

Chapter 1
ENVIRONMENTAL CONCERNS OF BERKELEY WATERFRONT USERS
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Introduction

San Francisco Bay is an invaluable resource for the Bay Area community. It provides a wealth of recreational and commercial opportunities, is the natural habitat for a variety of plant and animal life, and is a source of great natural beauty. Unfortunately, the adverse impacts of urban surroundings have created very serious problems for the Bay ecosystem. Chemical and organic pollutants are injurious to both plant and animal life and in extreme cases render an area unfit for human use. Development of the Bay margins threatens to eliminate the wetland areas, which are an irreplaceable habitat for a diverse array of aquatic species, and act as purifiers of water pollutants. Despite these and numerous other problems, San Francisco Bay is widely used and enjoyed by the people living in the Bay Area, and a great number of tourists who visit the Bay Area each year.

An estimated increase of 1,000,000 people in the Bay Area over the next 30 years (ABAG, 1985) suggests even greater future use and the need to formulate solutions for Bay environmental issues promptly. Bay Area environmental organizations, which have been instrumental in the fight to preserve and improve the Bay, will have an especial challenge because most of this population increase is projected to be in the minority segment of the population (CCSCE, 1982). Therefore, the organizations will have to look beyond past methods of membership recruitment which have provided them with a constituency made up primarily of the White/Caucasian sector of the San Francisco Bay Area population.

The Berkeley waterfront (Figure 1) is an important and popular recreational area for Berkeley and other East Bay cities. Throughout the year people enjoy fishing, windsurfing, walking, sailing, picnicking, birding, swimming and simply relaxing there.

How do these active users of the Berkeley waterfront feel about the condition of the Bay? Do waterfront users feel that the degradation of San Francisco Bay affects them personally, and if so, how? What changes in current laws and human practices would these people like to see in order to combat the problems of Bay degradation?

The objectives of this study are (1) to obtain data on how aware people who use the Berkeley waterfront area are of the problems which affect the Bay; (2) to investigate the degree of concern about these problems; (3) to determine what methods people would like to see used in order to combat Bay problems; and (4) to produce a summary of these data, useful for Bay Area environmental organizations seeking new sources of grassroots political support.

No studies have been done which focus on the opinions of Berkeley waterfront users with regards to Bay environmental problems. Drexler (1985), however, did a study on preferred recreational

activities and recreationists' views towards encroaching commercial development at Berkeley waterfront park.

The Berkeley Waterfront Study Area

Data were collected at the Berkeley Pier and Seawall Drive (Figure 1). The Berkeley Pier is a 3,000-foot concrete slab pier (Drexler, 1985), which attracts a great number of fishermen and people out strolling throughout the year. Several sport fish are caught there, including striped bass, shark, rays and perch. The pier provides an impressive view of San Francisco, the Golden Gate Bridge and most of the West Bay Area.

The portion of Seawall Drive used in this study is the southernmost 1/4 mile, bounded by the entrance to the pier to the north, and Hs. Lordships restaurant to the south. On the west (Bay) side of Seawall Drive is a wide sidewalk with several benches and a few small grassy spots. A parking lot, which runs nearly the entire length of this strip, allows one row of vehicles to park perpendicular to the sidewalk. On the Bay side of the sidewalk is a steep embankment of large boulders. Seawall Drive is a very popular spot for casual walking, fishing from the rocks, picnicking on the benches and grassy areas, and for parking and enjoying the view of San Francisco from private cars.

The pier and south Seawall Drive were selected for this study on the basis of a high and consistent volume of use, and easy access for myself and the general public. Drexler (1985) found many locations at the Berkeley waterfront to be less intensively used during the winter months, making data collection very difficult and prohibitively time-consuming. The results of a trial survey conducted between November 27-30, 1986, confirms conclusions by Drexler (1985) about location use, and indicates that the pier and south Seawall Drive host an adequate volume and diversity of people for this study.

Methods

In this study I sought to obtain two categories of information about Berkeley waterfront users, (1) data on the awareness, concerns and opinions in regard to Bay environmental problems, and (2) socio-economic data. In order to do this, I devised a survey (see Appendix), which was administered to 50 users of the Berkeley waterfront between November 27, 1986 and February 10, 1987.

All surveys were conducted on the Berkeley pier or along Seawall Drive, which are collectively referred to as "the Berkeley pier" (Table 1). The surveys were conducted at various times of the day and both on weekdays and weekends. All data were collected on clear or partly cloudy days, with cool temperatures characteristic of the winter months. The surveys from both areas were analyzed together, and no attempt was made to differentiate between data from the two locations.

