

- FIGURE 16. Attitude to Land Use Regulations for Protecting Water Quality in Keuka Lake - Mean Scores From the Likert Scale
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## I. INTRODUCTION

In the Summer of 1987, as part of its work towards dealing with the the aquatic vegetation problem in Keuka Lake, the Yates County Aquatic Vegetation Committee conducted a mail survey of property owners in the Keuka Lake watershed. A 70% response rate was attained, representing property owners in the following towns: Jerusalem, Milo, Barrington, Pulteney, Urbana, Wayne, Wheeler, and Bath. Figure 1 is a map showing the watershed boundary and location of the eight towns around the lake.

The survey was designed to answer four basic questions:

1. What are the characteristics of property owners in the watershed?
2. What is the property owner's perception of water quality in Keuka Lake?
3. What are property owner attitudes to regulations for protecting lake water quality?
4. Who do property owners feel should pay the costs of water quality protection?

The Yates County Aquatic Vegetation Committee believed that obtaining answers to these questions was a necessary first step in designing long term solutions to lake water quality issues.

## II. METHODOLOGY

The survey instrument was a mail questionnaire consisting of 19 questions, all but one being of the closed format type. Many of the questions required respondents to rank their preferences on a 1 to 5 scale, thus allowing comparisons within and between populations of respondents. In addition a Likert scale (Question 12) was developed to measure property owners attitudes to land use regulations for protecting lake water quality. To develop a Likert scale,

"...a set of items, composed of approximately an equal number of favourable and unfavourable statements concerning the attitude object, is given to a group of subjects. They are asked to respond to each statement in terms of their own degree of agreement or disagreement. Typically they are instructed to select one of five responses: strongly agree, agree, undecided, disagree, or strongly disagree. the specific responses to the items are combined so that individuals with the most favourable attitudes will have the

was achieved, amounting to 928 questionnaires. Approximately 3% of these were returned without their respondent identity number and another 2% were returned but not completed. Not included in this 70%, a further 1.5% were returned as undeliverable by the Post Office.

Not all questionnaires were fully completed, with the number of missing values varying from question to question. Some of the questions, such as Question 19 inquiring about average incomes, had as much as a 20% non-response rate.

Appendix A reveals that 60% of respondents live on the lake (but do not necessarily have lake frontage) and an additional 18.7% live less than two miles from the lake. As distance from the lake increases, the number of respondents decreases: this may be due to a declining interest in the lake with distance, or a reflection of the higher density of population close to the lakeshore.

A follow up survey of non-respondents was not conducted owing to bias that would be introduced by ease of access to year round residents and difficulties of reaching seasonal residents.

## V. DATA ANALYSIS

The returned questionnaires were coded, creating a matrix of 57 variables by 928 respondents, and the data entered into a worksheet. The data were analysed on a mainframe computer using the Statistical Package for the Social Sciences (SPSS).

The data were analysed to answer the four questions mentioned above. First all respondents representing the entire watershed were analysed, then the sample was broken down into a number of sub-groups to enable comparisons to be made. Results are reported from the following groupings of respondents:

1. All respondents in the watershed
2. (a) Those with lake frontage  
(b) Those without lake frontage
3. (a) Members of the Keuka Lakeshore Property Owners Association (KLSP0)  
(b) Non-members
4. (a) Recent residents (arrived in the last 15 years)

The average number of occupants per residence varies from 0 to 60, the latter value reflecting a summer camp's residents. The average is 3.02 people per residence. Of the entire watershed, 30% are members of the Keuka Lakeshore Property Owners Association (KLSPO).

Length of property ownership in the watershed ranged from zero to 80 years, with a mean of 19.3 years. 49.1% of respondents have lived in the watershed for over 15 years, 50.9% have arrived in the last 15 years. Both recent and established residents are divided almost equally between seasonal and year round property owners. (47.2% of Recent and 45.2% of the Established groups are seasonal residents.)

## 2. Comparison: With and Without Lake Frontage.

Property owners can be divided into those with and those without lake frontage: 53.7% have frontage and 46.3% do not. Distance from the lake for those without frontage averaged 0.99 miles.

Of those with lake frontage, 33.5% are year round residents. Thus, one third of lakeshore residences are occupied permanently. This last figure verifies information obtained from the septic survey data and from conversations with the watershed inspector (Marht, 1987). There is a strong relationship between Seasonal residence and lakefront property ownership. 80% of seasonal residents have lake frontage. However, only 53.5% of lakefront property owners (28.6% of the total watershed population - see Figure 4), are members of the lakeshore property owners association.

Those with lake frontage also have higher levels of income and education than those who live away from the lake. Almost 64% of those with frontage have had some graduate education compared to 36% for those without lake frontage. 75% of those with frontage have incomes of over \$30,000/yr. compared to 42.6% of those without frontage.

## 3. Comparison: Member of KLSPO Assoc. v. Non-member

Similar socio-economic differences are noted when the population is broken down into those who are members of the property owners association and those who are not. Nearly 75% of members are college graduates or have had some graduate school, against 42% for non-members. 53% of members have incomes above \$50,000/yr., while the figure for non-members is just under 25%.

poorest for Fishing. This is surprising but perhaps indicates near-shore water quality problems. A 1973 study of Canadarago Lake in New York state gave similar results. There the water quality was generally rated high and rated best for Boating, Swimming and Fishing, in that order (Saint, et al., 1973).

Question 6 asked about deterioration in lake water quality. Figure 7 gives the percentage figures for deterioration in various time periods. 37.1% said they had not seen any deterioration. Of those who noted deterioration, the largest number, 27.1%, noted it had occurred in the last 5 years. Care should be exercised in interpretation here because the distribution of respondents by length-of-residence will skew the figures.

Question 7 asked information on how changes in lake water quality have affected respondent's use of the lake. Almost half of respondents mentioned some type of problem here. By far the most significant problem was weeds, 43.7% of those who commented mentioned some aspect of weeds as affecting their use. Other quality changes of importance were, "Not as Clean" (6.6%), "Sediment" (5.9%), "Algae" (5.5%), and "Oil/gas film on the surface" (4.3%). Over 30 different quality problems were mentioned ranging from the Flood of 1972 to trash, and from overcrowding to raw sewage. The results are listed in Appendix A.

The perceived influence of weeds is also seen in Questions 8 and 9 where respondents asked about the existence of an aquatic weed problem and its seriousness. Figure 8 shows that 80% of the property owners in the watershed said that there was a weed problem. More of those with lake frontage thought there was a problem than those without. Figure 9 indicates that one fifth of the entire watershed rate aquatic weeds as a serious problem and over half (56%) rate it as more than a minor problem.

## 2. Comparison: With and Without Lake Frontage.

Rating the lake for swimming, fishing, and boating there are few differences between the groups. They both follow the pattern of rating the lake best for boating and worst for fishing, though in all cases a large percentage of respondents rated the water quality as good or excellent. Table 2 contains averaged water quality ratings for the Total Watershed and all sub-groups revealing that there are no significant differences between those with, and those without, lake frontage.

Again the pattern of seeing lake water quality highest for boating and lowest for fishing is followed.

On Question 6 (Deterioration in Lake Water Quality) fewer members of the Association (28%) than non-members (41%), marked that there had been no deterioration. Both groups had the largest percentage of respondents indicating that deterioration had occurred in the last five years, 33.3% for members and 24.6% for non-members.

When asked, 88.3% of members and 77.5% of non-members said there was a weed problem. Of these, over one fifth in each group rated the problem as serious. Thus it would appear that people are separating the issue of lake water quality from that of aquatic vegetation (or weeds).

#### 4. Comparison: Recent Arrivals v. Established Residents

When water quality ratings for swimming, boating, and fishing are averaged, there are significant differences (at  $\alpha = .05$ ) between the two groups. Table 2 shows that the groups both give the lake a score of 3.2 for Swimming but the Established residents give lower scores for Boating and Fishing. Overall the Recent residents rate the water quality higher.

Again, on the issue of deterioration in lake water quality, fewer of the Recent residents have noted a decline. 39.4% of Recent arrivals said that there had been no deterioration, compared to 35.2% of Established residents. Of those who saw deterioration, a higher percentage of new residents see the decline in quality as more recent. For example, 8.2% of new residents see a deterioration in the past year, compared to 1.4% of old residents. Almost 23% of established residents have seen a decline in the last 10 to 25 years. This would indicate that any deterioration in water quality has been ongoing for some time and is not just a recent phenomenon.

Large percentages of both groups said there was a weed problem and that it was serious. 79% of Recent and 84% of Established residents stated that the lake has a weed problem and over 50% of each group rated it as more than, "A Minor Problem".

general attitudes to land use regulations, rather than to activities on this lake in particular. Thus the final scale consists of 10 items.

