Executive Summary

California Boating Facilities Needs Assessment

Gray Davis, Governor
State of California

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Secretary of Resources

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October 15, 2002

California Boating Facilities Needs Assessment

Primary Contractor to the California Department of Boating and Waterways

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Guide to Five Volume Report
California Boating Facilities Needs Assessment

Volume I	Statewide Boaters and Boating Facilities
Volume II	Regional Boaters and Boating Facilities
Volume III	Appendices to Statewide and Regional Boaters and Boating Facilities
Volume IV	Law Enforcement Boating Facilities Needs Survey
Volume V	Boating Economic Assessments and Facilities Demand Projections
Compact Disc	Database Inventory of Boating Facilities (In Volume III-Addendum)

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Executive Summary

The California Boating Facilities Needs Assessment (BNA) was a comprehensive assessment of boats and boating facilities statewide. It included an analysis of existing boats and facilities, as well as projections of boating facilities needs, through 2020. The BNA, conducted approximately every five years, is used to assist the Department of Boating and Waterways (DBW) allocate of funding for boating facilities, including launch ramps, dry storage, marinas, and support features. This executive summary provides an overview of the research and analysis included in the five-volume BNA. This Executive Summary combines information on the current status of boats and facilities summarized in Volumes I through IV, with the economic analyses and projections provided in Volume V.

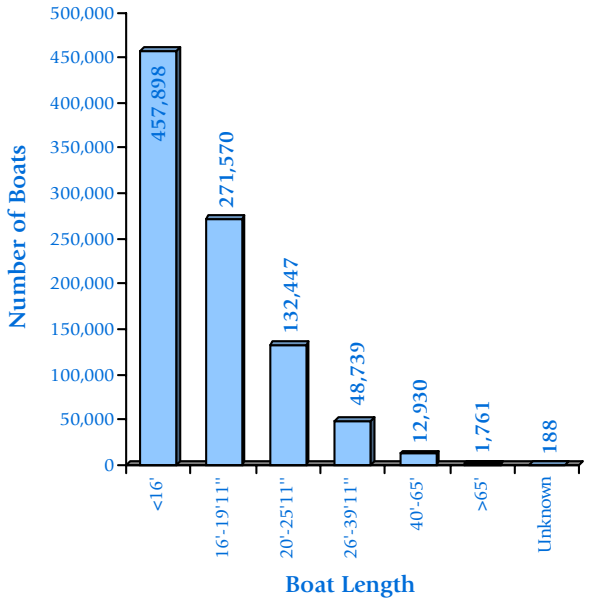
Details and specific information by region, boat length, facility type, and waterway are provided in the five BNA volumes, are as follows:

- **Volume I– Statewide Boaters and Boating Facilities** — Summarizes the most current information on California boaters and boating facilities and an assessment of current facility needs, and future needs, as projected by facility operators
- **Volume II– Regional Boaters and Boating Facilities** — Summarizes boats and boating facilities for each of the State's ten regions, including a summary of issues and problem areas for each region
- **Volume III– Appendices to Statewide and Regional Boaters and Boating Facilities —** Presents the BNA survey methodologies and survey instruments used; regional workshop presentations and results; and detailed survey result tables. This volume also includes a computer compact disc that provides an updated inventory of California's boating facilities
- **Volume IV– Law Enforcement Boating Facilities Needs Survey —** Provides the methodology and results of the law enforcement boating facilities needs survey
- **Volume V– Boating Economic Assessments and Facilities Demand Projections** — Summarizes economic benefits of boating to California, the values of recreational boating in California, and twenty year demand projections for boating and boating facilities.

A. Boats and Boaters

As of December 31, 2000, there were 925,533 registered or documented boats in California. There were also an estimated 97,000 non-motorized (and non-registered) boats in California at this time. Almost one-half of the registered or documented boats were under 16 feet in length. **Exhibit ES.1** shows the number of boats, by length category, in December 2000.

Exhibit ES.1
Number of Boats, by Length, December 2000



Total	925,533

California boat owners tended to be older and had higher income than the general State population. The average California boat owner was 53.9 years old, and almost 50 percent of boat owners had annual household incomes ranging from $50,000 to $100,000. Boat owners kept their boats for a relatively long time — one-half of boat owners had owned their boats for seven years or more. Boat owners reported that they took an average of 22 boating trips per year, and boated an average of 44 days in 2000. The average number of individuals on a boating trip was 3.7. However, just under 20 percent of boaters did not use their boats at all in 2000.

Only an estimated 13.5 percent of registered boats in California were stored in the water (about 125,000) and most of these were boats over 26 feet in length. Most other boats were stored on a trailer at the owner's property, and were launched from a launching ramp.