I made no attempt to select respondents in a statistically random manner, other than approaching each individual I encountered at the study area. Exceptions were made when people appeared intoxicated, angry or depressed, or were involved in a personal conversation or activity. Some people were inaccessible because they were sailing, running or doing some sort of physical activity which could

SURVEY DATA COLLECTION		
DATES	TIME OF DAY	# OF SURVEYS COLLECTED
Nov. 27 Thurs.	2 - 5pm	13
Nov. 28 Fri.	9 - 12 noon	6
Nov. 30 Sun.	10 - 1pm	8
Jan. 19 Mon.	9 - 12 noon	7
Jan. 21 Wed.	1 - 5pm	5
Feb. 7 Sat.	2 - 5pm	7
Feb. 10 Tues.	11 - 1pm	4
Total		50

Table 1. Dates and times of survey collection at the Berkeley pier (1986-1987).

not be interrupted. Surveys were administered in English only. Three people did not demonstrate a proficiency in English and did not contribute to the survey data.

On two occasions it was necessary to administer surveys to couples simultaneously. In

both instances respondents were asked to formulate their own answers silently, and then asked to reply individually. I believe this minimized the bias introduced by joint surveys.

Questions 1-7 were administered orally and answers were recorded by myself. Questions 8-13 were completed by the respondent who was given the survey and a pen.

In most cases, the questions as written were understood clearly by the respondent. At times, additional explanation became necessary to clarify the intended meaning of a question. At no time did I supply a sample answer.

Half way through the study, I realized that questions 4e and 4f (see Appendix) were poorly designed, and they were dropped from the survey. Question 4e was intended to explore what legal, political, educational and other possibilities respondents felt would help correct Bay environmental problems. As written, however, a typical response to the issue of pollution would be "get rid of the pollution." This type of response was not useful for the purposes of this study. Most of the respondents could not remember how they became aware of a particular issue (question 4f) and would either respond with "I don't know," or tell me a particular source followed by "I think," or "but I'm not really sure." The ambiguity and uncertainty of a large proportion of the responses led to the deletion of this question.

Survey Responses

Data collection yielded 50 surveys. The socio-economic characteristics are shown in Table 2. Of those surveyed, 66% are male, 34% are female, and 74% are between the ages of 18 and 45. The distances people traveled to get to the Berkeley pier at the time of this survey ranged from a few blocks to 30 miles. The cities of Berkeley, Oakland, Albany and El Cerrito represent 54% of respondents' homes. All of these locations are within five miles of the Berkeley pier. The remaining 46% of respondents come from eight other cities, from Hayward in the South Bay, San Francisco to the west, Walnut Creek to the east and Hercules to the north. Respondents have lived in the Bay Area an average of 20 years. Of those surveyed, 42% have completed some college; 62% are working either full- or part-time, and the largest three income brackets are in the low to moderate range, \$0 to \$9,999 (20%), \$10,000 to \$19,999 (30%) and \$20,000 to \$39,999 (26%)

CHARACTERISTICS OF RESPONDENTS					
SEX	%	AGE	%	ETHNICITY	%
Male	66	18-25	22	Asian\Japanses\Chinese\Korean	22
Female	34	26-35	22	Black	12
		36-45	30	Caucasian\White	50
RESIDENCE		46-55	4	Hispanic\Mexican-American	4
Albany	4	56-65	10	Other: (Jewish)	3
Berkeley	22	65 or older	12		
Castro Valley	4			EMPLOYMENT	
El Cerrito	8	LEVEL OF EDUCATION		Full-time	48
Emeryville	4	No formal schooling	2	Part-time	14
Hayward	4	Some highschool, but		Unemployed	6
Hercules	4	did not complete	8	Student	14
Oakland	16	Completed highschool	8	Retired	12
Orinda	4	Some college	42	No response	2
Richmond	6	College degree (4yrs)	18	INCOME	
San Francisco	10	Postgraduate (>4yrs)	16	\$0 - 9999	20
San Leandro	10	No response	6	10,000 - 19,999	30
Walnut Creek	4			20,000 - 39,999	26
				40,000 - 59,999	14
Average length of residence in the Bay Area		20yrs		60,000 or more	6
				No response	2

Table 2. Description of socio-economic characteristics of respondents (in percent of total respondents).