Reliability analysis of the scale was conducted using Cronbach's Alpha. This is a measure of internal consistency of the items in the scale. Alpha is based on a measure of the average intercorrelation among all items on the scale (Carmines and Zeller, 1979). Essentially, alpha is giving a measure of whether each of the items is measuring the same thing. A low alpha (Alpha takes a value between 0 and 1) would mean that items in the scale were not addressing the same construct. Alpha levels below 0.7 are generally considered to be unacceptable. By dropping four of the items from the scale an alpha of 0.912 was attained. Thus, we can assume that the scale reliably measures the construct, "Attitude to land use regulations for protecting the water quality in Keuka Lake".

The mean score for the watershed for the 10 item scale is 3.65, indicating that in general, people agree rather than disagree with such regulations. This is in agreement with the average score of 3.97 from Question 9, measuring attitudes to specific regulations for households to control nutrient loading to the lake.

Question 16 asked about the type of government that would be best for controlling land use in the watershed. Average scores for the entire watershed show that the "Watershed-wide District", with a score of 3.9, was rated as the most suitable form of government (on a scale where 1 = NOT AT ALL SUITABLE to 5 = MOST SUITABLE). The least suited government entity was held to be the "Local (Town)" level which has a mean score of 2.7.

## 2. Comparison: With and Without Lake Frontage.

In general those with lake frontage are more favorable towards regulations for protecting lake water quality. On Question 9, those with lake frontage (mean score = 4.12) favor specific regulations for households slightly more than those without frontage (mean score = 3.77). Figure 14 however, reveals that large percentages of both groups favor regulation.

Question 10, illustrated in Table 3, revealed some interesting differences between the groups. Highest ratings were given to, "Increased Regulation of Lakeshore Property Septic Tank Systems" (c), "Require all farmers in the watershed to use soil conservation methods" (e), and "Place

most suited to dealing with the problem. The group with frontage has a higher mean score (4.1) than the group without frontage (3.7), indicating that lakefront owners are more inclined to prefer this form of government entity. Again, the local government body is the least favored, though those without frontage are slightly more favorable towards it (mean = 2.9), than those with frontage (mean = 2.6).

### 3. Comparison: Member of KLSPO Assoc. v Non-member

This grouping of the respondents shows similar characteristics to the grouping by lake frontage. Members tend to be more in favor of specific regulations (Quest. 9) than non-members, though over 70% of each group favors, or strongly favors them. For both groups regulating lakeshore septic systems (c), is the most preferred method of dealing with the problem. Item (h), "Place Stricter Controls on Development near the Lake" is also rated highly (4.2 and 3.8 for members and non-members respectively). Table 3 gives the complete breakdown of mean scores between the groups.

Members have a higher Likert score (3.97) than non-members (3.51) and again, the difference is statistically significant at an alpha level of 0.05.

On the matter of the most suitable government type (Question 16), both groups favor the watershed-wide district for controlling land use. Members have a mean score of 4.2 (slightly higher than that for the group with lake frontage), compared to 3.8 for non-members.

### 4. Comparison: Length of Residence

Compared to Established residents, the Recent residents tend to be more in favor of specific regulations (Quest.9) to control nutrients but again, over two thirds of both groups favor regulation. For dealing with the problems, both groups favor increased regulation of lakeshore septic, as in the other groupings described above. The only significant difference (see Table 3) is for item (d), the requirement for lakeshore properties to have holding tanks. Recent residents are more in favor of this method (mean = 3.4) than Established residents (mean = 2.9). This is unexpected since those with lake frontage are evenly divided between Recent and Established residents.



per year. Figure 17 shows the percentage of respondents in each category.

The mean willingness-to-pay can be calculated two ways, first by ignoring those who did not respond to this question, and second by including them assuming that a non-response is equivalent to a zero payment. There were a total of 143 non-respondents for this question (approx 15.4% of total respondents). The first method of calculation involves taking the mid-point of each payment category, multiplying by the number of people in that category to obtain a contingent payment figure which is then divided by the total number of respondents (768). This gives a figure of \$36.23 per respondent per year. Using the second method, non-respondents are considered as paying zero, the figure obtained is \$30.54 per respondent per year. If we assume that each respondent represents a household, then by multiplying one of these figures by the number of households in the watershed we can arrive at a total willingness-to-pay on an annual basis for keeping the lake clean. Taking the more conservative figure, and assuming approximately 6,000 households in the watershed, the willingness-to-pay to keep the lake clean is \$183,240 per year.

Question 15, asked how residents thought lake water quality affected property values near the lake. 73% said that property values were much affected or very much affected. Figure 18 points to the fact that a large number of respondents think that their property values are influenced by water quality. The mean score for the watershed (on a scale where 1 = NONE, TO 5 = VERY MUCH AFFECTED) was 4.0.

These results support the findings reported by Young (1984) in a study of St. Alban's Bay on Lake Champlain. Decline in water quality in the Bay during the period of study had was attributed to high bacterial counts, the presence of aquatic vegetation (including milfoil), and algal blooms. Young compared properties located adjacent to the bay with similar properties on the larger, but cleaner lake, and concluded that property prices around the bay were depressed by approximately 20%.

## 2. Comparison: With and Without Lake Frontage.

The two groups show similar scores for Question 13, asking who should pay to keep the lake clean. The largest difference is on the item "Everyone in the Watershed", where those with lake frontage gave an average score of 2.9 and those without gave a score of 2.3. This indicates perhaps

On the contingent payment question, over 55% of members indicated they would pay over \$50 per year while only 23.9% of non-members would do the same. Members were more aware of water quality effects on property values, almost 54% indicating they would be very much affected, compared to 37% for non-members.

### 3. Comparison: Length of Residence.

Question 13 revealed the same pattern as in the other groups where it was felt polluters should pay most and lake association members should not be singled out for payment.

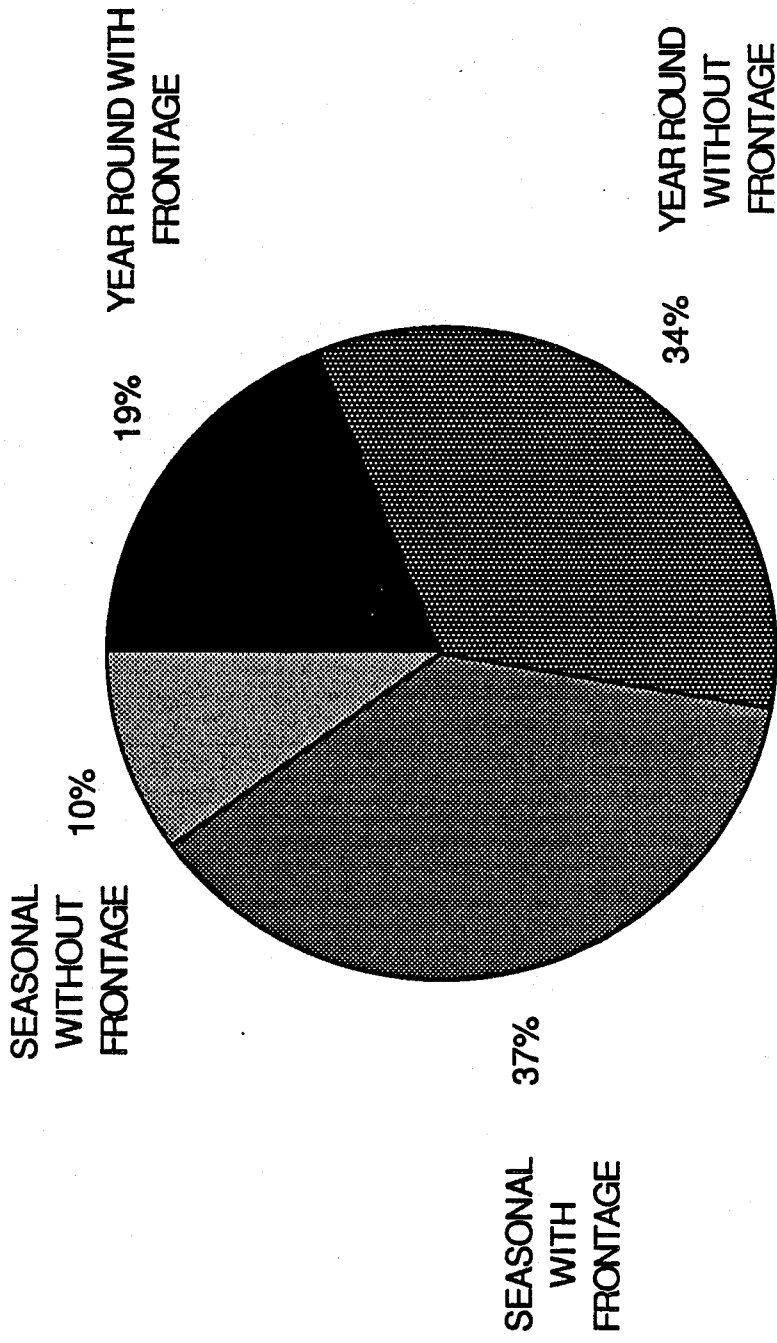
The contingent payment question showed less of a disparity between groups, 36.3% of new residents compared to 31.2% of old residents are prepared to pay over \$50 per year for a clean lake. This perhaps is due to the fact the the proportion of lake front owners is similar in both groups.

