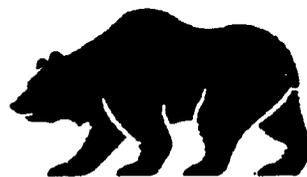
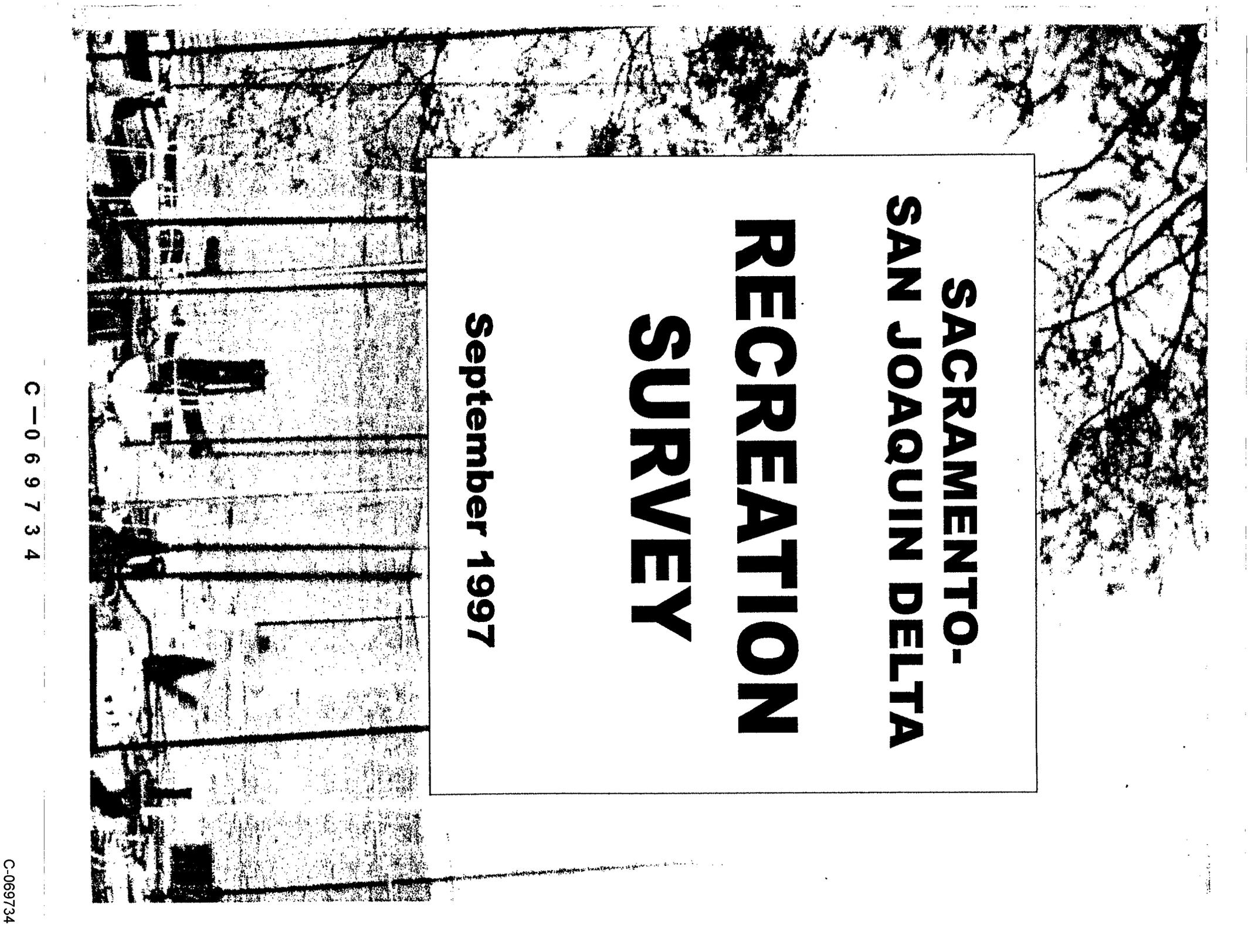


Sacramento- San Joaquin Delta Recreation Survey

August 1997



CALIFORNIA STATE PARKS

A black and white photograph of a park area. In the foreground, there are several trees with bare branches. In the background, a fence runs across the frame, and behind it, there are more trees and some structures. The overall scene is somewhat desaturated and has a grainy texture.

**SACRAMENTO-
SAN JOAQUIN DELTA
RECREATION
SURVEY**

September 1997

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Chapter I

Introduction

Background

In May of 1995, the Delta Protection Commission entered into an agreement with the California Department of Parks and Recreation to conduct a survey of registered boat owners and licensed anglers who use the Sacramento-San Joaquin Delta for recreation. The purpose of the survey was to determine the number of boaters and anglers who use the Delta, their residences, the areas where they recreate, the activities in which they participate, and the amount of money they spend while recreating in the Delta. This information could be used by the Delta Protection Commission, and other federal, State and local agencies, in their planning processes.

The Delta Protection Commission and the California Department of Boating and Waterways provided funding assistance for this survey. The Department of Parks and Recreation provided both funding assistance and staff support, and the Department of Water Resources provided some staff support.

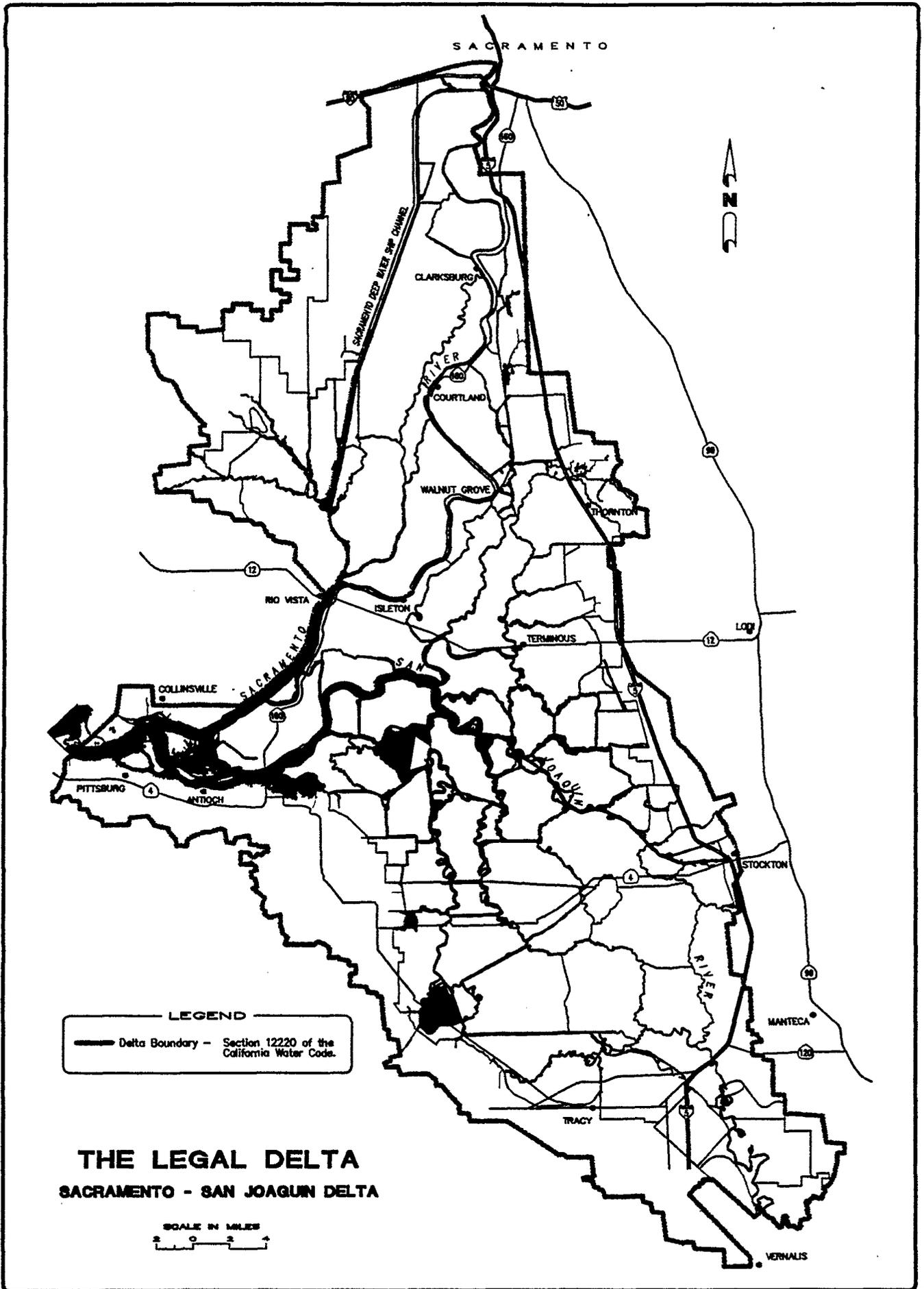
The Delta Protection Commission created a Recreation Study Oversight Subcommittee to assist the Department of Parks and Recreation in the survey. Individuals appointed were: Commissioner Don Nottoli, Chair, Commissioner Bill Curry, Commissioner Donald Murphy, Kate Hansel representing the Department of Water Resources, Mervin Hee representing the Department of Fish and Game, and citizen members: Sally Shanks, Chris Lauritzen, Steve Woodard, and Gil Labrie.

The Survey

General description. The overall goal of the survey was to access and document the recreational use of the Delta by boaters and anglers. Later, the goal was refined to include the following: 1) estimate the number of boaters and anglers who use the Delta for recreation, 2) identify the type of recreation activities boaters and anglers engage in, 3) identify the locations of these activities and when the activities occurred, 4) determine if boaters and anglers were satisfied with the facilities currently available in the Delta, and 5) identify any significant changes in boaters and anglers' recreation activities over the last five years.

The survey included mailing questionnaires to a random sample of all recreational boat owners in California, and to a random sample of all licensed anglers in California. The information on the returned questionnaires was recorded, tabulated and analyzed. The results provide the basis for this report. A detailed description of the survey methodology is provided in the Appendix.

It should be noted, that because this survey was limited to the recreation interests and habits of boaters and anglers, it is not a comprehensive survey of all recreation activities which occur in the Delta. This survey did not attempt to collect data on use of the Delta by non-boaters and non-anglers.



THE LEGAL DELTA
SACRAMENTO - SAN JOAQUIN DELTA

SCALE IN MILES
 0 1 2 3 4

Ideally, a survey of this type would include all recreation users of the Delta. However, that would have been very expensive and beyond the funds available for this project. Since previous studies indicated that most recreational visitors to the Delta participated in boating and/or fishing, it was reasonable to conclude that a survey of boaters and anglers would provide meaningful information on how the majority of recreationists recreate in the Delta. By limiting the survey to boaters and anglers, the survey was feasible to conduct with the available funds. Since anglers are required to purchase a California fishing license and boaters are required to register their vessels with the State, it was relatively inexpensive to obtain the names and addresses of a random sample of anglers and boaters through the Department of Fish and Game and the Department of Motor Vehicles, respectively. More importantly, the licenses provide a means of accessing a statistically reliable and valid sample of recreation users, not available through any other economically feasible means.

Boundary of the survey area. For the purposes of this survey, the Delta was identified as all public and private lands where outdoor recreation activities can be expected to occur, within or adjacent to the "Legal Delta", as defined by Section 12220 of the State Water Code. A map of the legal Delta is provided on page 2.

In general, the survey area is bounded by Interstate 5 on the east, the City of Sacramento on the north, the Yolo Bypass and the City of Pittsburg on the west, and Interstate 205 on the south. A map of the survey areas is on page 36. The boundary of the survey area boundary is the same as the perimeter of "Recreation Area Boundary" shown on the map.

The survey results represent only those outdoor recreation activities which occurred within the survey area. Some survey respondents included information about recreation activities which occurred in other locations. This information was not used.

Why a survey of recreation use of the Delta was needed and how the results can be used.

The last comprehensive survey of recreation use of the Delta was completed in 1980 by California State University for the Department of Water Resources. Since that time, recreation in the Delta has changed significantly. The sudden popularity of personal watercraft, for example, has had a significant impact on recreation in the Delta. The lingering recession of the 1990s has impacted the local economy, affecting the disposable income recreation users bring to the Delta, and affecting the local manufacturing and service industries which supply recreation related goods and services. The influx of Asian and Hispanic immigrants into the local area has changed the way the Delta is used for fishing and other recreation activities. The quantity and quality of water flowing through the Delta has changed, impacting the availability of catchable fish, and impacting the ability of the Delta to provide a quality recreation experience. California's population, in terms of the number of Californians now vs. 1980, and the demographics (age, income, etc.) is continuing to change. Any of these factors could have had a significant impact on recreation use of the Delta in recent years.

The survey results can also be used by the Delta Protection Commission to possibly adopt new findings, policies, and recommendations for inclusion in the Commission's adopted Land Use and Resource Management Plan for the Primary Zone of the Delta. In addition, the Commission and the Department of Boating and Waterways could use the results of the survey to encourage both public agencies and private entities to provide appropriate levels of recreation facilities and services and to provide adequate public access to Delta lands and waterways.

The survey results can also be used by state, federal, and local agencies responsible for managing the natural resources of the Delta. It can be a tool to help provide better day-to-day operation and management of those facilities and programs which impact the recreation user. Also, the results of this survey can be used by the same agencies to determine if there is a need for additional recreation facilities in the Delta and to properly plan for the future use and development of the Delta for recreation.

In addition, the results of this survey can be used by Delta marinas, and by other recreation oriented local businesses, to assess the current demand for recreation-related goods and services, and to help plan for changes in their current and future businesses.

The Delta

The Sacramento-San Joaquin Delta is a 1,100 square mile region of California's Central Valley, located 50 miles east of San Francisco. It is a flat, low-lying area where the fresh water of the Sacramento and San Joaquin Rivers empty into the more saline waters of the San Francisco Bay. The Delta is actually a network of several hundred various size islands, interconnected by nearly 700 miles of meandering waterways.

The Delta seems rural, even isolated, yet it is within a short drive of several urban population centers. It is bordered by the City of Sacramento on the north, City of Stockton on the east, and the smaller cities of Tracy and Pittsburg to the south and west, respectively. A few miles further west is the San Francisco Bay Area.

There are several key natural and man-made features which combine to make the Delta a truly unique environment, and give it a sense of place. These resources and features are water, levees, agriculture, and fish and wildlife.

Water. The Delta is an important source of water. It is estimated that the Sacramento and San Joaquin Rivers contribute about 42% of the natural water runoff in the State. In addition to providing water for irrigating Delta agriculture lands, the Delta provides water for urban Bay Area needs. Water is exported south for both agriculture and urban domestic needs. The State Water Project exports up to 4.2 million acre feet per year and the federal Central Valley Project exports another 3.3 million acre feet per year. Water also sustains the important fish and wildlife habitat and provides opportunities for boating, fishing, and other recreation activities.

Levees. When California first became a state, the Delta was mostly a tidal marsh. During the rainy winter season, it became a great inland lake. However, beginning in the late 1800s, more than 1,100 miles of levees were constructed, protecting the larger islands against flooding and changing the Delta's environment forever. Due to soil erosion, most of the islands are now below sea level, and will be forever dependent on a system of well-maintained levees.

Agriculture. The larger islands are used primarily for agriculture. The 350,000 acres of reclaimed agricultural lands are used for row crops, pastures, orchards and vineyards, producing crops valued at \$500 million annually. The use of Delta lands for agriculture continues to be supported by local landowners and government officials. Efforts to convert these lands to other uses has been vigorously opposed.

Fish and wildlife. The Delta provides valuable habitat for a variety of fish and wildlife. Ninety-one species of fish and 225 species of birds can be found in the Delta. The Pacific Flyway passes directly

over the Delta. Some of the smaller unimproved islands in the Delta provide suitable habitat for birds and other wildlife. In recent years, large tracts of land in the Delta have been set aside for wildlife management and protection.

Recreation in the Delta

Water has always been a magnet, drawing people to the Delta for recreation. With 700 miles of channels, nearly all of which are navigable, it is one of the largest waterway complexes in the western United States. In addition to open waterways, the Delta offers secluded, meandering sloughs cloaked with overhanging riparian vegetation. It follows, therefore, that most recreation in the Delta is water oriented, primarily boating and fishing.

Conveniently located near several large population centers, it serves a growing urban population. The population of the five counties adjoining the Delta is expected to increase to 5.2 million by the year 2005.

While most of the navigable waterways in the Delta are public, most of the land is private. The lack of public lands serves to limit the use of the Delta for recreation. Public use of the Delta is concentrated in a few areas where marinas and other facilities provide access to the Delta waterways. There are over a hundred private marinas which provide most of the recreation opportunities in the Delta. There are very few public parks. Some of the recreation areas in the Delta are only accessible by boat, further limiting the use of the Delta by the general public. The Delta's 1,100 miles of improved levees also provide access to the Delta for some recreationists, mainly bank anglers. However, much of the levee system is also private; therefore, the anglers are often trespassing.

Water-based recreation activities

Almost every type of recreational boating activity can be found in the Delta. Houseboats, sailboats, fishing boats, personal watercraft, speedboats, canoes, rowboats, and inflatable boats, can be found in the Delta's waterways. The more common boating activities are cruising, water-skiing, fishing from a boat, sailing, and boat camping. Many attractive fishing and swimming areas are accessible only by boat.

Fishing from a boat. Delta waters are home to a variety of game fish: catfish, sturgeon, steelhead, striped bass, large mouth (black) bass, American shad, salmon, crappie, bluegill, and carp. Private marinas and small businesses provide most of the facilities for boat fishing, including launch ramps, bait and tackle shops, and boat rentals.

Water-skiing. The Delta has long been a popular destination for water-skiing. Water-skiers appreciate the open, flat waters. However, the Delta's lack of beaches is a drawback.

Sailing. Many sailors enjoy the Delta. Sailing in the Delta, however, can be challenging because of stiff winds, changing tides, low bridges, and narrow channels.

Cruising. A preferred activity of powerboat operators is simply to cruise the various waterways of the Delta. This is the boater's version of driving for pleasure.

Operating personal watercraft. For some local residents, the Delta provides a convenient location for the use of personal watercraft (PWC). The manufacture and sale of the personal watercraft, also known by brand names as Jet Skis or Sea-Doos, is a fairly recent phenomenon. Like the larger powerboats, personal watercraft are often used for high-speed cruising, but can be used for fishing, or

even water-skiing. Jumping the wake of passing powerboats seems to be a popular sport. Private marinas provide the primary points of access. Most PWC operators stay close to their launch sites.

Canoeing and Kayaking. Compared to other types of boating, canoeing and kayaking are not very common in the Delta. These activities generally occur in places and at times where fast powerboats or PWCs are not operating. Popular areas for canoeing and kayaking are the Cosumnes and Mokelumne Rivers and Snodgrass and Sevenmile Sloughs. The most popular time for this type of boating is fall through spring.

Houseboating. The Delta is well known for its houseboating opportunities. The rental of houseboats has declined in recent years due to the recession and to changes in the tax codes which reduced profits for the owners.

Hunting from a boat. Delta waters available to the public for hunting include Sherman Island Waterfowl Management Area, Franks Tract State Recreation Area, and Big Break.

Swimming from a boat. Swimming from shore is limited in the Delta because of the lack of beaches; therefore, swimming from a boat is a popular alternative.

Boat camping. Many boaters stay overnight on their vessels. Some anchor in a quiet slough or other secluded spot for a few hours, a day, a week, or longer. (This activity is also known as "gunkholing.") There is no restriction on the length of time someone may anchor in most of the Delta, and some boats serve as summer vacation homes.

Swimming from shore. This activity takes place in many ~~the Delta, and some boats~~ slow-moving waters away from powerboats. There are only a few public swimming beaches, therefore, much of the swimming occurs from anchored boats.

Bank fishing. Bank fishing occurs along much of the Delta's 1,100 miles of leveed shoreline. Since vehicular access is essential to most anglers, most bank fishing occurs on levees and berms closest to improved roads. Besides informal fishing off the levees, there are several public fishing access points located at Georgiana Slough, the Cliff House, the White Slough wildlife area, the Borrow Ponds, and the Public fishing pier in Antioch fishing pier.

Windsurfing. Windsurfing is a sport that was uncommon in the Delta ten years ago. It requires consistent wind conditions which occur in only a few locations in the Delta. The southern most reach of the Sacramento River near Rio Vista is becoming recognized as a world-class windsurfing area. Not very many people participate in windsurfing in the Delta. However, the large, brightly colored sails of the sailboard make it a highly visible activity.

Land-based recreation activities

Not all recreation activities in the Delta are associated with water. The more popular land-based recreation activities are identified below.

Hunting. Waterfowl and pheasant are the most commonly hunted game. Hunting in the Delta occurs primarily on private agricultural lands and duck clubs during the fall and winter. Access to these private lands is limited to landowners and members of hunting clubs who are allowed to hunt for a fee. According to Department of Fish and Game staff, there are 33 hunting clubs in the Delta comprising

about 52,000 acres. While most hunting occurs on private property, hunting is allowed on some public lands.

Camping and picnicking. Camping and picnicking are popular in the Delta. Opportunities for these activities are primarily provided by private marinas. Some of the larger public parks, such as Brannan Island State Recreation Area and Discovery Park in Sacramento, provide extensive picnic grounds adjacent to Delta waterways.

Walking for pleasure. In the Delta, this activity occurs whenever people participate in outdoor recreation activities. Opportunities for walking in the Delta are very limited due to the lack of public parks and trails. Also, Delta roads are often narrow and winding and, therefore, dangerous for pedestrians.

Bicycling. Lightly traveled, scenic roadways adjacent to Delta waterways present an important bicycling opportunity. However, riding a bicycle on the Delta's narrow and winding roads can be dangerous. Due to a lack of designated bicycle lanes and trails in the Delta, bicyclists must share the public highways with high-speed traffic.

Viewing and photographing wildlife. The Delta provides habitat for 225 species of migratory and residential birds, and is, therefore, a destination for bird-watching and other nature study activities. The lack of public land and the limited road system restrict opportunities for study and observing nature. However, Stone Lakes, Cosumnes Preserve, and similar large nature areas, do provide for this activity in a few locations.

Sightseeing (driving for pleasure). A pleasant drive through the scenic and tranquil Delta region is a primary reason why some recreationists visit. Use of the car ferries which connect several of the islands can be a unique experience, as well as a visit to the historic towns of Locke, Isleton, and other historic Delta communities.

Attending special events. Several communities in and around the Delta sponsor special events that draw large crowds and bolster the local economy. The City of Isleton hosts the annual Crawdad Festival, while nearby Courtland promotes its Pear Fair each summer. Stockton is the location for a number of large boating events throughout the year, and Rio Vista sponsors a bass derby each fall. Walnut Grove hosts the Catfish Jubilee, while Bethel Island sponsors a 1950s Bash dedicated to restored automobiles from that era.

Chapter II

Previous Recreation Surveys

There have been many studies of recreation in the Delta. The first significant study was completed by the Resources Agency in 1956. This study, like many subsequent studies, did not attempt to quantify the level of recreation use in the Delta. A basic problem is that there are numerous roads and highways crossing the Delta, but there is no single entrance where visitors can be counted and surveyed. This makes any meaningful effort to measure total recreation use time consuming and expensive.

SACRAMENTO-SAN JOAQUIN DELTA OUTDOOR RECREATION SURVEY, 1980.

During the last seventeen years, most attempts to estimate the level of recreation use in the Delta have relied on a report titled "Sacramento-San Joaquin Delta Outdoor Recreation Survey". This 1980 report was prepared for the Department of Water Resources as a component of the Sacramento-San Joaquin Delta Levees Study, by Dr. Ed Cajucum, a recreation professor at California State University, Sacramento. This study began with a survey of all non-commercial vehicles leaving the Delta from August 1977 through August 1978. License plate numbers were recorded at 35 sites along roadways exiting the Delta. The names and addresses of the vehicles registered owners were obtained from the Department of Motor Vehicles. Owners were sent questionnaires and asked to complete and return them. A total of 13,455 questionnaires were sent to visitors. Of the 7,712 questionnaires returned, 3,478 visitors indicated that they recreated in the Delta

In addition, residents of the Delta were randomly surveyed using a specially constructed questionnaire. From a sample of 455 homes, 273 residents indicated that they used the Delta for recreation.

Some of the results were:

- Most common recreation activities were: motor boating (47.6%), fishing (47.5%), sightseeing (33.1%), camping (26.2%), picnicking (22.9%), swimming (22.1%), water skiing (14.7%), photography (4.2%), bicycling (3.6%), canoe-kayak rowing (2.5%), hunting (2.0%), sailing (4%)
- Most common types of vessels were: ski boats (15.6%), cruisers (12.4%), houseboats (4.1%), and sailboats (2.4%).
- Visitors spent an average of \$48, while resident groups spent an average of \$37
- Most visitors stayed one day (73.6%).
- Most visitors came from the following counties: Contra Costa (29.4%), San Joaquin (16.7%), Sacramento (16.0%), Alameda (10.4%), Santa Clara (6.0%), San Mateo (2.4%), and San Francisco (2.0%).

One criticism of this study is its method of estimating annual visitor recreation days. The survey estimated that an average of 5.23 occupants were in each vehicle entering the Delta. However, this number was actually the average number of persons in a recreation group. Using 5.23 persons per vehicle, the survey estimated 11.9 million days of recreation use. Critics argue that other recreation surveys indicate that the typical vehicle entering a recreation area is closer to 3.5 people.

SACRAMENTO RIVER RECREATION SURVEY, 1982

The Sacramento River from Keswick Dam near Redding, south to Courtland, was surveyed by the California Department of Water Resources. That part of the Sacramento River between the City of Sacramento and Courtland lies within the Delta.

The Delta survey area included River Reach 12 - Discovery Park to Miller Park, and River Reach 13 - Miller Park to Paintersville Bridge. Recreation use was estimated by ground counts of recreationist on 33 randomly selected days in 1980, using the optimum allocation method described by Abrahamson and Tolladay (1959). Recreationists were also interviewed to obtain additional detailed information.

ESTIMATED RECREATION USE - In Reach 12 recreation was primarily concentrated in county and city parks and two private boat landings. Recreation use totaled 940,000 hours (427,000 recreation days) in 1980. Major activities included relaxing (30 percent), fishing (24 percent), pleasure boating/water skiing (13 percent), swimming /beach use (12 percent), picnicking (11 percent), and outdoor games/sports (4 percent).

Discovery Park was by far the major access site in this reach and provided access to both the Sacramento and lower American Rivers. The Broderick Boating Facility (Yolo County) and Miller Park were also important use areas.

INTERVIEW DATA AND VISITOR CHARACTERISTICS - 452 people representing 1,157 recreationists were interviewed in downtown Sacramento. The river was the destination for 94 percent of these people, 4 percent were enroute elsewhere, and 2 percent were staying in the area. About 86 percent lived in Sacramento or Yolo Counties and 3 percent were from out of state. Day use visitors were 96 percent of the total and overnight visitors 4 percent.

The average length of stay for people staying overnight at the river was 3.0 days. People staying in the area average 4.7 days. Day users stayed at the river 3.4 hours, with a harmonic mean of 2.2 hours.

Fishing (42 percent), pleasure boating (23 percent), picnicking (21 percent), relaxing (17 percent), water skiing (13 percent), and swimming/beach use (18 percent) were the activities people most frequently mentioned. Nearly all of the boaters interviewed were power boating or jet skiing (97 percent), but a few people were sail boating (3 percent).

CREEL CENSUS DATA - Shore anglers in downtown Sacramento fished for anything they could catch (49 percent), striped bass (35 percent), catfish (13 percent), salmon (9 percent), non-game fish (6 percent), and rainbow trout/steelhead (5 percent). They fished 105,000 hours and caught an estimated 3,300 striped bass, 700 largemouth/smallmouth bass, 700 nongame fish, 500 catfish, 100 rainbow trout/steelhead, and 100 sunfish.

Boat anglers sought salmon (38 percent), striped bass (34 percent), anything (27 percent), rainbow trout/steelhead (11 percent), and catfish (7 percent). Some of the boat anglers interviewed may have actually fished the lower American River. Boat anglers fished 122,000 hours and caught 5,200 catfish, 1,200 chinook salmon, 500 striped bass, and 400 rainbow trout/steelhead.

ESTIMATED RECREATION USE - Reach 13 received the most use for fishing, boating and water skiing of all the reaches surveyed. Total recreation was 740,000 hours (258,000 recreation days) with

fishing 66 percent of the total. Other major activities were pleasure boating/water skiing (20 percent), swimming/beach use (5 percent), and relaxing (4 percent).

Major access sites included several private marinas, Garcia Bend County Park, and Clarksburg Fishing Access. Many boats traveled downstream from Discovery Park, Broderick Boating Facility, and Miller Park to use this area.

INTERVIEW DATA AND VISITOR CHARACTERISTICS - 266 people representing 674 recreationists, were interviewed in Reach 13. Ninety-seven percent said the river was their destination, while 2 percent were enroute, and 1 percent stayed overnight in the area. About 86 percent lived in Sacramento and Yolo Counties. Day users comprised 74 percent and overnights 26 percent of the people interviewed.

Average length of stay for people staying overnight at the river was 3.3 days and 8.3 days for people staying in the area. Day users spent 4.0 hours at the river.

Fishing (76 percent), relaxing (34 percent), swimming/beach use (31 percent), camping (25 percent), pleasure boating (23 percent), and water skiing (13 percent) were the activities most people said they were going to do in Reach 13. All of the boaters interviewed said they were power boating or jet skiing.

CREEL CENSUS DATA - Shore fishermen mostly fished for anything they could catch (59 percent). They also sought striped bass (36 percent), sturgeon (11 percent), catfish (10 percent), and American shad (7 percent). Shore anglers fished 199,000 hours and caught more fish in Reach 13 than in any other section of the river. The catch included 29,000 catfish, 6,800 striped bass, 5,500 American shad, 1,200 largemouth/smallmouth bass, and 500 nongame fish.

Boat anglers fished for striped bass (59 percent), anything (47 percent), catfish (12 percent), largemouth/smallmouth bass (10 percent), and sturgeon (8 percent). They fished 289,000 hours and caught 17,200 striped bass, 900 chinook salmon, and 900 catfish.

SACRAMENTO RIVER SPORT FISH CATCH INVENTORY PROJECT, 1995.

More recently, the California Department of Fish and Game surveyed anglers along the Sacramento River as far south as Carquinez to determine the number and type of fish caught. This report, conducted through funding by the Federal Aid in Sport Fish Restoration Act, was conducted during the fiscal years July 1, 1989 through June 30, 1994, and included six river reaches covering 400 river miles of the Sacramento River system that are accessible to anadromous fish. The objective was to produce a study estimating, with a confidence limit of ± 20 percent, angler use and sports catch of salmon and steelhead.

Difficulties with equipment acquisition and staffing delayed the start of survey portion of the program until the 1990-1991 fiscal year. Data for the project was gathered by aerial count and by roving census clerks in boats. Census clerks also interviewed anglers returning to the launch site. While the data is too extensive to summarize here, it is of significance that by far the most fishing activity occurred between Sacramento and the Carquinez Bridge. Also of interest was the decrease in fishing effort during the years of the study due, at least in part, to declining populations of anadromous fish and poor river conditions associated with the consecutive critically dry years.

NORTH DELTA RECREATION USE SURVEY, 1997.

This Department of Water Resources report summarizes the findings of a 1993 survey which encompassed that portion of the Sacramento-San Joaquin Delta north of Brannan Island State Recreation Area. The executive summary from the report is reproduced below.

“A survey of recreational use in the Sacramento-San Joaquin Delta, north of Brannan Island State Recreation Area, was conducted in in 1993. This survey was made to estimate the amount and types of recreation occurring in the North Delta area for use in SWP and CALFED planning efforts. The stratified random sample survey primarily consisted of roving use counts, but was also supplemented with interviews of accessible recreationists to gather information about recreation use, activities, and visitor origin. The information collected will help the Department meet its obligation, under the Davis-Dolwig Act, to plan for recreation in conjunction with future State Water Project operations in the Delta.

The survey was conducted on 21 dates during April through September. Total recreation use during this 183-day period (excluding use at parks and private marinas) was estimated to total over 1.4 million recreation hours along the North Delta survey route. Based on assumptions regarding low-season use and areas not surveyed, slightly more than 3 million recreation hours probably occur annually in the North Delta. This represents about 800,000 recreation days, a number much lower than expected based on past estimates.

Water-skiing, general boating, and sailing comprised about 30 percent of total use. Two other major recreation activities were shore fishing and boat fishing, comprising about 24 and 15 percent of all recreation use, respectively.

Most of the individuals contacted for interviews were shore fishermen (93 of 102). Almost all of those interviewed were in the area only for day use (87 of 102). The average length of stay for all day users was 5.7 hours. A plurality of recreationists (39 percent) had traveled from the greater San Francisco Bay area; other common visitor origins were the rural North Delta area and the greater Sacramento metropolitan area (22 and 21 percent, respectively).”

Chapter III.

Results of Boating Survey

Introduction

This boating survey provides information on how a random sample of boat owners used the Delta for recreation in 1996. The data was compiled from questionnaires completed and returned by the boat owners. The questionnaire asked the respondents about many aspects of their use of the Delta for recreation. These included both boating related activities such as fishing and water-skiing, as well as other non-boating recreation activities, such as picnicking, camping, and sightseeing. They were also asked to provide information regarding: 1) the adequacy of the existing recreation facilities, 2) how their use of the Delta for recreation has changed over the last five years, and 3) the amount of money they spent on their last trip to the Delta.

The results of the survey, as provided below, are divided into two sections: boating recreation and other (non-boating) recreation.

Boating Recreation

Respondents provided specific information on the vessels used for recreation, the boating activities participated in, and when and where these activities occurred.

A. BOATS USED IN THE DELTA FOR RECREATION

Type of Boat. Powerboats were the most common type of recreation vessel used in the Delta. As Table 1, below, indicates, slightly over 69% of respondents who answered this question owned one or more powerboats. (On average, each respondent owned 1.3 powerboats). Personal watercraft were the second most common vessel (15.1%), followed by sailboats (6.2%), paddle boats (5.6%), and houseboats (4.0%).

TABLE - 1
NUMBER OF BOATS & AVERAGE LENGTHS

Type of Vessel	Number of responses	% of total responses	Rank
Powerboat	665	69.1	1
Personal Watercraft	145	15.1	2
Sailboat	60	6.2	3
Paddle Boat	54	5.6	4
Houseboat	38	4.0	5
Total	962	100.0%	N/A

Length of Boat. Powerboats, the most common recreation vessel used in the Delta, averaged 19.3 feet in length. Most (53.1%) powerboats were between 16 and 20 feet in length. Houseboats were the longest vessel, averaging slightly over 40 feet. About 78% of the houseboats were at least 30 feet in length. The average sailboat, at 27.2 feet, was the next longest vessel type. Paddle craft and personal watercraft averaged 11.2 and 8.1 feet, respectively.

**TABLE - 2
LENGTHS OF VESSELS (BY VESSEL TYPE)**

Type of Vessel	% of vessels < 11 ft.	% of vessels 11 - 15 ft.	% of vessels 16- 20 ft.	% of vessels 21-25 ft.	% of vessels 26-30 ft.	% of vessels > 30 ft.	Total	Average length
Powerboat	2.4%	18.0%	53.1%	16.2%	4.6%	5.7%	100%	19.3
Personal Watercraft	100%	0%	0%	0%	0%	0%	100%	8.1
Sailboat	6.0%	6.0%	10.0%	18.0%	28.0%	30.0%	98%	27.2
Paddle Boat	50.0%	38.1%	11.9%	0%	0%	0%	100%	11.2
Houseboat	0%	0%	0%	9.4%	12.5%	78.1%	100%	40.4

Pump-out toilets. Only 15% of powerboat owners reported having pump-out toilets on their vessels, as Table 3, below indicates. However, 86.8% of the houseboats had pump-out toilets. About two-thirds of sailboats (68.1%) had this type of toilet. Personal watercraft and paddle boats, because of their small size, were excluded.

**TABLE - 3
NUMBER OF PUMP-OUT TOILETS**

Type of Vessel	No. of vessels in survey	No. of vessels with toilets	% with toilets (by vessels type)
Powerboat	665	73	15.2%
Sailboat	60	32	68.1%
Houseboat	38	33	86.8%
Total	763	138	N/A

B. ACTIVITIES, GROUP SIZE, AND PARTICIPATION DAYS*

Respondents were asked if they participated in specific boating-related activities, how many people in their group typically participated in these activities, and how many days they participated in each activity in 1996.

Fishing from a boat was the most popular boating related activity. As Table 4, below indicates, 77% of the respondents who answered the question participated in this activity. The average size of a group for this activity was 2.8 people. The typical group participated in this activity for a total of 14.5 days, annually. Cruising was the second most popular activity with 337 respondents, or 76%, participating. The average group size for cruising was 4 people.

Boaters who water-skied and went swimming from their boats had the largest average group size (4.3 people), while those who hunted from a boat had the smallest average group size (2.5 people).

The average number of days all respondents spent using their boats ranged from 10 to 14.5 days, annually. Respondents who fished from a boat, slept overnight on a boat, or sailed a boat, spent the most time on their vessels. They all exceeded 14 days of activity annually. Hunters spent the fewest days in a boat, averaging only 10 days per year.

**TABLE - 4
BOATING ACTIVITIES PARTICIPATED IN**

Type of Activity	No. of respondents participating	% of respondents participating	Rank	Average group size	Rank	Average number of participation days	Rank
Fishing from boat	414	77%	1	2.8	5	14.5	1 (tie)
Water -skiing	249	61%	4	4.3	1(tie)	11.5	5
Sailing	50	15%	6	4.1	2	14	2
Cruising	337	76%	2	4	3	13.6	3
Hunting from boat	16	5%	7	2.5	6	10	6
Swimming from boat	295	71%	3	4.3	1(tie)	11.7	4
Sleeping in boat	182	49%	5	3.5	4	14.5	1 (tie)

** Participation day is defined as one person participating in one recreation activity for a day or a portion of a day.*

In terms of total annual activity days*, cruising was the most common boating activity as Table 5, below indicates. This activity accounted for 8.1 million activity days. This number was calculated by multiplying the number of boaters using the Delta (197,000**) by the percentage of boaters who indicated they participated in cruising (76%), by the average number of people per group (4), by the average number of days boaters participated in this activity in a year (13.6). Swimming from a boat, and fishing from a boat, ranked second and third, respectively. Hunting from a boat ranked last.

TABLE - 5
BOATING ACTIVITIES - ANNUAL PARTICIPATION DAYS

Type of activity	No. Boaters using Delta	X % of Boaters participating in this activity	X Average no. people per group	X Average no. Days Boaters participated in this activity	= Annual activity days (in millions)	Annual activity days (in percent)	Rank
Fishing from boat	197,000	77%	2.8	14.5	6.2	17.4%	3
Water-skiing	197,000	61%	4.3	11.5	5.9	16.8%	4
Sailing	197,000	15%	4.1	14	1.7	4.8%	6
Cruising	197,000	76%	4	13.6	8.1	23.1%	1
Hunting from boat	197,000	5%	2.5	10	.2	0.6%	7
Swimming from boat	197,000	71%	4.3	11.7	7.0	19.8%	2
Sleeping overnight on boat	197,000	49%	3.6	14.5	5.0	14.1%	5
Totals	N/A	N/A	N/A	N/A	35.2	100%	N/A

* Participation day is defined as one person participating in one recreation activity for a day or a portion of a day.

** This number was estimated by multiplying the number of registered boat owners in California (840,000) by the percent of survey respondents who indicated that they recreated in the Delta (23.5%).

C. TIMES WHEN BOATING ACTIVITIES OCCURRED

Boaters were asked which months of the year, days of the week, and times of the day they boated. Their responses are provided in Tables 6 through 8 below.

