Title
Electoral analysis of the Clean water bond law of 1974: patterns of support in a continuing environmental issue

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ELECTORAL ANALYSIS OF THE CLEAN WATER BOND LAW OF 1974:
PATTERNS OF SUPPORT IN A CONTINUING ENVIRONMENTAL ISSUE

by

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INSTITUTE OF GOVERNMENTAL STUDIES

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Californians for Clean Water, the citizens committee that sponsored Proposition 2, "The Clean Water Bond Act of 1974", allocated its residual campaign funds for a study of the characteristics of the support and opposition to the June 1974 bond measure as revealed by voting patterns.

The statewide bond measure, which had received an unusual degree of support from the public, passed by a very comfortable 71% to 29% margin. However, we found that for local water bond issues, there has not been such generous support. When this is coupled with the mandatory two-thirds vote requirements for passing local bond issues, the odds against them, of course, are increased proportionally.

We asked the Institute of Governmental Studies at the University of California in Berkeley to undertake a study of voting population patterns, with a breakdown of specific demographic traits, in order to understand why people vote the way they do. The findings and conclusions as brought out by the principal researcher, Ted Radosevich, are most revealing, and should be immensely valuable to local communities, as well as public and private institutions who are involved in bond measures.

The evidence indicates that there is general support for clean water, and suggests that the prospects for passage of local water bonds are good, provided that an effective information program is carried out, and local constituency groups are active in the campaign for clean water.

We are convinced that this report will not only aid immeasurably in understanding the pattern of voter characteristics pertaining to this issue, but will also inform communities in the planning of campaign strategies and public education.
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Evan Nossoff, Information Officer with the California State Water Resources Control Board, and Fletcher Chan, Senior Public Affairs Analyst with the Bank of America both contributed substantial time, advice, and energy to the study. Both gave much more time and help than they had to spare, and deserve a large part of the credit for the final product. Additional assistance provided by the Public Affairs Department of the Bank of America was also crucially important to the success of this research.

Neal McGowan, Head Programmer at the University of California's State Data Program greatly aided me in resolving data processing and computer problems, cheerfully and professionally answering my seemingly endless questions. Mickey Levy, now with the Congressional Budget Office, constructed a comparable data set for Contra Costa County which was used in similar research. Use of his materials significantly reduced my work in that phase of this research. Mary Fenneman, editor at the Institute of Governmental Studies, U.C. Berkeley provided invaluable editorial help by untangling my writing in many sections of the paper. Many others on the Institute and State Data Program staffs also contributed to the research and preparation of the written report. Finally, a great deal of thanks go to Beverle Arrants, who listened to my problems and complaints throughout the study, while also providing help reading and editing the draft version of the paper.

The mistakes, inaccuracies and shortcomings that do exist are solely my responsibility. I hope that they are few, and I know that without the aid of my colleagues there would be far more.

Ted C. Radosevich
August 1975
ABSTRACT

This paper reports research into voting patterns on Proposition 2 of the June, 1974, primary ballot in California -- the "Clean Water Bond Law of 1974." The passage of Proposition 2 fulfilled the state's obligation in the eventual federal, state, and local financing of water pollution control projects under provisions of the Federal Water Pollution Control Act. This research, in part, examined relationships between the vote on Proposition 2 and social, demographic, and political traits of the public for the purpose of providing information to those concerned with passage on the local level of similar water pollution control bonds, where a two-thirds majority is required for passage.

Public Opinion on Water Resource Problems

There has been little systematic research undertaken to determine public opinion on this subject. Preliminary studies, however, agree that people of higher socioeconomic status are more aware of, and concerned with water problems. These studies have also demonstrated that people who have been informed about water pollution problems are likely to be convinced of their seriousness, and vote for measures to alleviate them.

Related Electoral Studies

Little research exists on the nature of support for ballot propositions, especially measures like Proposition 2 which are characterized as non-controversial. Pertinent ballot proposition research addresses
two major areas of interest: (1) It has been found that higher turnout usually has an adverse effect on the success of ballot measures. (2) Negative votes on ballot propositions are more likely to come from persons or areas of lower socioeconomic status.

Water Quality Survey

Both national and statewide public opinion surveys have reported high public concern over water and air pollution. In California, results of several public opinion polls indicate that younger and more highly educated persons exhibit the highest degrees of awareness of and concern for water pollution problems. Low income persons who perceive water pollution as a problem are more likely to regard it as serious or very serious than those in other income groups. These surveys also indicate that public support is low for plans to finance pollution control measures by increasing general personal taxes, especially property taxes. However, people seem willing to finance such plans by fining polluters and/or paying users fees or taxes for use of pollution causing products.

Data Base for Clean Water Bond Study

Actual election returns were subjected to aggregate data analysis in order to discern voting patterns on Proposition 2. Because of Contra Costa County's comparability to the state in social, demographic, developmental, and political characteristics, census tracts within this county were chosen as the basic units of study.

Aggregate Data Analysis Methodology. Though demograph characteristics used in this research, such as education level, income, etc.,
have changed since the 1970 census on which they are based, conclusions based on them will be valid as long as they are derived from general trends and patterns (e.g., "in more highly educated areas we find...") rather than specifics (e.g., "an income of $9,525 will produce...").

The focus of the research is to predict the behavior and actions of groups and aggregations, not of individuals.

**Voting Patterns on Proposition 2**

**Non-income Census Characteristics.** The percentage of females in a census tract did not have an impact on voting patterns. Higher education, on the other hand, was strongly related to higher support for Proposition 2. In fact, education served as one of the best predictors of vote on the Clean Water Bond. After an in depth analysis, greater percentages of minorities were found to be moderately associated with somewhat higher support for Proposition 2. The impact of age on vote was very slight, with greater age associated with somewhat higher support for Proposition 2. This finding, which conflicts with survey data portraying younger people as more supportive of environmental measures than older people, may be accounted for by the relatively low political participation in terms of voting by younger persons. This fact serves to negate the positive influence which more environmentally aware younger people could be expected to exert on electoral measures like the Clean Water Bond.

**Economic Characteristics.** Both higher income and housing value appeared to be related to higher support for the Clean Water Bond. Analysis showed, however, that both variables were dependent upon education,
and that their actual relationship with Proposition 2 was spurious. Their contribution to our predictive ability after knowing education was near zero. However, as more easily perceptible traits than education, income and housing value may still be used as indicators of probably high or low support for anti-pollution measures, when their relationship with education is both high and constant. Higher percentages of white collar workers were found to be strongly related to increased support for the Clean Water Bond. Percent white collar emerged as one of the most important indicators of vote on Proposition 2.

**Participatory Political Variables.** Increased percentages of Democrats appeared to be related to lower support for Proposition 2 in a simple two-way analysis. However, more detailed analysis demonstrated that party registration had little significance. Overall, increased primary turnout and increased voting incidence on Proposition 2 itself denoted higher support for Proposition 2. This conjunction was more pronounced in higher socioeconomic areas, while in lower socioeconomic areas higher turnout was associated with lower support for the Clean Water Bond.

**Electoral Variables.** As expected, voting patterns on Proposition 1, a 250 million dollar recreation bond measure, and Proposition 2 were highly related. Higher percentages of "yes" votes on Proposition 1 were matched by nearly a one-to-one increase in support for Proposition 2. The relationship between these two measures was the strongest found in this research. Voting patterns on a candidate, Ed Reinecke in the Republican gubernatorial race, and a ballot proposition, the 1972 death
penalty initiative, were examined to discover if support for the Clean Water Bond had an ideological orientation. Analysis indicated that higher support for both that candidate and the death penalty, each receiving pronounced conservative support, was strongly associated with lower support for the Clean Water Bond. This pattern suggests that conservatives are less likely than others to support environmental measures like Proposition 2. As indicators of vote on the Clean Water Bond, both the vote for Reinecke and the death penalty were among the most important in the study.
INTRODUCTION

Although national elections have been the subject of intensive study by social scientists for several decades, state and local elections have received only cursory attention until very recently. This upsurge of interest in sub-national elections has largely overlooked state and local ballot measures characterized as "non-controversial." Overshadowed by the attention focused on the candidates and more glamorous issues, these propositions, especially bond measures, are nonetheless significant in their financial and policymaking impact on an electoral unit. Yet, relatively little research has been conducted to discover the nature of support for them.

This study has been undertaken to investigate potential support for impending bond measures designed to finance water pollution control facilities. It is based on an examination of voting patterns for Proposition 2 -- the Clean Water Bond Law of 1974 -- which appeared on the June, 1974, California primary election ballot and passed with a very comfortable 71% to 29% margin, while needing only 50% plus 1. Passage legitimized the State's commitment in the eventual federal, state, and local partnership to finance such projects under provisions of the Federal Water Pollution Control Act: it provided for the issuance of 250 million dollars in state bonds to finance construction of water pollution control facilities. If all the financing set forth under the federal legislation is utilized, a total of 2 billion dollars will be available for use in California.
At the time of the election, only 30% of California's sewage treatment plants met or exceeded federal standards. The expected improvements of existing facilities and the construction of new ones financed by funds from Proposition 2 would bring 90% of the State's sewage treatment plants to federal standards by 1977. The worthwhile nature of these projects gave the bond measure widespread political support. In fact, the measure received the support of nearly every political group and organization in the state, ranging from the Sierra Club to the Building Trades Council to the League of California Cities.

Discerning voting patterns on such a far reaching measure as Proposition 2 would in itself be a worthwhile undertaking. This study, however, goes beyond a merely retrospective analysis of voting patterns to relate these patterns on Proposition 2 to potential support for similar measures at the local level: for before any funds can be expended, local water districts must pass bond measures to meet their 12 1/2% share of the funding and must do so at the very difficult 2/3 majority level required by the California Constitution. In order to identify potential groups of supporters and non-supporters of the complementary water pollution control measures to appear on local ballots, we have analyzed election results to seek possible relationships between demographic, social and political characteristics and vote on Proposition 2. In doing so, we hope our work is instrumental in gaining the passage of local water bonds, notwithstanding the obstacle of the 2/3 majority requirement.

The two-thirds majority rule for local bond measures in California is perhaps one of the most stringent electoral tests in the entire country for such measures. While many bond measures can and often do
win the support of a large majority of the electorate, they fail to pass because they fall short of the required two-thirds margin. The requirement itself has come under criticism as an archaic and now unnecessary holdover from California's more economically unstable 1870's. Defenders argue that long term indebtedness should require more than a simple majority vote, regardless of economic conditions. In the judicial arena, its constitutional validity has been attacked under the United States Supreme Court's "one-man, one-vote" rulings, with lower courts declaring the requirement constitutionally unsound. The United States Supreme Court, however, in a 7-2 decision, upheld the constitutionality of such "majority plus" electoral laws and has apparently laid to rest future legal challenges. With no legislative action foreseen in California to change the requirement, policymakers, administrators, and local district officials will have to live with it.

To place this study in context with similar research, a brief review of pertinent social science literature in related areas is in order. The public's opinions and attitudes towards the environment, water pollution, and the cost of pollution abatement will be explored. Research findings in this area, being relatively recent, can be compared to those uncovered by this undertaking. Some insights can also be gained from the few studies done on other non-controversial or local ballot propositions. Finally, a public opinion survey which tapped several related dimensions of concern about water pollution conducted prior to the June 1974 election will be briefly analyzed to highlight findings relevant to our analysis of voting patterns on the Clean Water Bond. Designed to make
conclusions presented more useful to the scholar, policymaker, administrator, businessperson, and concerned citizen alike, these necessarily brief reviews of related work will serve to place the entire study into a larger policy context.

The following report is organized into two major parts. Part I surveys existing research and literature on the environment, water pollution, local and non-controversial ballot measures. Analysis of the pre-election poll referred to above is also included in this section. Prefaced by a discussion of the data base used in the present study and other methodological notes, the second part focuses on voting patterns on Proposition 2. An exploration of relationships between social, political and demographic characteristics and support for the Clean Water Bond, comprises the major portion of Part II, which concludes with a discussion of characteristics associated with higher support for the Clean Water Bond.
While environmental issues have received widespread public attention in the last several years, very little systematic research has been conducted on them, especially in the areas of water quality or water bond elections. The several works that exist tend to deal only peripherally with public attitudes towards water quality or the nature of electoral support for water bond measures. Three monographs which do touch upon these topics merit our attention.