In the property value effect question, recent residents were slightly more concerned about the effects of water quality. 47.9% as opposed to 37.1% of Established resident said property values would be very much affected.

## X. POTENTIAL GENERALISATIONS FROM THE SURVEY RESULTS

It is felt that the survey data gives a relatively accurate description of conditions in the Keuka Lake watershed and as such the findings can be generalised from the sample to the whole watershed. Indications are that the information may be useful for other lakes in the Finger Lakes Region. Many of these lakes have similar morphology and are facing similar problems of aquatic vegetation growth. They reflect the similar types of land use, many have high levels of lakeshore development and draw their seasonal residents from a similar geographic area. Thus these results could be generalised to the Finger Lakes Region with a high degree of validity. It is doubtful however if these results could be used outside of this region, where population characteristics may differ markedly, and physical parameters of the lake may result in the need for other solutions to problems.

**FIGURE 2: PROPERTY OWNER CHARACTERISTICS  
TOTAL WATERSHED**



**FIGURE 3(B): YEAR ROUND RESIDENTS**

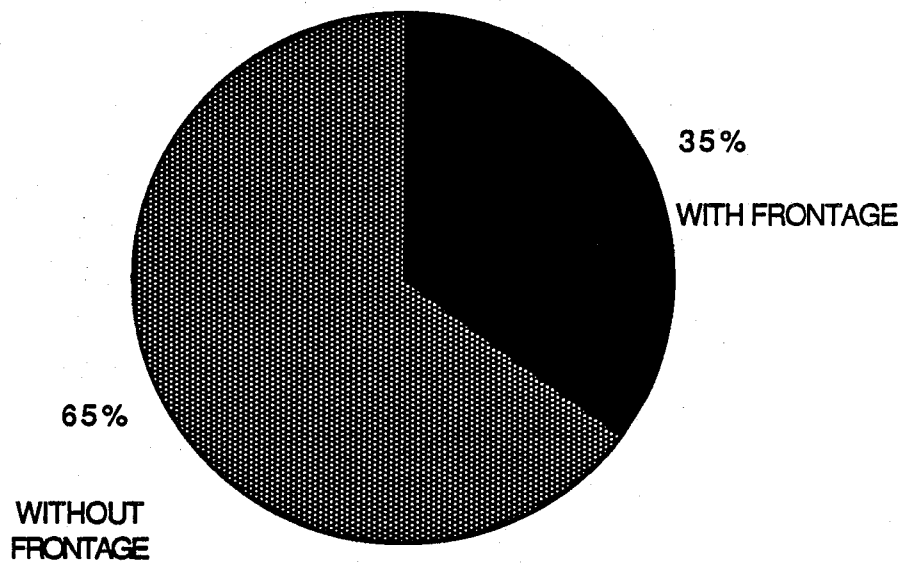


FIGURE 5: LAKE FRONTAGE AND LENGTH OF RESIDENCE-PERCENT OF TOTAL WATERSHED