Days of the week. The Delta receives about half of its recreation use on weekends and half during weekdays (51% vs. 49%). Saturday was the more popular day (27.5%), while Thursday was the least popular (8%). Friday was the most popular weekday (14.5%).

**TABLE - 6
TIME OF ACTIVITIES - DAYS OF THE WEEK**

Days of Week	No. Of responses	% of total	Rank
Monday	133	8.5%	5
Tuesday	130	8.3%	6
Wednesday	148	9.5%	4
Thursday	125	8.0%	7
Friday	225	14.5%	3
Saturday	428	27.5%	1
Sunday	368	23.6%	2
Total	1557	99.9%	

Time of the day. As expected, the Delta received most of its boating use during daylight hours. A cumulative total of 76% of all responses were for times between 8 AM and 4 PM. The peak use was equally divided between the 8AM - Noon and Noon - 4 PM. Midnight to 8 AM was the least popular time period, representing only 4.2% of all responses.

**TABLE - 7
TIME OF ACTIVITIES - HOURS OF THE DAY**

Hours of day	No. of responses	% of Total	Rank
Midnight-8 am	45	4.2%	5
8 am - Noon	408	38.3%	1
Noon -4 PM	401	37.7%	2
4 PM - 8 PM	160	15.0%	3
8 PM - Midnight	50	4.7%	4
Total	1064	99.9%	N/A

Months of the year. Not surprisingly, the Delta received the most use by boaters during the summer months. July was the most popular month, averaging slightly more than four days of use. August received the second most use, followed by June. December was the least popular month to boat in the Delta.

**TABLE - 8
AVERAGE NUMBER OF DAYS BOATED, BY MONTH**

Months	Days Boated	% of Total	Rank
January	0.76	2.9%	11
February	0.91	3.5%	10
March	1.45	5.6%	8
April	1.98	7.6%	7
May	2.64	10.1%	5
June	3.46	13.3%	3
July	4.01	15.4%	1
August	3.76	14.4%	2
September	3.13	12.0%	4
October	2.07	7.9%	6
November	1.24	4.8%	9
December	0.69	2.6%	12
Total	26.10	100.1%	N/A

D. LOCATIONS WHERE BOATING ACTIVITIES OCCURRED, BY ZONE

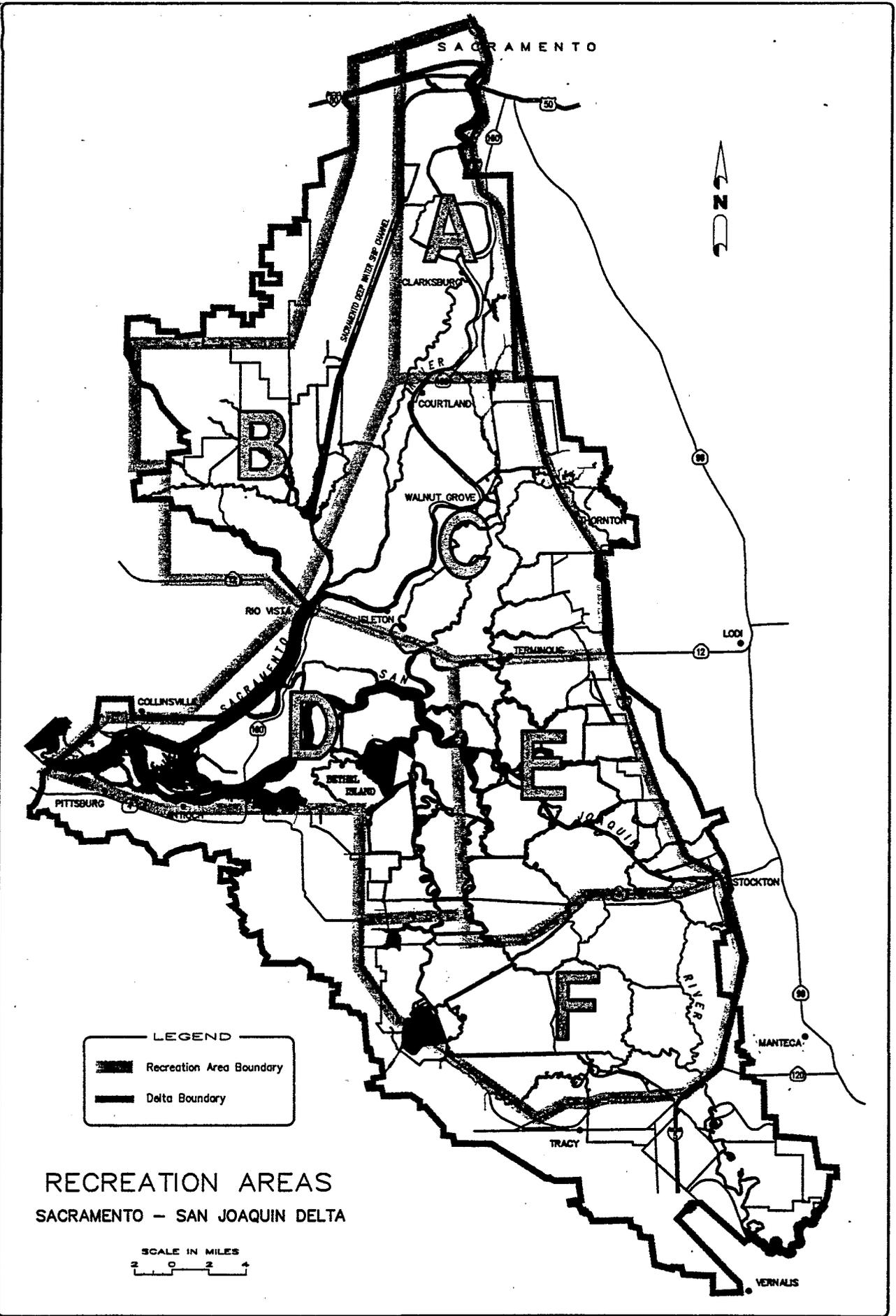
Respondents were asked to identify the zone or zones where they participated in each type of boating activity. Zones A through F are identified on the map on the next page. Most boating recreation occurred in Zone D, as indicated in Table 9 below (rank of zones in last row of table). Zone D was the most popular zone for every boating activity. Zone E was the second most popular, followed by Zones C, A, F, and B. The percentage of use is indicated in Table 9 below. A comprehensive analysis of where boating activities occurred is provided on pages 21- 32.

TABLE - 9
NUMBER OF RESPONSES - PARTICIPATION IN BOATING ACTIVITIES, BY ZONE

Activity	A	B	C	D	E	F	Total
Fishing from boat	60	24	116	233	120	42	595
Water skiing	35	10	66	108	88	57	364
Sailing	2	1	13	34	22	1	73
Cruising	58	23	123	185	135	45	569
Hunting from boat	1	3	2	5	3	0	14
Swimming from boat	35	12	84	129	100	41	401
Sleeping on boat	17	8	60	99	71	6	261
Launching a boat (zones use most often)	53	3	73	214	89	61	493
Launching a boat (other zones)	27	14	52	71	63	22	249
Operating a boat (zones used most often)	56	9	89	239	133	55	581
Operating a boat (other zones)	48	32	138	148	124	44	534
Total No. of responses	392	139	816	1465	948	374	N/A
Rank	4	6	3	1	2	5	N/A

TABLE - 10
PERCENT OF RESPONSES - PARTICIPATION IN BOATING ACTIVITIES, BY ZONE

Activity	A	B	C	D	E	F	Total
Fishing from boat	10.1%	4.0%	19.5%	39.1%	20.2%	7.1%	100.0%
Water-skiing	9.6%	3.6%	18.1%	29.7%	24.2%	15.7%	100.9%
Sailing	2.7%	1.4%	17.8%	46.6%	30.1%	1.4%	100.0%
Cruising	10.2%	4.0%	21.6%	32.5%	23.7%	7.9%	99.9%
Hunting from boat	7.1%	21.4%	14.3%	35.7%	21.4%	0%	99.9%
Swimming from boat	8.7%	3.0%	20.9%	32.3%	24.9%	10.2%	100.0%
Sleeping on boat	6.5%	3.1%	23.0%	37.9%	27.2%	2.3%	100.0%
Launching a boat (zones use most often)	10.8%	0.6%	14.8%	43.4%	18.1%	12.4%	100.1%
Launching a boat (other zones)	10.8%	5.6%	20.9%	28.5%	25.3%	8.8%	99.9%
Operating a boat (zones used most often)	9.6%	1.5%	15.3%	41.1%	22.9%	9.5%	99.9%
Operating a boat (other zones)	9.0%	6.0%	25.8%	27.7%	23.2%	8.2%	99.9%



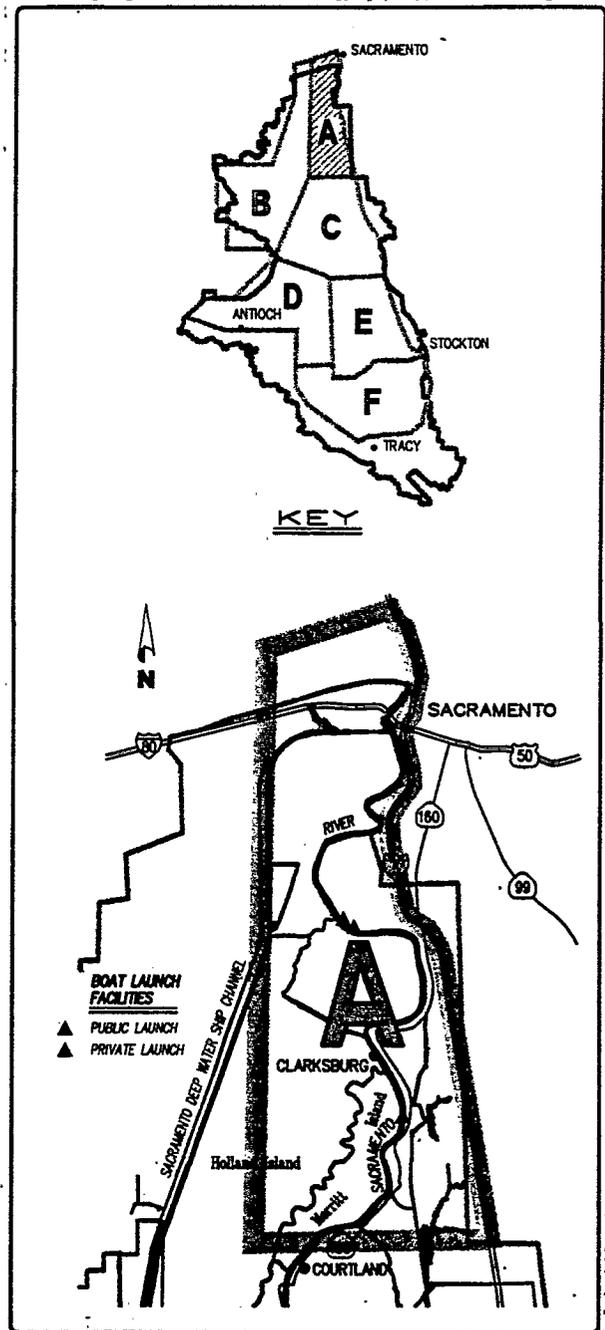
Zone A. This zone is the Sacramento River corridor, from the City of Sacramento south to the town Courtland. The inventory of recreation facilities in the Delta developed by the Delta Protection Commission indicates that the large Sacramento Marina, as well as three medium size marinas (50-200 berths), and five small (under 50 berths) marinas are located in this zone. Five launch ramps are also located along this reach of the Sacramento River.

Survey respondents were asked to identify the zone, or zones, where they launched and operated their boats. As Table 11 below, indicates, a total of 493 respondents identified the zone where they launched most often, and 581 respondents identified the zone where they boated most often.

Those who launched and/or boated in more than one zone were also asked to identify the other zones they used. A total of 249 survey responses identified other secondary locations where they launched their boats. Of these, only 27, or 10.8%, launched in Zone A. In addition, 534 respondents operated their boats in other zones in the Delta. Of these, only 48, or 9%, launched in Zone A.

**TABLE - 11
PARTICIPATION IN LAUNCHING & BOATING**

Activity	Number of responses - all zones	Number of respondents - Zone A	Percent of respondents - Zone A
Launching a boat (zones used most often)	493	53	10.8%
Launching a boat (other zones)	249	27	10.8%
Operating a boat (zones used most often)	581	56	9.6%
Operating a boat (other zones)	534	48	9.0%



Survey respondents were asked to identify the zone, or zones, where they participated in specific boating activities. Table 12 below, depicts the level of participation which occurred *within* Zone A, by type of boating activity. Accordingly, this zone was used primarily for fishing from a boat, cruising, water-skiing, and swimming. These four activities accounted for 90% of all recreation participation in this zone. Sailing or hunting from a boat represented only 1% and .5%, respectively.

**TABLE - 12
PARTICIPATION IN BOATING ACTIVITIES IN ZONE A**

Activity	Number of responses - Zone A	Percent of responses - Zone A	Rank
Fishing from boat	60	28.8%	1
Water-skiing	35	16.8%	3 (tie)
Sailing	2	1.0%	5
Cruising	58	27.9%	2
Hunting from boat	1	0.5%	6
Swimming from boat	35	16.8%	3 (tie)
Sleeping on boat	17	8.2%	4
Total	208	100%	N/A

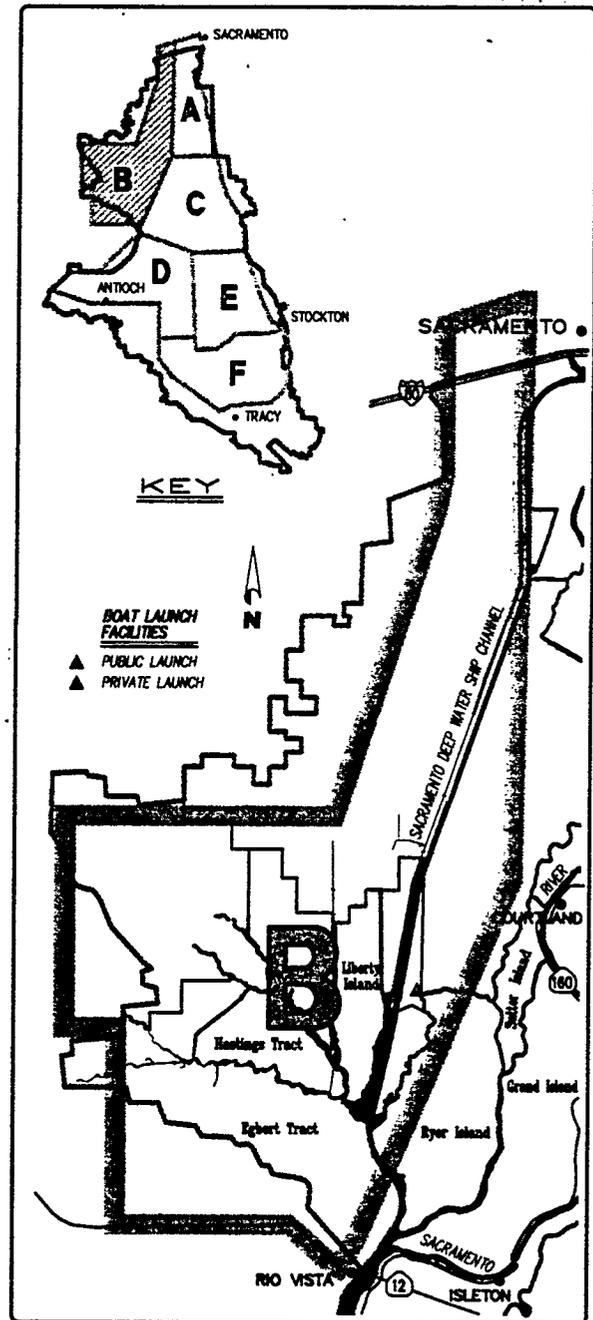
Table 13 below, compares the level of participation which occurred within Zone A with the level of participation which occurred in all zones in the Delta. For example, of the 595 participants who reported fishing from a boat in all zones in the Delta, only 60 participants, or 10.1% of all participants, fished in Zone A.

**TABLE - 13
PARTICIPATION IN BOATING ACTIVITIES IN ZONE A VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone A	Percent of responses - Zone A
Fishing from boat	595	60	10.1%
Water-skiing	364	35	9.6%
Sailing	73	2	2.7%
Cruising	569	58	10.2%
Hunting from boat	14	1	7.1%
Swimming from boat	401	35	8.7%
Sleeping on boat	261	17	6.5%

Zone B. This zone includes the Yolo Bypass, Cache Slough, and the Sacramento River Deep Water Ship Channel. Opportunities for recreational boating are very limited in this zone. There is only one marina.

As previously stated, survey respondents were asked to identify the zones where they launched and operated their boats. As Table 14 below indicates, of the 493 survey respondents who launched a boat in the Delta, only 3, or less than 1%, identified Zone B as the zone they used most often. More boaters used this zone as a secondary location for launching (5.6%). Only 1.5% of the respondents used this zone as their first choice for operating a boat.



**TABLE - 14
PARTICIPATION IN LAUNCHING & BOATING**

Activity	Number of responses - all zones	Number of responses - Zone B	Percent of responses - Zone B
Launching a boat (zones used most often)	493	3	0.6%
Launching a boat (other zones)	249	14	5.6%
Operating a boat (zones used most often)	581	9	1.5%
Operating a boat (other zones)	534	32	6.0%

Table 15 below, depicts the level of use which occurred *within* Zone B, by type of boating activity. Accordingly, this zone was used primarily for fishing from a boat and cruising. These two activities accounted for over half (58%) of all recreation participation in this zone. Swimming from a boat and water-skiing ranked third and fourth, respectively.

**TABLE - 15
PARTICIPATION IN BOATING ACTIVITIES IN ZONE B**

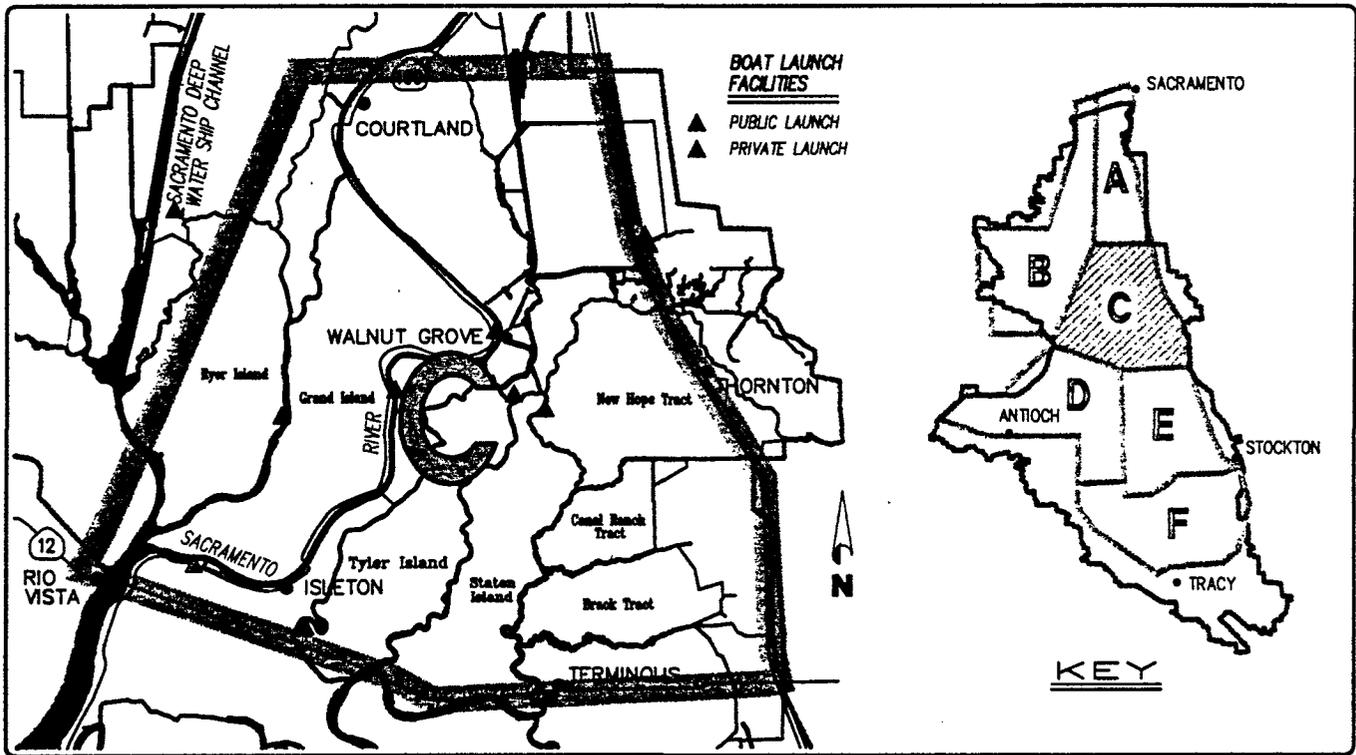
Activity	Number of responses - Zone B	Percent of responses - Zone B	Rank
Fishing from boat	24	29.6%	1
Water-skiing	10	12.3%	4
Sailing	1	1.2%	7
Cruising	23	28.4%	2
Hunting from boat	3	3.7%	6
Swimming from boat	12	14.8%	3
Sleeping on boat	8	9.9%	5
Total	81	99.9%	N/A

Table 16 below, compares the amount of recreation use which occurred within Zone B with recreation use which occurred in the entire Delta. Except for hunting, this zone received very little use (4% or less). Slightly over 21% of all hunting from a boat occurred in this zone. However, because of the small number of responses received, the survey results for hunting from a boat may not be very reliable.

**TABLE - 16
PARTICIPATION IN BOATING ACTIVITIES IN ZONE B VS ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone B	Percent of responses - Zone B
Fishing from boat	595	24	4.0%
Water-skiing	364	10	3.6%
Sailing	73	1	1.4%
Cruising	569	23	4.0%
Hunting from boat	14	3	21.4%
Swimming from boat	401	12	3.0%
Sleeping on boat	261	8	3.1%

Zone C. This is the north Delta. It includes the Sacramento River from Courtland south to State Route 12 and all stretches of the Mokelumne and Cosumnes Rivers which lie within the Delta. The City of Isleton and Snodgrass Slough are here. This zone includes seven launch sites, two public fishing access sites, two large marinas, seven medium marinas, and six small marinas.



As already indicated, survey respondents were asked to identify the zones where they launched and operated their boats. Table 17 indicates that out of the 493 survey respondents who launched a boat in the Delta, only 53, or 10.8% launched in this zone. This zone was also the choice of about 21% of the responses for second choice for launching a boat. More respondents use this zone as a primary location for operating their boats (581). Over 25% of the respondents reported using this zone as a secondary location for operating a boat.

**TABLE - 17
 PARTICIPATION IN LAUNCHING & BOATING**

Activity	Number of responses - all zones	Number of responses - Zone C	Percent of responses - Zone C
Launching a boat (zones used most often)	493	53	10.8%
Launching a boat (other zones)	249	52	20.9%
Operating a boat (zones used most often)	581	89	15.3%
Operating a boat (other zones)	534	138	25.8%

Table 18 below, depicts the level of use which occurred *within* Zone C, by type of boating activity. Accordingly, this zone was used primarily for cruising and fishing from a boat. These two activities accounted for slightly over 51% of all recreation participation in this zone. Swimming and water-skiing ranked third and fourth, respectively.

**TABLE - 18
PARTICIPATION IN BOATING ACTIVITIES IN ZONE C**

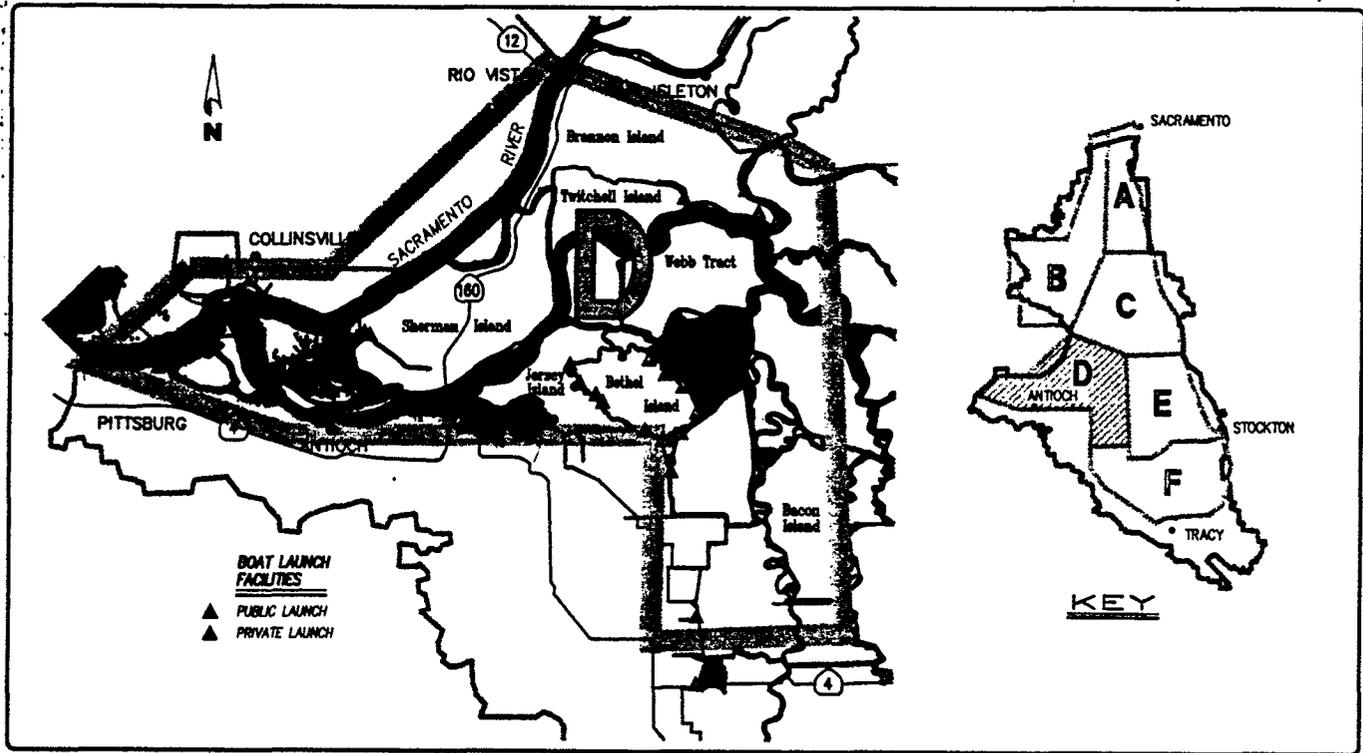
Activity	Number of responses - Zone C	Percent of responses - Zone C	Rank
Fishing from boat	116	25.0%	2
Water-skiing	66	14.2%	4
Sailing	13	2.8%	6
Cruising	123	26.5%	1
Hunting from boat	2	0.4%	7
Swimming from boat	84	18.1%	3
Sleeping on boat	60	12.9%	5
Total	464	99.9%	N/A

Table 19 below, compares the amount of recreation use which occurred within Zone C with recreation use which occurred in the entire Delta. Except for hunting, between 18-23% of all boating activities occurred in Zone C. Only 14.3% of the hunting activity occurred here.

**TABLE - 19
PARTICIPATION IN BOATING ACTIVITIES IN ZONE C VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone C	Percent of responses - Zone C
Fishing from boat	595	116	19.5%
Water-skiing	364	66	18.1%
Sailing	73	13	17.8%
Cruising	569	123	21.6%
Hunting from boat	14	2	14.3%
Swimming from boat	401	84	20.9%
Sleeping on boat	261	60	23.0%

Zone D. This is the west Delta, which includes the lower Sacramento and San Joaquin Rivers. Brannan Island State Recreation Area with its very large boat launch area is located here, along with two other public launch sites. Eleven large marinas are located here, as well as 15 medium, and 26 small ones.



Again, survey respondents were asked to identify the zones where they launched and operated their boats. As Table 20 indicates, of the 493 survey respondents who launched a boat in the Delta, 214 or 43.3% launched in Zone D. This zone was also the choice of about 41% of the responses as their other choice for launching a boat. This zone received about 28% of the responses as secondary location for launching and operating a boat.

**TABLE - 20
PARTICIPATION IN LAUNCHING & BOATING**

Activity	Number of responses - all zones	Number of responses - Zone D	Percent of responses - Zone D
Launching a boat (zones used most often)	493	214	43.4%
Launching a boat (other zones)	249	71	28.5%
Operating a boat (zones used most often)	581	239	41.1%
Operating a boat (other zones)	534	148	27.7%

Table 21 below, depicts the level of use which occurred *within* Zone D, by type of boating activity. Again, this zone was used primarily for cruising (23.3%) and fishing from a boat (29.4%). Swimming, water-skiing and sleeping overnight on a boat, all received about the same number of responses.

TABLE - 21
PARTICIPATION IN BOATING ACTIVITIES IN ZONE D

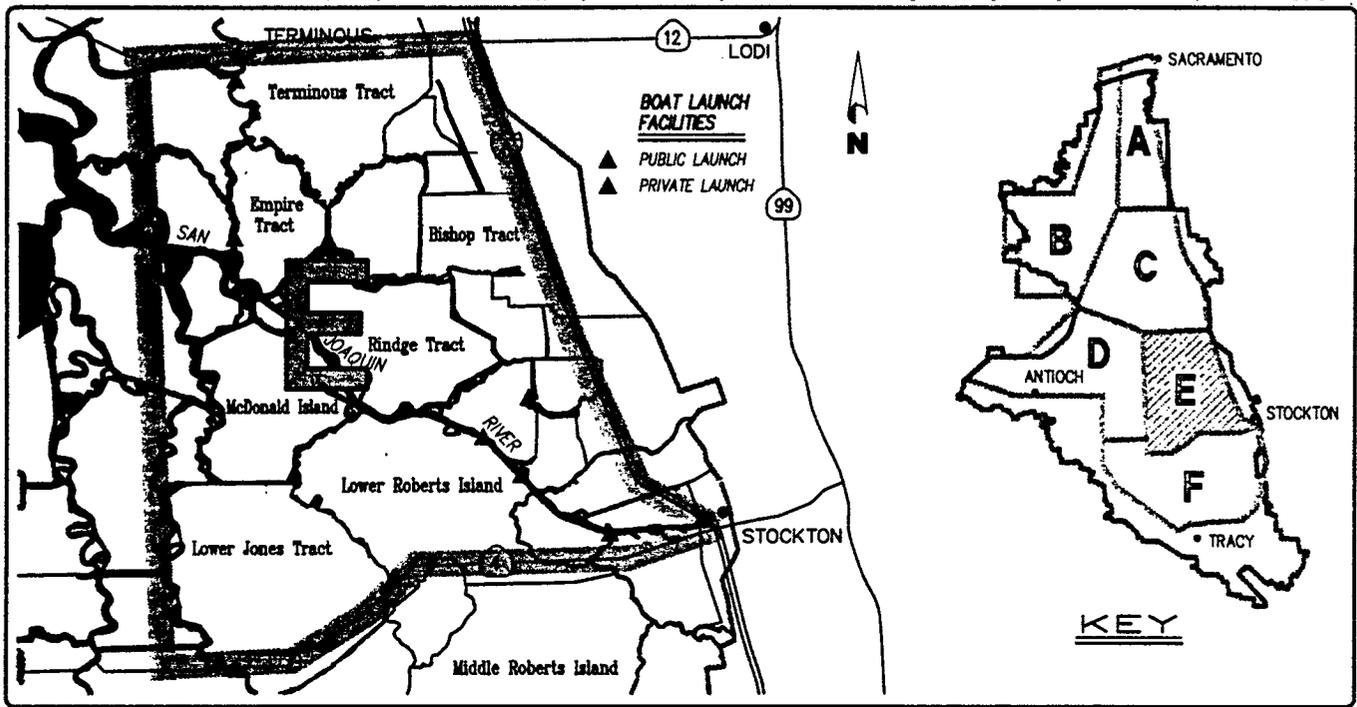
Activity	Number of responses - Zone D	Percent of responses - Zone D	Rank
Fishing from boat	233	29.4%	1
Water-skiing	108	13.6%	4
Sailing	34	4.3%	6
Cruising	185	23.3%	2
Hunting from boat	5	0.6%	7
Swimming from boat	129	16.3%	3
Sleeping on boat	99	12.5%	5
Total	793	100%	N/A

Table 22 below, compares the amount of recreation use which occurred within Zone D with recreation use which occurred in the entire Delta. A significant amount of all boating activities occurred in this zone. This includes almost one-half of all sailing (46.6%) and about one-third of all others, including hunting.

TABLE - 22
PARTICIPATION IN BOATING ACTIVITIES IN ZONE D VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses - Zone D	Percent of responses - Zone D
Fishing from boat	595	233	39.1%
Water-skiing	364	108	29.7%
Sailing	73	34	46.6%
Cruising	569	185	32.5%
Hunting from boat	14	5	35.7%
Swimming from boat	401	129	32.2%
Sleeping on boat	261	99	37.9%

Zone E. This zone is the east Delta. It is bordered on the north by State Route 12, on the east by Interstate 5, and on the south by State Route 4. It includes portions of the City of Stockton, eleven boat launch ramps, six large, eight medium, and three small marinas.



A moderate number of respondents reported using Zone E for boating recreation. About 18% of the respondents reported that Zone E was the zone they used most often for launching a boat, and almost 23% used it as their preferred location for operating a boat. As indicated in Table 23, a higher percentage of respondents used this zone as a second choice for launching and operating their boats, 25.3% and 23.2%, respectively.

**TABLE - 23
PARTICIPATION IN LAUNCHING & BOATING**

Activity	Number of responses - all zones	Number of responses - Zone E	Percent of responses - Zone E
Launching a boat (zones used most often)	493	89	18.1%
Launching a boat (other zones)	249	63	25.3%
Operating a boat (zones used most often)	581	133	22.9%
Operating a boat (other zones)	534	124	23.2%

Table 24 below, depicts the level of use which occurred *within* Zone D, by type of boating activity. Again, this zone was used primarily for cruising (25%) and fishing from a boat (22.3%), with swimming and water-skiing ranked third and fourth, respectively.

**TABLE - 24
PARTICIPATION IN BOATING ACTIVITIES IN ZONE E**

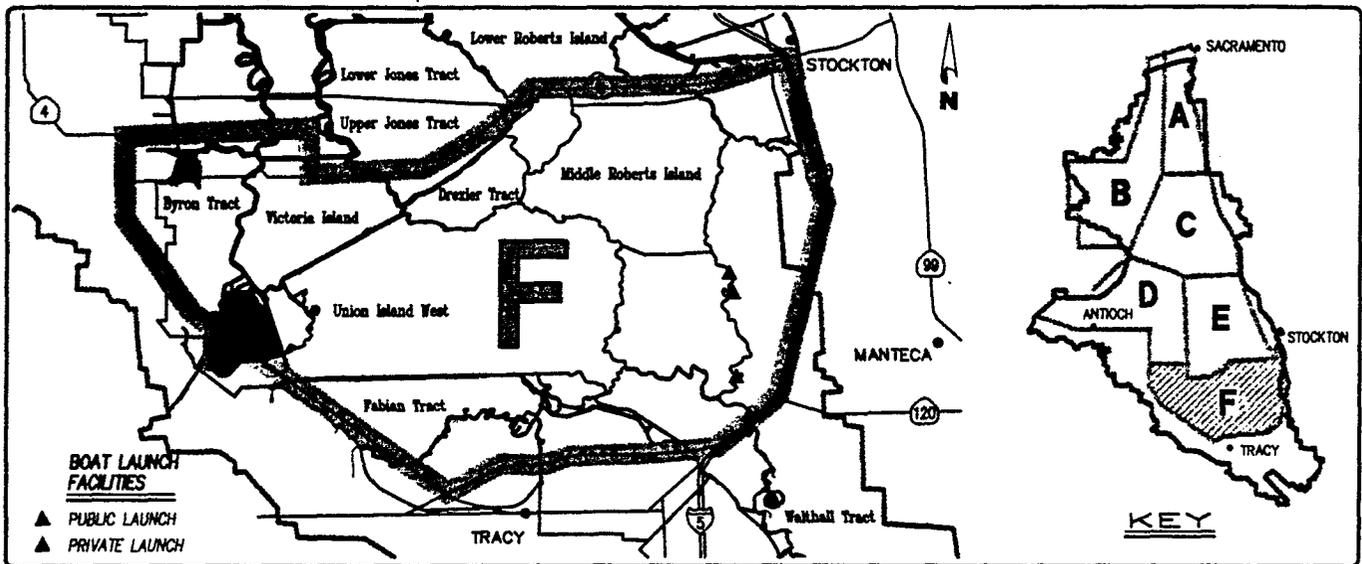
Activity	Number of responses - Zone E	Percent of responses - Zone E	Rank
Fishing from boat	120	22.3%	2
Water-skiing	88	16.3%	4
Sailing	22	4.1%	6
Cruising	135	25.0%	1
Hunting from boat	3	0.6%	7
Swimming from boat	100	18.6%	3
Sleeping on boat	71	13.2%	5
Total	539	100.0%	N/A

Table 25 below, compares the amount of recreation use which occurred within Zone E with recreation use which occurred in the entire Delta. This zone received an appreciable level of use for all boating activities, ranging from 20.2% for fishing, to 30.1% for sailing.

**TABLE - 25
PARTICIPATION IN BOATING ACTIVITIES IN ZONE E VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone E	Percent of responses - Zone E
Fishing from boat	595	120	20.2%
Water-skiing	364	88	24.2%
Sailing	73	22	30.1%
Cruising	569	135	23.7%
Hunting from boat	14	3	21.4%
Swimming from boat	401	100	24.9%
Sleeping on boat	261	71	27.2%

Zone F. This zone is the south Delta. State Route 4 forms its northern boundary, Interstate 5 its eastern border, and Interstate 205 its southern boundary. Discovery Bay and Clifton Court Forebay are located here, as well as three public and one private launch ramps.



**TABLE - 26
PARTICIPATION IN LAUNCHING & BOATING**

Again survey respondents identified the zones they used to launch and operate their boats. Zone F received very little use. As Table 26 indicates, only 12.4% of the respondents reported launching most often in this zone. Similarly, only 9.5% operated their boats here most often. Even fewer boaters used this zone as an alternate location for launching (8.8%) and operating (8.2%) their vessels.

Activity	Number of responses - all zones	Number of responses - Zone F	Percent of responses - Zone F
Launching a boat (zones used most often)	493	61	12.4%
Launching a boat (other zones)	249	22	8.8%
Operating a boat (zones used most often)	581	55	9.5%
Operating a boat (other zones)	534	44	8.2%

Table 27 below, depicts the level of use which occurred *within* Zone F, by type of boating activity. Water-skiing was the most common activity in this zone. Cruising was next with 23.4% of the participation, while fishing and swimming from a boat virtually tied for third, 21.9% and 21.4%, respectively.

TABLE - 27
PARTICIPATION IN BOATING ACTIVITIES IN ZONE F

Activity	Number of responses - Zone F	Percent of responses - Zone F	Rank
Fishing from boat	42	21.9%	3
Water-skiing	57	29.6%	1
Sailing	1	0.5%	6
Cruising	45	23.4%	2
Hunting from boat	0	0%	6
Swimming from boat	41	21.4%	4
Sleeping on boat	6	3.1%	5
Total	192	100%	N/A

Table 28 below, compares the amount of recreation use which occurred within Zone F with recreation use which occurred in the entire Delta. As expected, very little of the Delta-wide boating occurred in this zone. Water-skiing had the most significant impact, yet, only 15.7% of this activity occurred in Zone F.