The majority of those surveyed were White/Caucasian (50%) (Table 2). However, visual observations suggest that equal proportions of Asian, Black and White ethnic groups use the Berkeley pier. Part of this discrepancy arose because a large number of surveys were collected on Thanksgiving Day, when the vast majority of the people at the pier were Caucasian. Of 13 surveys collected that day, 11 were completed by this ethnic group. Other possible reasons for the discrepancy include a combination of faulty randomizing techniques, in which it was assumed that approaching every person encountered would result in a random sample, and a possible unconscious bias towards Caucasian pier users. I did not encounter any differences in the willingness of people to take part in this study between respective ethnic groups. Because of the inaccuracy of the data on ethnicity, the data on level of education, employment and income need to be interpreted with care.

At the time of this survey, people were engaged in a wide variety of activities at the Berkeley pier (Table 3). The largest percentage (44%) of respondents were fishing during their survey. Other popular activities on the pier are relaxing, walking or enjoying the view of the water.

When asked if they were aware of any environmental issues affecting San Francisco Bay, 42 respondents knew of one or more issues, whereas eight were not aware of any issues at all (Table 4). The specific issues cited by respondents are numerous. Pollution and its various forms accounted for the majority of responses (70%).

Many of the respondents (58%) feel that there are environmental problems affecting San Francisco Bay which should be solved immediately (Table 5). Of the respondents, 12% are not up-to-date on the issue of Bay degradation.

ACTIVITIES AT PIER			
Fish	44	Enjoy Water	8
Relax	22	Solitude	2
Walk	10	Windsurf	6
		Work	6
		Bored	2

Table 3. Types of use at the Berkeley Pier (in percent of total respondents).

ENVIRONMENTAL ISSUES CITED			
QUESTION 4: Do you know of any environmental issues affecting San Francisco Bay?		Yes	No
		42	8
POLLUTION ISSUES		OTHER ISSUES	
Pollution	21	Bay fill	6
Less fish due to pollution	13	Fresh water diversion from Delta	4
Dumping by industry	9	Declining wildlife populations	3
Toxic waste	2	Marine life destruction	3
Sewage overflow	2	Litter	2
Urban runoff	2	U.S. Army	1
Refinery pollution	2	Wood structures in Emeryville	1
Oil spills	2	Smelly mudflats	1
Selenium	2	Oil pumping	1
Water quality	2	Marshland destruction	1
Pesticides	1	Right of way for windsurfers	1
Nuclear pollution	1	Dredging	1
Illegal dumping by industry	1	Aircraft carrier run aground	1
Polluted fish	1	Nuclear subs	1
*Unknown dumping by industry	1		

Table 4. Environmental issues cited by respondents to question 4 (numbers represent total responses).

ENVIRONMENTAL PROBLEMS		
SURVEY QUESTION #3	POSSIBLE RESPONSES	RESPONSES
Is San Francisco Bay undergoing serious environmental changes?	There are serious environmental problems and we need to solve them right now.	58%
	There are problems and we need to think about how to solve them.	18
	There are problems, but the bay is doing fine.	6
	There are no problems at all.	6
	I am not up to date on this issue.	12

Table 5. Opinions of respondents regarding the urgency and existence of environmental problems in San Francisco Bay (in percent of total responses).

EFFECTS OF ENVIRONMENTAL ISSUES			
QUESTION #4	ISSUE	RESPONSE	# OF RESPONSES
How do you feel the issue(s) you have mentioned affect you personally?	Pollution	fewer fish to catch	16
		less business	1
		my health	2
		no effect	1
		will not eat fish	6
		do not know	2
		less recreation	3
		depression/anger	3
		worry about future of bay	1
	Bay fill	anger	1
		consider moving out of Bay Area	1
	Water diversion	anger	1
		health	1
fewer fish		1	
cannot eat fish		1	

Table 6. How respondents feel environmental issues affect them.

When asked how the environmental issues mentioned by each respondent affect them personally, 16 people felt that pollution in its various forms decreased the numbers of fish available to catch in the Bay and therefore decreased the pleasure of fishing (Table 6).

Pollution was cited most often as the major problem facing San Francisco Bay in the next 25 years (Table 7). Many respondents said that increased human population in the Bay Area would become a major problem.