Most boat owners chose a waterway because it was close to home, for the local fishing, or for convenience. The 4,000 boaters in the California Boats and Boaters Survey identified 257 different waterways as their most-used waterway, illustrating California's diversity of recreational water resources. The most popular waterways for boats under 26 feet in length were the Colorado River, Pacific Ocean, and Sacramento-San Joaquin Delta. The most popular waterways for boats 26 feet and over were the Pacific Ocean, San Francisco Bay, and Sacramento-San Joaquin Delta.

B. Boat Population Projections Through 2020

The BNA calculated both high and low projections for California registered boat populations, through 2020. These projections were used to identify new boating facilities needs. The BNA models used regional per capita boat ownership, along with California Department of Finance county population forecasts. The low projection model was based on regional boat ownership trends from 1995 to 2000, while the high projection model was based on regional boat ownership trends from 1985 to 2000. Boat ownership by boat length was also projected using regional ownership trends in boat lengths. **Exhibit ES.2** illustrates results of the boat projections. Boat population is expected to increase on average by 13,337 to 23,092 boats per year, over the next twenty years, a growth rate of between 1.4 percent and 2.5 percent a year. **Table ES.1** illustrates the expected annual growth, by boat length, through 2020. Detailed forecasts of the future numbers and types of boats in each region were prepared for five-year intervals through 2020.

Exhibit ES.2
California Boat Projections, Through 2020

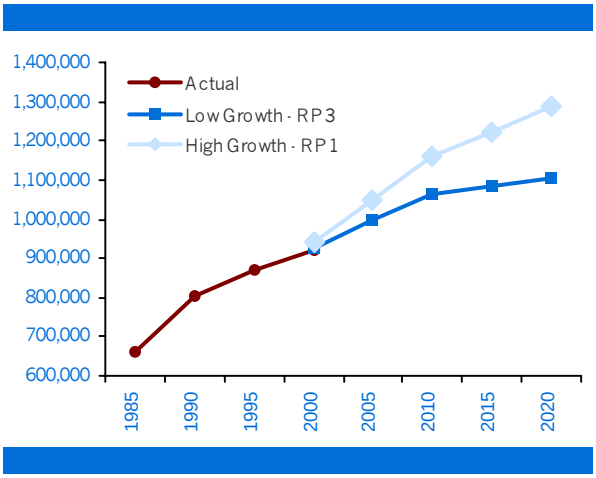


Table ES.1
Average Annual Increase in Number of Boats, by Length, 2000 to 2020

	Low	High
<16′ Jet	4,433	5,994
<16′ Other	4,559	8,093
16-19′	666	3,103
20-25′	3,814	5,531
26-39′	(310)	54
40′ +	165	317
Total	13,327	23,092

C. Quantifying the Impact of Boating in California

In Volume V of the BNA we quantified the economic impact and the recreational value of boating in California. The recreational value of boating is a measure of the non-market resource values associated with boating. A series of estimates of recreational value were calculated from the California Boats and Boaters Survey results using contingent valuation and travel cost methods. These values were also compared with other similar recreational values of boating in the literature. Our calculated values for the mean values of boating, per person, per day, ranged from $4.14 to $29.36. A mid-range value, using a travel-cost method based on boater's actual expenditures on vehicle fuel, was $17.89 per person, per day. This was identified as the most appropriate value to use in conducting the cost-benefit analyses for boating facility investments. From the data we also estimated a statewide total estimated annual recreational values of boating, ranging from $684 million to $2.8 billion.

The second set of values calculated were the economic impacts of boating on the State's economy. These values were based on an inventory of the California boating industry, a database of almost 8,500 businesses. Using information from the inventory, published secondary data, our survey data, and an input-output model, we estimated the economic impacts of boating in several categories, as shown in **Table ES-2**. The total boating impacts on the Gross State Product (GSP) were estimated at $16.5 billion, 1.2 percent of the total GSP.

Table ES.2
Economic Impacts of Boating in California, 2000

Economic Impact Category	Impacts
Total Boating Impacts on Gross State Product *(annual)*	$16.5 billion
Boating Contributions to State and Local Tax Revenues *(annual)*	$1.6 billion
Boating Contributions to State Employment *(direct and indirect)*	284,060 jobs

D. California Boating Facilities

California had over 818 boating facilities in 2001. This included marinas, launch ramps, and dry storage facilities that were both publicly and privately operated.[1] These facilities were located on approximately 250 different waterways including inland lakes, reservoirs, rivers, as well as harbors, bays, and the coastline of the Pacific Ocean.

