

Staff Report

Houseboats and Live-aboard Boats

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San Francisco Bay Conservation and Development Commission

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on
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INTRODUCTION

In the past few years, the Commission has received a number of inquiries concerning the permissibility of: (1) new houseboat marinas in the Bay; (2) the conversion of existing recreational boating marina berths to houseboat or live-aboard boat use; and (3) the inclusion of houseboats and live-aboard boats in new Bay marinas. The San Francisco Bay Plan policies on houseboats, adopted by the Commission in 1968, would allow development of additional houseboat marinas under limited circumstances, however, the Bay Plan does not have any specific policies on live-aboard boats. The 1969 amendments to the McAteer-Petris Act, the Commission's law, gave the Commission the authority, generally, to allow Bay fill only for "water-oriented" uses. Fill, under the Act, includes floating structures, such as houseboats, moored for an extended period of time. Residential uses are not "water-oriented" uses under the Act nor is a residential use a public trust use. The primary purpose of a houseboat is its use as a residence. Live-aboard boats are used for navigational purposes but are also used for long-term residential use. Clearly the Bay Plan policy allowing houseboats, a residential use, appeared to be contrary to the McAteer Act that does not allow fill, generally, for residential use.

Because of the increased requests for the Commission's position on the permissibility of houseboat and live-aboard boat use, the seeming conflict between the Bay Plan houseboat policies and the McAteer-Petris Act rules on Bay fill, and the absence of a Bay Plan policy on live-aboard boats, the Commission determined it should systematically review houseboat and

live-aboard boat use in San Francisco Bay; the consistency of such use with the Bay Plan policies, the McAteer-Petris Act, and the public trust; and determine what amendments, if any, should be made to the Bay Plan.

This report is intended to provide the information necessary for the Commission to determine what changes, if any, it should make to the Bay Plan and its regulations concerning houseboats and live-aboard boats. The report has been prepared with the assistance of the Office of the Attorney General, and considerable discussion and analysis of the public trust is taken from an informal letter of advice dated April 28, 1982, from Deputy Attorney General Kathleen W. Mikkelson, and discussion and analysis of the Commission's authority to regulate houseboats and live-aboard boats is taken from an informal letter of opinion, dated August 17, 1983, from Deputy Attorney General Linus Masouredis. Both of these letters are available for review at the Commission's office and should be consulted for a more complete legal discussion of the pertinent subjects.

The recommendations in this report are in conformity with the Richardson Bay Special Area Plan policies on houseboat and live-aboard boat use adopted by the Commission on December 6, 1984 and correctly applicable to the Richardson Bay Area of the Commission's jurisdiction.

Chapter I describes the numbers and locations of houseboat marinas and live-aboards in San Francisco Bay as well as a general description of design, size, and cost of the boats. The authority of the Commission, local governments, other state agencies, and federal agencies to regulate houseboats and live-aboard boats is set out in Chapter II. The general environmental and social impacts associated with these uses of the Bay and shoreline are discussed in Chapter III. The staff-suggested amendments to the findings and

policies of the Bay Plan are found in Chapter IV. Finally, Appendix A contains the staff-suggested amendments to the Commission's regulations to define the terms "houseboat," "live-aboard boat," and "moored for extended periods."

[Note: this reprinted report includes the Commission-adopted houseboat and live-aboard boat findings and policies which are amended into the San Francisco Bay Plan, and the Commission's definition of the terms "houseboat" and "Live-aboard boat" as approved by the state Office of Administrative Law which are included in the Commission's administrative regulations. The adopted findings, policies, and definitions are located immediately following Chapter IV.]

CHAPTER I. OCCURRENCE AND USE OF HOUSEBOATS AND LIVE-ABOARD
BOATS IN SAN FRANCISCO BAY

Although a comprehensive account of the inception, growth, and migration of waterborne residences on San Francisco Bay is not readily available, it seems probable that floating structures used as residences and boats used primarily for residential purposes have been found in small numbers around the Bay since the mid-1800's, particularly during the gold rush era when ships anchored off the San Francisco waterfront were used as residences by arriving "49er's." By about 1890, a few floating residential structures and boats used as residences were reported in Belvedere and along Corte Madera Creek in Marin County. Those on Corte Madera Creek were later pulled onshore, placed on pilings, and converted to homes. Many of these homes still exist today along the Greenbrae and Larkspur Boardwalks.

After the turn of the century houseboats and live-aboard boats, primarily occupied by squatters, began to be reported occurring elsewhere in the Bay. Newspaper accounts from 1910 through 1930 indicate that a number of houseboats and live-aboard boats were moored along the Oakland-Alameda Estuary; however, most of these no longer exist.

During World War II, with the influx of shipbuilders, the number of houseboats and live-aboard boats burgeoned, particularly on the San Francisco waterfront and along the shoreline of Richardson Bay in southern Marin County. After the war, writers, painters, and craftsmen, attracted to Sausalito moved to the houseboat community, often building houseboats that

looked more like wooden sculpture than houses. By the 1960s houseboats had pretty much consolidated around the Waldo Point area in Richardson Bay, although a few could be found clustered in other parts of the Bay.

Live-aboard boats, on the other hand, are not concentrated in a few locations as are the Bay houseboat communities. Most live-aboard boats are scattered through the Bay's many recreational marinas, however, some can be found moored outside of a marina.

The term "houseboat" or "live-aboard boat" brings a mental image of the form and function of the object based on one's experience. For example, a houseboat to a person from the Sacramento-San Joaquin River Delta area or from Lake Shasta is a recreation vessel that is used for active recreational navigation as well as vacation living. A houseboat to a resident of southern Marin County is a floating home secured to a pier but not used for navigation. A live-aboard boat to a boater is a y boat with living accommodations (sleeping, cooking, toilet, and washing facilities) on which people stay a weekend while working on the boat or a two-week summer vacation cruising from one destination to another. However, boaters emphasize the boat's navigational use. But live-aboard boats can also serve as a person's principal residence and be used for active navigation only occasionally.

There is then a clear and distinct difference between a houseboat and a live-aboard boat. A "houseboat" is a boat or structure moored in the water and used for private residential or another non-water-oriented use and not used for active navigation. A "live-aboard boat" is a boat used or capable of being used for active self-propelled navigation moored for an extended period of time and used during that time as a private principal place of residence. There are, of course, boats where typical residential uses occur, but they are

relatively short-term and incidental to the predominate navigation activity. This report does not address that type of vessel.

Houseboats

Houseboats in San Francisco Bay are designed and used primarily as permanent floating homes, although in some cases they are used as offices. In either case, they are not designed or used for active self-propelled navigation. In addition to houseboats specifically constructed for use as a home, there are former barges, tugboats, ferries, and fishing vessels which have been converted to residences and are no longer used for navigation. However, most houseboats constructed in the past decade have been designed to resemble closely a traditional single-family home except that the foundation of the structure is more than likely a concrete barge-like hull that enables the structure to float. Many of these floating structures are rectangularly shaped, but some, mainly the older ones, are more imaginatively designed with turrets, towers, and sweeping angles.

In the past decade the number of artists, writers, and craftsmen who were the prevalent occupants of Bay houseboats in the 1950's, 1960's, and early 1970e1 s have declined in numbers. Due to the popularity and demand for waterfront housing, the escalating costs of construction and docking fees, recent houseboat owners and occupants are relatively affluent. Thus, not only has the physical appearance of the Bay houseboat communities changed over the past decade, so have the social and economic profiles of houseboat occupants changed.

1. Numbers and Locations. Approximately 670 houseboats are docked in San Francisco Bay (See Figure 1 and Table 1). Because houseboats are