The oldest of these is a study by Richard Brandsma on a water district election in 1963. The study was based on a survey taken of residents in a Yolo County, California, water district following the special election on the bond. The measure in question was designed to increase the amount of water available for irrigation and to provide flood control in that predominantly agricultural area. Though the measure did not involve water pollution control facilities per se, public support for and reaction to this water measure can be considered analogous in some respects to support for measures like Proposition 2.

The most pertinent findings from Brandsma's study relate to the effect of socioeconomic characteristics on vote. Those individuals in the upper income and education groups gave the measure its strongest support at the polls. Persons in white collar occupations also tended to support the proposition at a higher rate than those in other occupation groups. Rural dwellers and farmers were most inclined to vote "no" on the measure. However, they were the ones who would be required to pay nearly all the cost of the project, since financing of the bond was to be supported by increased pump taxes. Weighing costs against benefits,
they may have decided the project was not economically worthwhile for them. If this economic rationale was the deciding factor in their vote, this finding of low support among rural dwellers and farmers should not be generalized beyond this study.

The effect which information about water problems had on voting remains a significant finding of this study. It reported that in general, the more information people had on the issue, the more likely they were to vote "yes." In fact, 70% of those classified as "familiar" with the water measure voted "yes." This result suggests that an electorate adequately informed about proposed water measures will be more likely to support them.

In a 1969 study of public perception of water resource problems, Charles Ibsen and John Ballweg surveyed residents in a Virginia county. In what they describe as a "pilot study" they asked citizens in a non-electoral setting a variety of questions about water problems. They found that thirty four percent of the respondents considered water resources a problem, and that the most common water resource problem verbalized by them was water pollution. This research highlighted the importance of dissemination of information to those concerned with passing future pollution control measures. It found that water pollution problems are perceived as a threat to community well being and that such perception prompts public desire for corrective action. Relatedly, it found that television was mentioned as the source of information on water resource problems more often than any other single communications medium. The value of these findings is obvious: since the
public is highly sensitive to the water pollution, that issue should be emphasized in developing awareness of the need for water resources programs; further, television should be used as a major campaign tool when feasible.

This 1969 study discovered significant relationships in its examination of perception of water resource problems by socioeconomic characteristics. Males tended to be somewhat more aware of problems than females, while younger people (under 40) were more aware of problems than were older people. In this study undertaken when environmental issues were just beginning to receive national attention, persons with higher incomes and education were the most aware of water resource problems. This result is not surprising because people in these groups are traditionally the first to become aware of emerging public issues.

A recent (1974) work by Fredrick Fliegel and Joseph Kivlin studied information transmission in local water pollution control campaigns. Focusing primarily on the effectiveness of formal as opposed to informal communication processes in creating public awareness of water pollution problems, their analysis showed that the degree of exposure to information, especially from official sources (government agencies, local boards, officials, etc.) greatly contributed to a community consensus of the seriousness of the problem. Fliegel and Kivlin show that information campaigns can be successfully undertaken. Of significance for those seeking passage of future pollution control bond measures, these findings reinforce that of the Brandsma study: the more aware of water problems people are, the more likely they are to vote in favor of measures seeking to alleviate them.
In summary, these works have shown that 1) those persons with higher income and education levels tend to be more supportive of water measures; 2) water pollution is the most recognized water problem; 3) television is the medium most likely to transmit information concerning water problems; and 4) the more information one has about water problems, the more likely s/he is to vote for water measures. These findings tend to validate our own analysis of support for Proposition 2. Their significance to those seeking to develop public support for future water bond ballot proposition is also obvious.

Related Electoral Studies

The voting behavior literature relevant to this research falls into two broad categories, studies pertaining to the effect of turnout on local and non-controversial measures, and studies describing the general characteristics of "negative voters" in elections. Turnout on individual ballot measures, especially those on primary or other non-general elections may vary widely, with turnout above 40% generally considered good. Proponents and opponents of ballot propositions, however, are generally not certain what level of turnout would be optimal to achieve victory at the polls. Several studies do postulate particular effects of turnout on ballot measures. In a survey of school bond elections, John Carter and John Swofford (1960) found low turnout to be a strong predictor of electoral success. When voter turnout was low to average, in the 0-30% range, they found that most election measures passed. In the moderate to high range, from 30% to 60% many more measures failed than succeeded. Of the very few elections with exceptionally high turnout, above 60%, a slight margin existed in favor of passage of the bonds.
In a 1963 study of fluoridation elections, Maurice Penard also found that lower turnout made such measures more likely to pass.\textsuperscript{10} He discovered that "attached", that is, civically active, members of the community, persons affiliated, for example, with local services or social organizations, good government groups etc., numbered disproportionately among those participating in elections when turnout was low. Being more progress oriented, these people were more likely than others to vote affirmatively on these measures which are generally proposed by local boards, bodies, etc. In a 1966 study, David Minar found that areas with moderate to high participation tended to have higher levels of dissenting votes, further confirming the association of lower voter turnout with an increased chance of ballot proposition success, especially at the local level.

These findings suggest that if turnout for bond issue elections is traditionally low in a given area, massive get-out-the-vote drives may not be the best tactic for assuring passage. This conclusion, however, may not be entirely applicable to pollution control bonds, which tend to be less controversial than school bond measures or fluoridation issues. Blanket turnout drives, though, still do not appear to be wise; if undertaken voter turnout campaigns should be selectively directed at groups of individuals or areas where the potential for "yes" votes are high.

The general characteristics associated with negative voting on bond measures is treated in several analyses. In a 1963 study of library bonds, Garrison finds that lower education, income, and occupational status are associated with low support for ballot measures.\textsuperscript{12} For propositions on fluoridation, extension of existing governmental services,
metropolitan reform and city manager plans, Minar also concludes that negative attitudes are likely to be held by and negative votes cast by those of generally lower socioeconomic status. Given the broad range of issues covered by Minar, the same pattern would probably apply to water pollution bond elections.

Finally, an interesting finding about negative votes for ballot propositions is made in a 1969 article by John Mueller, a California-based study on ballot propositions in the 1964 general election which investigates, among other things, the incidence of "negativism." The term derives from the common assumption that a significant percentage of voters vote "no" as a matter of course on every ballot proposition presented to them. Many political analysts and journalists assert that a group comprising from 10% to 15% of the electorate votes "no" on every measure on the ballot, though very little hard data accompanies the assertion. Mueller finds barely 1 percent (.01) who vote "no" even on as many as fifteen of the nineteen propositions presented to California voters in that year. He concludes that "the ballot data ... strongly disputes the existence of such a large group (of negative voters)." For our own purposes, it does not appear sensible to assume that water bonds are subject a priori to a large block of negative votes.

In this brief review of relevant voting behavior literature several conclusions of significance to this research have emerged. Research suggests that increased turnout may, in fact, have a detrimental effect on the chances for passage of pollution control measures and that turn-out drives, if undertaken, should be selective. Secondly, negative votes on bond measures and local issues generally come from groups of lower socioeconomic status. Finally, the little research that has been done into the topic disputes the contention that a significant
group of citizens vote "no" on every ballot measure, no matter what
the issue is before them.

Water Quality Survey

In April of 1974, a public opinion survey on attitudes towards
water pollution was conducted in California under the auspices of the
Committee for Clean Water. Not only is this poll the most recent
one available for analysis in this area, its concentration on water
problems and focus solely on California make it perhaps the most valu-
able. Its results will be examined in an attempt to highlight certain
aspects which are of particular importance in understanding support for
clean water proposals.

Data from this survey illustrate the importance Californians place
on pollution problems and reaffirm the findings of earlier studies. A
nationwide Harris survey (1971) containing a question on "top problems"
which Congress should deal with found that 40% of those questioned rate
control of air and water pollution as a "top problem." This high per-
centage was surpassed only by mentions of the economy as a "top problem." Similarly, a 1970 California Poll (Field Research Corporation) presents
figures showing that 72% of those surveyed felt air and water pollution
control programs should be given top funding priority. Pollution con-
trol was the most mentioned program followed closely only by crime pre-
vention. The April Water Quality Survey showed that 47% of Californians
rated environmental problems as the most important problem facing Cali-
fornia, a response surpassing all others in the survey. Taken together,
those survey results clearly indicate that concern for the environment
has been strong for the last several years and will continue.

Not only is overall concern high, people generally feel anti-
pollution programs have not gone far enough, that there are serious
water pollution control problems, and that progressive programs should be implemented for the future (data displayed in Appendix I). In general, support for improved water quality is across the board, with support increasing with income and education, decreasing with age. The relationships of education and of age with environmental concern are consistently the strongest and will be those most focused upon in this review of the Water Quality Survey.

Responses to a question concerning the existence of water pollution problems in the respondent's locale indicate that both age and education were associated with perceptions of problems. Table I displays the greater perception of water problems among the more highly educated, Table 2 the increased awareness of problems by younger persons. Such a distribution does not mean more highly educated and younger persons live in areas with more water pollution. Rather, they are both more likely to be more aware of problems that do exist and/or be more disturbed by environmental degradation. This pattern of higher awareness and lower tolerance of pollution is exhibited throughout the survey by these groups.

Among people who responded that their area had water pollution problems, the most discriminating characteristic with regard to the perceived seriousness of these problems is no longer age or education, but is rather income. In this one case, the difference in responses across education and age categories is small when compared with the differences found across income categories. (see Appendix II for education and age tables). Table 3 illustrates the pattern between income and the perceived
### TABLE 1

**THE GREATER PERCEPTIONS OF LOCAL WATER PROBLEMS AMONG MORE HIGHLY EDUCATED PERSONS**

<table>
<thead>
<tr>
<th>Education</th>
<th>No</th>
<th>Yes</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10 years of school</td>
<td>42%</td>
<td>58%</td>
<td>(57)</td>
</tr>
<tr>
<td>10-12 years of school</td>
<td>35</td>
<td>65</td>
<td>(265)</td>
</tr>
<tr>
<td>1-2 years of college</td>
<td>22</td>
<td>78</td>
<td>(176)</td>
</tr>
<tr>
<td>3-4 years of college</td>
<td>21</td>
<td>79</td>
<td>(155)</td>
</tr>
<tr>
<td>4 or more years of college</td>
<td>20</td>
<td>80</td>
<td>(97)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>28%</td>
<td>72%</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>(211)</td>
<td>(539)</td>
<td>(750)</td>
</tr>
</tbody>
</table>

Source: Water Quality Survey, 1974
<table>
<thead>
<tr>
<th>Age</th>
<th>No</th>
<th>Yes</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 years old</td>
<td>19%</td>
<td>81%</td>
<td>(141)</td>
</tr>
<tr>
<td>25-34 years old</td>
<td>27</td>
<td>73</td>
<td>(220)</td>
</tr>
<tr>
<td>35-44 years old</td>
<td>23</td>
<td>77</td>
<td>(132)</td>
</tr>
<tr>
<td>45-54 years old</td>
<td>29</td>
<td>71</td>
<td>(125)</td>
</tr>
<tr>
<td>55-64 years old</td>
<td>27</td>
<td>73</td>
<td>(74)</td>
</tr>
<tr>
<td>65 years or older</td>
<td>59</td>
<td>41</td>
<td>(70)</td>
</tr>
</tbody>
</table>

| TOTAL                | 28% | 72%  | N = ( ) |
|                      | (214)| (548)| (762)  |

Source: Water Quality Survey 1974
seriousness of water pollution problems: those persons with the lowest income are more likely to see water pollution as being serious or very serious. While the importance of income runs counter to other results, its significance may result because people with lower incomes come into greater actual contact with pollution problems than richer people; the latter are by definition more mobile, and, should conditions warrant, could travel to get away from polluted water sites and of course are more able to pay for the use of unpolluted ones. Given the higher perception of the seriousness of water pollution problems among the generally less civically active low income groups, efforts to mobilize their support for pollution control programs could turn them into an effective force behind efforts to clean up water pollution.