TABLE - 28
PARTICIPATION IN BOATING ACTIVITIES IN ZONE F VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses - Zone F	Percent of responses - Zone F
Fishing from boat	595	42	7.1%
Water-skiing	364	57	15.7%
Sailing	73	1	1.4%
Cruising	569	45	7.9%
Hunting from boat	14	0	0%
Swimming from boat	401	41	10.2%
Sleeping on boat	261	6	23.0%

E. LOCATIONS (ZONES) WHERE BOATING ACTIVITIES OCCURRED, BY TYPE OF ACTIVITY

Provided below is an analysis where boating activities occurred, by type of activities.

Fishing from a boat. Zone D was the most popular location for this activity, with almost 40% of all fishing from a boat occurring here. Neighboring Zones C and E each accounted for 20% of this use. Zone B was avoided by all but 4% of the respondents.

**TABLE - 29
ZONES WHERE RESPONDENTS FISHED FROM A BOAT**

	A	B	C	D	E	F	Total
No. of responses	60	24	116	233	120	42	595
% responses	10.1%	4.0%	19.5%	39.2%	20.2%	7.1%	100.1%
Rank	4	6	3	1	2	5	N/A

Water-skiing. Interestingly, boating anglers and the water-skiers chose to recreate in the same zones. Almost 30% of the water-skiers preferred Zone D, while almost as many (24%) preferred Zone E.

**TABLE - 30
ZONES WHERE RESPONDENTS WATER-SKIED.**

	A	B	C	D	E	F	Total
No. of responses	35	10	66	108	88	57	364
% responses	9.6%	2.7%	18.1%	29.7%	24.2%	15.7%	100%
Rank	5	6	3	1	2	4	N/A

Sailing. Almost half of the sailors prefer Zone D. Zones E and C come in second and third, respectively. As Table 31 indicates, the number of total responses for each zone are very low. Therefore, the results may not be reliable.

**TABLE - 31
ZONES WHERE RESPONDENTS SAILED**

	A	B	C	D	E	F	Total
No. of responses	2	1	13	34	22	1	73
% responses	2.7%	1.4%	17.8%	46.6%	30.1%	1.4%	100%
Rank	4	5(tie)	3	1	2	5(tie)	N/A

Cruising. The pattern of recreation use of the Delta for cruising is somewhat consistent with the other boating activities. About one-third (32%) prefer Zone D, while E and C almost tie for second place (23.4% and 21.5%, respectively). As usual, Zone B received a very little use (4.1%).

TABLE - 32
ZONES WHERE RESPONDENTS CRUISED ON A BOAT

	A	B	C	D	E	F	Total
No. of responses	57	23	121	181	134	46	562
% responses	10.1%	4.1%	21.5%	32.2%	23.4%	8.2%	99.5%
Rank	4	6	3	1	2	5	N/A

Hunting from a boat. Zone D was the most popular location for hunters as well (35.7%). However a sizable number (21.4%) also used Zones B and E. For this activity, like sailing, the total number of responses was low, so the results may be suspect.

TABLE - 33
ZONES WHERE RESPONDENTS HUNTED FROM A BOAT

	A	B	C	D	E	F	Total
No. of responses	1	3	2	5	3	0	14
% responses	7.1%	21.4%	14.3%	35.7%	21.4%	0%	99.9%
Rank	4	2(tie)	3	1	2(tie)	5	N/A

Swimming from a boat. Not surprisingly, Zone D was also the most popular location for those who swam from a boat (32.2%), with Zones E and C coming in second and third, respectively. Since this activity typically occurs in conjunction with other boating activities, it is reasonable to expect them to occur in the same location(s).

TABLE - 34
ZONES WHERE RESPONDENTS SWAM FROM A BOAT

	A	B	C	D	E	F	Total
No. of responses	35	12	84	129	100	41	401
% responses	8.7%	3.0%	20.9%	32.2%	24.9%	10.2%	99.9%
Rank	5	6	3	1	2	4	N/A

Sleeping on board a boat. This activity, like most of the other boating activities, occurred in the same order: Zone D first, followed by Zones E and C.

**TABLE - 35
ZONES WHERE RESPONDENTS SLEPT ON BOARD A BOAT**

	A	B	C	D	E	F	Total
No. of responses	17	8	60	99	71	6	261
% responses	6.5%	3.1%	23.0%	37.9%	27.2%	2.3%	100%
Rank	4	5	3	1	2	6	N/A

Launching a boat. It is not surprising that most respondents launched their boats in the same zone where most of the boating recreation occurred. Zones D, E, and C retained the same one, two, three rankings, with Zone F receiving a close fourth place (12.2%).

**TABLE - 36
ZONES WHERE RESPONDENTS LAUNCHED A BOAT MOST OFTEN**

	A	B	C	D	E	F	Total
No. of responses	53	3	73	216	92	61	498
% responses	10.6%	0.6%	14.6%	43.2%	18.4%	12.2%	99.6%
Rank	5	6	3	1	2	4	N/A

Respondents who launched in more than one zone were asked to identify the zones of their secondary launch sites. These sites were fairly evenly split between Zones C, D, and E, as indicated in Table 37 below.

**TABLE - 37
OTHER ZONES WHERE RESPONDENTS LAUNCHED A BOAT**

	A	B	C	D	E	F	Total
No. of responses	27	14	50	69	60	22	242
% responses	11.2%	5.8%	20.7%	28.5%	24.8%	9.1%	100.1%
Rank	4	6	3	1	2	5	N/A

The number of both primary and secondary sites have been combined and included in Table 38 below. The percentage of use by zone did change, however, the rank of each zone is the same as the zones used most often (Table 36 above).

**TABLE - 38
ALL ZONES WHERE RESPONDENTS LAUNCHED A BOAT (Tables 36 and 37 Combined)**

	A	B	C	D	E	F	Total
No. of responses	80	17	123	285	152	83	740
% responses	10.8%	2.3%	16.6%	38.5%	20.5%	11.2%	99.9
Rank	5	6	3	1	2	4	N/A

Operating a boat. Respondents tended to operate their boats in the same zones where they launched them. As in launching, almost half (41%) used Zone D with the same moderate use of zones E and C. As Table 39 indicates, the percentage or responses for each zone is very similar to launching a boat (see Table 38).

TABLE - 39
ZONES WHERE RESPONDENTS OPERATED A BOAT MOST OFTEN

	A	B	C	D	E	F	Total
No. of responses	56	9	89	240	133	55	582
% responses	9.6%	1.5%	15.3%	41.2%	22.9%	9.5%	100%
Rank	4	6	3	1	2	5	N/A

Respondents who operated a boat in more than one zone were also asked to indicate the other zone(s) they used. Table 40 below, documents their responses. The responses are quite different from “zones where respondents operated a boat most often” (Table 39 above), however, the responses are very similar to the responses for “other zones were respondents launched a boat” (Table 38 above).

TABLE - 40
OTHER ZONES WHERE RESPONDENTS OPERATED A BOAT

	A	B	C	D	E	F	Total
No. of responses	48	32	138	148	124	44	534
% responses	9.0%	6.0%	25.8%	27.7%	23.4%	8.2%	100.1%
Rank	4	6	2	1	3	5	N/A

Table 41 below combines the preferred zones for operating a boat most often and second most often. This provides a clear picture of where the majority of boating use occurs in the Delta. Zone D is again the preferred location for operating a boat, with 34.7% of all respondents indicating that they operated their boats here, either exclusively or occasionally. Zones E and C are close as a second choice, while Zone B with only 3.7%, is a distant last choice.

TABLE - 41
ALL ZONES WHERE RESPONDENTS OPERATED A BOAT (Tables 39 and 40 Combined)

	A	B	C	D	E	F	Total
No. of responses	104	41	227	387	257	99	1115
% responses	9.3%	3.7%	20.3%	34.7%	23.1%	8.9%	100%
Rank	4	6	3	1	2	5	N/A

F. ADEQUACY OF BOATING FACILITIES

Respondents were asked if the number of existing facilities in the Delta which serve recreational boaters were adequate. The majority of respondents indicated that launch ramps, fuel docks, and marinas, were either adequate or more than adequate. Conversely, about half of the respondents indicated that public restrooms, courtesy docks, and shoreline areas accessible from the water, were either less than adequate or very inadequate.

The results of this portion of the survey are presented in Tables 42, 43, and 44. The first table shows the number of responses received. The second table presents the same data in terms of percentage of responses, and the third table ranks the responses.

Public restrooms seemed to be the most inadequate. As Table 43 indicates, 40% of the respondents indicated that restrooms were somewhat inadequate, while another 20% rated them as very inadequate. Marinas were the most plentiful, with 72% respondents indicating that they were adequate and 11% indicating that they were more than adequate.

Respondents were asked to check N/A if they were not sure about the availability of a particular type of facility. The majority of respondents checked N/A for sewage pump-out stations and dry boat storage.

TABLE - 42
ADEQUACY OF BOATING FACILITIES - NUMBER OF RESPONDENTS

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	N/A	Total
Launch ramps	5	55	322	104	33	519	62	581
Fuel docks	4	32	311	115	31	493	77	570
Sewage pump-out stations	2	9	91	66	27	195	342	537
Marinas	11	54	357	63	12	497	69	566
Courtesy docks	2	23	192	204	51	472	87	559
Boat repairs	1	17	201	96	19	334	211	545
Shoreline access	2	43	174	176	91	486	75	561
Dry boat storage	1	16	144	45	14	220	321	541
Public restrooms	2	19	181	204	104	510	60	570
Overnight moorings	2	14	128	134	45	323	222	545

TABLE - 43
ADEQUACY OF BOATING FACILITIES - PERCENT OF RESPONDENTS

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Totals
Launch ramps	1%	11%	62%	20%	6%	100%
Fuel docks	1%	6%	63%	23%	6%	99%
Sewage pump-out stations	1%	5%	47%	34%	14%	101%
Marinas	2%	11%	72%	13%	2%	100%
Courtesy docks	0%	5%	41%	43%	11%	100%
Boat repairs	0%	5%	60%	29%	6%	100%
Shoreline access	0%	9%	36%	36%	19%	100%
Dry boat storage	0%	7%	66%	21%	6%	100%
Public restrooms	0%	4%	35%	40%	20%	99%
Overnight moorings	1%	4%	40%	41%	14%	100%

TABLE - 44
ADEQUACY OF BOATING FACILITIES- NUMBER OF RESPONSES IN RANK ORDER

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate
Launch ramps	5	3	1	2	4
Fuel docks	5	3	1	2	4
Sewage pump-out stations	5	4	1	2	3
Marinas	5	3	1	2	4
Courtesy docks	5	4	2	1	3
Boat repairs	5	4	1	2	3
Shoreline access	4	3	1(tie)	1(tie)	2
Dry boat storage	5	3	1	2	4
Public restrooms	5	4	2	1	3
Overnight moorings	5	4	2	1	3

OTHER RECREATION (NON-BOATING)

A. TYPE OF ACTIVITIES, GROUP SIZE, AND PARTICIPATION DAYS

Respondents were asked to identify other (non-boating) recreation activities they participated in while in the Delta. As Table 45 indicates, sightseeing was the most common non-boating recreation activity with 45% of the respondents indicating that they participated. Viewing wildlife and fishing from shore ranked second and third, respectively, while board sailing ranked last.

While board sailing ranked low in terms of numbers of participants, it was ranked the highest in terms of average annual activity days, averaging 13.3 days annually. Viewing wildlife ranked second, while walking for pleasure ranked third.

Tent camping had the highest number of participants per family or group with an average of 5.8 people. Picnicking ranked second, while swimming from shore was third.

TABLE - 45
OTHER RECREATION ACTIVITIES RESPONDENTS PARTICIPATED IN

Activity	No. of respondents participating	% of participation responses	Rank*	Average no. of annual activity days	Rank	Average group size	Rank
Fishing from shore	256	40%	3	9.5	8	3.1	11
Swimming from shore	186	30%	6	10.1	5	4.8	3
Tent Camping	79	13%	12	7.6	9	5.8	1
RV Camping	123	20%	8	9.8	6	4.5	5
Hunting on land	55	9%	13	10.5	4	3.2	10
Viewing wildlife	255	41%	2	12.8	2	3.3	9 (tie)
Photography of nature	124	21%	7	7.1	10	2.6	13
Sightseeing	286	45%	1	9.6	7	4.0	7
Bicycling	90	15%	11	6.8	11	3.0	12
Attending special events	171	28%	9	2.5	14	4.7	4
Visiting cultural or historical sites	108	18%	10	4.4	13	4.2	6
Walking for pleasure	198	32%	5	12.7	3	3.3	9 (tie)
Picnicking	209	34%	4	6.5	12	5.2	2
Board sailing or wind surfing	32	5%	15	13.3	1	3.6	8

*Rank is based % of participation responses.

In terms of annual participation days, the survey indicated that sightseeing and viewing wildlife ranked the highest among non-boating activities. As Table 46 below indicates, the total for each activity was 3.2 million activity days of both activities. The number of annual activity days was calculated by multiplying the number of registered boaters who used the Delta, by the percentage of survey respondents who participated in a specific activity, by the average group size for each activity, by the average number of days of participation for each activity. Swimming from shore and walking for pleasure came in second and third, respectively.

TABLE - 46
ANNUAL PARTICIPATION DAYS - NON-BOATING RECREATION PARTICIPATION

Type of activity	No. registered Boaters using Delta	X % of respondents participating in this activity	X Average no. of people per group	X Average no. Days respondents participated in this activity	= Annual participation days (in millions)	Annual participation days (percent of total)	Rank (based on % of total)
Fishing from shore	197,000	40%	3.1	9.5	2.3	9.6%	4
Swimming from shore	197,000	30%	4.8	10.1	2.9	11.8%	2
Tent camping	197,000	13%	5.8	7.6	1.1	4.8%	7
RV camping	197,000	20%	4.5	9.8	1.7	7.0%	6
Hunting on land	197,000	9%	3.2	10.5	0.6	2.6%	9 (tie)
Viewing wildlife	197,000	41%	3.3	12.8	3.4	14.0%	1(tie)
Photography of nature	197,000	21%	2.6	7.1	0.8	3.1%	8
Sightseeing	197,000	45%	4.0	9.6	3.4	14.0%	1(tie)
Bicycling	197,000	15%	3.0	6.8	0.6	2.6%	9 (tie)
Attending special events	197,000	28%	4.7	2.5	0.7	2.6%	10(tie)
Visiting cultural or historical sites	197,000	18%	4.2	4.4	0.7	2.6%	10(tie)
Walking for pleasure	197,000	32%	3.3	12.7	2.6	10.9%	3
Picnicking	197,000	34%	5.2	6.5	2.3	9.1%	5
Board sailing or wind surfing	197,000	5%	3.6	13.3	0.5	1.6%	11

B. LOCATIONS WHERE OTHER (NON-BOATING) ACTIVITIES OCCURRED

Boaters were asked to identify the zone or zones where they participated in each type of non-boating activity. Their responses appear in Table 47 below, which shows the number of respondents. Table 48 shows the percentage of responses. Zone D was the most popular zone for every type of non-boating activity. Zone C was the second most popular, followed by Zones E, A, F, and B. An analysis of the level of recreation use in each zone follows, beginning on page 43.

TABLE - 47
NUMBER OF RESPONSES - PARTICIPATION IN OTHER ACTIVITIES - BY ZONE

Activity	A	B	C	D	E	F	Totals
Fishing from shore	38	16	65	114	66	32	331
Swimming from shore	22	9	43	74	52	25	225
Tent camping	5	3	17	30	19	5	79
RV camping	7	4	28	54	23	8	124
Hunting on land	6	5	5	20	17	2	55
Viewing wildlife	41	21	86	122	82	31	383
Photography of nature	22	14	49	58	42	17	202
Sightseeing	64	27	116	146	90	33	476
Bicycling	21	5	20	27	21	16	110
Attending special events	14	5	61	68	31	5	184
Visiting cultural or historical sites	20	9	48	58	29	8	172
Walking for pleasure	28	10	50	80	48	23	239
Picnicking	25	14	51	88	54	25	257
Board sailing or wind surfing	0	1	3	23	6	2	35
Total responses	313	143	642	962	580	232	N/A
Rank	4	6	2	1	3	5	N/A

TABLE - 48
PERCENT OF RESPONSES - PARTICIPATION IN OTHER ACTIVITIES - BY ZONE

Activity	A	B	C	D	E	F
Fishing from shore	12.1%	11.2%	10.1%	11.9%	11.3%	13.8%
Swimming from shore	7.0%	6.3%	6.7%	7.7%	8.9%	10.8%
Tent camping	1.6%	2.1%	2.6%	3.1%	3.2%	2.2%
RV camping	2.2%	2.8%	4.4%	5.6%	3.9%	3.4%
Hunting on land	1.9%	3.5%	0.8%	2.1%	2.9%	0.9%
Viewing wildlife	13.1%	14.7%	13.4%	12.7%	14.0%	13.4%
Photography of nature	7.0%	9.8%	7.6%	6.1%	7.2%	7.3%
Sightseeing	20.4%	18.9%	18.1%	15.2%	15.2%	14.2%
Bicycling	6.7%	3.5%	3.1%	2.8%	3.6%	6.9%
Attending special events	4.5%	3.5%	9.5%	7.1%	6.3%	2.2%
Visiting cultural or historical sites	6.4%	6.3%	7.5%	6.0%	4.9%	3.4%
Walking for pleasure	8.9%	7.0%	7.8%	8.3%	8.2%	9.9%
Picnicking	8.0%	9.8%	7.9%	9.1%	9.2%	10.8%
Board sailing or wind surfing	0%	0.7%	0.5%	2.4%	1.0%	0.9%
Total responses	99.8%	100.1%	100.0%	100.1%	99.8%	100.1%

Zone A. This zone is the Sacramento River corridor, from the City of Sacramento south to the town of Courtland. The inventory of recreation facilities in the Delta developed by the Delta Protection Commission indicates that Zone A includes one private campground, two private picnic areas, two private and one public fishing access sites, one private historic site, and two hiking trails/paths.

As indicated in Table 49 below, this zone was used primarily for sightseeing (20.4%), viewing wildlife (13.1%), and fishing from shore (12.1%). These three activities accounted for almost one-half of all recreation participation in this zone. Other activities which received moderate use were walking for pleasure (8.9%), picnicking (8%), and swimming from shore (7%).

**TABLE - 49
PARTICIPATION IN OTHER ACTIVITIES IN ZONE A**

Activity	Number of responses - Zone A	Percent of responses - Zone A	Rank
Fishing from shore	38	12.1%	3
Swimming from shore	22	7.0%	6
Tent camping	5	1.6%	13
RV camping	7	2.2%	11
Hunting on land	6	1.9%	12
Viewing wildlife	41	13.1%	2
Photography of nature	22	7.0%	7
Sightseeing	64	20.4%	1
Bicycling	21	6.7%	8
Attending special events	14	4.5%	10
Visiting cultural or historical sites	20	6.4%	9
Walking for pleasure	28	8.9%	4
Picnicking	25	8.0%	5
Board sailing or wind surfing	0	0%	14
Total	313	99.8%	N/A

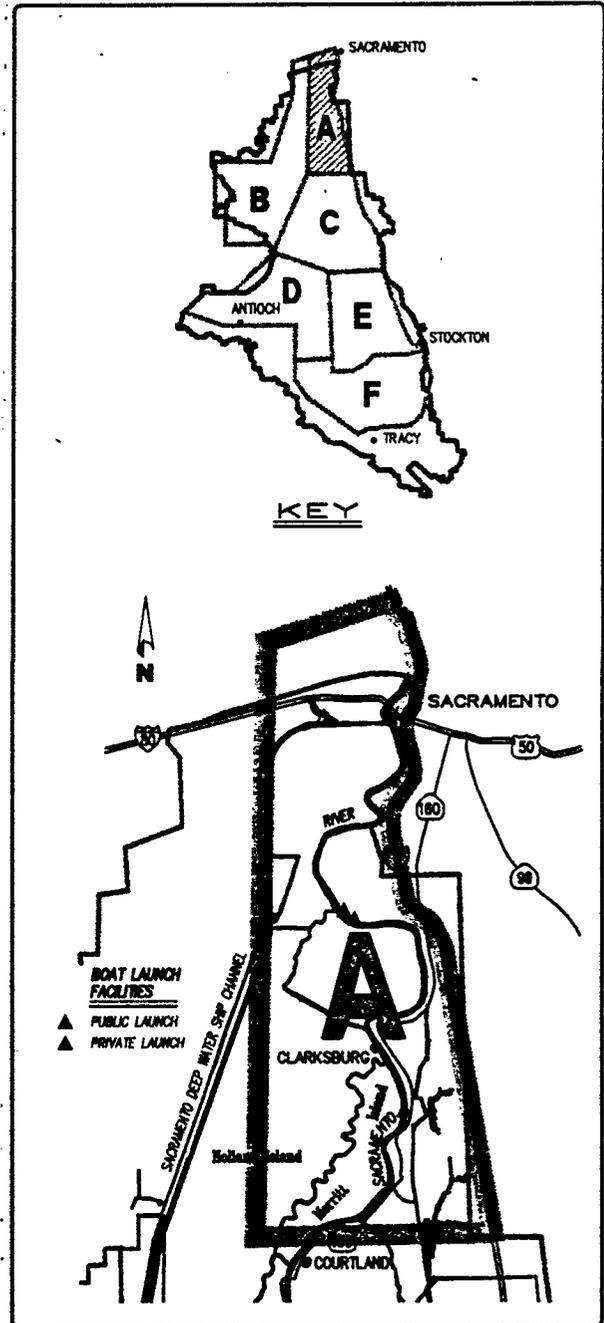


Table 50 below, compares the level of participation in non-boating recreation activities which occurred within Zone A with the level of participation which occurred in all zones in the Delta. For example, 13.2% of all sightseeing in the Delta occurred in Zone A. In general, about 10 -13% of most activities occur in the zone. The exceptions are: bicycling (19.4%), tent camping (6.3%), RV camping (5.7%), and board sailing (0%).

TABLE - 50
PARTICIPATION IN OTHER ACTIVITIES IN ZONE A VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses -Zone A	Percent of responses -all zones
Fishing from shore	331	38	11.5%
Swimming from shore	225	22	9.8%
Tent camping	79	5	6.3%
RV camping	124	7	5.7%
Hunting on land	55	6	10.9%
Viewing wildlife	383	41	10.7%
Photography of nature	202	22	10.9%
Sightseeing	476	64	13.2%
Bicycling	110	21	19.4%
Attending Special Events	184	14	7.4%
Visiting cultural or historical	172	20	11.6%
Walking for pleasure	239	28	11.7%
Picnicking	257	25	9.7%
Board sailing or wind surfing	35	0	0%
Total	2872	313	N/A

Zone B. This zone includes the Yolo Bypass, Cache Slough, and the Sacramento River Deep Water Ship Channel. Opportunities for recreational boating are very limited in this zone. There is only one picnic area and no campgrounds, nor any designated fishing access sites, historic sites, trails or wind surfing areas.

As Table 51 indicates, Zone B received the most use for sightseeing (18.9%), and viewing wildlife (14.7%) and fishing from shore (11.2%). This zone received limited use for picnicking, photography of nature, and walking for pleasure.

**TABLE - 51
PARTICIPANTS IN OTHER ACTIVITIES IN ZONE B**

Activity	Number of responses -Zone B	Percent of responses - Zone B	Rank
Fishing from shore	16	11.2%	3
Swimming from shore	9	6.3%	(tie)
Tent camping	3	2.1%	9
RV camping	4	2.8%	8
Hunting on land	5	3.5%	7(tie)
Viewing wildlife	21	14.7%	2
Photography of nature	14	9.8%	4(tie)
Sightseeing	27	18.9%	1
Bicycling	5	3.5%	7(tie)
Attending special events	5	3.5%	7(tie)
Visiting cultural or historical sites	9	6.3%	6(tie)
Walking for pleasure	10	7.0%	5
Picnicking	14	9.8%	4(tie)
Board sailing or wind surfing	1	0.7%	10
Total	143	100.1%	N/A

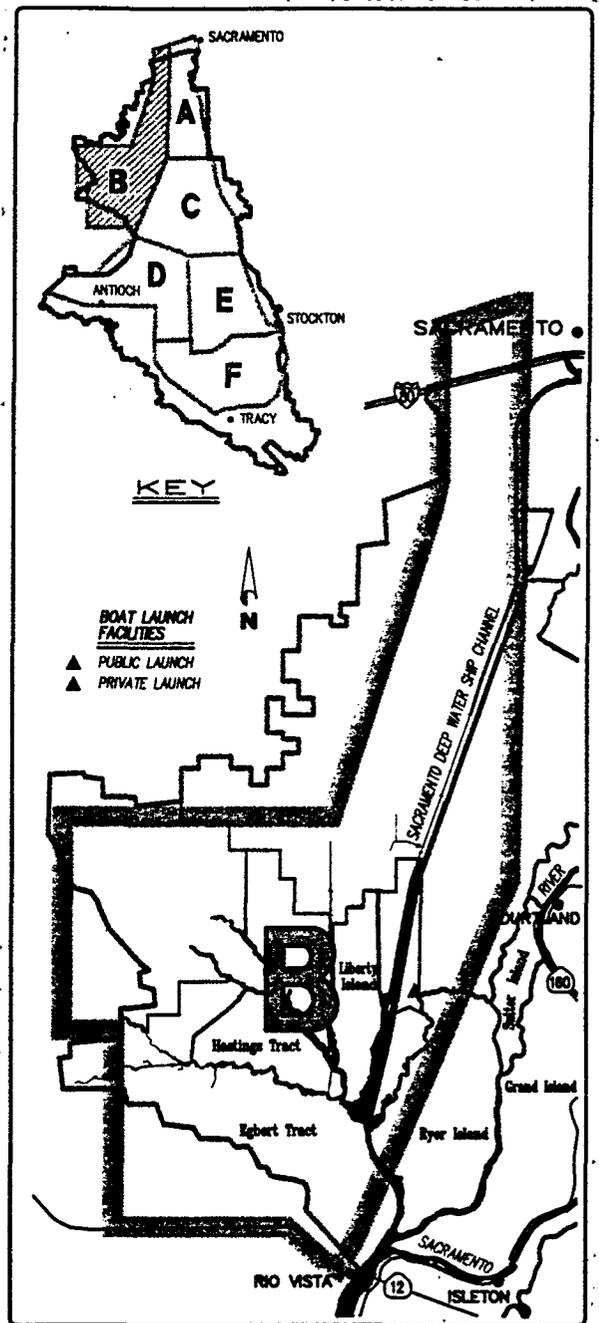
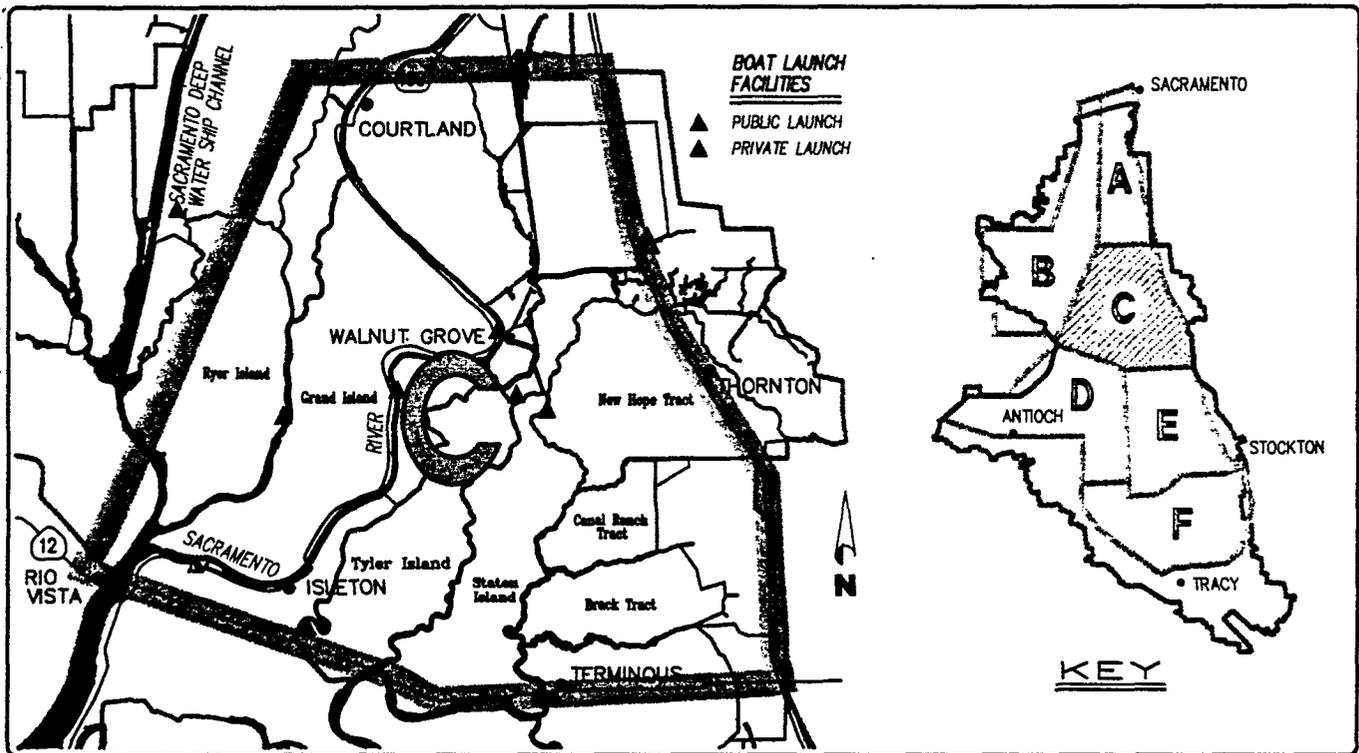


Table 52 below, compares the level of participation in other recreation activities which occurred within Zone B with the level of participation which occurred in all zones in the Delta. This zone received very little use for recreation. Less than 10% of all non-boating recreation occurred here. In fact, for most activities, less than 5% occurred here. The only exceptions were hunting on land (9.1%) and photography of nature (6.9%).

**TABLE - 52
PARTICIPATION IN OTHER ACTIVITIES IN ZONE B VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone B	Percent of responses - Zone B
Fishing from shore	331	16	4.8%
Swimming from shore	225	9	4.0%
Tent camping	79	3	3.8%
RV camping	124	4	3.3%
Hunting on land	55	5	9.1%
Viewing wildlife	383	21	5.5%
Photography of nature	202	14	6.9%
Sightseeing	476	27	5.6%
Bicycling	110	5	4.5%
Attending special events	184	5	2.6%
Visiting cultural or historical sites	172	9	5.2%
Walking for pleasure	239	10	4.1%
Picnicking	257	14	5.4%
Board sailing or wind surfing	35	1	2.9%
Total	2,872	143	N/A

Zone C. This is the north Delta. It includes the Sacramento River from Courtland south to State Route 12 and all stretches of the Mokelumne and Cosumnes Rivers which lie within the Delta. The City of Isleton and Snodgrass Slough are here. It includes 12 public and private campgrounds, five private and three public fishing access sites, four public historic sites, two hiking trails/paths, and one private windsurfing area.



As Table 53 indicates, Zone C received the most use for sightseeing (18.1%), viewing wildlife (13.4%), and fishing from shore (10.1%). Each of the remaining activities were less than 10% of the total.

**TABLE - 53
PARTICIPATION IN OTHER ACTIVITIES IN ZONE C**

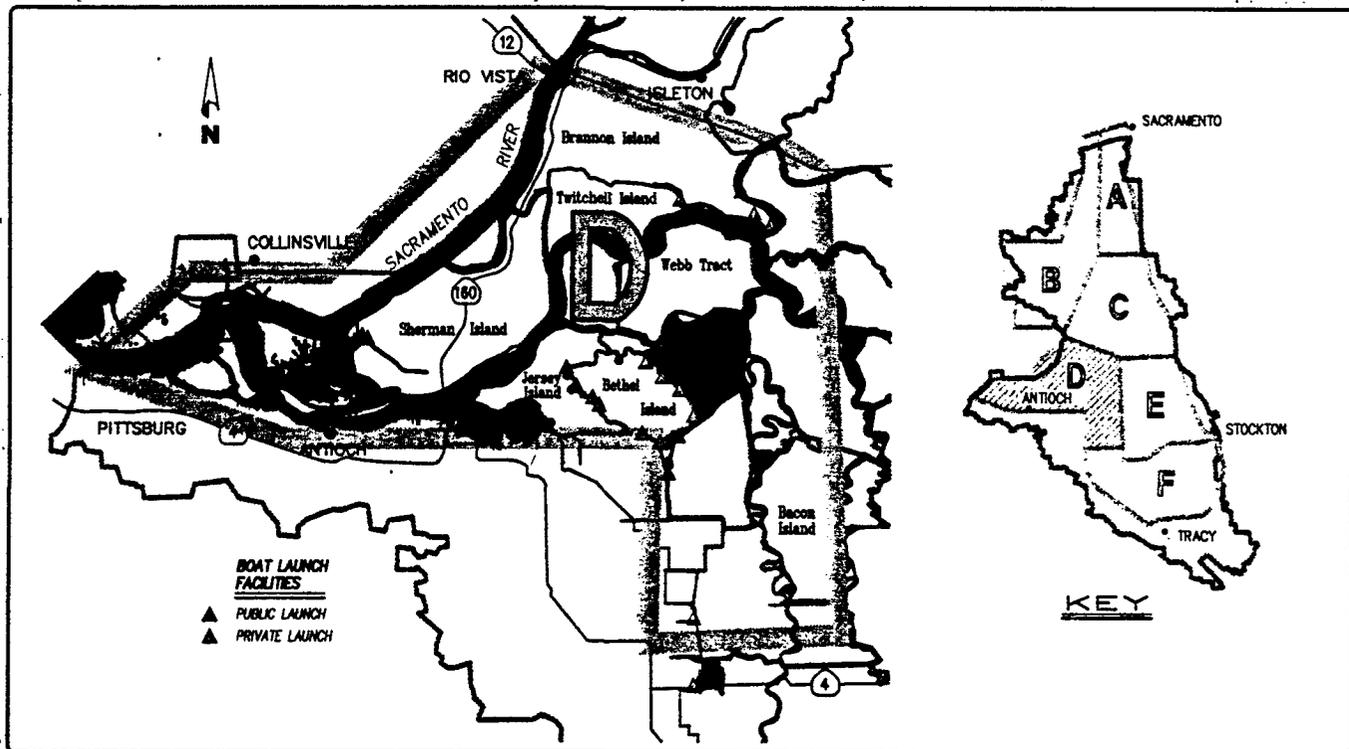
Activity	Number of responses -Zone C	Percent of responses - Zone C	Rank
Fishing from shore	65	10.1%	3
Swimming from shore	43	6.7%	9
Tent camping	17	2.6%	12
RV camping	28	4.4%	10
Hunting on land	5	0.8%	13
Viewing wildlife	86	13.4%	2
Photography of nature	49	7.6%	7
Sightseeing	116	18.1%	1
Bicycling	20	3.1%	11
Attending special events	61	9.5%	4
Visiting cultural or historical sites	48	7.5%	8
Walking for pleasure	50	7.8%	6
Picnicking	51	7.9%	5
Board sailing or wind surfing	3	0.5%	14
Total	642	100%	N/A

Table 54 below, compares the level of participation in other recreation activities which occurred within Zone C with the level of participation which occurred in all zones in the Delta. This zone received considerable more use than Zones A and B. Between 18-24% of almost all activities occurred in this zone. The exceptions were attending special events (32.1%) and board sailing (8.6%).

TABLE - 54
PARTICIPATION IN OTHER ACTIVITIES IN ZONE C VS. ALL ZONES

Activity	Number of responses all zones	- Number of responses - Zone C	Percent of responses - Zone C
Fishing from shore	331	65	19.6%
Swimming from shore	225	43	19.1%
Tent camping	79	17	21.5%
RV camping	124	28	22.8%
Hunting on land	55	5	9.1%
Viewing wildlife	383	86	22.5%
Photography of nature	202	49	24.3%
Sightseeing	476	116	23.9%
Bicycling	110	20	18.2%
Attending special events	184	61	32.1%
Visiting cultural or historical sites	172	48	27.9%
Walking for pleasure	239	50	20.9%
Picnicking	257	51	19.8%
Board sailing or wind surfing	35	3	8.6%
Total	2872	642	N/A

Zone D. This is the west Delta, which includes the lower Sacramento and San Joaquin Rivers. Brannan Island State Recreation Area, with its large picnicking and camping facilities, is located here. One other public campground and 18 private campgrounds are also in this zone. There are four private and 12 public fishing access points, four hiking trails/paths, and eight windsurfing areas.



Sightseeing is again the most popular non-boating activity (15.2%). Viewing wildlife is a close second (12.7%), followed by fishing from shore (11.9%). Each of the other activities accounted for less than 10% of the total recreation use.

TABLE - 55
PARTICIPATION IN OTHER ACTIVITIES IN ZONE D

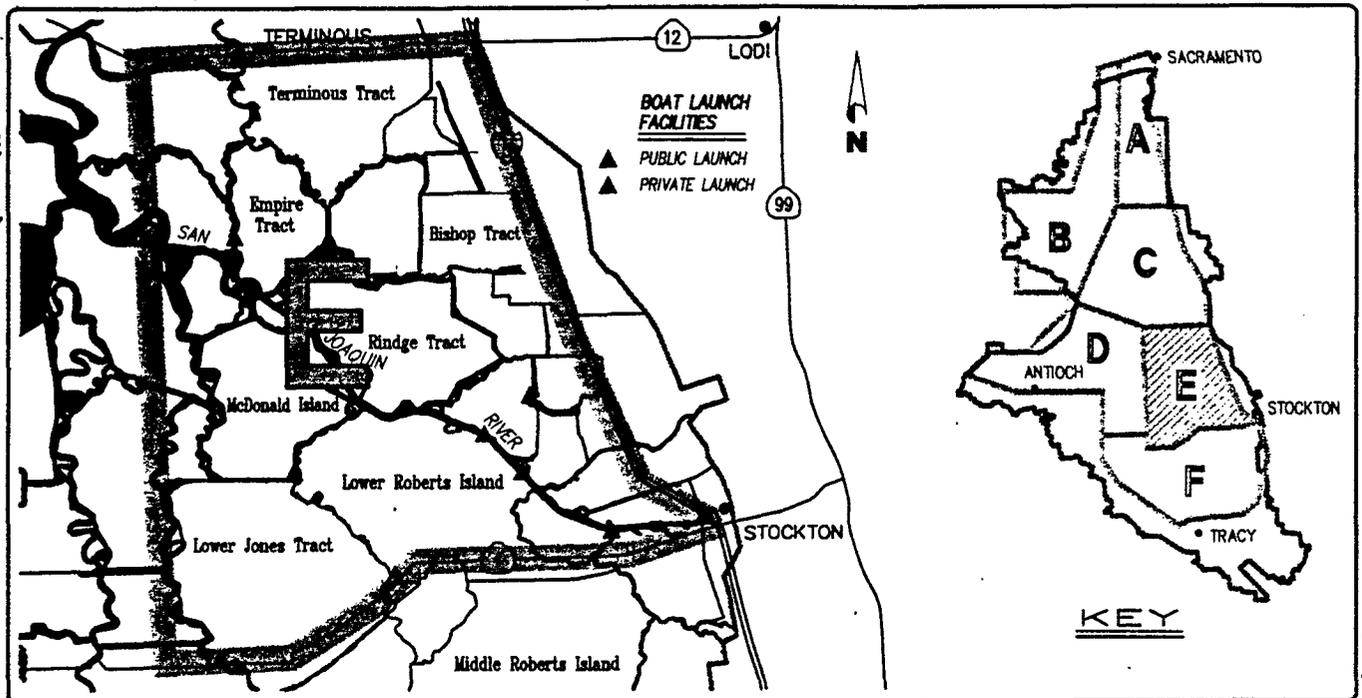
Activity	Number of responses -Zone D	Percent of responses - Zone D	Rank
Fishing from shore	114	11.9%	3
Swimming from shore	74	7.7%	6
Tent camping	30	3.1%	11
RV camping	54	5.6%	10
Hunting on land	20	2.1%	14
Viewing wildlife	122	12.7%	2
Photography of nature	58	6.1%	8
Sightseeing	146	15.2%	1
Bicycling	27	2.8%	12
Attending special events	68	7.1%	7
Visiting cultural or historical sites	58	6.0%	9
Walking for pleasure	80	8.3%	5
Picnicking	88	9.1%	4
Board sailing	23	2.4%	13
Total	962	100.1%	N/A

Table 56 below, compares the level of participation in other recreation activities which occurred within Zone D with the level of participation which occurred in all zones in the Delta. A significant percentage of non-boating activities occurred in this zone, ranging from a low of 24.5% for bicycling to a high of 65.7% for board sailing. In general, about one-third of most activities occurred in this zone.