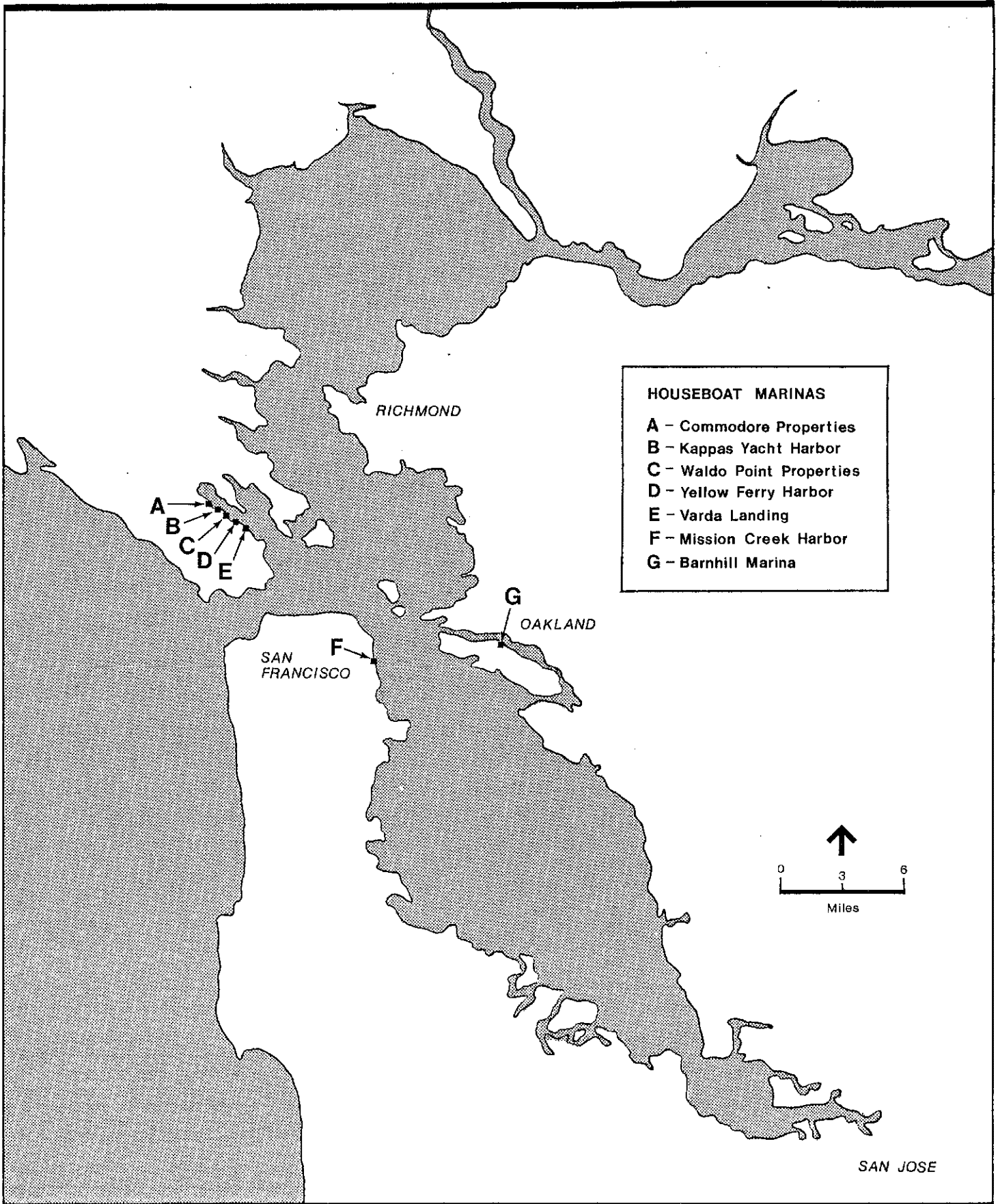


FIGURE 1
Houseboat Marinas

TABLE 1
BCDC HOUSEBOAT MARINA PERMITS

Permit Number	Applicant/ Marina News	Location	Houseboat Berths	Total Berths	Total Public Access	Public Access on Fill	Amount of Fill and Use
4-71	George Kappas Kappas Yacht Harbor	Gates 6+6-1/2, Waldo Point, Marin County	117	272	1.64 acre	1.64 acre	0.3 acre - Docks/marina facilities 1.64 acre - Minor fill for improving shoreline appearance
5-71	Lewis E. Cook, Jr, Arques Marina	Gates 4+4-1/2, Waldo Point, Marin County	265	265	No figures	1.09 acre	0.58 acre - Docks/marina facilities 1.09 acre - Minor fill for improving shoreline appearance
6-71	Miriam Tellis, Yellow Ferry Harbor	Gate 5, Marin County	22	22	No figures	0.06 acre	0.06 acre - Minor fill for improving shoreline appearance
14-73	Commodore Properties	240 Redwood Highway, Marin County	11	11	No figures	0.15 acre	0.15 acre - Minor fill for improving shoreline appearance - Airport use (prevent flooding at heliport)
7-76	San Francisco Port Commission, Mission Creek Harbor	Mission Creek, San Francisco	20	55	0.87 acre	None	NOTE: Increased Bay surface by 0.8 acre
26-76	Sausalito Yacht Harbor	Sausalito, Marin County	9	625	0.25 acre	0.04 acre	0.12 acre - Docks/marina facilities 0.04 acre - Public access
TOTALS			444	1,250	-	2.98 acre	3.18 net acre

Source: BCDC Permit Files

distinctive and do not often move, reasonably accurate information about their locations and numbers can be taken from aerial photographs and observation. Most houseboats are located in special houseboat marinas. Four such marinas are located in Marin County in Richardson Bay: (a) Kappas Yacht Harbor with 117 berths; (b) Waldo Point Properties with 265 berths; (c) Yellow Ferry Harbor with 22 berths; and (d) Commodore Properties with 11 berths. Twelve houseboats are moored at Varda Landing in Sausalito, also in Richardson Bay. In Alameda, the Barnhill Marina contains 45 houseboat berths and in San Francisco, the Mission Creek Harbor contains 20 houseboat berths. The houseboat marinas predate the Commission's creation in 1965 and thus Commission permits were not required for their establishment and use. However, the Commission has granted permits for very minor additions to some of the marinas to allow their modernization.

In addition to the above houseboat marinas, houseboats are moored at other locations around the Bay, some approved by the Commission, some not approved. The Commission has authorized modernization of nine houseboat berths at the Sausalito Yacht Harbor in Sausalito that preexisted the Commission. Six houseboats are docked at the Point San Pablo Yacht Harbor and four houseboats are located at the Port Sonoma Marina in Sonoma County--these houseboats do not predate the Commission and are not authorized by it. Approximately 115 houseboats and live-aboard boats are moored offshore of Waldo Point Harbor in Richardson Bay and approximately 40 houseboats and live-aboard boats are moored near the Napa Street Pier in Sausalito. None of these floating structures are authorized by the Commission although some of the structures may predate the Commission. Finally, a few houseboats are moored and used as yacht sales offices and residences in the Oakland Estuary.

Some houseboats are also used as offices in Richardson Bay and off Redwood Creek.

2. Design, Size, and Cost. Houseboats are normally single-story structures although most recently constructed structures are two stories high (16 feet above the water line) and some in Richardson Bay, prior to amendment of the Marin County Code, extend three stories high (over 20 feet above the water line). The floor space in most houseboats in San Francisco Bay ranges from 500 to 3,000 square feet of living space.

One of the most enduring features of many of the houseboats constructed in the 1950's and 1960's is the uniqueness of design. These early houseboats were often crafted from converted commercial vessels and barges with living units constructed on the deck in an artistic manner. However, many newer houseboats are rectangular and bulky, described by some as floating trailers. Others have individual decorative touches that create interest and visually attract one. Houseboat building and occupancy codes, such as Marin County's (one of the most comprehensive in the nation) however, most likely will result in less design diversity if new houseboats are to be built and older ones remodeled in the future because of height and bulk limits.

Houseboats are usually designed to float on a reinforced concrete hull costing about \$15 per square foot, or on a wood and fiberglass hull costing about \$11 per square foot. However, less costly pontoons and styrofoam blocks may also be used for flotation, a form of flotation often found on the older, smaller houseboats. The overall costs of a new houseboat with a concrete hull, including applicances, are about \$80 per square foot. Houseboats for sale currently in Marin County range in price from \$35,000 for a small two-story, one bedroom unit to \$199,000 for two-story, two bedroom,

two bath unit. However, some of the newer, larger well appointed boats would easily exceed the highest previously cited price.

In the past, houseboats offered a unique and different form of housing, and importantly, a totally different lifestyle than found in the average Bay Area residential community. In addition they were often far less expensive to build, buy, rent, and maintain than most forms of upland housing. However, modern houseboat housing is anything but low-cost. The demand for a scarce resource--waterfront housing--compliance with modern building codes, and a demand for houseboat living by affluent individuals have all contributed to the increased price of houseboat living, not only in San Francisco Bay, but other coastal communities as well.1/

Although many older and smaller houseboats in Richardson Bay are described by some as a form of low-cost housing, newly constructed and remodeled houseboats that comply with applicable local government building and occupancy codes are generally recognized in San Francisco Bay, as well as other metropolitan areas with large numbers of houseboats, as no longer sources of low-cost housing.2/

While new houseboat prices can be no longer called "low-cost" the price for such housing is more than competitive with similar upland shoreline housing around the Bay. Thus, houseboats continue to be an attractive form of housing and the Commission continues to receive inquiries as to the permissibility of the development of new houseboat marinas in the Bay or the development of houseboat facilities in conjunction with construction of recreational boating marinas.

Live-aboard Boats

Most boats are designed for active self-propelled navigation and to accommodate living onboard. Generally, boats longer than 22 feet provide accommodations for eating, sleeping, and washing oneself. People live on boats for varying periods and reasons. Some reasons, according to the Pacific Inter-Club Yacht Association (PICYA),^{3/} include living onboard: (1) during the construction or completion of a vessel; (2) while preparing for a voyage; (3) to facilitate general maintenance of a vessel; or (4) to increase the time available, after work, to enjoy the pleasures of sailing, fishing, or other recreational purposes to which boats are put.

Boats are lived on while cruising from one location to another, be it a weekend sailing race in the Bay or coastal passage from Seattle to San Diego with a lay over in San Francisco Bay for touring, a rest, or for purposes of repair, maintenance, and reprovisioning.

However, some boats are moored in marinas and used as long-term private residences as well as for navigation. Although the boat may be used for active navigation, it also provides the owner or occupier with a principal place of residence. The long-term and frequent residential use can be distinguished from occasional residential use, such as on weekends, or use by a boater in transit from one port to another. "Live-aboard" is the term used to distinguish boats that are moored for an extended period of time, and used during that time as a principal private residence from boats primarily used for navigation but also lived on for short periods and infrequently.

1. Numbers and Locations. Live-aboard boats are found in many marinas around the Bay. Most live-aboard boats are located in a marina, but some are moored offshore in various locations. Because live-aboard boats have a

similar appearance to other boats and because the residential use may be established or terminated at will, the precise number is not known. However, inventories at some marinas give a fairly reliable estimate of the level of Bay live-aboard boat use.

For example, in 1984, staff mailed a questionnaire to 75 Bay Area marinas soliciting information on live-aboard boat use and marina facilities provided for such use. Response was received from 41 of the marinas (a 55 percent response). Of the 41 marinas responding, 18 or 44 percent indicated the presence of live-aboards. Of those 18, all provide restrooms for boater use and potable water to the berths. Further, showers are provided by 16 of the responding marinas. Most of the marinas reported that between one and five percent of their berths were occupied by live-aboard boats. Four marinas reported that between six and ten percent of their berths were leased to live-aboard boat owners. One reported that 14 percent of the berths were occupied by live-aboard boats. The total number of live-aboard boats in these 18 marinas was reported to be 260. The total number of reported live-aboard boats, 260, is equivalent to two percent of the 12,610 total berths in the 41 responding marinas.

A survey of 66 marinas in the Bay Area was taken by Bay Area Boaters in August, 1983.^{5/} The results of the survey indicated that of the 16,295 berths in the marinas, 1,033 boats in the berths "...might be live-aboard boats."^{6/} If all 1,033 boats were live-aboards boats, then six percent of the available boat berths in the surveyed marinas would be occupied by live-aboard boats.

From these surveys one could estimate that approximately two to six percent of the boats docked in marinas in San Francisco Bay are live-aboard

boats. Based on that percentage, and given that there are approximately 19,000 existing and under construction berths in the Bay, one could assume that there would be from 380 to 1,140 live-aboard boats in the Bay.

2.aa Design, Size, and Cost. In the Bay, live-aboard boats are generally sailboats, but power boats such as cabin cruisers, former fishing boats, and tugboats are also used as live-aboard boats. The most common size of sailboat used as a live-aboard boat is 27 to 36 feet in length. Recently, however, larger boats, 40 to 50 feet in length with about 250 to 300 square feet of living space, are being used. Larger boats are commonly equipped with a living-dining area, two bedrooms (staterooms), kitchen (galley), bathroom (head), running water and electricity. Smaller live-aboard boats have less living space, often with a combined cooking, eating, living, and sleeping area, and a bathroom.

For the amount of living space provided, live-aboard boats are an expensive form of housing. For example, the Pacific Inter-Club Yacht Association calculates that a 40-foot boat with a 12-foot beam costs approximately \$400 per square foot of living space.^{7/} For comparison, the construction cost of a new home in the southern Marin County area, land costs not included, is approximately \$100 per square foot.

Although many older live-aboard boats are smaller, newer boats are in the 30 to 38 foot range. A few larger power boats contain many conveniences and the facilities of a well-appointed small home, such as washing machines. They can cost from \$125,000 to \$200,000. Used boats in this category may be purchased for around \$85,000 to \$90,000. The trend in boat sales in the past few years in the San Francisco Bay Area has been toward the larger, more expensive boat that is well equipped for both cruising and living.

In addition to paying for the boat itself, boat owners usually pay a berth rental fee. Live-aboard boat owners pay not only the standard berth rental based on size of the boat, they often pay an additional amount based on increased usage of the marina facilities. The additional fees can be up to \$7.50 per foot per month. Thus the total cost of berth rental for a 40-foot live-aboard boat can run up to \$300 per month.