Previous studies have suggested that minorities may be less supportive of environmental programs than others. The results of this survey provide grounds for a partial examination of this question. Our analysis finds all ethnic groups giving comparable levels of support (the full results are presented in Appendix II). The data reveal, however, that Blacks often tend to hold more favorable opinions toward environmental programs than other ethnic groups or than the overall population. For example, 37% of the Blacks responding felt that water pollution problems were very serious, while the average for whites and other ethnic groups was about 28%. In response to another question, 34% of the Blacks wanted a "crash" program to deal with water pollution, whereas only 19% of whites and those in other ethnic groups opted for that choice (see Appendix II). These findings, which suggest that
**TABLE 3**

**THE GREATER CONCERN OVER PERCEIVED LOCAL WATER POLLUTION PROBLEMS AMONG LOWER INCOME PEOPLE**

Which of the following best describes your view of the (local) water pollution problem?

<table>
<thead>
<tr>
<th>Income</th>
<th>Very Serious</th>
<th>Serious</th>
<th>Somewhat Serious</th>
<th>Minor</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $9,000</td>
<td>37%</td>
<td>40%</td>
<td>17%</td>
<td>6%</td>
<td>(144)</td>
</tr>
<tr>
<td>$9,000-$15,999</td>
<td>33</td>
<td>39</td>
<td>25</td>
<td>3</td>
<td>(174)</td>
</tr>
<tr>
<td>$16,000-$25,999</td>
<td>16</td>
<td>40</td>
<td>32</td>
<td>12</td>
<td>(100)</td>
</tr>
<tr>
<td>$26,000 plus</td>
<td>23</td>
<td>44</td>
<td>26</td>
<td>8</td>
<td>(39)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30%</td>
<td>39%</td>
<td>26%</td>
<td>6%</td>
<td>(457)</td>
</tr>
</tbody>
</table>

N = ( )

Source: Water Quality Survey 1974
segments of the Black population are more politically aware or issue conscious than the general population conform to other analyses of Black political activity in California. Segments of the minority population, especially Blacks, appear to be potential supporters of measures similar to Proposition 2, and as such should be given attention in any future information or electoral campaigns concerning water quality.

If one is not willing to pay the costs, a desire to clean up water pollution is shallow at best. Respondents in the Water Quality Survey were asked if they would support the issuance of state bonds for pollution abatement (1) if property taxes were not raised, and (2) if property taxes were raised. Support was overwhelming for the first option, with nearly 85% of those responding approving the bonds. Higher support was associated slightly with higher education, while decreasing support was likely to occur with increasing age and income. These indicators notwithstanding, the most important finding here is the very high support people are willing to give to financing pollution abatement if the state bonds issued do not raise property taxes.

Support falls off dramatically if fighting water pollution is funded by bonds financed by property taxes. This alternative is approved by only 47% of those responding. Though this level of support is near half, it must be remembered that for local water districts to issue bonds, which are almost always financed by property taxes, a two-thirds majority vote by the electorate is needed, not just 50%. Water pollution control bonds are not, of course, the only measures to receive low support because they increase property taxes. Schools, libraries, recreational facilities, etc.,
all are subject to the taxpayer "revolt". To the extent that this phenomenon exists, the only place where citizens can demonstrate it and effectively act to limit their taxes is, unfortunately, in bond elections.

Nationwide, citizens appear equally unwilling to finance environmental improvement through increased personal or property taxes. On the other hand, if the money were to come from an appropriate source—the polluters or the consumers of polluting products, for example—Americans appear willing to "foot the bill." To illustrate: a 1970 Gallup poll shows 90% of the nation favors a proposal to raise car prices $100 to control the pollution they produce. Yet at the same time, only 54% of the public would be willing to have their federal income taxes raised even $15 to fight pollution, according to a 1970 Harris survey. A 1971 Roper poll finds over two-thirds of Americans would be willing to pay 10% extra for detergents, gasoline, and autos to slow down, modify or clean up the pollution they cause. The emerging picture shows that Americans are willing to pay for pollution abatement by user fees or charges, but not by across-the-board taxes. The position is most clearly shown in Table 4. In this open ended question only 2% of those questioned favor increased property taxes and only 8% favor increased general taxes to finance pollution control. However, a large plurality (44%) want costs transferred directly to producers, and another 28% propose charging additional fees or taxes on use of polluting products. It is not the purpose of this study to examine the feasibility of adjusting sewage fees to pay for new and improved pollution control, but the widespread support of user taxes and fees as opposed to personal taxes suggests
## TABLE 4

THE LOW DEGREE OF SUPPORT FOR RAISING GENERAL PERSONAL TAXES AS A MEANS OF FINANCING POLLUTION CONTROL

<table>
<thead>
<tr>
<th>How do you think government should raise the money it needs to help clean up pollution?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge people and industries a fee based on the amount of pollution each one is causing.</td>
</tr>
<tr>
<td>Add a special tax on the prices of products that can cause pollution, such as autos, detergents, and nonreturnable bottles.</td>
</tr>
<tr>
<td>Increase general taxes, such as sales and income taxes.</td>
</tr>
<tr>
<td>Increase taxes on property, such as homes and businesses.</td>
</tr>
<tr>
<td>Other answers.</td>
</tr>
<tr>
<td>No opinion.</td>
</tr>
</tbody>
</table>

that such a mechanism should be considered as a future method of financing such projects.

Several conclusions can be drawn from the preceding analysis. Concern over water pollution problems is high and support for cleanup programs is strong among all groups. The highest levels of support and concern are found among better educated and younger citizens, though among those who are aware of pollution, low income persons feel more strongly about it than the general population. Among ethnics, certain segments of the Black population appear to hold stronger opinions than average, though all ethnic groups (and whites) give high support to water quality. Citizens are willing to pay the costs associated with water pollution control, but they are far less likely to support such costs if property taxes will be used. Coupled with the investigation of other poll data this tendency on the part of the public implies that financing pollution control facilities by user/polluter charges would win the most widespread public support.
RESEARCH PROCEDURES IN THE CLEAN WATER BOND STUDY

The preceding discussion has served to place this particular study of voting patterns on Proposition 2 which follows into a larger perspective. By examining ballot measures, local elections, and public opinion survey results, reference points for our findings have been established. This analysis of voting patterns on the Clean Water Bond is divided into three substantive sections. In the first, the data set used to study the votes and the general methodology employed is described. In the second, the actual relationships between voting on the Clean Water Bond and social, demographic, and political characteristics are outlined. In the third, the implications of this research, and their possible influence on future electoral strategies are discussed.

Clean Water Bond Data Base

As with most non-controversial statewide ballot propositions, no survey data exists on voter preference for water resource measures, and the cost of conducting a survey on this subject would be prohibitive. Therefore, actual voting returns serve as the data for this study. The ideal approach to this data development problem would be to select a random sample of California's over 24,000 precincts and combine these data with socioeconomic information derived census tract data. However, statewide this would be a monumental aggregation task requiring far more resources than any single limited study possesses.

The best alternative was to select a single county to serve as the base unit for the study. To this end, Contra Costa County (one of the
Bay Area counties) was chosen for analysis, and its over 1,000 voting precints were combined into the County's 115 census tracts. Since census tracts and precinct boundaries are neither coterminous nor drawn by the same method, the aggregation process is a difficult one. It remains the only way, though, to have both social and political information combined into a single data set. By using precinct and census tract maps an aggregation can be accomplished, though it is a time consuming, meticulous task. Once completed, an accurate, useful data set exists for study.

Contra Costa County was selected for several reasons, chiefly its overall representativeness of California in census parameters: its median education level is 12.5 years, the statewide average 12.4; its family size is nearly the same as the statewide average, as is its non-worker/worker ratio (1.37 to 1.44), percent civilian labor force unemployed, and percent distribution among manufacturing and service sectors, both public and private. The percentage of the work force in white collar jobs also reflects the statewide average. Contra Costans are wealthier than the average Californian, however, with the median family income being $1700 more than the State's other residents. Relatedly, only 6.2 percent (the fifth lowest level in the State) of the households in Contra Costa have incomes below the poverty line.

In its growth and development, Contra Costa County exemplifies many trends visible throughout the State. Its population has grown rapidly and shifted in the last few decades, with older areas like Richmond and San Pablo suffering the flight of middle class persons to the suburbs. By contrast, the central county area is now characterized
by suburban tract homes, a result of the great influx of people in the
1950's and 1960's. The east end of the county meanwhile remains much
the same as it has for decades, predominantly rural and agricultural.

The political affiliations and voting patterns of Contra Costans
generally reflect the California profile. The ratio of Democrats to Re-
publicans is only one-hundredth larger than the statewide average of
1.47. In the 1972 general election, Californians were asked to vote on
several controversial initiative measures--on issues ranging from the
death penalty, to marijuana decriminalization to coastal protection.
Overall, on nine controversial initiatives, Contra Costans deviated
(either plus or minus) by only 2% from the statewide averages. As shown
in Table 5, in only one case was the deviation greater than 3%. This
strong pattern of similarity reinforces the case being made for Contra
Costa's representativeness of the entire state. For the 1974 primary,
turnout in Contra Costa was slightly higher than the statewide average
(60% compared to 54%), but nearly in the middle of the overall distri-
bution, with 28 counties exhibiting higher turnout and 29 counties lower.
On Proposition 2 itself, support among counties ranged from below 60% to
above 80%, while the statewide total was 71% in favor. Very near this
statewide margin, 73% of Contra Costa's ballots were cast in favor of
the measure.

Their somewhat greater wealth notwithstanding, demographic and
political characteristics as well as aggregate voting statistics show
that a cross-section of Contra Costa residents would be similar to a
statewide cross-section of Californians for the purpose of analyzing
voting patterns on this issue.
### TABLE 5

THE COMPARABILITY OF CONTRA COSTA COUNTY WITH CALIFORNIA ON CONTROVERSIAL INITIATIVE MEASURES--NOVEMBER 1972

<table>
<thead>
<tr>
<th>Measure</th>
<th>Contra Costa Co. (Pct. Yes)</th>
<th>California (Pct. Yes)</th>
<th>Difference (+ or -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watson Initiative (P.14)</td>
<td>32.1</td>
<td>34.1</td>
<td>-2.0</td>
</tr>
<tr>
<td>State Employees Salaries (P.15)</td>
<td>30.6</td>
<td>32.5</td>
<td>-1.9</td>
</tr>
<tr>
<td>Highway Patrol Salaries (P.16)</td>
<td>42.0</td>
<td>39.1</td>
<td>+2.9</td>
</tr>
<tr>
<td>Death Penalty (P.17)</td>
<td>65.2</td>
<td>67.5</td>
<td>-2.2</td>
</tr>
<tr>
<td>Obscenity (P.18)</td>
<td>30.5</td>
<td>32.1</td>
<td>-1.6</td>
</tr>
<tr>
<td>Marijuana (P.19)</td>
<td>32.9</td>
<td>33.5</td>
<td>-0.6</td>
</tr>
<tr>
<td>Coastal Conservation (P.20)</td>
<td>60.0</td>
<td>55.2</td>
<td>+4.8</td>
</tr>
<tr>
<td>School Busing (P.21)</td>
<td>64.7</td>
<td>63.1</td>
<td>+1.6</td>
</tr>
<tr>
<td>Agricultural Relations (P.22)</td>
<td>44.0</td>
<td>42.1</td>
<td>+1.9</td>
</tr>
</tbody>
</table>

Average deviation: 2.2%

Source: California Secretary of State.
Aggregate Data Analysis Methodology

Electoral analyses using aggregate data are often less well understood than those studies employing survey data. Therefore, some of the problems associated with use of aggregate data, as well as some of the assumptions underlying it, are worthy of discussion. Using census data in an electoral study presents difficulties to the extent that characteristics have changed in an area since the census was first conducted. In this study using the 1970 census, incomes, years of education, and other characteristics have undoubtedly changed. If attention is focused upon general trends and patterns (e.g. more highly educated..., the higher the percent minority..., etc.) rather than specifics, (e.g. an income of $9,525 will produce...) the validity of conclusions drawn are not likely to decrease with the passage of time. To the extent that traits vary within census tracts, conclusions may be distorted, but if census tracts have been drawn even roughly according to the established guidelines, the problems should be small. A similar problem exists with precinct data if voting results vary widely within different areas of the precinct.

