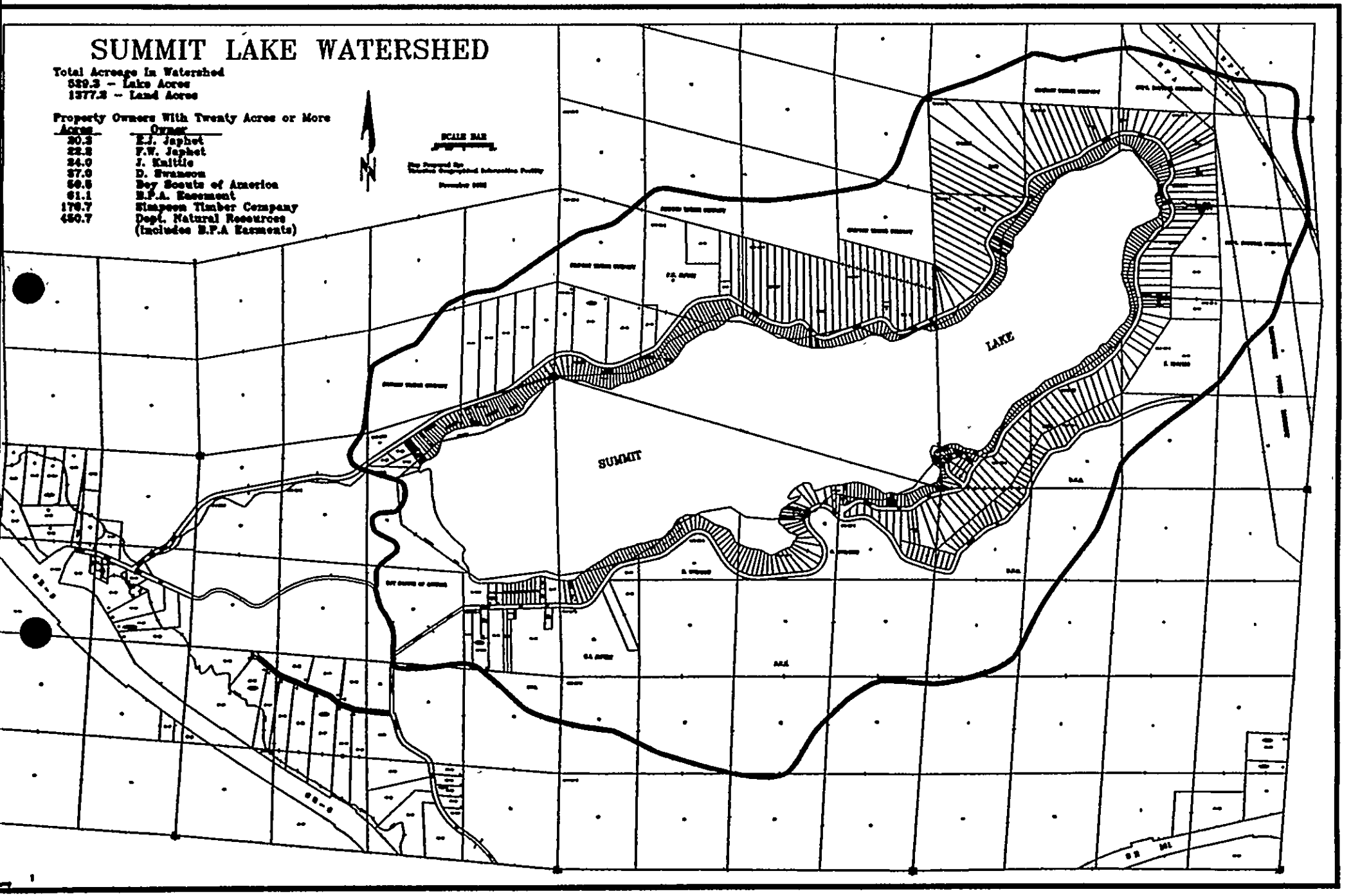
3. Duration:
The District is proposed for three years.

4. Charges to property:
Proposed formula for annual rates and charges to property is:
a.) Residential: $35/parcel per year.
b.) Public Access: $3500/parcel per year.
c.) Timberland (parcels over 20 acres): $5/acre per year.

Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

5. Summit Lake LMD Steering Committee:
If the LMD is formed, we request that the County Commissioners establish a non-paid Steering Committee of watershed property owners to assist in establishing budgets and work plans for the use of LMD revenues.

Signature of property owner Address Lot number



RESOLUTION # 9162

RESOLUTION OF INTENTION FOR THURSTON COUNTY
LAKE MANAGEMENT DISTRICT #5

The Board of Thurston County Commissioners makes the following findings of fact:

1. There is indication of significant support from Summit Lake property owners for considering formation a Lake Management District, including submittal of 110 petition signatures; and

2. Forming a new LMD to continue protection of Summit Lake water quality and beneficial uses will serve the interests of the public and property owners; and

3. The proposed charges per parcel and the total contributions by category bear a reasonable relationship to the contribution to problem and/or benefit to property from protecting lake water quality as follows:

a.) Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

b.) Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

c.) Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management; and boater-associated pollution including oil and gas, garbage and other wastes.

d.) The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. The Department of Wildlife and those using the public access will benefit from the activities of the District through protecting water quality and reducing potential health conflicts.

e.) The charges per property and percentage of total charges paid by each property category bears a reasonable relationship to the above-described contribution to problem and benefit as follows:

Category	Annual charge	Est. Subtotal	% of total
Developed Residential	$35/dwelling unit	$12,950	51% of total
Undeveloped Residential	$20/legal lot	5,180	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$5/acre ($100 - $2,255 per ownership)	3,955	15% of total

4. The LMD formation process provides ample opportunities for property owners, resource agencies and the County to consider the matter of whether to form an LMD and consider appropriate purposes, rate and charges formula, boundary and other details;

NOW THEREFORE BE IT RESOLVED AS FOLLOWS:

1. Pursuant to RCW 36.61.030, the Board of Thurston County Commissioners hereby designates Proposed Thurston County Lake Management District #5 for Summit Lake.

2. The purpose of the proposed Lake Management District is to protect community drinking water supply, recreation, aesthetic values and fisheries by protecting Summit Lake water quality. Specific activities to be funded are:
a.) Survey on-site septic systems and enforce septic regulations;
b.) Develop a non-point pollution action plan for Summit Lake;
c.) Initiate implementation of the action plan; and
d.) Lake water quality monitoring.

3. The proposed boundary is the watershed of Summit Lake as depicted on the map signed by the County Commissioners on 4.17.89 and maintained in custody of the Thurston County Public Works Department.

4. The District is proposed for a duration of three years.

5. The proposed formula for annual rates and charges to property is:
a.) Developed Residential: $35/dwelling unit including associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as lots of legal size and dimension under applicable land use law. The term "dwelling unit" is defined per Thurston County Code Section 20.03 040(43).

6. Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

NOTICE IS HEREBY GIVEN that the Board of Thurston County Commissioners will hold a public hearing on at in to consider formation of Lake Management District #5 in Thurston County, Washington.

ADOPTED April 17, 1989

ATTEST:

Sandra Stegall
Clerk of the Board

BOARD OF COUNTY COMMISSIONERS

Les Eldridge
Les Eldridge, Chairman

George L. Barner Jr.
George L. Barner, Jr., Commissioner

Diane Oberquell
Diane Oberquell, Commissioner

Approved as to form:
Patrick D. Sutherland

By: Thomas A Bjorgen
Deputy Prosecuting Attorney
sum2:resap17

THUCOU0010000202004063010000222212

NOTICE OF HEARING BY THE THURSTON COUNTY COMMISSIONERS
ON PROPOSED LAKE MANAGEMENT DISTRICT #5

Richard A. Davis, Director
Office of Financial Management
300 Insurance Building, AQ-44
Olympia, 98504-0201

COPY

PURSUANT TO RCW 79.44, NOTICE IS HEREBY GIVEN that the Board of Thurston County Commissioners will hold a public hearing on May 30, 1989 at 7:00 PM at McLane School Cafeteria, 200 Delphi Rd SW, Olympia, WA 98502 to consider the formation of Lake Management District #5 for Summit Lake in Thurston County, Washington as proposed in Resolution 9162. Statements of proposed charges on property owned by the State of Washington within the proposed District are attached.

Those wishing to testify should appear and be heard. If unable to attend, written comments should be sent to the Clerk of the Board of Thurston County Commissioners, 2000 Lakeridge Drive S.W., Room 269, Olympia, Washington 98502, and should be received no later than 5:00 p.m., May 30, 1989. Questions may be directed to Tom Clingman, Program Manager, at 786-5485.

PURPOSE OF HEARING

The purpose of the hearing is to receive testimony on whether Lake Management District #5 (LMD #5) should be established and to consider the activities to be funded with the LMD revenues. The County Commissioners set this public hearing after receiving a petition from Summit Lake property owners requesting that the County initiate the LMD formation process. The LMD process also includes a mail-in ballot of all property owners. It is anticipated that a ballot will be mailed in June, along with detailed voting instructions.

PROPOSED PLAN FOR LMD #5

Comments are solicited on the following proposed plan for LMD #5 as contained in Resolution 9162:

1. The purpose of the proposed Lake Management District is to protect community drinking water supply, recreation, aesthetic values and fisheries by protecting Summit Lake water quality. Specific activities to be funded are:

a.) Survey on-site septic systems and enforce septic regulations;
b.) Develop a non-point pollution action plan for Summit Lake;
c.) Initiate implementation of the action plan; and
d.) Lake water quality monitoring.

2. The proposed boundary is the watershed of Summit Lake as depicted on the map signed by the County Commissioners on April 17 and maintained in custody of the Thurston County Public Works Department.

3. The District is proposed for a duration of three years.

4. The proposed formula for annual rates and charges to property is:

a.) Developed Residential: $35/dwelling unit included associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined

es lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

5. Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

Explanation of Proposed Charges

Proposed charges to property in the Lake Management District (LMD) are based on both potential contribution to pollution and benefit to property from protecting lake water quality as follows:

1. Contribution to pollution: Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to proximity to the lake, steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management; and boater-associated pollution including oil and gas, garbage and other wastes.

2. Benefit from program: The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. Contact recreation sports (available to all - shoreline residents and upland residents) also will benefit from protecting Summit Lake water quality.

The approximate total amount and percentage of total charges paid by each property category is:

Category	Annual charge	Sub-Total	% of total
Developed Residential	$35/dwelling unit	$12,950	51% of total
Undeveloped Residential	$20/legal lot	5,180	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$5/acre ($100 - $2,255 per ownership)	3,955	15% of total
ESTIMATED TOTAL		25,585	

(Attached: Notice of proposed charges)

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address, and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

OLYMPIA WA 985 A1 FM 21 APR 1989

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

RECEIVED APR 24 1989 THURSTON COUNTY PUBLIC WORKS

Print Sender's name, address, and ZIP Code in the space below.