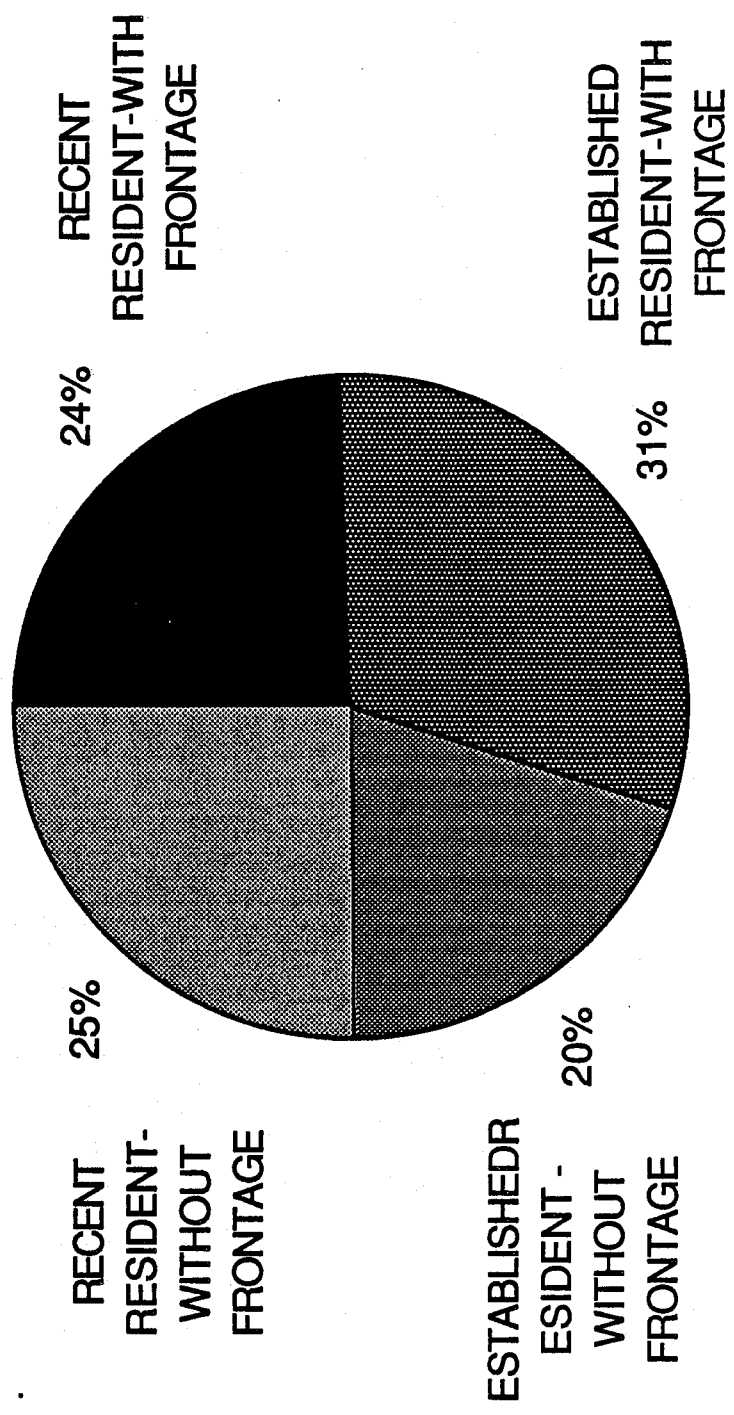


FIGURE 7: DETERIORATION IN LAKE  
WATER QUALITY - PERCENTAGE OF  
TOTAL WATERSHED

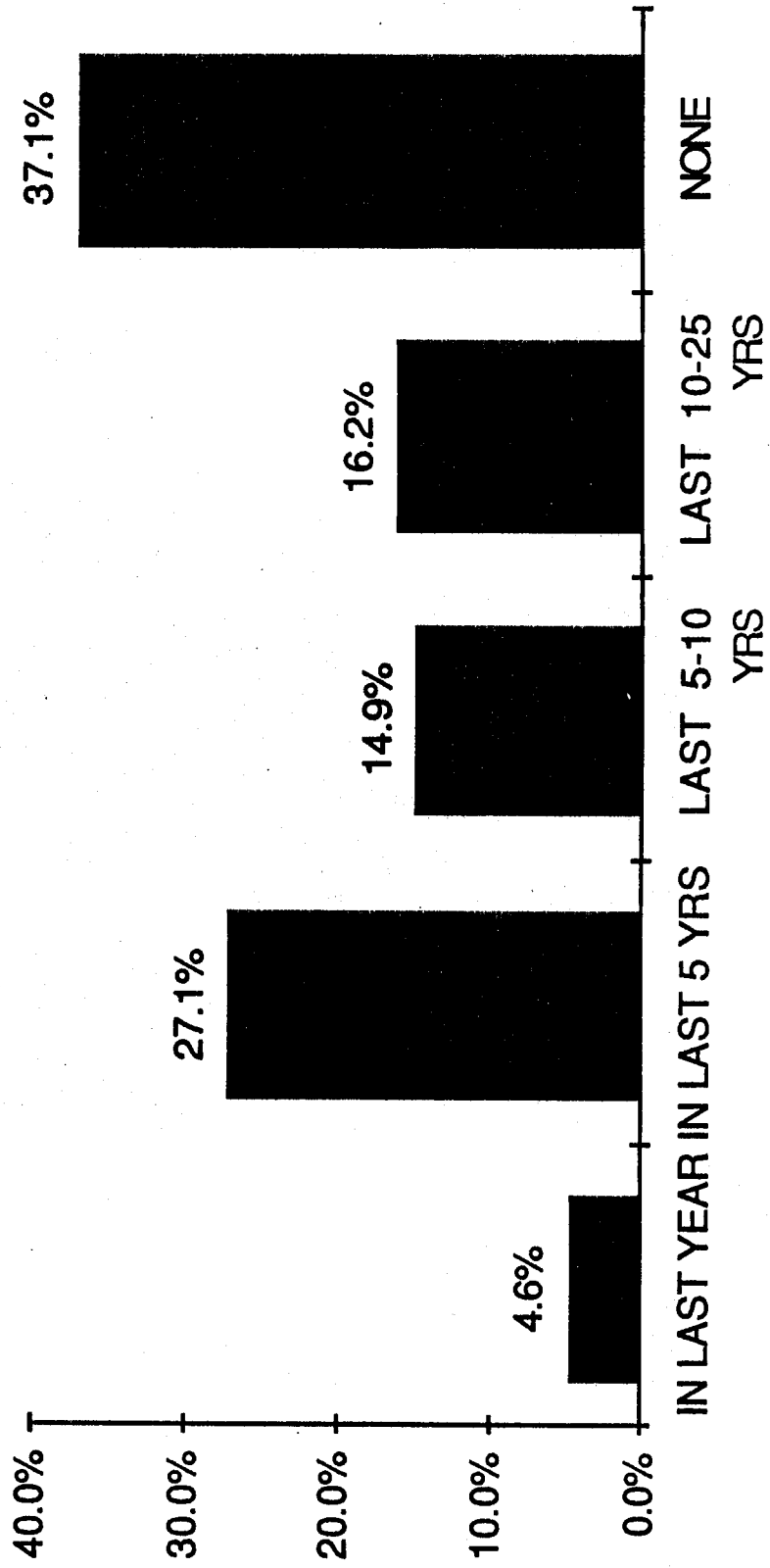


FIGURE 9: PERCEIVED SERIOUSNESS OF WEED PROBLEM -  
PERCENTAGE OF TOTAL WATERSHED

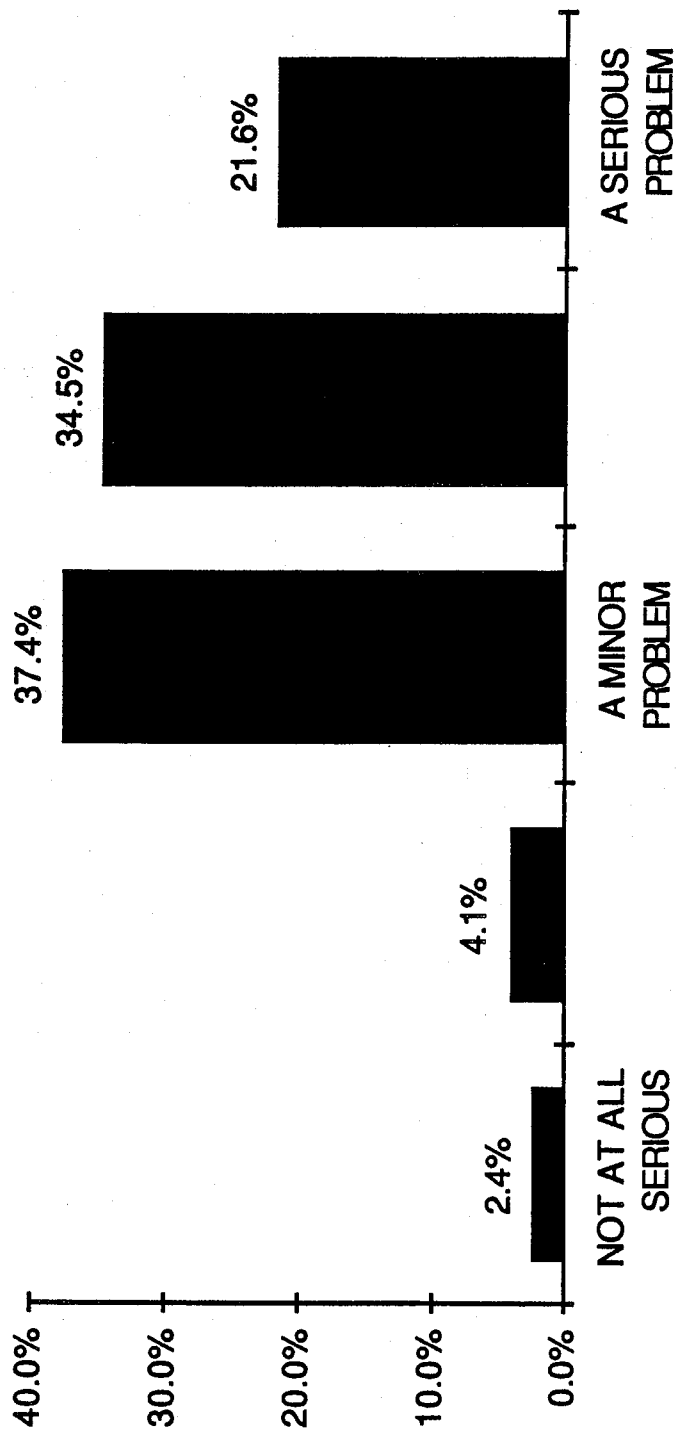


FIGURE 11: PERCEIVED SERIOUSNESS OF WEED PROBLEM - GROUPS  
WITH AND WITHOUT LAKE FRONTAGE

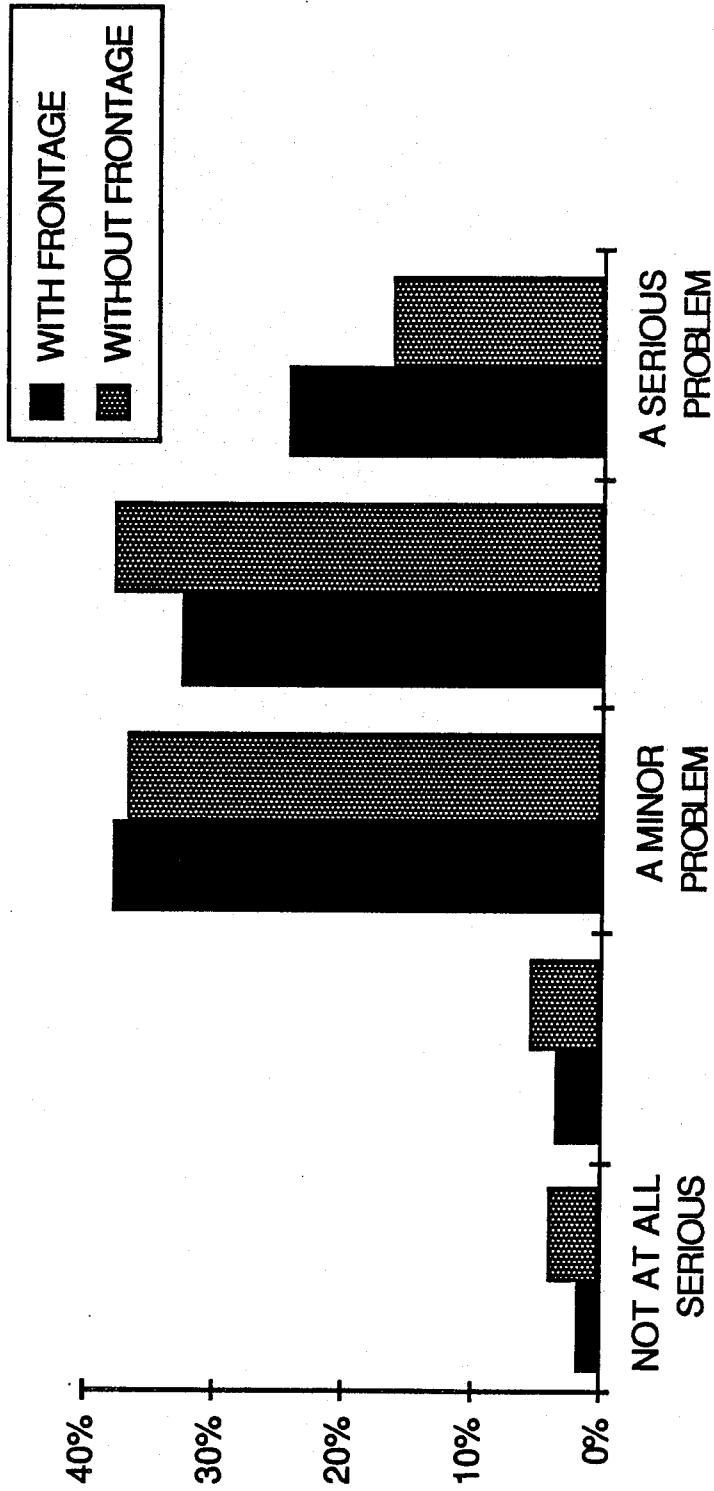




FIGURE 13: ATTITUDE TO PRESENT REGULATIONS FOR PROTECTING LAKE WATER QUALITY - PERCENT OF TOTAL WATERSHED

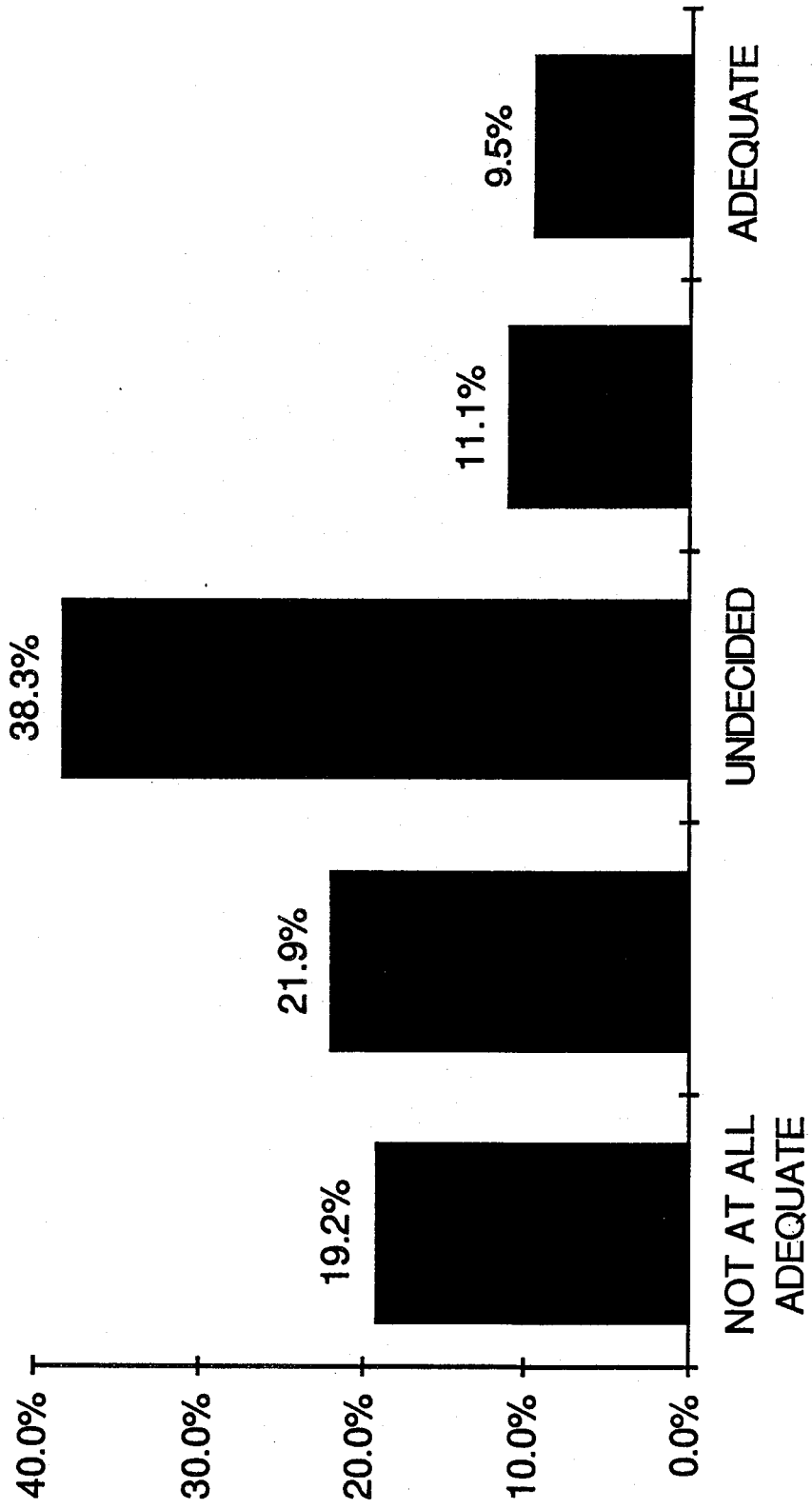
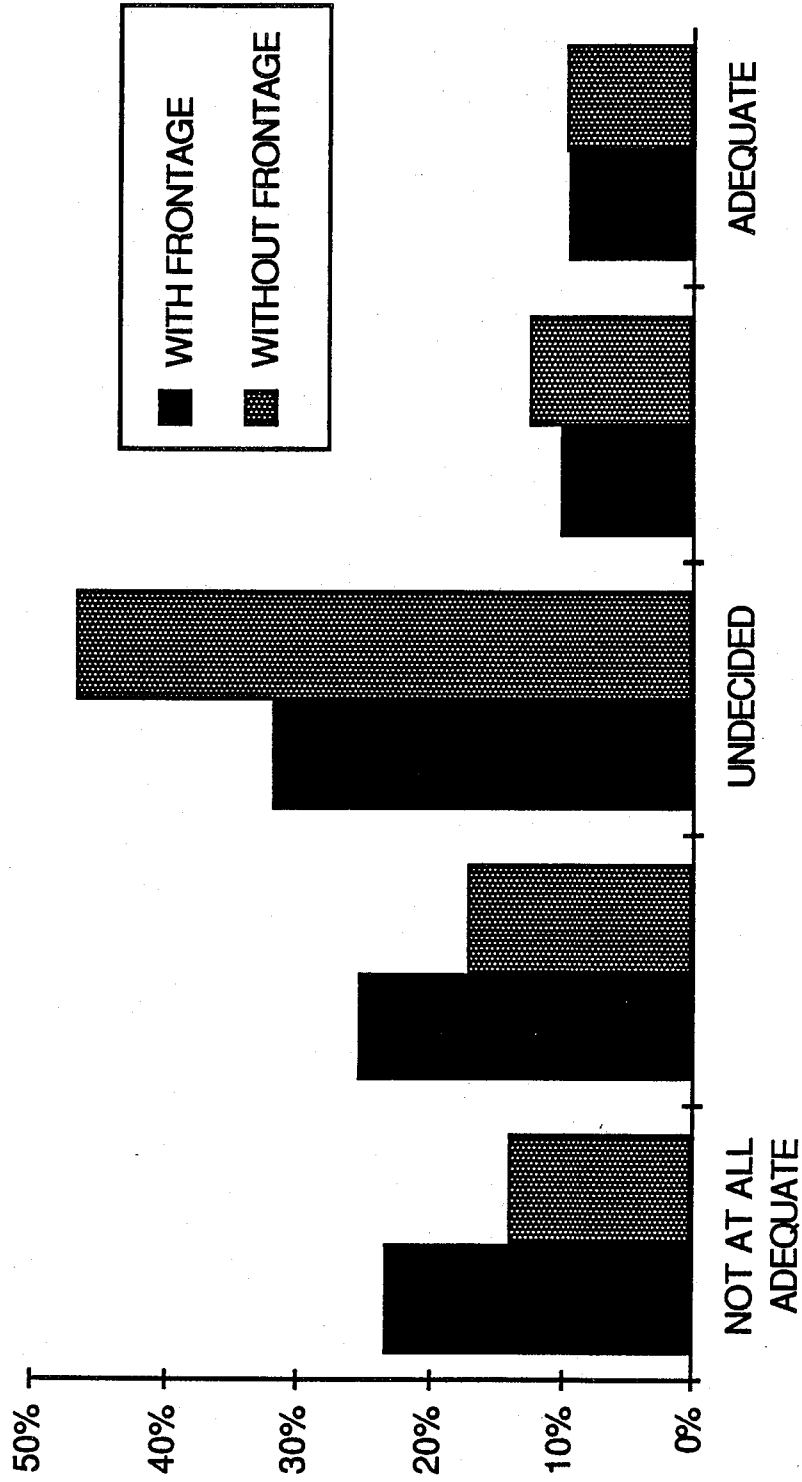
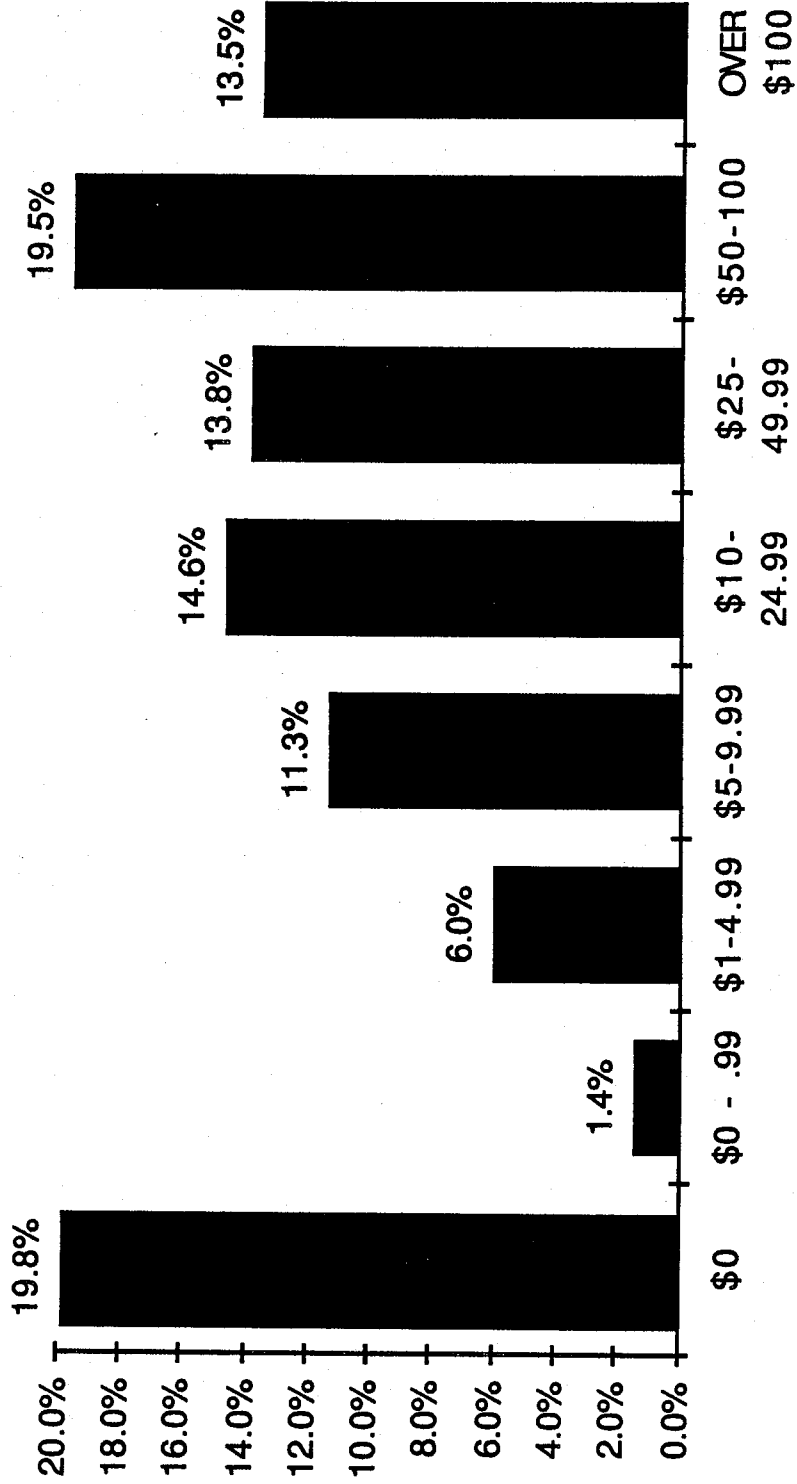