**TABLE - 56
PARTICIPATION IN OTHER ACTIVITIES IN ZONE D VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses -Zone D	Percent of responses - Zone D
Fishing from shore	331	114	34.4%
Swimming from shore	225	74	32.8%
Tent camping	79	30	38.0%
RV camping	124	54	43.9%
Hunting on land	55	20	36.4%
Viewing wildlife	383	122	31.9%
Photography of nature	202	58	28.7%
Sightseeing	476	146	30.0%
Bicycling	110	27	24.5%
Attending special events	184	68	35.8%
Visiting cultural or historical sites	172	58	33.7%
Walking for pleasure	239	80	33.5%
Picnicking	257	88	34.2%
Board sailing or wind surfing	35	23	65.7%
Total	2872	962	N/A

Zone E. This zone is the east Delta. It is bordered on the north by State Route 12, on the east by Interstate 5, and on the south by State Route 4. It includes portions of the City of Stockton, four public boat launch ramps, six large, eight medium, and three small marinas.



Sightseeing, viewing wildlife, and fishing from shore, were the most popular activities in this zone also, as Table 57 below indicates. However, even the most common activity, sightseeing, represented only 15% of all use. Participation in swimming, walking, photography, and attending special events ranged between six and nine percent.

TABLE - 57
PARTICIPATION IN OTHER ACTIVITIES IN ZONE E

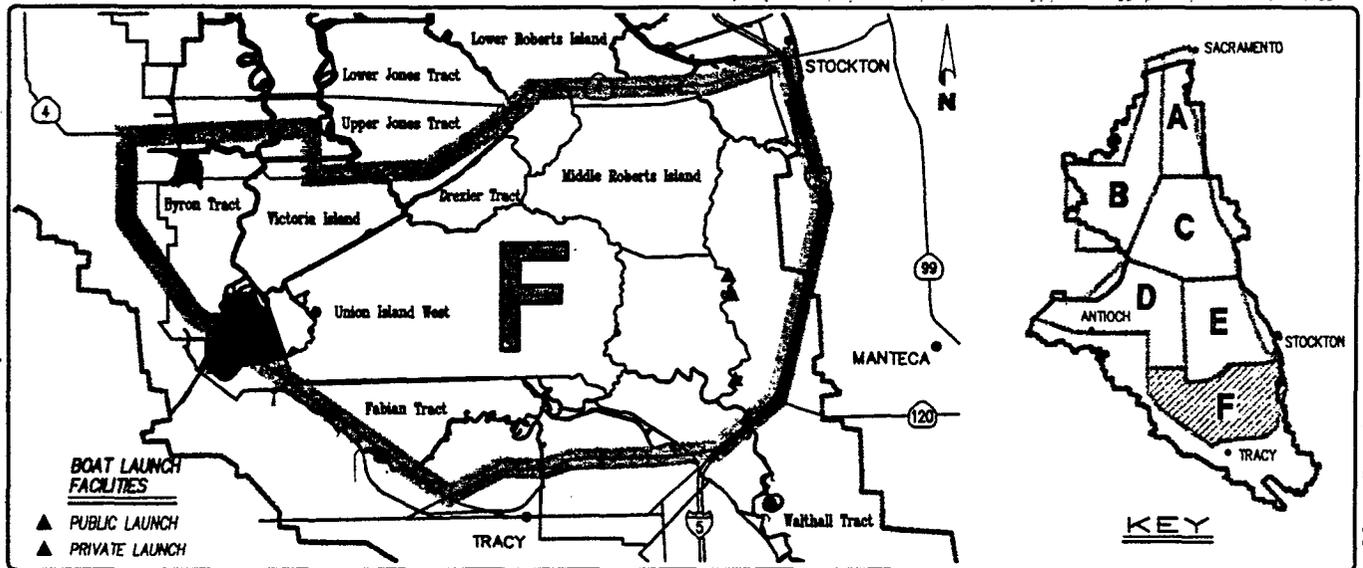
Activity	Number of responses - Zone E	Percent of responses - Zone E	Rank
Fishing from shore	66	11.3%	3
Swimming from shore	52	8.9%	5
Tent camping	19	3.2%	12
RV camping	23	3.9%	10
Hunting on land	17	2.9%	13
Viewing wildlife	82	14.0%	2
Photography of nature	42	7.2%	7
Sightseeing	90	15.2%	1
Bicycling	21	3.6%	11
Attending special events	37	6.3%	8
Visiting cultural or historical sites	37	4.9%	9
Walking for pleasure	29	8.2%	6
Picnicking	54	9.2%	4
Board sailing or wind surfing	6	1.0%	14
Total	575	99.8%	N/A

Table 58 below, compares the level of participation in other recreation activities which occurred within Zone E with the level of participation which occurred in all zones in the Delta. In general, Zone E did not receive as much use as Zone D, but about 20% of most activities occurred here. The biggest exception was hunting on land. Almost 31% of hunting occurred in Zone E.

TABLE - 58
PARTICIPATION IN OTHER ACTIVITIES IN ZONE E VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses -Zone E	Percent of responses - Zone E
Fishing from shore	331	66	19.9%
Swimming from shore	225	52	23.1%
Tent camping	79	19	24.1%
RV camping	124	23	18.7%
Hunting on land	55	17	30.9%
Viewing wildlife	383	82	21.4%
Photography of nature	202	42	20.8%
Sightseeing	476	90	18.5%
Bicycling	110	21	19.1%
Attending special events	184	37	19.5%
Visiting cultural or historical sites	172	37	16.9%
Walking for pleasure	239	29	20.1%
Picnicking	257	54	21.0%
Board sailing or wind surfing	35	6	17.0%
Total	2872	575	N/A

Zone F. This zone is the south Delta. State Route 4 forms its northern boundary, Interstate 5 its eastern border, and Interstate 205 its southern boundary. Discovery Bay and Clifton Court Forebay are located in this zone. Typical recreation facilities are limited to two campgrounds and one trail/path.



Sightseeing was the most common activity (14.2%), followed closely by fishing from shore (13.8%) and viewing wildlife (13.4%). However, almost as many respondents participated in picnicking (10.8%) and swimming (10.4%).

TABLE - 59
PARTICIPATION IN OTHER ACTIVITIES IN ZONE F

Activity	Number of responses - Zone F	Percent of responses - Zone F	Rank
Fishing from shore	32	13.8%	2
Swimming from shore	25	10.8%	4 (tie)
Tent camping	5	2.2%	9(tie)
RV camping	8	3.4%	8(tie)
Hunting on land	2	0.9%	10(tie)
Viewing wildlife	31	13.4%	3
Photography of nature	17	7.3%	6
Sightseeing	33	14.2%	1
Bicycling	16	6.9%	7
Attending special events	5	2.2%	9(tie)
Visiting cultural or historical sites	8	3.4%	8(tie)
Walking for pleasure	23	9.9%	5
Picnicking	25	10.8%	4(tie)
Board sailing or wind surfing	2	0.9%	10(tie)
Total	232	100.1%	N/A

Table 60 below, compares the level of participation in other recreation activities which occurred within Zone F with the level of participation which occurred in all zones in the Delta. This zone received very little use for recreation. About 14% of all bicycling occurred in this zone, which was the highest percentage for any activity. Most other activities had participation levels of less than ten percent.

TABLE - 60
PARTICIPATION IN OTHER ACTIVITIES IN ZONE F VS. ALL ZONES

Activity	Number of responses all zones	Number of responses Zone F	Percent of responses - Zone F
Fishing from shore	331	32	9.7%
Swimming from shore	225	25	11.1%
Tent camping	79	5	6.3%
RV camping	124	8	6.5%
Hunting on land	55	2	3.6%
Viewing wildlife	383	31	8.1%
Photography of nature	202	17	8.4%
Sightseeing	476	33	6.8%
Bicycling	110	16	14.5%
Attending special events	184	5	2.6%
Visiting cultural or historical sites	172	8	4.7%
Walking for pleasure	239	23	9.6%
Picnicking	257	25	9.7%
Board sailing or wind surfing	35	2	5.7%
Total	2872	232	N/A

C. LOCATIONS WHERE OTHER RECREATION (NON-BOATING) OCCURRED, BY TYPE OF ACTIVITY

As previously stated, boaters were asked to identify the zone or zones where they participated in each type of non-boating activity. Their responses have been analyzed in terms of where respondents who participated in specific type of recreation activities recreated in the Delta. This analysis is presented in Table 61 below, and other tables that follow. An analysis of the level of recreation use in each zone follows the tables, beginning on the next page.

Zone D was the most popular zone for every type of non-boating activity. Zone C was the second most popular, followed by Zones E, A, F, and B. These are the same rankings as the zones received for boating recreation. This is not surprising in that most survey respondents would probably be participating in both boating and non-boating activities when recreating in the Delta.

**TABLE - 61
NUMBER OF RESPONSES/PARTICIPATION IN OTHER ACTIVITIES, BY ZONE**

Activity	A	B	C	D	E	F
Fishing from shore	38	16	65	114	66	32
Swimming from shore	22	9	43	74	52	25
Tent camping	5	3	17	30	19	5
RV camping	7	4	28	54	23	8
Hunting on land	6	5	5	20	17	2
Viewing wildlife	41	21	86	122	82	31
Photography of nature	22	14	49	58	42	17
Sightseeing	64	27	116	146	90	33
Bicycling	21	5	20	27	21	16
Attending special events	14	5	61	68	31	5
Visiting cultural or historical sites	20	9	48	58	29	8
Walking for pleasure	28	10	50	80	48	23
Picnicking	25	14	51	88	54	25
Board sailing or wind surfing	0	1	3	23	6	2
Total	313	143	642	962	580	232
Rank	4	6	2	1	3	5

Fishing from shore. About one-third of all fishing from shore in the Delta occurred in Zone D. Zones E and C were the second most popular, each with slightly less than 20%. Zones D, E, and C combined represent 74% of all fishing from shore.

TABLE - 62
ZONES WHERE RESPONDENTS FISHED FROM SHORE

	A	B	C	D	E	F	Total
No. of responses	38	16	65	114	66	34	333
% responses	11.5%	4.8%	19.6%	34.4%	19.9%	9.7%	99.9%
Rank	4	6	3	1	2	5	N/A

Swimming from shore. Zone D was also the most popular location for swimming. This is not surprising since most of the swimming beaches are located in this zone. Zone B was the least popular.

TABLE - 63
ZONES WHERE RESPONDENTS SWAM FROM SHORE

	A	B	C	D	E	F	Total
No. of responses	22	9	43	74	52	25	225
% responses	9.8%	4.0%	19.1%	32.8%	23.1%	11.1%	99.9%
Rank	4	5	3	1	2	4	N/A

Tent camping. This activity was also concentrated in Zones D, C, and E. These zones represent over 83% of all tent camping in the Delta.

TABLE - 64
ZONES WHERE RESPONDENTS TENT CAMPED

Activity	A	B	C	D	E	F	Total
No. of responses	5	3	17	30	19	5	79
% responses	6.3%	3.8%	21.5%	38.0%	24.1%	6.3%	100%
Rank	4	5	3	1	2	4	N/A

RV camping. RV camping was more popular than tent camping in the Delta, (124 respondents vs. 79 respondents). RV campers were more concentrated in Zone D than tent campers (43.9% vs. 38%). However, RV campers did not use Zone E as much as tent campers (18.7% vs. 24.1%).

TABLE - 65
ZONES WHERE RESPONDENTS CAMPED IN RV's

	A	B	C	D	E	F	Total
No. of responses	7	4	28	54	23	8	124
% responses	5.7%	3.3%	22.8%	43.9%	18.7%	6.5%	100.9%
Rank	5	6	2	1	3	4	N/A

Hunting on land. Although Zone D was the most popular zone for hunting (36.4%), Zone E was also very popular, attracting 30.9% of those who hunt. Most of the other responses were evenly split between Zones A, B, and C.

TABLE - 66
ZONES WHERE RESPONDENTS HUNTED ON LAND

	A	B	C	D	E	F	Total
No. of responses	6	5	5	20	17	2	55
% responses	10.9%	9.1%	9.1%	36.4%	30.9%	3.6%	100.0%
Rank	3	4 (tie)	4 (tie)	1	2	5	N/A

Viewing wildlife. Those who viewed wildlife also preferred Zone D (31.9%). However, almost as many preferred Zones C (22.5%) and E (21.4%).

TABLE - 67
ZONES WHERE RESPONDENT VIEWED WILDLIFE

	A	B	C	D	E	F	Total
No. of responses	41	21	86	122	82	31	383
% responses	10.7%	5.5%	22.5%	31.9%	21.4%	8.1%	100.1%
Rank	4	5	2	1	3	6	N/A

Photography of nature. Those who photographed nature probably also viewed wildlife. Therefore, it is not surprising that the preferred locations for both activities are very similar. The photographers use of Zone D was slightly less and their use of Zone C was slightly more. Use of all other zones was almost identical.

TABLE - 68
ZONES WHERE RESPONDENTS PHOTOGRAPHED NATURE

	A	B	C	D	E	F	Total
No. of responses	22	14	49	58	42	17	202
% responses	10.9%	6.9%	24.3%	28.7%	20.8%	8.4%	100%
Rank	4	6	2	1	3	5	N/A

Sightseeing. Although this activity requires the participants to be mobile, respondents continued to prefer Zones D (30%), C (23.9%), and E (18.5%). Zone A, however, did receive a larger than usual percent of responses (13.4%).

TABLE - 69
ZONES WHERE RESPONDENTS PARTICIPATED IN SIGHTSEEING

	A	B	C	D	E	F	Total
No. of responses	64	27	116	146	90	33	476
% responses	13.4%	5.7%	24.4%	30.7%	18.9%	6.9%	99.7%
Rank	4	6	2	1	3	5	N/A

Bicycling. With virtually no bicycle trails or bike lanes in the Delta, the opportunities for this activity are very limited. Although Zone D is again the most popular (24.5%), Zone A was the second most popular (19.4%), followed by Zone E (19.1%), and C (18.2%).

TABLE - 70
ZONES WHERE RESPONDENTS BICYCLED

	A	B	C	D	E	F	Total
No. of responses	21	5	20	27	21	16	110
% responses	19.4%	4.5%	18.2%	24.5%	19.1%	14.5%	100.2%
Rank	2	6	4	1	3	5	N/A

Attending special events. Zone C received almost as much use for this activity as Zone D (32.1% vs. 35.8%). The City of Isleton and the town of Walnut Grove, which have hosted large annual special events, are both located in Zone C.

TABLE - 71
ZONES WHERE RESPONDENTS ATTENDED SPECIAL EVENTS

	A	B	C	D	E	F	Total
No. of responses	14	4	61	68	37	5	189
% responses	7.4%	2.6%	32.1%	35.8%	19.5%	2.6%	100%
Rank	4	5	2	1	3	5	N/A

Visiting cultural or historical sites. About one-third of all survey respondents who visited cultural/historical sites, did so in Zone D. Almost as many respondents visited sites in Zone C (27.9%).

TABLE - 72
ZONES WHERE RESPONDENTS VISITED CULTURAL/HISTORICAL SITES

	A	B	C	D	E	F	Total
No. of responses	20	9	48	58	29	8	172
% responses	11.6%	5.2%	27.9%	33.7%	16.9%	4.7%	100%
Rank	4	5	2	1	3	6	N/A

Walking for pleasure. One-third of all walking for pleasure occurred in the popular Zone D. With few hiking trails available in the Delta, most walking for pleasure probably occurs along levees, in camp and picnic grounds, and similar informal settings.

TABLE - 73
ZONES WHERE RESPONDENTS WALKED FOR PLEASURE IN EACH ZONE

	A	B	C	D	E	F	Total
No. of responses	28	10	50	80	48	23	239
% responses	11.7%	4.1%	20.9	33.5%	20.1%	9.6%	99.9%
Rank	4	6	2	1	3	5	N/A

Picnicking. Slightly over one-third of all picnickers use Zone D (34.2%). An almost equal percentage of respondents used Zones C and E.

TABLE - 74
ZONES WHERE RESPONDENTS PICNICKED IN EACH ZONE

	A	B	C	D	E	F	Total
No. of responses	25	14	51	88	54	25	257
% responses	9.7%	5.4%	19.8%	34.2%	21.0%	9.7%	99.8%
Rank	4 (tie)	5	3	1	2	4 (tie)	N/A

Board sailing or wind surfing. As indicated in Table 75, almost two-thirds of all board sailors use Zone D. The locations where this activity is possible is limited due to the need for strong, consistent winds, and a suitable beach for launching and landing. Windy Cove, a popular wind surfing location next to Brannan Island State Recreation Area, is located in Zone D.

TABLE - 75
ZONES WHERE RESPONDENTS SAIL BOARDED

	A	B	C	D	E	F	Total
No. of responses	0	1	3	23	6	2	35
% responses	0%	2.9%	8.6%	65.7%	17.0%	5.7%	99.9%
Rank	6	5	3	1	2	4	N/A

D. ADEQUACY OF OTHER (NON-BOATING) FACILITIES

Respondents indicated that, in terms of numbers of the existing facilities, most types of other facilities were either adequate or more than adequate. These included tent campsites, RV campsites, picnic sites, public parking, places to buy food, scenic vistas/overlooks, hiking trails, wildlife vistas, hunting areas, and board sailing access. Facilities which most respondents viewed as somewhat or very inadequate included public restrooms, swimming beaches, fishing piers, other fishing access sites, and bicycle trails.

The shortage of public restrooms was cited by the largest number of respondents, with 61% indicating that there were either somewhat or very inadequate. Restrooms ranked number one in both categories.

Respondents were asked to check "N/A" if they were unfamiliar with the availability of certain types of facilities. Most respondents checked "N/A" for tent campsites, RV campsites, bicycle trails, scenic vistas/outlooks, hiking trails, and wildlife viewing areas. Board sailing and hunting areas received the highest numbers of "N/A" checks.

Sixty-seven percent (67%) of the respondents evaluating existing swimming beaches indicated that they were either "inadequate" or "very inadequate". Conversely, only 32% felt that public beaches were adequate or more than adequate.

Fishing piers were the third most inadequate facility with 59% of the respondents indicating that fishing piers were either somewhat inadequate or very inadequate. On the other hand, a significant number (65%) felt that places to buy food were adequate or more than adequate. The other respondents indicated that the food facilities were either adequate or more than adequate.

TABLE - 76
ADEQUACY OF OTHER FACILITIES - NUMBER OF RESPONSES

	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	N/A	Total
Tent camping	2	9	114	77	19	221	337	558
RV camping	3	19	124	88	24	258	308	566
Picnic sites	2	19	164	118	31	334	223	557
Public parking	1	20	215	142	47	425	145	570
Places to buy food	2	31	265	129	27	454	110	564
Swimming beaches	1	6	112	168	74	361	208	569
Fishing piers	2	10	124	130	61	327	238	565
Other fishing access	3	21	150	118	51	343	220	563
Public restrooms	0	9	178	201	87	475	105	580
Bicycle trails	1	17	81	78	34	211	351	562
Scenic vistas	3	30	141	77	25	276	289	565
Hiking trails	2	16	102	80	31	231	331	562
Wildlife vista	4	27	152	62	21	266	293	559
Hunting areas	10	9	60	33	40	152	405	557
Board sailing access	4	14	73	28	10	129	424	553

TABLE - 77
ADEQUACY OF OTHER FACILITIES - PERCENTAGE OF RESPONSES

	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	Respondents checking N/A
Tent camping	1%	4%	52%	35%	9%	101%	60%
RV camping	1%	7%	48%	34%	9%	99%	54%
Picnic sites	1%	6%	49%	35%	9%	100%	40%
Public parking	0%	5%	51%	33%	11%	100%	25%
Places to buy food	0%	7%	58%	28%	6%	99%	20%
Swimming beaches	0%	2%	31%	47%	20%	100%	37%
Fishing piers	1%	3%	38%	40%	19%	101%	42%
Other fishing access	1%	6%	44%	34%	15%	100%	39%
Public restrooms	0%	2%	37%	42%	18%	99%	18%
Bicycle trails	0%	8%	38%	37%	16%	99%	62%
Scenic vistas	1%	11%	51%	28%	9%	100%	51%
Hiking trails	1%	7%	44%	35%	13%	100%	59%
Wildlife vista	2%	10%	57%	23%	8%	100%	52%
Hunting areas	7%	6%	39%	22%	26%	100%	73%
Board sailing access	3%	11%	57%	22%	8%	101%	77%

ECONOMIC CONSIDERATIONS

A. EXPENDITURES BY BOATERS

Survey respondents were asked how much their *group* spent for specific goods and services during their last trip to the Delta. Tables 78 and 79 below, summarizes the results. Respondents indicated that on their last trip the group spent an average of \$24.07 for lodging inside the Delta. If they stayed outside the Delta, the average amount spent by the group dropped to \$12.67. Respondent groups spent an average of \$38.20 for food and drink purchases in the Delta and \$24.05 outside the Delta.

Group expenses for supplies, gasoline, groceries, repairs, parking, public transportation, souvenirs, and gifts, averaged \$52.01 inside the Delta and \$40.14 outside the Delta.

Expenses for recreation activities such as equipment purchases and rentals, launch fees, admission and permit fees, tours, guides and lessons, averaged \$25.01 per group inside the Delta and \$18.29 per group outside the Delta.

TABLE - 78
AVERAGE EXPENDITURES PER GROUP - LAST TRIP TO DELTA

Expenditure categories	Expenditure Outside Delta (in dollars)	Expenditure Inside Delta (in dollars)
Overnight lodging	12.67	24.07
Foods and drinks	24.05	38.20
Supplies	40.14	52.01
Recreation activities	18.29	25.01
Total	95.15	139.29

Table 79 represents the estimated expenditures per group for their last trip to the Delta. To estimate the average daily expenditures per person, the above group expenditures were divided by the average number of people per group (3.0) and by the average number of days per trip (2.7). These calculations are provided in Table 79 below.

TABLE - 79
AVERAGE EXPENDITURES PER PERSON - LAST TRIP TO DELTA

Expenditure categories	Expenditure Outside Delta (in dollars)	Expenditure Inside Delta (in dollars)
Overnight lodging	1.56	2.97
Foods and drinks	2.97	4.72
Supplies	4.96	6.42
Recreation activities	2.26	3.09
Total	11.75	17.20

B. COUNTY OF ORIGIN - SURVEY RESPONDENTS

Survey respondents who received the post-card questionnaire were asked if they used the Delta for boating or other recreation in 1995. The county of residence for those respondents who returned the questionnaire is listed below.

TABLE - 80
COUNTY OF ORIGIN - SURVEY RESPONDENTS

Name of County	No. Recreating	% of Total	Rank (Top ten)	Name of County	No. Recreating	% of Total	Rank (Top ten)
Alameda	125	8.6	3	Orange	32	2.2	
Alpine	0	0		Placer	39	2.7	
Amador	4	0.3		Plumas	0	0	
Butte	15	1.0		Riverside	10	0.7	
Calaveras	10	0.7		Sacramento	143	9.9	2
Colusa	1	0.1		San Benito	3	0.2	
Contra Costa	181	12.5	1	San Bernardino	9	0.6	
Del Norte	1	0.1		San Diego	24	1.7	
El Dorado	16	1.1		San Francisco	34	2.3	
Fresno	19	1.3		San Joaquin	100	6.9	6
Glenn	1	0.1		San Luis Obispo	26	1.8	
Humbolt	5	0.3		San Mateo	44	3.0	10
Imperial	8	0.5		Santa Barbara	2	0.1	
Inyo	1	0.1		Santa Clara	115	7.9	4
Kern	8	0.5		Santa Cruz	15	1.0	
Kings	2	0.1		Shasta	7	0.5	
Lake	4	0.3		Sierra	0	0	
Lassen	1	0.1		Siskiyou	9	0.6	
Los Angeles	105	7.3	5	Solano	45	3.1	9
Madera	6	0.4		Sonoma	38	2.6	
Marin	49	3.4	8	Stanislaus	53	3.7	7
Mariposa	3	0.2		Sutter	5	0.3	
Mendocino	12	0.8		Tehama	3	0.2	
Merced	9	0.6		Trinity	2	0.1	
Modoc	0	0		Tulare	22	1.5	
Mono	0	0		Tuolumne	9	0.6	
Monterey	17	1.2		Ventura	7	0.5	
Napa	16	1.1		Yolo	17	1.2	
Nevada	9	0.6		Yuba	7	0.5	
				Totals	1448	99.7%	N/A

C. DISTANCES TRAVELED TO GET TO THE DELTA

Survey respondents were asked how far their group traveled to get to the Delta on their last trip. Half of the respondents traveled less than 50 miles as indicated in Table 81 below. The average distance traveled, one-way, was 74.0 miles.

TABLE - 81
DISTANCE TRAVELED TO GET TO DELTA -LAST TRIP

Distances Traveled - in miles	No. of responses	% of total
0 - 9	64	9.5%
10 - 24	100	14.8%
25 - 49	168	24.9%
50 - 99	226	33.4%
100 -199	63	9.3%
200+	55	8.1%
Totals	676	100.0%

D SIZE OF GROUPS

Survey respondents were asked how many people traveled in their vehicle on their last trip to the Delta. As Table 82 indicates, the most common group was two people per vehicle (43.2%). Four people per vehicle was next most common (23.8%). Almost 90% of all groups had four or fewer people. The average number for all vehicles was 3.0 people.

TABLE - 82
GROUP SIZE - LAST TRIP

	No. of responses	% of total
Group size of 1	39	5.6%
Group size of 2	299	43.2%
Group size of 3	116	16.8%
Group size of 4	165	23.8%
Group size of 5	36	5.2%
Group size of 6	26	3.8%
Group size of 7+	11	1.6%
Totals	692	100.0%

E. LENGTHS OF STAY IN THE DELTA

Survey respondents were asked how many days and nights they spent on their last trip to the Delta, including travel time. As Table 83 below indicates, slightly over half (53%) of the respondents stayed in the Delta only one day. This is not surprising considering that almost half of the respondents lived within 50 miles of the Delta. Another 17% stayed two days. Twelve percent (12%) stayed three days, and another 7% stayed four days.

TABLE - 83
LENGTH OF STAY - DAYS

Number of days	No. of respondents	% of total	Rank
1	362	53	1
2	117	17	2
3	79	12	3
4	45	7	4
5	16	2	7
6	9	1	8
7	18	3	6
8-14	23	3	5
14-30	5	1	9
over 30	3	0	10
Totals	677	99%	N/A

Survey respondents were asked if they stayed overnight in the Delta. Forty-three percent (43%) of the respondents indicated that they did stay overnight, while 56% indicated that they did not. As Table 84 below indicates, over half of the respondents stayed one night (28%) or two nights (33%). Thirty-one percent (31%) stay between three and seven nights. Eight percent (8%) stayed eight days or longer.

TABLE - 84
LENGTH OF STAY - NIGHTS

Number of nights	No. of respondents	% of total	Rank
1	74	28%	2
2	88	33%	1
3	37	14%	3
4	25	9%	4
5	3	1%	9
6	10	4%	6
7	7	3%	7
8-14	17	6%	5
14-30	4	1%	8
over 30	3	1%	9
Total	268	100%	

Other Issues

A. PARTICIPATION IN NIGHT FISHING

Survey respondents were asked if they fished at night. Twenty-six percent (26%) indicated that they did, while 74% did not.

TABLE - 85
RESPONDENTS WHO FISHED AT NIGHT

	No. responding	% of Total
Yes	166	26%
No	477	74%
Total	643	100%

B. OBSERVATION OF LAW ENFORCEMENT PATROL BOATS

Survey respondents were asked if they observed law enforcement patrol boats while in the Delta. Seventy-nine percent (79%) reported that they did, while 21% did not.

TABLE - 86
RESPONDENTS WHO SAW PATROL BOATS

	No. responding	% of Total
Yes	502	79%
No	133	21%
Total	635	100%

C. HOW BOATERS USE OF THE DELTA FOR RECREATION HAS CHANGED DURING THE LAST FIVE YEARS.

Survey respondents were asked to indicate how their participation in specific recreation activities in the Delta had changed over the last five years. The results are provided in Table 87 below. In general, participation in most recreation activities remained fairly level over the last five years. Boating and camping did show a slight decline, while hunting declined more significantly. Other activities, like wind-surfing and bicycling, showed a slight increase. A detailed analysis begins on the next page.

**TABLE - 87
HOW RESPONDENTS USE OF DELTA HAS CHANGED DURING LAST 5 YEARS -
NUMBER OF RESPONDENTS (% = percent of total)**

Activity	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Total	N/A
Boating	95(15%)	121(19%)	234(38%)	101(16%)	70(11%)	621(99%)	54
Swimming	93(22%)	65(15%)	191(45%)	51(12%)	22(5%)	422(99%)	238
Fishing	80(16%)	83(17%)	210(42%)	88(17%)	42(8%)	503(100%)	161
Camping	61(21%)	44(15%)	111(39%)	52(18%)	16(6%)	284(97%)	362
Hunting	42(33%)	17(13%)	50(39%)	14(11%)	6(5%)	129(98%)	514
Viewing wildlife	23(8%)	32(10%)	182(60%)	55(18%)	13(4%)	305(100%)	343
Photography	23(12%)	20(9%)	115(58%)	32(16%)	9(5%)	199(100%)	446
Sightseeing	28(8%)	32(11%)	201(59%)	57(17%)	20(6%)	338(101%)	313
Bicycling	21(13%)	19(11%)	77(46%)	38(23%)	11(7%)	166(100%)	478
Attending special events	18(7%)	26(10%)	151(59%)	51(20%)	11(4%)	257(100%)	389
Visiting cultural/historical sites	19(10%)	21(11%)	117(62%)	23(12%)	8(4%)	188(99%)	456
Walking for pleasure	24(9%)	36(14%)	146(55%)	45(17%)	14(5%)	265(100%)	385
Picnicking	31(10%)	34(11%)	175(58%)	41(14%)	21(7%)	302(100%)	344
Board sailing	19(20%)	7(8%)	48(52%)	9(10%)	10(11%)	93(101%)	544

Boating. In general, the respondents indicated that their use of boats in the Delta had remained about the same during the last five years. The largest percentage of respondents indicated that their boating had stayed about the same (37.7%). Some respondents showed a slight decrease in participation (19.4%), yet almost as many showed a slight increase (16.3%). However, more respondents showed a significant decrease (15.3%) than a significant increase (11.3%).

TABLE - 88
HOW RESPONDENTS PARTICIPATION IN BOATING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	95	121	234	101	70	621	54	675
% respondents	15.3%	19.4%	37.7%	16.3%	11.3%	100%	8.1%	N/A
Rank	3	5	1	2	4	N/A	N/A	N/A

Camping. This activity decreased significantly. While over one-third of respondents who camped indicated that this activity had remained about the same (39.1%), a significant number indicated that their participation had decreased significantly (21.5%). About the same number of respondents indicated camping had either slightly increased or decreased, 18.3% vs. 15.5%.

TABLE - 89
HOW RESPONDENTS PARTICIPATION IN CAMPING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	61	44	111	52	16	284	362	646
% respondents	21.5%	15.5%	39.1%	18.3%	5.6%	100%	56.0%	
Rank	2	4	1	3	5	N/A	N/A	N/A

Picnicking. Picnicking was similar to boating in that the level of participation remained about the same. A majority of the respondents indicated no change in this activity (57.9%). Slight increases and decreases were almost identical, 13.6% vs. 11.3%, while significant increases and decreases were close, 7% vs. 10.3%. About half of the respondents checked N/A, which indicates that they did not picnic in the Delta.

TABLE - 90
HOW RESPONDENTS PARTICIPATION IN PICNICKING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	31	34	175	41	21	302	344	646
% respondents	10.3%	11.3%	57.9%	13.6%	7.0%	100.1%	53.3%	N/A
Rank	4	3	1	2	5	N/A	N/A	N/A

Sightseeing. This activity was similar to boating and camping, in that, most respondents indicated no change in participation (59.5%). Slightly more respondents indicated an increase (22.8%), while fewer indicated a decrease (17.8%).

TABLE - 91
HOW RESPONDENTS PARTICIPATION IN SIGHTSEEING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	28	32	201	57	20	338	313	651
% respondents	8.3%	9.5%	59.5%	16.9%	5.9%	100%	48.1%	N/A
Rank	4	3	1	2	5	N/A	N/A	N/A

Swimming. As an activity, swimming showed more of a decrease in participation. While almost half of the respondents indicated that swimming had remained about the same (45.3%), there were many more reporting a significant decrease (22%) than a significant increase (5.2%).

TABLE - 92
HOW RESPONDENTS PARTICIPATION IN SWIMMING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	93	65	191	51	22	422	238	660
% respondents	22.0%	15.4%	45.3%	12.1%	5.2%	100%	36.1%	N/A
Rank	2	3	1	4	5	N/A	N/A	N/A

Fishing. Participation in fishing also showed a slight decrease. Less than half of the respondents (41.7%) indicated that their fishing had stayed about the same, while 15.9% indicated a significant decrease had occurred. Only 8.3% indicated a significant increase.

TABLE - 93
HOW RESPONDENTS PARTICIPATION IN FISHING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	80	83	210	88	42	503	161	664
% respondents	15.9%	16.5%	41.7%	17.5%	8.3%	99.9%	24.4%	N/A
Rank	2	3	1	4	5	N/A	N/A	N/A

Bicycling. This activity showed a slight increase. While almost half (46.4%) of the respondents reported their participation remained about the same, more respondents reported an increase than a decrease.

TABLE - 94
HOW RESPONDENTS PARTICIPATION IN BICYCLING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	21	19	77	38	11	166	478	644
% respondents	12.7%	11.4%	46.4%	22.9%	6.6%	100%	47.2%	N/A
Rank	3	4	1	2	5	N/A	N/A	N/A

Walking for Pleasure. Participation in this activity remained about the same. Over half of the respondents reported that this activity remained about the same (55.1%). The remaining respondents were equally divided, with 22.3% reporting an increase in participation and 22.7% reporting a decrease in participation.

TABLE - 95
HOW RESPONDENTS PARTICIPATION IN WALKING FOR PLEASURE HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	24	36	146	45	14	265	385	650
% respondents	9.1%	13.6%	55.1%	17.0	5.3%	100.1%	59.2%	N/A
Rank	4	3	1	2	5	N/A	N/A	N/A

Hunting. This activity showed a significant decrease in participation. While 38.8% of those responding indicated that their hunting had remained about the same, almost as many (32.6%) indicated that it had decreased significantly. Only 4.7% reported a significant increase. However, it should be noted that only about 25% of all survey respondents answered this question, and they were recreational boaters who also hunted. Therefore, these results may not be a reliable indicator of participation trends for all hunters using the Delta.

TABLE - 96
HOW RESPONDENTS PARTICIPATION IN HUNTING HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	42	17	50	14	6	129	514	643
% respondents	32.6%	13.2%	38.8%	10.9%	4.7%	100.2%	79.9%	
Rank	2	3	1	4	5	N/A		N/A

Viewing wildlife. Participation in this activity remained unchanged. Almost 60% of the respondents indicated that this activity remained about the same. A few more respondents reported an increase (22.3%) than reported a decrease (18.0%).

TABLE - 97
HOW RESPONDENTS PARTICIPATION IN VIEWING WILDLIFE HAS CHANGED DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	23	32	182	55	13	305	343	648
% respondents	7.5%	10.5%	59.7%	18.0%	4.3%	100%	52.9%	N/A
Rank	4	3	1	2	5	N/A	N/A	N/A

Photography of nature. The changes in participation rates for photography were very similar to viewing wildlife above. A significant number of respondents, however, reported that their participation had decreased significantly (11.6%).

TABLE - 98
HOW RESPONDENTS PARTICIPATION IN PHOTOGRAPHY OF NATURE DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	23	20	115	32	9	199	446	645
% respondents	11.6%	10.1%	57.8%	16.1%	4.5%	100.1%	69.1%	N/A
Rank	3	4	1	2	5	N/A	N/A	N/A

Attending special events. Participation in this activity also remained stable. However, a significant number of respondents indicated a slight increase in use (19.8%).

TABLE - 99
HOW RESPONDENTS PARTICIPATION IN SPECIAL EVENTS DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	18	26	151	51	11	257	389	646
% respondents	7.0%	10.1%	58.8%	19.8%	4.3%	100%	60.2%	N/A
Rank	3	2	4	1	5	N/A	N/A	N/A

Visiting cultural and historical sites. This activity showed a slight drop in participation. Although the majority of respondents showed no change (62.2%), more respondents reported a decrease (21.3%) than an increase (16.5%).

TABLE - 100
HOW RESPONDENTS PARTICIPATION IN VISITING HISTORICAL/CULTURAL SITES DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	19	21	117	23	8	188	456	644
% respondents	10.1%	11.2%	62.2%	12.2%	4.3%	100%	71.9%	N/A
Rank	4	3	1	2	5	N/A	N/A	N/A

Board sailing. Participation in this activity decreased significantly. Slightly over half of the respondents who answered this question indicated that their use of the Delta for board sailing had stayed about the same (51.6%). However, a significant number indicated that their participation had decreased significantly (20.4%). Since the number of respondents who answered this question was small (only 93 out of 637), the results should be viewed with caution.

TABLE - 101
HOW RESPONDENTS PARTICIPATION IN SAILING ACTIVITIES DURING LAST 5 YEARS

	Decrease Significantly	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	19	7	48	9	10	93	544	637
% respondents	20.4%	7.5%	51.6%	9.7%	10.8%	100%	85.4%	N/A
Rank	2	5	1	4	3	N/A	N/A	N/A

D. REASONS GIVEN BY RESPONDENTS FOR NOT RECREATING IN THE DELTA

The results of the postcard questionnaires indicated that approximately 76.5% of all registered pleasure craft owners in California did not use the Delta. As Table 102, below indicates, over half (56%) indicated that the Delta was "too far from home". The second and third most common answers were "not familiar with recreation opportunities" (42%) and "not enough time" (29%).

TABLE - 102
REASONS GIVEN FOR NOT RECREATING IN THE DELTA BY ALL RESPONDENTS

	Too far from home	Not familiar with recreation opportunities	Not enough time	Not enough money	Don't enjoy type of recreation available	Not enough public access to water	Not the right kind of recreation facilities needed	Other response given	Total
No. of responses	2,474	1,834	1,290	625	230	197	122	848	7,620
Percent of total	56%	42%	29%	14%	5%	4%	3%	19%	172%
Rank	1	2	3	4	5	6	7	N/A	N/A
% responses	32%	24%	17%	8%	3%	3%	2%	11%	100%

Respondents who lived close to the Delta (within a one-hour drive), but did not recreate in the Delta, were analyzed as a sub-group. As Table 103, below indicates, "not familiar with recreation opportunities" was the most common reason for not recreating in the Delta. The rank order of reasons remains generally the same for both the primary group and sub-group.