It must be remembered that the characteristics and actions of single individuals are not under study in aggregate data research. Aggregate data are not suited for this task, nor do social scientists generally desire to know what any one person will do. In fact, except for psychologists, social scientists are not interested in the behavior of individuals per se. Our concern here is to discover relationships between groups of individuals, between broad characteristics or general
traits and higher (or lower) levels of support for the Clean Water Bond. As long as our conclusions encompass groups, types and categories, they will be valid. (see Appendix III for additional discussion)
This analysis of relationships between vote on the Clean Water Bond Law of 1974 and various demographic, social and political characteristics includes an examination of twelve major variables. The demographic, social and political characteristics examined in conjunction with vote on Proposition 2 are divided into four broad categories. The first set consists of non-income traits derived from census data (sex, education, race, and age), while the second set includes three income related traits (income, housing value, and occupation) which are also derived from census data. The third set contains political participation variables compiled from precinct data (Democratic registration and primary turnout). The final set of variables is based on election results compiled from precinct data and contains votes on candidates and ballot propositions.

The Clean Water Bond Law of 1974 won by a very substantial margin, garnering 71% of the vote in the state, and 73% of the vote in Contra Costa. However, much higher and lower levels of support are found when looking at smaller areas. Across census tracts in Contra Costa County, support for Proposition 2 ranged from a low of 58% "yes" to a high of 85%. It is because of this wide variation in support that it is possible to discern voting patterns and statistical relationships which are both valid and conclusive.

Non-Income Characteristics and Vote on Proposition 2

The precise definition of the non-income variables used in this section is presented below. The sex variable is the percent of the census tract that is female, henceforth called percent female. Education
is defined as the median years of education completed by all persons 25 years and over in the census tract. The race variable is based on the percent minority in the census tract. Minorities, as defined in the 1970 census, are Blacks, Spanish-surnamed, and American Indians. In Contra Costa County, Blacks are the largest minority, while in California the largest is Spanish-surnamed. The age variable represents the median age of the voting age population in the census tract (over 18 years). Two additional age variables were included in an attempt to capture any special effect which concentrations of young (18-24 year olds) or old (65 years or older) citizens might have on voting. These variables are percent 18-24 year olds and percent 65 years or older.

Starting with one of the most easily perceived characteristics, the impact of percent female on vote for Proposition 2 was examined. While very early studies suggested that males were more aware and supportive of environmental concerns, more recent survey data, such as the Water Quality Survey, indicate very little difference in support between males and females. This analysis of voting for Proposition 2 produces results similar to those found in other recent studies. Table 6 displays the similarity in support for Proposition 2 across varying percent female categories. The conclusion drawn here is that no discernible differences in patterns of support exist based on the percent female in a census tract. (Note: in the future, discussions of non-relationships will not be undertaken.)

Increasing educational attainment in an area would be expected to be associated with higher support for the Clean Water Bond. Nearly every
TABLE 6

THE SIMILARITY IN SUPPORT FOR PROPOSITION 2 REGARDLESS OF VARYING PERCENTAGES OF FEMALES:
PERCENT FEMALE AND PERCENT VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Percent female</th>
<th>Ave. pct. &quot;Yes&quot;</th>
<th>Low 58%-63%</th>
<th>64%-69%</th>
<th>Medium 70%-75%</th>
<th>High 76%-81%</th>
<th>82%-87%</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>38%-48%</td>
<td>71.7%</td>
<td>14%</td>
<td>29%</td>
<td>29%</td>
<td>14%</td>
<td>14%</td>
<td>(7)</td>
</tr>
<tr>
<td>49%-50%</td>
<td>73.0</td>
<td>0</td>
<td>24</td>
<td>42</td>
<td>33</td>
<td>0</td>
<td>(33)</td>
</tr>
<tr>
<td>51%</td>
<td>71.9</td>
<td>2</td>
<td>29</td>
<td>44</td>
<td>24</td>
<td>0</td>
<td>(41)</td>
</tr>
<tr>
<td>52%-53%</td>
<td>71.8</td>
<td>11</td>
<td>27</td>
<td>37</td>
<td>15</td>
<td>11</td>
<td>(26)</td>
</tr>
<tr>
<td>54%-60%</td>
<td>73.3</td>
<td>0</td>
<td>0</td>
<td>87</td>
<td>13</td>
<td>0</td>
<td>(8)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>N = ( )</td>
<td></td>
<td>(5)</td>
<td>(29)</td>
<td>(50)</td>
<td>(27)</td>
<td>(4)</td>
<td>(115)</td>
</tr>
</tbody>
</table>

Pearson's r = -.02.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
study of electoral support for bond measures and every study of public support for environmental programs have shown higher levels of education to be associated with increased support or awareness. The range of median years of education in census tracts in Contra Costa, from a low of 8 years to a high of 16 years, allows a broad look at the influence of education on vote. As illustrated by Table 7, where education is categorized into four groups, education is quite strongly associated with greater support for Proposition 2. For example, in areas with a median education of less than high school, the Clean Water Bond averaged approximately 69% "yes" while in areas with 2 or more years of college it received nearly 80% "yes". This high correlation coefficient of +.62 further reinforces this finding that increased education is related to higher supported for Proposition 2.26 (It is strongly recommended that those unfamiliar or unsure of correlation statistics read footnote 26). As such a strong determinant of vote, education will be considered in conjunction with other characteristics in this study. Because of its strong relation to vote on Proposition 2, education is certainly a characteristic which should be focused upon in future water pollution control bond campaigns.

The expected effect of ethnicity on support for Proposition 2, as considered through percent minority, is not clear. In general, bond measures serve to increase the public sector which is often in the interest of minorities. Further, minorities often live in older, less aesthetically pleasing areas, which would probably make them more likely to vote for measures designed to improve the environment. On the other hand, the environmental movement has been criticized by minority spokespeople as
TABLE 7

THE STRONGLY HIGHER SUPPORT FOR PROPOSITION 2
IN AREAS WITH HIGHER LEVELS OF EDUCATION:
MEDIAN EDUCATION AND PERCENT VOTE "YES" PROPOSITION 2

<table>
<thead>
<tr>
<th>Median Education</th>
<th>Ave. pat. &quot;Yes&quot;</th>
<th>Low 58%-63%</th>
<th>Medium 64%-69%</th>
<th>Medium 70%-75%</th>
<th>Medium 76%-81%</th>
<th>Medium 82%-87%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>69.1%</td>
<td>9%</td>
<td>43%</td>
<td>43%</td>
<td>4%</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>High school</td>
<td>69.6</td>
<td>7</td>
<td>41</td>
<td>44</td>
<td>7</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>One year college</td>
<td>74.6</td>
<td>0</td>
<td>5</td>
<td>60</td>
<td>30</td>
<td>5</td>
<td>37</td>
</tr>
<tr>
<td>Two or more years college</td>
<td>79.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>86</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td>115</td>
</tr>
</tbody>
</table>

N = Contra Costa County Census Tracts Source: June 1974 election returns.

Pearson's r = .62
a white middle-class movement of little direct benefit to minorities because it serves to distract attention and divert resources from their problems.

Based on a simple cross-tabulation, the latter viewpoint seems to be supported though only slightly. As portrayed by the negative correlation coefficient of -.15, increase percentages of minorities in an area seem to produce a somewhat lower "yes" vote on Proposition 2. Minorities, though, tend to be concentrated in areas with low educational attainment, and low educational attainment has itself been shown to be strongly related to low support for the Clean Water Bond. Thus, the slightly lower minority support that is being measured may be an effect of low educational attainment, and not the minority population per se.

Examining the relationship between percent minority and vote for the Clean Water Bond by holding educational attainment constant, a clearer view of minority influence can be seen. When this is done, percent minority has a moderately positive association with voting "yes". The correlation coefficient of +.31 shows that as the percent minority increases so do "yes" votes for Proposition 2. For example, in areas with median education of less than high school, those with the highest percent minority have the highest average support for Proposition 2 when compared with areas of lower percents minority. The conclusion from the more complex analysis is that minorities may actually be more supportive of measures like Proposition 2 than the general population. Given this possibility, extra campaign efforts in minority areas would have been likely to pay off in increased "yes" votes for Proposition 2.
For several reasons it can be hypothesized that support for Proposition 2 would be related to age variables. Survey data have shown that younger persons are inclined to be more environmentally aware and concerned than older persons. If we turn our attention to the financing of this, or any other large bond measure, age variables would again be expected to be significant. It could be anticipated that older persons would be less supportive, for as people grow older they traditionally move into higher tax brackets where they pay an increasingly large share of government's expenses. Finally, retired persons are often a source of "no" votes on bond measures because experience has taught them that these often serve to increase the property taxes they pay from an already limited and fixed income. While Proposition 2 itself would not have raised property taxes, the wariness this group has of bond measures might be expected to extend to it. Based on the likelihood that vote on Proposition 2 would be related to age, the three previously mentioned age variables (median age, percent over 65 years, and percent 18-24 years) were all included in the analysis.

Quite surprisingly, none of the age variables was substantially associated with support for or opposition to Proposition 2. As median age increased, support for the Clean Water Bond increased slightly. Table 8 shows the distribution of results, and the similarity in average vote for the measure across age categories. The percent 65 plus produced a near zero relationship with Proposition 2, with a correlation coefficient of -.03. The impact of the percent 18-24 year old is also very small. In a simple analysis its influence appears somewhat negative, although
TABLE 8

THE VERY SLIGHT INCREASED SUPPORT FOR PROPOSITION 2 IN AREAS WITH HIGHER AGE: MEDIAN AGE AND PERCENT VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Median Age*</th>
<th>Ave. pot. &quot;yes&quot;</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-34.9 years</td>
<td>72.5%</td>
<td>0%</td>
<td>25%</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>35-39.9 years</td>
<td>70.1</td>
<td>0</td>
<td>35</td>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>40-44.9 years</td>
<td>72.3</td>
<td>4</td>
<td>24</td>
<td>44</td>
<td>28</td>
</tr>
<tr>
<td>45-49.9 years</td>
<td>73.1</td>
<td>15</td>
<td>15</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>50-54.9 years</td>
<td>73.5</td>
<td>0</td>
<td>16</td>
<td>67</td>
<td>0</td>
</tr>
<tr>
<td>No area between 55 and 64.9 years</td>
<td>----</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>65-69.9 years</td>
<td>72.5</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
</tr>
<tr>
<td>N = ( )</td>
<td>(5)</td>
<td>(29)</td>
<td>(50)</td>
<td>(27)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

*Note: No census tracts with median age less than 30 years.
Pearson's r = +.08.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
by controlling for education its impact is slightly positive \( r = -0.18 \) and \( r = +0.11 \) respectively). The interpretation of these findings is that greater concentrations of young people only slightly improve support for Proposition 2.

Many political and attitudinal variables exhibit curvilinear relationships with age variables. Since such a pattern is not detectable through normal linear correlation as utilized throughout this research, an additional analytical step was taken in an attempt to discern any relationship between median age and vote "yes" on the Clean Water Bond. However, this step also produced no significant patterns between age and vote for Proposition 2. Hence, while different degrees of support for different age groups was anticipated, the results of this analysis find little evidence to back up this expectation.

The failure to uncover relationships deserves comment in light of other research presented in this report demonstrating age to be an important predictor of environmental attitudes. The apparent lack of association is probably due more to the nature of the data than to actions of individuals. Because aggregate age data represent a very general summary characteristic for a census tract it is difficult to focus on specific age categories. Thus, because the \( \text{percent 18-24} \) and \( \text{percent 65 plus} \) variables measure more than just the actions of young or old people, true relationships may not always appear. In light of survey data, the impact of percent 18-24 years old had been anticipated to be the best predictor among the age variables. A factor explaining the apparent low impact of this variable is undoubtedly the low political participation of young persons,
for both their registration and turnout are far lower than for the general population. While they may feel strongly about pollution problems, as indicated in surveys, their attitudes are not translated into action via votes. The most strident anti-water pollution stand will not help the passage of Proposition 2 on election day if one does not vote. What this apparent contradiction between survey data and voting data highlights is the need to concentrate campaign and turnout efforts on younger persons in future water bond campaigns to make them aware of the measures and convince them to vote.