FIGURE 15: ATTITUDE TO PRESENT REGULATIONS FOR PROTECTING LAKE WATER QUALITY - GROUPS WITH AND WITHOUT LAKE FRONTAGE



**FIGURE 17: WILLINGNESS-TO-PAY TO KEEP THE LAKE CLEAN. ANNUAL  
PAYMENT PER HOUSEHOLD - TOTAL WATERSHED FIGURES**



**FIGURE 19: WILLINGNESS-TO-PAY TO KEEP THE LAKE CLEAN.  
ANNUAL PAYMENT PER HOUSEHOLD - GROUPS WITH AND  
WITHOUT LAKE FRONTAGE**

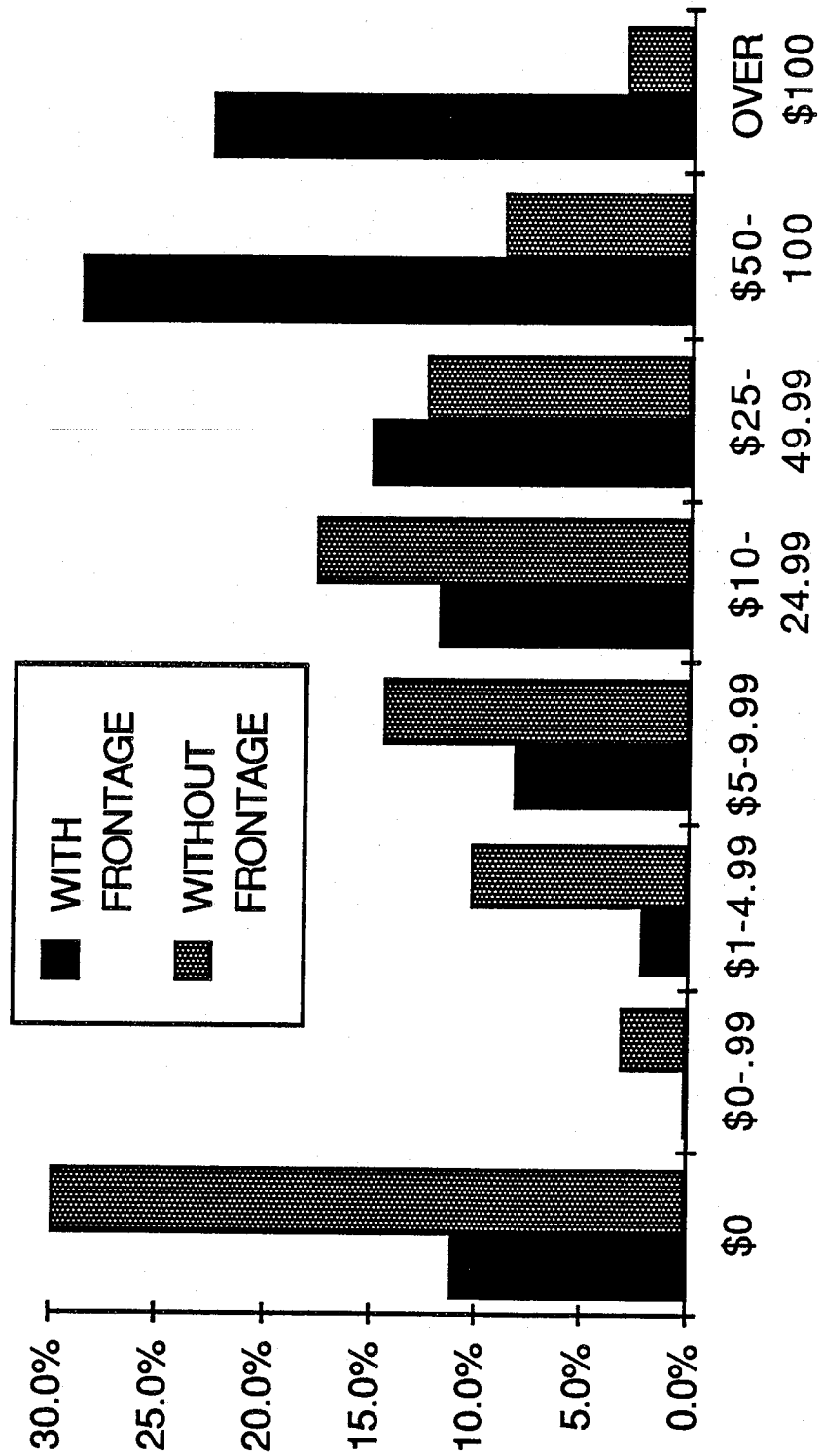


TABLE 1: LAKE WATER QUALITY RATINGS FOR THREE ACTIVITIES -  
PERCENTAGE OF THE TOTAL WATERSHED

	EXCELLENT	GOOD	FAIR	POOR	NOT APPLICABLE
SWIMMING	36.8%	48.0%	11.5%	2.9%	0.8%
BOATING	52.4%	40.0%	5.4%	1.1%	1.3%
FISHING	25.1%	42.9%	22.5%	7.2%	2.3%

TABLE 3: AVERAGE SCORES FOR PREFERRED METHODS OF CONTROLLING EXCESSIVE NUTRIENT LOADING TO THE LAKE

RESPONDENT GROUP	METHOD							
	a	b	c	d	e	f	g	h
TOTAL W'SHED	3.5	1.7	4.2	3.2	3.7	3.3	2.1	3.9
WITH LAKE F	3.4	1.7	4.1*	2.6*	4.1*	3.6*	2.0*	4.1*
WITHOUT L.F	3.6	1.6	4.3*	3.7*	3.6*	2.9*	2.2*	3.8*
YR ROUND RES	3.6	1.7	4.3*	3.3*	3.7*	3.1*	2.1	4.0
SEASONAL RES	3.5	1.7	4.2*	3.0*	4.0*	3.6*	2.1	4.0
MEMBER KLSPO	3.4	1.8*	4.3	2.6*	4.1*	3.7*	2.1	4.2*
NON-MEMBER	3.5	1.6*	4.2	3.4*	3.7*	3.2*	2.1	3.8*
RECENT RESID.	3.6	1.7	4.3	3.4*	3.9	3.4	2.0	3.9
ESTAB. RESID.	3.4	1.7	4.2	2.9*	3.8	3.2	2.1	4.0

\* Significant difference at  $\alpha = .05$

NOTE: Values in the table are mean scores derived from a scale where:

- 1 = LEAST PREFERRED
- 5 = MOST PREFERRED

KEY:

- a Mechanical harvesting of weeds
- b Use weed killing chemicals
- c Increased regulation of lakeshore property septic tank systems
- d Require all lakeshore properties to have holding tanks for waste water
- e Require all farmers in the watershed to use soil conservation methods
- f Restrict use of fertilizers in the watershed
- g Place limit on number of year round residences on the lakeshore
- h Place stricter controls on development near the lake