TABLE - 103
REASONS FOR NOT RECREATING IN THE DELTA - EXCLUDING "TOO FAR FROM HOME"

	Not familiar with recreation opportunities	Not enough time	Not enough money	Don't enjoy type of recreation available	Not enough public access to water	Not the right kind of recreation facilities needed;	Other responses given	Total
No. of responses	828	646	203	128	136	86	615	2642
% of total respondent	43%	33%	11%	7%	7%	4%	32%	137%
Rank	1	2	3	4	5	6	N/A	N/A
% responses	31%	24%	8%	5%	5%	3%	23%	100%

E. AGE AND SEX OF RESPONDENTS

Respondents were asked to provide limited information regarding their age and sex. This was needed to establish basic demographic profile of the survey respondents. As Tables 104 and 105 indicate, the vast majority of the respondents were male (92%), between the ages of 35 and 65 (72%).

TABLE - 104
SEX OF RESPONDENTS

	Number of responses	Percentage of total
Female	53	8%
Male	954	92%
Total	1,007	100%

TABLE - 105
AGE OF RESPONDENTS

Age	Number of responses	Percentage of total	Rank
under 18	0	0%	7
18-25	6	1%	6
26-35	100	14%	4
36-45	170	24%	2
46-55	191	27%	1
56-65	147	21%	3
66+	90	13%	5
Total	704	100%	N/A

F. NUMBER OF RESPONDENTS WHO PURCHASED A CALIFORNIA FISHING LICENSE IN 1996

Respondents were asked if they purchased a California fishing license in 1996. This question was asked to determine the percentage of respondents who were also anglers.

**TABLE - 106
RESPONDENTS WHO PURCHASED A FISHING LICENSE**

	No. of responses	% of total
Yes	485	69%
No	218	31%
Total	703	100%

Chapter IV

Results of Fishing Survey

The results of this fishing survey provides information on how a random sample of licensed anglers used the Delta for recreation in 1996. The data for this survey was compiled from questionnaires completed and returned by the anglers. The questionnaire asked the respondents about many aspects of their use of the Delta for recreation, including fishing activities, such as fishing from a boat, fishing from shore and fishing in a tournament, and non-fishing recreation activities such as picnicking, camping and sightseeing. They were also asked to provide information regarding: 1) the adequacies of the existing recreation facilities, 2) how their use of the Delta for recreation has changed over the last five years, and 3) the amount of money they spent on their last trip to the Delta.

The results, as provided below, are divided into two sections: fishing recreation and other recreation (non-fishing).

Fishing Recreation

A. ACTIVITIES, GROUP SIZE AND PARTICIPATION DAYS

Respondents were asked if they participated in specific fishing-related activities, how many people in their group typically participated in these activities, and how many days did they participated in each activity in 1996. Fishing from a boat was the most popular fishing activity. As Table 107 indicates, 362 respondents, or 88% of all respondents who answered this question, participated in this activity. Fishing from shore was the second most popular fishing activity with a 74% participation rate. Fishing in a tournament was the least popular of the three fishing activities with only 14% of the respondents participating.

Although fishing in a tournament ranked last in terms of numbers of participants, it ranked first in terms of average group size, with an average of 6.3 people. Fishing from shore and fishing from a boat were a distant second, each with an average of 2.9 people.

Delta anglers who fished from a boat spent the most number of days fishing, averaging 14.3 days a year. Fishing from shore was a close second with 13.9 days, followed by fishing in a tournament with an average of only 3.5 days.

TABLE - 107
FISHING ACTIVITIES PARTICIPATED IN

Type of activity	Number of respondents participating	% of respondents participating	Rank	Average group size	Rank	Average number of participation days	Rank
Fishing from boat	362	88%	1	2.9	3	14.3	1
Fishing from shore	262	74%	2	2.9	2	13.9	2
Fishing in tournament	45	14%	3	6.3	1	3.5	3

In terms of total annual activity days¹, fishing from a boat was the most common type of fishing activity, as Table 108 below indicates. This activity accounted for 11.8 million activity days. This number was calculated by multiplying the number of anglers using the Delta², by the percent of anglers who participated in fishing from a boat, by the average number of people per group, by the average number of days anglers participated in this activity in a year. Fishing from shore ranked second.

TABLE - 108
FISHING ACTIVITIES - ANNUAL PARTICIPATION DAYS

Type of activity	No. of Licensed Anglers using	X	% of respondents participating in this activity	X	Average no. of people per group	X	Average no. days respondents participated in this activity	=	Annual activity days (in millions)	Annual activity days (in percent)	Rank
Fishing from boat	322,000		88%		2.9		14.3		11.8	55%	1
Fishing from shore	322,000		74%		2.9		13.9		9.6	44%	2
Fishing in tournament	322,000		14%		1 ³		3.5		.2	1%	3

1. A participation day is defined as one person participating in one recreation activity for a day, or a portion of a day.

2. This number was estimated by multiplying the number of licensed anglers in California (1.4 million) by the percent of survey respondents who indicated that they recreated in the Delta (23%).

3. Group size limited to 1 to avoid over counting number of licensed anglers participating in tournament fishing.

B. TIMES WHEN FISHING OCCURRED

Anglers were asked what months of the year, days of the week, times of the day they fished in the Delta. Their responses are provided in Tables 109 through 111 below.

Days of the week. About 29% of the respondents fished on Saturday. The second most popular day was Sunday, with about 24% fishing on that day. Friday was the busiest weekday (14%) and Monday the slowest (7%).

TABLE - 109
TIMES OF ACTIVITIES - DAYS OF THE WEEK

Days of Week	No. of responses	% of total	Rank
Monday	71	7.0%	7
Tuesday	81	7.9%	5
Wednesday	105	10.3%	4
Thursday	79	7.8%	6
Friday	144	14.1%	3
Saturday	299	29.3%	1
Sunday	240	23.6%	2
Total	1019	100.0%	N/A

Times of the day. Most of the anglers used the Delta in the morning hours between 8 AM and Noon (53%). The early afternoon, from Noon to 4 PM, was a distant second with 25% of the fishing. The late evening hours between 8 PM and midnight were the least popular with less than 5% of the total responses.

TABLE - 110
TIMES OF ACTIVITIES - HOURS OF THE DAY

Hours of day	No. of responses	% of Total	Rank
Midnight - 8am	30	6.7%	4
8 am - Noon	309	53.4%	1
Noon - 4 PM	145	25.0%	2
4 PM - 8 PM	58	10.0%	3
8 PM - Midnight	28	4.8%	5
Total	570	99.9%	N/A

Months of the year. Not surprisingly, the Delta received the most use by anglers during the summer months. June and July were the most popular months, averaging 2.7 days of use. May was second with 2.6 days, followed by August and September, both averaging 2.5 days.

**TABLE - 111
AVERAGE NUMBER OF DAYS FISHED, BY MONTH**

Months	Days Fished	% of Total	Rank
January	1.1	4.6	8 (tie)
February	1.1	4.6	8 (tie)
March	1.8	7.5	6
April	2.2	9.1	5
May	2.6	10.8	2
June	2.7	11.2	1 (tie)
July	2.7	11.2	1 (tie)
August	2.5	10.4	3 (tie)
September	2.5	10.4	3 (tie)
October	2.3	9.5	4
November	1.6	6.6	7
December	1.0	4.1	9
Totals	24.1	100.0	N/A

C. LOCATIONS WHERE FISHING ACTIVITIES OCCURRED, (BY ZONE)

Anglers were asked to identify the zone or zones where they participated in each type of fishing activity. For all fishing activities, Zone D received the most use, followed by Zones E and C, as indicated in Table 113 (see bottom row).

A comprehensive analysis of where fishing activities occurred begins on the next page.

**TABLE - 112
NUMBER OF RESPONSES PARTICIPATION IN FISHING ACTIVITIES, BY ZONE**

Activity	A	B	C	D	E	F	Total No. of Responses
Fishing from boat	54	27	96	218	105	41	541
Fishing from shore	47	20	59	99	68	48	341
Fishing in tournament	5	3	13	31	13	4	69
Total No. of responses	106	50	168	348	186	93	951

**TABLE - 113
PERCENT OF RESPONSES PARTICIPATING IN FISHING ACTIVITIES, BY ZONE**

Activity	A	B	C	D	E	F	Total
Fishing from boat	10.0%	5.0%	17.7%	40.3%	19.4%	7.6%	100.0%
Fishing from shore	13.8%	5.9%	17.3%	29.0%	20.0%	14.1%	100.1%
Fishing in tournament	7.2%	4.3%	18.8%	44.9%	18.8%	5.8%	99.8%
Rank	4	6	3	1	2	5	N/A

**TABLE - 114
RANK OF FISHING ACTIVITIES, BY ZONE**

Activity	A	B	C	D	E	F
Fishing from boat	4	6	3	1	2	5
Fishing from shore	5	6	3	1	2	4
Fishing in tournament	3	5	2 (tie)	1	2 (tie)	4

Provided below is an analysis of where fishing activities occurred, by zone.

Zone A. This zone is the Sacramento River corridor, from the City of Sacramento south to the town of Courtland. The inventory of recreation facilities in the Delta developed by the Delta Protection Commission indicates that two private and one public fishing access sites are located in Zone A.

Survey respondents were asked to identify the zone, or zones, where they participated in several fishing activities. As Table 115 below indicates, for Zone A, a total of 106 responses were returned. Of these, 50.9% fished from a boat and 44.3% fished from shore. Only 4.7% fished in a tournament.

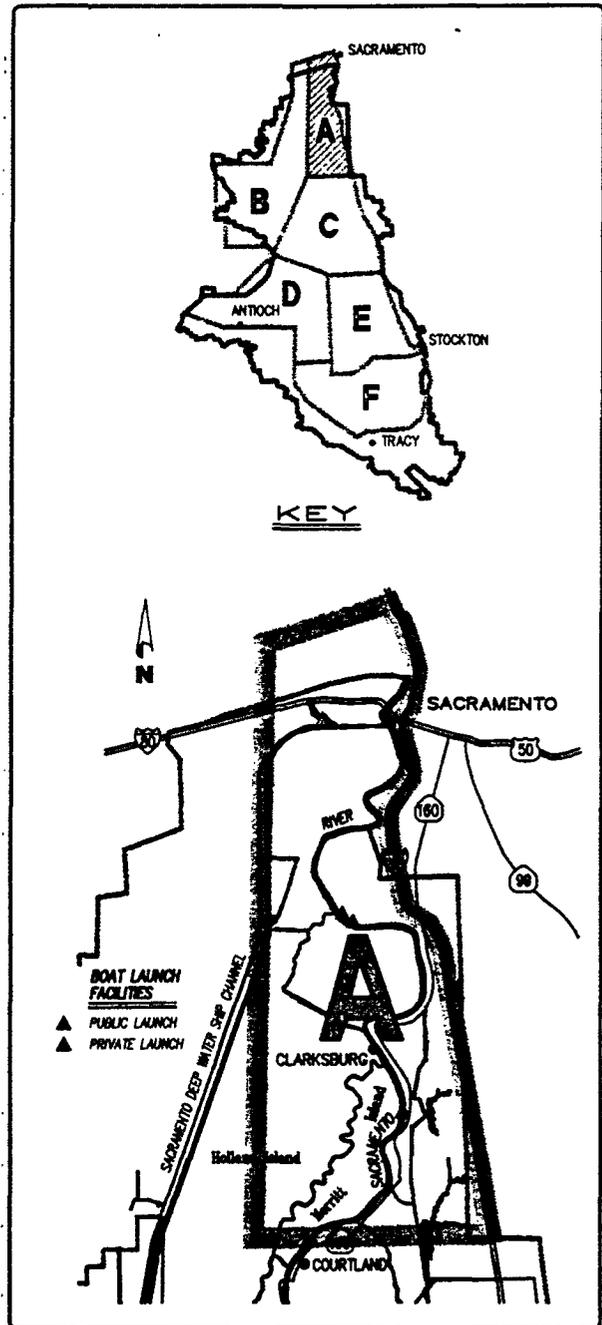
**TABLE - 115
PARTICIPATION IN FISHING ACTIVITIES IN ZONE A**

Activity	Number of responses - Zone A	Percent of responses - Zone A	Rank
Fishing from boat	54	50.9%	1
Fishing from shore	47	44.3%	2
Fishing in tournament	5	4.7%	3
Total	106	99.9%	N/A

Table 116 below, compares the fishing participation in Zone A with the total fishing participation in all zones combined. In short, few anglers used Zone A. A slightly higher percentage of anglers fished from shore than fished from a boat, 13.8% vs. 10%, respectively. A very small percent of anglers participated in fishing tournaments in this zone (7.2%).

**TABLE - 116
PARTICIPATION IN FISHING ACTIVITIES
IN ZONE A VS. ALL ZONES**

Activity	Number of responses -all zones	Number of responses -Zone A	% of responses -Zone A
Fishing from boat	541	54	10.0%
Fishing from shore	341	47	13.8%
Fishing in tournament	69	5	7.2%
Total	951	106	N/A



Zone B. This zone includes the Yolo Bypass, Cache Slough, and the Sacramento River Deep Water Ship Channel. Opportunities for fishing are very limited in this zone. There are no designated fishing access sites.

Table 117 below, depicts the level of use which occurred *within* Zone B, by type of fishing activity. Over half (54.2%) of the fishing occurring in Zone B was from a boat. Over a third fished from shore, while 6.3% participated in a tournament.

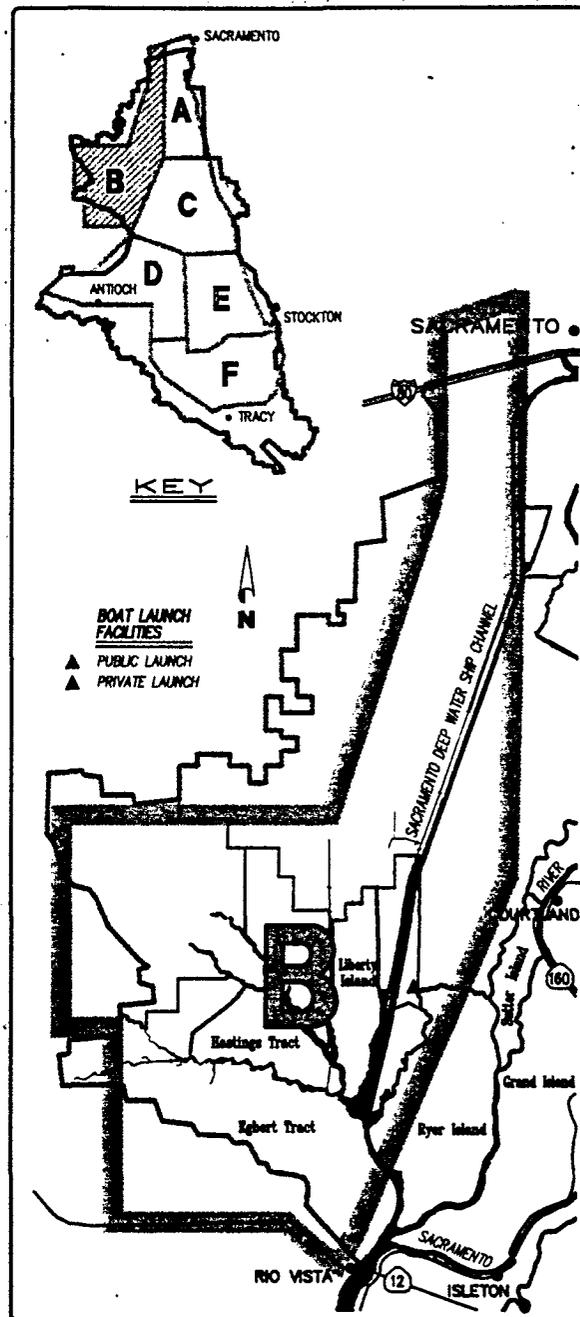
**TABLE - 117
PARTICIPATION IN FISHING ACTIVITIES IN ZONES B**

Activity	Number of responses - Zone B	Percent of responses - Zone B	Rank
Fishing from boat	27	54.2%	1
Fishing from shore	20	39.5%	2
Fishing in tournament	3	6.3%	3
Total	50	100.0%	N/A

Table 118 below, compares the fishing participation in Zone B with the total fishing participation in all zones combined. This zone was even less popular than Zone A. Like Zone A, a slightly higher percentage of anglers fished from shore (5.9%) than fished from a boat (5%)

**TABLE - 118
PARTICIPATION IN FISHING ACTIVITIES IN ZONE B VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone B	% of responses - Zone B
Fishing from boat	541	27	5.0%
Fishing from shore	341	20	5.9%
Fishing in tournament	69	3	4.3%
Total	951	50	N/A



Zone C. This is the north Delta. It includes the Sacramento River from Courtland south to State Route 12 and all stretches of the Mokelumne and Cosumnes Rivers which lie within the Delta. The City of Isleton and Snodgrass Slough are located here. Five private and three public fishing access sites are also here.

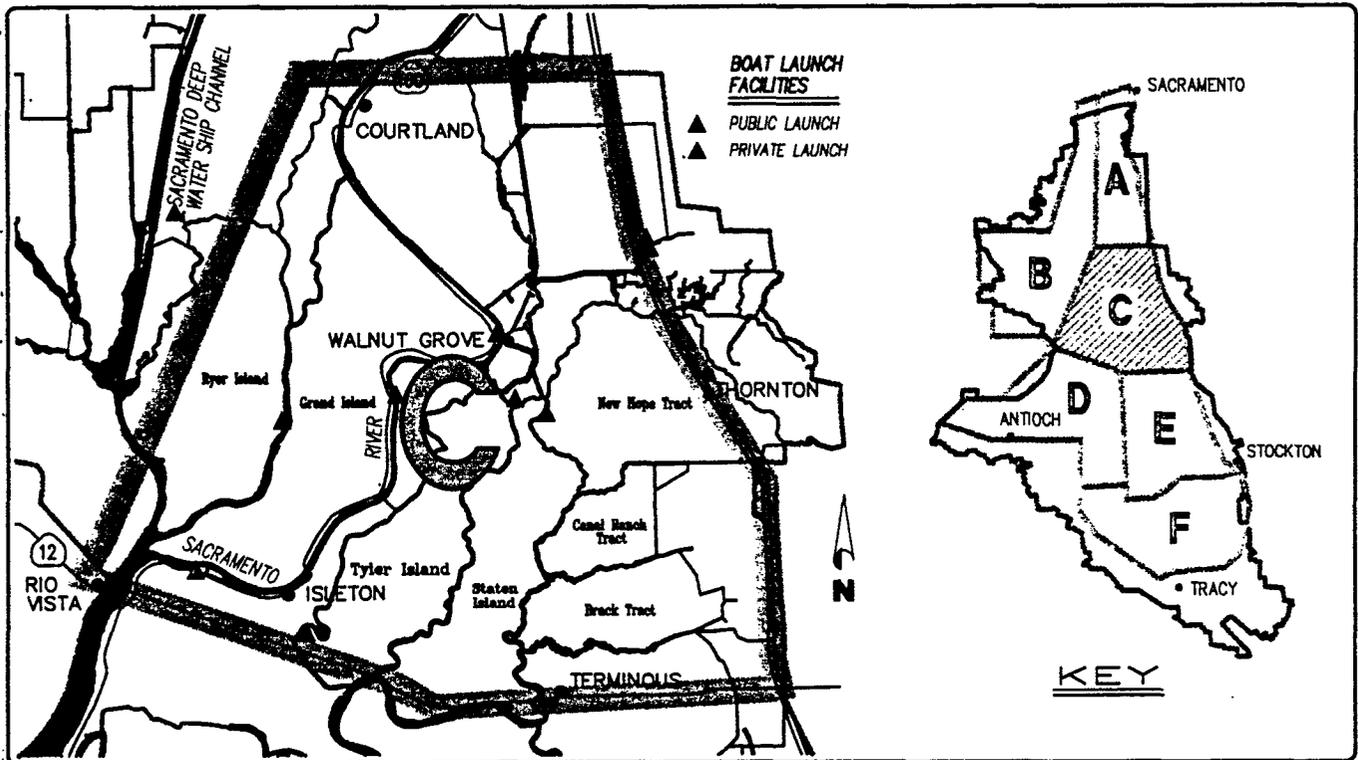


Table 119 below, depicts the level of use which occurred *within* Zone C, by type of fishing activity. In this zone, fishing from a boat was again the most common activity (57.1%).

**TABLE - 119
PARTICIPATION IN FISHING ACTIVITIES IN ZONE C**

Activity	Number of responses - Zone C	Percent of responses - Zone C	Rank
Fishing from boat	96	57.1%	1
Fishing from shore	59	35.1%	2
Fishing in tournament	13	7.7%	3
Total	168	100.0%	

Table 120 below, compares the fishing participation in Zone C with the total fishing participation in all zones combined. This zone received a lot more use than Zones A and B. The three types of fishing received a remarkably consistent level of participation: 17.3%, 17.7% and 18.8%.

**TABLE - 120
PARTICIPATION IN FISHING ACTIVITIES IN ZONE C VS. ALL ZONES**

Activity	Number of responses -all zones	Number of responses - Zone C	% of responses- Zone C
Fishing from boat	541	96	17.7%
Fishing from shore	341	59	17.3%
Fishing in tournament	69	13	18.8%
Total	951	168	N/A

Zone D. This is the west Delta, which includes the lower Sacramento and San Joaquin Rivers. There are four private and 12 public fishing access points.

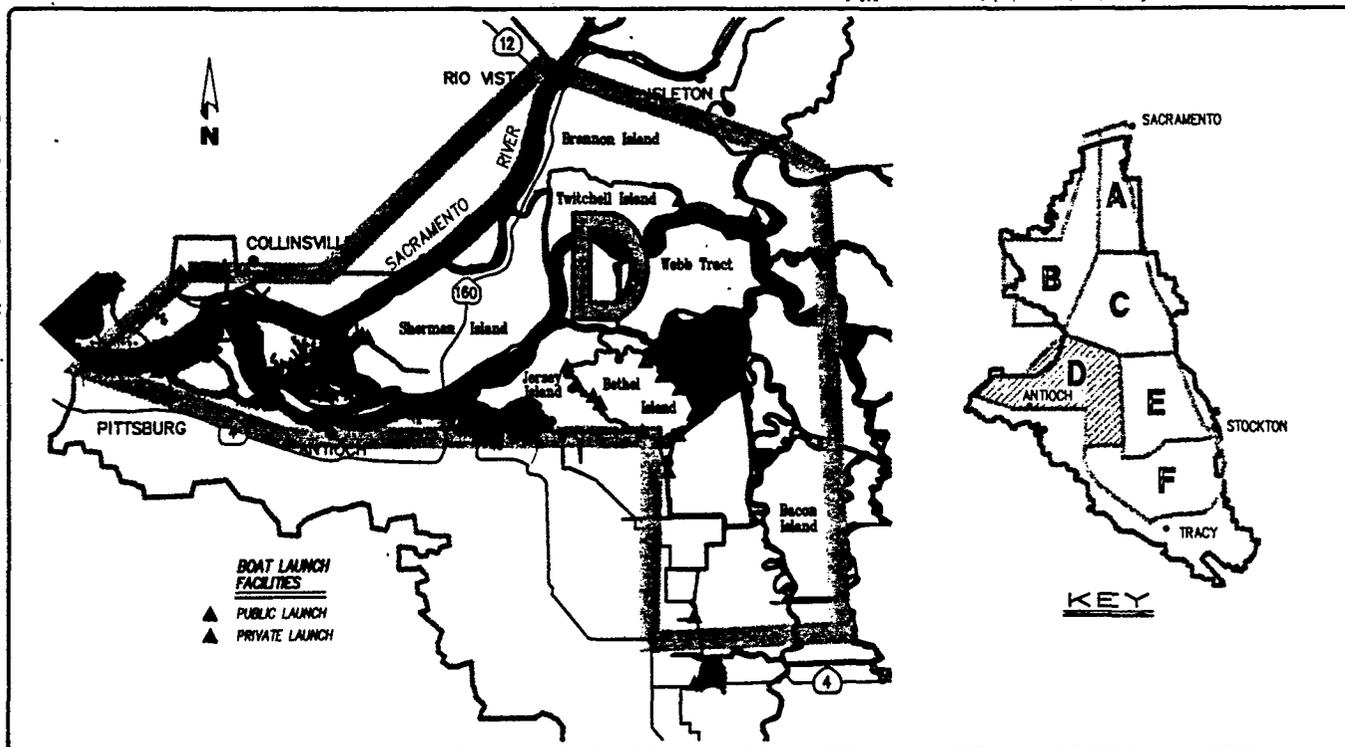


Table 121 below, depicts the level of use which occurred *within* Zone D, by type of fishing activity. Fishing from a boat was the dominant activity in this zone, receiving almost two-thirds of all responses.

**TABLE - 121
PARTICIPATION IN FISHING ACTIVITIES IN ZONE D**

Activity	Number of responses - Zone D	Percent of responses - Zone D	Rank
Fishing from boat	218	62.6%	1
Fishing from shore	99	28.4%	2
Fishing in tournament	31	8.9%	3
Total	348	99.9%	N/A

Table 122 below, compares the fishing participation in Zone D with the total fishing participation in all zones combined. This zone was, by far, the most popular for fishing from a boat, garnering 40.3% of all use in the Delta. It was even more popular as a site for fishing in a tournament (44.9%).

**TABLE - 122
PARTICIPATION IN FISHING ACTIVITIES IN ZONE D VS. ALL ZONES**

Activity	Number of responses -all zones	Number of responses - zone D	% of responses-- Zone D
Fishing from boat	541	218	40.3%
Fishing from shore	341	99	20.0%
Fishing in tournament	69	31	44.9%
Total	951	348	N/A

Zone E. This zone is the east Delta. It is bordered on the north by State Route 12, on the east by Interstate 5, and on the south by State Route 4. It includes portions of the City of Stockton.

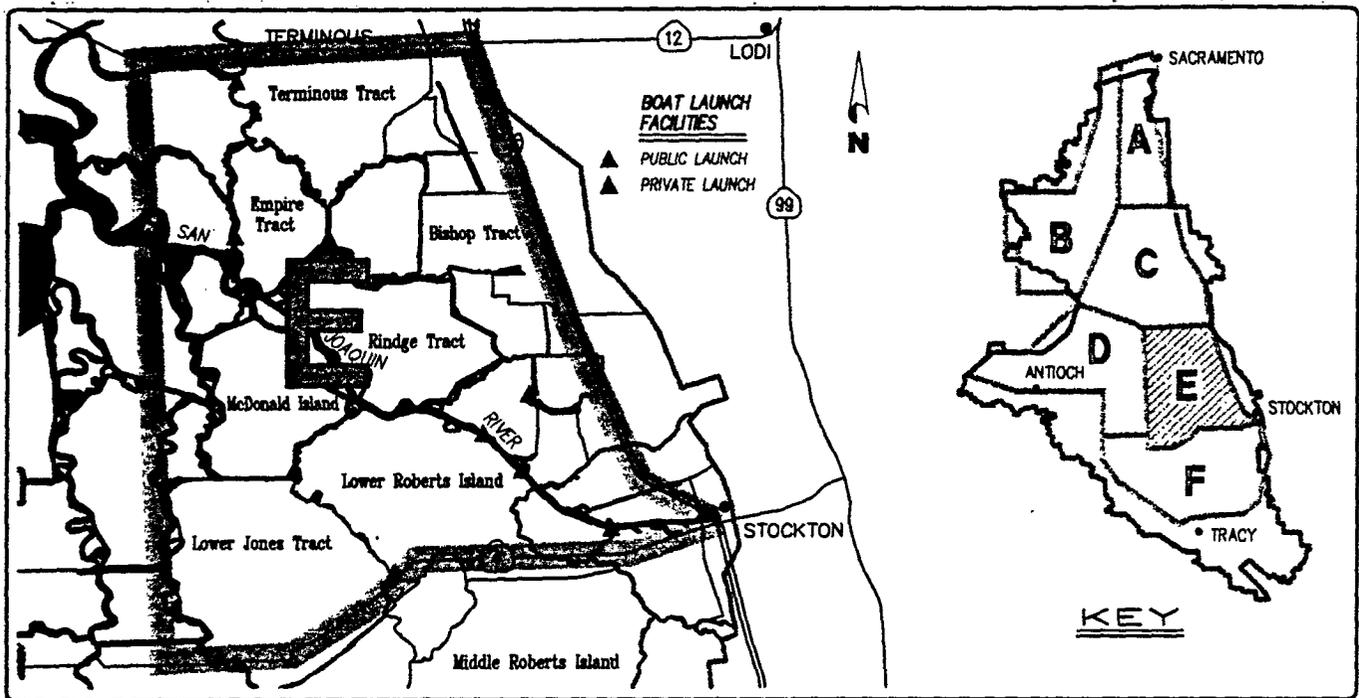


Table 123 below, depicts the level of use which occurred *within* Zone E, by type of fishing activity. As indicated, fishing from a boat, fishing from shore, and fishing in a tournament, ranked their usual one, two and three, respectively.

**TABLE - 123
PARTICIPATION IN FISHING ACTIVITIES IN ZONE E**

Activity	Number of responses - Zone E	Percent of responses - Zone E	Rank
Fishing from boat	105	56.5%	1
Fishing from shore	68	36.6%	2
Fishing in tournament	13	7.0%	3
Total	186	100.1%	N/A

Table 124 below, compares the fishing participation in Zone E with the total fishing participation in all zones combined. In this zone, as in Zone C, the three types of fishing received a remarkably consistent level of participation: 19.4%, 19.9% and 20.0%.

**TABLE - 124
PARTICIPATION IN FISHING ACTIVITIES IN ZONE E VS. ALL ZONES**

Activity	Number of responses -all zones	Number of responses - Zone E	% of responses - Zone E
Fishing from boat	541	105	19.4%
Fishing from shore	341	68	20.0%
Fishing in tournament	69	13	19.9%
Total	951	186	N/A

Zone F. This zone is the south Delta. State Route 4 forms its northern boundary, Interstate 5 its eastern border, Interstate 205 is its southern boundary. Discovery Bay and Clifton Court Forebay are located in this zone.

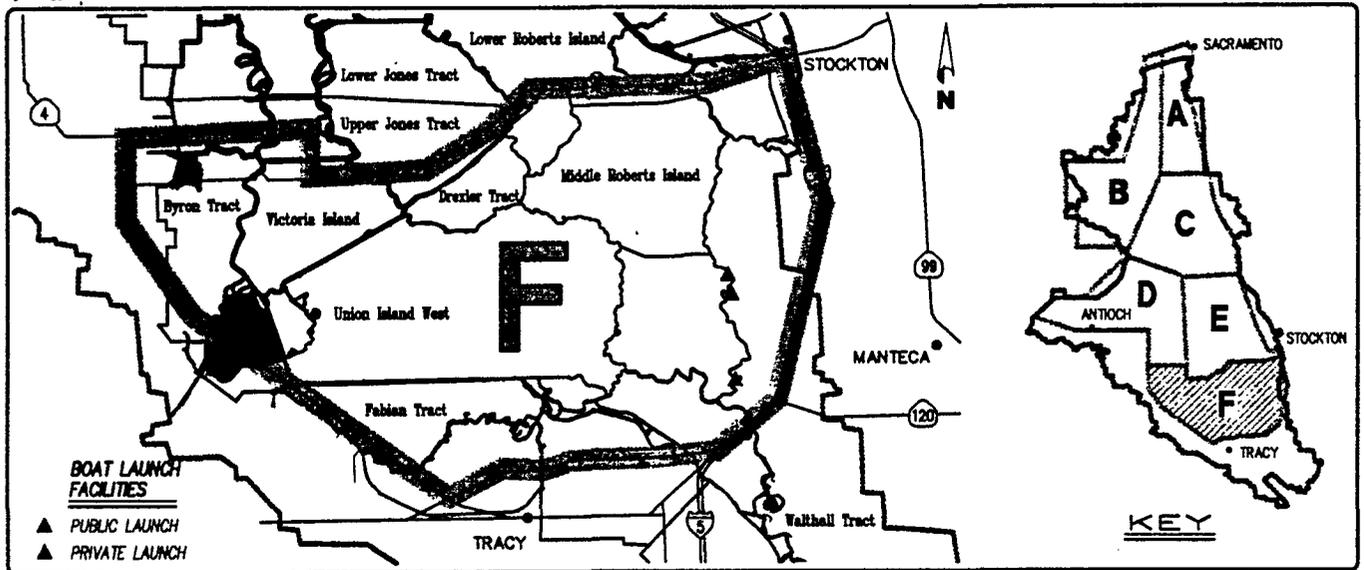


Table 125 below, depicts the level of use which occurred *within* Zone F, by type of fishing activity. Fishing from shore, not fishing from a boat, was the most common activity in Zone F. While the majority of anglers fished from shore (51.6%), almost as many fished from a boat (44%).

**TABLE - 125
PARTICIPATION IN FISHING ACTIVITIES IN ZONE F**

Activity	Number of responses - Zone F	Percent of responses - Zone F	Rank
Fishing from boat	41	44.0%	2
Fishing from shore	48	51.6%	1
Fishing in tournament	4	4.3%	3
Total	93	99.9%	N/A

Table 126 below, compares the fishing participation in Zone F with the total fishing participation in all zones combined. Zone F was not a popular location for any type of fishing. About 14% of those who fished from a boat in the Delta, did so in this zone. A small percentage fished from shore or in a tournament here.

**TABLE - 126
PARTICIPATION IN FISHING ACTIVITIES IN ZONE F VS. ALL ZONES**

Activity	Number of responses - all zones	Number of responses - Zone F	% of responses - Zone F
Fishing from boat	541	41	7.6%
Fishing from shore	341	48	14.1%
Fishing in tournament	69	4	5.8%
Total	951	93	N/A

D. LOCATIONS WHERE EACH TYPE OF FISHING ACTIVITY OCCURRED

Provided below is an analysis of where fishing activities occurred, by type of activity.

Fishing from a boat. This activity occurred most often in Zone D (40.3%). As Table 127 below indicates, the second most popular zone was E (19.4%), followed closely by Zone C (17.7%).

TABLE - 127
ZONES WHERE RESPONDENTS FISHED FROM A BOAT

	A	B	C	D	E	F	Total
No. of responses	54	27	96	218	105	41	541
% responses	10.0%	5.0%	17.7%	40.3%	19.4%	7.6%	100.0%
Rank	4	6	3	1	2	5	N/A

Fishing from shore. This activity was dispersed fairly evenly throughout the Delta. Zone D was still the most popular with (29%). Zones E and C were second and third, with 19.9% and 17.3%, respectively. Even Zones A and F were not far behind, attracting 13.8% and 14.1% of the anglers, respectively.

TABLE - 128
ZONES WHERE RESPONDENTS FISHED FROM SHORE

	A	B	C	D	E	F	Total
No. of responses	47	20	59	99	68	48	341
% responses	13.8%	5.9%	17.3%	29.0%	19.9%	14.1%	100.0%
Rank	5	6	3	1	2	4	N/A

Fishing in a tournament. Almost 45% of all tournament fishing occurred in Zone D. Most of the remainder was equally split between Zones C and E. There was little reported tournament fishing in Zones A, B, and F. However, the number of respondents was very low, so the results should be viewed with caution.

TABLE - 129
ZONES WHERE RESPONDENTS FISHED IN A TOURNAMENT

	A	B	C	D	E	F	Total
No. of responses	5	3	13	31	13	4	69
% responses	7.2%	4.3%	18.8%	44.9%	18.8%	5.8%	99.8%
Rank	3	5	2(tie)	1	2(tie)	4	N/A

E. ADEQUACY OF FISHING FACILITIES

Respondents were asked if there were enough facilities in the Delta to meet their non-fishing recreation needs. Their responses are presented in Tables 130, 131, and 132. Table 130 shows the number of responses received. Table 131 presents the same data but in terms of percentage of responses. Table 132 ranks the responses for each adequacy category. Respondents were asked to answer questions with a "N/A" response if they were not sure about the availability of a particular type of facility. These numbers appear in the next to last column in Table 130. In reference to the adequacy of fishing piers, for example, 116 respondents, or 28% of all respondents answered this question with a N/A.

In general, the respondents indicated that most types of facilities were adequate or more than adequate. These included: bait and tackle shops, shore line access points, public parking, boat launch ramps, and fuel docks.

However, respondents reported that fishing piers, fish cleaning stations, and public restrooms were in short supply. Respondents rated all these facilities about equally inadequate. As Table 131 below indicates, 55% of the respondents viewed public restrooms somewhat or very inadequate, 57% viewed fishing piers as somewhat or very inadequate, and 61% viewed fish cleaning stations the same.

TABLE - 130
ADEQUACY OF FISHING FACILITIES - NO. OF RESPONDENTS

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	N/A	Total
Bait & tackle shops	0	50	285	68	6	409	15	424
Fishing piers	0	12	117	115	56	300	116	416
Fish cleaning station	0	10	119	127	76	332	88	420
Other shore access points	1	31	150	103	53	338	74	412
Public parking	1	40	199	105	36	381	38	419
Boat launch ramps	2	29	229	86	34	380	46	426
Fuel docks	0	26	190	93	25	334	84	418
Public restrooms	0	26	145	153	56	380	42	422
Totals	4	224	1434	850	342	N/A	N/A	N/A

TABLE - 131
ADEQUACY OF FISHING FACILITIES - PERCENT OF RESPONDENTS

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Total
Bait & tackle shops	0%	12.2%	69.7%	16.6%	1.5%	100.0%
Fishing piers	0%	4.0%	39.0%	38.3%	18.7%	100.0%
Fish cleaning station	0%	3.0%	35.8%	38.3%	22.9%	100.0%
Other shore access points	0.3%	9.2%	44.4%	30.5%	15.7%	100.0%
Public parking	0.3%	10.5%	52.2%	27.6%	9.4%	100.0%
Boat launch ramps	0.5%	7.6%	60.3%	22.6%	8.9%	99.9%
Fuel docks	0%	7.8%	56.9%	27.8%	7.5%	100.0%
Public restrooms	0%	6.8%	38.2%	40.3%	14.7%	100.0%

TABLE - 132
ADEQUACY OF FISHING FACILITIES - NUMBER OF RESPONDENTS IN RANK ORDER

Type of facility	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate
Bait & tackle shops	5	3	1	2	4
Fishing piers	5	4	1	2	3
Fish cleaning station	5	4	2	1	3
Other shore access points	5	4	1	2	3
Public parking	5	3	1	2	4
Boat launch ramps	5	4	1	2	3
Fuel docks	5	3	1	2	4
Public restrooms	5	4	2	1	3

OTHER RECREATION (NON-FISHING)

A. TYPE OF ACTIVITIES, GROUP SIZE, AND PARTICIPATION DAYS

Respondents were asked to identify the non-fishing recreation activities they engaged in while in the Delta. Sightseeing was the most common activity with 52% of the respondents indicating that they participated (see Table 133 below). Boating and viewing wildlife tied for second, each with 49%, while board sailing ranked last.

Walking for pleasure ranked the highest in terms of average annual recreation days, averaging almost 12.2 days annually. Viewing wildlife ranked second, while swimming ranked third. Attending special events had the fewest average days of participation.

Tent camping and picnicking had the highest number of participants per group with an average of 5.2 people. Boating, with an average of 4.9, ranked second.