Tom Clingman
Thurston County Dept. Public Works
2000 Lakeridge Dr.
Olympia, WA 98502-6045

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery For additional fees the following services are available Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address †(Extra charge)† 2 ☐ Restricted Delivery †(Extra charge)†

3 Article Addressed to:
Curt Smitch, Director
Department of Wildlife

4. Article Number
P 913 863 016

Type of Service
☒ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
4-21-89

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar 1987 ★ U S G.P.O. 1987-178-268 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. †(Extra charge)† 2. ☐ Restricted Delivery †(Extra charge)†

3. Article Addressed to:
Ricahrd Davis
Director, Office of Financial Management

4. Article Number
P 913 863 015

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X STATE MAIL SVC

7. Date of Delivery
APR 21 1989

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1987 ★ U.S.G.P.O. 1987-178-268 DOMESTIC RETURN RECEIPT

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4
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1. ☐ Show to whom delivered, date, and addressee's address. 2 ☐ Restricted Delivery †(Extra charge)†

3. Article Addressed to:
Gene Nielsen
Dept. Natural Resources

4. Article Number
P 913 863 014

Type of Service:
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery
4-21-89

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Mar. 1987 ★ U.S.G.P.O. 1987-178-268 DOMESTIC RETURN RECEIPT

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SENDER: Complete items 1 and 2 when additional services are desired, and complete items and 4
Put your address in the "RETURN TO" Space on the reverse side Failure to do this will prevent th card from being returned to you The return receipt fee will provide you the name of the perso delivered to and the date of delivery For additional fees the following services are available Consu postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address †(Extra charge)† 2. ☐ Restricted Delivery †(Extra charge)†

3. Article Addressed to:
Brian Boyle, Commissioner

4. Article Number
P 913 863 013

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee

6: Signature — Agent STATE MAIL SVC
X

7. Date of Delivery
APR 21 1989

8 Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Mar. 1987 ★ U.S G P.O. 1987-178-268 DOMESTIC RETURN RECEI

UNITED STATES POSTAL SERVICE
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OLYMPIA WA 985 PM 21 APR 1989

U.S.MAIL

PENALTY FOR PRIVATE USE, $300

RETURN TO

RECEIVED APR 24 1989 THURSTON COUNTY PUBLIC WORKS

Print Sender's name, address, and ZIP Code in the space below.
Tom Clingman, Thurston County
Department of Public Works
~~2000 Lakeridge Dr.~~
Olympia, WA 98502-6045

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Dept. Public Works
2000 Lakeridge Dr., Olympia WA

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OLYMPIA WA 985 PM 21 APR 1989

U.S.MAIL

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RETURN TO

RECEIVED APR 24 1989 THURSTON COUNTY PUBLIC WORKS

Print Sender's name, address, and ZIP Code in the space below.
Tom Clingman
Thurston County Dept. Public Works
2000 Lakeridge Dr.
Olympia, WA 98502-6045

THUCOU001000020200406301000022216

THURSTON COUNTY
WASHINGTON
SINCE 1852

George L. Barner, Jr.
District One
Diane Oberquell
District Two
Les Eldridge
District Three

BOARD OF COUNTY COMMISSIONERS

TO: The Olympian
The Tenino Independent
The Nisqually Valley News
The Daily Chronicle
The Seattle Daily Journal of Commerce

Enclosed, please find legal advertising from the Board of Thurston County Commissioners' meeting, which was held on 4-17-89.

Please publish this legal advertising in your publication on the following dates: May 3rd and May 10th.

Please send the affidavit of publication and invoice to:

Sandra Steffler,
Clerk of the Board
Thurston County Commissioners
Building #1, Room #269
2000 Lakeridge Drive S.W.
Olympia, WA 98502

Please list on the affidavit and invoice the number of times published, the dates of publication, and the number of words/lines.

Your attention is appreciated. Thank you.

Sincerely,

THURSTON COUNTY COMMISSIONERS

Sandra

SANDRA STEFFLER,
Clerk of the Board

FORMS:046

Building #1, Room 269, 2000 Lakeridge Drive SW, Olympia, Washington 98502-6045 (206) 786-5440

NOTICE OF PUBLIC HEARING ON THE PROPOSED THURSTON COUNTY LAKE MANAGEMENT DISTRICT #5

Pursuant to RCW 36.61, notice is hearby given that the Board of Thurston County Commissioners will hold a public hearing on May 30, 1989 at 7:00 PM to consider the formation of Lake Management District #5 for Summit Lake in Thurston County, Washington. The hearing will be held at McLane School cafeteria, 200 Delphi Rd. SW, Olympia, WA 98502.

The purpose of the hearing is to receive testimony on whether Lake Management District #5 should be established and to consider the following proposed plan as contained in Resolution 9162:

1. The purpose of the proposed Lake Management District is to protect community drinking water supply, recreation, aesthetic values and fisheries by protecting Summit Lake water quality. Specific activities to be funded are:
a.) Survey on-site septic systems and enforce septic regulations;
b.) Develop a non-point pollution action plan for Summit Lake;
c.) Initiate implementation of the action plan; and
d.) Lake water quality monitoring.

2. The proposed boundary is the watershed of Summit Lake as depicted on the map signed by the County Commissioners on April 17 and maintained in custody of the Thurston County Public Works Department.

3. The District is proposed for a duration of three years.

4. The proposed formula for annual rates and charges to property is:
a.) Developed Residential: $35/dwelling unit included associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

5. Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

Those wishing to testify on proposed Lake Management District #5 should appear and be heard. If unable to attend, written comments should be sent to the Clerk of the Board of Thurston County Commissioners, 2000 Lakeridge Drive S.W., Room 269, Olympia, Washington 98502, and should be received no later than 5:00 p.m., May 30, 1989. Questions may be directed to Tom Clingman, Program Manager, at 786-5485.

Sandra C. Steffler, Clerk of the Board

CURT SMITCH
Director

STATE OF WASHINGTON
DEPARTMENT OF WILDLIFE
905 E. Heron, Aberdeen, WA 98520 Tel (206) 533-9335

May 22, 1989

Clerk of the Board
of Thurston County Commissioners
2000 Lakeridge Drive S.W., Room 269
Olympia, WA 98502

SUBJECT: Proposed Lake Management District #5 (Summit Lake)

Dear Mrs. Steffler:

The Washington Department of Wildlife approves of the intent and purpose of the proposed Lake Management District #5 for Summit Lake. Water quality has a direct impact on the state's fish and wildlife resource.

The department does, however, object to the proposed assessment of Assessor's Parcel Number 14813140100, the public access.

The proposed assessment rate, 100 times greater than that of the neighboring lots, is viewed by the department as a hostile action aimed at either closing the access, or taking undue advantage of the legislation allowing this assessment.

The public access area is no more than a link between Thurston County's public roads and the public waters of Summit Lake. Indeed, many of the public access areas maintained by the Department of Wildlife are portions of county roads which by statute cannot be vacated. Equal treatment would appear to require assessment of the county right-of-way, within the proposed district, at the same rate as the public access, or alternately, assess the public access at the same rate as the adjoining lots.

If state funding is deemed necessary for the proposed district, there are more appropriate methods of acquiring it. The $42,150 grant from the Centennial Clean Water Fund that the district is expecting, is but one example. The department has previously offered to assist the county in securing such grants, thereby placing the financial burden on the proper budget areas.

The department urges the Thurston County Commission to consider the public benefit the boat ramp is providing to Thurston County residents, including many property owners on Summit Lake. The proposed assessment will place yet another burden on an already underfunded program.

Therefore, the Department of Wildlife respectfully requests the Thurston County Commission to exempt the public access from this proposed assessment, or reduce it to a rate comparable to that of adjoining lots.

Sincerely,

Jim DeShazo

Jim DeShazo
Regional Manager

JD:km

c: Les Eldridge, Chairman
George L. Barner, Jr.
Diane Oberquell
Bruce Crawford
Bob Dice

RESOLUTION 9217

A RESOLUTION submitting establishment of Thurston County Lake Management District 5 for Summit Lake to a vote of property owners.

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY, STATE OF WASHINGTON, as follows:

1. The Board finds that:
   a. Creating a Lake Management District for Summit Lake would be in the public interest;
   b. The proposed financing of lake management activities proposed in this resolution is feasible; and
   c. The management plan proposed in this resolution takes appropriate measures to protect and enhance fish and wildlife.
2. The Board submits the question of whether to form Thurston County Lake Management District No. 5 for Summit Lake to a vote of property owners within the proposed District, ballots for said question to be returned to the Office of the County Commissioners no later than 5:00 P.M. July 26, 1989.
3. The purpose of the proposed Lake Management District is to protect community drinking water supply, recreation, aesthetic values and fish and wildlife by protecting Summit Lake water quality. Specific activities to be funded are:
   a. Survey on-site septic systems and enforce septic regulations;
   b. Develop a non-point pollution action plan for Summit lake;
   c. Initiate implementation of the action plan: and
   d. Lake water quality monitoring.
4. Fish and wildlife will be protected and enhanced through protecting lake water quality. Comments of resource agencies will be solicited and considered when establishing the annual work plan to ensure protection of fish and wildlife.
5. Proposed duration of the District is three years.
6. Revenue for the Lake Management District shall be provided through annual rates and charges on property. The proposed formula for annual rates and charges to property is:

a.) Developed Residential: $35/dwelling unit including associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres): $20/legal lot
c.) Public Access: $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over): $5/acre.

The term "legal lot" is defined as follows: "Legal lot is defined as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43). Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three year proposed LMD. Revenue bonds payable from rates and charges will not be issued.

7. The proposed boundary is the watershed of Summit Lake as depicted on the map entitled "Summit Lake Watershed" adopted this day by the County Commissioners and maintained in custody of the Thurston County Public Works Department.

ADOPTED July 3, 1989

BOARD OF COUNTY COMMISSIONERS

ATTEST:

Sandra Stebbins
Clerk of the Board

Les Eldridge
Les Eldridge, Chairman

George L. Barner Jr.
George L. Barner, Jr., Commissioner

Approved as to form:
Patrick D. Sutherland

By: Thomas R. Bjorgen
Deputy Prosecuting Attorney

Diane Oberquell
Diane Oberquell, Commissioner

THURSTON COUNTY
WASHINGTON
SINCE 1852

George L Barner, Jr
District One
Diane Oberquell
District Two
Les Eldridge
District Three

BOARD OF COUNTY COMMISSIONERS

July 3, 1989

Dear Summit Lake Property Owner:

SUBJECT: Vote on forming Lake Management District

Enclosed you will find a ballot concerning the creation of a Lake Management District (LMD) for Summit Lake. The LMD proposal was initiated by a petition of property owners and was the subject of a public hearing at McLane School on May 30. If the LMD is approved, funds for protecting Summit Lake will also be provided by a $42,000 grant from the Department of Ecology.

The property owner vote is the decisive point in the LMD process. We urge all property owners to mark and sign your ballots and return them in the enclosed envelope. State law stipulates that each property owner receives one vote per dollar of proposed LMD charges. Your proposed annual assessment and your total votes are shown on the enclosed ballot.

If a majority of the returned votes are in favor of forming the LMD, the LMD will be created and the Board will hold an additional hearing to consider objections and corrections to the roll of rates and charges. Each property owner will receive notice of this future hearing if the District is formed.

If you have any questions on the voting process or any other aspect of the LMD proposal, please feel free to contact Tom Clingman, Public Works Department staff, at 786-5485 or 1-800-624-1234 ext. 5485.

Remember to return your ballot by Wednesday, July 26. Thank you for your attention to this proposal.

Sincerely,
BOARD OF COUNTY COMMISSIONERS

Les Eldridge
Les Eldridge
Chairman

George L. Barner Jr.
George L. Barner, Jr.
Commissioner

Diane Oberquell
Diane Oberquell
Commissioner

Building #1, Room 269, 2000 Lakeridge Drive SW, Olympia, Washington 98502-6045 (206) 786-5440

ORDINANCE NO. 9259

AN ORDINANCE creating a Lake Management District for Summit Lake, to be designated Thurston County Lake Management District Five.

WHEREAS, Chapter 36.61 RCW authorizes the Board of Thurston County Commissioners to initiate the creation of lake management districts;

WHEREAS, the Board of Thurston County Commissioners found creation of a lake management district for Summit Lake to be in the public interest through adoption of Resolution 7217; and

WHEREAS, the proposal to create the district received a majority of the votes cast by property owners within the proposed district pursuant to RCW 36.61.080, .090 and .100.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS FOR THURSTON COUNTY AS FOLLOWS:

Thurston County Lake Management District Five (Summit Lake), as proposed in Resolution 7217 adopted on July 3, 1989, is hereby created.

ADOPTED August 28, 1989

ATTEST:

Sandra Stepp
Clerk of the Board

Approved as to form:
Patrick D. Sutherland

By: Thomas R. Bjorgen
Deputy Prosecuting Attorney

BOARD OF COUNTY COMMISSIONERS

Les Eldridge
Les Eldridge, Chairman

George L. Barner Jr.
George L. Barner, Jr., Commissioner

Diane Oberquell
Diane Oberquell, Commissioner

sumlmd:ordobj

RESOLUTION NO. 320

A RESOLUTION setting the date for hearing objections to the proposed roll of rates and charges for Lake Management District Five (Summit Lake).

WHEREAS, an ordinance creating Thurston County Lake Management District Five has been adopted; and

WHEREAS, a public hearing is required by RCW 36.61.120 and RCW 36.61.270 to consider objections to the proposed roll of rates and charges.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY AS FOLLOWS:

1. The Board of Thurston County Commissioners shall hold a public hearing to hear objections to the proposed roll of rates and charges for Thurston County Lake Management District Five on October 5, 1989 at 7:00pm in Summit Lake Community Hall 11545 Summit Lake Rd. NW, Olympia 98502.