[1] The facility survey did not include an inventory of facilities specifically for non-motorized boaters, although a limited survey of this category of boaters (primarily canoes and kayaks) was conducted. This group of boats, growing in popularity, had particular facility needs for low-impact, relatively undeveloped access points and boating trails with features such as gravel parking, restrooms, and overnight, boat-in camping.

Facilities for registered boats were categorized by type of facilities provided – launch ramps, dry storage, and/or wet storage. Statewide capacity figures were calculated by extrapolating the average regional capacity from facility survey to non-surveyed facilities for each region.

The majority of the 546 launch ramp facilities in California in 2001 provided one or two launching lanes, although there were over 75 facilities with between three and eight lanes, and a few facilities had a greater number of lanes. The total number of launch ramp lanes statewide was estimated at 1,638. One-third of the 319 launch ramp facilities answering the survey question responded that they reached capacity more than 15 times per year, and 43 percent reached capacity between 1 and 15 times per year. About one-third of the State's launch ramp facilities did not charge a launch ramp fee. Of those that did charge a fee, the average launch fee was just under $8. If other fees such as parking and day-use were included, the average fee was almost $10 per launch.

There were an estimated 222 boating facilities in the state in 2001 that provided an estimated 21,915 dry storage spaces. Our survey did not include general storage facilities and other dry storage facilities that were not exclusively for boats. Estimated occupancy of the boating dry storage facilities was 74 percent in 2001. Dry storage rates ranged from $15 to $700 per space, per month, with a statewide average rate of $79 per space per month.

The total statewide capacity for open berths, covered berths, tie-ups, and moorings was 113,648, provided at over 500 facilities in 2001. The estimated statewide occupancy rate for open berths in 2001 was 89 percent. Of the reporting facilities, 140, or 44 percent, were at 100 percent capacity. The remaining 56 percent of facilities had some vacancies. Over 50 percent of those facilities with vacancies had vacancies for slips under-26 feet in length. About one-third of facilities had vacancies in the 26 to 39 foot slip range, with relatively fewer facilities with vacancies in the larger slips lengths.

Of the total statewide capacity, only approximately 9,000 berths were covered. These covered berths are concentrated in the San Francisco Bay, Central Valley, and Sacramento Basin regions, and particularly in the Sacramento-San Joaquin Delta. Occupancy rates for covered berths were much higher – estimated at 94 percent in 2001. Within the total statewide capacity, there were also approximately 9,000 moorings. Occupancy rates for moorings were lower, averaging 70 percent. About three-quarters of the wet storage facilities surveyed provided berths for transient boaters. Of these, almost 50 percent turned away transients in 2000, half of them turning away transient boaters between 11 and 60 days that year.

There was a wide range in wet storage rates, with the highest rates typically found in Southern California, and the lowest rates in the Northern Interior and Eastern Sierra regions. The monthly open slip rental rates in 2001 ranged from $30 to $900 per space, with an average of $229. Monthly rental rates for open berths for facilities charging by the foot ranged from $1 to $31 per foot, with an average rate of $8 per foot. The transient rental rate per night ranged from $4 to $85 per space, with an average rate of $17 per space.

E. Boating Facilities Needs

Boaters were generally satisfied with the waterways and facilities they use most often. Almost 75 percent reported no problems with their most-used waterways. The problems cited most frequently at these waterways were insufficient water depth and overcrowding. Over 60 percent reported no specific facility needs at their most-used waterways. For those that did identify needs, the most frequently cited needs were for launching capacity, more capacity in general, and dredging.

The problems boaters cited most frequently for waterways that they avoided using included poor water quality, too far from home, insufficient water depth, and overcrowding. At these unused waterways, boaters most often requested improved launching capacity, better water quality, and dredging.

The facility needs identified most often by facility operators include dredging, parking capacity, launching capacity, boat slips, better waste pumpout, and dock repairs.

Over the course of conducting the BNA research, including four surveys and twelve regional workshops, we identified several key trends with implications for California's boating facilities.

- Many facilities did not have adequate funding for dredging. About 45 percent of those facilities in the survey, a total of 65 facilities, needed to dredge and did not have funds available. Dredging was the facility need identified most often by facility operators, and was frequently cited as a problem at the public workshops. The cost and frequency of dredging individual facilities varied widely, depending on factors such as tidal flows, location, and disposal options for the dredged material. Estimated costs per cubic yard ranged from $10, to over $50, and dredging costs of $1 million or more per facility were not uncommon.