FUTURE ISSUES		
QUESTION #5	RESPONSE	# OF RESPONSES
What do you see as the major problems facing San Francisco Bay in the next 25 years?	Pollution	33
	Increasing population	12
	Increased landfill and development	5
	Decreasing fish populations	3
	Apathy towards bay	2
	Degraded ecosystem	1
	No problems	4

Table 7. Issues respondents feel will be major problems facing San Francisco Bay in the next 25 years.

Discussion

The respondents in this study represent a variety of ages, incomes, and levels of education and come from many East Bay Area cities. The male-to-female ratio and the cities from which respondents travel to the Berkeley pier are of particular interest.

The male-to-female ratio at the Berkeley pier was approximately two to one at the time of the survey. This is an average ratio which fluctuated depending upon the day of the week, time of day and holiday or non-holiday periods. Mondays through Thursdays between the hours of nine in the morning and four in the afternoon, the pier was predominantly used by fishermen who, with very few exceptions, were male. After four in the afternoon both men and women were observed walking and sightseeing on the pier. On Friday afternoons and after 11:00 a.m. on the weekends, the numbers of fishermen and walkers greatly increased. In addition, the proportion of female fishermen increased, as many of the people fishing were in groups which appeared to be couples and families. An exception to this general pattern was observed on Thursday, November 27, 1986 (Thanksgiving Day), when the majority of people in the pier area were walking and sightseeing in family groups, whereas very few people were fishing.

The wide variety of communities from which people come demonstrate that the Berkeley pier is a regional resource. Many respondents had traveled considerable distances when other pier facilities would have been closer. The restaurants, magnificent view, recreational opportunities, and good overall quality of the Berkeley waterfront and facilities may account for its popularity.

Respondents from the South Bay (Hayward, San Leandro) felt that the fish are more numerous and cleaner at the Berkeley pier than at either of the Hayward or San Leandro pier facilities. Two fishermen from San Francisco enjoy the view and free parking provided at the Berkeley pier. Both respondents

from Walnut Creek enjoy the view of the Bay and visit the pier frequently.

Survey respondents are aware that pollution is the major problem affecting San Francisco Bay. The large number of respondents citing this issue may be because "pollution" is a very broad topic which receives a good deal of attention from the media and environmental organizations. Furthermore, it is often obvious in some visual or olfactory form to the casual observer (e.g., oil spills, urban runoff, sewage overflow).

It is interesting to note that respondents have associated pollution with industry. Industry, industrial operations, and industry-related accidents were mentioned as being Bay polluters in the following forms: dumping by industry, illegal dumping by industry, unknown dumping by industry, refinery pollution, oil spills, and oil pumping (extraction). These responses total 16, which is 18% of the total responses. In general, the public is aware that industry is responsible for much of the air and water pollutants today. Industrial operations are also easily recognized and their air and water effluents can often be observed. The respondents' use of the words "dumping," "illegal" and "unknown," suggest that respondents see industry as being aware of their damaging effects upon the Bay, and feel that industries are perhaps unconcerned and do not consider their waste-products to be their legal or moral responsibility.

When asked how San Francisco Bay environmental problems affect them personally (Table 6), the greatest percentage of pier users felt that pollution has decreased the pleasure of fishing by reducing the fish populations in San Francisco Bay. A number of respondents were also afraid to eat fish caught in the Bay because they feel that fish have become polluted and unsafe. The issues of Bay fill and fresh water diversion from the delta received relatively few responses.

Individual respondents often cited both population and increasing pollution as future problems for San Francisco Bay (Table 7), which suggests an awareness that pollution and population growth are related, and that an increase in population in the Bay Area will create serious problems in the years ahead. Indeed, the "population problem" has been, and is, a global issue which has received a great deal of attention. It may be that Bay Area residents have also been finding population growth increasingly difficult to cope with because of the high cost of housing and overcrowded highways. Questions of where the increasing amounts of garbage will be disposed of, and the inadequacy of existing sewer systems have received a good deal of media coverage. These issues have led to a greater awareness and sensitivity to the problems associated with local population growth.

Recommendations

The importance of maintaining and restoring the environmental health of San Francisco Bay cannot be overstated. The objective of this study was to explore the level of awareness, degree of concern and socio-economic characteristics of Berkeley waterfront users in order to explore the possibility of increasing the grassroots support of local environmental organizations.

The participants in this study have demonstrated a keen interest in the condition of San Francisco Bay. Educating the public, the young public in particular, about the environment and regional parks and recreational opportunities should become a major focus of environmental organizations because it may be that the people who are most willing to engage themselves in an environmental movement are those who have had the opportunity to appreciate, understand and enjoy local natural settings.