**Economic Characteristics**

As one of the most consistent predictors of political and social issue positions, income's impact on support for Proposition 2 was closely examined. As with age, several different measures of income were examined. The general income measure *mean unit income* is the average income of living units in the census tract (units being families and unrelated individuals). The second income-dependent trait was housing value, defined as the *average value of owner occupied dwellings*, with value set by the owner's estimate of worth. (An own/rent variable was originally included in the analysis, but was left out of the report because of its minor impact, with areas having higher percentages of rented units giving slightly less support to Proposition 2). Housing value was included because it provides an easily identifiable characteristic should an income based trait prove to be sufficiently significant to use in planning future electoral strategy. Occupation was included in the analysis, with percent *white collar workers* in the census tract serving as the variable.
White collar was chosen over other possible occupation variables (blue collar, service workers, and farm workers) because it held the widest ranging distribution, from a low of 11% to a high of 90%, and because in the statistical sense it was the most normally distributed. Both of these qualities make it more suited to analysis.

Table 9 displays the varying levels of support for the Clean Water Bond among income categories, as well as the average vote for the measure in these groups, with support increasing as income increases. The correlation coefficient of +.51 reinforces the conclusion that higher levels of income are associated with increased support for Proposition 2. Average housing value also serves as a strong indicator of vote for the measure. Here, higher housing values are correlated with higher "yes" votes on Proposition 2, as indicated by the strong positive correlation coefficient of +.53.

Both income and housing value are dependent upon other social and demographic traits, the most important of which is education. One's education has a very great, directly causal effect on one's future economic status. At the aggregate level, areas with higher incomes or housing values are also areas with higher levels of education, as depicted by their high correlations with education, +.80 and +.83 respectively. Knowing this, it is a wise analytical step to examine the impact of these economic variables holding education constant. When this is done, the association between these economic variables falls to near zero, with both correlations being less than +.05. Thus, after knowing education, examining economic traits adds little to our ability to predict vote for
### TABLE 9

THE APPARENT STRONG RELATIONSHIP BETWEEN HIGHER INCOME AND HIGHER SUPPORT FOR PROPOSITION 2:
MEAN INCOME AND PERCENT VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Mean Income</th>
<th>Ave. pat. &quot;yes&quot;</th>
<th>58%-63%</th>
<th>64%-69%</th>
<th>70%-75%</th>
<th>76%-81%</th>
<th>82%-87%</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000-$9,999</td>
<td>69.7%</td>
<td>10%</td>
<td>37%</td>
<td>43%</td>
<td>10%</td>
<td>0%</td>
<td>(30)</td>
</tr>
<tr>
<td>$10,000-$14,999</td>
<td>71.1</td>
<td>3%</td>
<td>31%</td>
<td>52%</td>
<td>10%</td>
<td>3%</td>
<td>(58)</td>
</tr>
<tr>
<td>$15,000-$19,999</td>
<td>76.0</td>
<td>0%</td>
<td>0%</td>
<td>35%</td>
<td>55%</td>
<td>10%</td>
<td>(20)</td>
</tr>
<tr>
<td>$20,000-$24,999</td>
<td>78.5</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>(6)</td>
</tr>
<tr>
<td>$25,000-$29,999</td>
<td>78.5</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>(1)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

N = ( )

Pearson's $r = +.51$.
Partial $r$ after education control = +.02.

N = Contra Costa County Census Tracts Source: June 1974 election returns.
Proposition 2. This occurrence means that income and housing values, for purposes of this issue at least, are functions of education, and that causally, education is the more important characteristic to be considered in conjunction with the vote on the Clean Water Bond.

Knowledge of the strong relationship between higher economic standing and higher support is still useful from a practical standpoint. As long as one is fairly certain education and income variables in the area of interest are interrelated, as they almost always are, income variables can be of use in identifying areas of potentially greater support for measures like Proposition 2. However, inaccurate knowledge of a community may lead to erroneous campaign strategies. For example, a college district or counterculture area may show low income while having high education levels. By just looking at economic indicators one would decide not to divert resources to this area in a water pollution bond campaign. It would, however, be a mistake not to campaign and encourage voting in such areas because the higher education levels indicate high potential "yes" votes. In most cases, though, income can be used as a reliable indicator. The value of doing so is that income is generally easier to perceive than education. This is especially true of housing value, where even the most unsophisticated observer can distinguish between gradations in housing value. Hence areas which will be likely to give water pollution control bonds greater (or lesser) support are easily discernible. While education is the key variable among the three, the income-oriented characteristics can be valuable aids if they are properly and thoughtfully utilized.
The percent white collar variable is useful in this investigation because it can serve as a substitute for a socioeconomic index created from several variables. While percent white collar in an area is influenced both by education and income it may serve as a predictor of vote on the Clean Water Bond independently of these.

Table 10 demonstrates the power of percent white collar as a predictor of vote on Proposition 2. Higher percentages of white collar workers in an area are strongly associated with increased support for the Clean Water Bond. The correlation statistic of +.64 is another indication of the strong impact of percent white collar on vote. Even after controlling for education and income, percent white collar had an enduring influence on vote. This suggests that higher socioeconomic status as represented by percent white collar, carries with it a type of civic or social consciousness supportive of "good government" or environmentally oriented measures like Proposition 2. Perhaps higher percentages of white collar workers, and the traits they carry with them, help to create a community atmosphere more supportive of environmental programs well beyond the additive effect that would be produced by high levels of income and/or education alone. In any case, optimal results for those seeking passage of future water pollution control bonds may be realized through directing efforts at areas with higher levels of white collar workers.
TABLE 10

THE MARKEDLY HIGHER LEVELS OF SUPPORT FOR PROPOSITION 2 IN AREAS WITH HIGHER PERCENTAGES OF WHITE COLLAR WORKERS: PERCENT WHITE COLLAR WORKERS AND VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Percent White Collar Workers</th>
<th>Ave. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>64%-69%</th>
<th>Medium 70%-75%</th>
<th>High 76%-81%</th>
<th>82%-87%</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%-19%</td>
<td>72.5%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
<td>(2)</td>
</tr>
<tr>
<td>20%-49%</td>
<td>68.1</td>
<td>11</td>
<td>52</td>
<td>37</td>
<td>0</td>
<td>0</td>
<td>(27)</td>
</tr>
<tr>
<td>40%-59%</td>
<td>69.3</td>
<td>5</td>
<td>33</td>
<td>57</td>
<td>2</td>
<td>2</td>
<td>(42)</td>
</tr>
<tr>
<td>60%-79%</td>
<td>75.1</td>
<td>0</td>
<td>0</td>
<td>43</td>
<td>54</td>
<td>3</td>
<td>(35)</td>
</tr>
<tr>
<td>90%-99%</td>
<td>79.2</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>67</td>
<td>22</td>
<td>(9)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td>(115)</td>
</tr>
<tr>
<td>N = ( )</td>
<td>(5)</td>
<td>(29)</td>
<td>(50)</td>
<td>(27)</td>
<td>(4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pearson's r = +.64.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
Political Characteristics and Support for Proposition 2

Only social and demographic characteristics have been considered thus far in this report. While these contribute significant information to our understanding of support for Proposition, they alone are not sufficient for a complete understanding. A selected group of political variables will be studied in conjunction with support for Proposition 2.

The political characteristics under study can be placed into two distinct categories. The "participatory" variables which make up the first group are percent Democratic registration and primary turnout among registered voters in the June, 1974, primary. The "electoral" variables in the second set include percent vote "yes" on Proposition 1, (a 250 million recreational bond measure on the June 1974 ballot) percent vote for Reinecke among Republicans in the gubernatorial election, and percent vote yes on Proposition 17 (the November 1974 death penalty initiative). Taken together, these variables will provide measures of the effect of several different aspects of political preferences and the political system on support for Proposition 2.

Participatory Characteristics. As mentioned earlier, the political affiliation of Contra Costans very nearly approximates the statewide Democrat/Republican ratio. At the same time the percent Democratic registration in Contra Costa census tracts ranges from low of 17% to a high of 95%. (Conversely, Republican registration in census tracts ranges from a low of 5% to a high of nearly 80%. Democratic registration is employed as the standard measure in this study to conform to conventional practice.)
As with other variables, it is difficult to make an a priori assumption about the impact of higher or lower percentages of Democrats on vote. By almost every measure, Democrats in California are more liberal and progressive than their Republican counterparts. With this political inclination, it is reasonable to anticipate greater support for Proposition 2 in areas with higher percentages of Democrats. However, previous research in this study has shown increased support for Proposition 2 to be positively associated with higher levels of education, income, and white collar workers, traits which are, in turn, associated more with Republicans. This serves to confound attempts to predict the impact of party registration on vote for Proposition 2.

The simple relationship between percent vote on Proposition 2 and percent Democratic registration is moderately negative \( r = -0.49 \) which means that greater percentages of Democrats are associated with lower support for Proposition 2. Table 11 illustrates the apparent existence of this relationship. However, knowing that Democrats tend to have lower educational attainment, a control for education was added to the analysis. Within education groups, Democratic registration (and thus party registration) was not related to vote on the Clean Water Bond. (partial \( r \) with education = -0.07). The original spurious relationship between party registration and vote exemplifies the danger in leaping to any quick conclusions in data analysis, for party registration, per se, is not directly related to higher or lower support for Proposition 2.

In the earlier discussion of the impact of income on vote, a case was made for the use of income variables as guides for developing
### TABLE 11

**The Apparent Relationship Between Lower Democratic Registration and Higher Support for Proposition 2:**

Percent Democratic Registration and Percent "YES" on Proposition 2

<table>
<thead>
<tr>
<th>Percent Democratic Registration</th>
<th>Ave. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>Medium 64%-69%</th>
<th>Medium 70%-75%</th>
<th>High 76%-81%</th>
<th>High 82%-87%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>17%-32%</td>
<td>77.5%</td>
<td>0%</td>
<td>0%</td>
<td>17%</td>
<td>83%</td>
<td>0%</td>
<td>(6)</td>
</tr>
<tr>
<td>32%-48%</td>
<td>77.4</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>82</td>
<td>0</td>
<td>(17)</td>
</tr>
<tr>
<td>49%-64%</td>
<td>73.0</td>
<td>3</td>
<td>11</td>
<td>70</td>
<td>8</td>
<td>8</td>
<td>(37)</td>
</tr>
<tr>
<td>65%-80%</td>
<td>69.3</td>
<td>5</td>
<td>56</td>
<td>29</td>
<td>7</td>
<td>2</td>
<td>(41)</td>
</tr>
<tr>
<td>81%-96%</td>
<td>70.8</td>
<td>14</td>
<td>14</td>
<td>57</td>
<td>14</td>
<td>0</td>
<td>(14)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>N = ( )</td>
<td>(5)</td>
<td>(29)</td>
<td>(50)</td>
<td>(27)</td>
<td>(4)</td>
<td>(115)</td>
<td></td>
</tr>
</tbody>
</table>

Pearson's r = -.49.
Partial r after education control = -.07.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
electoral strategy in spite of the fact that they added very little to our predictive ability after knowing an area's education (that is, most of the strong impact that income had was actually an effect of education). This advice to use income as a proxy for education was reasonable because of the high intercorrelation between income and education, the enduring nature of the relationship, and its nearly universal occurrence. The relationship between education and party registration is far less static and enduring. For example, recent survey based studies have demonstrated that the vast majority of highly educated young people in California are registering Democratic.29 With the relationship between education and party registration in flux, it would be a great mistake to use party registration as a surrogate for education, as was possible with income. Unless contradictory empirical evidence is presented, it appears party registration will be of little use in predicting potential support for water pollution control bond measures.