TABLE 5: MEAN SCORES FOR WHO SHOULD PAY TO KEEP THE LAKE CLEAN

RESP. GROUP	FED-ERAL	STAT	LOC	LAKE ASS.	LAKE USER	PROP OWN.	ALL	POLL-UTERS	FARM
W'SHED	2.6	3.1	2.8	2.3	2.9	2.9	2.6	3.9	2.6
WITH LF	2.6	3.2*	2.9*	2.1*	2.9	2.7*	2.9*	3.9	2.8*
W'OUT LF	2.6	3.0*	2.7*	2.6*	2.9	3.0*	2.3*	3.9	2.3*
Y ROUND	2.6	3.1	2.8	2.4*	2.9	2.9*	2.5*	3.8	2.4*
SEASONAL	2.6	3.2	2.9	2.2*	2.8	2.8*	2.8*	3.9	2.8*
MEMBER	2.4*	3.1	3.0*	2.2*	3.0	2.8	3.0*	3.9	2.9*
NON-MEM	2.6*	3.1	2.8*	2.4*	2.9	2.9	2.5*	3.8	2.5*
RECENT	2.6	3.1	2.9	2.3	2.9	2.9	2.6	3.9	2.6
ESTAB.	2.5	3.1	2.8	2.3	2.9	2.8	2.6	3.8	2.6

\* Significant difference at  $\alpha = .05$

NOTE: Values in the table are mean scores derived from a scale where:

- 1 = SHOULD PAY NONE
- 3 = SHOULD PAY SOME
- 5 = SHOULD PAY ALL

KEY:

FEDERAL	Federal Government
STAT	State Government
LOC	Local Government
LAKE ASS	Keuka Lakeshore Property Owners Association
USER	Lake Users
PROP OWN.	Lakeshore Property owners
ALL	Everyone in the watershed
POLLUTERS	Those who cause the pollution
FARM	Farmers in the watershed

KEUKA LAKE WATERSHED SURVEY.

1. Does your property have lake frontage?

YES 53.7%  
NO 46.3%

If 'NO' then give approximate distance of your house from the lake:

DISTANCE (MILES)	PERCENT	Mean = 0.99 mile
0	60.0	
<2	18.7	
2-3.99	9.0	
4-5.99	6.3	
6-7.99	1.6	
>8	1.3	

2. What is your average length of residence per year in the Keuka Lake watershed (check one):

WEEKENDS ONLY.....	6.5%	
PART OF SUMMER ONLY.....	5.4%	
PART OF SUMMER PLUS SOME WEEKENDS..	14.9%	SEASONAL = 46.7%
WHOLE SUMMER.....	6.6%	
WHOLE SUMMER PLUS SOME WEEKENDS....	13.4%	
YEAR AROUND.....	53.3%	YEAR ROUND = 53.3%

3. What is the average number of people in residence?:

NO. OF PEOPLE	PERCENT	Mean = 3.02
0	1.8	
1	8.0	
2	39.0	
3	16.3	
4	22.2	
5	7.1	
6	3.2	
>6	2.5	
Missing	7.5	

4. Are you a member of the Keuka Lakeshore Property Owners Association?

YES 29.9%  
NO 70.1%



If you answered YES, how serious would you rate the aquatic weed problem (Please circle one number):

2.4%	4.1%	37.4%	34.5%	21.6%
1	2	3	4	5
NOT AT ALL SERIOUS		A MINOR PROBLEM	<u>Mean=3.7</u>	A SERIOUS PROBLEM

9. Would you be in favor of specific regulations (such as increased septic system inspections, restrictions on fertiliser use, regular septic tank pumping) for households in the watershed to control the nutrient loading to Keuka Lake(circle one number):

3.3%	5.3%	18.3%	37.2%	36%
1	2	3	4	5
STRONGLY AGAINST	AGAINST	UNDECIDED	FAVOR	STRONGLY FAVOR
		<u>Mean=3.97</u>		

10. If an excessive loading of nutrients to the lake from a variety of sources were discovered, what do you feel would be the best way to deal with the problem. Circle one number for each alternative:

	b	g	d	f	a	e	h	c
	1	2	3	4	5			
	LEAST PREFERRED							MOST PREFERRED
a. MECHANICAL HARVESTING OF WEEDS.....	1			2	3	3.5	4	5
b. USE WEED KILLING CHEMICALS.....	1	1.7	2	3	4	5		
c. INCREASED REGULATION OF LAKESHORE PROPERTY SEPTIC SYSTEMS.....	1		2	3	4	4.2	5	
d. REQUIRE ALL LAKESHORE PROPERTIES TO HAVE HOLDING TANKS FOR WASTE WATER.....	1		2	3	3.2	4	5	
e. REQUIRE ALL FARMERS IN THE WATERSHED TO USE SOIL CONSERVATION METHODS.....	1		2	3	3.7	4	5	

- g. Regulations controlling land use around the lakeshore are unnecessarily strict..... \_\_\_\_\_
- i. The land use laws presently in existence are adequate to protect lake water quality..... \_\_\_\_\_
- j. Too many land use regulations will frighten people away from this area..... \_\_\_\_\_
- k. Land use regulations are more of a hindrance than an asset to an area such as this..... \_\_\_\_\_
- l. We do not need more land use controls as there are natural limits on what people can do on their land.... \_\_\_\_\_
- m. The lake is so large that land use controls to protect water quality are not practicable..... \_\_\_\_\_
- n. I will not be able to sell my property if there are too many restrictions on it..... \_\_\_\_\_

13. Who do you feel should pay for the cost of keeping the lake clean? Circle one number for each line:

	1	2	3	4	5	
SHOULD PAY NONE			SHOULD PAY SOME		SHOULD PAY ALL	
FEDERAL GOVERNMENT.....	1	2	2.6	3	4	5
STATE GOVERNMENT.....	1	2	3	3.1	4	5
LOCAL GOVERNMENT.....	1	2	2.8	3	4	5
LAKE ASSOCIATION MEMBERS.....	1	2	2.3	3	4	5
LAKE USERS.....	1	2	2.9	3	4	5
LAKESHORE PROPERTY OWNERS.....	1	2	2.9	3	4	5
EVERYONE IN THE WATERSHED.....	1	2	2.6	3	4	5
THOSE WHO CAUSE THE POLLUTION..	1	2	3	3.9	4	5
FARMERS IN THE WATERSHED.....	1	2	2.6	3	4	5

17. For how many years have you owned property in the Keuka Lake watershed?

Mean = 19.3 years

Range = 0 to 80 years

18. What is the highest year of school that you have completed?

(0.1%)	NEVER ATTENDED SCHOOL
(0.2%)	1-6 YEARS
(3.0%)	7-9 YEARS
(5.1%)	10-11 YEARS
(20.2%)	HIGH SCHOOL GRADUATE
(19.4%)	SOME COLLEGE
(23.5%)	COLLEGE GRADUATE
(28.5%)	SOME GRADUATE SCHOOL

19. What was your approximate total household income, before taxes, in 1986?

(5.3%)	\$0 0 9,999
(14.8%)	\$10,000 - 19,999
(19.6%)	\$20,000 - 29,999
(15.8%)	\$30,000 - 39,999
(11.6%)	\$40,000 - 49,999
(17.6%)	\$50,000 - 75,000
(15.2%)	MORE THAN \$75,000

21.5% of respondents did not answer this question

I. CHARACTERISTICS OF PROPERTY OWNERS

TABLE 1: LAKE FRONTAGE AND DISTANCE FROM LAKE

RESPONDENT GROUP	LAKE FRONTAGE (PERCENT OF GROUP)		AVE. DISTANCE FROM LAKE
	YES	NO	MILES
TOTAL WATERSHED	53.7	46.3	0.99
YEAR ROUND RESID.	35.4	64.6	1.75
SEASONAL RESID.	79.8	20.2	0.72
MEMBER KLSPO	96.1	3.9	0.34
NON-MEMBER KLSPO	35.4	64.6	1.33
RECENT RESIDENT	49.6	50.4	1.14
ESTABLISHED RES.	61.0	39.0	0.90

TABLE 2: TYPE OF RESIDENT AND AVERAGE NUMBER IN RESIDENCE

RESPONDENT GROUP	(%) SEASONAL	(%) YEAR ROUND	AVE. NO. RESIDENTS
TOTAL WATERSHED	46.7	53.3	3.02
WITH LAKE FRONTAGE	66.5	33.5	3.14
WITHOUT LAKE FRONT	21.6	78.4	2.89
MEMBER KLSPO	68.9	31.1	3.18
NON-MEMBER KLSPO	35.9	64.1	2.92
RECENT RESIDENT	47.2	52.8	3.20
ESTABLISHED RES	45.2	54.8	2.80

**TABLE 5: INCOME LEVEL**

RESPONDENT GROUP	<\$30,000	\$30,000-70,000	>\$70,000
TOTAL WATERSHED	39.7	45.1	15.2
WITH LAKE FRONTAGE	24.9	51.7	23.4
WITHOUT LAKE FRONT	57.5	37.3	5.2
YEAR ROUND RESID	52.2	41.5	6.2
SEASONAL RESID	24.7	49.2	26.0
MEMBER KLSPO	17.3	53.4	29.3
NON-MEMBER KLSPO	49.0	41.4	9.6
RECENT RESIDENT	32.9	56.9	18.5
ESTABLISHED RES	45.9	42.5	11.6

(Values as a percentage of group totals)