It is likely that the projected population increase in the San Francisco Bay Area will be comprised of a large number of people who will have less opportunity to visit local parks and natural areas due to low income. At present, state and federal funding for public school programs such as the environmental curriculum and field trips has been greatly reduced (Cohn, pers. comm., 1987). It is possible that environmental organizations can play a substantial role in the education of the public about the environment and our local recreational resources in ways that are relatively inexpensive, enjoyable and beneficial to participating organizations and the environmental movement in general.

There are logistic problems with private organizations sponsoring school outings. However, it may be that Bay Area schools and instructors would welcome such an opportunity and help iron out complications of insurance and other details. Local universities such as the University of California, Berkeley, have programs in which students tutor in local public schools for college credit. The cost and logistic responsibilities of these outings could be shared by the formation of coalitions of Bay Area environmental organizations. This would also give many environmental groups good exposure to a large number of young people in an informal and highly positive manner. Organizations with low annual dues might find such a program a particularly effective method of increasing their memberships.

There are important elements for environmental organizations to consider with respect to current recruitment and informational practices. Information concerning an organization's goals must be made widely available, be easily understood by those without formal training in environmental issues, and most importantly, must be pertinent to the interests of as many Bay Area residents as possible. For example, San Francisco Bay environmental organizations should evaluate their respective agendas in order to determine to what extent they have lobbied or otherwise attempted to enlist the support of local fishermen. All literature, press releases and other forms of contact with the general public should specifically state what effect a particular issue will have on fish populations. Direct personal contact with fishermen at various fishing locations should be attempted. The possibility of forming coalitions with fishing organizations such as United Anglers should also be evaluated.

Regarding Berkeley waterfront users in general, environmental groups should distribute information at waterfront locations concerning industrial polluters. Information should be presented in such a way that the potential and actual damages caused by said polluters are clear and relevant to the activities associated with each waterfront location. Information booths presenting literature and photographic displays would be ideally suited to the Berkeley waterfront area, as well as many other parks and waterfront locations throughout the Bay Area.

Appendix I

1. Are you currently living in the Bay Area? Yes No
 b. How long have you lived here?
 c. What city? How long?
2. What is your main reason for being at the waterfront today?
3. Some people feel that the Bay is undergoing a number of environmental changes which are creating serious problems for the bay and the people who use it. Others do not consider the bay to be in any danger at all. How do you feel about this issue?
- I think there are very serious problems which threaten the bay and they need to be solved right now
 I think there are problems and we need to start thinking about how to solve them
 I think there are problems but on the whole the bay is doing fine
 I do not think that there are any problems at all
 I am not up to date on this issue
4. Are you aware of any issues concerning the bay? Yes No
 b. Which issues are you aware of?
 Issues: 1 2 3 4
 c. Taking everything into consideration, how concerned would you say you are about each issue?
 1. very concerned 2. somewhat concerned
 3. not very concerned 4. not concerned at all
 d. Can you describe how each of these issues affects you personally?
 e. What changes would you like to see happen to help solve these issues? (DROPPED)
 f. How did you become aware of these issues? (DROPPED)
5. What do you see as the major problems facing the bay in the next 25 years?
 I do not see any problems in the next 25 years.
6. Compared to most people you know, how interested are you in what happens to the bay?
 Much more interested than most people I know
 Somewhat more interested than most people I know
 About as interested as most people I know
 Somewhat less interested than most people I know
 Much less interested than most people I know
7. Is there anything else concerning the bay that you would like to tell me?
8. What was the highest grade or year of school you have completed?
 No formal schooling Some school, but did not complete highschool
 Completed highschool Some college College degree (4 years)
 Postgraduate study (5+ years)
9. Your sex is? Male Female
10. Your age on your last birthday was? 18 - 25 26 - 35 36 - 45
 46 - 55 56 - 65 66 or older
11. Please indicate what ethnic group you consider yourself to be a member of?
 Asian/Chinese/Japanese/Korean Black Caucasian/White
 Hispanic/Mexican-American Other (Please specify)
12. Are you currently employed: (Please check all that apply)
 Full-time (30+ hours per week) Part-time (29 or fewer hours per week)
 Unemployed Student Retired
13. Please check the box below, that best approximates your total household income for 1986 (include income from all sources).
 Under \$10,000 \$10,000 - \$19,999 \$20,000 - \$39,999
 \$40,000 - \$59,999 \$60,000 or more

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