An important question to be answered in any analysis of election results is whether a high turnout had a positive or negative effect on the matter under study. Two different indicators of turnout have been constructed to examine this question. The first, and stronger of the two, is primary turnout in the June 1974 election. The second, turnout on Proposition 2, is the percent of those voting in the June primary who also voted on Proposition 2. The advantage of the first measure is that it is an election trait which can be influenced. Turnout drives, for example, have often proved to be successful methods of inducing more people to vote. The turnout on Proposition 2 measure has less applicability from a practical standpoint because it is difficult to exert
influence on people to vote on a specific measure once they are inside
the voting booth. A brief look, then, will be given to turnout on
Proposition 2, with more detailed attention paid to the potentially
more valuable primary turnout variable.

As the survey of voting behavior literature demonstrated, higher
turnout is usually associated with higher levels of dissenting votes
on ballot propositions. Table 12, the primary turnout table, and Table
13, a comparable table for turnout on Proposition 2, provide evidence
which contradicts the more conventional wisdom. In each table we see
areas with higher turnout giving Proposition 2 a somewhat greater per-
centage of "yes" votes. The correlation coefficient of near +.20 also
indicates that higher turnout is slightly, though not strongly, related
to greater support for the Clean Water Bond. A more easily readable
depiction of the pattern of support is found in the vacillating levels
of "average percent vote yes" across different categories of turnout.
These numbers, displayed in Tables 12 and 13, show that the pattern of
support exists, if not strongly.

A closer examination of the impact of primary turnout on support
for Proposition 2 produces interesting results. Controlling for edu-
cation, as has been done in several previous instances, gives a different
view of the influence of turnout upon vote. The lack of effect indicated
by the overall partial correlation of .00 is rather startling. It
suggests that varying levels of turnout as such are not related to
higher (or lower) levels of support for the Clean Water Bond. However,
if we look at the relationship within each education group a different
### TABLE 12

**THE MODERATE RELATIONSHIP BETWEEN HIGHER PRIMARY TURNOUT AND GREATER SUPPORT FOR PROPOSITION 2:**

**PRIMARY TURNOUT AND PERCENT VOTE "YES" PROPOSITION 2**

<table>
<thead>
<tr>
<th>Primary Turnout</th>
<th>Ave. pat. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>64%-69%</th>
<th>Medium 70%-75%</th>
<th>High 76%-81%</th>
<th>82%-87%</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>36%-43%</td>
<td>73.5%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>(1)</td>
</tr>
<tr>
<td>44%-51%</td>
<td>70.6</td>
<td>0</td>
<td>46%</td>
<td>39%</td>
<td>15%</td>
<td>0%</td>
<td>(13)</td>
</tr>
<tr>
<td>52%-59%</td>
<td>71.5</td>
<td>7%</td>
<td>23%</td>
<td>47%</td>
<td>20%</td>
<td>2%</td>
<td>(51)</td>
</tr>
<tr>
<td>60%-67%</td>
<td>72.9</td>
<td>2%</td>
<td>24%</td>
<td>41%</td>
<td>31%</td>
<td>2%</td>
<td>(42)</td>
</tr>
<tr>
<td>68%-76%</td>
<td>76.3</td>
<td>0%</td>
<td>13%</td>
<td>37%</td>
<td>25%</td>
<td>25%</td>
<td>(8)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>72.3%</strong></td>
<td><strong>4%</strong></td>
<td><strong>25%</strong></td>
<td><strong>43%</strong></td>
<td><strong>23%</strong></td>
<td><strong>3%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>N = ( )</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(115)</td>
</tr>
</tbody>
</table>

Pearson's $r = +.22$.

N = Contra Costa County Census Tracts Source: June 1974 election returns.
TABLE 13

THE MODERATE RELATIONSHIP BETWEEN HIGHER TURNOUT ON PROPOSITION 2 AND GREATER SUPPORT FOR PROPOSITION 2:

TURNOUT ON PROPOSITION 2 AND PERCENT VOTE "YES" PROPOSITION 2

<table>
<thead>
<tr>
<th>Turnout on Proposition 2</th>
<th>Ave. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>Low 64%-69%</th>
<th>Medium 70%-75%</th>
<th>Medium 76%-81%</th>
<th>High 82%-87%</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%-67%</td>
<td>73.7%</td>
<td>0%</td>
<td>0%</td>
<td>80%</td>
<td>20%</td>
<td>0%</td>
<td>(5)</td>
</tr>
<tr>
<td>68%-75%</td>
<td>70.1%</td>
<td>0%</td>
<td>40%</td>
<td>60%</td>
<td>0%</td>
<td>0%</td>
<td>(5)</td>
</tr>
<tr>
<td>76%-83%</td>
<td>73.3%</td>
<td>0%</td>
<td>14%</td>
<td>57%</td>
<td>29%</td>
<td>0%</td>
<td>(7)</td>
</tr>
<tr>
<td>84%-91%</td>
<td>68.6%</td>
<td>13%</td>
<td>43%</td>
<td>38%</td>
<td>5%</td>
<td>0%</td>
<td>(37)</td>
</tr>
<tr>
<td>92%-99%</td>
<td>74.5%</td>
<td>0%</td>
<td>16%</td>
<td>41%</td>
<td>36%</td>
<td>7%</td>
<td>(61)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>N = ( )</td>
<td>(5)</td>
<td>(29)</td>
<td>(50)</td>
<td>(27)</td>
<td>(4)</td>
<td>(115)</td>
<td></td>
</tr>
</tbody>
</table>

Pearson's r = .20.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
picture emerges. In the lowest education tracts, high turnout is associated with lower "yes" vote, while in higher education tracts higher turnout is associated with higher "yes" votes. For the different education groups, less than high school, high school, one year college, and 2 or more years college, the correlation with vote for the Clean Water Bond and turnout are -.12, -.10, +.13, and +.38 respectively. This illustrates the differential impact of turnout depending on the nature of the area. While the statistical significance of those figures is weak because of the small number of cases in each group, a valid interpretation can be made. Turnout drives in low education areas (generally meaning lower socioeconomic areas) will have an adverse effect on attempts at passing measures like the Clean Water Bond, while turnout drives in high education areas, especially the top areas (two or more years of college) will promote the passage of ballot propositions like the Clean Water Bond.

**Electoral Variables.** The first electoral variable examined was a ballot proposition presented to voters at the same time as the Clean Water Bond, June 1974. Voting patterns for Proposition 1, a 250 million dollar recreational bond measure, were anticipated to be strongly related to those for Proposition 2. Both bond measures were placed on the ballot to provide financing for projects which would benefit the state's environment and enhance the quality of life. Both were clearly identified as "good government" non-controversial measures, even in an era when large bond measures are not always well received. Finally, both had the support of nearly every politically active group or organization in the state.
One of the purposes served by analyzing the nature of support between these two measures is to check the validity of the data set developed for this research. As strong relationship between the two is expected, and in the absence of evidence or reasons why this should not occur, a low or moderate relationship between the two would suggest deficiencies in the data development. But the correlation between these variables in their fullest distribution is +.89, an association which should serve to dispel any notions of poor data development as measured through this test. This extraordinarily high correlation means that as support for Proposition 1 increases, support for Proposition 2 increases on nearly a unit per unit basis.

Table 14 illustrates the strength of the relationship between these two variables. Notice the great degree of difference in the average percent "yes" on Proposition 2 between the lowest and highest categories for Proposition 1. Those in the lowest category vote "yes" 60.5% of the time, while those in the top category vote "yes" at a rate of 81.5%. As one scans the table, the nearly linear relationship between voting on the two different measures is readily apparent. Higher percentages of "yes" votes on Proposition 1 are matched by nearly a one-to-one increase in support for Proposition 2. Further, the relationship stays constant even if other variables are considered in conjunction with Proposition 1. Vote on this recreational bond measure serves as the best indicator of probable vote on the Clean Water Bond, and it would undoubtedly serve equally well on similar measures.
TABLE 14

THE NEARLY ONE-TO-ONE CORRESPONDENCE BETWEEN INCREASED SUPPORT FOR PROPOSITION 1 AND INCREASED SUPPORT FOR PROPOSITION 2: PERCENT VOTE "YES" PROPOSITION 1 AND PERCENT VOTE "YES" PROPOSITION 2

<table>
<thead>
<tr>
<th>Percent &quot;yes&quot; Proposition 1</th>
<th>Ave. pot. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>64%-69%</th>
<th>Medium 70%-75%</th>
<th>High 76%-81%</th>
<th>82%-87%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%-48%</td>
<td>60.5%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>(1)</td>
</tr>
<tr>
<td>49%-56%</td>
<td>65.7</td>
<td>17</td>
<td>78%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>(23)</td>
</tr>
<tr>
<td>57%-64%</td>
<td>72.0</td>
<td>0%</td>
<td>21%</td>
<td>67%</td>
<td>10%</td>
<td>2%</td>
<td>(52)</td>
</tr>
<tr>
<td>65%-72%</td>
<td>78.0</td>
<td>0%</td>
<td>0%</td>
<td>42%</td>
<td>57%</td>
<td>0%</td>
<td>(33)</td>
</tr>
<tr>
<td>73%-80%</td>
<td>81.5</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50%</td>
<td>50%</td>
<td>(6)</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = ( )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(115)</td>
</tr>
</tbody>
</table>

Pearson's r = +.89.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
The second electoral variable examined, which is percent vote for Reinecke, deserves some comment before it is reported upon. The Reinecke variable was chosen in an attempt to tap a hard-core conservative sentiment among voters. Reinecke's known conservative stands, coupled with his position in the Reagan Administration, have given him a strong conservative image. Higher support for him among self-identified conservatives further strengthens the case being made that votes for him can be considered a measure of conservatism. The variable measuring support for Reinecke was kept in the study after analysis indicated that it was a useful measure, but readers are free to reject it as a valid measure of conservatism if they choose.

After the negative publicity surrounding Reinecke's indictment for perjury, support for his candidacy fell. The working hypothesis in this research is that those who still voted for him represent a hard-core conservative vote. As such, it was expected these people would, 1) not favor measures to increase the size of the public sector and 2) be less likely to support environmental measures. Though this may be a somewhat unfair characterization, the results displayed in Table 15 indicate it is accurate. As the table depicts, higher support for Reinecke has a moderately strong association with lower support for Proposition 2. The average vote for Proposition 2 across the different categories of support for Reinecke, as well as the negative correlation coefficient of -.57 confirms this finding. Even after controlling for other characteristics which might possibly be influencing the relationship, such as income and education, it remains basically unaltered. The conclusion to be drawn
TABLE 15

THE LOWER LEVEL OF SUPPORT FOR PROPOSITION 2
IN AREAS WITH HIGHER SUPPORT FOR REINECKE:
PERCENT VOTE REINECKE AND PERCENT VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Percent vote Reinecke</th>
<th>&quot;yes&quot; Ave.</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>58%-63%</td>
<td>64%-69%</td>
<td>70%-75%</td>
<td>76%-81%</td>
</tr>
<tr>
<td>12%-17%</td>
<td>76.0%</td>
<td>0%</td>
<td>8%</td>
<td>25%</td>
<td>67%</td>
</tr>
<tr>
<td>18%-23%</td>
<td>74.7</td>
<td>2</td>
<td>6</td>
<td>53</td>
<td>31</td>
</tr>
<tr>
<td>24%-29%</td>
<td>70.8</td>
<td>6</td>
<td>29</td>
<td>52</td>
<td>13</td>
</tr>
<tr>
<td>30%-35%</td>
<td>66.6</td>
<td>5</td>
<td>71</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>30%-41%</td>
<td>63.5</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
</tr>
</tbody>
</table>

N = Contra Costa County Census Tracts Source: June 1974 election returns.

Pearson's r = -.57.
The final electoral variable investigated in conjunction with Proposition 2 was Proposition 17, the death penalty initiative of 1972. As just posited, the Clean Water Bond should get less support in areas with a higher percentage of conservative voters. This expectation was partially confirmed when the Clean Water Bond received lower support in areas with higher percentages of "yes" votes for Ed Reinecke. A similar negative relationship between Proposition 17 and Proposition 2 is also expected, with the assumption being that areas with higher percentages of "yes" votes on the death penalty initiative are more likely to be conservative, and thus give low support to the Clean Water Bond.