TABLE 7: DETERIORATION IN LAKE WATER QUALITY (QUESTION 6)

RESPONDENT GROUP	IN LAST YEAR	LAST 5 YRS	LAST 5-10 YRS	LAST 10-25 YRS	NONE
TOTAL WSHED	4.6	27.1	14.9	16.2	37.1
WITH LF	5.5	32.0	15.9	19.1	27.5
W'OUT LF	3.5	20.4	13.1	12.1	50.8
YROUND RES	5.1	26.0	14.9	16.5	37.4
SEASONAL R	4.6	29.4	15.4	15.1	35.4
MEM KLSPO	4.9	33.3	17.3	16.5	28.0
NON-MEM	4.6	24.6	13.9	15.9	41.1
RECENT RES	8.2	30.3	13.5	8.5	39.4
ESTAB RES	1.4	22.9	17.6	22.9	35.2

(Values expressed as percentage of group total)

TABLE 8: DESCRIPTION OF LAKE WATER QUALITY CHANGES (QUESTION 7)

QUALITY CONCERN MENTIONED	PERCENT OF RESPONDENTS
WEEDS	43.7
NOT AS CLEAN	6.6
SEDIMENT	5.9
ALGAE	5.5
OIL/GAS FILM ON SURFACE	4.3
TRASH	3.6
STOPPED DRINKING LAKE WATER	3.5
CLOUDY WATER	3.1
CROWDING	2.4
ODOUR	1.9
SEPTIC TANKS	1.5
COLIFORM BACTERIA	1.5
FLOOD OF 1972	1.5
OTHER	5.5
DO NOT USE THE LAKE	4.8

45.5% of respondents commented on lake water quality.

III. ATTITUDES TO REGULATIONS FOR PROTECTING LAKE WATER QUALITY

TABLE 11: ATTITUDES TO SPECIFIC REGULATIONS FOR HOUSEHOLDS  
(QUESTION 9)

RESPONDENT GROUP	SCORE				
	STRONGLY AGAINST	AGAINST	UNDECIDED	FAVOR	STRONGLY FAVOR
	1	2	3	4	5
TOTAL WSHED	3.3	5.3	18.3	37.2	36.0
WITH LF	2.4	4.4	13.5	37.7	41.9
W'OUT LF	4.3	6.5	24.2	37.0	28.0
YEAR ROUND	2.2	5.9	19.6	39.7	32.6
SEASONAL	3.6	4.4	15.8	36.1	40.2
MEMBER	1.6	4.1	13.4	37.8	43.1
NON-MEMBER	4.0	5.9	19.8	36.9	33.4
RECENT RES	2.7	3.7	15.4	39.0	39.3
ESTAB. RES	3.7	7.7	20.3	35.7	32.5

(Values expressed as a percentage of group total)

IV. WHO SHOULD PAY THE COST FOR KEEPING THE LAKE CLEAN

TABLE 13: WILLINGNESS-TO-PAY FOR A CLEAN LAKE  
(QUESTION 14)

RESPONDENT GROUP	ANNUAL PAYMENT IN \$					
	0	0-9.99	10-24.99	25-49.99	50-100	>100
TW	19.8	18.7	14.6	13.8	19.5	13.5
WITH LF	11.2	10.4	11.9	15.1	28.8	22.6
W'OUT LF	29.9	27.9	17.6	12.6	8.9	3.1
YR ROUND	22.9	21.8	17.8	14.1	14.4	9.0
SEASONAL	12.2	15.7	11.9	13.6	26.4	20.2
MEMBER	9.9	6.7	13.0	14.8	32.3	23.3
NON-MEMBER	24.1	23.3	15.2	13.5	14.3	9.5
RECENT RES	15.6	18.7	14.7	14.7	19.3	17.0
ESTAB. RES	23.3	18.1	14.6	12.8	20.1	11.1

(Values are expressed as percentages of group totals willing-to-pay that amount on an annual basis)



Aquatic Vegetation Committee  
Yates County Planning and Development Office  
431 Liberty Street  
Penn Yan, NY 14527

TO: Keuka Lake Watershed Districting Committee  
FROM: John Herring, Yates County Planning Office  
DATE: August 17, 1988  
RE: Districting Committee meeting

The next meeting of the districting committee will be on Tuesday, August 23, at 7:30 PM at the Urbana Community Room, in the Curtiss Museum in Hammondsport, NY.

I have enclosed some materials to be discussed at next week's meeting.

-Part I is a sample of some of the powers which several other areas in New York State have incorporated into lake districts. This is only a selection: Most of the districts I have looked at include nearly twice as many specifically enumerated powers, although some of these deal with minor administrative matters. (I will have complete copies of the legislation establishing these districts at the meeting.)

-The second enclosure is based on the results of our last meeting and is intended to provide a basis for discussion. I have selected several issues which were considered important and for each issue outlined two possible approaches for the district to use.

THIS IS NOT INTENDED TO BE A DRAFT OF DISTRICTING POWERS AND RESPONSIBILITIES. Instead, I hope we can use these alternatives as a way to focus attention on some of the particulars involved in setting up our program. There are a number of issues not covered by this outline. Also, for those issues covered, there are many alternatives I have not listed.

In order to make next week's meeting as productive as possible, please read and consider these enclosures. Feel free to write down any comments or questions you have and bring them along. I hope that at the meeting we will be able to look at these issues in some detail.

I look forward to seeing you next week.

JHH

## PART I

POWERS: (section 1) The commissioners of the Keuka Lake Watershed Management District shall have, in addition to any other powers conferred by this act, the authority and power, by action of the commissioners:

- (a.) to acquire, manage, operate, maintain, insure against loss or damage, repair, replace and sell any and all equipment and other personal property reasonably necessary to administer, operate and maintain the property owned by the Keuka Lake Watershed Management District;
- (b.) To acquire, manage, operate, maintain, repair and replace aquatic weed-cutting equipment;
- (c.) Subject to the provisions of this act, to acquire by purchase, lease, gift, devise or by condemnation pursuant to the eminent domain procedure law, real property required for any district purpose;
- (d.) Subject to provisions of this act, to lease or convey any real property owned by the district or to grant an easement or license with respect to such property, on such terms and conditions as the board may determine;
- (e.) To contract to sell water from Keuka Lake;
- (f.) To accept gifts of money and personalty;
- (g.) To hire whatever employees, advisors and consultants are deemed required from time to time to accomplish the district purposes;
- (h.) To manage and control the property of the district and to insure the same against loss or damage from any risk whatsoever;
- (i.) To place upon the ballot at any annual or special election any proposition which must be approved by the electors;
- (j.) To impose a reasonable charge for the use of district property under a lease with, or license from the district; and
- (k.) To contract with other town, county, village, state and federal governments and agencies for services or to participate with such for services authorized to be furnished by the district.

Section 2. Powers of the district upon vote of the electors. The Keuka Lake District, when authorized by a majority vote of the electors voting upon a proposition, shall have the power:

- (a.) To acquire personal property with a cost in excess of ten thousand dollars and all kinds of real property by purchase, gift, devise, condemnation pursuant to the eminent domain procedure law or otherwise at prices or amounts authorized by duly adopted proposition.
- (b.) To sell, transfer, and dispose of: (1) any real property; or (2) any personal property having a value in excess of ten thousand dollars. Such dispositions shall be on such terms and conditions and at such prices as shall by proposition be authorized.

- (c.) To take any other, further or additional action or perform any other additional service or function as shall be authorized by adoption of a proposition for such subject to the provisions of this act.
- (d.) To adopt restrictions and controls as to the type of uses of property owned by the district and type of structures that may be erected on lands of the district and into the waters of Keuka Lake and may provide that such restrictions shall apply to such lands when transferred by the district and thereafter shall continue as restrictions running with such lands.

## PART II

### Proposed Areas of Responsibility for Keuka Lake Watershed Management District.

- I. Septic Systems and Waste Water Disposal Regulation.
  - A. Development and promulgation of a set of uniform regulations covering wastewater disposal (presumably more stringent than existing state guidelines) to be enforced by local government.
  - B. Assumption of existing wastewater disposal regulation programs (watershed inspector program), to assure a uniform and centralized approach.
  - C. Point to consider: What about sewer development maintenance?
  
- II. Water Quality
  - A. Act as coordinating body so that all water quality information is centrally accessible.
  - B. Initiate and retain responsibility for maintenance of lakewide water quality monitoring programs, both ongoing and periodic.
  - C. Point to consider: What about special purpose programs?
  
- III. Erosion Controls
  - A. Development and promulgation of set of uniform regulations covering erosion control practices, to be implemented and enforced by local government. Such regulations (guidelines) may include but are not limited to erosion from agricultural lands, forest practices, construction activity, and public and private road construction and maintenance.
  - B. Same, except district retains implementation powers.
  - C. Point to consider: Should this be done as "erosion control" or as part of building code, zoning, and other existing programs?
  
- IV. Shoreline Development
  - a. Develop set of uniform guidelines for use by the individual towns.
  - B. Develop guidelines and enforce them at the watershed level.