CHAPTER II. AUTHORITY TO REGULATE HOUSEBOATS
AND LIVE-ABOARD BOATS

The authority and existing policies of the Commission governing control of houseboats and live-aboard boats and the applicable rules of local governments, other state agencies, and federal agencies are examined in this chapter. The Commission's authority to control houseboat and live-aboard boat use in the Bay is derived from two primary sources: the Commission's law and the public trust. In addition, local government, other state agencies, and federal agencies have the authority to regulate various aspects of houseboat and live-aboard use in the Bay based on their respective laws, regulations, and policies.

Commission Rules and Policies

Neither the McAteer-Petris Act nor the Commission's regulations presently define the term "houseboat" or "live-aboard boat." For the purpose of this report, a "houseboat" is a boat that is used for a residential or other non-water-oriented use and not used for active navigation. A "live-aboard boat" is a boat that is used or capable of being used for active navigation, moored for an extended period, and is used as a private principal place of residence. Definitions, proposed by staff to be adopted by the Commission as additions to the Commission's regulations, are set out in Appendix A.

1. McAteer-Petris Act

Government Code Section 66632(a) requires a person to obtain a Commission permit when that person:

Wishes to place fill...or to make any substantial change in use of any water, land or structure within the area of the Commission's jurisdiction...(emphasis added).

Fill is defined under the Act as:

Earth or any other substance or material, including pilings or structures placed on pilings, and structures floating at some or all times and moored for extended periods, such as houseboats and floating docks (Government Code Section 66632(a), emphasis added).

Thus, there are three independent bases for regulating houseboats and live-aboard boats under the McAteer-Petris Act:

- a. Because houseboats and some live-aboard boats are a form of fill. Houseboats are specifically referred to in the McAteer-Petris Act as a form of floating fill. Other vessels, such as some live-aboard boats, are also considered fill when they are "moored for extended periods" in the Bay.
- b. Because the addition of a residential use or another category of use to any structure, including a houseboat or live-aboard boat, or to any water area that was not so used on or before September 17, 1965 is a substantial change of use either of the structure or the water or both.
- c. Because houseboats and most live-aboard boats are moored at a marina over which the Commission has fill authority and use control to assure that the fill will be for uses that are "water-oriented." This authority includes those marinas established or changed on or after September 17, 1965.

There are, however, two exceptions to the fill authority that would effect both houseboats and live-aboard boats. First, houseboats and

live-aboard boats that have been moored at a particular location from before September 17, 1965, the date of the Commission's authority, would not require a Commission permit. Second, live-aboard boats that are not moored for an extended period of time, such as transient boats that sail or motor to San Francisco Bay from areas outside the Bay and on which people live while the vessel is temporarily moored in the Bay, would not require a permit.

In addition to its authority to control directly the mooring of houseboats and most live-aboard boats, the Commission has authority to regulate most marinas. Permits are needed for pile supported or floating piers, walkways, pilings, breakwaters, and other such structures in the water as well as dredging and the disposal of dredged spoils.^{1/e} To issue such permits the law requires that the use will be water-oriented (water-oriented uses are ports, water-related industry, airports, bridges, wildlife refuges, water-oriented recreation and public assembly, and water intake and discharge lines).

In addition to regulating fill, the Commission also regulates "any substantial change in use of any water, land or structure within the area of the Commission's jurisdiction...."^{2/} The Commission's regulations define substantial change in use, in part, as:

Any construction, reconstruction, alterations or other activity whether or not involving a structure, if the activity... involves a change in the general category of use of a structure or of land (i.e. agricultural, residential, commercial, office, industrial, recreation, vacant non-use, etc.)
(14 Cal. Admin. Code Section 10133(b)(2)).

The regulation indicates that a substantial change in use is not limited to an activity that creates a new structure, but includes certain changes in use of an existing structure, such as a conversion from

recreational to residential use or addition of a residential or other use to a recreational or navigation use.

Consequently, changes in use either of the water where a boat is to be moored or of the vessel itself from recreational to long-term residential use, combined recreation and residential use, or other completely different use is a "substantial change in use" requiring a Commission permit. This means that even if waterborne vessels were in existence prior to September 17, 1965 and cannot be considered "fill" requiring a permit, the conversion of such vessels to residential use after the date of the Commission's jurisdiction would nonetheless be a "substantial change in use " requiring a permit.

Finally, the Commission has regulatory authority over the initial development of expansion of or change to a marina. Most houseboats and live-aboard boats are moored at marinas. In issuing permits for new marinas or expansion of existing marinas the Commission has authority over the uses at the marina. It may impose permit conditions regarding "the uses of land or structures and intensity of uses" so as to ensure consistency with the provisions of the McAteer-Petris Act, the policies of the Bay Plan, and the requirements of the public trust. Consequently, in issuing permits for new or expansion of existing marinas at which houseboats or live-aboard boats are to be moored, the Commission can prohibit their mooring or impose conditions and restrictions controlling the extent of their use.^{ee}

2.^{ee} Consistency of Houseboat and Live-aboard Boat Use with theee McAteer-Petris Act. The McAteer-Petris Act authorizes the Commission to issue permits:

only when public benefits from fill clearly exceed public detriment from the loss of water areas and should be

limited to water-oriented uses (such as ports, water-related industry, airports, bridges, wildlife refuges, water-oriented recreation and public assembly, water intake and discharge lines for desalinization plants and power generation plants requiring larger amounts of water for cooling purposes) or minor fill for improving shoreline appearance or public access to the Bay...(Government Code Section 66605(a)).

Residential use is not a water-oriented use under the McAteer-Petris Act, primarily because residential uses do not need to be located on or in the water; they can and should be located on land.

Houseboats, which are designed specifically for and used as a residence, or sometimes for another use that does not require a water location, such as an office, are not water-oriented uses. Moreover, houseboats usually do not confer a public benefit that justifies the detriment to the Bay from the fill involved.

There is an exception to the general prohibition of fill for a non-water-oriented use such as a residential use under the McAteer-Petris Act. Within an existing houseboat marina, small numbers of houseboats and/or live-aboard boats and associated structures, e.g. piers, walkways, and breakwaters, could be allowed if they are a small part of a project, the primary purpose of which is to improve shoreline appearance or to provide new public access to the Bay.

To approve minor fill for the improvement of shoreline appearance, the Commission must be able to find that the fill is necessary because the present appearance of the Bay and shoreline in the area adversely affects enjoyment of the Bay and shoreline within the site area, or within adjacent areas of the Bay shoreline. Further, it must be either physically impossible or economically infeasible to improve the appearance without filling.^{3/} To approve minor fill for public access, the Commission must be able to find that

the fill is necessary because there is at present inadequate public access to the Bay shoreline in the area. Further, it must be either physically impossible or economically infeasible to improve the public access without filling^{4/}. In both cases the amount of fill approved must be the minimum necessary to improve the shoreline appearance or provide the new access.

3. Public Trust. Another major restraint on the approvability of houseboats and live-aboard boats is the public trust easement.^{5/} The public trust easement is a property interest held by the State on behalf of all present and future generations. It applies to unfilled and filled tidelands and submerged lands whether they are held in public ownership or by private parties, with the exception of lots sold by the Board of Tide Land Commissioners that are filled and no longer subject to tidal action as of February 22, 1980.

Virtually all the publicly and privately held tidelands and submerged lands within the jurisdiction of the Commission are subject to the public trust easement. The public trust is a paramount public property right held in trust by the State for the benefit of the public. Title to this public trust ownership is vested in the State Lands Commission or legislative grantees. The purpose of the public trust is to assure that the lands to which it pertains are kept for trust uses, for example commerce, navigation, fisheries, wildlife habitat, recreation, and open space. The McAteer-Petris Act and the Bay Plan are an exercise of authority by the Legislature over public trust lands and establish policies for meeting public trust needs. As a result, the public trust ownership provides additional support for Commission decisions affecting such lands. When the Commission takes any action affecting lands subject to the public trust, it should assure that the action

is consistent with the public trust needs for the area and, in case of lands subject to legislative grants, should also assure that the terms of the grant are satisfied and the project is in furtherance of state-wide purposes.

Agencies which have public trust responsibilities in San Francisco Bay are the Commission; the State Lands Commission; the Department of Fish and Game^{6/}; the State Water Resources Control Board, including the San Francisco Bay Regional Water Quality Control Board^{7/}; and local governments holding legislative grants of tidelands.^{8/} For the Bay, those local governments are: the Cities of Alameda, Albany, Benicia, Berkeley, Emeryville, Martinez, Mill Valley, Oakland, Redwood City, Richmond, Sausalito, San Leandro, San Mateo, South San Francisco, and Vallejo; the City and County of San Francisco; Marin County; San Mateo County; Peralta Junior College District; and the California Maritime Academy.

All trustees have a Constitutional, statutory, and common law duty to protect the public interest in tidelands and submerged lands, particularly for traditional public trust uses such as navigation, fishing, boating, commerce, wildlife, and open space.^{9/} Generally, private residential uses of the public's trust lands, including the residential use of houseboats and live-aboard boats, is not a use consistent with the public easement rights and hence is not permissible. This purely private use is unrelated to, not dependent upon, and does not further the public purposes for which tidelands are uniquely suited.^{10/} Moreover, houseboats do little to stimulate or foster navigation, commerce, or fishing and in many cases actually diminish those activities. In fact, the berth space occupied by houseboats, which is usually much larger than that occupied by the normal recreational boats, preempts use of scarce berthing space for navigable boats.

Both private and public tidelands and submerged lands in the Bay are subject to the trust. On private lands subject to the public trust easement, nontrust uses may occur if (a) the lands are not needed for trust purposes and (b) the nontrust uses are limited so that the lands can be made readily available for trust purposes when that need arises. On public lands, nontrust uses are usually not allowable. Only where the nontrust use is a very small part of a larger project otherwise consisting of trust uses, and where the nontrust use is "necessarily incidental" to a trust use, may it be allowed. "Necessarily incidental" means inextricably bound up with the accomplishment of a trust purpose.^{11/}

In addition, all uses on public lands subject to the trust must also serve a "statewide purpose." This restriction means that the use must benefit all the people in the State. Most typical trust uses, such as ports, wildlife habitat, and open space, can easily be shown to have statewide benefit. But private uses, such as residential, office, and commercial, usually only benefit the small number of people who live on or use the boats. The rest of the people in the state enjoy limited, if any, benefits from that use of trust lands. Moreover, because the public owns these lands, the lands may not be devoted to purely private uses. Allowing such a private use would amount to a gift of public property in violation of the Gift Clause of the California Constitution.^{12/}

The few live-aboard boats at the Berkeley Marina (located on lands granted to the City of Berkeley and subject to the trust) serve as an example. This is the only permit issued by the Commission wherein live-aboard boats were authorized. Here four percent of the marina berths were allowed by the Commission, the State Lands Commission, and the City of Berkeley, the

legislative grantee, to be occupied by live-aboards. This was justified because the presence of a few residents at the primarily recreational marina--a trust use serving a statewide purpose--provides added security particularly during the week and at night when most of the recreational boaters are not present and thus can be considered incidental to the primary recreational boating use. Moreover, the City requires the 40 cruising boats to be distributed proportionately among the 15 piers in the 59 acre marina in order to report emergency situations, unusual events, or violation of regulations. The boats must be demonstrated seaworthy by leaving the marina for a minimum of six hours each ninety-day period. Boats that are not seaworthy may not be lived on. The city believes that this procedure emphasizes the secondary use of the vessel as a residence and assures that its primary uses are for recreation and for security and surveillance. Further, the area occupied by the live-aboard boats is a very small part of the Berkeley granted lands and all of the rest of the granted lands are devoted to recreational boating, commercial and sport fishing, open space, and marine habitat--trust purposes.