Table 16 displays the results of the voting patterns between the two measures. The actual patterns of voting between the death penalty and the Clean Water Bond conform to what was anticipated. In areas with higher levels of support for the death penalty, lower support for the Clean Water Bond was found. While the pattern is less pronounced in the lowest percent "yes" category, the average vote for Proposition 2 ranges from a high of 80.5% to only 68.5% in the category with the highest support for the death penalty. The negative correlation coefficient of -.32 confirms the moderately strong relationship between the two. Rather than lowering the association between these, controlling for education heightens the relationship. This increase occurs because
TABLE 16

THE LOWER SUPPORT FOR PROPOSITION 2 IN MORE CONSERVATIVE AREAS
AS MEASURED BY GREATER SUPPORT FOR THE DEATH PENALTY:
PERCENT VOTE "YES" ON THE DEATH PENALTY INITIATIVE
AND
PERCENT VOTE "YES" ON PROPOSITION 2

<table>
<thead>
<tr>
<th>Percent &quot;yes&quot; Death Penalty</th>
<th>Ave. &quot;yes&quot;</th>
<th>Low 58%-63%</th>
<th>Low 64%-69%</th>
<th>Medium 70%-75%</th>
<th>Medium 76%-81%</th>
<th>High 82%-87%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>19%-36%</td>
<td>72.5%</td>
<td>0%</td>
<td>17%</td>
<td>67%</td>
<td>17%</td>
<td>0%</td>
<td>(6)</td>
</tr>
<tr>
<td>37%-54%</td>
<td>80.2</td>
<td>0%</td>
<td>0%</td>
<td>14</td>
<td>43</td>
<td>43</td>
<td>(7)</td>
</tr>
<tr>
<td>55%-72%</td>
<td>72.5</td>
<td>4%</td>
<td>23%</td>
<td>45</td>
<td>27</td>
<td>2</td>
<td>(84)</td>
</tr>
<tr>
<td>73%-90%</td>
<td>68.2</td>
<td>11%</td>
<td>50%</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>(18)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.3%</td>
<td>4%</td>
<td>25%</td>
<td>43%</td>
<td>23%</td>
<td>3%</td>
<td>(115)</td>
</tr>
</tbody>
</table>

Pearson's r = -.33.
N = Contra Costa County Census Tracts Source: June 1974 election returns.
the strength of the positive relationship between education and vote for Proposition 2 partially overpowers the negative relationship found with the death penalty. The rise in the partial correlation coefficient to -.46 from the original -.32 indicates that a moderately strong, enduring relationship exists between support for the two measures. This result, coupled with the earlier findings on the Reinecke vote, makes it possible to assert that persons inclined to favor conservative measures or candidates are less likely to vote for pollution control measures like the Clean Water Bond. Support for or opposition to environmental measures like the Clean Water Bond, then, does exhibit an ideological dimension, with conservatives more inclined to oppose such measures and liberals more likely to favor them.
SUMMARY AND CONCLUSIONS

The "summary and conclusions" will focus on the substantive heart of this research, voting patterns on Proposition 2 and will comment upon those political, demographic and social characteristics which proved to be the most significant predictors of vote on the Clean Water Bond. Findings highlighted here are those which are of particular importance to those concerned with the passage of future water pollution control bond measures at the local level where a two-thirds majority vote is required.

The indicators of vote on the Clean Water Bond will be examined in descending order of predictive ability. Among the indicators examined the greatest association with vote on the Clean Water Bond was found to be vote on Proposition 1 (the 250 million dollar recreational bond). Higher percentages of votes on Proposition 1 were matched by a nearly one-to-one increase in support for the Clean Water Bond. This correspondence demonstrates that both propositions tapped basically the same sentiment of strong public support for environmental measures. Not only would we expect the fate of other environmental propositions to be good measures of support for other water pollution control bond propositions, but we would also expect voting patterns found in this study of the Clean Water Bond to be good indicators of potential support of a wide range of other environmental measures.

Higher socioeconomic status as represented through greater percentages of white collar workers and higher education was strongly related to higher support for Proposition 2. Areas with high concentrations
of these gave markedly greater support to the Clean Water Bond, making white collar and education approximately equally strong predictors of vote. Those seeking passage of future water pollution control bonds should focus on these traits (perhaps through surrogate measures like income as explained above) as guides to areas of potentially high support.

As measured by the Reinecke and death penalty votes, ideological orientation has an influence on voting patterns. Areas which exhibit higher degrees of conservatism as seen through greater percentages of votes for Reinecke and the death penalty were far less likely to vote "yes" on the Clean Water Bond. Votes on these measures, as well as on other ballot propositions or indicators which tap the liberal-conservative dimension, can be used to guide future campaign resources, with conservative more likely to vote "no" more often than more receptive liberals.

Though the effect of both minorities and electoral turnout were less significant indicators than the above, they still deserve mention. Greater percentages of minorities are associated with slightly higher support for the Clean Water Bond, though minorities do tend to be concentrated in areas with lower overall support for Proposition 2. Generally speaking, if campaign efforts were focused on minorities, this would mean expending resources in areas less favorably disposed to voting "yes" on measures like Proposition 2. Higher turnout was found to have a slight negative impact on the percentage of "yes" votes in lower socioeconomic areas, while possessing a somewhat
positive effect in higher socioeconomic areas. Translated into future campaign strategy, turnout drives should be selectively undertaken, and then only in areas with a higher propensity to vote "yes".

Lastly, two potentially significant variables which were found not to be of importance need to be noted. Party registration was found to have no effect on voting patterns. The association which percent Democratic had with vote was purely spurious, and as far as this research has discovered, party registration should not be used as a key to understanding or predicting vote on water pollution control bond measures. Higher age was very slightly associated related to higher support for Proposition 2, although lower age was anticipated to be moderately related to greater support. This result undoubtedly reflects the sadly low participation of younger citizens in the electoral process. Large numbers of "yes" votes for water pollution control bond measures potentially exist among younger voters. They are of little use, though, if they cannot be counted on election day.

The public's attitude towards water pollution control is positive and support for such programs is generally quite high, as illustrated by the statewide vote on the Clean Water Bond. But varying degrees of support exist among voters, and local measures similar to Proposition 2 have failed to achieve the necessary two-thirds vote. Since public support is high for such plans the most efficient use of campaign resources, as found in this analysis, would be to direct them towards areas and groups containing potentially large percentages of "yes" votes (higher education, higher percents of white collar workers, more
Information and resources diverted to less supportive areas would in some sense be wasted, for the need is not to change people's minds to vote for such measures, rather it is to convince people to support with votes (and hence money) an idea they already support philosophically. If this is done, future water pollution control measures beneficial to both the environment and the local community should achieve passage with far less difficulty.

As a closing note, a comment on the "state of the art" is appropriate. Sub-national electoral contests have long been grossly under-investigated by political scientists. With participatory democracy becoming more prevalent, more attention must be paid to all facets of statewide and local ballot measures. This study has illustrated that more costly survey-based data are not the sole means available for achieving fruitful analysis of voting patterns on ballot measures. In fact, policymakers and planners at the local level could undertake studies of this or similar measures to develop findings even more relevant to their particular situation than those presented here. It is hoped that in the future, scholars, researchers, and analysts alike will take advantage of the far less expensive and more accessible aggregate election data to delve more deeply under the surface that this report has admittedly only scratched.
NOTES

1. Funding for this project was provided by a grant from the Californians for Clean Water to the Institute of Governmental Studies, University of California, Berkeley, for a study of characteristics "in support of or opposition to" the Clean Water Bond Law of 1974. Their support is gratefully acknowledged. The written report of the research is generally oriented towards passage of this and future water pollution control measures. This is my personal orientation and does not necessarily reflect the opinions of others connected with this study. I am sufficiently confident in the research to feel that those seeking to defeat water bond measures can easily turn my findings and advice "upside down" to find it equally useful.


3. Westbrook v. Mihaly (California State Supreme Court, S.F. No. 22706, June 30, 1970) 471 p. 2d 487, 2 Cal 3d 765. In this decision the Court held the two-thirds majority decision unconstitutional in a 7-0 decision.


16. The poll was conducted by Milton J. Kramer and Associates of Los Angeles. The data was repunched from the original questionnaires in this research with some minor alterations in coding. In no case does the difference between the two exceed 1/2 of 1 percent. I would like to thank Mr. Kramer and his staff for the time and trouble they took to assemble the data for me.


20. Gallup Opinion Index, no. 65, page 27. A work by Morris Fiorina, *Public Opinion and Pollution: An Interpretive Survey*, (Environmental Quality Laboratory, California Institute of Technology) 1973, provided much of the background for this discussion of "willingness to pay", with his thinking heavily reflected in my analysis.


23. The social, economic, and demographic data is from the 1970 United States Census. The political data was compiled from the actual precinct returns for all 1974 data, and was made available through the County Clerk of Contra Costa County. Data for Proposition 17, the death penalty initiative of 1972, was already aggregated into census tracts. This data was provided by the University of California's State Data Program located on the Berkeley campus. For the 1974 data, precinct maps (scale: 1 inch = 800 feet) were superimposed onto census tract maps (scale: 1 inch = 4,000 feet) to accomplish the aggregation. Most precincts were totally contained with a single census tract and did not present aggregation problems. For those precincts that overlapped, an estimate was made of as to what fraction of it was within a census tract, and votes were apportioned accordingly. Population was assumed to be evenly dispersed in precincts if additional information could not be brought to bear on the nature of population concentrations.

The aggregation process was greatly aided by the use of materials on Contra Costa County organized by Mr. Mickey Levy for an Advanced Policy Analysis paper in the Graduate School of Public Policy, University of California, Berkeley, entitled *Interpreting Voting Patterns on Proposition 1*, May 1974. Mr. Levy's comments and advice greatly facilitated the data development process. Without his aid the project would have been a much more difficult undertaking. His help is gratefully acknowledged.


25. With all variables except percent female, categorization has been undertaken by placing equal numbers of "units" in a category. This was done to avoid disturbing the interval nature of the data. With percent female this seemed unwise because nearly all cases would have fallen into one or two categories.
Correlation statistics, such as Pearson's r are intended to summarize all the information in a table by a single number. Briefly, Pearson's r has a possible range for -1.00 to +1.00, with .00 representing complete randomness between items, as was nearly seen between sex and vote on Proposition 2. A +1.00 indicates a units per unit increase between two items. For example, an additional year of education in an area may occur in conjunction with an increase in income of $1,000--a correlation of +1.00. A -1.00 correlation would exist when a unit increase in one item occurred with a unit decrease in another. Of course, in the social sciences correlations of + or - 1.00 are almost never seen.

Researchers will almost always disagree on what is a high, medium or low correlation. For my purposes, I have used the following guidelines. A correlation of .15 or less (+ or - in this and all presented below) was not considered significant; .15-.25 was viewed as weak but tangible, that is higher amounts of A was likely to be found with slightly higher amounts of B (in a + relationship). From .25 to .50 a moderately strong relationship was felt to exist, with it being wise to consider the trait in future planning in this area. R's above .50, such as with education, generally indicate the most important items in the research, items which should be of primary concern. Even the highest relationship found,+.89, is still short of a perfect one-to-one relationship, (+ or - 1.00) though .89 is extraordinarily high. A final important point is that correlation implies neither causation nor a relationship which is positively useful. In this study, for example, the high negative correlation -.49, between party and vote on Proposition 2 was later found to be spurious (artificial) in a causal sense and of little use in understanding vote on Proposition 2. While far from comprehensive, it is hoped this brief summary will somewhat orient the reader towards the statistics used herein.

27. Ibid., pages 68-72 for a discussion of the use of means versus median measures.


30. Ibid.


APPENDIX I

PROPOSITION 2 - IN DEPTH SURVEY OF VOTER ATTITUDES

CONDITIONS OF SURVEY:

Respondents were polled in Los Angeles, Orange and San Diego Counties:
840 interviews were taken in a one-week period in late April of 1974:
Interviewees were cross-checked and found to generally conform to statistical distribution in population.