- There was need for additional launching capacity. The increasing number of smaller boats and waterjet-powered personal watercraft (PWCs), the increasing size of trailerable boats, and the preference of most boaters to keep their boats at home all added up to increased pressure on launching facilities. Both boaters and facility operators indicated more launching capacity was needed throughout the State. Operators in less-populated regions were starting to feel pressure on their facilities as boaters traveled to those waterways from the more congested regions.

- There was a growing demand for dry storage, which can be offered at boating facilities, and general storage facilities, or at the boat owner's property. The preference for storage was at the boat owner's property, although there may be a shift toward more off-property dry storage as trailerable boats get larger. New dry storage capacity offered at boating facilities could provide a potential new revenue source if it was cost-competitive with general storage facilities.

- With few exceptions (such as the San Diego region and parts of Southern California), there was adequate wet storage capacity in the State. However, facilities, especially wooden dock facilities, were aging, and many facilities will need to be replaced over the next twenty years. Also, boat length trends point towards a need to reconfigure many older marinas, reducing the number of small berths and increasing larger berths.

F. Estimated Costs for New and Existing Boating Facilities Needs, Through 2020

We took three different approaches to estimating costs of upgrades, replacements of existing boating facilities, and costs of new boating facilities. The first method was to ask facility operators about estimated costs for facility repairs, replacement, expansion, or additions over three time periods. These estimates are conservative for two reasons. First, those facilities that did not complete the full Facilities Survey did not answer these questions, so these figures only represent a subset of the total. Second, in all cases, less than 75 percent of the facilities that indicated they had a need for upgrades were able to provide estimates of the costs of those upgrades. About 55 percent of the total estimated upgrade costs from facility operators were for public facilities, and 45 percent were for privately owned facilities.

For the second approach we used questions on the life expectancy of docks to prepare estimates for wet storage facility replacement costs for the next 20 years. The data provided by wet storage facilities in the facility survey included the number of years of life expectancy remaining and the number of slips. To calculate replacement costs, we used an average replacement cost per berth of $30,000. This method provided estimates of replacement costs for two time periods, (1) the next ten years, and (2) eleven to twenty years. However, some of the replacement costs within the next ten years may double-count the upgrade costs provided by facility operators.

The third approach was projecting costs of new facilities needs over the next twenty years from the facilities needs projections. This method used the high and low range boat population projections through 2020, and current boat storage and use patterns, to project high and low estimates of new facilities needs. Typical construction costs in 2002 were used to determine costs of these new facilities.

1. Launch Ramps

Existing Facilities

Two-thirds of the launch ramp facilities surveyed said that they had need for upgrades over the next ten years, about 75 percent of those were able to provide upgrade costs. The total upgrade cost for these facilities was $142.5 million over ten years, an average of $14.2 million per year in launch ramp facility upgrades, and an average per facility of $843,456. (See **Table ES.3**.)

New Facilities

There was an estimated need for 554 to 890 new launch ramp lanes over the next twenty years. Using a typical 2002 cost of $100,000 per new launch ramp lane, the total cost of adding these facilities ranged from $55.4 million to $89 million, or $2.8 million to $4.4 million per year, over the next twenty years. There was also a need for 18,043 to 28,217 new parking spaces for cars with trailers at launching facilities, estimated to cost between $36 million to $56 million, or $1.8 million to 2.8 million per year, over the next twenty years.

Table ES.3
Estimated Launch Ramp Facility Costs

	Total Costs	Costs per Year
Existing Facilities Upgrades Next Ten Years (to 2011)	$142.5 million	$14.2 million
New Facilities Ramp Lanes Next Twenty Years (to 2021)	$55.4 to $89 million	$2.8 to $4.4 million
New Facilities Parking for Cars with Trailers Next Twenty Years (to 2021)	$36 to $56 million	$1.8 to $2.8 million
Total New Launch Facilities Next Twenty Years	**$91.4 to $145 million**	**$4.6 to $7.2 million**

Table ES.4
Estimated Dry Storage Facility Costs

	Total Costs	Costs per Year
Existing Facilities Upgrades Next Ten Years (to 2011)	$25 million	$2.5 million
New Facilities Dry Storage Spaces Next Twenty Years (to 2021)	$72 to $116 million	$3.6 to $5.8 million

2. *Dry Storage*

Existing Facilities

Less than one-half of boating facility operators with dry storage identified facility upgrade needs, and even fewer identified costs. For those that did identify costs, the total upgrade costs over ten years was $25 million, or $2.5 million per year. The average cost per facility was just over $400,000. (See **Table ES.4**.)

New Facilities

There was an estimated need for 48,042 to 77,343 new dry storage spaces over the next twenty years. As mentioned above, these can be provided at boating facilities, as a potential new revenue source, or at general storage facilities. Using a typical cost of $1,500 per dry storage space, the cost of providing these new dry storage spaces over the next twenty years was $72 million to $116 million, an average of $3.6 million to 5.8 million per year.