Lastly, the live-aboard use may be terminated quickly by simply providing a one month notice to vacate so that if the berths are needed for a trust use, they may be made available quickly.

To aid trustee agencies when they evaluate projects on private lands subject to the trust, particularly houseboat and live-aboard projects, the Attorney General has recommended^{13/} evaluating a proposed project according to the following criteria:

- (1) whether the use will interfere with existing public trust uses, such as public access to the Bay, navigation, commerce, fishing, scenic view corridors, and wildlife habitat;
- (2) whether the lands are currently needed for

trust uses; (3) whether the use will interfere with future public trust uses in the area; (3) whether the subject area is relatively small in relation to tidelands available for trust needs in the vicinity; (5) the period of time for which the lands will be devoted to nontrust uses; and (6) whether, by their cost and permanence, the improvements associated with the houseboats are such as to render difficult or impossible future devotion of the lands to trust purposes, as a practical matter.

Criteria 5 and 6 require that nontrust uses, such as houseboats and live-aboard boats, be limited to a relatively short time period within which forecasts of future trust needs are reasonably accurate and reliable. Otherwise a trust need for a particular site temporarily devoted to a nontrust purpose cannot be accommodated when the trust need arises. Some definite, relatively short time period should be established so that project applicants, landowners, local governments, and trustee agencies will have a clear understanding of the limitation that would be imposed. At Berkeley, for example, live-aboard boats are on a month-to-month rental.

In a dynamic society, reliable forecasts of future needs are difficult to predict over long periods. Forecasts of future recreational needs, the activities for which trust lands are most likely to be needed in the Bay, are particularly unreliable over long periods because public demand for recreational uses and facilities changes rapidly. In areas like Richardson Bay where recreational boating has steadily increased and other water-oriented recreational activities, such as wind surfing, rowing, and kiyacking, have become quite popular recently, it is even more difficult to forecast future trust needs far into the future. Because of these difficulties, the time period allowed for nontrust uses should be fairly short.

The staff believes five years would be a period sufficiently short to enable periodic reviews of trust needs for a particular site. Shorter

periods, such as the one-month period in Berkeley would be better, in the staff's opinion, in terms of the trust, but may lead to much uncertainty for the private user. Longer period, such as 20 years, may be more satisfactory to the private user but would greatly extended the period during which the area could not be made available for trust uses.

A fairly short authorization period for houseboat use may also mean that the associated docks, walkways, and similar marina structures are too costly because the period to amortize their capital costs would usually be based on the allowable period of use and five years is a fairly short amortization period. However, the pilings, docks and structures usually associated with marina development are not costly in comparison with buildings, breakwaters and similar large capital outlay structures. Often they can be designed to serve other boating activities, such as a recreational boating marina, so that their value is not lost because they can be converted when the nontrust use is terminated. The land values are irrelevant both because land is not amortized and because it retains value for trust uses. Of course, any authorization for a residential use is difficult to terminate even though the period is clearly stated and relatively short. Once established, it is difficult for agencies to terminate any use but particularly in those cases where residents are detrimentally affected.

4. Current Bay Plan Policies for Houseboats. The applicable Bay Plan policy related to houseboats is found in the section "Other Uses of the Bay and Shoreline" (page 31). The policy states:

Houseboats (floating homes useable as year-round residences) may be permitted in some areas of the Bay provided the boats (a) would not adversely affect the ecology of the Bay, (b) would not cause a harmful amount of sedimentation, (c) would either be connected to a shoreline sewage treatment system or have on-board

treatment facilities acceptable to public health and water quality control agencies, (d) would require no fill except for a pedestrian walk on pilings, and (e) would be acceptable to local governments having jurisdiction over the areas in question.

This policy was adopted by the Commission in 1968, prior to the 1969 amendments to the McAteer-Petris Act that, among other things, included the Bay fill water-oriented use criterion previously discussed. To the extent that the policy conflicts with the McAteer-Petris Act, it would not affect the Commission's permit decisions on houseboat projects. A primary purpose of any amendment to the Bay Plan policy on houseboats should be to conform the houseboat policy to the requirements of the McAteer-Petris Act as well as the public trust.

There are no Bay Plan policies concerning live-aboard boats, consequently one purpose of this report is to provide background information for the Commission to determine whether a policy on live-aboard boats should be added to the Bay Plan.

Local Rules and Policies on Houseboats and Live-aboard Boats

Local governments have authority to regulate such matters as type and intensity of uses, parking requirements, open space needs, and height and size of structures. Generally, local governments around San Francisco Bay have placed severe restrictions on development of houseboat projects. Although several local governments specifically address live-aboard boat use in their general plans and zoning ordinances, many local plans and codes do not discuss this use.

A brief discussion of local government treatment of houseboat and live-aboard boat use around the Bay follows. Table 2 summarizes the local enforceable regulations regarding houseboats and live-aboard boats.

TABLE 2
LOCAL GOVERNMENT RULES

<u>Agency</u>	<u>Code</u>	<u>Allow Houseboats</u>	<u>Allow Live-aboard</u>
Brisbane	Ch. 18.02	No residential use without permission, none currently allowed.	
San Mateo County Harbor District	Division V;	No	Yes; 40 for security
Port of Redwood City	Tariff No 7; Lease Agreements	No	Yes; 20
Vallejo	Resolution No. 75-506	No	No; except grandfathered
Benicia	Ch. 8.16	No	No
Richmond	Ch. 5.12	Yes; must have permit	Yes; must have permit
Martinez	Marina Regulations	No	Yes; two per pier for security
San Leandro	Marina Regulations	No	Yes; for security
Berkeley	Ord. No. 5032	Yes; 12 only	Yes; 40 for security
Emeryville	Ord. No. 80-03	No	No
Port of Oakland	Leases	No	No
City of Alameda	Ord No. 1610	Yes; must conform to code	*
Marin County	Ch. 11.20, Ch. 19.18	Yes; must have permit	Yes, must have permit
Sausalito		Yes; but only in "H" zone	*

TABLE 2 (continued)

<u>Agency</u>	<u>Code</u>	<u>Allow Houseboats</u>	<u>Allow Live-aboard</u>
Tiburon	Zoning Ord. Sec. 10-1-A(B)5	Yes; must conform to code	Yes; must conform to code
Belvedere	Ch. 11-12	Yes; must conform to code	Yes; permit required
Mill Valley	Muni. Code Sec. 13.04.010	Possibly; permit required	Possibly; permit required

*No provision in code.

Source: Staff Survey, Spring 1984

On the local level, rules for houseboat use have been addressed mostly by Marin County and the cities of southern Marin County, the area in which most houseboats in San Francisco Bay are located. Many bayfront local governments have adopted policies and regulations concerning mooring and use of houseboats and live-aboard boats. The following jurisdictions have adopted regulations that would expressly permit houseboat mooring and use subject to specific authorization criteria: Alameda, Belvedere, Berkeley, Marin County, Richmond, Sausalito, and Tiburon. The remaining local governments around the Bay do not expressly permit houseboat use of their waters. The following local governments would not allow houseboat use: Benicia, Brisbane, Emeryville, Martinez, Port of Oakland, Port of Redwood City, San Leandro, San Mateo County Harbor District, San Rafael, and Vallejo. Live-aboard boats are expressly allowed, subject to conditions, in the following jurisdictions: Berkeley, Belvedere, Marin County, Martinez, Port of Redwood City, Richmond, San Leandro, San Mateo County Harbor District, and Tiburon. Live-aboard boats are expressly not allowed in the following jurisdictions: Benicia, Brisbane, Emeryville, Port of Oakland, and Vallejo.

In Marin County, efforts to control the location, number, and construction of houseboats began in 1963 with the preparation and eventual adoption of a comprehensive houseboat ordinance. The Marin County houseboat ordinance is the most detailed and extensive in the Bay Area and serves as a model to local governments throughout the nation. The County regulates the construction and maintenance of houseboats and the mooring of houseboats and live-aboard boats.

The County prohibits discharge of sewage or graywater from houseboats or live-aboard boats into the County waters. Vessels moored at

marinas must have sewer connectons. Occupancy permits are required for vessels occupied for four consecutive days or ten days in any calender month. Permits are effective for one year.

Marin County has not authorized any houseboat marinas since 1970. However, the County has recently approved an expansion of the houseboat community at the Waldo Point houseboat marina to accommodate some unauthorized houseboats that have moored offshore in the area. Other than this action, the County has not expressed any interest or need to authorize construction of additional houseboat marinas.

The City of Sausalito passed an ordinance in 1981 prohibiting mooring any boat in waters owned by the City for more than 48 hours without written consent of the City. Violation can result in a fine of up to \$100. "Boat" includes floating craft of every kind and description. Residential use is not allowed on or in the Bay within Sausalito except in a small houseboat district (Varda Landing) in which houseboats are allowed. All approved houseboats are required to have in use City-approved sewer connections.

The City of Mill Valley requires a written city permit prior to the mooring of any boat in city waters for more than 24 hours.

The City of Tiburon allows temporary mooring of houseboats and boats used as a residence for up to ten days. The City prohibits houseboats and live-aboard boats in excess of ten days unless accessory to a yacht club. Even when accessory to a yacht club, only six houseboats would be allowed.

The City of Belvedere has set out mandatory requirements for any houseboat located in the City. These include; each houseboat must be moored to a slip, wharf, or pier having right of access to a public road; the owner must own two off-street parking places near the slip; each houseboat must be

connected to the city sewage system; and the location of houseboats is limited by the zoning designation. Since the City has zoned its water areas for open space and recreation use, houseboat use, for all practical purposes, is eliminated. In addition the City requires that a permit be obtained if a boat is used as a residence more than seven out of thirty days.

Other cities, such as Oakland and Berkeley, also exercise control over the mooring of houseboats and live-aboard boats. In addition, Richmond and Vallejo support houseboat and live-aboard use within their jurisdictions.

The City of Alameda has one houseboat marina that pre-dated the Commission. The City code specifies conditions and requirements for any new houseboat, however, the code does not address live-aboard boats.

The City of Richmond's plan allows houseboats or live-aboard boats in "coastline commercial zones." These zones are located at Point San Pablo Yacht Harbor, Red Rock Marina, and the south shoreline of the Richmond Inner Harbor. All houseboats would require a conditional use permit from the City Planning Commission.

The Port of Oakland leases the land for about 95 percent of the marinas in the City of Oakland. None of the Port's leases allow houseboat or live-aboard boat use in the marinas. However, the Port has indicated that if houseboats or live-aboard boats were to be approved, it would enforce the City's health code requiring sewer hook-ups for residential dwellings.