FINDINGS:

1. Californians give a high priority to environmental programs in general. Over 47 percent mentioned environmental issues as a major issue in a free choice question. The major issues were ranked by the voters. A mean of the rankings given shows environmental issues ranked behind the cost of living and ahead of tax, welfare, energy and election reform issues. 57 percent of respondents stated that environmental programs have not gone far enough.

2. Californians are concerned about water quality. (65.6 percent believe there are local water pollution problems and 79.9 percent believe there are problems in California. Backing up this appraisal of problems are pluralities expressing the opinion that the problems are serious).

3. Californians give strong support to an effective water quality program, except when it would be financed with property taxes. (19.3 percent of citizens want a crash program, 63.9 percent want an orderly progressive program. Only 13.6 percent believe we should continue at our current pace. However, support for financing clean water drops off 36 percent if property taxes are mentioned as the source of funds.)

4. Both water supply and water quality enjoy public support, with water quality significantly higher. (see results - Question 11)

5. Generally support for improved water quality is across the board, with support increasing with income and education, decreasing with age. Results are similar in white, black, oriental and Mexican American communities. (No figures are presented because sampling within a sub-group is not conclusive due to the low number of respondents. Thus this conclusion is tentative.

66
QUESTION 1

What do you consider to be the most important problems facing California and Californians today?

Major Issues:

- Inflation/Economy/Unemployment: 35%
- Pollution/Environment/Conservation/Land Use: 47%
- Energy Crisis: 18%
- Taxes/Tax Reform: 17%
- Corruption/Election Reform: 12%
- Crime/Youth Crime/Law Enforcement: 12%
- Welfare: 6%
- Transportation: 4%

* Multiple answers yield more than 100%

QUESTION 2

Here is a list of different issues. How would you rate them in importance?

<table>
<thead>
<tr>
<th>Environment</th>
<th>Welfare</th>
<th>Tax Reform</th>
<th>Energy</th>
<th>Prop. Taxes</th>
<th>Campaign Reform</th>
<th>State Taxes</th>
<th>Cost of Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>22.5</td>
<td>9.4</td>
<td>8.5</td>
<td>11.1</td>
<td>6.9</td>
<td>7.6</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>14.8</td>
<td>9.9</td>
<td>8.1</td>
<td>19.5</td>
<td>7.6</td>
<td>8.0</td>
<td>8.3</td>
</tr>
<tr>
<td>3</td>
<td>12.0</td>
<td>10.5</td>
<td>10.7</td>
<td>13.7</td>
<td>11.4</td>
<td>10.4</td>
<td>9.9</td>
</tr>
<tr>
<td>4</td>
<td>9.6</td>
<td>10.4</td>
<td>13.1</td>
<td>10.2</td>
<td>12.5</td>
<td>9.0</td>
<td>11.1</td>
</tr>
<tr>
<td>5</td>
<td>8.3</td>
<td>9.0</td>
<td>12.6</td>
<td>9.4</td>
<td>12.7</td>
<td>12.0</td>
<td>12.3</td>
</tr>
<tr>
<td>6</td>
<td>8.2</td>
<td>6.8</td>
<td>12.7</td>
<td>7.1</td>
<td>11.5</td>
<td>10.1</td>
<td>14.8</td>
</tr>
<tr>
<td>7</td>
<td>4.9</td>
<td>11.3</td>
<td>10.2</td>
<td>7.7</td>
<td>11.3</td>
<td>11.9</td>
<td>13.2</td>
</tr>
<tr>
<td>8</td>
<td>8.1</td>
<td>16.3</td>
<td>7.0</td>
<td>8.5</td>
<td>9.4</td>
<td>14.9</td>
<td>8</td>
</tr>
</tbody>
</table>

MEAN 3.6 4.8 4.5 3.9 4.7 4.9 4.9 2.2

QUESTION 3

Which of the following statements best represents your attitude towards the programs started to improve the environment in the past few years?

- Too far: 15.8
- About right: 16.9
- Not far enough: 57.0
- No opinion: 9.5
- No answer: 0.7
QUESTION 4

Do you believe that there are water pollution problems in this area?

Yes 65.6
No 20.4
Never had them 5.2
No answer 8.8

QUESTION 5

Which of the following best describes your view of the water pollution problem?

Very serious 29.4
Serious 39.0
Somewhat serious 25.8
Minor 5.8

QUESTION 6

Do you believe that there are areas in the state where water pollution is a serious problem?

Yes 79.9
No 4.9
No answer 15.2

QUESTION 7

Do you consider the problem of water pollution to be widespread?

Yes 74.2
No 15.2
No answer 10.6

QUESTION 8

Assuming that there is a major water pollution problem, which of the following statements best describes your view?

Crash program 19.3
Orderly, progressive program 63.9
Current pace 13.6
QUESTION 9

Since cleaning up water pollution costs money, would you approve or disapprove the state issuing bonds, if NO property taxes were involved, in order to qualify for federal funds to do the job?

- Strongly approve: 38.1
- Mildly approve: 42.3
- Mildly disapprove: 8.0
- Strongly disapprove: 6.9
- No answer: 4.8

QUESTION 10

Since cleaning up water pollution costs money, would you approve or disapprove the state issuing bonds, if property taxes were involved, in order to qualify for federal funds to do the job?

- Strongly approve: 15.6
- Mildly approve: 28.7
- Mildly disapprove: 20.4
- Strongly disapprove: 29.6

QUESTION 11

If two measures were on the ballot, both providing for issuing of bonds, one to clean up water pollution and the environment and one to provide a larger supply of water, would you:

- Vote for both: 40.0
- Vote for water quality: 35.0
- Vote for water supply: 7.1
- Neither: 3.7
- No answer: 14.2
APPENDIX II

Table A: The Low Difference in Opinions of Local Water Pollution Problems Among Age Groups

Table B: The Low Difference in Opinions on Local Water Pollution Problems Among Education Groups

Table C: The High Percentage of Blacks Feeling Local Water Pollution Problems Are Very Serious

Table D: The Greater Desire Among Blacks for Crash Anti-Pollution Programs
### TABLE A

**THE LOW DIFFERENCE IN OPINIONS OF LOCAL WATER POLLUTION PROBLEMS AMONG AGE GROUPS**

Which of the following best describes your view of (local) water pollution problems?

<table>
<thead>
<tr>
<th>Age</th>
<th>Very Serious</th>
<th>Serious</th>
<th>Somewhat Serious</th>
<th>Minor</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 years old</td>
<td>37%</td>
<td>37%</td>
<td>24%</td>
<td>3%</td>
<td>(115)</td>
</tr>
<tr>
<td>25-34</td>
<td>29</td>
<td>39</td>
<td>29</td>
<td>2</td>
<td>(165)</td>
</tr>
<tr>
<td>35-44</td>
<td>27</td>
<td>42</td>
<td>22</td>
<td>9</td>
<td>(100)</td>
</tr>
<tr>
<td>45-54</td>
<td>28</td>
<td>36</td>
<td>29</td>
<td>7</td>
<td>(89)</td>
</tr>
<tr>
<td>55-64</td>
<td>26</td>
<td>35</td>
<td>28</td>
<td>11</td>
<td>(54)</td>
</tr>
<tr>
<td>65 years or older</td>
<td>29</td>
<td>45</td>
<td>16</td>
<td>10</td>
<td>(31)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>30%</strong></td>
<td><strong>39%</strong></td>
<td><strong>26%</strong></td>
<td><strong>6%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>N = ( )</strong></td>
<td>(165)</td>
<td>(214)</td>
<td>(144)</td>
<td>(31)</td>
<td>(554)</td>
</tr>
</tbody>
</table>

Source: Water Quality Survey, 1974
TABLE B

THE LOW DIFFERENCE IN OPINIONS ON LOCAL WATER POLLUTION PROBLEMS AMONG EDUCATION GROUPS

Which of the following best describes your view of (local) water pollution problems?

<table>
<thead>
<tr>
<th>Education</th>
<th>Very Serious</th>
<th>Serious</th>
<th>Somewhat Serious</th>
<th>Minor</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10 years</td>
<td>33%</td>
<td>37%</td>
<td>24%</td>
<td>6%</td>
<td>(33)</td>
</tr>
<tr>
<td>10-12 years of school</td>
<td>30</td>
<td>38</td>
<td>26</td>
<td>6</td>
<td>(175)</td>
</tr>
<tr>
<td>1-2 years of college</td>
<td>30</td>
<td>35</td>
<td>28</td>
<td>6</td>
<td>(139)</td>
</tr>
<tr>
<td>3-4 years of college</td>
<td>29</td>
<td>45</td>
<td>23</td>
<td>4</td>
<td>(123)</td>
</tr>
<tr>
<td>4 or more years of college</td>
<td>27</td>
<td>43</td>
<td>25</td>
<td>5</td>
<td>(77)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30%</td>
<td>39%</td>
<td>26%</td>
<td>6%</td>
<td>(547)</td>
</tr>
<tr>
<td>N = ( )</td>
<td>(162)</td>
<td>(215)</td>
<td>(139)</td>
<td>(31)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Water Quality Survey, 1974
TABLE C

THE HIGH PERCENTAGE OF BLACKS FEELING LOCAL WATER POLLUTION PROBLEMS ARE VERY SERIOUS

Which of the following best describes your view of (local) water pollution problems?

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Very Serious</th>
<th>Serious</th>
<th>Somewhat Serious</th>
<th>Minor</th>
<th>N = ( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>29%</td>
<td>39%</td>
<td>26%</td>
<td>6%</td>
<td>(443)</td>
</tr>
<tr>
<td>Black</td>
<td>37</td>
<td>35</td>
<td>23</td>
<td>6</td>
<td>(81)</td>
</tr>
<tr>
<td>Other*</td>
<td>29</td>
<td>40</td>
<td>29</td>
<td>2</td>
<td>(42)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30%</td>
<td>39%</td>
<td>26%</td>
<td>6%</td>
<td>(556)</td>
</tr>
</tbody>
</table>

Source: Water Quality Survey, 1974

*Chicanos, Orientals, and other.
Which of the following best describes your view of the future approach to pollution clean-up programs?

<table>
<thead>
<tr>
<th></th>
<th>Crash Programs</th>
<th>Progressive Programs</th>
<th>Current Pace</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>17%</td>
<td>71%</td>
<td>12%</td>
<td>(626)</td>
</tr>
<tr>
<td>Black</td>
<td>36</td>
<td>46</td>
<td>19</td>
<td>(112)</td>
</tr>
<tr>
<td>Other*</td>
<td>21</td>
<td>57</td>
<td>21</td>
<td>(74)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20%</td>
<td>66%</td>
<td>14%</td>
<td>(812)</td>
</tr>
</tbody>
</table>

N = ( )

Source: Water Quality Survey, 1974

*Chicanos, Orientals, others.
APPENDIX III: A Further Note on Aggregate Data

While the need to discuss the apparently "fine" points raised on page 26 may not seem obvious, they grow out of a debate in the social sciences that has gone on for over 25 years. To summarize, W. S. Robinson wrote an article in 1950 which declared aggregate data improper for use in research areas like electoral studies.31 The strength of his argument was largely based upon an example in the article on illiteracy. In it, he compared aggregate data on illiteracy, residency, and percent Black with individual (survey) data to show that conclusions based upon the aggregate data were widely different from the known values. While other authors commented upon and modified his original findings, from that point forward, aggregate data analysis has been held in lower esteem by many in social science fields.32

A recent report has disputed, and perhaps totally overcome objections to the use of aggregate data. Hanushek, Jackson, and Kain, in a 1974 Political Methodology article, repeated the work done by Robinson in 1950 except they expanded the original analytical model to include previously omitted but important variables, such as percent Mexican and percent school enrollment among school age persons.33 With these variables included, their analysis produced values which closely approximated the true values. It was only because Robinson had originally found erroneous values that aggregate data analysis had received such widespread criticism.

As they indicated, the penalties for misspecifying models or ignoring potentially important variables is often more severe for those using aggregate data as opposed to survey data, but this does not mean use of aggregate data is inappropriate or unreliable. The overall conclusion is that aggregate data, as employed in this research is both an accurate and valuable source of data for political research.