2. The proposed roll of rates and charges is available for public perusal at the Thurston County Public Works Department, Building One, Thurston County Courthouse, from Monday to Friday from 8:00 A.M. to 5:00 P.M. each week until the hearing.

3. Objections to the proposed rates and charges must be in writing, including clear grounds for objections, and must be filed with the Board of County Commissioners prior to the public hearing.

4. As provided in RCW 36.61.120, failure to so object shall be deemed to waive an objection.

5. The Director of the Thurston County Public Works Department shall give notice of this public hearing as required by Chapter 36.61 RCW.

ADOPTED August 28, 1989

ATTEST:

Sandra Stedler
Clerk of the Board

Approved as to form:
Patrick D. Sutherland

By: Thomas R. Bjorgen
Deputy Prosecuting Attorney
sumlmd:resobj

BOARD OF COUNTY COMMISSIONERS

Les Eldridge
Les Eldridge, Chairman

George L. Barner Jr.
George L. Barner, Jr., Commissioner

Diane Oberquell
Diane Oberquell, Commissioner

THUCOUD01000602020040630100022224

THURSTON COUNTY
WASHINGTON
SINCE 1852

George L. Barner, Jr.
District One
Diane Oberquell
District Two
Les Eldridge
District Three

BOARD OF COUNTY COMMISSIONERS

THUCOU0010000202030630100000222 5

TO: The Olympian
The Tenino Independent
The Nisqually Valley News
The Daily Chronicle
The Seattle Daily Journal of Commerce

Enclosed, please find legal advertising from the Board of Thurston County Commissioners' meeting, which was held on 8-31-89.

Please publish this legal advertising in your publication on the following dates: September 6th & September 13th.

Please send the affidavit of publication and invoice to:

Sandra Steffler,
Clerk of the Board
Thurston County Commissioners
Building #1, Room #269
2000 Lakeridge Drive S.W.
Olympia, WA 98502

Please list on the affidavit and invoice the number of times published, the dates of publication, and the number of words/lines.

Your attention is appreciated. Thank you.

Sincerely,

THURSTON COUNTY COMMISSIONERS

Sandra

SANDRA STEFFLER,
Clerk of the Board

FORMS:046

(Notice for publication)

NOTICE OF PUBLIC HEARING
REGARDING PROPOSED CHARGES FOR LAKE MANAGEMENT DISTRICT 5

Hearing on objections to proposed rates and charges: The Board of Thurston County Commissioners will hold a public hearing on 10·5·89 at 7:00 pm to consider objections to the proposed roll of rates and charges for Thurston County Lake Management District No. 5 and to consider approval of this roll. The hearing will be held in Summit Lake Community Hall. Property owners do not need to be present to object. → 11545 Summit Lake Road NW, Olympia 98502

Proposed formula for annual rates and charges to property:

a.) Developed Residential: $35/dwelling unit including associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

Total annual charges to property will not exceed $30,000, with a total maximum of $90,000 to be raised during the three years of the proposed District. Revenue bonds payable from the rates and charges are not proposed.

Assessment roll for LMD #5: The entire proposed roll of rates and charges is available for public perusal at the Thurston County Public Works Department, Building One, Thurston County Courthouse, from Monday to Friday from 8:00 a.m. to 5:00 p.m. each week until the hearing.

Written objections required: Objections to the proposed roll of rates and charges must be in writing, including clear grounds for objection, and must be filed with the Board of County Commissioners prior to the public hearing.

Failure to object: As provided in RCW 36.61.140, failure to so object shall be deemed to waive an objection.

Sandra Steffler

Sandra Steffler
Clerk of the Board

D #5

D-1

**INSTRUCTIONS AND SUGGESTED FORMAT
FOR OBJECTIONS TO SUMMIT LAKE LMD
PROPOSED ROLL OF RATES AND CHARGES**

1. **Date and time of hearing:** The County Commissioners will consider each objection beginning at 7:00 P.M. on October 5, 1989.

2. **Reasons for objections:** You must state in writing your specific reasons for objecting to the roll of rates and charges. You may request a change to your individual charge or file an objection to the LMD rate formula itself.

3. **Deadline for filing:** Objections may be filed up to the start of the hearing. Please try to file your objection by 5:00 P.M. on October 3, 1989 to allow time for preparing staff reports and scheduling each objection. **Address for filing objections prior to hearing:**

**Thurston County Commissioners
Building One
2000 Lakeridge Dr. SW
Olympia, WA 98502**

Objections may also be filed on October 5 at 7:00 PM at the Summit Lake Community Hall.

SUGGESTED FORMAT (Please use additional sheets if necessary)

1. Name Department of Wildlife

Address 600 Capitol Way, North

Olympia, WA 98504 Phone (during day) 753-5743

2. Parcel number (from legal notice) 14813140100

3. Location of property South Shore of Summit Lake Road - T18N R4W Section 13

4. Proposed charge to property (from legal notice) $3,500.00

5. Reasons for objecting to the proposed roll of rates and charges:

SEE ATTACHED

6. Any other information you wish to add:

SEE ATTACHED

7. On the basis of the foregoing facts, it is my opinion that the roll of rates and charges for Lake Mangement District # 5 should be changed as follows:

10/3/89
Date

Robert Di

Signature of property owner
(Attach additional pages if necessary)

#5. REASONS FOR OBJECTING TO THE PROPOSED ROLL OF RATES AND CHARGES:

The Department of Wildlife objects to the proposed formula for the assessment roll of rates and charges on Lake Management District No. 5.

We would like to request a reduction of the proposed formula for the annual rates as follows;

c.) Public access $35.00/legal lot, or the proportinate amount to each developed property owner.

RCW 36.61.160 states that public property, including property owned by the State shall be subject to special assessments to the same extent that private property is subject the special assessments. The department's proposed assessment of $3,500, exceeds that of a private developed property by 10,000%.

In addition RCW 79.44.020 states: "In all local improvement assessment districts in any assessing district in this state, property in such district, held or owned by the state shall be assessed and charged for its proportion of the cost of such local improvements in the same manner as other property in such district, it being the intention of this chapter that the state shall bear its just and equitable proportion of the cost of local improvements specially benefiting state lands:" The state property in this case, clearly is not being assessed the same as other lands within this district.

We strongly recommend the formula for the rates and charges be revised to reflect an equal charge to all property owners. The department site provides free access to Summit Lake and is used by surrounding landowners as well as the public at large. Clearly, public access is a benefit to the public, the county, and the state.

We would appreciate your review of the proposed rates and charges within this district.

#6. ANY OTHER INFORMATION YOU WISH TO ADD:

It is our understanding that the WDW ballot containing 3,500 votes was not counted in the Summit Lake LMD #5 balloting.

Had our ballot been counted, the district would have failed, 10,074 not votes, to 7,112 yes votes.

Bob Dice, Chief Engineer, signed the ballot, on behalf of the department, voting no. The ballot was placed in the mail addressed to the county. The reason for our ballot not being counted is a mystery to us.

In fairness to WDW, and all others in the district that voted no, we are hereby requesting that Thurston County recount the ballots, including the 3500 no votes cast by WDW.

Oct. 5 1989

THURSTON COUNTY LAKE MANAGEMENT DISTRICT # 5 (SUMMIT LAKE)
HEARING ON OBJECTIONS TO ROLL OF RATES AND CHARGES
OCTOBER 5, 1989 - SUMMIT LAKE COMMUNITY CLUB

Purpose of the hearing
The Board will consider written objections to the roll of rates and charges. The Board will take action on each objection either at the hearing or at a following work session. Any changes made by the Board to the roll of rates and charges will be reflected in a revised roll to be adopted by the Board at a future regular Monday public meeting.

Format of the hearing
Each objection will be considered, with objections grouped by category to facilitate Board review and action. Objections filed prior to the hearing are listed below, grouped by topic. Staff response follows each objection or category.

Summary of objections and staff recommendation

A. Corrections to roll
Objection A-1: Marian Gerry G/D✓
Lot listed as separate Vacant lot is actual contiguous to other lots: Total charge should be $35.

Objection A-2: Leon Esterbrook G/D✓
Lot listed as Residential is actual vacant lot with storage shed.

Staff recommendation: Approve these corrections to roll.

B. Requests to reduce charges for seasonal residents/absentees vs. permanent residents
Objection B-1: Joe and Peggy Peterson
Reduce charge for seasonal or absentee owners.

Objection B-2: P.B. Jacobs
Bill permanent residents for majority of cost.

D/G✓ requests denied

Objection B-3: Earl H. Robinson
Charge seasonal residents 50% less than permanent residents.

Objection B-4: Ella H. Horvath
- Vote by dollar unfair.
- Charge the polluters, not people who don't live there.

Staff response: Seasonal occupation can create non-point pollution problems. This is not a reasonable or workable distinction for the LMD rate base.

C. Timberlands should be exempt
Objection C-1: Dept. of Natural Resources
Cites a number of points in support of deleting charges to trust forest lands.

#20 1 / first 30 acres

D/G

Objection C-2 Simpson Timber
Cites a number of points for deleting charge to timberlands

Staff response: Timberlands (occupying 60% of the watershed) pay 15% of total charges in proposed rates. This relatively low percentage is reasonable as:
a.) Timberlands potentially contribute to water quality concerns due to sediment, herbicides and fertilizers;
b.) Residential uses, which potentially contribute greater contamination and receive greater benefit from protecting water quality, pay proportionately higher LMD charges (Residential paying 51% of total and Vacant platted lots paying 20% of total.)

D. Public access
Objection D-1: Washington Department of Wildlife
- Rates do not treat private and public land equally, as required by State law. Should pay same rate as Residential.
- Public access provides a benefit to public, County and State.
- Department's ballot was marked in opposition and mailed, but the votes were not recorded. County 3,500 no votes cast by Dept

Staff response: Public access is a significantly different type of land use and warrants separate treatment in the LMD rates and charges. Public access receives substantial benefit from protecting water quality and potentially contributes to water quality problems in the form of oil and gas, garbage and other wastes from users. The proposed charge is 14% of total LMD charges: This is a reasonable reflection of relative contribution to problem and benefit to this property.

Objection D-2: Lois J. Pearson
The main pollution problem is from the public boat launch, not property owners. Charge public boat launch not property owners.

Staff response: Public access activities are one potential source of lake pollution. However, other potential sources include residential and forestry uses. The proposed rates reflect these various potential sources.

Objection D-3: Rudy Heino
Close the public access - then we would not require an LMD.

Staff response: Closing the public access would not resolve the entire water quality problem at Summit Lake, and is not in the authority of the County.

E. Palisades owners should not pay
Objection E-1: Mr. and Mrs. Rudy Simcich
Too far from lake to have impact.

Objection E-2: Bernadine L. Curtis
Land losing value: No benefit.

Staff response: Lower degree of potential pollution is reflected in rate structure ($20 per Vacant lot vs. $35 for Residence.) Given steep terrain and relatively small size of watershed, all activity in the watershed is potential pollution source.

RESOLUTION # 9385

A RESOLUTION confirming and approving the roll of rates and charges for Lake Management District #5 (Summit Lake).

WHEREAS, Ordinance 9259 established Thurston County Lake Management District #5 for Summit Lake, and

WHEREAS, the notice and hearing requirements for establishing the roll of rates and charges for the Lake Management District have been satisfied,

THE BOARD of Thurston County Commissioners, as a result of the hearings that were held on the roll of rates and charges, make the following findings:

1. The Board finds that there are four general types of property benefiting from the management program: Developed Residential, Undeveloped Residential, Forestland and Public Access.

2. Charges to property in the Lake Management District (LMD) are based on both potential contribution to pollution and benefit to property from protecting lake water quality as follows:
a. Contribution to pollution: Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to proximity to the lake, steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management: and boater-associated pollution including oil and gas, garbage and other wastes.

b. Benefit from program: The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. Contact recreation

sports (available to all - shoreline residents, upland residents and the general public) also will benefit from protecting Summit Lake water quality. Because nearly all public access to Summit Lake is through the Department of Wildlife public access, it is reasonable to charge that property at a rate which reflects both the significant contribution to pollution from public boating and the significant benefit to public recreational uses of the lake from the District's activities.