The City of Berkeley, with both houseboats and live-aboard boats in the City marina, has incorporated rules and regulations over these vessels into the City code. These controls set out the specific requirements for sewage and graywater disposal for both the houseboats and live-aboard boats, as well as most other aspects of residential use of vessels.

Other State Agencies

1. State Lands Commission. The State Lands Commission (Lands Commission) holds title to all state retained tide and submerged lands and may lease and license uses on those lands. Any authorized uses and work must be consistent with the McAteer-Petris Act and the Bay Plan.^{14/} The Lands Commission may fix and collect charges or rentals for the use of such lands. Knowing and willful filling, dredging, or reclamation of state-owned lands underlying any navigable waters, or erecting, maintaining, removing, or altering any structure on such land without written authorization from the Lands Commission is a violation of law.^{15/}

The Lands Commission is also charged, pursuant to various laws, with reviewing local governmental management of legislatively granted tide and submerged lands.^{16/} Such lands must be used for public purposes and must be in compliance with various conditions as described in the grant language. The Lands Commission, in certain instances, can make findings that such compliance has not taken place which can cause a reversion of the lands back to the state.

In reviewing leases for marinas on granted lands that propose to include houseboat or live-aboard boats, the Lands Commission has applied the following criteria^{17/}:

- (1) The leased area must be a relatively small portion of the total water area in the harbor, bay, or marina that is otherwise available for public trust purposes;
- (2) The lease may not constitute an interference with or inconvenience to commerce, navigation, fisheries, or related public trust purposes such as recreation;

- (3) The term of the lease must be no longer than that period of time during which the leased area will not be needed for trust purposes, and the lease would be terminable under provisions which are reasonably exercisable by the Lands Commission to the local grantee;
- (4) The location of the leased area must be compatible with existing and contemplated harbor facilities;
- (5) Any improvements to be erected in the leased area must not be so permanent or expensive as to create irreversible changes in the area, and could be easily removed; and
- (6) No significant detrimental environmental impact would result.

The State Lands Commission and the Bay Commission jointly exercise authority over baylands subject to the public trust easement. The powers of the two agencies are not co-extensive. Likewise, the respective jurisdiction of the two agencies is derived from different sources. The State Lands Commission derives its authority from Division 6 of the Public Resources Code (Public Resources Code Sections 6000, et seq.) and functions as an owner and manager of public trust lands. The Bay Commission, derives its powers pursuant to the McAteer-Petris Act and the Suisun Marsh Preservation Act and functions as a planning and regulatory agency for San Francisco Bay and its shoreline, including lands subject to the public trust easement. While both BCDC and the Lands Commission have the power to limit public and private uses of trust lands, only the Lands Commission has the power to exercise the public trust affirmatively for the implementation of public projects on trust lands. Recently, for example, the Lands Commission found that portions of Albany Bay (some of which involved privately held unfilled lots of the Board of Tide

Lands Commissioners) are needed for trust purposes for wildlife habitat, public recreation, and open space.^{18/}

2. Regional Water Quality Control Board. The Regional Water Quality Control Board (RWQCB) regulates, among other things, domestic wastewater (sewage and graywater) discharged into San Francisco Bay. As pointed out earlier, discharges of sewage and graywater can have adverse impacts on water quality in marinas, particularly marina basins with minimal tidal circulation and flushing action.

The State Water Resources Control Board (SWRCB) and RWQCB generally have authority to control discharges into San Francisco Bay. In San Francisco Bay, the Legislature has prohibited discharges in all marina basins^{19/} and the RWQCB has prohibited municipal waste discharges in Richardson Bay.^{20/} Although the discharge of untreated sewage from any source is prohibited in marina basins and Richardson Bay there is limited funding and staff for enforcement. The SWRCB and RWQCB do not have authority to regulate directly liquid galley, shower, or bath waste (graywater). These waste discharges can be controlled by cities and counties and, the staff believes, the Commission.

Discharges are controlled through requirements set by RWQCB under Section 402 of the Clean Water Act, a federal law, and under state law, the Porter-Cologne Act. NPDES permits (called "waste discharge requirements" in California) are required for solid waste; sewage; munitions; chemical waste; biological materials; radioactive materials; heat; and industrial, municipal, and agricultural waste discharged into navigable waters, and into "waters of the United States" within the states' jurisdiction. The RWQCB issues permits, or waste discharge requirements, using effluent limits and water quality plans established pursuant to the Clean Water Act and the Porter-Cologne Act.

Permits issued by RWQCB cannot require specific water quality control measures be implemented by the discharger, only that the discharged effluent meet certain water quality standards. For instance, the RWQCB has no authority to control how marina basins are designed and, therefore, cannot assure that breakwaters will allow adequate water circulation. The Commission can address these issues when marina applications are submitted. Similarly, the RWQCB cannot require specific types of facilities on houseboats and live-aboard boats for the collection and transportation of sewage and graywater. Local governments have authority to adopt ordinances to require graywater collection and specific sewage treatment facilities, except for sewage facilities that would involve altering the design or use of a marine sanitation device (MSD) on a navigable boat equipped with a toilet.

Under the Harbors and Navigation Code,^{21/} the SWRCB can require any private or public marina to provide convenient and accessible sewage retention device pumpout capability. Each RWQCB is to determine need for pumpout facilities in its region based on the number of vessels with sewage retention devices requiring pumpout facilities and the location of marinas in the area.

Guidelines^{22/} for selection of pumpout sites state that public marinas should be considered first. If there are no public marinas in the area, the RWQCB considers the following factors regarding private marinas: (a) availability of private marinas with pumpout facilities not available to the general public; (b) priority to marinas with fuel docks; (c) the number of vessels with sewage retention devices berthed at each marina in the area; (d) the depth of water required for the vessels that will be using the pumpout facilities; and (e) the expense of installing a pumpout facility and access to a means of disposing of or treating the sewage.

In the San Francisco Bay Area, the RWQCB has not used these guidelines. However, the RWQCB has requested the Commission to include requirements for pumpout facilities as a condition for approval of marinas.23/

In 1970 when houseboat discharges were found to be a detriment to the health, safety, and welfare of the people of the State, the RWQCB was charged with insuring proper regulation of discharges from houseboats.24/ In its 1981 report of Survey of Vessel Waste Discharges, the RWQCB staff found several marina areas in the Bay with high coliform bacteria counts. These areas were in Marin County (Waldo Point, Yellow Ferry, and Kappas Small Boat Marina), Sausalito (Napa Street Pier), San Jose (Alviso Marina and Slough), and Redwood City (Redwood Creek). The areas were characterized by a number of houseboats, as well as live-aboard boats, and particularly poor tidal flushing action.

Due to these findings, the RWQCB staff has expressed great concern with houseboat and live-aboard sewage and graywater discharges into the Bay. The RWQCB staff believes that houseboats should be connected to shoreline sewer facilities with almost no exceptions and that sewer service to houseboats and live-aboard boats is both technically and economically feasible, especially given that most marinas are already providing water and electrical service to berths. However, to date, the Regional Board has not established a policy based on these RWQCB staff concerns.

The RWQCB can indirectly control graywater and other discharges from houseboats by requiring local governments to adopt ordinances when graywater discharges are harmful to water quality. Each Regional Board must investigate its region to determine areas where houseboats discharges are inadequately regulated by local ordinance. In problem areas, the RWQCB

notifies affected cities and counties and recommends provisions to control houseboat discharges. The local governments have 120 days to adopt an ordinance for control of discharges of waste. If no ordinance is adopted or if the adopted ordinance is insufficient, the RWQCB may adopt regulations to be enforced by the local government. To date the RWQCB has not notified any local governments in the Bay Area that ordinances are required.

To lessen or eliminate possible water pollution in or near marinas with residential vessels, RWQCB staff recommends that: (a) all houseboats and live-aboard boats hook-up to shoreline sewer systems ¹/₄ although modifying a vessel MSD is not allowed under federal law, attachment of a vacuum sewer system to a Type III holding tank outlet would appear to be compatible with federal law ¹/₂, (b) the marinas provide low-cost or free, accessible pumpout facilities, and (c) marinas where live-aboard boats are located provide adequate shoreline restroom and shower facilities.

Federal Agencies

The federal agencies with the most applicable authority related to houseboat and live-aboard use are the U. S. Army Corps of Engineers, the Environmental Protection Agency (EPA), and the U. S. Coast Guard.

1. United States Army Corps of Engineers. The U. S. Army Corps Engineers (Corps) regulates activities in waterways under two laws^{25/} and implementing regulations but only the Rivers and Harbors Act applies to structures in or on waterways within the Corps' jurisdiction. Section 10 of the Rivers and Harbors Act prohibits construction of certain structures in or affecting navigable waters of the United States unless a Corps permit is obtained. The regulation defining structure^{26/} includes any "permanently

moored floating vessel...other permanent or semi-permanent obstacle or obstruction...." The courts have interpreted this to mean that a houseboat only becomes a structure requiring a Section 10 permit if it is permanently moored.^{27/}

By internal memo,^{28/} the San Francisco Corps office has set up criteria to determine when a vessel is permanently moored and thus needs a Corps permit. The criteria include: (a) the length of time the vessel has been moored and how long it will likely be moored in the future; (b) how the vessel is attached to the mooring, e.g., typical, easily detachable chains and anchors or larger and more solidly connected chains, etc; (c) the types of electrical, water, or sewage hook-ups -- temporary or heavy duty of permanent or semi-permanent nature; (d) whether the vessel is grounded in mud or sand; (e) whether the use of the vessel is for functions normally characteristic of structures built on shore, such as full-time residence; and (f) whether the vessel lacks self-propulsion, evidence of an intent to leave it in place. Typical houseboats in the Bay would generally be considered structures, but live-aboard boats would not.

To date the Corps has permitted some houseboat marinas but has issued no permits for houseboats in the Bay, and it appears that a substantial number are permanently moored without a Corps permit. Of these, some were moored prior to December 18, 1968, and do not require Corps permits because a nationwide permit authorized moorings up to that date. Few enforcement actions have been brought probably because of the cost of such actions and administrative difficulties. However, legal action to institute abatement procedures and fines for violations is available to the Corps.

In deciding whether to issue a permit, the Corps determines whether the project is in the public interest. For large or controversial projects, the Corps holds a public hearing and solicits comments from state and local agencies with jurisdiction and other agencies with expertise, as well as from the public. Under the Corps' general policy an approved project should: (a) provide public benefits that outweigh foreseeable detriments; (b) not unnecessarily alter or destroy wetlands; (c) conserve wildlife; (d) be consistent with water quality standards; (e) protect historic, scenic, and recreational values; (f) not interfere with adjacent properties or water resource projects; (g) comply with approved coastal zone management programs such as the Commission's law and policies; and (h) be consistent with other state and local plans and policies.^{29/}

2. Environmental Protection Agency. The 1966 amendments to the Federal Water Pollution Control Act study of "the extent of pollution of all navigable waters of the United States...from watercraft...and methods of abating...such pollution" concluded that legislation was needed directing Department of Interior to develop standards. The EPA was directed to develop standards of performance for Marine Sanitation Devices (MSDs) "to prevent the discharge of untreated or inadequately treated sewage into or upon the navigable waters of the U. S.--except those vessels not equipped with installed toilet facilities." Federal law prohibits states or local governments from adopting or enforcing any statutes or regulations governing the "design, manufacture, installation, or use" of any MSD.