TABLE - 133
OTHER RECREATION ACTIVITIES RESPONDENTS PARTICIPATED IN

Activity	No. of respondents participating	% of respondents participating	Rank	Average no. of annual activity days	Rank	Average group size	Rank
Swimming	203	40%	3	10.1	3	4.8	3
Tent camping	106	21%	8	6.3	12	5.2	1(tie)
RV camping	113	23%	7(tie)	9.19	4	4.5	4
Boating	251	49%	2(tie)	9.17	5	4.9	2
Hunting on land	69	14%	10	7.0	9	2.9	8(tie)
Viewing wildlife	246	49%	2(tie)	10.3	2	3.4	6(tie)
Photography of nature	122	25%	6(tie)	6.8	11	2.9	8(tie)
Sightseeing	259	52%	1	8.8	6	2.7	10
Bicycling	72	15%	9	7.7	8	2.9	9(tie)
Attending special events	122	25%	6(tie)	3.0	14	4.2	5
Visiting cultural or historical sites	113	23%	7(tie)	3.1	13	3.4	6(tie)
Walking for pleasure	194	39%	4	12.2	1	3.2	7
Picnicking	184	37%	5	7.9	7	5.2	1(tie)
Board sailing	16	3%	11	6.9	10	2.8	9(tie)
Total	2070	N/A	N/A	N/A	N/A	N/A	N/A

In terms of annual activity days¹, boating, with 7.1 million activity days, ranked the highest, as Table 134 below indicates. This activity represented 14.7% of the total number of activity days for all activities by anglers. The number of annual activity days was calculated by multiplying the number of licensed anglers who used the Delta², by the percentage of survey respondents who participated in a specific activity, by the average group size for each activity, by the average number of days of participation for each activity. Swimming and viewing wildlife came in second and third, respectively.

TABLE - 134
ANNUAL PARTICIPATION DAYS -OTHER RECREATION ACTIVITIES

Type of activity	No. of licensed Anglers using Delta	X % of respondents participating in this activity	X Average no. people per group	X Average no. days respondents participated in this activity	= Annual participation days (in millions)	Percent of total participation days	Rank
Swimming	322,000	40%	4.8	10.1	6.2	12.9%	2
Tent camping	322,000	21%	5.2	6.3	2.3	4.8%	8
RV camping	322,000	23%	4.5	9.2	3.0	6.2%	7
Boating	322,000	49%	4.9	9.2	7.1	14.7%	1
Hunting on land	322,000	14%	2.9	7.0	0.9	1.9%	11
Viewing wildlife	322,000	49%	3.4	10.3	5.5	11.4%	3
Photography of nature	322,000	25%	2.9	6.8	1.6	3.3%	9
Sightseeing	322,000	52%	2.7	8.8	3.9	8.1%	6
Bicycling	322,000	15%	2.9	7.7	1.0	2.1%	10(tie)
Attending special events	322,000	25%	4.2	3.0	1.0	2.1%	10(tie)
Visiting cultural or historical sites	322,000	23%	3.4	3.1	0.8	1.7%	12
Walking	322,000	39%	3.2	12.2	4.8	10.0%	5
Picnicking	322,000	37%	5.2	7.9	4.9	10.2%	4
Board sailing	322,000	3%	2.8	6.9	0.2	0.4%	13

1. A participation day is defined as one person participating in one recreation activity for a day or a portion of a day.

2. This number was estimated by multiplying the number of licensed anglers in California in 1994 (840,000) by the percent of survey respondents who indicated that they recreated in the Delta (23.5%).

B. LOCATIONS WHERE OTHER ACTIVITIES (NON-FISHING) OCCURRED, BY ZONE

Anglers were asked to identify the zone or zones where they participated in each type of non-fishing activity. Their responses appear in Table 135 below, which shows the number of respondents, followed by Table 136 which shows the percentage of responses. Zone D was the most popular zone for every type of non-fishing activity. Zone C was the second most popular, followed by Zones E, A, F, and B. An analysis of recreation use by zone follows, beginning on page 97 .

TABLE - 135
NUMBER OF RESPONDENTS - PARTICIPATION IN OTHER ACTIVITIES, BY ZONE.

Activity	A	B	C	D	E	F	Total
Swimming	25	6	49	84	51	40	255
Tent Camping	9	5	19	42	25	18	118
RV Camping	10	4	17	55	22	16	124
Boating	39	18	73	113	74	37	354
Hunting on land	6	13	10	34	6	3	72
Viewing wildlife	43	21	70	112	59	28	333
Photography of nature	19	11	34	51	30	16	161
Sightseeing	53	23	83	117	77	39	392
Bicycling	14	6	9	27	10	11	77
Attending special events	12	3	50	40	19	6	130
Visiting cultural or historical sites	23	9	41	39	22	11	145
Walking	28	6	33	75	37	27	206
Picnicking	28	7	46	78	38	27	224
Board sailing	1	0	2	9	4	1	17
Other	3	1	8	15	7	5	39
Total no. of respondents	313	133	544	891	481	285	2647
% of total	11.8%	5.0%	20.6%	33.7%	18.2%	10.8%	100.1%
Rank	4	6	2	1	3	5	N/A

TABLE - 136
PERCENT OF RESPONSES - PARTICIPATION IN OTHER ACTIVITIES, BY ZONE

Activity	A	B	C	D	E	F	Total
Swimming	8.0%	4.5%	9.0%	9.4%	10.6%	14.0%	N/A
Tent camping	2.9%	3.8%	3.5%	4.7%	5.2%	6.3%	N/A
RV camping	3.2%	3.0%	3.1%	6.2%	4.6%	5.6%	N/A
Boating	12.5%	13.5%	13.4%	12.7%	15.4%	13.0%	N/A
Hunting on land	1.9%	9.8%	1.8%	3.8%	1.2%	1.1%	N/A
Viewing wildlife	13.7%	15.8%	12.9%	12.6%	12.3%	9.8%	N/A
Photography of nature	6.1%	8.3%	6.3%	5.7%	6.2%	5.6%	N/A
Sightseeing	16.9%	17.3%	15.3%	13.1%	16.0%	13.7%	N/A
Bicycling	4.5%	4.5%	1.7%	3.0%	2.1%	3.9%	N/A
Attending special events	3.8%	2.3%	9.2%	4.5%	4.0%	2.1%	N/A
Visiting cultural or historical sites	7.3%	6.8%	7.5%	4.4%	4.6%	3.9%	N/A
Walking	8.9%	4.5%	6.1%	8.4%	7.7%	9.5%	N/A
Picnicking	8.9%	5.3%	8.5%	8.8%	7.9%	9.5%	N/A
Board sailing	0.3%	0%	0.4%	1.0%	0.8%	0.4%	N/A
Other	1.0%	0%	1.5%	1.7%	0.1%	0.2%	N/A
Total no. of respondents	313	133	544	891	474	280	2635
% of total	99.9%	99.4%	100.2%	100.0%	98.7%	98.6%	N/A
Rank	4	6	2	1	2	5	N/A

Provided below is an analysis of the level of recreation use in each zone.

Zone A. This zone is the Sacramento River corridor, from the City of Sacramento south to the town of Courtland. The inventory of recreation facilities in the Delta developed by the Delta Protection Commission indicated that Zone A includes one private campground, two private picnic areas, two private and one public fishing access sites, one private historic site, and two hiking trails/paths.

Survey respondents were asked to identify the zone, or zones, where they participated in non-fishing activities. As indicated in Table 136 below, the three most common non-fishing activities in this zone were sightseeing (16.9%) and viewing wildlife (13.7%), and boating (12.5%).

TABLE - 137
PARTICIPATION IN OTHER ACTIVITIES IN ZONE A

Activity	Number of responses - Zone A	Percent of responses - Zone A	Rank
Swimming	25	8.0%	5
Tent camping	9	2.9%	11
RV camping	10	3.2%	10
Boating	39	12.5%	3
Hunting on land	6	1.9%	12
Viewing wildlife	43	13.7%	2
Photography	19	6.1%	7
Sightseeing	53	16.9%	1
Bicycling	14	4.5%	8
Attending special events	12	3.8%	9
Visiting cultural or historical sites	23	7.3%	6
Walking	28	8.9%	4(tie)
Picnicking	28	8.9%	4(tie)
Board sailing	1	0.3%	13
Total	313	99.0%	N/A

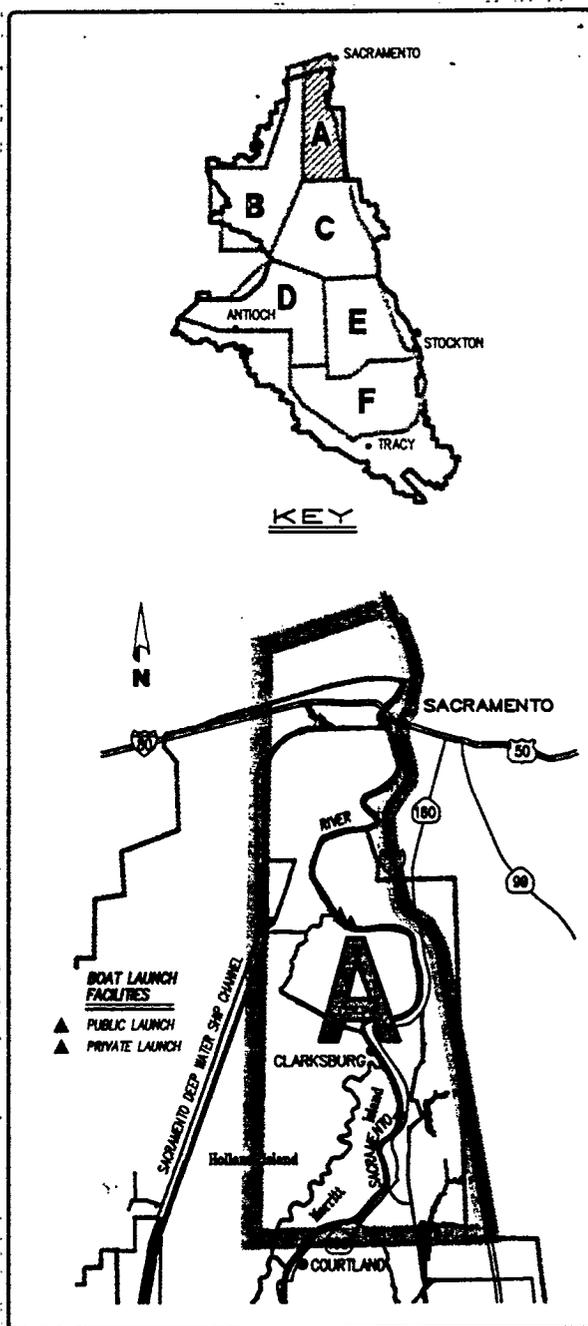


Table 138 below, compares the participation in non-fishing activities in Zone A with the total non-fishing participation in all zones combined. In general, this zone did not receive a lot of use, only about 6-20% of most activities. The activities with the highest level of participation were sightseeing (20.5%), visiting cultural or historical sites (20.4%), and bicycling (19.4%).

TABLE - 138
PARTICIPATION IN OTHER ACTIVITIES IN ZONE A VS. ALL ZONES

Activity	Number of respondents - all zones	Number of respondents - Zone A	Percent of respondents - Zone A
Swimming	203	25	12.3%
Tent camping	106	9	8.5%
RV camping	113	10	8.8%
Boating	251	39	15.5%
Hunting on land	69	6	8.7%
Viewing wildlife	246	43	17.5%
Photography	122	19	7.3%
Sightseeing	259	53	20.5%
Bicycling	72	14	19.4%
Attending special events	122	12	9.8%
Visiting cultural or historical sites	113	23	20.4%
Walking	194	28	14.4%
Picnicking	184	28	15.2%
Board sailing	16	1	6.3%
Total	2070	310	N/A

Zone B. This zone includes the Yolo Bypass, Cache Slough, and the Sacramento River Deep Water Ship Channel. Opportunities for recreation are very limited in this zone. There is only one picnic area and no designated historic sites, trails, or wind surfing areas.

As Table 139 indicates, Zone B received the most use for sightseeing (17.3%), and viewing wildlife (15.8%), and boating (13.5%). Hunting on land represented almost 10% of all activity in this zone.

TABLE - 139
PARTICIPATION IN OTHER ACTIVITIES IN ZONE B

Activity	Number of responses - Zone B	Percent of responses - Zone B	Rank
Swimming	6	4.5%	8(tie)
Tent camping	5	3.8%	9
RV camping	4	3.0%	10
Boating	18	13.5%	3
Hunting on land	13	9.8%	4
Viewing wildlife	21	15.8%	2
Photography	11	8.3%	5
Sightseeing	23	17.3%	1
Bicycling	6	4.5%	8(tie)
Attending special events	3	2.3%	11
Visiting cultural or historical sites	9	6.8%	6
Walking	6	4.5%	8(tie)
Picnicking	7	5.3%	7
Board sailing	0	0%	12
Total	132	99.0%	N/A

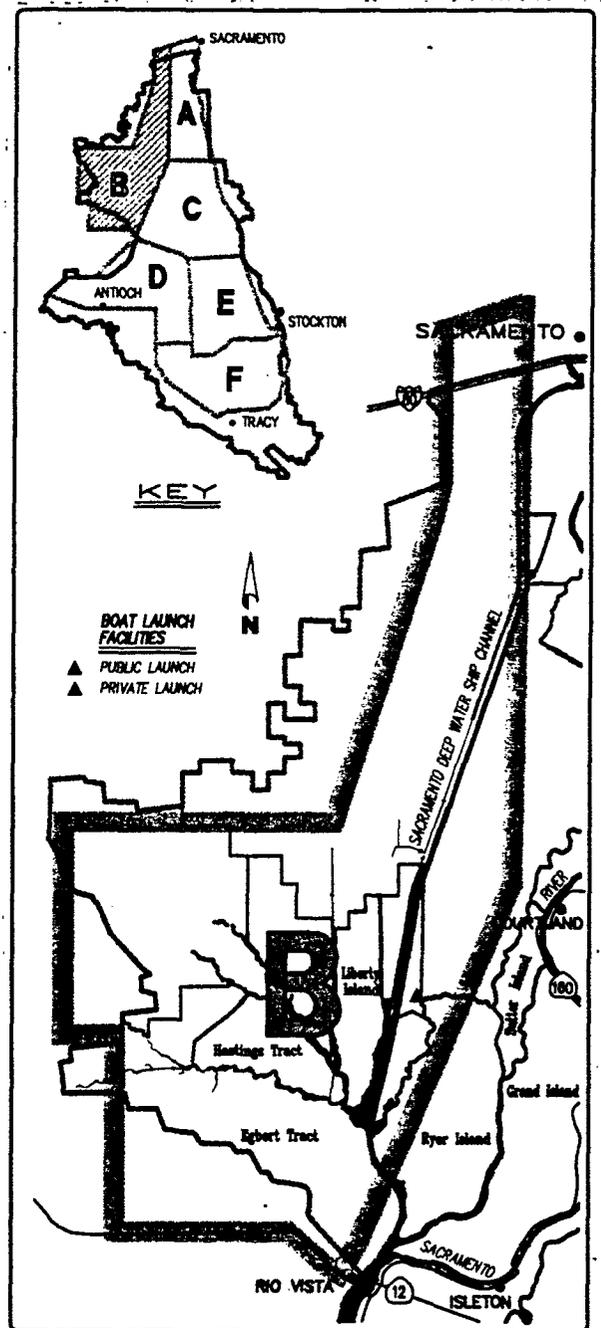
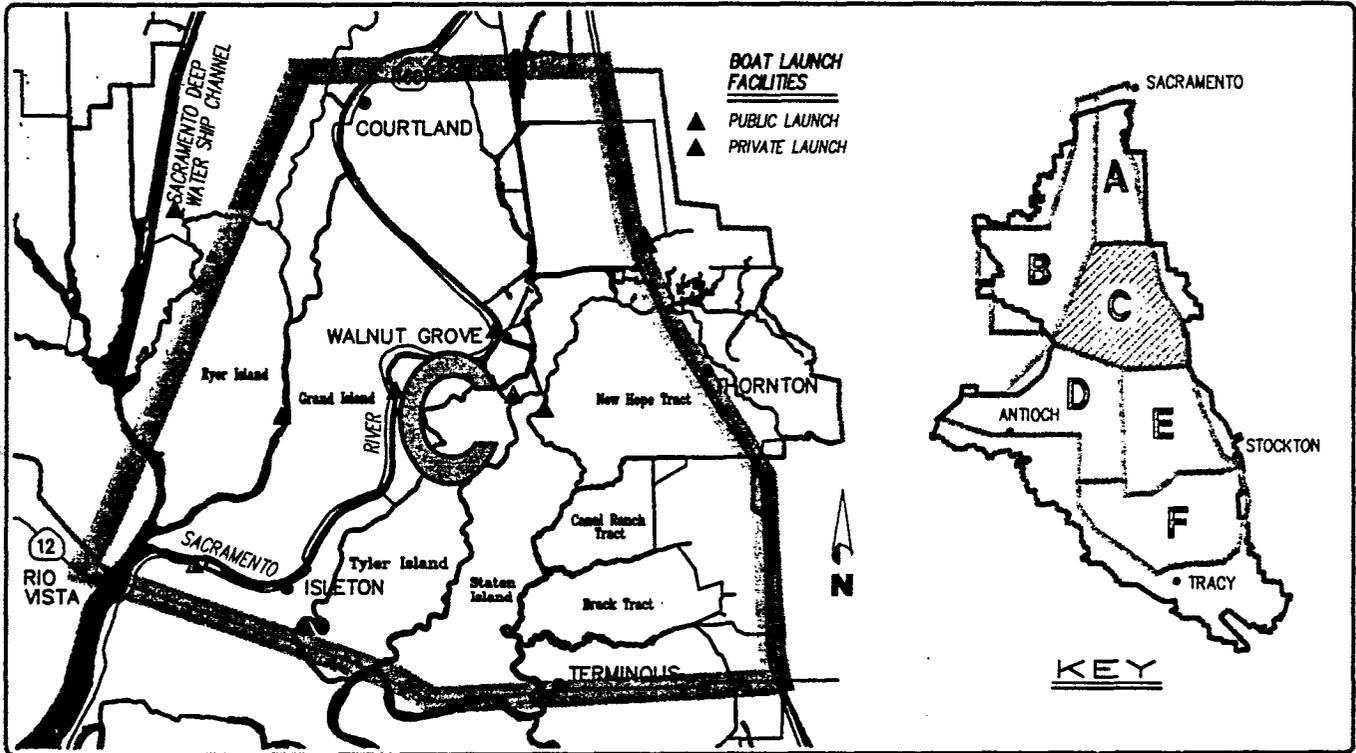


Table 140 below, compares the participation in non-fishing activities in Zone B with the total non-fishing participation in all zones combined. In general, this zone received very little use, 9% or less, for all activities except hunting on land. About 19% of all hunting on land occurred in this zone.

**TABLE - 140
PARTICIPATION IN OTHER ACTIVITIES IN ZONE B VS. ALL ZONES**

Activity	Number of respondents - all zones	Number of respondents - Zone B	Percent of respondents - Zone B
Swimming	203	6	3.0%
Tent camping	106	5	4.7%
RV camping	113	4	3.5%
Boating	251	18	7.2%
Hunting on land	69	13	18.8%
Viewing wildlife	246	21	8.5%
Photography	122	11	9.0%
Sightseeing	259	23	8.9%
Bicycling	72	6	8.3%
Attending special events	122	3	2.5%
Visiting cultural or historical sites	113	9	8.0%
Walking	194	6	3.1%
Picnicking	184	7	3.8%
Board sailing	16	0	0%
Totals	2,070	132	N/A

Zone C. This is the north Delta. It includes the Sacramento River from Courtland south to State Route 12 and all stretches of the Mokelumne and Cosumnes Rivers which lie within the Delta. The City of Isleton and Snodgrass Slough are here. It includes 12 public and private campgrounds, five private and three public fishing access sites, four public historic sites, two hiking trails/paths, and one private windsurfing area.



In general, participation in non-fishing recreation in Zone C was evenly distributed over many activities. As Table 141 indicates, although sightseeing, boating, and viewing wildlife were again the three most common activities, no single activity dominated.

**TABLE - 141
PARTICIPATION IN OTHER ACTIVITIES IN ZONE C**

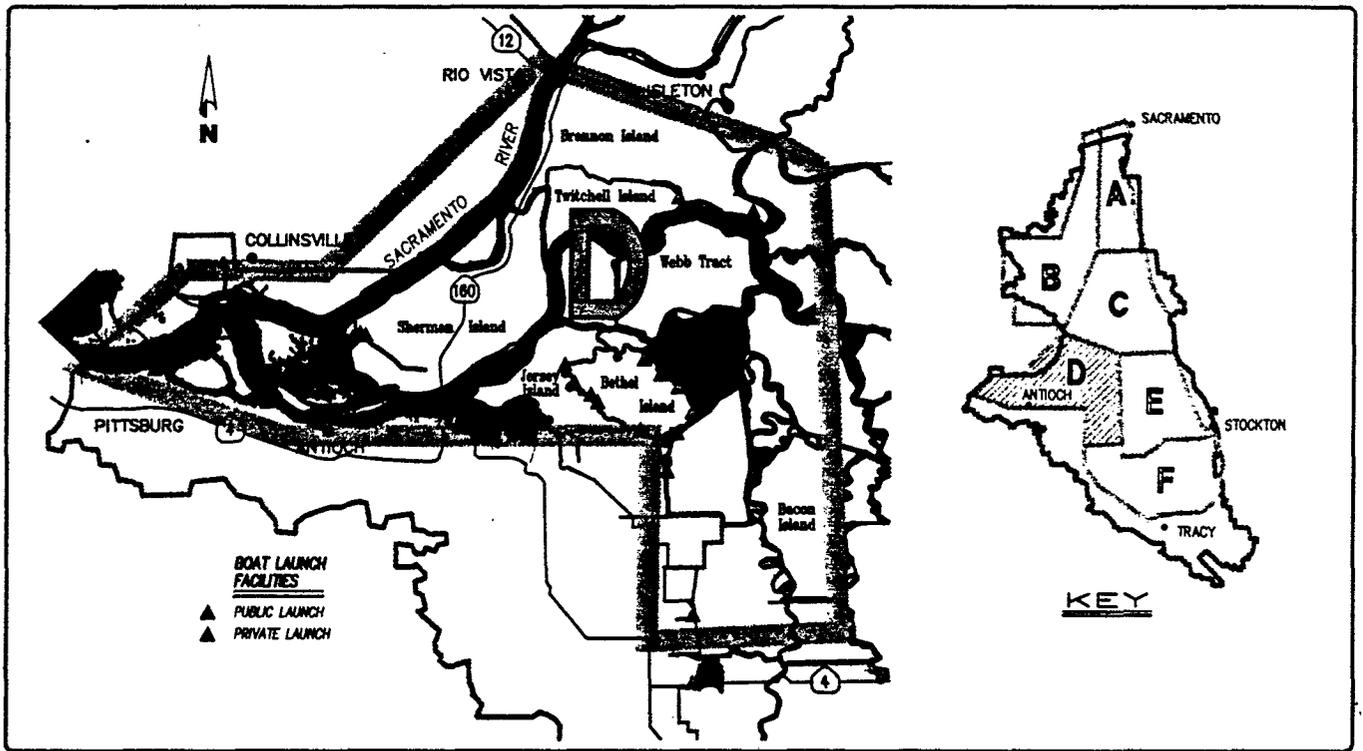
Activity	Number of responses - Zone C	Percent of responses - Zone C	Rank
Swimming	49	9.0%	5
Tent camping	19	3.5%	10
RV camping	17	3.1%	11
Boating	73	13.4%	2
Hunting on land	10	1.8%	12
Viewing wildlife	70	12.9%	3
Photography	34	6.3%	8
Sightseeing	83	15.3%	1
Bicycling	9	1.7%	13
Attending special events	50	9.2%	4
Visiting cultural or historical sites	41	7.5%	7
Walking	33	6.1%	9
Picnicking	46	8.5%	6
Board sailing	2	0.4%	14
Total	536	98.7%	N/A

Table 142 below, compares the participation in non-fishing activities in Zone C with the total non-fishing participation in all zones combined. In general, this zone received a moderate amount of use for most activities. About one-third of all sightseeing and visiting cultural or historical sites occurred in this zone.

TABLE - 142
PARTICIPATION IN OTHER ACTIVITIES IN ZONE C VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses - Zone C	Percent of responses - Zone C
Swimming	203	49	24.1%
Tent camping	106	19	17.9%
RV camping	113	17	15.0%
Boating	251	73	29.1%
Hunting on land	69	10	14.5%
Viewing wildlife	246	70	28.5%
Photography	122	34	27.9%
Sightseeing	259	83	32.0%
Bicycling	72	9	12.5%
Attending special events	122	50	41.0%
Visiting cultural or historical sites	113	41	36.3%
Walking	194	33	17.0%
Picnicking	184	46	25.0%
Board sailing	16	2	12.5%
Total	2070	536	N/A

Zone D. This is the west Delta, which includes the lower Sacramento and San Joaquin Rivers. Brannan Island State Recreation Area, with its large picnicking and camping facilities, is located here. One other public campground and 18 private campgrounds are also in this zone. There are four hiking trails/paths, and eight windsurfing areas in this zone.



In Zone D, sightseeing, boating, and viewing wildlife, were again the top three activities, as Table 143 indicates. The percentage of participation in the remaining activities was fairly evenly distributed, ranging from 1 to 9.4%.

**TABLE - 143
PARTICIPATION IN OTHER ACTIVITIES IN ZONE D**

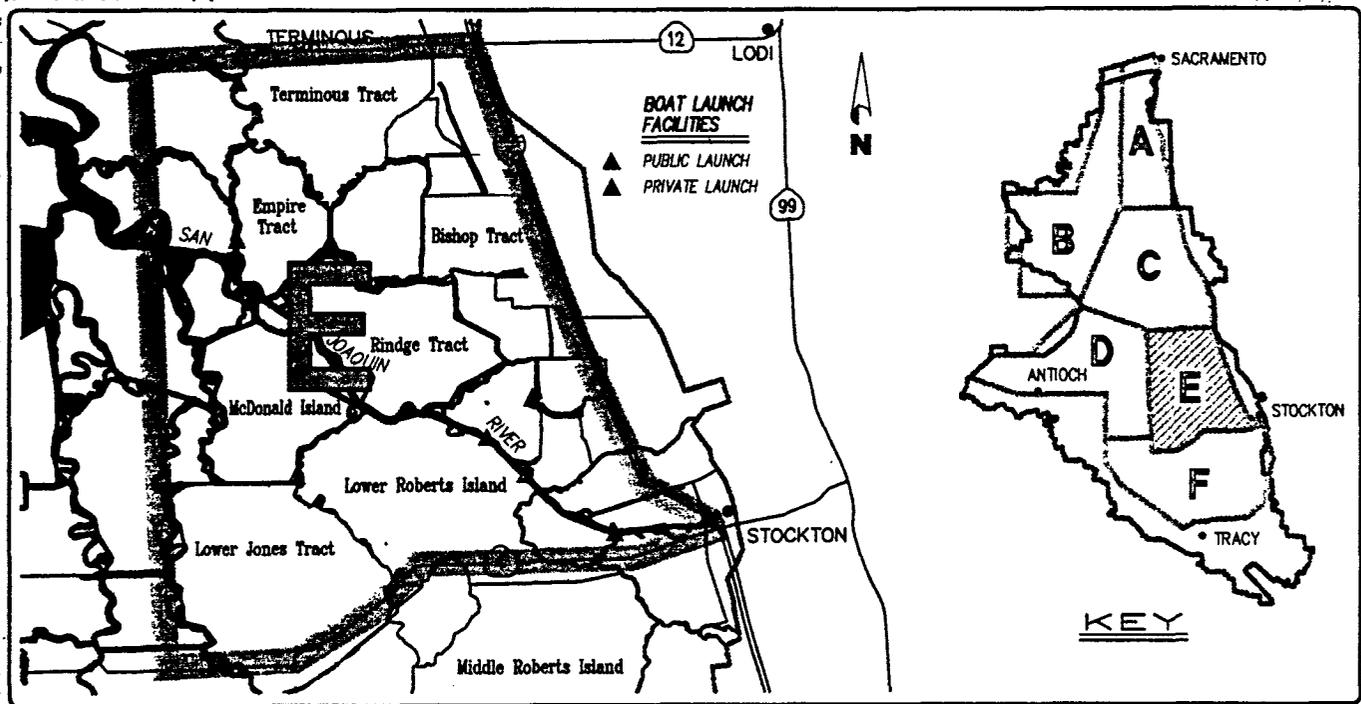
Activity	Number of responses - Zone D	Percent of responses - Zone D	Rank
Swimming	84	9.4%	4
Tent camping	42	4.7%	9
RV camping	55	6.2%	7
Boating	113	12.7%	2
Hunting on land	34	3.8%	12
Viewing wildlife	112	12.6%	3
Photography	51	5.7%	8
Sightseeing	117	13.1%	1
Bicycling	27	3.0%	13
Attending special events	40	4.5%	10
Visiting cultural or historical sites	39	4.4%	9
Walking	75	8.4%	6
Picnicking	78	8.8%	5
Board sailing	9	1.0%	14
Total	876	98.3%	N/A

Table 144 below, compares the participation in non-fishing activities in Zone D with the total non-fishing participation in all zones combined. In general, this zone received a high level of use for most activities. About one-half of all RV camping and hunting on land occurred in this zone. The percentages of participation in boating, viewing wildlife, photography, and sightseeing were almost as high.

TABLE - 144
PARTICIPATION IN OTHER ACTIVITIES IN ZONE D VS. ALL ZONES

Activity	Number of responses - all zones	Number of responses - Zone D	Percent of responses - Zone D
Swimming	203	84	41.4%
Tent camping	106	42	39.6%
RV camping	113	55	48.6%
Boating	251	113	45.0%
Hunting on land	69	34	49.3%
Viewing wildlife	246	112	45.5%
Photography	122	51	41.8%
Sightseeing	259	117	45.2%
Bicycling	72	27	37.5%
Attending special events	122	40	32.8%
Visiting cultural or historical sites	113	39	34.5%
Walking	194	75	38.7%
Picnicking	184	78	42.4%
Board sailing	16	9	56.3%
Total	2,070	876	N/A

Zone E. This zone is the east Delta. It is bordered on the north by State Route 12, on the east by Interstate 5 and on the south by State Route 4. It includes portions of the City of Stockton.



As Table 145 below indicates, sightseeing, boating, and viewing wildlife are again the activities which dominate the recreation use in this zone. These three activities totaled 43.7% of all recreation participation in this zone. None of the other activities received more than 11% of the responses.

TABLE - 145
PARTICIPATION IN OTHER ACTIVITIES IN ZONE E

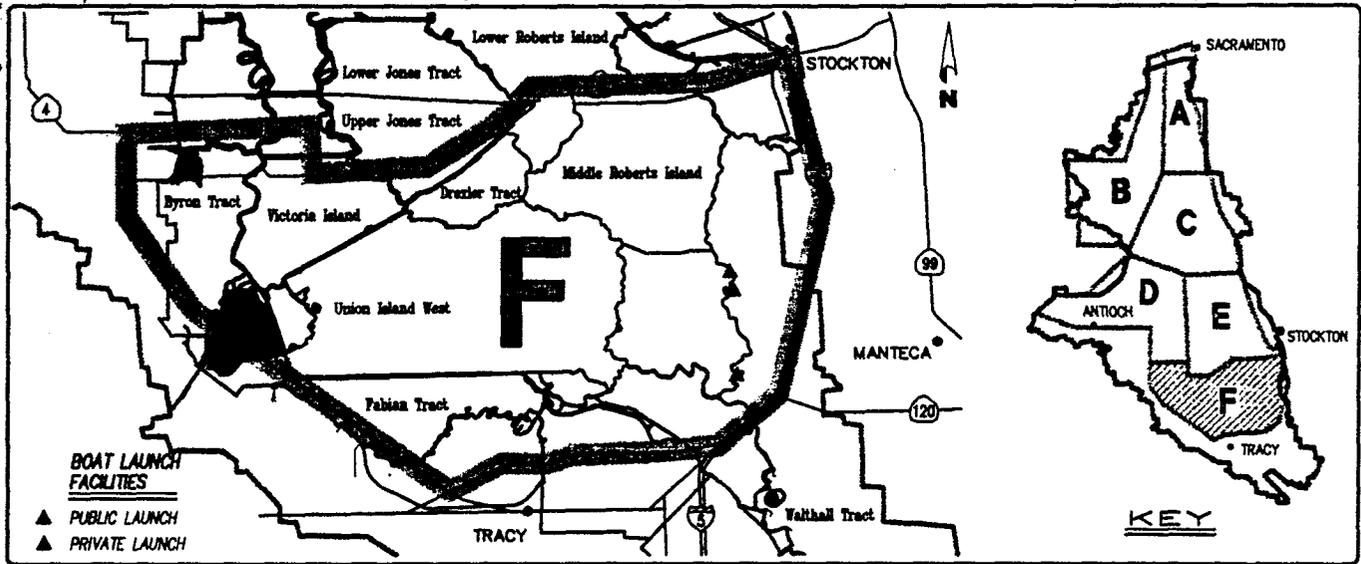
Activity	Number of responses - Zone E	Percent of responses - Zone E	Rank
Swimming	51	10.6%	4
Tent camping	25	5.2%	8
RV camping	22	4.6%	9(tie)
Boating	74	15.4%	2
Hunting on land	6	1.2%	12
Viewing wildlife	59	12.3%	3
Photography	30	6.2%	7
Sightseeing	77	16.0%	1
Bicycling	10	2.1%	11
Attending special events	19	4.0%	10
Visiting cultural or historical sites	22	4.6%	9(tie)
Walking	37	7.7%	6
Picnicking	38	7.9%	5
Board sailing	4	0.8%	13
Total	474	99.0%	N/A

Table 146 below, compares the participation in non-fishing activities in Zone E with the total non-fishing participation in all zones combined. In general, this zone received a moderate level of use for most activities. Between 24 -30% of swimming, boating, viewing wildlife, photography, sightseeing, picnicking, and board sailing occurred in this zone.

**TABLE - 146
PARTICIPATION IN OTHER ACTIVITIES IN ZONE E VS. ALL ZONES**

Activity	Number of respondents or responses - all zones	Number of respondents or responses - Zone E	Percent of respondents or responses - Zone E
Swimming	203	51	25.1%
Tent camping	106	25	23.6%
RV camping	113	22	19.5%
Boating	251	74	29.5%
Hunting on land	69	6	8.7%
Viewing wildlife	246	59	24.0%
Photography	122	30	24.6%
Sightseeing	259	77	29.7%
Bicycling	72	10	13.9%
Attending special events	122	19	15.6%
Visiting cultural or historical sites	113	22	19.5%
Walking	194	37	20.7%
Picnicking	184	38	25.0%
Board sailing	16	4	25.9%
Total	2,070	474	N/A

Zone F. This zone is the south Delta. State Route 4 forms its northern boundary, Interstate 5 its eastern border, and Interstate 205 its southern boundary. Discovery Bay and Clifton Court Forebay are located in this zone. Typical recreation facilities are limited to two campgrounds and one trail/path.



As Table 147 below indicates, swimming is the most common activity. Viewing wildlife has dropped from third place to a rather distant fourth place. All other activities garnered less than 10% of the total use. Because of the small number of responses for each activity in this zone, the results should be viewed with caution.

**TABLE - 147
ALL BOATING ACTIVITIES IN ZONE F**

Activity	Number of responses - Zone F	Percent of responses Zone F	Rank
Swimming	40	14.0%	1
Tent camping	18	6.3%	6
RV camping	16	5.6%	7(tie)
Boating	37	13.0%	3
Hunting on land	3	1.1%	10
Viewing wildlife	28	9.8%	4
Photography	16	5.6%	7(tie)
Sightseeing	39	13.7%	2
Bicycling	11	3.9%	8(tie)
Attending special events	6	2.1%	9
Visiting cultural or historical sites	11	3.9%	8(tie)
Walking	27	9.5%	5(tie)
Picnicking	27	9.5%	5(tie)
Board sailing	1	0.4%	11
Total	280	98.9%	N/A

Table 148 below, compares the participation in non-fishing activities in Zone F with the total non-fishing participation in all zones combined. In general, this zone received a low level of use for most activities. Less than 20% of all recreation activities occurred in this zone.

TABLE - 148
PARTICIPATION IN OTHER ACTIVITIES IN ZONE F VS. ALL ZONES

Activity	Number of respondents - all zones	Number of respondents - Zone F	Percent of respondents - Zone F
Swimming	203	40	19.7%
Tent camping	106	18	17.0%
RV camping	113	16	14.2%
Boating	251	37	14.7%
Hunting on land	69	3	4.3%
Viewing wildlife	246	28	11.4%
Photography	122	16	13.1%
Sightseeing	259	39	15.1%
Bicycling	72	11	15.3%
Attending special events	122	6	4.9%
Visiting cultural or historical sites	113	11	9.7%
Walking	194	27	13.9%
Picnicking	184	27	14.7%
Board sailing	16	1	6.3%
Total	2,070	280	N/A

C. LOCATIONS WHERE OTHER RECREATION (NON-FISHING) OCCURRED, BY TYPE OF ACTIVITY

As previously stated, anglers were asked to identify the zone or zones where they participated in each type of non-fishing activity. This analysis of their responses begins with Table 149 below and continues with a more detailed analysis provided on the following several pages. Zone D was the most popular zone for every type of non-fishing activity, as indicated by its number one ranking at the bottom of the Table. Zone C was the second most popular, followed by Zones E, A, F, and B. An analysis of where these activities occurred begins on the next page.

**TABLE - 149
NUMBER OF RESPONSES - PARTICIPATION IN OTHER RECREATION ACTIVITIES, BY ZONE**

Activity	A	B	C	D	E	F
Swimming	25	6	49	84	51	40
Tent camping	9	5	19	42	25	18
RV camping	10	4	17	55	22	16
Boating	39	18	73	113	74	37
Hunting on land	6	13	10	34	6	3
Viewing wildlife	43	21	70	112	59	28
Photography of nature	19	11	34	51	30	16
Sightseeing	53	23	83	117	77	39
Bicycling	14	6	9	27	10	11
Attending special events	12	3	50	40	19	6
Visiting cultural or historical sites	23	9	41	39	22	11
Walking	28	6	33	75	37	27
Picnicking	28	7	46	78	38	27
Board sailing	1	0	2	9	4	1
Total no. of responses	310	132	536	876	474	280
% of total	11.8%	5.0%	20.6%	33.7%	18.2%	10.8%
Rank	4	6	2	1	3	5

Swimming. Almost one-third of all respondents who participated in swimming, did so in Zone D. This was not surprising because the Delta Protection Commission's inventory of recreation facilities indicated that most of the swimming beaches were located in this zone. Zones E and C virtually tied for second place.

TABLE - 150
ZONES WHERE RESPONDENTS SWAM

Activity	A	B	C	D	E	F	Total
No. of responses	25	6	49	84	51	40	255
% responses	9.8%	2.4%	19.2%	32.9%	20.0%	15.7%	100.0%
Rank	5	6	3	1	2	4	N/A

Tent camping. The results of the survey for tent camping were consistent with swimming and most other non-fishing activities. About one-third of all tent camping occurred in Zone D. Another one-third of tent camping occurred in Zones C and E.

TABLE - 151
ZONES WHERE RESPONDENTS TENT CAMPED

Activity	A	B	C	D	E	F	Total
No. of responses	9	5	19	42	25	18	118
% responses	7.6%	4.2%	16.1%	35.6%	21.2%	15.3%	100.0%
Rank	5	6	3	1	2	4	N/A

RV camping. RV campers were even more concentrated in Zone D than tent campers. The percent of RV campers using Zone D exceeded the percent of RV campers using Zones C and E combined, 44% vs. 31%. As in tent camping, about three-fourths of all RV campers used Zones C, D, and E.

TABLE - 152
ZONES WHERE RESPONDENTS RV CAMPED

Activity	A	B	C	D	E	F	Total
No. of responses	10	4	17	55	22	16	124
% responses	8.1%	3.2%	13.7%	44.4%	17.7%	12.9%	100.0%
Rank	5	6	3	1	2	4	N/A

Boating. Almost one-third of all respondents boated in Zone D. Zones C and E almost tied for second place (20.6% vs. 20.9%). As with most other activities, about 75% of all boating occurred in Zones C, D, and E.