The approximate total amount and percentage of total charges paid by each property category is:

Category	Annual charge	Sub-total	% of total
Developed Residential	$35/dwelling unit	$13,000	51% of total
Undeveloped Residential	$20/legal lot	5,200	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$20 for initial 20 acres plus $5/acre for additional acreage ($100-$2,255 per ownership	4,000	15% of total
ESTIMATED TOTAL		$25,700	

3. The Board finds that all properties included in the roll of rates and charges benefit from the activities of the Lake Management District and that the proposed rates for the various classes of property reasonably reflect use and benefit.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF THURSTON COUNTY COMMISSIONERS that the roll of rates and charges for Thurston County Lake Management District No. 5 be confirmed as follows:

1. In light of the analysis contained in the findings of this resolution, and the cost of lake management activities and maximum total annual charges to property as stipulated in Ordinance 9259 and Resolution 9217, the Board establishes annual rates for the classifications of property in Lake Management District No. 5 as follows:

a.) Developed Residential: $35/dwelling unit including associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

2. The roll of rates and charges for Thurston County Lake Management District No. 5, attached hereto and incorporated by this reference, is hereby approved and confirmed.

ADOPTED: January 8, 1990

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

Attest:

Clerk of the Board

Les Eldridge, Chairman

George L. Barner, Jr., Commissioner

APPROVED AS TO FORM:

PATRICK D. SUTHERLAND
Prosecuting Attorney

By:
Deputy Prosecuting Attorney

Diane Oberquell, Commissioner

sum2:resja8

ORDINANCE NO. 9384

AN ORDINANCE prescribing interest and penalties for late payments of rates and charges for Thurston County Lake Management District No. 5 (Summit Lake.)

WHEREAS RCW 36.61.200 stipulates that the County adopt an ordinance establishing interest and penalties imposed for late payment of Lake Management District rates and charges, and

WHEREAS, Ordinance 9259 established Thurston County Lake Management District No. 5 and an ordinance prescribing penalties is required.

NOW THEREFORE BE IT ORDAINED BY THE THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS OF THURSTON COUNTY as follows:

1. Interest will be imposed on delinquent rates and charges for Thurston County Lake Management District No. 5 at the rate of 12% per annum computed on a monthly basis from the date of delinquency until paid.

2. Late annual rates and charges will also be subject to a penalty of 3% of full year assessment if the first half of the charge is not paid by June 1 and 8% if the second half is not paid by December 1.

3. All collection of penalties and interest on delinquent rates and charges shall be credited to the LMD fund.

4. The County Treasurer may include costs for collecting delinquent rates and charges in addition to the penalties and interest charges stipulated above.

5. This ordinance shall be effective upon adoption.

ADOPTED: January 8, 1990

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

Les Eldridge
Les Eldridge, Chairman

George L. Barner Jr.
George L. Barner, Jr., Commissioner

Diane Oberquell
Diane Oberquell, Commissioner

Attest:

Jo Stespy
Clerk of the Board

APPROVED AS TO FORM:

PATRICK D. SUTHERLAND
Prosecuting Attorney

By: Thomas R. Borgen
Deputy Prosecuting Attorney

sum2:ordja8

THURSTON COUNTY
WASHINGTON
SINCE 1852

George L. Barner, Jr
District One
Diane Oberquell
District Two
Les Eldridge
District Three

BOARD OF COUNTY COMMISSIONERS

TO: The Olympian
The ~~Tenino~~ Independent
The Nisqually Valley News
The Daily Chronicle
The Seattle Daily Journal of Commerce

Enclosed, please find legal advertising from the Board of Thurston County Commissioners' meeting, which was held on January 16, 1990.

Please publish this legal advertising in your publication on the following dates:
January 31 & February 7, 1990.

Please send the affidavit of publication and invoice to:

Sandra Steffler,
Clerk of the Board
Thurston County Commissioners
Building #1, Room #269
2000 Lakeridge Drive S.W.
Olympia, WA 98502

Please list on the affidavit and invoice the number of times published, the dates of publication, and the number of words/lines.

Your attention is appreciated. Thank you.

Sincerely,

THURSTON COUNTY COMMISSIONERS

Jo Stuepy

SANDRA STEFFLER,
Clerk of the Board

FORMS:046

Building #1, Room 269, 2000 Lakeridge Drive SW, Olympia, Washington 98502-6045 (206) 786-5440

NOTICE OF ADOPTION OF ROLL OF RATES AND CHARGES FOR THURSTON COUNTY LAKE MANAGEMENT DISTRICT 5

Notice is hereby given that Resolution 9385 confirming the roll of rates and charges for Thurston County Lake Management District 5 (Summit Lake) was adopted by the Board of Thurston County Commissioners on January 8, 1989.

Jo Stacey

~~Sandra Steffler~~, Clerk of the Board

Jo Stacey

THURSTON COUNTY
WASHINGTON
SINCE 1852

George L. Barner, Jr.
District One
Diane Oberquell
District Two
Les Eldridge
District Three

BOARD OF COUNTY COMMISSIONERS

January 22, 1990

Robert Dice
Department of Wildlife
600 Capitol Way North
Olympia, WA 98504

Dear Mr. Dice:

The Board appreciates your participation in the Lake Management District process. In summary, the points raised in your objection were:

1. The proposed LMD rates do not treat private and public land equally. All property owners around the lake should pay an equal rate;

2. Public access provides a benefit to the public; County and State;

3. The Department's ballot was marked in opposition and mailed, but the votes were not recorded. The 3,500 no votes cast by the Department should be counted, with the vote therefore failing to pass.

The Board feels that LMD charges as proposed are reasonable and reasonably reflect contribution to problem and benefit from the program. Public access is a significantly different type of land use from residential development and warrants separate treatment in the LMD rates and charges. Public access receives substantial benefit from protecting water quality and potentially contributes to water quality problems in the form of oil and gas, garbage and other wastes from users. The proposed charge is 14% of total LMD charges; this is a reasonable reflection of relative contribution to problem and benefit to this property. In regard to the LMD vote, we unfortunately did not receive the ballot which you maintain was mailed. In fairness to all property owners and in conformance with State statute, we cannot revise the count as you requested.

Building #1, Room 269, 2000 Lakeridge Drive SW, Olympia, Washington 98502-6045 (206) 786-5440

The Board is interested in assisting you in exploring funding sources for the Department to support program costs such as LMD charges. We are well aware of the problems posed by limited financial resources. However, we feel that the Lake Management District approach is the best means to raise necessary funds for various lake programs, and that the rate charged to the Department for public access property is a reasonable reflection of potential contribution to problem and benefit.

Again, we appreciate the time you took to file your objection to the LMD rates. We hope that you will continue to be involved with the effort to protect Summit Lake.

Sincerely,

BOARD OF COUNTY COMMISSIONERS

LES ELDRIDGE, Chairman

GEORGE L. BARNER, JR., Commissioner

DIANE OBERQUELL, Commissioner

(a:\colleen\dice)

36.61.270 Imposition of rates and charges. Whenever rates and charges are to be imposed in a lake management district, the county legislative authority shall prepare a roll of rates and charges that includes those matters required to be included in a special assessment roll and shall hold a public hearing on the proposed roll of rates and charges as provided under RCW 36.61.120 through 36.61.150 for a special assessment roll. The county legislative authority shall have full jurisdiction and authority to fix, alter, regulate, and control the rates and charges imposed by a lake management district and may classify the rates or charges by any reasonable factor or factors, including benefit, use, front footage, acreage, the extent of improvements on the property, the type of improvements on the property, uses to which the property is put, service to be provided, and any other reasonable factor or factors. The flexibility to establish rates and charges includes the authority to reduce rates and charges on property owned by low-income persons.

Except as provided in this section, the collection of rates and charges, lien status of unpaid rates and charges, and method of foreclosing on such liens shall be subject to the provisions of chapter 36.94 RCW. Public property, including state property, shall be subject to the rates and charges to the same extent that private property is subject to them, except that liens may not be foreclosed on the public property, and the procedure for imposing such rates and charges on state property shall conform with the procedure provided for in chapter 79-.44 RCW concerning the imposition of special assessments upon state property. The total amount of rates and charges cannot exceed the cost of lake improvement or maintenance activities proposed to be financed by such rates and charges, as specified in the resolution of intention. Revenue bonds exclusively payable from the rates and charges may be issued by the county under chapter 39.46 RCW. [1987 c 432 § 11.]

FILED
SUPERIOR COURT
THURSTON COUNTY, WASH

90 MAY 23 A10:50

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

WILLIAM H. TAYLOR,

Petitioner,

v.

THURSTON COUNTY and DOROTHY TODD,

Respondents.

No. 90 2 00327 0

NOTICE OF APPEARANCE

TO: Thelma "Chum" Thomas, Clerk of the Superior Court; and
TO: John J. Sinclair, attorney for Petitioner; and
TO: Dorothy Todd, Respondent.

YOU, AND EACH OF YOU, are hereby respectfully notified that Respondent, THURSTON COUNTY, hereby enters its appearance in the above-captioned cause by and through its attorneys, PATRICK D. SUTHERLAND, Thurston County Prosecuting Attorney, and Thomas R. Bjorgen, Senior Deputy Prosecuting Attorney, and hereby directs that all notices and pleadings other than original process in the above-captioned cause be served upon said attorneys at the address below.

DATED this 22 day of May, 1990.

PATRICK D. SUTHERLAND
PROSECUTING ATTORNEY

By: Thomas R. Bjorgen
Thomas R. Bjorgen
Senior Deputy
Prosecuting Attorney

(WORK\PLD\TAYLOR.NOT)(TRB/llo)

MICROFILMED

PATRICK D. SUTHERLAND
THURSTON COUNTY PROSECUTING ATTORNEY
2000 LAKERIDGE DR SW
OLYMPIA, WASHINGTON 98502
(206) 786-5540

90-2-00327-0 9.
STATE OF WA DEPT OF WILDLIFE — WARREN, COLLEEN G
VS
THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS — GALVIN, CATHERINE B DPA

TRIAL SETTING
(REC _____ PAGES)
PRIMARY SEPTEMBER 10, 1990 - 1:30 - TRIAL DEPT TO BE ASSIGNED

90-2-00397-1 10.
CRESTVIEW REHABILITATION CENTER ET AL — SULLIVAN, JOHN F
VS
STATE OF WA DSHS — LEANDERSON, GRETCHEN AAG
HOWARD, RICHARD J

TRIAL SETTING
(RECORD CASE 400 PAGES)
SECONDARY OCTOBER 26, 1990 - 9:30 - TRIAL DEPT TO BE ASSIGNED

90-2-00536-1 11.
ROSENKRANZ, KEITH — YOUNGLOVE, EDWARD EARL III
VS
DSHS — WEATHERBY-TEAGUE, LYNETTE

TRIAL SETTING
(RECORD CASE _____ PAGES)
PRIMARY JANUARY 14, 1991 - 1:30 - TRIAL DEPT TO BE ASSIGNED

90-2-00550-7 12.
CENTRAL WASHINGTON HOSPITAL ET AL — SPEIDEL, RUSSELL J
vs.
STATE OF WASHINGTON, DEPT OF HEALTH — WILLIAMS, WILLIAM LSENIOR AAG

TRIAL SETTING
(RECORD CASE 2300 PAGES)
PREASSIGNED TO JUDGE PAULA CASEY
PRIMARY MARCH 14, 1990 - 1:30

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THURSTON COUNTY

C-T

SUPERIOR COURT
THURSTON CO'TY, WASH

1990 APR 18 PM 3:27

THELMA THOMAS, CLERK

BY _____

STATE OF WASH., DEPT. OF WILDLIFE,
Plaintiff/Petitioner,

vs.

THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS,
Defendant/Respondent.

CAUSE NO. 90-2-00327-0

NOTE FOR TRIAL AND INITIAL STATEMENT OF ARBITRABILITY
(USE FOR CIVIL SETTINGS)

THUCOU00100002020040630100002243

(over)

NOTE FOR TRIAL

TO CLERK: Please note for Monday, the 7th day of May, 19 90 at 9:00 a.m.

1. The undersigned attorney certifies that this case is at issue (an answer has been filed).

2. The nature of action is Appeal of Rates & Charges Roll established by Thurston County Board of County Commissioners (see RCW 36.61.150)

3. Has a jury trial been demanded? ____ Yes X No

4. A jury demand was filed on _____ indicating a ____ 6 ____ 12 person jury.

* 5. Number of witnesses for Plaintiff 0. Number of expert witnesses _____.

* 6. Number of witnesses for Defendant 0. Number of expert witnesses _____.