In 1972, federal law was amended delaying implementation and describing provisions for establishing no discharge areas. Once a no discharge area is created, discharges of treated or untreated sewage from a

boat is illegal in the subject no discharge area. Federal law does not preempt local or state regulation of graywater discharges.^{30/} A State may petition EPA to declare part or all of the State's waters a "no discharge area" to provide "greater environmental protection." There must be "adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels" available before a no discharge area may be approved. Several such areas have been designated in southern California waters and the Richardson Bay Special Area Plan contains a recommendation that Richardson Bay be declared a no discharge area.

3. U. S. Coast Guard. The Coast Guard is required to certify that MSDs meet the EPA standards and is responsible for enforcement of the MSD program. The Coast Guard has certified three types of MSDs.

The Type I devices usually mix disinfectant chemicals with the raw sewage, which is chopped up with a high speed blade and then discharged. The effluent fecal coliform bacterial count can be no greater than 1000 per 100 milliliters and can discharge no visible floating solids.

The Type II devices are biological or chemical systems; bacteria aerobically digest the sewage that then passes over chlorine tablets that disinfect it. These devices are generally not available for boats under 65 feet long. The effluent fecal coliform bacteria count can be no greater than 200 per 100 milliliters and can discharge no visible floating solids.

Type III MSDs retain sewage in a holding tank where it is held until it can be pumped out. Usually some sort of biocide-deodorant is added to the holding tank to reduce gas and odor production.

The typical cost for purchase and installation of either Type I or II device is between \$1,000 and \$1,200. Annual operating costs average about

\$40, mostly for the chemical disinfectant. Costs for purchase and installation of a Type III system are \$250 to \$400. Operating costs are between \$10 and \$50 a year for pumpout fees and odor controlling chemicals.

Federal law specifically prohibits any state or local government from adopting or enforcing their own laws regarding the design, manufacture, installation, or use of MSDs.

CHAPTER III. IMPACTS AND BENEFITS

Houseboats and live-aboard boats have varying environmental and social impacts and benefits, often depending on the number, density, and location of the boats involved. Primary environmental effects are impacts on water quality, sedimentation, and coverage of water surface area. Social impacts include the present and future need of water and shoreline areas for water-oriented uses and public trust needs, as well the creation of housing opportunities and a particular style of community. This chapter explores the significant environmental and social effects of houseboat and live-aboard boat use in the Bay.

Environmental Impacts

Discharges from large numbers of houseboats can affect water quality when the boats are not connected to a shoreline sewer system, and the boats can increase sedimentation rates and change sedimentation patterns at the mooring area. Tall and bulky houseboats near the shore can block views of the Bay. Large houseboats block penetration of sunlight and air to the Bay bottom and if the boats rest on the bottom, can crush organic life in the Bay muds. Likewise, large concentrations of live-aboard boats discharging wastewater in marina basins with little tidal flushing can affect water quality. Live-aboard boats, however, generally have no more impact than other boats moored in recreation marinas on views of the Bay from the shoreline or water surface area coverage.

1. Water Quality

Water pollution is a major adverse impact associated with unsewered houseboats and concentrations of live-aboard boats if wastewater is discharged into areas of the Bay with minimal tidal circulation. Protected bays, such as Richardson Bay, or marinas that because of their location and design are not flushed well because they are protected from the tidal surge and strong currents that disperse pollutants and bring in cleaner water. Without dispersal, pollutants can build up, degrading water quality.

Sewage and graywater have significant impacts on water quality and public health. Sewage consists of human body wastes, while graywater consists of kitchen, bath, and shower wastes. Both detrimentally affect water quality by introducing coliform bacteria; toxic soap residues; biochemical oxygen demanding substances; suspended solids, oil, and grease; and biostimulatory substances such as nitrogen and phosphorus.^{1/} Graywater and sewage degrade overall water quality, impact fish and wildlife habitat, and impede water contact recreation. Sewage and graywater are by no means solely attributable to live-aboards, nor do all live-aboards release wastes into the Bay. However, some areas with dense vessel populations and limited water circulation and flushing have water quality problems associated with discharges from vessels.^{2/}

a. Impacts of Sewage from Vessels. Sewage (not graywater) collection and treatment on vessels is regulated by the Environmental Protection Agency (EPA) and the Coast Guard under Section 312 of the Clean Water Act.^{3/} In 1981, the EPA and the Coast Guard prepared a joint report on marine sanitation devices^{4/} which states:

Although relatively few investigations have studied the effect of direct discharge of sewage from

vessels on water quality, there is evidence to support a link between sewage discharges from vessels and resulting shellfish contamination, increased pathogens in the water column, and increased contamination of waters frequented by boats, such as marinas.

Human sewage contains a wide variety of bacteria, viruses, fungi and worms, some of which are pathogenic. Although most human enteric tract pathogens will not grow in the aquatic environment, some will survive long enough to constitute a health hazard. These pathogens, some of which form spores in their reproductive cycle, can remain virulent for relatively long periods of time and may even become enriched in sediments of sewage-contaminated waters; thus ... even coastal zones where untreated sewage is discharged may be source of disease organisms.

In addition, the introduction of human sewage into a body of water increases the concentration of oxygen-demanding substances, which deplete the amount of oxygen available for desirable aquatic species...

Nevertheless, while it appears that sewage from vessels may pose environmental problems, these problems are localized. The problems are greatest in enclosed areas such as marinas...

The environmental impacts of sewage from vessels covered by the existing program must be placed in perspective. The existing Federal program only addresses boats with installed toilets. Regardless of the onboard facilities, all vessels have the potential for raw sewage discharge, either by dumping a portable toilet or a standby bucket over the side, or by bypassing an approved system....

The Water Quality Control Board's adopted Plan (Water Quality Control Plan San Francisco Bay Basin), as amended July 21, 1982, discusses vessel wastes within the Implementation Plan, (subheading "Nonpoint Source Control Measures," pages 4-36). The Basin Plan states:

The discharge of waste from pleasure, commercial, and military vessels has been a water quality concern of the Board since 1968 when Resolution No. 665 was adopted, suggesting that the Federal government regulate waste discharge from vessels.

In 1970, the Board adopted two more resolutions, 70-1 and 70-65, on vessel wastes. The first urged BCDC to condition marina permits for new or expanded marinas to include pumpout facilities, dockside sewers, and restroom facilities. Resolution No. 70-65 also recommended that vessel wastes be controlled in such a manner through legislative action.

The Regional Board staff recently completed a study of vessel waste discharges in the San Francisco Bay area (Vessel Waste Discharge Survey, 1981), including bacteriological sampling in 23 marinas. The following conclusions were reached as a result of that study and in 1982 amended into the Water Quality Control Plan 5:

1. Water contact recreation coliform objectives are being violated in marinas which have houseboats (and are not well flushed). These marinas are located mainly in three areas: Alviso Slough, Redwood Creek, and Richardson Bay.
2. As a result of BCDC requirements, pumpout facilities for vessel holding tanks are located through San Francisco Bay, but several are rarely used due to poor location and/or high user fees.
3. Military vessels are not causing water quality problems because they are almost all equipped with holding tanks for both sewage and graywater, and adequate pumpout facilities exist at military docks. The remaining pumpout facilities exist at military docks. The remaining vessels and shore facilities will be modified by 1984.
4. Commercial vessel discharges were briefly reviewed. No conclusion could be reached regarding the impact of commercial vessel discharges on beneficial uses. Baywide coliform sampling indicates that commercial vessels are not causing a widespread water quality problems, but local problems in shellfish growing areas may occur. This potential problem is being studied as part of the San Francisco Bay shellfish Program.

b. Impacts of Graywater from Vessels

Graywater, wastewater from sinks, showers, basins, and tubs, contains "soap residues, high concentration of BOD, suspended solids, oil and grease, and coliform organisms.^{6/} The Regional Board report states "the discharge of sewage and graywater wastes to the Bay are of particular concern in crowded and confined areas, such as marinas and harbors."^{7/} The report also states the graywater concentration may exceed the effluent concentration standards prescribed for municipal waste treatment plants for BOD, suspended solids, and oil and grease. For these reasons, the Regional Board adopted, in 1982 as part of the Basin Plan, conclusion No. 5 of Vessel Discharge Survey report which states, in part:^{8/}

the most positive control of wastes from watercraft and most effective means of preventing pollution is to provide for the disposal of waste to shoreside sewerage facilities by use of holding tanks...and/or shoreside sewer connections.

The staff believes that the release of graywater into enclosed basins with minimal tidal flushing action can increase the levels of various components to levels where they adversely impact fish and wildlife, human use of these waters, and aesthetics. To the staff's knowledge, no regionwide study on the amount of graywater released from individual boats has been carried out in the Bay. Rather than prove individual point sources are the cause of water pollution, water quality agencies have identified categories of discharge which can be efficiently treated before release into receiving waters. Household wastewater (sewage and graywater) has been identified as such waste and has traditionally been treated in municipal treatment plants.

On the other hand, in reviewing graywater impacts, particularly from boats, on water quality, the Pacific Inter-Club Yacht Association (PICYA)

has concluded that graywater discharged from boats does not adversely impact water quality. The PICYA states "It should be clear that graywater discharge does not represent pollution hazard from any viewpoint including health, toxicity or esthetics."^{9/} The PICYA's position is that the amount of graywater released from boats is so small as to have no effect on Bay water quality. One difficulty with this position is that impacts from discharges of graywater, as well as other types of discharge, is cumulative so that while the amount from live-aboard boats may be small, in combination with other discharges, they contribute to an adverse impact. Another difficulty is that the discharges may be into a marina basin that is inadequately flushed by the tide resulting in a localized impact.

The amount of potable water available at a berth can result in increased water consumption and use onboard a boat and thus increase the likelihood that the quantity of graywater discharged would be increased. If the boat can connect directly to potable water, it is considerably easier to use large quantities of water for showering, dishwashing, and similar purposes. If the water must be carried some distance, the amount of discharge will most likely be correspondingly less. Of the marinas responding to BCDC's survey, the 17 with live-aboard boats all supply potable water to each berth. Live-aboard boats usually have limited space for washing activities so boaters generally prefer to use larger onshore facilities. Therefore, adequate bathing and toilet facilities provided on land would likely mean that minimal amounts of graywater would be discharged from live-aboard boats. Fifteen of the 17 marinas surveyed by staff also provide onshore showers and all provide onshore restrooms. Further, if only limited numbers of live-aboard boats are situated in a marina, particularly one with good tidal flushing action to

dilute, mix, and carry away graywater discharges, minimal adverse impacts on water quality can be expected.

c. Water Pollution Prevention

There are a variety of methods available to the Commission to help lessen or eliminate adverse the impacts associated with the release of sewage and graywater from vessels moored in Bay Area marinas. These methods include enforcing existing regulations for houseboats to hook-up to shoreline sewage systems; requiring conformance of vessels with existing U. S. Coast Guard MSD regulations (sewage treatment); requiring marinas to provide accessible on land restroom and shower facilities; requiring marinas to provide free or low-cost accessible pumpout facilities; and providing public education programs dealing with water pollution impacts and methods to avoid discharges.