TABLE - 153
ZONES WHERE RESPONDENTS BOATED

Activity	A	B	C	D	E	F	Total
No. of responses	39	18	73	113	74	37	354
% responses	11.0%	5.1%	20.6%	31.9%	20.9%	10.5%	100.0%
Rank	4	6	3	1	2	5	N/A

Hunting. Again, respondents who hunted, preferred Zone D (47.2%). However, Zones C and E, which were typically the second choices for most activities, were not that popular with hunters. Instead, Zone B was the follow-up choice of 18.1% of the respondents.

TABLE - 154
ZONES WHERE RESPONDENTS HUNTED ON LAND

Activity	A	B	C	D	E	F	Total
No. of responses	6	13	10	34	6	3	72
% responses	8.3%	18.1%	13.9%	47.2%	8.3%	4.2%	100.0%
Rank	4(tie)	2	3	1	4(tie)	5	N/A

Viewing wildlife. With this activity, respondents are back to the typical preferences: Zone D (33.6%), Zone C (21%), and Zone E (17.7%). Almost 75% of the respondents who participated in this activity, did so in these three zones.

TABLE - 155
ZONES WHERE RESPONDENTS VIEWED WILDLIFE

Activity	A	B	C	D	E	F	Total
No. of responses	43	21	70	112	59	28	333
% responses	12.6%	6.3%	21.0%	33.6%	17.7%	8.4%	99.6%
Rank	4	6	2	1	3	5	N/A

Photography of nature. Zone preference for this activity was very typical in that slightly less than one-third of the respondents participated in Zone D (31.7%) and a little over one-third used Zones C and E combined (39.7%).

TABLE - 156
ZONES WHERE RESPONDENTS PHOTOGRAPHED NATURE

Activity	A	B	C	D	E	F	Total
No. of responses	19	11	34	51	30	16	161
% responses	11.8%	6.8%	21.1%	31.7%	18.6%	9.9%	99.9%
Rank	4	6	2	1	3	5	N/A

Sightseeing. Respondents who participated in sightseeing in the Delta spent the most time in Zone D (29.8%). A somewhat larger percentage divided their time between Zones C (21.2%) and Zone E (19.6%). Very few visited Zone B (5.9%).

TABLE - 157
ZONES WHERE RESPONDENTS WENT SIGHTSEEING

Activity	A	B	C	D	E	F	Total
No. of responses	53	23	83	117	77	39	392
% responses	13.5%	5.9%	21.2%	29.8%	19.6%	9.9%	99.9%
Rank	4	6	2	1	3	5	N/A

Bicycling. With virtually no dedicated bicycle trails or bike lanes in the Delta, the opportunities for this activity were limited to sharing narrow Delta roadways. Over one-third of the cyclists used Zone D (35.1%). Zone A was the second most preferred zone (18.2%), with bicyclist from Sacramento and West Sacramento traveling into the Delta. The number of respondents who bicycled was low, however, so the results should be viewed with caution.

TABLE - 158
ZONES WHERE RESPONDENTS BICYCLED

Activity	A	B	C	D	E	F	Total
No. of responses	14	6	9	27	10	11	77
% responses	18.2%	7.8%	11.7%	35.1%	13.0%	14.3%	100.1%
Rank	2	6	5	1	4	3	N/A

Attending Special Events. Zone C received the most use for this activity. The City of Isleton, the communities of Walnut Grove and Courtland, which host large special events each year, are all located in this zone.

TABLE - 159
ZONES WHERE RESPONDENTS ATTENDED SPECIAL EVENTS

Activity	A	B	C	D	E	F	Total
No. of responses	12	3	50	40	19	6	130
% responses	9.2%	2.3%	38.5%	30.8%	14.6%	4.6%	100.0%
Rank	4	6	1	2	3	5	N/A

Visiting cultural or historical sites. Zone C again edged out Zone D as the preferred location for visiting cultural or historical sites. Cultural and historical sites in Zone C include the historic districts in Locke, Isleton, and Walnut Grove.

TABLE - 160
ZONES WHERE RESPONDENTS VISITED SITES

Activity	A	B	C	D	E	F	Total
No. of responses	23	9	41	39	22	11	145
% responses	15.8%	6.2%	28.3%	26.9%	15.2%	7.6%	100.0%
Rank	3	6	1	2	4	5	N/A

Walking for pleasure. With few hiking trails or bicycle paths available in the Delta, most walking for pleasure probably occurs when respondents are participating in other activities such as camping, picnicking, or sightseeing. Therefore, it is not surprising that zones used for walking are the same zones typically used for these other activities. Slightly over one-third (36.4%) used Zone D and about one-third used Zones E and C, 18% and 16%, respectively.

TABLE - 161
ZONES WHERE RESPONDENTS WALKED FOR PLEASURE

Activity	A	B	C	D	E	F	Total
No. of responses	28	6	33	75	37	27	206
% responses	13.6%	2.9%	16.0%	36.4%	18.0%	13.1%	100.0%
Rank	4	6	3	1	2	5	N/A

Picnicking. As expected, about one-third of the respondents who picnicked in the Delta preferred Zone D (34.8%), and about one-third (37.6%) preferred Zones C and E.

TABLE - 162
ZONES WHERE RESPONDENTS PICNICKED

Activity	A	B	C	D	E	F	Total
No. of responses	28	7	46	78	38	27	224
% responses	12.5%	3.1%	20.6%	34.8%	17.0%	12.1%	100.0%
Rank	4	6	2	1	3	5	N/A

Board sailing or wind surfing. Suitable locations in the Delta for this activity are very limited, due to the need for strong, consistent winds, and a suitable beach for launching and landing. One such area is Windy Cove, located next to Brannan Island State Recreation Area. Inasmuch as Windy Cove is located in Zone D, it is no surprise that most board sailors use this zone (52.9%). Zones E and C resume their familiar second and third place positions. Note: The number of respondents for this activity is very low.

TABLE - 163
ZONES WHERE RESPONDENTS BOARD SAILED/WIND SURFED

Activity	A	B	C	D	E	F	Total
No. of responses	1	0	2	9	4	1	17
% responses	5.9%	0%	11.8%	52.9%	23.5%	5.9%	100.0%
Rank	4(tie)	5	3	1	2	4(tie)	N/A

E. ADEQUACY OF OTHER (NON-FISHING) FACILITIES

Respondents were asked if there were enough facilities in the Delta to meet their other (non-fishing) recreation needs. They indicated that most of the existing facilities were either adequate or more than adequate. These included tent campsites, RV campsites, picnic sites, public parking, places to buy food, marinas, scenic vistas/overlooks, hiking trails, wildlife vistas, and board sailing access. Facilities which most respondents viewed as somewhat or very inadequate included swimming beaches, public restrooms, bicycle trails, and hunting areas.

The shortage of swimming beaches was cited by the largest percentage of respondents. Almost two-thirds (61.4%) indicated that they were either somewhat or very inadequate. Hunting areas were rated as the next most inadequate (58.7%), followed by restrooms (50.7%), bicycle trails (49%), and hiking trails (44.8%).

The respondents indicated that there was an abundance of marinas. Almost three-quarters (71.2%) indicated that the number of existing marinas was adequate, while another 9.5% indicated that there were more than enough marinas, and another small group (2.1%) indicated that there were too many marinas.

Respondents were asked to check "N/A" if they were unfamiliar with the availability of certain types of facilities. A majority of respondents checked "N/A" for tent camping sites, bicycle trails, hunting areas, and board sailing access sites. In addition, a significant number of respondents checked "N/A" for RV camping sites and hiking trails.

TABLE - 164
ADEQUACY OF OTHER (NON-FISHING) FACILITIES NUMBER OF RESPONSES

	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	N/A	Total
Tent camping	0	15	122	61	19	217	231	448
RV camping	3	20	120	67	18	228	227	455
Picnic sites	0	19	185	83	18	305	149	454
Public parking	1	26	208	115	32	382	73	455
Places to buy food	5	35	249	92	17	398	69	467
Swimming beaches	2	11	106	132	57	308	150	458
Marinas	8	36	269	56	9	378	82	460
Public restrooms	1	17	179	154	49	400	63	463
Bicycle trails	2	13	92	74	29	210	240	450
Scenic vistas	4	18	152	76	31	281	177	458
Hiking trails	2	20	111	85	23	241	214	455
Wildlife vista	3	31	140	91	18	283	178	461
Hunting areas	7	4	55	41	53	160	292	452
Board sailing access	5	10	62	18	7	102	344	446

TABLE - 165
ADEQUACY OF OTHER (NON-FISHING) FACILITIES - PERCENTAGE OF RESPONSES

	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate	Subtotal	% of respondents who checked N/A
Tent camping	0%	6.9%	56.2%	28.1%	8.8%	100.0%	51.6%
RV camping	1.3%	8.8%	52.6%	29.4%	7.9%	100.0%	49.9%
Picnic sites	0%	6.2%	60.7%	27.2%	5.9%	100.0%	32.8%
Public parking	0.3%	6.8%	54.5%	30.1%	8.4%	100.1%	16.0%
Places to buy food	1.3%	8.8%	62.6%	23.1%	4.3%	100.1%	14.8%
Swimming beaches	0.6%	3.6%	34.4%	42.9%	18.5%	100.0%	32.8%
Marinas	2.1%	9.5%	71.2%	14.8%	2.4%	100.0%	17.8%
Public restrooms	0.2%	4.2%	44.7%	38.5%	12.2%	99.8%	13.6%
Bicycle trails	1.0%	6.2%	43.8%	35.2%	13.8%	100.0%	53.3%
Scenic vistas	1.4%	6.4%	54.1%	27.0%	11.0%	99.9%	38.6%
Hiking trails	0.8%	8.3%	46.1%	35.3%	9.5%	100.0%	47.0%
Wildlife vista	1.1%	11.0%	49.5%	32.2%	6.4%	100.2%	38.6%
Hunting areas	4.4%	2.5%	34.4%	25.6%	33.1%	100.0%	64.6%
Board sailing access	4.9%	9.8%	60.8%	17.6%	6.9%	100.0%	77.1%

TABLE - 166
ADEQUACY OF OTHER (NON-FISHING) FACILITIES - RANK OF NUMBER OF RESPONSES

	Too many	More than adequate	Adequate	Somewhat inadequate	Very inadequate
Tent camping	5	4	1	2	3
RV camping	5	3	1	2	4
Picnic sites	5	3	1	2	4
Public parking	5	4	1	2	3
Places to buy food	5	3	1	2	4
Swimming beaches	5	4	2	1	3
Marinas	5	3	1	2	4
Public restrooms	5	4	1	2	3
Bicycle trails	5	4	1	2	3
Scenic vistas	5	4	1	2	3
Hiking trails	5	4	1	2	3
Wildlife vista	5	3	1	2	4
Hunting areas	4	5	1	3	2
Board sailing access	5	3	1	2	4

ECONOMIC CONSIDERATIONS

A. EXPENDITURES BY ANGLERS

Survey respondents were asked how much their *group* spent for specific goods and services during their last trip to the Delta. Tables 167 and 168 summarize the results. Groups spent an average of \$22.30 per trip for lodging inside the Delta. If they stayed outside the Delta, the average amount spent increased to \$30.29.

Groups spent an average of \$26.84 for food and drink purchases in the Delta and \$26.51 outside the Delta.

Group expenses for supplies, gasoline, groceries, repairs, parking, public transportation, souvenirs, and gifts, averaged \$28.21 inside the Delta and \$40.01 outside the Delta.

Expenses for recreation activities, equipment purchases and rentals, launch fees, admission and permit fees, tours, guides, and lessons, averaged \$17.61 inside the Delta and \$14.48 outside the Delta.

TABLE - 167
AVERAGE EXPENDITURES PER GROUP - LAST TRIP TO DELTA

Expenditure categories	Expenditure Outside Delta (in dollars)	Expenditure Inside Delta (in dollars)
Overnight lodging	30.29	22.30
Foods and drinks	26.51	26.84
Supplies	40.01	28.21
Recreation activities	14.48	17.61
Totals	111.29	94.96

To estimate the average daily expenditures *per person*, the above group expenditures were divided by the average number of people per group (2.9) and by the average number of days per trip (2.4). The per person, per day, expenditures are estimated in Table 168 below.

TABLE - 168
AVERAGE EXPENDITURES PER PERSON PER DAY - LAST TRIP TO DELTA

Expenditure categories	Expenditure Outside Delta (in dollars)	Expenditure Inside Delta (in dollars)
Overnight lodging	4.33	3.19
Foods and drinks	3.79	3.83
Supplies	5.72	4.03
Recreation activities	2.07	2.52
Totals	15.91	13.57

B. COUNTY OF ORIGIN - SURVEY RESPONDENTS

Survey respondents who received the postcard questionnaire were asked if they used the Delta for fishing or other recreation in 1995. The county of residence for those respondents who returned the questionnaire and indicated that they used the Delta is listed below.

TABLE - 169
COUNTY OF ORIGIN - SURVEY RESPONDENTS

Name of County	Number of respondents	% of Total	Rank (top ten)	Name of County	Number of respondents	% of Total	Rank (top ten)
Alameda	89	8.0	3 (tie)	Orange	22	2.0	
Alpine	0	0		Placer	41	3.6	6
Amador	2	0.2		Plumas	0	0	
Butte	18	1.6		Riverside	7	0.6	
Calaveras	9	0.8		Sacramento	119	10.7	1
Colusa	3	0.3		San Benito	2	0.2	
Contra Costa	143	12.9		San Bernardino	12	1.1	
Del Norte	0	0		San Diego	16	1.4	
El Dorado	13	1.2		San Francisco	17	1.5	
Fresno	17	1.5		San Joaquin	111	10.0	2
Glenn	3	0.3		San Luis Obispo	11	1.0	
Humboldt	4	0.4		San Mateo	42	3.8	5
Imperial	0	0		Santa Barbara	6	0.5	
Inyo	0	0		Santa Clara	89	8.0	3(tie)
Kern	4	0.4		Santa Cruz	12	1.0	
Kings	1	0.1		Shasta	13	1.2	
Lake	3	0.3		Sierra	0	0	
Lassen	3	0.3		Siskiyou	4	0.4	
Los Angeles	40	3.6	7	Solano	84	7.6	4
Madera	4	0.4		Sonoma	23	2.0	9
Marin	8	0.7		Stanislaus	34	3.1	8
Mariposa	0	0		Sutter	4	0.4	
Mendocino	2	0.2		Tehama	2	0.2	
Merced	7	0.6		Trinity	1	0.1	
Modoc	0	0		Tulare	2	0.2	
Mono	1	0.1		Tuolumne	5	0.5	
Monterey	11	1.0		Ventura	17	1.5	
Napa	5	0.5		Yolo	1	0.1	
Nevada	4	0.4		Yuba	18	1.6	
					1,109	99.3	

C. DISTANCES TRAVELED TO GET TO THE DELTA

Survey respondents were asked how far they traveled to get to the Delta during their last trip. Most respondents traveled less than 50 miles (53%) as indicated in Table 170 below. The average distance traveled, one-way, was 70.8 miles.

TABLE - 170
DISTANCE TRAVELED TO GET TO DELTA

Distances Traveled - in miles	No. of responses	Percentage
0 - 9	51	9.6%
10 - 24	91	17.0%
25 - 49	141	26.4%
50 - 99	160	30.0%
100 -199	43	8.1%
200+	48	9.0%

D. SIZE OF GROUPS

Survey respondents were asked how many people traveled in their vehicle during their last trip to the Delta. As Table 171 indicates, nearly half of the groups (45%) consisted of two people. The average size of all groups was 2.9 people.

TABLE - 171
GROUP SIZE

	No.	%
Group size of 1	29	5.3%
Group size of 2	246	45.0%
Group size of 3	109	20.0%
Group size of 4	108	19.7%
Group size of 5	28	5.1%
Group size of 6	16	2.9%
Group size of 7+	11	2.0%

E. LENGTH OF STAY IN THE DELTA

Survey respondents were asked how many days and nights they spent on their last trip to the Delta, including travel time. As Table 172 below indicates, slightly over half (56%) of the respondents stayed in the Delta only one day. This is not surprising considering most of the respondents lived within 50 miles of the Delta. Another one-third stayed two to four days, while the remaining one-third stayed 5 days or longer.

TABLE - 172
LENGTH OF STAY - DAYS

Number of days	No. of respondents	% of total	Rank
1	303	56.0%	1
2	98	18.1%	2
3	54	10.0%	3
4	30	5.6%	4
5	11	2.0%	7 (tie)
6	13	2.4%	6
7	11	2.0%	7 (tie)
8-14	14	2.6%	5
15-30	7	1.3%	8
over 30	2	0.4%	9
Total	543	100.4%	N/A

Survey respondents were asked if they stayed overnight in the Delta. About 41% of the respondents stayed overnight, while 59% did not. As Table 173 below indicates, of those who stayed overnight, one-third stayed one night (33%), while slightly less than one-third stayed two nights (31%).

TABLE - 173
LENGTH OF STAY - NIGHTS

Number of nights	No. of respondents	% of total	Rank
1	68	33.0%	1
2	62	31.0%	2
3	25	12.5%	3
4	9	4.5%	5
5	10	5.0%	4
6	8	4.0%	6 (tie)
7	3	1.5%	8
8-14	7	3.5%	7
15-30	8	4.0%	6 (tie)
over 30	1	0.5%	9
Total	201	99.5%	N/A

OTHER ISSUES

A. PARTICIPATION IN NIGHT FISHING

Survey respondents were asked if they fished at night. Thirty-eight percent (38%) indicated that they did, while 62% did not.

TABLE - 174
RESPONDENTS WHO FISHED AT NIGHT

	No responding	% of Total
Yes	165	38%
No	267	62%
Total	432	100%

B. OBSERVATION OF LAW ENFORCEMENT PATROL BOATS

Survey respondents were asked if they observed law enforcement patrol boats while in the Delta. The vast majority (77%) reported that they did, while 23% did not.

TABLE - 175
RESPONDENTS WHO SAW PATROL BOATS

	No responding	% of Total
Yes	346	77%
No	109	23%
Total	455	100%

C. HOW ANGLERS USE OF THE DELTA FOR RECREATION HAS CHANGED DURING THE LAST FIVE YEARS

Survey respondents were asked to indicate how their participation in specific recreation activities in the Delta had changed over the last five years. The results are summarized in the Table 176 below. A detailed analysis begins on the next page.

In general, participation in most activities declined slightly, i.e., the number of respondents who indicated that their participation had decreased slightly or significantly, exceeded the number of respondents who indicated that their participation increased slightly or significantly. These included: camping, photography of nature, bicycling, and attending special events. The drop in participation was more precipitous for other activities, including: fishing, swimming, board sailing, and hunting. Hunting showed the greatest decrease.

Only two activities showed a slight increase: walking for pleasure and sightseeing.

All other activities remained about the same, including: boating, picnicking, viewing wildlife, and visiting cultural or historical sites.

An analysis of the changes in each activity begins on the following page.

TABLE - 176
HOW RESPONDENTS USE OF DELTA HAS CHANGED DURING LAST 5 YEARS - NO. OF RESPONDENTS

Activity	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
Fishing	95	114	169	81	29	488	48	536
Swimming	57	54	128	32	5	276	251	527
Camping	46	47	133	38	12	276	251	527
Boating	57	70	167	81	43	418	113	531
Hunting	40	32	46	19	5	142	383	525
Viewing wildlife	21	43	165	56	8	293	235	528
Photography	16	27	111	27	3	184	339	523
Sightseeing	19	45	173	58	17	312	216	528
Bicycling	21	22	68	25	10	146	375	521
Attending special events	24	31	112	28	7	202	321	523
Visiting cultural or historical sites	15	19	119	27	3	183	338	521
Walking for pleasure	16	26	139	47	12	240	285	525
Picnicking	22	26	164	42	8	262	262	524
Board sailing	14	4	36	5	3	62	455	517

Fishing. This activity was down considerably. As Table 177 below indicates, 42% of the respondents indicated that fishing had decreased, either slightly or significantly. This was the second highest percentage decrease for any of the recreation activities listed.

TABLE - 177
HOW RESPONDENTS PARTICIPATION IN FISHING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	95	114	169	81	29	488	48	536
% respondents	19%	23%	35%	17%	6%	100.0%		
Rank	3	2	1	4	5	N/A		

Swimming. This activity also showed a significant decrease in participation. Nearly half of respondents indicated that swimming had remained about the same (46%), while almost as many respondents indicated that it had decreased (41%). Only 14% reported an increase.

TABLE - 178
HOW RESPONDENTS PARTICIPATION IN SWIMMING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	57	54	128	32	5	276	251	537
% respondents	21%	20%	46%	12%	2%	101.0%		
Rank	2	3	1	4	5	N/A		

Boating. Participation in boating remained about the same. Forty percent of the respondents reported that their participation stayed about the same. The remaining 60% were about equally divided, 29% had increased their use, while 31% had decreased.

TABLE - 179
HOW RESPONDENTS PARTICIPATION IN BOATING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	57	70	167	81	43	418	531	949
% respondents	14%	17%	40%	19%	10%	100.0%		
Rank	4	3	1	2	5	N/A		

Camping. There was a considerable drop in camping. While one-half of respondents who answered this question indicated that their camping activity remained about the same (48%), more respondents indicated that their camping had decreased (34%), than had increased (18%).

TABLE - 180

HOW RESPONDENTS PARTICIPATION IN CAMPING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	46	47	133	38	12	276	251	527
% respondents	17%	17%	48%	14%	4%	100.0%		
Rank	3	2	1	4	5	N/A		

Hunting. Of all the activities, hunting showed the most significant decrease in participation. Slightly over half (51%) of the respondents indicated that their participation in hunting had decreased, either slightly (23%) or significantly (28%). About one-third indicated that their hunting remained about the same (32%), while only 13% showed a slight increase, and 4% reported a significant increase.

TABLE - 181

HOW RESPONDENTS PARTICIPATION IN HUNTING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	40	32	46	19	5	142	383	525
% respondents	28%	23%	32%	13%	4%	100.0%		
Rank	2	3	1	4	5	N/A		

Viewing wildlife. This activity remained about the same. The majority of respondents who answered this question indicated that their participation had remained about the same (56%). The others were equally divided, either increasing or decreasing their participation in this activity.

TABLE - 182

HOW RESPONDENTS PARTICIPATION IN VIEWING WILDLIFE HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	21	43	165	56	8	293	235	528
% respondents	7%	15%	56%	19%	3%	100.0%		
Rank	4	3	1	2	5	N/A		

Photography of nature. There was a slight drop in this activity. There was a significant percentage of users whose participation remained about the same (60%). Those who increased their participation slightly (15%) equaled those whose participation decreased slightly (15%); however, there were more who decreased their participation significantly (9%) than increased significantly (2%).

TABLE - 183
HOW RESPONDENTS PARTICIPATION IN PHOTOGRAPHY OF NATURE HAS CHANGED

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	16	27	111	27	3	184	339	523
% respondents	9%	15%	60%	15%	2%	101.4%		
Rank	3	2(tie)	1	2(tie)	4	N/A		

Sightseeing. This was one of the two activities which showed a slight increase in participation. The other activity was walking for pleasure. As Table 184 indicates, although the activity level of most participants remained about the same (55%), and those who did significantly more sightseeing were equal to those who did significantly less sightseeing, there were more who increased slightly (19%), than those who decreased slightly (14%).

TABLE - 184
HOW RESPONDENTS PARTICIPATION IN SIGHTSEEING HAS CHANGED DURING LAST 5 YEARS.

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	19	45	173	58	17	312	216	528
% respondents	6%	14%	55%	19%	5%	99.4%		
Rank	4	3	1	2	5	N/A		

Bicycling. This was another activity which showed a decline. Less than half of the respondents indicated that bicycling in the Delta remained about the same (47%). The percent of respondents reporting a slight increase equaled those reporting a slight decrease (17% vs. 15%), while those reporting a significant decrease, outnumbered those who reported a significant increase (14% vs. 7%). However, the number of respondents is again very low and results may be suspect.

TABLE - 185
HOW RESPONDENTS PARTICIPATION IN BICYCLING HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	21	22	68	25	10	146	375	521
% respondents	14%	15%	47%	17%	7%	100.0%		
Rank	4	3	1	2	5	N/A		

Attending special events. This activity showed a slight decrease, with more respondents showing a significant decrease than a significant increase (12% vs. 3%). Slight increase and slight decrease remained the same.

TABLE - 186
HOW RESPONDENTS PARTICIPATION IN ATTENDING SPECIAL EVENTS HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	24	31	112	28	7	202	321	523
% respondents	12%	15%	55%	14%	3%	99%		
Rank	4	2	1	3	5	N/A		

Visiting cultural or historical sites. Participation in this activity remained about the same. However, it should be noted that 338 respondents checked N/A, indicating that almost two-thirds of all respondents did not provide an opinion on this activity.

TABLE - 187
HOW RESPONDENTS PARTICIPATION IN VISITING CULTURAL/HISTORICAL SITES HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	15	19	119	27	3	183	338	521
% respondents	8%	10%	65%	15%	2%	100%		
Rank	4	3	1	2	5	N/A		

Walking for pleasure. This was one of the two activities which showed some increase in participation. The other activity was sightseeing. More respondents indicated that their participation had increased (25%), rather than decreased (18%).

TABLE - 188
HOW RESPONDENTS PARTICIPATION IN WALKING FOR PLEASURE HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	16	26	139	47	12	240	285	525
% respondents	7%	11%	58%	20%	5%	101%		
Rank	4	3	1	2	5	N/A		

Picnicking. Participation in this activity was very stable. Almost two-thirds of the respondents indicated no change in activity (63%), while about an equal number of respondents indicated an increase in this activity (18%) vs. a decrease (19%). About half of the respondents indicated that this question was not applicable, implying that they did not picnic in the Delta in 1996.

TABLE - 189

HOW RESPONDENTS PARTICIPATION IN PICNICKING HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	22	26	164	42	8	262	262	524
% respondents	8%	10%	63%	16%	3%	100.0%		
Rank	4	3	1	2	5	N/A		

Board sailing. This activity showed a significant decrease in participation over the last five years. A significant 29% indicated that their use decreased while only 13% indicated an increase. However, this activity is participated in by very few in this survey group. It is very unlikely that these respondents are a representative sample of all recreationists who participate in board sailing in the Delta. Therefore, these participation rates may not accurately reflect changing participation in this activity.

TABLE - 190

HOW RESPONDENTS PARTICIPATION IN BOARD SAILING HAS CHANGED DURING LAST 5 YEARS

	Significant Decrease	Slight Decrease	Stayed about the same	Slight Increase	Significant Increase	Subtotal	N/A	Total
No. of respondents	14	4	36	5	3	62	455	517
% respondents	23%	6%	58%	8%	5%	100.0%		
Rank	2	4	1	3	5	N/A		

D. REASONS GIVEN BY RESPONDENTS FOR NOT RECREATING IN THE DELTA

The survey revealed that approximately 77% of all licensed anglers in California did not use the Delta last year. As Table 191, below indicates, over half (53%) of those who did not use the Delta indicated that it was "too far from home". The second and third most common answers were that they were "not familiar with recreation opportunities" (43%) and that they did "not have enough time" (27%).

TABLE - 191
REASONS GIVEN FOR NOT RECREATING IN THE DELTA BY ALL ANGLER RESPONDENTS

	Too far from home	Not familiar with recreational opportunities	Not enough time	Not enough money	Not enough public access to water	Don't enjoy type of recreation available	Not the right kind of recreation facilities needed	Other	Total
Number of responses	1945	1580	1005	479	113	204	61	494	5881
Percent of all respondents	53%	43%	27%	13%	3%	6%	2%	13%	160.6%
Rank	1	2	3	4	6	5	7	N/A	N/A

Respondents who did not use the Delta, and did not give "too far from home" as a reason, were analyzed as a sub-group. It was assumed that those who did not check "too far" lived relatively close to the Delta, but chose not to recreate there for other reasons. As Table 192 indicates, "not familiar with recreation opportunities" becomes the most common reason, increasing from 43% in Table 191 to 53% in Table 192. Interestingly, all of the other reasons retained the same rank order.

TABLE - 192
REASONS GIVEN FOR NOT RECREATING IN THE DELTA - EXCLUDING "TOO FAR FROM HOME" AS AN ANSWER

	Not familiar with recreation opportunities	Not enough time	Not enough money	Not enough public access to water	Don't enjoy type of recreation available	Not the right kind of recreation facilities needed	Other	Total
Number of responses	920	551	185	64	143	38	385	2286
Percent of all respondents	53%	32%	11%	4%	8%	2%	22%	132.6%
Rank	1	2	3	5	4	6	N/A	N/A

E. AGE AND SEX OF RESPONDENTS

Respondents were asked to provide limited information regarding their age and sex. This data was needed to establish basic demographic information. As Table 193 below indicates, the vast majority of respondents were male (83%). As Table 194 indicates, 35-44 and 46-55 were the most common age groups, representing 55% of all respondents.

**TABLE - 193
SEX OF RESPONDENTS**

	Number of responses	Percentage of total
Female	95	17%
Male	455	83%

**TABLE - 194
AGE OF RESPONDENTS**

Age	Number of responses	Percentage of total	Rank (% of total)
under 18	3	1%	6
18-25	28	5%	5
26-35	78	14%	3(tie)
35-45	146	26%	2
46-55	159	29%	1
55-65	76	14%	3(tie)
66+	61	11%	4

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Appendix A

Survey Methodology

Overview of the survey process

As previously stated in this report, the data used in this survey was obtained from questionnaires completed and returned by a random sample of registered recreational boat owners and a random sample of licensed anglers in California. Actually, four sets of questionnaires were required. A simple postcard type questionnaire was mailed to the statewide sample of boaters, and a second, almost identical, questionnaire was mailed to a statewide sample of anglers. The third survey instrument, which was a more comprehensive follow-up questionnaire, was then mailed to those boaters and anglers who indicated that they had recreated in the Delta.

The **postcard questionnaires** served three functions, they: 1) determined how many boaters and anglers in California used the Delta for recreation, 2) provided the names and addresses needed to create mailing lists for the follow-up questionnaires, and 3) determined the reasons why boater and anglers in California did not use the Delta for recreation.

The postcard questionnaire was mailed to a random sample of approximately 10,000 boaters and 10,000 anglers in California. The questionnaire, a cover letter, and a vicinity map of the Delta were mailed to each addressee. Special efforts were made to help ensure a high rate of response: 1) each cover letter was personalized with the name of each addressee in the salutation, 2) by completing and returning the postcard questionnaire, every addressee was eligible to win a prize of 75 lottery tickets, 3) a second and third follow-up letter and questionnaire were mailed to those addressees who did not return the first questionnaire within three weeks. (A copy of the postcard questionnaire and cover letter are provided in the Appendix.)

The purpose of the **follow-up questionnaire** was to obtain more specific information about use of the Delta by boaters and anglers. A series of questions was developed to provide this information. Each question had to be as easy to understand and respond to as possible. The more questions asked, the more information could be obtained. However, more questions required more of the respondent's time and increased the likelihood of non-responses. Therefore, the scope of the questionnaire was limited to asking only essential questions to keep the questionnaire as short as possible.

The revised follow-up questionnaires were then mailed to 499 boaters and 734 anglers. Included with the questionnaire was a cover letter explaining the purpose of the survey and a map of the Delta. Each addressee received a personal cover letter, the questionnaire, and a recreation map of the Delta. To encourage the addressees to complete and return the questionnaire, each cover letter was again personalized and a new prize of 75 lottery tickets was offered. In addition, the addressees were given a toll-free telephone number to call (1-888-CALPARK), if they had any questions regarding the survey, or if they needed help in completing the questionnaire. The questionnaires were returned and the results analyzed. Some minor rewording of the questions was made and the final version of the questionnaire was printed. (A copy of the questionnaires, transmittal letters, and maps for both the boater and angler surveys is provided in the Appendix.)

The returned questionnaires were reviewed, and if completed adequately, the responses were entered into a software program named "Survey" developed by Raosoft Corporation.

The boater survey and angler survey were kept as similar as possible. This made it easier to compare and contrast the recreation pursuits of both boaters and anglers. However, some significant differences between the two surveys were unavoidable. The source of the mailing lists and the size of the sample were two important differences. Therefore, it is necessary to discuss the distinctions between the two surveys below. First, the process used for the boater survey is provided, followed by the angler survey.

BOATING SURVEY

As indicated above, there were some significant differences between the boating and angling surveys. The distinctions of the boating survey are discussed below.

Sample Size

It was not practical to mail a questionnaire to every registered boat owner in California. Therefore, an appropriate random sample was needed. The sample had to be large enough to provide a statistically valid survey. It was determined that a sample size of approximately 1,200 completed questionnaires would be adequate.

Since the questionnaires could only be completed by boat owners who recreated in the Delta, it was necessary to estimate the total number of questionnaires to be mailed in order to have approximately 1,200 questionnaires returned. In other words, it was necessary to estimate the percentage of registered boat owners living in California who use the Delta for recreation. (As previously stated, this was one of the functions of the postcard questionnaires.)

Postcard questionnaires were mailed to a random sample of 499 registered boat owners living throughout the state. The questionnaire asked the addressee if he/she used the Delta for recreation in 1995. Based on the questionnaires returned, it was estimated that approximately 21% of all registered boat owners in California recreate in the Delta annually. Based on this correlation factor of .21, it was estimated that the names and addresses of 10,000 registered boat owners would be needed. This was based on the following:

$X = a \times b \times c \times d$, when X = sample size, a = number of postcard questionnaires mailed, b = percentage of postcards returned, c = percent of postcard respondents receiving follow-up questionnaires, and d = percent of follow-up questionnaires returned, or: $1200 (+ \text{ or } -) = (10,000 \times .75) \times (7,500 \times .75) \times .21$

Mailing List

The source of the mailing list for the boater survey was a computerized data base containing the names and addresses of all non-commercial vessel owners in California. This information was purchased from the California Department of Motor Vehicles.

The data base contained approximately 840,000 names and addresses. In addition to being prohibitively expensive, surveying the total population of registered boat owners in California was unnecessary. A survey of a random sample of the total population would provide valid results. Therefore, the Department of Parks and Recreation's Office of Information Systems developed a software program to randomly select names and addresses from this list. This program was used to

generate two lists. The first list of 500 names and addresses was used to pretest the postcard questionnaire. The second list was used to mail the 10,000 postcard questionnaires.

Postcard Questionnaire

As previously stated, the postcard questionnaire served several functions, including providing the estimate that 22% of all boaters in California recreated in the Delta each year. This estimate was based on the pretest results as provided below:

Postcard questionnaires were mailed to 499 registered boat owners

First letter with postcard questionnaire mailed out on December 29, 1995

Of the 499 letters/postcards mailed:

- 30 letters returned by Post Office as undeliverable (6%)
- 190 postcards completed and returned by addressee (40%)
- 279 postcards not returned (60%)

Follow-up letter/postcard mailed out on January 29, 1996:

Of the 279 letters/postcards mailed:

- 9 letters returned by Post Office as undeliverable (3%)
- 89 postcards completed and returned by addressee (33%)
- 181 postcards not returned (67%)

Second follow-up letter/postcard mailed out February 26, 1996

Of the 181 letters/postcards mailed:

- 6 letters returned by Post Office as undeliverable (3%)
- 76 postcards completed and returned by addressee (44%)
- 99 postcards not returned (56%)

Summary of survey results:

Of the 499 letters/postcards mailed:

- 44 letters returned by Post Office as undeliverable (9%)
- 357 postcards completed and returned by addressee (78%). Of these:
 - 77 were checked "yes" meaning that they did recreate in the Delta (22%)
 - 279 were checked "no" meaning that they did not recreate in the Delta (78%)
- 1 was not checked
- 98 postcards were not returned (22%)

Once the postcard questionnaire was pre-tested, more postcard questionnaires were printed and mailed to the 9,983 randomly selected registered boat owners in California. The results of this survey are presented below:

Of 9,983 questionnaires mailed:

- 839 postcards returned by Post Office as undeliverable (8.4%)
- 6,260 postcards returned by addressees (62.5%). Of these:
 - 1,471 respondents recreated in the Delta (23.5%)
 - 4,789 respondents did not recreate in the Delta (76.5%)
- 2,884 postcards were not returned by addressee or were lost (29.1%)

Based on the larger sample of 9,983 boaters, the estimated percentage of boaters who recreated in the Delta annually was increased from 22% to 23.5%.

Follow-up Questionnaire

In developing the follow-up questionnaire for the boating survey, a series of suggested questions was presented to the Delta Protection Commission's recreation subcommittee for review and comment. After meeting with the committee, some questions were revised, and several new questions were added, and a few questions were deleted.

A final draft of the questionnaire was printed and mailed to a random sample of 75 boaters as a pretest. Approximately 40 questionnaires were returned and the results analyzed. Some minor changes were made to make the questionnaire easier to understand. A final version of the questionnaire was printed and mailed.

Of the 1,471 questionnaires mailed:

- 26 were returned by Post Office as undeliverable (1.8%)
- 888 were returned by addressees (60.4%)
- 557 were not returned by addressee, or were lost (37.9%)

The returned questionnaires were reviewed for completeness and the responses entered into a computer data base. A software program named "Survey" developed by Raosoft, Corp., was used to analyze the responses. The results are presented in Chapter III.

FISHING SURVEY

As indicated above, there were some significant differences between the boating and fishing surveys. The distinctions of the fishing survey are discussed below.

Sample size

Like the boating survey, it was not practical to mail a questionnaire to every licensed angler in California, so an appropriate random sample had to be estimated. It was determined that the same sample size of approximately 1,200 completed questionnaires would also be adequate for the fishing survey.

Postcard questionnaires were mailed to a random sample of 736 licensed anglers living throughout the state. The questionnaire asked the addressee if he/she used the Delta for recreation in 1995. Based on the questionnaires returned, it was estimated that approximately 22% of all licensed anglers in California recreate in the Delta annually. Based on this correlation factor of .22, it was estimated that the names and addresses of 10,000 licensed anglers would be needed. This was based on the following: $X = a \times b \times c \times d$, when X = sample size, a = number of postcard questionnaires mailed, b = percentage of postcards returned, c = percent of postcard respondents receiving follow-up questionnaires, and d = percent of follow-up questionnaires returned, or: $1200 (+ \text{ or } -) = (10,000 \times .75) \times (7,500 \times .75) \times .22$.

Mailing list

The mailing list for the survey was derived from a random sample of the receipts of fishing licenses sold by the Department of Fish and Game (DFG) in 1994. Obtaining the names and addresses

of anglers was a lot more difficult than obtaining the names and addresses of registered boater owners. While DMV maintains a data base with the name and addresses of registered boat owners, the DFG keeps no records of the names and addresses of anglers who purchase fishing licenses. However, DFG does retain the receipts for fishing licenses sold by their vendors. At the end of every fishing season their vendors are required to return the receipts to DFG headquarters in Sacramento. The receipts are then retained for several years for audit purposes. Fishing licenses for the 1994 fishing season were selected for use in this survey. These were the most current receipts available which provided the names and addresses of the purchasers. (Beginning with the 1995 season, anglers are not required to write their name or address when purchasing a California Fishing License.)

There were other problems with compiling this list: 1) the names and addresses were handwritten which made them more difficult to read, 2) some of the names and/or addresses were either incomplete or false.

The 1994 fishing license receipts were stored in 161 standard file storage boxes in State Records Center (SRC) in West Sacramento. A random sample of 10 boxes was selected and then moved from the SRC to Department of Parks and Recreation headquarters in downtown Sacramento.