**7. Trial Time: Plaintiff 1 hour; Defendant _____ days. Total Days _____.

8. Trial dates ~~xxxxxxxxx~~/unavailable May 10, 14-18, 28-31. Both counsel prefer hearing date week of June 4-8, 1990.

9. Has this case already been noted for trial? ____ Yes X No

* NOTE: This is judicial review of an action by the Thurston County Commissioners, and not a trial de novo.

INITIAL STATEMENT OF ARBITRABILITY

☐ This case is subject to arbitration because the sole relief sought is a money judgment and involves no claim in excess of twenty-five thousand dollars ($25,000) exclusive of attorney fees, interest and costs.

☒ This case is not subject to mandatory arbitration because:

☐ Plaintiff's claim exceeds twenty-five thousand dollars ($25,000).

☒ Plaintiff seeks relief other than a money judgment.

☐ Defendant's counter or cross claim exceeds twenty-five thousand dollars.

☐ Defendant's counter or cross claim seeks relief other than a money judgment.

☐ The undersigned contends that its claim exceeds twenty-five thousand dollars ($25,000) but hereby waives any claim in excess of twenty-five thousand dollars ($25,000) for purposes of arbitration.

FILE WITH THURSTON COUNTY CLERK, Thurston County Courthouse, Building No. 2, Olympia, WA 98502

5

Rey

DATED: 4-18-90

IMPORTANT: Type names, addresses and and phone numbers of all other attorneys.

Signed Colleen G. Warren

Type Name Colleen G. Warren

Address 7th Floor, Highways-Licenses Bldg. Olympia, WA 98504-8071

Phone (206)753-6204

Attorney for Appellant, State of WA., Dept. of Wildlife

PLEASE LIST THE NAMES ADDRESSES AND PHONE NUMBERS OF ALL OTHER ATTORNEYS OR PARTIES IN THIS CASE.

NAME Katherine Galvin, Thurston County Prosecutor's Office

Attorney for Thurston County Board of County Commissioners

Address 2000 Lakeridge Drive S.W.

Olympia, WA 98502

Phone (206)786-5540

** Pursuant to RCW 36.61.150, this "cause shall have preference over all civil causes pending in the court, except proceedings under an act relating to eminent domain in such county and actions of forcible entry and detainer."

NAME _____

Attorney for _____

Address _____

_____

Phone _____

NAME _____

Attorney for _____

Address _____

_____

Phone _____

NAME _____

Attorney for _____

Address _____

_____

Phone _____

NAME _____

Attorney for _____

Address _____

_____

Phone _____

FILED
SUPERIOR COURT
THURSTON COUNTY, WASH

90 APR 13 A11 : 18

THELMA THOMAS, CLERK
BY _____ DEPUTY

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON, DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	No. 90 2 00327 0 NOTICE OF APPEARANCE

TO: Thelma "Chum" Thomas, Clerk of the Superior Court; and
TO: Colleen G. Warren, Assistant Attorney General, 7th Fl., Highways-Licenses Building, M/S PB-71, Olympia, WA 98504-6204, attorney for the Department of Wildlife.

YOU, AND EACH OF YOU, are hereby respectfully notified that Respondent, THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS hereby enter their appearance in the above-captioned cause by and through their attorneys, PATRICK D. SUTHERLAND, Thurston County Prosecuting Attorney, and Catherine B. Galvin, Deputy Prosecuting Attorney, and hereby directs that all notices and pleadings other than original process in the above-captioned cause be served upon said attorneys at the address below.

DATED this 13th day of April, 1990.

PATRICK D. SUTHERLAND
PROSECUTING ATTORNEY

By: Catherine B. Galvin
Catherine B. Galvin
Deputy Prosecuting Attorney

(WORK\PLD\SUMMIT2.CBG)(llo)

PATRICK D. SUTHERLAND
THURSTON COUNTY PROSECUTING ATTORNEY
2000 LAKERIDGE DR SW
OLYMPIA, WASHINGTON 98502
(206) 786-5540

RY

90-2-00316-4 37.
SCUDDER, JOHN L — WOODS, JAMES K
VS
STATE OF WA DEPT OF L & I — MORSE, PAMELA A AAG

MOTION TO DISMISS

Stricken by Court for non-appearance.

90-2-00327-0 38.
STATE OF WA DEPT OF WILDLIFE — WARREN, COLLEEN G
VS
THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS

SHOW CAUSE

Stricken per Counsel, subject to setting a hearing.

90-2-00360-1 39.
FIRESIDE CREDIT INC — HANSEN, STEPHEN M
VS
KOTZ, DAVID J ET AL

SUPPLEMENTAL PROCEEDINGS

Mr. Kotz was sworn and testified as to his assets.

90-2-00442-0 40.
LEWIS, VERA — FULLER, NINAMARIA K
VS
GREENWOOD, GARY

SHOW CAUSE

Continued to 4-09-90 per Counsel.

I certify to be true under penalty of perjury under the laws of the State of Washington that I ~~delivered~~/mailed a copy of this document to: Thurston CB of CC on 3/16, 19 90 at Olympia, WA.
Signed: Cathy Washington

FILED
SUPERIOR COURT
THURSTON COUNTY, WASH.

90 MAR 16 AM : 26

THELMA THOMAS, CLERK
BY _____ Deputy

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON, DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. 90-2-00327-0 NOTE FOR HEARING (Clerk's Action Required)

TO: Clerk of the Court

AND TO: Les Eldridge, George L. Barner, Jr., and Diane Oberquell, Thurston County Board of Commissioners

PLEASE NOTE THAT THIS MATTER will be set for hearing on Monday, March 26, 1990, at 9:00 a.m. before Presiding Judge Carol Fuller. The court shall, at this time or at such further time as may be fixed by the order of the court, hear and determine this appeal.

DATED this 16th day of March, 1990.

KENNETH O. EIKENBERRY
ATTORNEY GENERAL

Colleen G. Warren
COLLEEN G. WARREN
Assistant Attorney General
Attorney for Appellant

OFFICE OF THE ATTORNEY GENERAL
7th Floor, Highways-Licenses Bldg.
PB-71
Olympia, WA 98504-8071
(206) 753-6200

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

STATE OF WASHINGTON DEPARTMENT OF WILDLIFE, Appellant, v. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. 90-2-00327-0 1) SUMMIT LAKE MANAGEMENT DISTRICT ROLL OF RATES AND CHARGES; and 2) RESOLUTION CONFIRMING SUMMIT LAKE MANAGEMENT DISTRICT ROLL OF RATES AND CHARGES

Attached are certified copies of the following documents:

1. The Thurston County Summit Lake Management District Roll of Rates and Charges; and

2. Resolution #9385 confirming the Roll of Rates and Charges for Summit Lake Management District #5, dated January 8, 1990.

The Clerk of the Board of Thurston County Commissioners has informed me that no transcript was made of the hearing confirming the Roll of Rates and Charges on the Summit Lake Management District.

DATED this 13th day of March, 1990.

KENNETH O. EIKENBERRY
ATTORNEY GENERAL

Colleen G. Warren

COLLEEN G. WARREN
Assistant Attorney General

OFFICE OF THE ATTORNEY GENERAL
7th Floor, Highways-Licenses Bldg.
PB-71
Olympia, WA 98504-8071
(206) 753-6200

STATE OF WASHINGTON)
) ss.
COUNTY OF THURSTON)

I, SANDRA STEFFLER, Clerk of the Board of Thurston County Commissioners, do hereby certify that Resolution No. 9385 is a true and correct copy of the original as the same appears on file and of record in my office.

IN WITNESS WHEREOF, I have hereunto set my hand this 6th day of March, 1990.

Sandra Steffler
SANDRA STEFFLER

SUBSCRIBED and SWORN to before me this 6th day of March, 1990.

Wilma Joan Steepy
NOTARY PUBLIC in and for the State of Washington, residing at Olympia.

RESOLUTION # 9385

A RESOLUTION confirming and approving the roll of rates and charges for Lake Management District #5 (Summit Lake).

WHEREAS, Ordinance 9259 established Thurston County Lake Management District #5 for Summit Lake, and

WHEREAS, the notice and hearing requirements for establishing the roll of rates and charges for the Lake Management District have been satisfied,

THE BOARD of Thurston County Commissioners, as a result of the hearings that were held on the roll of rates and charges, make the following findings:

1. The Board finds that there are four general types of property benefiting from the management program: Developed Residential, Undeveloped Residential, Forestland and Public Access.

2. Charges to property in the Lake Management District (LMD) are based on both potential contribution to pollution and benefit to property from protecting lake water quality as follows:
a. Contribution to pollution: Summit Lake is utilized for purposes which are highly sensitive to water quality. The lake supports significant water-contact public recreational uses including swimming and skiing. The lake water is also the major drinking water source for residents: Domestic drinking water supply is the most pollution-sensitive use of Summit Lake.

Due to the shallow soils and steep terrain of the relatively small watershed, all land uses and activities in the watershed potentially contribute to Summit Lake pollution and should be included in the LMD charges. Timberlands occupy nearly 60% of the 1,377 acre watershed. The remaining area (about 580 acres) is platted into 629 lots available for residential use: About 360 of these lots are developed. There is one public access parcel which provides access for substantial fishing, skiing, boating and other activities.

Sampling indicates both residential and nonresidential contribution to fecal coliform contamination (see Summit Lake Water Quality Investigation - Evaluation of Its Use As A Drinking Water Source, Davis etal., Thurston County Health Department, January 1988.) Due to proximity to the lake, steep terrain and shallow soils, both upland and waterfront lots are contributors to water quality problems from septic systems and other activities. Undeveloped platted lots contribute less to the problem than developed residential uses. Other potential pollutants include herbicides, fertilizers and sediment from forestry management: and boater-associated pollution including oil and gas, garbage and other wastes.

b. Benefit from program: The principal beneficiaries from protecting lake water quality are residential uses. All residential lot owners (whether waterfront or upland) will receive approximately equal benefit from the program. Those obtaining drinking water directly from the lake will benefit from the program. Those utilizing springs or wells will also benefit from managing the watershed. Vacant platted parcels will benefit to a greater degree than unplatted timberlands, as the platted property is subdivided for residential use. Contact recreation

sports (available to all - shoreline residents, upland residents and the general public) also will benefit from protecting Summit Lake water quality. Because nearly all public access to Summit Lake is through the Department of Wildlife public access, it is reasonable to charge that property at a rate which reflects both the significant contribution to pollution from public boating and the significant benefit to public recreational uses of the lake from the District's activities.

The approximate total amount and percentage of total charges paid by each property category is:

Category	Annual charge	Sub-total	% of total
Developed Residential	$35/dwelling unit	$13,000	51% of total
Undeveloped Residential	$20/legal lot	5,200	20% of total
Public Access	$3,500/legal lot	3,500	14% of total
Timberlands	$20 for initial 20 acres plus $5/acre for additional acreage ($100-$2,255 per ownership	4,000	15% of total
ESTIMATED TOTAL		$25,700	

3. The Board finds that all properties included in the roll of rates and charges benefit from the activities of the Lake Management District and that the proposed rates for the various classes of property reasonably reflect use and benefit.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF THURSTON COUNTY COMMISSIONERS that the roll of rates and charges for Thurston County Lake Management District No. 5 be confirmed as follows:

1. In light of the analysis contained in the findings of this resolution, and the cost of lake management activities and maximum total annual charges to property as stipulated in Ordinance 9259 and Resolution 9217, the Board establishes annual rates for the classifications of property in Lake Management District No. 5 as follows:

a.) Developed Residential: $35/dwelling unit including associated legal lot
b.) Undeveloped Residential (Undeveloped legal lots under 20 acres) $20/legal lot
c.) Public Access $3,500/legal lot
d.) Timberlands (ownerships of 20 acres and over) $5/acre

The term "legal lot" is defined as follows: "Legal lot is defined as lots of legal size and dimension under applicable land use law." The term "dwelling unit" is defined per Thurston County Code Section 20.03.040(43).

2. The roll of rates and charges for Thurston County Lake Management District No. 5, attached hereto and incorporated by this reference, is hereby approved and confirmed.