3. *Wet Storage*

Existing Facilities

Facility operators were asked about upgrade costs for waterside and landside facilities over the next ten years. Almost 60 percent of the 489 wet storage facilities surveyed had waterside facility upgrade needs. About 75 percent of these facilities were able to provide cost estimates for the upgrades. The total estimate for waterside upgrades was $362.3 million over ten years, an average of $36.2 million per year. The average waterside upgrade cost per facility, was $1.7 million.

Less than 50 percent of the facilities surveyed indicated that they had landside facility upgrade needs, and about 75 percent of those facilities were able to provide cost estimates. The total over the ten-year period for landside facility upgrades was $270.1 million, or $27 million per year. The average landside upgrade cost per facility, was $1.5 million.

In a separate series of questions, facility operators were asked to estimate the number of years of life expectancy remaining for their docks. Assuming that slips should be replaced at the end of their life expectancy, **Table ES.5** shows the number of slips that would need replacing for the three dock types. This data shows that 46 percent of the State's total wet storage capacity will need to be replaced over the next twenty years. A majority of the slips needing replacement, 60 percent, are wooden. Just under one-half of these slips are publicly owned.

We used the facility survey responses for years of dock life remaining and an average replacement cost of $30,000 per slip to calculate an expected cost to replace aging facilities, shown in **Table ES.6**. The estimated costs for the period current-to-ten-years overlaps with the operator-estimated repair costs. Since operators were not able to provide estimates for facility repairs beyond ten years, the estimated replacement cost of $515.5 million (for eleven to twenty years), an average of $51.5 million per year, reflects entirely new costs.

Table ES.5
Number of Wet Storage Spaces Needing Replacing, by Dock Type

Time Period	Wooden Docks	Concrete Docks	Other Material Docks	Total – All Docks
Current to Ten Years (to 2011)	22,787	10,527	2,048	35,362
Eleven to Twenty Years (to 2011)	8,816	5,909	2,457	17,182
Total	**31,603**	**16,436**	**4,505**	**52,544**

Table ES.6
Cost of Replacing Wet Storage Spaces, by Dock Type

Time Period	Wooden Docks	Concrete Docks	Other Material Docks	Total – All Docks	Cost Per Year
Current to Ten Years (to 2011)	$683,610,000	$315,810,000	$61,440,000	$1,060,860,000	$96,441,818
Eleven to Twenty Years (to 2011)	264,480,000	177,270,000	73,710,000	515,460,000	51,546,000
Total	**$948,090,000**	**$493,080,000**	**$135,150,000**	**$1,576,320,000**	**$75,062,857**

Table ES.7
Estimated Wet Storage Facility Costs

	Total Costs	Costs per Year
Existing Facilities Waterside Upgrades Next Ten Years (to 2011)	$362.3 million	$36.2 million
Existing Facilities Landside Upgrades Next Ten Years (to 2011)	$270.1 million	$27 million
Existing Facilities Replacements Next Ten Years* (to 2011)	$1,060.9 million	$96.4 million
Existing Facilities Replacements Eleven to Twenty Years (to 2021)	$515.5 million	$51.5 million
New Facilities Next Twenty Years (to 2021)	$294.6 to $671.6 million	$14.7 to 33.6 million

New Facilities

An estimated 9,378 to 21,227 new wet storage slips, tie-ups, or moorings will be needed over the next 20 years to accommodate new demand. There will be considerable need for rehabilitation and upgrades throughout the period, but little need for added capacity before 2005. The cost per slip is estimated between $20,000 to $35,000, depending on the region. The total cost for new wet storage ranges from $294.6 million to $671.6 million over the next twenty years, an average of $14.7 million to $33.6 million per year. (See **Table ES.7**.)

The estimated annual costs over the next ten years to upgrade, replace, and add new facilities are shown in **Table ES.8**. The total annual costs, ranging from $177.9 million to $201.6 million, represent an ideal-case situation, where all needed boating facilities improvements and additions are made. Reflecting California's aging boating infrastructure, just providing the needed upgrades and replacements would cost an estimated $155 million per year, over the next ten years.

Table ES.8
Estimated Annual Costs for Boating Facilities Upgrades, Replacement, and New Facilities, Through 2021

Facility Type	Annual Costs
Launch Ramps	$18.8 to $21.4 million
Dry Storage	$6.1 to $8.3 million
Wet Storage	$153 to $171.9 million
Total	**$177.9 to $201.6 million**