Local governments can and do require houseboats to discharge sewage and graywater into a city sewer system or other appropriate sewage treatment system. This is required by Marin County, City of Sausalito, City of Richmond, and the City of Alameda codes. But there are instances of non-enforcement of existing regulations and codes and construction and mooring of structures without permits which do not conform with existing local government standards. The Commission could encourage and support local governments to fully and quickly enforce all violations of codes and regulations which may be resulting in discharge of sewage and/or graywater from houseboat structures into the waters of the Bay. The Commission could also enforce violations of the McAteer-Petris Act arising from discharges.

As stated earlier, the U. S. Coast Guard has established design, operation, and performance standards for marine sanitation devices. Federal

law requires all vessels with an installed toilet to have one of three types of approved marine sanitation devices (MSDs).

In addition to the MSDs authorized for use on the boats with installed toilets, many other boats make use of portable toilets (portapotty). These must be emptied into some onshore facility, usually a toilet.

Under existing federal law, it is illegal to discharge sewage from a holding tank into U. S. waters.^{10/} However, some people, frustrated by the lack of pumpout facilities, may bypass an installed system and discharge untreated sewage. Such discharges are facilitated by bypasses that are built into most systems to allow release at open sea where it is legal. State law prohibits the dumping of sewage into marinas and yacht harbors from any moored vessel where toilet facilities are available.

Due to lack of funding for the MSD inspection program, the Coast Guard does not systematically inspect recreational vessels for conformance with MSD requirements. However, if Coast Guard personnel boards for another reason, they will check for MSD conformance. There is no program to ensure proper maintenance of MSDs.

For live-aboard boats in marinas, an effective way for the Commission to reduce discharges into the Bay appears to be the requirement of convenient facilities on land so that those that do live aboard will have convenient access to shoreline restrooms and showers. An additional key step for the Commission is the requirement of sufficient, accessible, and free or low-cost pumpout facilities in every marina for the use of boaters with holding tanks, particularly for live-aboard boats. If a live-aboard boat owner pays an additional berthing fee to live onboard, pumpout facility use

should be covered by the fee and the live-aboard boater should not be charged for use of the pumpout facility. Table 3 identifies the location and estimated use of pumpout facilities in San Francisco Bay.

Costs of pumpout facilities vary widely depending on a number of factors: (1) location of the pumpout station in the marina, (2) distance from shore, (3) distance from the nearest sewer line, and (4) the type of pier material. At existing marinas, because electrical lines and sewers cannot be placed in the water, the floats must be removed and the sewer lines placed within the structure, and the float reassembled. In new or expanded marinas, lines are installed in the float with other utilities at the time of construction.

Very generally, the cost of installing pumpout stations in marinas ranges from \$6,000 for a worst case estimate involving retrofitting an existing marina to \$1,500 for a best case estimate for new marina construction (1983 dollars).

Harbor masters indicate that maintenance costs for pumpout stations are very low and are usually restricted to replacement of pump-kit diaphragm. Vandalism or abusive pumpout station operation rarely occurs.

Public education of the boating public, first about the existing requirements regarding MSDs and sewage disposal, and secondly about problems associated with discharges, is an additional important method of improving water quality in marinas. A public education program could be carried out by State Department of Boating and Waterways, the Coast Guard, local government, marina operators, and boating groups, such as PICYA.

2. Sedimentation

Natural sedimentation patterns and rates may be changed by structures, such as docks and breakwaters, that alter water currents and velocities.

TABLE 3
PUMPOUT FACILITIES

Marina	Number of Pumpout Stations	Type of Pumpout Station	Estimated Number of Boats Served/Week	Location of Pumpout Station
Alameda Marina Village Assoc. (Alameda)	1	Kenton Pump-A-Head	NA	Head of Marina
Alameda Yacht Harbor (Alameda)	1	-	NA	Temporarily out of service
Alviso Marina (San Jose)	2	HydraPrise Series 200	5	Fuel dock
Ballena Bay Yacht Harbor (Alameda)	1	Kenton Pump-A-Head	10-20	Fuel dock
Benicia Marina (Benicia)	1		NA	Fuel dock
Berkeley Marina (Berkeley)	3	Kenton Pump-A-Head	1 2	Fuel dock Houseboat dock
Emeryville Marina (Emeryville)	2	Kenton Pump-A-Head	7	Fuel dock
Coyote Point Marina (San Mateo)	1	Sani-Station SF 100E	2	Front of office
Emerybay Cove Marina (Emeryville)	2	Kenton Pump-A-Head	NA	Dock by shore
Gas House Cove (San Francisco)	1	Kenton Pump-A-Head	3	Fuel dock
Mariner Square Marina (Alameda)	1	NA	NA	Beneath yacht sales building
Martinez Marina (Martinez)	1	Kenton Pump-A-Head	5	Fuel dock

TABLE 3 (continued)

Marina	Number of Pumpout Stations	Type of Pumpout Station	Estimated Number of Boats Served/Week	Location of Pumpout Station
Port of Oakland (Oakland)	1	Kenton Pump-A-Head	NA	Head of marina
Oyster Point Marina (South San Francisco)	1	Enviro-Vac	NA	Fuel dock
Pelican Yacht Harbor (Sausalito)	1	NA	NA	Bay side of dock
Pier 39 (San Francisco)	1	Kenton Pump-	1-2	Head of marina
Port Sonoma (Sonoma County)	1	Sani-Station	45	Service slip
Richmond Marina (Richmond)	1	Kenton Pump-A-head	15	End of G dock
Richmond Yacht Club (Richmond)	1	Kenton Pump-A-Head	NA	Fuel dock
San Leandro Marina (San Leandro)	2	Kenton Pump-A-Head	NA	Fuel dock
Sausalito Yacht Harbor (Sausalito)	2	Sani-Station	NA	Pier 4
Vallejo Municipal Marina (Vallejo)	1	Kenton Pump-A-Head	2	Fuel dock

Source: Staff Survey, November 1983

Houseboats in large numbers may also change the rate and location of sediment deposits by "stilling" the water. Reduction of wind and wave action in shallow waters increases the amount of sediment deposited at or near the location of the houseboats causing more material to be deposited than would occur naturally.

Excessive sediment harms fish by clogging sensory, feeding, and breathing organs; traps small floating organisms; and buries and chokes bottom-dwelling organisms. Impacts increase in localized areas when fill changes current patterns or velocity and when dredging reintroduces the material into the water.

Nothing can prevent general sedimentation, but localized impacts on sedimentation rates and patterns can be reduced through careful site selection; by thorough analysis of sedimentation patterns, water currents, winds, and other natural forces at selected sites; and by designing breakwaters, docks, and mooring locations to improve water circulation and minimize undesirable changes in sedimentation. Considerable experience and knowledge is needed to conduct such analysis and design. The Commission should therefore assure that knowledgeable professionals are involved in design of new and remodelled marinas.

Dredging is part of the construction and maintenance of almost all Bay Area marinas. Dredging has, however, become an issue associated with houseboats. The existing Bay Plan policy on houseboats would allow them only if the boats "would not adversely affect the ecology of the Bay and would not cause a harmful amount of sedimentation." To meet these requirements, the Commission required, in 1971, that all new houseboats in the Richardson Bay houseboat marinas float at all stages of the tide; the permittees were

required to provide sufficient water depth (BCDC Permit Nos. 5-71, 6-71). Dredging of houseboat marinas is difficult and expensive. The houseboats must be moved and the spoils transported to one of the Corps of Engineer's authorized disposal sites. Only the Barnhill Marina in Alameda has applied for dredging permits; two were issued each for only 500 cubic yards. An added problem in Richardson Bay is the possibility of polluted muds under the old houseboat marinas. In 1971, the Department of Fish and Game felt the adverse impact of dredging outweighed the benefits of the houseboats floating at all stages of the tide. The RWQCB felt there would be no water quality benefits. Due to the advice of these agencies, the 1971 houseboat marina permits allowed those marinas to be constructed without dredging. Many of the houseboats sit in the mud at some tidal stages. In those limited situations where new houseboat berths may be approved by the Commission, the Commission policy requiring houseboats to float at all stages of the tide should be followed unless the Commission determines, based on the advice of such agencies as Department of Fish and Game and the Regional Water Quality Control Board, that adverse impacts to the Bay would occur from the dredging.

3. Fill

While the amount of fill associated with houseboats and live-aboard boats has been small historically, the localized impacts of even small fills can be detrimental. Houseboats and boats moored for an extended period are a form of "fill" under the Commission's law, (see Chapter II) as are marina docks, walkways, and breakwaters. However, the impacts of live-aboard boats are no different from other boats moored in recreational marinas in the sense of water surface area covered and obstruction of Bay views.

Assuming that each existing houseboat is 15 feet by 45 feet, or 675 square feet of water surface area coverage, then about 6-1/2 acres of authorized houseboat "fill" now exists. This is a mere fraction of the estimated 45,000 acres of mudflats in San Francisco Bay. However, when that fill is located in a restricted area, especially one with sedimentation problems and limited tidal flushing, like Richardson Bay, the local impacts can be considerable.

The effect of the floating fill on mudflats is similar to that of solid fill in several respects. When houseboats are moored over the mudflats, the boats not only prevent shorebirds from feeding, they block light, interfering with photosynthesis of tiny algae. When the houseboats rest on the bottom during periods of low tide, they crush the microorganisms living in the mudflats. The result for the period the boat is on the bottom is little life, photosynthesis, or oxygen production. While the amount of oxygen produced by algae at any particular location is small, the cumulative impact of the loss or degradation of Bay mudflats is a major concern, particularly since so many mudflats have been lost in the past.

The Commission's method to date to reduce the adverse environmental impacts on the Bay associated with houseboats has been too severely restrict the number of houseboats and to require that they float at all stages of the tide and not allow any fill for support facilities such as parking.

Social Impacts

The social impacts of houseboats and live-aboard boats include the use of water and shoreline areas needed now or in the future for recreation, public access, open space, and the demand on local urban services.

1. Conflicts with Other Uses. Houseboats and live-aboard boats are a form of housing requiring fill in the Bay. Housing is not a necessary use of the Bay because there is sufficient upland to provide for present and predicted housing needs for the Bay Area. Moreover, a water location is not required for housing to function. Uses that do need to be in or adjacent to the Bay include ports, water-related industry, water-related recreation, public access, bridges, airports, and wildlife refuges. These uses are "water-oriented" uses. Conflicts between housing and water-oriented uses are most acute in areas like Richardson Bay where accessibility and physical attractiveness make the area highly desirable for housing and where an increasing population resorts to Richardson Bay for a variety of recreational activities, including boating, wind surfing, fishing, and viewing.