ADOPTED: January 8, 1990

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

Attest:

Clerk of the Board

Les Eldridge, Chairman

George L. Barner, Jr., Commissioner

APPROVED AS TO FORM:

PATRICK D. SUTHERLAND
Prosecuting Attorney

By:
Deputy Prosecuting Attorney

Diane Oberquell, Commissioner

sum2:resja8

STATE OF WASHINGTON)
) ss.
COUNTY OF THURSTON)

I, TOM CLINGMAN, Lakes Program Manager for the Thurston County Public Works Department, do hereby certify that the Thurston County Lake Management District 6 Roll of Rates and Charges is a true and correct copy of the original as the same appears on file and of record in my office.

IN WITNESS WHEREOF, I have hereunto set my hand this 7th day of March, 1990.

Tom Clingman
TOM CLINGMAN

SUBSCRIBED and SWORN to before me this 7th day of March, 1990.

NOTARY PUBLIC in and for the State of Washington residing at Olympia

parcel number	LMD	property category
13805330000	906	Timberlands
13805400000	907	Timberlands
13807110000	906	Timberlands
13807310000	901	Timberlands
13807310100	500	Residential
13807310200	501	Vacant
13807330000	502	Vacant
13807330100	503	Vacant
13807330200	504	Vacant
13808110000	907	Timberlands
13808130000	505	Vacant
13808130100	506	Vacant
13808130200	507	Vacant
13808420100	903	Timberlands
13817100000	907	Timberlands
13818110000	904	Timberlands
13818120000	904	Timberlands
13818130000	907	Timberlands
13818210000	508	Vacant
13818220000	900	Timberlands
13818220010	900	Timberlands
13818220100	509	Vacant
13818220200	510	Vacant
14812100000	906	Timberlands
14812440000	511	Vacant
14812440100	512	Vacant
14812440200	513	Vacant
14812440300	514	Vacant
14812440400	515	Vacant
14813110000	516	Vacant
14813110100	517	Residential
	2	Vacant

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parcel number	LMD property #	LMD property # category	charge
13805330000	906	906 Timberlands	20.00
13805400000	907	907 Timberlands	20.00
13807110000	906	906 Timberlands	20.00
13807310000	901	901 Timberlands	30.90
13807310100	500	500 Residential	35.00
13807310200	501	501 Vacant	20.00
13807330000	502	502 Vacant	20.00
13807330100	503	503 Vacant	20.00
13807330200	504	504 Vacant	20.00
13808110000	907	907 Timberlands	2173.50
13808130000	505	505 Vacant	20.00
13808130100	506	506 Vacant	20.00
13808130200	507	507 Vacant	20.00
13808420100	903	903 Timberlands	38.60

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
13805330000	906	Timberlands	20.00
13805400000	907	Timberlands	20.00
13807110000	906	Timberlands	20.00
13807310000	901	Timberlands	30.90
13807310100	500	Residential	35.00
13807310200	501	Vacant	20.00
13807330000	502	Vacant	20.00
13807330100	503	Vacant	20.00
13807330200	504	Vacant	20.00
13808110000	907	Timberlands	2173.50
13808130000	505	Vacant	20.00
13808130100	506	Vacant	20.00
13808130200	507	Vacant	20.00
13808420100	903	Timberlands	38.60
13817100000	907	Timberlands	20.00
13818110000	904	Timberlands	20.00
13818120000	904	Timberlands	20.00
13818130000	907	Timberlands	20.00
13818210000	508	Vacant	20.00
13818220000	900	Timberlands	21.50
13818220010	900	Timberlands	20.00
13818220100	509	Vacant	20.00
13818220200	510	Vacant	20.00
14812100000	906	Timberlands	803.50
14812440000	511	Vacant	20.00
14812440100	512	Vacant	20.00
14812440200	513	Vacant	20.00
14812440300	514	Vacant	20.00
14812440400	515	Vacant	20.00
14813110000	516	Vacant	20.00
14813110100	517	Residential	35.00
14813110200	2	Vacant	20.00
14813110300	518	Vacant	20.00
14813120000	905	Timberlands	549.65
14813140100	1	Public Access	3500.00
14813140200	403	Residential	35.00
14813140203	404	Residential	35.00
14813140300	519	Residential	35.00
14813140301	520	Vacant	20.00
14813140302	521	Vacant	20.00
14813140400	522	Residential	35.00
14813140401	523	Vacant	20.00
14813140402	524	Residential	35.00
14813140403	525	Residential	35.00
14813140500	526	Vacant	20.00
14813140501	527	Residential	35.00
14813140600	528	Residential	35.00
14813140700	393	Vacant	20.00
14813140800	394	Residential	35.00
14813140900	395	Residential	35.00
14813141000	396	Residential	35.00
14813141100	397	Residential	35.00
14813141200	398	Residential	35.00
14813141300	383	Residential	35.00
14813141500	399	Residential	35.00

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THURSTON COUNTY LAKD MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP NUMBER	CATEGORY	CHARGE
14813141600	400	Residential	35.00
14813141700	401	Residential	35.00
14813141800	402	Residential	35.00
14813141900	529	Vacant	20.00
65400000100	82	Residential	35.00
65400000300	81	Residential	35.00
65400000400	81	Contiguous Lot	0.00
65400000500	80	Residential	35.00
65400000800	79	Residential	35.00
65400000900	79	Contiguous Lot	0.00
65400001000	78	Residential	35.00
65400001100	77	Residential	35.00
65400001200	76	Residential	35.00
65400001300	75	Residential	35.00
65400001400	74	Vacant	20.00
65400001500	73	Contiguous Lot	0.00
65400001600	73	Residential	35.00
65400001700	72	Contiguous Lot	0.00
65400001800	72	Residential	35.00
65400001900	72	Vacant	20.00
65400002000	71	Vacant	20.00
65400002100	70	Vacant	20.00
65400002200	69	Residential	35.00
65400002300	68	Residential	35.00
65400002500	67	Residential	35.00
65400002700	66	Residential	35.00
65400002900	65	Residential	35.00
65400003000	64	Contiguous Lot	0.00
65400003100	64	Residential	35.00
65400003200	63	Residential	35.00
65400003300	62	Residential	35.00
65400003400	61	Residential	35.00
65400003500	60	Residential	35.00
65400003600	59	Residential	35.00
65400003700	58	Residential	35.00
65400003800	57	Residential	35.00
65400003900	56	Residential	35.00
65400004000	55	Residential	35.00
65400004100	54	Residential	35.00
65400004200	53	Residential	35.00
65400004400	52	Residential	35.00
65400004600	51	Residential	35.00
65400004700	50	Residential	35.00
65400004800	49	Residential	35.00
65400004900	48	Vacant	20.00
65400005000	47	Residential	35.00
65400005100	46	Residential	35.00
65400005200	45	Residential	35.00
65400005300	44	Residential	35.00
65400005400	43	Vacant	20.00
65400005500	42	Vacant	20.00
65400005600	41	Residential	35.00
65400005800	40	Residential	35.00
65400005900	39	Residential	35.00
65400006000	38	Residential	35.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
65400006100	37	Residential	35.00
65400006200	36	Vacant	20.00
65400006400	35	Vacant	20.00
65400006500	34	Residential	35.00
65400006600	33	Vacant	20.00
65400006700	32	Residential	35.00
65400006800	32	Contiguous Lot	0.00
65400006900	31	Residential	35.00
65400007000	30	Contiguous Lot	0.00
65400007100	30	Vacant	20.00
65400007200	29	Residential	35.00
65400007300	28	Residential	35.00
65400007400	28	Contiguous Lot	0.00
65400007500	27	Vacant	20.00
65400007600	27	Contiguous Lot	0.00
65400007700	26	Residential	35.00
65400007800	25	Residential	35.00
65400007900	24	Residential	35.00
65400008000	23	Residential	35.00
65400008100	22	Residential	35.00
65400008200	21	Residential	35.00
65400008300	20	Vacant	20.00
65400008400	19	Residential	35.00
65400008500	18	Residential	35.00
65400008600	17	Residential	35.00
65400008700	16	Contiguous Lot	0.00
65400008800	16	Residential	35.00
65400008900	15	Residential	35.00
65400009000	14	Residential	35.00
65400009100	13	Residential	35.00
65400009200	12	Contiguous Lot	0.00
65400009300	12	Residential	35.00
65400009400	11	Contiguous Lot	0.00
65400009500	11	Residential	35.00
65400009600	10	Residential	35.00
65400009700	9	Residential	35.00
65400009800	8	Residential	35.00
65400009801	8	Contiguous Lot	0.00
65400009900	7	Residential	35.00
65400010000	6	Residential	35.00
65400010100	5	Residential	35.00
65400010201	4	Residential	35.00
65400010202	3	Residential	35.00
65400010203	405	Residential	35.00
65400010204	407	Residential	35.00
77100000100	325	Vacant	20.00
77100000101	406	Vacant	20.00
77100000201	324	Residential	35.00
77100000300	323	Residential	35.00
77100000400	322	Vacant	20.00
77100000500	321	Residential	35.00
77100000600	320	Residential	35.00
77100000700	319	Residential	35.00
77100000800	318	Residential	35.00
77100000900	317	Vacant	20.00

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THURSTON COUNTY LAKD MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100001000	316	Vacant	20.00
77100001100	315	Vacant	20.00
77100001200	314	Residential	35.00
77100001300	313	Residential	35.00
77100001400	212	Residential	35.00
77100001500	312	Vacant	20.00
77100001600	311	Residential	35.00
77100001700	310	Residential	35.00
77100001800	309	Vacant	20.00
77100001900	308	Residential	35.00
77100002100	308	Contiguous Lot	0.00
77100002200	337	Vacant	20.00
77100002300	307	Residential	35.00
77100002400	307	Contiguous Lot	0.00
77100002500	306	Residential	35.00
77100002600	305	Residential	35.00
77100002700	304	Residential	35.00
77100002800	303	Residential	35.00
77100002900	302	Residential	35.00
77100003000	301	Residential	35.00
77100003100	300	Residential	35.00
77100003200	299	Residential	35.00
77100003400	298	Residential	35.00
77100003500	297	Contiguous Lot	0.00
77100003600	297	Residential	35.00
77100003800	296	Residential	35.00
77100003900	295	Residential	35.00
77100004100	294	Vacant	20.00
77100004200	293	Residential	35.00
77100004300	292	Residential	35.00
77100004500	291	Vacant	20.00
77100004600	290	Residential	35.00
77100004700	290	Contiguous Lot	0.00
77100004800	289	Residential	35.00
77100004900	289	Contiguous Lot	0.00
77100005200	288	Residential	35.00
77100005300	287	Residential	35.00
77100005400	286	Vacant	20.00
77100005500	285	Residential	35.00
77100005600	284	Residential	35.00
77100005700	283	Contiguous Lot	0.00
77100005800	283	Residential	35.00
77100005900	282	Residential	35.00
77100006000	281	Residential	35.00
77100006100	280	Residential	35.00
77100006200	279	Residential	35.00
77100006300	278	Residential	35.00
77100006400	277	Residential	35.00
77100006500	276	Residential	35.00
77100006600	276	Contiguous Lot	0.00
77100006700	276	Contiguous Lot	0.00
77100006800	275	Residential	35.00
77100006900	274	Vacant	20.00
77100007000	273	Residential	35.00
77100007100	272	Vacant	20.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100007200	271	Vacant	20.00
77100007300	270	Residential	35.00
77100007400	269	Residential	35.00
77100007500	268	Vacant	20.00
77100007600	267	Residential	35.00
77100007700	266	Residential	35.00
77100007800	265	Residential	35.00
77100007900	264	Residential	35.00
77100008000	263	Residential	35.00
77100008100	263	Contiguous Lot	0.00
77100008200	262	Vacant	20.00
77100008300	261	Residential	35.00
77100008400	260	Residential	35.00
77100008500	259	Residential	35.00
77100008600	258	Residential	35.00
77100008700	257	Residential	35.00
77100008800	256	Contiguous Lot	0.00
77100008900	256	Residential	35.00
77100009000	256	Contiguous Lot	0.00
77100009100	255	Residential	35.00
77100009200	254	Contiguous Lot	0.00
77100009300	254	Residential	35.00
77100009400	253	Residential	35.00
77100009500	253	Contiguous Lot	0.00
77100009600	252	Residential	35.00
77100009800	251	Vacant	20.00
77100009900	250	Residential	35.00
77100010000	249	Residential	35.00
77100010100	248	Residential	35.00
77100010200	247	Residential	35.00
77100010300	246	Residential	35.00
77100010400	245	Residential	35.00
77100010500	244	Residential	35.00
77100010600	243	Residential	35.00
77100010700	242	Residential	35.00
77100010800	241	Residential	35.00
77100010900	240	Residential	35.00
77100011000	239	Residential	35.00
77100011100	238	Residential	35.00
77100011200	237	Residential	35.00
77100011300	236	Residential	35.00
77100011400	235	Residential	35.00
77100011500	234	Residential	35.00
77100011700	232	Residential	35.00
77100011800	232	Residential	35.00
77100012000	231	Residential	35.00
77100012100	230	Residential	35.00
77100012200	229	Residential	35.00
77100012300	228	Vacant	20.00
77100012400	227	Residential	35.00
77100012500	226	Contiguous Lot	0.00
77100012600	226	Residential	35.00
77100012700	225	Residential	35.00
77100012800	224	Residential	35.00
77100012900	223	Residential	35.00