A random sample of the receipts in each of the 10 boxes was selected using the procedural steps described below. The survey required two mailing lists, one with 500 names and addresses to pretest the postcard questionnaire, and one list with 10,000 names and addresses for the follow-up questionnaire. The following steps were used to create both mailing lists:

- Step 1.** All receipts were removed from the box.
- Step 2.** Rubber bands, paper clips, and envelopes used to bundle the receipts were removed
- Step 3.** All other extraneous material in each box was removed, e.g., 1993 fishing licenses, hunting licenses, etc.
- Step 4.** Receipts were removed from their original storage boxes, thoroughly mixed, and returned to their original box, then neatly stacked in uniform rows.
- Step 5.** The receipts were counted and banded in groups of 50.
- Step 6.** Since about 50 receipts were needed from each box to create the mailing list to pretest the postcard questionnaire, and about 1,000 receipts were needed from each box to create the mailing list for the final postcard questionnaire, every 150th receipt and every 50th receipt, respectively, were pulled from all 10 boxes.
- Step 7.** Each pulled receipt was copied with a standard copy machine and filed.
- Step 8.** Approximately 10,000 names and addresses were entered into a D-base computer file.
- Step 9.** Each name was assigned an identification number which was used to determine which addressees did not return the questionnaires.

Postcard questionnaire

Like in the boating survey, the postcard questionnaire in the fishing survey was used to estimate the percent of anglers in California who used the Delta for recreation. This estimate is based on the results of the pretest as provided below:

Postcard questionnaires were sent to 736 licensed anglers. Provided below is a summary of the results these surveys.

First letter with postcard questionnaire mailed on February 16, 1996

Of the 736 letters/postcards mailed:

- 70 letters returned by Post Office as undeliverable (10%)
- 239 postcards completed and returned by addressees (36%)
- 427 postcards not returned (64%)

Follow-up letters/postcards mailed on March 15 - 20, 1996

Of the 427 letters/postcards mailed:

- 13 returned by Post Office (<1%)
- 132 postcards completed and returned by addressees (32%)
- 282 postcards not returned (68%)

Second follow-up letter/postcards mailed on April 17, 1996

Of the 282 letters/postcards mailed:

- 12 returned by Post Office (4%)
- 61 postcards completed and returned by addressees (23%)
- 225 postcards not returned (77%)

Summary of survey results:

Of the 736 letters/postcards mailed:

- 95 letters returned by Post Office as undeliverable (13%)
- 431 postcards completed and returned by addressees (67%). Of these:
- 94 checked "yes" meaning that they did recreate in the Delta (22%)
- 337 checked "no" meaning that they did not recreate in the Delta (78%)
- 210 postcards not returned (33%)

Once the postcard questionnaire was pre-tested, additional postcard questionnaires were printed and mailed to 9,801 randomly selected licensed anglers in California. The results of this survey are presented below:

Of the 9,801 questionnaires mailed:

- 1,784 questionnaires returned by Post Office as undeliverable (18.0%)
- 4,881 postcards returned by addressee (50.0%). Of these:
- 1,121 respondents recreated in the Delta (23.0%)
- 3,760 respondents did not recreate in the Delta (77.0%)
- 3,136 postcards did not returned by addressee or were lost (32.0%)

As the above results indicate, approximately 23% of the anglers indicated that they recreated in the Delta in 1995. The original estimate of 22% was increased to 23%.

Follow-up questionnaire

The follow-up questionnaire for the anglers was based on the questionnaire developed for the boaters. Questions pertaining specifically to boats and most boating related activities were deleted. Questions pertaining to fishing related activities were added.

A final questionnaire was printed and mailed. (A copy of the questionnaire is provided in the Appendix).

Of the 1,121 follow-up questionnaires mailed:

- 12 were returned by Post Office as undeliverable (1%)
- 630 were returned by addressees (56%)
- 479 were not returned by addressee, or were lost (43%)

The returned questionnaires were reviewed for completeness and the responses entered into a computer data base. A software program named "Survey" developed by Raosoft Corporation, was used to analyze the responses. The results are presented in Chapter IV.

DEPARTMENT OF PARKS AND RECREATION

P. O. BOX 942896
 SACRAMENTO 94296-0001
 (916) 653-9901 FAX 653-4510



<FNAME> <LNAME> <ID>
 <STNUMBER> <STREET>
 <CITY>, <ST> <ZIP>

Dear <FNAME> <LNAME>:

Did you or anyone in your household use the Sacramento-San Joaquin Delta for fishing, boating, or any other outdoor recreation activity in 1995? Please help us by indicating "yes" or "no" on the enclosed postcard and returning it soon (no postage required). If you are not familiar with the location of the Delta, a vicinity map is enclosed. *If we receive your postcard before October 18, 1996, your name will be entered in a drawing for the prize described below.*

Your name was selected as part of a scientific random sample of all California anglers who purchased a fishing license in 1994. It is very important that you return this postcard, *even if you did not visit the Delta in 1995.* In addition to making you eligible for the prize drawing, your completed postcard will provide us with important visitor information we need to manage California's recreation resources.

This survey is jointly sponsored by the California Department of Parks and Recreation, the Delta Protection Commission, the Department of Boating and Waterways, the Department of Water Resources, and the Department of Fish and Game.

Thank you for your assistance.

Sincerely,

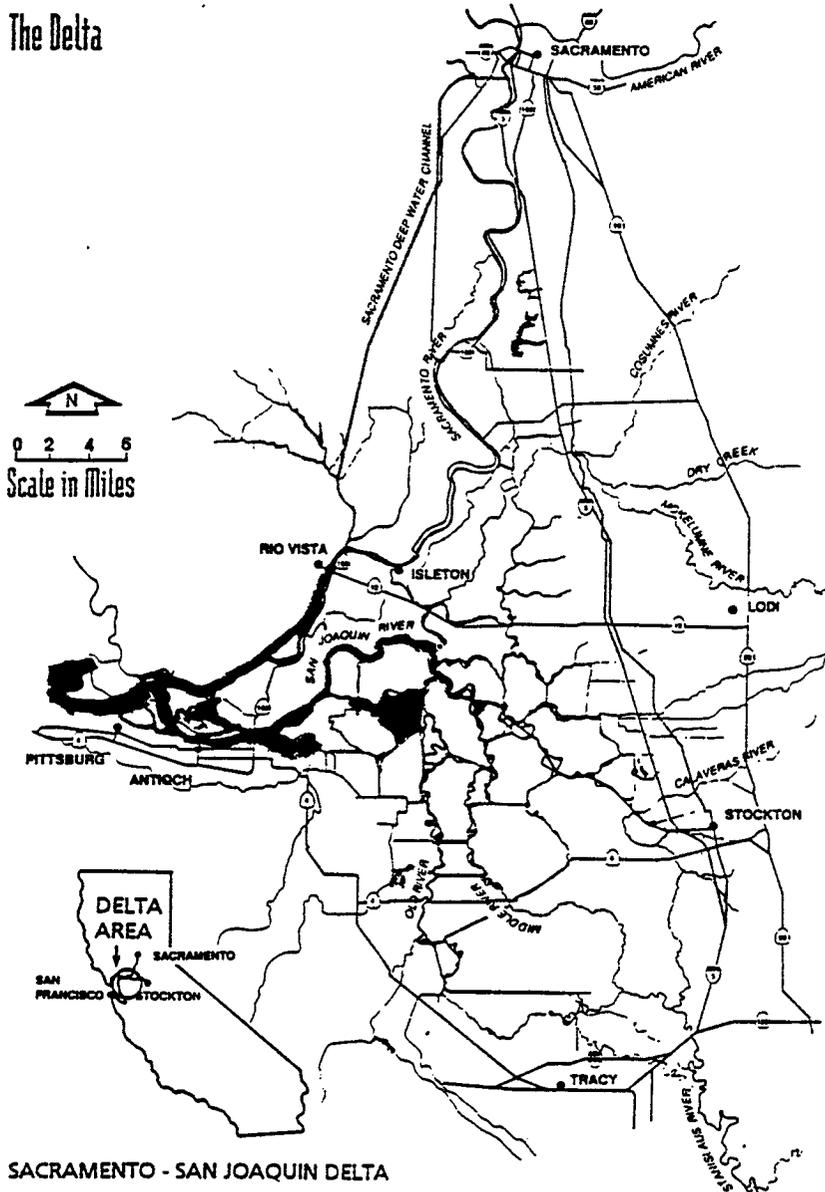
Robert D. Cates, Chief
 Planning, Acquisition, and
 Environmental Design Division

Enclosure

GRAND PRIZE: 50 LOTTERY TICKETS

One respondent will be selected by random drawing to receive 50 tickets to the California lottery. The prize will be mailed to the winner.

The Delta



SACRAMENTO - SAN JOAQUIN DELTA



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 4890 SACRAMENTO, CA

POSTAGE WILL BE PAID BY ADDRESSEE



California Department of Parks and Recreation
Planning Section
P.O. Box 942896
Sacramento, CA 94299-9896



California Department of Parks & Recreation
Delta Recreation Survey

Please complete the survey below. After completing, please drop the survey in the mail so that your information may be used in our Delta research (no postage is necessary). Thank you.

1. YES 2. NO

Please circle one number.

Did you or someone in your household use the Sacramento-San Joaquin Delta for boating, fishing, or any other outdoor recreation activity in 1995? *(Enclosed map shows the location of the Delta.)*

▶ If you answered "NO", please tell us why you did not use the Delta in 1995. *(Circle appropriate letters.)*

- A. DELTA IS TOO FAR FROM MY HOME.
- B. NOT FAMILIAR WITH RECREATION OPPORTUNITIES AVAILABLE IN THE DELTA.
- C. LACK OF FREE TIME.
- D. LACK OF MONEY.
- E. DO NOT ENJOY THE TYPE OF RECREATION OPPORTUNITIES AVAILABLE IN THE DELTA.
- F. LACK OF PUBLIC ACCESS TO DELTA WATERWAYS.
- G. RECREATION FACILITIES ARE INADEQUATE.
- H. OTHER *(Please describe)*. _____

DEPARTMENT OF PARKS AND RECREATION

P. O. BOX 942896
SACRAMENTO 94296-0001<SA> <FNAME> <LNAME>
<STNUMBER> <STREET>
<CITY>, <ST> <ZIP>

Dear <SA> <FNAME> <LNAME>:

Sacramento-San Joaquin Delta Fishing and Recreation Survey

Thank you for participating in the subject survey last year. The postcard questionnaire you returned helped us estimate the number of people who used the Delta for recreation.

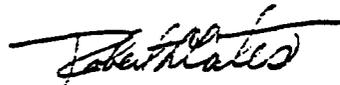
To complete our survey, however, we need additional information on how the Delta is used for fishing and other specific recreation activities. This information is needed to measure the need for recreational opportunities in the Delta. Will you please help us by completing and returning the enclosed follow-up questionnaire? A return envelope, with prepaid postage, is enclosed for your use.

If you have any questions, or if you would like assistance in completing the questionnaire, please call our toll-free number: 1-888-CALPARK, Monday - Friday, 9:00 A.M. - 4:00 P.M.

Every respondent whose questionnaire is received (postmarked) by January 24, 1997, is eligible to win a donated prize of 150 lottery tickets (see box below). Michael Eades, of Citrus Heights, California, won 50 lottery tickets by returning his postcard questionnaire before the deadline.

Thank you very much. Your contribution of time and effort will help make the Delta a better place for recreation.

Sincerely,

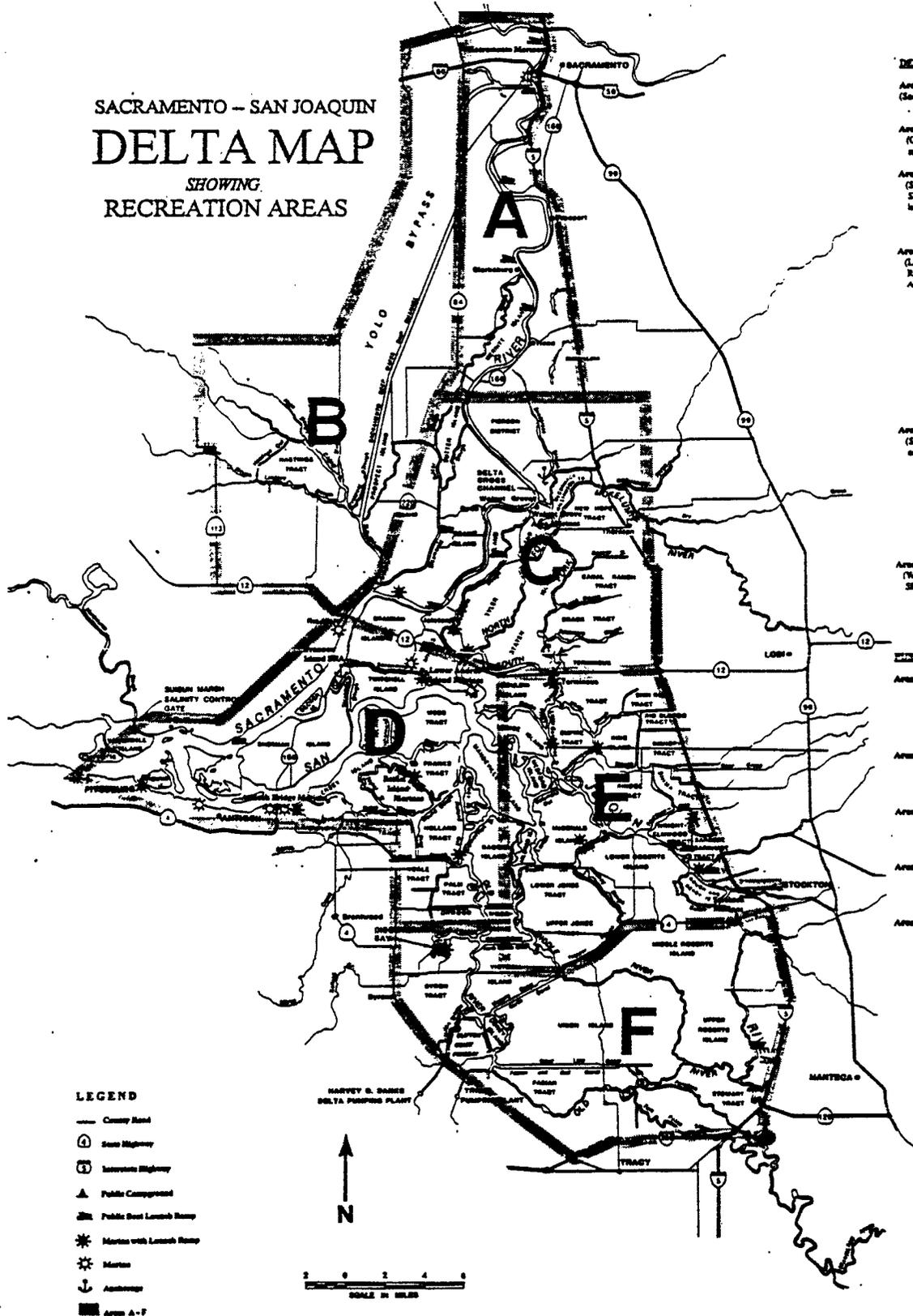
Robert D. Cates, Chief
Planning, Acquisition and
Environmental Design Division

Enclosures

GRAND PRIZE: 150 LOTTERY TICKETS

One respondent will be selected by random drawing to receive 150 California lottery tickets. The prize will be mailed to the winner. This prize is a private donation and does not involve the use of public funds.

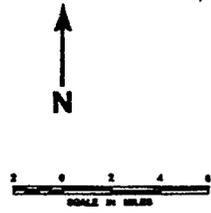
SACRAMENTO - SAN JOAQUIN
DELTA MAP
 SHOWING
 RECREATION AREAS



- DELTA MARINAS (Current List)**
- Area A - Sacramento River (Sacramento south to Courtland) Sacramento Maran
 - Area B - Northwest Delta (Cuba Slough, Yolo Bypass, Sacramento River Deep Water Ship Canal)
 - Area C - North Delta (South of Courtland and North of SR 12, including Sacramento and Mokelumne rivers and Steamboat Slough) Veron's Maran On Bow Maran
 - Area D - West Delta (Lower Sacramento and San Joaquin Rivers including Benet and Lower American streams) Delta Maran Owl Harbor Big Break Maran Dufwood Maran New Bridge Maran Antenn Maran Penning Memorial Maran Brown's Island Rasm's Maran Holland Reverade Maran Lammam Yacht Harbor
 - Area E - East Delta (South of SR 12, north of SR 4, west of I-5, and including Middle River) Tower Park Maran Kang Island Resort Village West Maran Hutman and Helen's Maran The Lagan Resort Maran Sappan's Amusement Sunman Sailing Club
 - Area F - South Delta (West of I-5, north of I-205, south of SR 4 except to include Discovery Bay) Discovery Bay Yacht Harbor

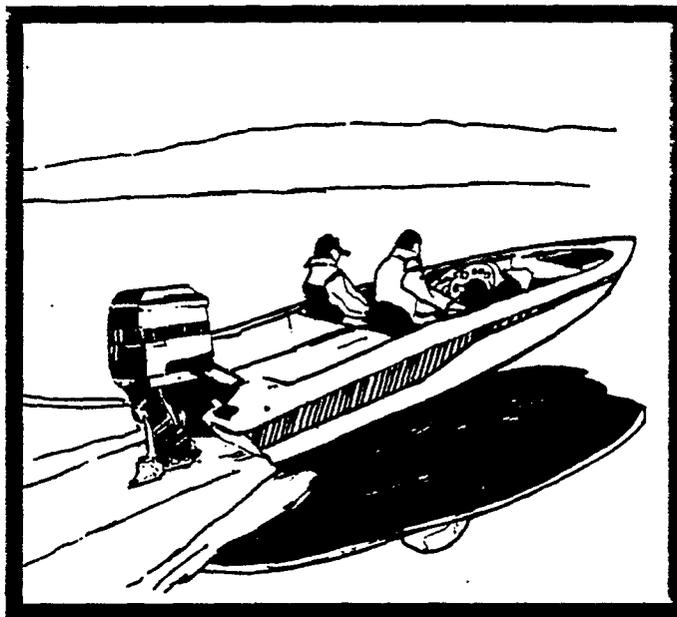
- PUBLIC BOAT LAUNCH RAMP**
- Area A - Sacramento River Discovery Park Boat Ramp Brockman Boat Ramp Miller Park Boat Ramp Gavens Bend Boat Ramp Clatsburg Boat Ramp
 - Area C - North Delta Hopland Park Boat Ramp Georgetown Slough Fishing Access Island Boat Ramp
 - Area D - West Delta Rio Vista Public Boat Ramp Browns Island State Park Area Lower Sherman Island Boat Ramp
 - Area E - East Delta Beuker Cove Maran Park Marati Boat Ramp Park Loma Park Boat Ramp
 - Area F - South Delta Dos Reis County Park Boat Ramp Mendota Crossing Boat Ramp

- LEGEND**
- County Road
 - Ⓐ State Highway
 - Ⓔ Interstate Highway
 - ▲ Public Campground
 - ▬ Public Boat Launch Ramp
 - ✳ Marinas with Launch Ramps
 - ⊙ Marinas
 - ✈ Airports
 - Areas A-F



**SACRAMENTO-SAN JOAQUIN DELTA
1996 BOATING AND RECREATION EXPERIENCES**

**BOATING AND
RECREATION SURVEY**



CALIFORNIA STATE PARKS

SACRAMENTO - SAN JOAQUIN DELTA BOATING AND RECREATION SURVEY

The following survey asks you questions about your use of the Delta for boating and other recreation activities in 1996.

PART I. RECREATIONAL BOATING

The questions in this section apply to specific recreational activities related to boating.

- Did you use a boat in the Delta for recreation in 1996?
Please check "YES" or "NO" below.
 YES If yes, continue with question 2 below
 NO If no, skip to Part II (Page 5)
- How many boats did you use in the Delta in 1996? Please write the number of boats, according to type, in Table 1, Column A, below.
- What was the length of each boat?
Please write in length (in feet) in Column B below.
- Did any boat have a toilet with a pump-out type holding tank?
Please circle "YES" or "NO" in Column C below.

TABLE 1. Answer questions 2 through 4 here.

Type of Boat	Column A Number	Column B Length(s)	Column C Toilet
Power boat (ski boat, runabout, etc.)			YES NO
Personal water craft (Jet Ski®, etc.)			NA
Sailboat			YES NO
Paddle boat (row-boat, kayak, canoe, etc.)			NA
Houseboat			YES NO
Other (please describe)			YES NO

- Which day(s) of the week did you most often use a boat in the Delta? Please check the appropriate day(s) below.

Fri. Sat Sun Mon. Tues. Wed Thur

- Which time(s) of the day did you most often use a boat in the Delta? Please check the appropriate time(s) below.

8 AM to Noon 4 PM to 8 PM Midnight to 8 AM
 Noon to 4 PM 8 PM to Midnight

Please use the enclosed map of the Delta to answer questions 7, 8, 9, 10, 14, and 20. The map divides the Delta into six recreation zones. Each zone is designated by a different letter.

- Did you launch a boat in the Delta in 1996?

Check "YES" or "NO" below.

NO YES (If yes, where did you launch most often?
Find the location on the enclosed map and circle the appropriate letter below.)

A B C D E F

- If you launched a boat in more than one zone, which other zone(s) did you use? Find the location(s) on the attached map and circle the appropriate letter(s) below.

A B C D E F

- In which zone did you operate a boat most often in 1996? Find the location on the attached map and circle the appropriate letter below.

A B C D E F

- If you operated a boat in more than one zone, which other zone(s) did you use? Find the location(s) on the attached map and circle the appropriate letter(s) below.

A B C D E F

11. Did you (or someone in your group) participate in any of the recreation activities listed in Table 2 below?

In Column A below please circle "YES" or "NO" for each activity.

12. How many people in your group participated in each activity?

Enter the number of people who typically participated (including yourself) in Table 2, Column B below.

13. How many days did you or someone in your group participate in each activity in 1996?

Please enter approximate number of days in Table 2, Column C below.

NOTE: Participation in the same activity two or more times during a single day only counts once. Example: Sailing in the morning and again in the afternoon counts as one day of sailing.

14. Where did these activities occur?

Please use the enclosed zone map to answer this question.

In Column D below, please enter the letter of the zone(s) where each type of activity occurred.

TABLE 2. Answer questions 11 through 14 here.

Type of Activity	Column A Did you Participate?	Column B Number of People	Column C Number of Days	Column D Zones Used
Fishing from boat	YES NO			
Water skiing	YES NO			
Sailing	YES NO			
Cruising	YES NO			
Hunting from boat	YES NO			
Swimming from boat	YES NO			
Sleeping overnight on boat	YES NO			
Other (describe)				

15. Which months did you boat in the Delta in 1996?

Please enter the number of days you boated during each month in Table 3 below. NOTE: If you did not boat during a particular month, enter "0".

TABLE 3. Answer question 15 here.

MONTH	DAYS	MONTH	DAYS	MONTH	DAYS
JAN 1996		MAY 1996		SEPT 1996	
FEB 1996		JUNE 1996		OCT 1996	
MARCH 1996		JULY 1996		NOV 1996	
APRIL 1996		AUG 1996		DEC 1996	

16. Were there enough boating facilities in the Delta to meet your recreation needs?

For each facility listed in Table 4 below, please circle the number that best describes how you feel. If you are not sure about the availability of a particular type of facility, circle "NA" for not applicable.

TABLE 4. Answer question 16 here.

BOATING FACILITIES	/ Too Many / More than Adequate / Adequate / Less than Adequate / Very Inadequate					
	5	4	3	2	1	
Launch ramps	5	4	3	2	1	NA
Fuel docks	5	4	3	2	1	NA
Sewage pump-out stations	5	4	3	2	1	NA
Marinas	5	4	3	2	1	NA
Courtesy docks	5	4	3	2	1	NA
Boat repair facilities	5	4	3	2	1	NA
Shoreline access from water	5	4	3	2	1	NA
Boat dry storage	5	4	3	2	1	NA
Public restrooms	5	4	3	2	1	NA
Overnight moorings	5	4	3	2	1	NA
Other (please specify)	5	4	3	2	1	NA

PART II. NON-BOATING RECREATION.

The questions in this section apply to your participation in specific non-boating recreation activities in the Delta during 1996.

17. Did you (or someone in your group) participate in any of the activities listed in Table 5, page 6?

In Table 5, Column A please circle "YES" or "NO" for each activity. NOTE: If you did not participate in any of the activities listed, complete Column A, then skip to Part III (page 8).

18. How many people in your group participated in each activity? Please enter the number of people who typically participated, (including yourself), in Column B.

19. How many days did you or someone in your group participate in each activity in 1996?

Please enter the approximate number of days in Column C.

NOTE: Participation in the same activity two or more times during a single day only counts once. Example: Swimming in the morning and then again in the afternoon counts as one day of swimming.

20. Where did these activities occur?

Please use the enclosed zone map to answer this question. Find the approximate location where each type of activity occurred then enter the letter of the zone(s) in Column D.

TABLE 5. Answer questions 17 through 20 here.

Type of Non-Boating Activities	Column A Did you Participate?	Column B Number of People	Column C Number of Days	Column D Zones Used
Fishing from shore	YES NO			
Swimming from shore	YES NO			
Tent camping	YES NO			
RV camping	YES NO			
Hunting on land	YES NO			
Viewing wildlife	YES NO			
Photography of nature	YES NO			
Sightseeing	YES NO			
Bicycling	YES NO			
Attending Special Events, (e.g., Pear Fair, Crawdad Festival, etc.)	YES NO			
Visiting cultural or historical sites	YES NO			
Walking for pleasure	YES NO			
Picnicking	YES NO			
Board sailing or wind surfing	YES NO			
Other (describe)	YES NO			

21. Were there enough recreation facilities in the Delta to meet your needs?

For each facility listed in Table 6 below, please circle the number that best describes how you feel. If you are not sure about the availability of a particular type of facility, circle "NA" for not applicable.

TABLE 6. Answer question 21 here.

RECREATION (NON-BOATING) FACILITIES						NA
	Too Many	More than Adequate	Adequate	Less than Adequate	Very Inadequate	
Tent camp sites	5	4	3	2	1	NA
RV camp sites	5	4	3	2	1	NA
Picnic sites	5	4	3	2	1	NA
Public parking	5	4	3	2	1	NA
Places to buy food	5	4	3	2	1	NA
Swimming beaches	5	4	3	2	1	NA
Fishing piers	5	4	3	2	1	NA
Other fishing access sites	5	4	3	2	1	NA
Public restrooms	5	4	3	2	1	NA
Bicycle trails	5	4	3	2	1	NA
Scenic vistas & overlooks	5	4	3	2	1	NA
Hiking trails	5	4	3	2	1	NA
Wildlife viewing areas	5	4	3	2	1	NA
Hunting areas	5	4	3	2	1	NA
Board sailing/wind surfing access	5	4	3	2	1	NA
Other (please specify)	5	4	3	2	1	NA

22. Did you fish at night in the Delta in 1996?

Please check "YES" or "NO" below.

NO YES If yes, please write in the number of nights below.

____ Nights Fished

23. Did you see any law enforcement patrol boats operating in the Delta in 1996? Please check "YES" or "NO" below.

NO YES

PART III. LAST TRIP TO THE DELTA

The following questions pertain to your most recent trip to the Delta in 1996.

24. How many people traveled in your vehicle on your last recreation trip to the Delta? Please enter the number below (include yourself).

____ People

25. How many days did you spend on this trip, including travel time? Please write in the number of days below.

____ Days

Did you stay overnight?

NO YES If yes, how many nights? ____ Nights

26. How many miles did you travel (one way) to get to your destination in the Delta? Please enter the number of miles below.

____ Miles (one way)

27. How much money did you spend on this trip?

Try to estimate the amount you spent on the entire trip for those goods and services listed in Table 7 below. It is important to identify both the amount spent inside and outside the Delta. NOTE: If you did not spend any money on this trip, or if you did not spend money in any of the categories listed below, enter a "0". (Please do not leave any category blank.)

TABLE 7. Answer question 27 here.

TYPE OF EXPENSES	Expenses Outside Delta	Expenses Inside Delta
Overnight lodging (motel, resorts, campgrounds, etc.)	\$____.00	\$____.00
Food and drinks bought at restaurants, snack stands, etc.	\$____.00	\$____.00
Supplies, gas, groceries, repairs, parking, public transportation, souvenirs, and gifts.	\$____.00	\$____.00
Recreation activities: including equipment purchases and rentals, launch fees, admission and permit fees, tours, guides, lessons, etc.	\$____.00	\$____.00

PART IV. CHANGES IN YOUR USE OF THE DELTA FOR RECREATION

28. How has your use of the Delta for all recreational activities, including boating, changed during the past five (5) years?

Next to each activity listed in Table 8 below, circle the appropriate number which best indicates how you feel. NOTE: If you did not participate in one or more of the activities listed, circle "NA".

TABLE 8. Answer question 28 here.

RECREATION ACTIVITIES	Decreased					NA
	Significantly	Decreased Somewhat	Stayed About The Same	Increased Somewhat	Increased Significantly	
Boating	5	4	3	2	1	NA
Swimming	5	4	3	2	1	NA
Fishing	5	4	3	2	1	NA
Camping	5	4	3	2	1	NA
Hunting	5	4	3	2	1	NA
Viewing wildlife	5	4	3	2	1	NA
Photography of nature	5	4	3	2	1	NA
Sightseeing	5	4	3	2	1	NA
Bicycling	5	4	3	2	1	NA
Attending Special Events	5	4	3	2	1	NA
Visiting cultural/historical sites	5	4	3	2	1	NA
Walking for pleasure	5	4	3	2	1	NA
Picnicking	5	4	3	2	1	NA
Board sailing or wind surfing	5	4	3	2	1	NA
Other (describe):	5	4	3	2	1	NA

PART V. BOATS, GENDER, AND AGE

The last four questions are asked to insure that the results of the survey are statistically valid and representative of all boat owners who used the Delta for recreation in 1996.

29. How many boats were registered (under your name) with the State of California in 1996? Write the number of boats below.

___ Boats registered

30. What is your sex? Check "male" or "female" below.

Male Female

31. What is your approximate age?

Check the appropriate age group below.

- Under 18
- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66 +

32. Did you purchase a California fishing license in 1996?

Check "yes" or "no".

NO YES

THANK YOU!

Please return the completed questionnaire in the enclosed envelope. If you have any questions or require assistance in completing this survey, please call the Department of Parks and Recreation, Planning Section at 1-888-CALPARK.

SACRAMENTO-SAN JOAQUIN DELTA
1996 FISHING AND RECREATION EXPERIENCES

FISHING AND RECREATION SURVEY



CALIFORNIA STATE PARKS

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ACRAMENTO - SAN JOAQUIN DELTA FISHING AND RECREATION SURVEY

The following survey asks you questions about your use of the Delta for fishing and other recreation activities in 1996.

PART I. RECREATIONAL FISHING

The questions in this section apply to specific recreational activities related to fishing.

1. Did you fish in the Delta for recreation in 1996?
 YES If yes, continue with question 2 below
 NO If no, skip to Part II (Page 5).
 Please check "YES" or "NO" below.

2. Which day(s) of the week did you most often fish in the Delta?
 Please check the appropriate day(s) below.
 Fri. Sat. Sun. Mon. Tues. Wed. Thur.

3. Which time of the day did you most often use a boat in the Delta?
 Please check the appropriate time below.
 8 AM to Noon
 Noon to 4 PM
 4 PM to 8 PM
 8 PM to Midnight
 Midnight to 8 AM

4. Did you fish at night in the Delta in 1996?
 Please check "YES" or "NO" below.
 NO YES If yes, please write in the number of nights below.
 _____ Nights Fished

Please use the enclosed map of the Delta to answer questions 5-6, 11 and 16. The map divides the Delta into six recreation zones. Each zone is designated by a different letter.

5. In which zone did you fish most often in 1996?
 Find the location on the attached map and circle the appropriate letter below.

A B C D E F

6. If you fished in more than one zone, which other zone(s) did you use? Find the location(s) on the attached map and circle the appropriate letter(s) below.

A B C D E F

7. Which months did you fish in the Delta in 1996?
 Please enter the number of days you fished during each month in Table 1 below. NOTE: If you did not fish during a particular month, enter "0".

TABLE 1. Answer question 7 here.

MONTH	DAYS	MONTH	DAYS	MONTH	DAYS
JAN 1996		MAY 1996		SEPT 1996	
FEB 1996		JUNE 1996		OCT 1996	
MARCH 1996		JULY 1996		NOV 1996	
APRIL 1996		AUG 1996		DEC 1996	

8. Did you (or someone in your group) participate in any of the recreation activities listed in Table 2 below?

In Column A below please circle "YES" or "NO" for each activity.

9. How many people in your group participated in each activity?

Enter the number of people who typically participated (including yourself) in Table 2, Column B below.

10. How many days did you or someone in your group participate in each activity in 1996?

Please enter approximate number of days in Table 2, Column C below.

NOTE: Participation in the same activity two or more times during a single day only counts once. Example: Fishing in the morning and again in the afternoon counts as one day of fishing.

11. Where did these activities occur?

Please use the enclosed zone map to answer this question. In Column D below, enter the letter of the zone(s) where each type of activity occurred.

TABLE 2. Answer questions 8 through 11 here.

Type of Activity	Column A Did you Participate?	Column B Number of People	Column C Number of Days	Column D Zones Used
Fishing from a boat	YES NO			
Fishing from shore	YES NO			
Fishing in a tournament	YES NO			
Other (describe)				

12. Were there enough recreation facilities in the Delta to meet your fishing needs?

For each facility listed in Table 3 below, please circle the number that best describes how you feel. If you are not sure about the availability of a particular type of facility, circle "NA" for not applicable.

TABLE 3. Answer question 12 here.

FISHING FACILITIES						NA
	Too Many	More than Adequate	Adequate	Less than Adequate	Very Inadequate	
Bait & tackle shops	5	4	3	2	1	NA
Fishing piers	5	4	3	2	1	NA
Other shore access points	5	4	3	2	1	NA
Fish cleaning stations	5	4	3	2	1	NA
Public parking	5	4	3	2	1	NA
Public restrooms	5	4	3	2	1	NA
Boat launch ramps	5	4	3	2	1	NA
Fuel docks	5	4	3	2	1	NA
Other (please specify)	5	4	3	2	1	NA

PART II. OTHER RECREATION ACTIVITIES.

The questions in this section apply to your participation in specific non-fishing recreation activities in the Delta during 1996.

13. Did you (or someone in your group) participate in any of the activities listed in Table 4, page 6.

In Table 4, Column A please circle "YES" or "NO" for each activity. NOTE: If you did not participate in any of the activities listed, complete Column A, then skip to Part III (page 8).

14. How many people in your group participated in each activity? Please enter the number of people who typically participated, (including yourself), in Column B.

15. How many days did you or someone in your group participate in each activity in 1996?

Please enter the approximate number of days in Column C.

NOTE: Participation in the same activity two or more times during a single day only counts once. Example: Swimming in the morning and then again in the afternoon counts as one day of swimming.

16. Where did these activities occur?

Please use the enclosed zone map to answer this question. Find the approximate location where each type of activity occurred then enter the letter of the zone(s) in Column D.

TABLE 4. Answer questions 13 through 16 here.

Type of Non-Boating Activities	Column A Did you Participate?	Column B Number of People	Column C Number of Days	Column D Zones Used
Swimming	YES NO			
Tent camping	YES NO			
RV camping	YES NO			
Boating (other than for fishing)	YES NO			
Hunting	YES NO			
Viewing wildlife	YES NO			
Photography of nature	YES NO			
Sightseeing	YES NO			
Bicycling	YES NO			
Attending Special Events, (e.g., Pear Fair, Crawdad Festival, etc.)	YES NO			
Visiting cultural or historical sites	YES NO			
Walking for pleasure	YES NO			
Picnicking	YES NO			
Board sailing or wind surfing	YES NO			
Other (describe)	YES NO			

17. Were there enough recreation facilities in the Delta to meet your needs?

For each facility listed in Table 5 below, please circle the number that best describes how you feel. If you are not sure about the availability of a particular type of facility, circle "NA" for not applicable.

TABLE 5. Answer question 17 here.

RECREATION (NON-FISHING) FACILITIES	Too Many More than Adequate Adequate Less than Adequate Very Inadequate				
	5	4	3	2	1
Tent camp sites	5	4	3	2	1
RV camp sites	5	4	3	2	1
Picnic sites	5	4	3	2	1
Public parking	5	4	3	2	1
Places to buy food	5	4	3	2	1
Swimming beaches	5	4	3	2	1
Marinas	5	4	3	2	1
Public restrooms	5	4	3	2	1
Bicycle trails	5	4	3	2	1
Scenic vistas & overlooks	5	4	3	2	1
Hiking trails	5	4	3	2	1
Wildlife viewing areas	5	4	3	2	1
Hunting areas	5	4	3	2	1
Board sailing/wind surfing access	5	4	3	2	1
Other (please specify)	5	4	3	2	1
	NA				NA

18. Did you see any law enforcement patrol boats operating in the Delta in 1996? Please check "YES" or "NO" below.

NO YES

PART III. LAST TRIP TO THE DELTA

The following questions pertain to your most recent trip to the Delta in 1996.

19. How many people traveled in your vehicle on your last recreation trip to the Delta? Please enter the number below (include yourself).

_____ People

20. How many days did you spend on this trip, including travel time? Please write in the number of days below.

_____ Days

Did you stay overnight?

NO YES If yes, how many nights? _____ Nights

21. How many miles did you travel (one way) to get to your destination in the Delta? Please enter the number of miles below.

_____ Miles (one way)

22. How much money did you spend on this trip? Estimate the amount spent on the entire trip for goods and services listed in Table 6 below. (Identify the amount spent inside and outside the Delta). NOTE: If you did not spend any money on this trip, or if you did not spend money in any of the categories listed below, enter a "0". (Please do not leave any category blank.)

TABLE 6. Answer question 22 here.

TYPE OF EXPENSES		Expenses Outside Delta	Expenses Inside Delta
Overnight lodging (motels, resorts, campgrounds, etc.)	\$	_____	_____
Food and drinks bought at restaurants, snack stands, etc.	\$	_____	_____
Supplies, gas, groceries, repairs, parking, public transportation, souvenirs, and gifts.	\$	_____	_____
Recreation activities: including equipment purchases and rentals, launch fees, admission and permit fees, tours, guides, lessons, etc.	\$	_____	_____

PART IV. CHANGES IN YOUR USE OF THE DELTA FOR RECREATION

23. How has your use of the Delta for all recreational activities, including fishing, changed during the past five (5) years?

Next to each activity listed in Table 7 below, circle the appropriate number which best indicates how you feel. **NOTE:** If you did not participate in one or more of the activities listed, circle "NA".

TABLE 7. Answer question 23 here.

RECREATION ACTIVITIES	Decreased					NA
	Significantly	Somewhat	Stayed About The Same	Somewhat	Increased Significantly	
Fishing	5	4	3	2	1	NA
Swimming	5	4	3	2	1	NA
Boating	5	4	3	2	1	NA
Camping	5	4	3	2	1	NA
Hunting	5	4	3	2	1	NA
Viewing wildlife	5	4	3	2	1	NA
Photography of nature	5	4	3	2	1	NA
Sightseeing	5	4	3	2	1	NA
Bicycling	5	4	3	2	1	NA
Attending Special Events	5	4	3	2	1	NA
Visiting cultural/historical sites	5	4	3	2	1	NA
Walking for pleasure	5	4	3	2	1	NA
Picnicking	5	4	3	2	1	NA
Board sailing or wind surfing	5	4	3	2	1	NA
Other (describe):	5	4	3	2	1	NA

PART V. GENDER AND AGE

The last two questions are asked to insure that the results of the survey are statistically valid and representative of all anglers who used the Delta for recreation in 1996.

24. What is your sex? Check "male" or "female" below.

- Male Female

25. What is your approximate age?

Check the appropriate age group below.

- Under 18
 18-25
 26-35
 36-45
 46-55
 56-65
 66 +

THANK YOU!

Please return the completed questionnaire in the enclosed envelope. If you have any questions or require assistance in completing this survey, please call the Department of Parks and Recreation, Planning Section at 1-888-CALPARK.

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