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THURSTON COUNTY LAKD MAN[illegible]MENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF R[illegible]S AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100013000	222	Residential	35.00
77100013100	221	Residential	35.00
77100013200	220	Residential	35.00
77100013300	219	Vacant	20.00
77100013400	218	Residential	35.00
77100013500	217	Residential	35.00
77100013600	216	Contiguous Lot	0.00
77100013700	216	Residential	35.00
77100013800	215	Residential	35.00
77100013900	214	Residential	35.00
77100014000	213	Residential	35.00
77100014100	336	Residential	35.00
77100014200	211	Residential	35.00
77100014300	210	Residential	35.00
77100014400	209	Residential	35.00
77100014500	208	Residential	35.00
77100014600	207	Residential	35.00
77100014700	206	Vacant	20.00
77100014900	205	Contiguous Lot	0.00
77100015000	205	Residential	35.00
77100015100	204	Residential	35.00
77100015200	203	Residential	35.00
77100015300	202	Residential	35.00
77100015500	201	Residential	35.00
77100015600	200	Residential	35.00
77100015700	199	Residential	35.00
77100015800	198	Contiguous Lot	0.00
77100015900	198	Residential	35.00
77100016000	197	Residential	35.00
77100016100	196	Residential	35.00
77100016200	195	Contiguous Lot	0.00
77100016300	195	Residential	35.00
77100016400	194	Residential	35.00
77100016500	193	Residential	35.00
77100016600	192	Residential	35.00
77100016700	191	Residential	35.00
77100016800	190	Vacant	20.00
77100016900	189	Residential	35.00
77100017000	188	Contiguous Lot	0.00
77100017100	188	Residential	35.00
77100100100	530	Residential	35.00
77100100300	531	Vacant	20.00
77100100400	532	Vacant	20.00
77100100500	533	Vacant	20.00
77100100600	534	Residential	35.00
77100100700	535	Residential	35.00
77100100800	536	Vacant	20.00
77100200100	537	Vacant	20.00
77100200200	538	Vacant	20.00
77100200300	539	Vacant	20.00
77100200400	540	Vacant	20.00
77100200500	541	Vacant	20.00
77100200600	542	Vacant	20.00
77100200700	543	Vacant	20.00
77100200800	544	Residential	35.00

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THURSTON COUNTY LAKD MAN[illegible]MENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF R[illegible]ES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100200900	545	Vacant	20.00
77100201000	546	Residential	35.00
77100201001	547	Residential	35.00
77100201100	548	Vacant	20.00
77100201200	549	Vacant	20.00
77100201300	550	Vacant	20.00
77100201400	551	Vacant	20.00
77100201500	552	Vacant	20.00
77100201600	553	Vacant	20.00
77100201700	554	Vacant	20.00
77100201701	555	Vacant	20.00
77100201800	556	Vacant	20.00
77100201900	557	Vacant	20.00
77100202000	558	Vacant	20.00
77100202000	565	Vacant	20.00
77100202100	559	Vacant	20.00
77100202200	560	Vacant	20.00
77100202300	561	Vacant	20.00
77100202400	562	Vacant	20.00
77100202500	563	Vacant	20.00
77100202600	564	Vacant	20.00
77100202800	566	Vacant	20.00
77100202900	567	Vacant	20.00
77100203000	568	Residential	35.00
77100203001	569	Residential	35.00
77100203100	570	Residential	35.00
77100203200	571	Vacant	20.00
77100203300	572	Residential	35.00
77100203400	573	Vacant	20.00
77100203600	574	Vacant	20.00
77100203700	575	Vacant	20.00
77100203800	576	Vacant	20.00
77100203900	577	Vacant	20.00
77100204000	578	Vacant	20.00
77100204100	579	Vacant	20.00
77100204200	580	Residential	35.00
77100204300	581	Vacant	20.00
77100204400	582	Vacant	20.00
77100204500	583	Vacant	20.00
77100204600	584	Vacant	20.00
77100204700	585	Vacant	20.00
77100204800	586	Vacant	20.00
77100204900	587	Vacant	20.00
77100205000	588	Vacant	20.00
77100205100	589	Vacant	20.00
77100205200	590	Vacant	20.00
77100205300	591	Vacant	20.00
77100205301	592	Vacant	20.00
77100205401	593	Vacant	20.00
77100205500	594	Vacant	20.00
77100205600	595	Vacant	20.00
77100205700	596	Vacant	20.00
77100205800	597	Vacant	20.00
77100205900	598	Vacant	20.00
77100206000	599	Vacant	20.00

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THURSTON COUNTY LAKD MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100206100	600	Vacant	20.00
77100206200	601	Vacant	20.00
77100206300	602	Vacant	20.00
77100206400	603	Residential	35.00
77100206500	604	Vacant	20.00
77100206600	605	Vacant	20.00
77100206601	606	Vacant	20.00
77100206602	607	Vacant	20.00
77100206700	608	Residential	35.00
77100206800	609	Vacant	20.00
77100206900	610	Vacant	20.00
77100207000	611	Vacant	20.00
77100207100	612	Residential	35.00
77100207101	613	Residential	35.00
77100207200	614	Vacant	20.00
77100207300	615	Vacant	20.00
77100207400	616	Residential	35.00
77100207401	617	Residential	35.00
77100207500	618	Residential	35.00
77100207600	619	Vacant	20.00
77100207700	620	Residential	35.00
77100207800	621	Residential	35.00
77100207900	622	Vacant	20.00
77100208000	623	Vacant	20.00
77100208100	624	Residential	35.00
77100208200	625	Vacant	20.00
77100208300	626	Residential	35.00
77100208301	627	Vacant	20.00
77100208400	628	Residential	35.00
77100208500	629	Vacant	20.00
77100208600	630	Vacant	20.00
77100208700	631	Vacant	20.00
77100208800	632	Vacant	20.00
77100209000	633	Vacant	20.00
77100209100	634	Residential	35.00
77100209200	635	Vacant	20.00
77100209300	636	Vacant	20.00
77100209400	637	Vacant	20.00
77100209500	638	Vacant	20.00
77100209600	639	Vacant	20.00
77100209700	640	Vacant	20.00
77100209800	641	Vacant	20.00
77100209900	642	Vacant	20.00
77100210000	643	Vacant	20.00
77100210100	644	Vacant	20.00
77100210200	645	Vacant	20.00
77100210300	646	Vacant	20.00
77100210400	647	Vacant	20.00
77100210500	648	Vacant	20.00
77100210600	649	Vacant	20.00
77100210700	650	Vacant	20.00
77100210800	651	Vacant	20.00
77100210900	652	Vacant	20.00
77100211000	653	Vacant	20.00
77100211100	654	Vacant	20.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77100211200	655	Residential	35.00
77100211300	656	Vacant	20.00
77100211400	657	Vacant	20.00
77100211500	658	Vacant	20.00
77100211600	659	Vacant	20.00
77100211700	660	Vacant	20.00
77100212000	661	Vacant	20.00
77100212100	662	Vacant	20.00
77100212200	663	Vacant	20.00
77100212300	664	Vacant	20.00
77100212400	665	Vacant	20.00
77100212500	666	Vacant	20.00
77100212600	667	Vacant	20.00
77100212700	668	Vacant	20.00
77100212800	669	Vacant	20.00
77100212900	670	Vacant	20.00
77100213000	671	Vacant	20.00
77100213100	672	Vacant	20.00
77100213200	673	Vacant	20.00
77100213300	674	Vacant	20.00
77100213400	675	Vacant	20.00
77100213500	676	Vacant	20.00
77100300000	677	Vacant	20.00
77120017200	187	Residential	35.00
77120017300	186	Residential	35.00
77120017400	185	Residential	35.00
77120017500	184	Residential	35.00
77120017600	183	Vacant	20.00
77120017700	182	Residential	35.00
77120017800	181	Vacant	20.00
77120017900	180	Residential	35.00
77120018000	179	Residential	35.00
77120018100	178	Residential	35.00
77120018200	177	Residential	35.00
77120018300	177	Contiguous Lot	0.00
77120018400	176	Residential	35.00
77120018500	176	Contiguous Lot	0.00
77120018600	175	Residential	35.00
77120018700	174	Residential	35.00
77120018800	174	Contiguous Lot	0.00
77120018900	173	Residential	35.00
77120019000	173	Contiguous Lot	0.00
77120019100	172	Residential	35.00
77120019200	171	Residential	35.00
77120019300	409	Residential	35.00
77120019400	170	Vacant	20.00
77120019500	169	Residential	35.00
77120019600	168	Residential	35.00
77120019700	167	Residential	35.00
77120019800	166	Residential	35.00
77120019900	165	Residential	35.00
77120020000	164	Vacant	20.00
77120020100	163	Vacant	20.00
77120020200	162	Residential	35.00
77120020300	162	Contiguous Lot	0.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77120020400	161	Vacant	20.00
77120020500	160	Residential	35.00
77120020600	159	Vacant	20.00
77120020700	158	Residential	35.00
77120020800	157	Vacant	20.00
77120020900	156	Residential	35.00
77120021000	155	Residential	35.00
77120021100	154	Residential	35.00
77120021200	153	Residential	35.00
77120021300	152	Residential	35.00
77120021400	152	Contiguous Lot	0.00
77120021500	151	Residential	35.00
77120021600	150	Residential	35.00
77120021700	149	Contiguous Lot	0.00
77120021800	149	Residential	35.00
77120021900	148	Vacant	20.00
77120022000	147	Residential	35.00
77120022100	146	Contiguous Lot	0.00
77120022200	146	Residential	35.00
77120022300	145	Residential	35.00
77120022400	144	Residential	35.00
77120022500	143	Vacant	20.00
77120022600	142	Residential	35.00
77120022700	141	Vacant	20.00
77120022800	140	Residential	35.00
77120022900	139	Residential	35.00
77120023000	138	Residential	35.00
77120023100	137	Vacant	20.00
77120023200	136	Vacant	20.00
77120023300	135	Vacant	20.00
77120023400	134	Residential	35.00
77120023500	133	Vacant	20.00
77120023600	132	Vacant	20.00
77120023700	131	Contiguous Lot	0.00
77120023800	131	Residential	35.00
77120023900	130	Residential	35.00
77120024000	129	Vacant	20.00
77120024100	128	Residential	35.00
77120024200	127	Contiguous Lot	0.00
77120024300	127	Residential	35.00
77120024400	126	Vacant	20.00
77120024500	125	Residential	35.00
77120024600	124	Residential	35.00
77120024800	123	Residential	35.00
77120024900	122	Vacant	20.00
77120025600	121	Vacant	20.00
77120025800	120	Vacant	20.00
77120025900	119	Contiguous Lot	0.00
77120026000	119	Residential	35.00
77120026100	118	Residential	35.00
77120026200	117	Residential	35.00
77120026300	116	Vacant	20.00
77120026400	115	Vacant	20.00
77120026500	114	Residential	35.00
77120026600	113	Residential	35.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77120026700	112	Residential	35.00
77120026800	111	Vacant	20.00
77120026900	110	Residential	35.00
77120027000	109	Vacant	20.00
77120027100	108	Contiguous Lot	0.00
77120027200	108	Residential	35.00
77120027300	107	Contiguous Lot	0.00
77120027400	107	Residential	35.00
77120027500	106	Vacant	20.00
77120027600	105	Residential	35.00
77120027700	104	Residential	35.00
77120027800	103	Residential	35.00
77120027900	333	Residential	35.00
77120028000	101	Residential	35.00
77120028100	102	Contiguous Lot	0.00
77120028101	101	Contiguous Lot	0.00
77120028200	102	Residential	35.00
77120028300	99	Contiguous Lot	0.00
77120028301	102	Contiguous Lot	0.00
77120028400	99	Residential	35.00
77120028500	98	Residential	35.00
77120028600	97	Residential	35.00
77120028700	96	Residential	35.00
77120028800	95	Residential	35.00
77120028900	95	Contiguous Lot	0.00
77120029000	94	Contiguous Lot	0.00
77120029100	94	Residential	35.00
77120029200	94	Contiguous Lot	0.00
77120029300	93	Residential	35.00
77120029400	92	Residential	35.00
77120029500	91	Residential	35.00
77120029600	91	Contiguous Lot	0.00
77120029700	90	Contiguous Lot	0.00
77120029800	90	Residential	35.00
77120029900	89	Residential	35.00
77120030000	89	Contiguous Lot	0.00
77120030100	88	Residential	35.00
77120030200	87	Residential	35.00
77120030300	86	Residential	35.00
77120030400	85	Residential	35.00
77120030500	84	Vacant	20.00
77120030600	83	Vacant	20.00
77120213600	678	Vacant	20.00
77120213700	679	Residential	35.00
77120213800	680	Residential	35.00
77120213801	681	Residential	35.00
77120213900	682	Vacant	20.00
77120214000	683	Residential	35.00
77120214100	684	Vacant	20.00
77120214200	685	Vacant	20.00
77120214300	686	Residential	35.00
77120214400	687	Vacant	20.00
77120214500	688	Vacant	20.00
77120214600	689	Vacant	20.00
77120214800	690	Vacant	20.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77120214900	691	Vacant	20.00
77120215000	692	Residential	35.00
77120215100	693	Vacant	20.00
77120215200	694	Residential	35.00
77120215300	695	Residential	35.00
77120215400	696	Vacant	20.00
77120215500	697	Vacant	20.00
77120215600	698	Vacant	20.00
77120215700	699	Vacant	20.00
77120215800	700	Vacant	20.00
77120215900	701	Residential	35.00
77120216000	702	Vacant	20.00
77120216100	703	Residential	35.00
77120216200	704	Residential	35.00
77120216300	705	Vacant	20.00
77120216400	706	Vacant	20.00
77120216500	707	Vacant	20.00
77120216600	708	Vacant	20.00
77120216700	709	Vacant	20.00
77120216800	710	Vacant	20.00
77120216900	711	Residential	35.00
77120217000	712	Vacant	20.00
77120217100	713	Vacant	20.00
77120217200	714	Vacant	20.00
77120217300	715	Residential	35.00
77120217400	716	Residential	35.00
77120217500	717	Vacant	20.00
77120217600	718	Residential	35.00
77120217700	719	Vacant	20.00
77120217701	720	Residential	35.00
77120217800	721	Vacant	20.00
77120217900	722	Vacant	20.00
77120218000	723	Vacant	20.00
77120218100	724	Vacant	20.00
77120218200	725	Vacant	20.00
77120218300	726	Residential	35.00
77120218400	727	Vacant	20.00
77120218500	728	Vacant	20.00
77120218600	729	Vacant	20.00
77120218700	730	Vacant	20.00
77120218800	731	Vacant	20.00
77120218900	732	Vacant	20.00
77120219000	733	Residential	35.00
77120219100	734	Residential	35.00
77120219200	735	Vacant	20.00
77120219300	736	Vacant	20.00
77120219400	737	Vacant	20.00
77120219500	738	Vacant	20.00
77120219600	739	Vacant	20.00
77120219700	740	Vacant	20.00
77120219800	741	Vacant	20.00
77120219900	742	Vacant	20.00
77120219901	743	Vacant	20.00
77150100000	391	Residential	35.00
77150200000	391	Residential	35.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77150300000	391	Residential	35.00
77150400000	391	Residential	35.00
77200000100	390	Residential	35.00
77200000200	390	Contiguous Lot	0.00
77200000400	390	Residential	35.00
77200000500	389	Residential	35.00
77200000600	388	Residential	35.00
77200000700	386	Residential	35.00
77200000900	385	Residential	35.00
77200001000	385	Contiguous Lot	0.00
77200001100	385	Contiguous Lot	0.00
77200001200	384	Vacant	20.00
77200001300	382	Residential	35.00
77200001500	382	Contiguous Lot	0.00
77200001600	381	Contiguous Lot	0.00
77200001700	381	Residential	35.00
77200001900	380	Contiguous Lot	0.00
77200002000	380	Residential	35.00
77200002100	379	Residential	35.00
77200002300	378	Residential	35.00
77200002500	377	Residential	35.00
77200002600	377	Contiguous Lot	0.00
77200002700	375	Residential	35.00
77200003000	375	Contiguous Lot	0.00
77200003100	374	Residential	35.00
77200003300	373	Residential	35.00
77200003600	372	Residential	35.00
77200003900	371	Residential	35.00
77200004000	370	Residential	35.00
77200004100	369	Residential	35.00
77200004200	368	Residential	35.00
77200004300	367	Residential	35.00
77200004400	366	Residential	35.00
77200004500	365	Residential	35.00
77200004600	364	Residential	35.00
77200004700	362	Residential	35.00
77200004800	361	Residential	35.00
77200004900	363	Residential	35.00
77200005000	360	Residential	35.00
77200005100	360	Contiguous Lot	0.00
77200005200	359	Residential	35.00
77200005300	358	Residential	35.00
77200005400	357	Contiguous Lot	0.00
77200005500	357	Residential	35.00
77200005600	355	Residential	35.00
77200005800	354	Residential	35.00
77200005900	353	Residential	35.00
77200006000	352	Residential	35.00
77200006100	351	Vacant	20.00
77200006200	350	Residential	35.00
77200006300	349	Residential	35.00
77200006400	348	Residential	35.00
77200006500	347	Residential	35.00
77200006600	346	Residential	35.00
77200006700	345	Residential	35.00

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THURSTON COUNTY LAKE MANAGEMENT DISTRICT 6 (SUMMIT LAKE)
ROLL OF RATES AND CHARGES

PARCEL NUMBER	LMD PROP. NUMBER	CATEGORY	CHARGE
77200006800	344	Residential	35.00
77200006900	343	Residential	35.00
77200007100	342	Residential	35.00
77200007200	341	Residential	35.00
77200007300	341	Contiguous Lot	0.00
77200007400	340	Residential	35.00
77200007500	339	Residential	35.00
77200007600	338	Residential	35.00
77200007700	387	Residential	35.00
77200007800	335	Residential	35.00
77200008100	334	Residential	35.00
77200008200	332	Residential	35.00
77200008300	331	Residential	35.00
77200008400	330	Residential	35.00
77200008500	329	Residential	35.00
77200008600	328	Residential	35.00
77200008700	327	Residential	35.00
77200008701	326	Residential	35.00

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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON

IN AND FOR THE COUNTY OF THURSTON

90 2 00327 0

STATE OF WASHINGTON DEPARTMENT OF WILDLIFE, Appellant, vs. THURSTON COUNTY BOARD OF COUNTY COMMISSIONERS, Respondent.	NO. NOTICE OF APPEAL

TO: Clerk of the Superior Court

AND TO: Les Eldridge, George L. Barner, Jr., and Diane Oberquell, Thurston County Board of Commissioners

The State of Washington Department of Wildlife (hereafter WDW), pursuant to RCW 36.61.150, appeals Resolution No. 9385 of the Thurston County Board of County Commissioners confirming and approving the Roll of Rules and charges for Lake Management District No. 5 (Summit Lake).

The WDW owns a lot on Summit Lake which provides public access for recreational use of the lake. The WDW objects to the proposed formula for the roll of rates and charges on this property in that: 1) the assessment is not based on any

OFFICE OF THE ATTORNEY GENERAL
7th Floor, Highways-Licenses Bldg.
PB-71
Olympia, WA 98504-8071
(206) 753-6200

reasonably known factors as required by RCW 36.61.270; 2) equal consideration was not applied to state-owned property and privately-owned property in assessing the proportionate share for each parcel in the imposition of rates and charges as required by RCW 36.61.270 and RCW 79.44.020; and 3) additionally, the rates and charges are in excess of its proportional amount of interest benefited and thus in violation of RCW 79.44.010.

The WDW respectfully requests this court set a hearing on this matter and correct, modify, or annul the rates and charges insofar as the same affects the property of the appellant.

DATED this 9th day of February, 1990.

KENNETH O. EIKENBERRY
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IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF THURSTON

90 2 00327 0

ATTORNEY'S NAME _____ CASE NUMBER _____

Please check the appropriate boxes according to your best knowledge as of this date. The following information is needed and will be used solely for management information purposes in order to improve court services.

PLEASE CHECK ONE BOX WHICH BEST DESCRIBES THE NATURE OF THE ACTION FILED

CIVIL

TORT

TMV [ ] TORT, MOTOR VEHICLE
TTO [ ] TORT, OTHER
MED [ ] MEDICAL MALPRACTICE
PIN [ ] PERSONAL INJURY
WDE [ ] WRONGFUL DEATH
PRP [ ] PROPERTY DAMAGES

COMMERCIAL/CONTRACTUAL

COM [ ] COMMERCIAL/CONTRACT
COL [ ] COLLECTION

PROPERTY/CONDEMNATION

FOR [ ] FORECLOSURE
QTI [ ] QUIET TITLE
CON [ ] CONDEMNATION/EMINENT DOMAIN
UND [ ] UNLAWFUL DETAINER

ADMINISTRATIVE LAW REVIEW

ALR [ ] REVIEW OF JUDGMENT BY ADMIN AGENCY

CIVIL APPEAL FROM LOWER COURT

LCA [ ] DE NOVO APPEAL OF CIVIL ACTION
LCI [ ] LOWER COURT APPEAL-INFRACTION
HTO [ ] HABITUAL TRAFFIC OFFENDER

OTHER CIVIL COMPLAINTS/PETITIONS

WHC [ ] WRIT OF HABEAS CORPUS
WRM [ ] WRIT OF MANDAMUS
WRR [ ] WRIT OF RESTITUTION
WRV [ ] WRIT OF REVIEW
WMW [ ] WRIT, MISC.
CHN [ ] CHANGE OF NAME
MST [ ] MINOR SETTLEMENTS
MSC [ ] OTHER COMPLAINT OR PETITION MISC.
DVP [ ] DOMESTIC VIOLENCE
INJ [ ] INJUNCTION
HAR ( ) UNLAWFUL HARASSMENT

MATTERS FILED WITH THE CLERK

TAX [ ] TAX WARRANTS
ABJ [ ] ABSTRACT OF JUDGMENT
TRJ [ ] TRANSCRIPT OF JUDGMENT
FJU [ ] FOREIGN JUDGMENT

DOMESTIC RELATIONS

DIS [ ] DISSOLUTION
INV [ ] INVALIDITY/ANNULMENT
MOD [ ] MODIFICATION (FOREIGN JDGMT)
SEP [ ] SEPARATE MAINT. (LEGAL SEPAR)
MWA [ ] MANDATORY WAGE ASSIGNMENT
RIC [ ] RECIPROCAL, IN-STATE (COUNTY)
ROC [ ] RECIPROCAL, OUT-OF-STATE (COUNTY)
CUS [ ] CHILD CUSTODY
OSC [ ] OUT-OF-STATE CHILD CUSTODY
MSC [ ] OTHER DOMESTIC RELATIONS, MISC.

PROBATE

ABS [ ] ABSENTEE
DSC [ ] DISCLAIMER
EST [ ] ESTATE
FNW [ ] FOREIGN WILL
WLL [ ] WILL ONLY
MSC [ ] MISCELLANEOUS

GUARDIANSHIP

GDN [ ] GUARDIANSHIP
G/E [ ] GUARDIANSHIP/ESTATE
LGD [ ] LIMITED GUARDIANSHIP
MST [ ] MINOR SETTLEMENTS

ADOPTION

ADP [ ] ADOPTION
REL [ ] RELINQUISHMENT
R/A [ ] RELINQUISHMENT/ADOPTION
TER [ ] TERMINATION OF PARENTAL RIGHTS
T/A [ ] TERMINATION/ADOPTION
MSC [ ] MISCELLANEOUS
PAT [ ] PATERNITY (DOMESTIC RELATIONS)

MENTAL ILLNESS

MI [ ] MENTAL ILLNESS
ALT [ ] ALCOHOLIC TREATMENT