Houseboat and live-aboard boat uses can conflict with any water-oriented use. These uses conflict mostly with: (1) public recreation, including boating and fishing; (2) fish and wildlife habitat; and (3) public access, including views and open space.

a. Recreation. There is a continuing demand for recreational boat berths in the Bay. But suitable marina sites are limited because they must have sufficient onshore space for parking and access, a water basin with an orientation to currents and tides that provide protection during stormy conditions. Moreover, in its recent amendments to the Bay Plan Recreation policies, the Commission decided that large fills for recreational marinas were not in the public interest thereby further reducing the number of potential sites.

Houseboats compete with recreation vessels for nearshore water areas because they require marina facilities with similar site

characteristics. To the extent they preempt areas otherwise suitable for recreational marinas, it will be more difficult to meet the demand for recreational berths. Houseboat marinas also make less efficient use of scarce shoreline space because the parking requirements for such marinas are similar to housing developments and more extensive than for recreational marinas.

Fishing, another recreational use that takes place in the nearshore waters of the Bay, is generally done from the shore, piers, or small boats. It requires little equipment other than a rod, line, and bait and is an activity available to and popular with all Bay Area income and age groups, both for sport and for food. To the extent that houseboat marinas occupy desirable fishing sites, preclude access to good sites, or eliminate fish habitat, recreational fishing will be reduced.

In addition to space for recreational marinas, nearshore areas are desirable for boating itself, in canoes, kayaks, and dinghies. They are also desirable for wind surfing and swimming. These activities are often easiest and most fun in the shallow waters close to shore where waves are small and waters are sheltered from strong winds. Boating is also available and accessible to a broad range of age and income groups in the Bay Area. There are few shallow water areas convenient to urban centers where small boating can safely occur in the Bay. Richardson Bay is a particularly good location for this activity. To the extent houseboat marinas preempt nearshore areas in Richardson Bay, small boating opportunities are reduced. Also to the extent that bacterial contamination continues or increases, these activities are threatened because water areas that are badly polluted will not be safely available to swimmers, wind surfers, and other water sports enthusiasts.

b. Habitat. Houseboat marina development can also diminish the wildlife value of quiet bays and inlets. Wildlife viewing is an important recreational pursuit for many people. However, people and wildlife in close proximity are usually not compatible; the wildlife often loses. Some areas preferred by houseboaters and recreational marinas are often the same areas needed by wildlife, particularly as feeding grounds for birds and small fish.

Some shoreline areas also serve as haul-outs for harbor seals, now threatened as their habitat diminishes. The development of one of these open water or wildlife areas even for a short time leads to permanent loss.

c. Public Access

(1) Housing Impacts on Public Access. Housing conflicts most sharply with public access because housing is the most private of the uses that occur adjacent to the Bay. It pits the homeowner's desire for control over his property against the public's constitutional right to reach and use the Bay. As a result, public access along the Bay shoreline is often adversely impacted by proximity to residential uses. Paths close to residences that are not carefully designed are not widely used because the dwellings intimidate the public who feel like intruders in a private community. The residents may feel uncomfortable and may react strongly if strangers are too close to their homes. Tall, large structures near public access paths and areas can also block views and give an enclosed, restricted feeling to the user who then tends to avoid such areas. Houseboats moored near the shoreline can present both problems, particularly houseboats with occupants who have a strong community feeling and believe that the public are outsiders.

(2) Reducing Housing Impacts on Access. When housing conflicts with other recreational needs for the same area or with wildlife habitat, there is little that can be done to reduce the impacts; a choice must be made between the competing uses. Adverse impacts of houseboats on public access, however, can be reduced through proper design and siting. Sufficient setbacks between the structures and the public access areas can also be provided. In some land projects, design professionals recommends a setback equal to the height of the structure. Setbacks can also be used to provide usable public access next to residences. In some cases landscaping is also valuable to screen the residential uses while framing and emphasizing public areas and views. These design concepts should be reviewed and, where appropriate, incorporated into designs for any expanded houseboat marina.

No matter how well designed, however, houseboat marinas will in most cases also have adverse impacts on views. The most obvious impacts are on views of the Bay from the shoreline. Mooring layouts are often designed to maximize use of the site, with little regard for preserving public views. Tall, bulky, houseboats moored close to the shoreline in separate marinas can result in a virtual wall along the shoreline precluding views of the open water.

Mooring arrangements can be planned to maximum view corridors through marinas. Design professionals can delineate view corridors and create elevation difference between public access areas and the berths. View corridors can be provided between docks set perpendicular to the shore and/or along the property lines. Houseboats clustered in "pods" will also allow views between the clusters. Public access paths provided at higher elevations than the water surface allow pedestrians to see over and around the large

houseboat structures. For example, at the Berkeley Marina near the houseboat berths, the pedestrian path is approximately 8 to 10 feet above the water surface at the medium tide. In recognition of the adverse view impacts, Marin County limits the height of new houseboats to 16 feet, with variance provisions to 20 feet. Nevertheless, new houseboat marinas will intrude in the open vistas of the waters of the Bay.

2. Demands for Services. People living on the water whether in houseboats or live-aboard boats, create additional demands, just like any other neighborhood area of a community, for municipal services. These services include fire, police, education, and other services typically provided by local government to its citizens.

Some services can provide particular problems to local governments. For example, in the Richardson Bay area, providing adequate fire protection for houseboat communities is also more difficult than for land homes. The docks restrict the size of equipment that can pass, and getting equipment to boats near the ends of docks takes considerable time and effort. Moreover, even though fire hoses are provided on piers, there is no access to the rear of most houseboats. Many of the boats are moored close together and not built with fire retardant materials. Neither Marin County nor the City of Sausalito has a fire boat although the local governments with jurisdiction over Richardson Bay are seeking to jointly acquire such a boat. Fortunately, to date the fire rate within houseboat communities has been less than experienced on land but fire fighting professionals believe that the potential for large and devastating fires is significant.

In addition, in the past, some houseboaters have not complied readily with building codes. For this reason, Marin County has assigned one of its

five building inspectors fulltime to the houseboat area. The County staff believes that this concentration of effort has increased the rate of compliance. However, it also means that all those building on land in Marin County must share the other four building inspectors.

Like all communities, houseboat owners pay taxes to support public services. In Marin County houseboats are taxed the same as houses; one percent of the fair market value of the houseboat. In addition, owners of houseboat marinas are taxed on the fair market value of the underwater land rented for berthing.

Benefits

Houseboats and live-aboard boats provide two main benefits: a housing supply and sense of social community, and within a marina a sense of security. Moreover, live-aboard boats can also be used for navigation, particularly recreational navigation. The housing benefit is primarily private, restricted to the houseboat or live-aboard occupant. Live-aboard boats also can provide security for some recreational boaters because the presence of people in some recreational marinas appears to deter criminal acts.

1. Housing Benefits and Life Style

The benefits of houseboats and live-aboard boats are primarily private. They offer a private life style enjoyed by the people who choose to live on a houseboat or live-aboard boat. While this is not a public benefit, it is an aspect of living that is particularly important to houseboat and live-aboard boat residents. The sense of "community" is something many people look for in choosing a neighborhood in which to live. This sense of community is most cited by those who live on the water as a primary benefit of this life style.

What attracts people to life on the water? For some it is the culmination of a lifelong dream. Some are only there for a short time, waiting for the time when they can satisfy other plans. Some like the cheaper housing. Some like the freedom -- no lawn to mow and the ability to sail at the drop of a mooring line.

Most occupants of houseboats and live-aboard boats on the Bay stress the strength of community where they live. They share skills, information, and work. Families care for one another's children and boats. They pool money and labor to repair piers, houseboats, or build a community center.

2. Improved Security at Recreational Marinas

Some marina operators and boat owners claim that houseboats and live-aboard boats deter crime in marinas because of the presence of occupants, particularly at night, who can report suspicious activities to the police. Support for this widely held belief has come from the experience of the Berkeley Marina. As a condition of the City's approval, the 40 live-aboard boats scattered through the Berkeley Marina must keep an eye out for suspicious or illegal activities. The City's April, 1982 report on live-aboard boats showed a nearly 75 percent decrease in the amount of criminal activity in the marina in comparison with the previous three years. In 1979 there were 131 criminal incidents, in 1980 there were 53, and 1981 there were 44. The reduction was remarkable in ten categories particularly relevant to security such as grand theft, petty theft, vandalism, robbery, felony assault, auto theft, murder, burglary, trespassing, and suspicious fire. The number of these ten crimes decreased from 97 in 1979, to 37 in 1980, and to 26 in 1981. There are, of course, other possible explanations for these changes in the rate of criminal activity, but these figures suggest that residents in recreational marinas may help reduce crime. There have been no other figures submitted to BCDC to support claims of increased security.

CHAPTER IV. CONCLUSIONS

Based on the above discussion, the staff believes that the San Francisco Bay Plan should be amended to accurately reflect the Commission's authority over houseboat and live-aboard boat use. Staff also believes that "houseboats", "live-aboard boats", and "moored for an extended period of time" should be defined in the Commission's regulations.

Houseboats

The Bay Plan policy on houseboats is included in the section "Other Uses of the Bay and Shoreline" (page 31), however, there are no findings on which that policy is based. The Bay Plan houseboat policy now states:

Houseboats (floating homes useable as year-round residences) may be permitted in some areas of the Bay provided the boats (a) would not adversely affect the ecology of the Bay, (b) would not cause a harmful amount of sedimentation, (c) would either be connected to a shoreline sewage treatment system or have on-board treatment facilities acceptable to public health and water quality control agencies, (d) would require no fill except for a pedestrian walk on pilings, and (e) would be acceptable to local governments having jurisdiction over the areas in question.

The staff believes that the Bay Plan policy on houseboats should be amended to reflect the Commission's present authority to permit houseboat use and that a finding on houseboats should be added to the Findings on "Other Uses of the Bay and Shoreline."

The staff suggests that the following new finding be added to the Plan:

Houseboats are designed for and used as permanent private residences and occasionally for offices and similar

non-navigation purposes and are not used for active navigation. A houseboat is neither a water-oriented use nor a use that furthers the public trust and does not serve a statewide public benefit. Because of size and bulk, houseboats restrict views of the Bay from the shoreline, block sunlight penetration to Bay waters, and in shallow areas reduce wind and wave action that can result in sedimentation and detrimentally affect the Bay. Houseboat marinas also compete for sites needed for future recreational boat berths, other recreational activities, open space, and wildlife habitat.

In addition, the staff suggests that the existing policy on houseboats be changed to read as follows:

The Commission should not allow new houseboat marinas. The Commission should authorize houseboats used for residential purposes only when each of the following conditions is met:

- (a) The project would be consistent with a special area plan adopted by the Commission for the geographic vicinity of the project.
- (b) The houseboats would be limited in number and would be only a minor addition to the existing number of authorized houseboat berths at an existing houseboat marina;
- (c) All wastewater producing facilities would be directly connected to a shoreline sewage treatment facility;

- (d) No additional fill would be required except for the houseboat, a pedestrian pier on pilings, and for minor fill for improving shoreline appearance or for providing new public access to the Bay;
- (e) The houseboat would float at all stages of the tide to reduce adverse impacts on benthic organisms and to allow light penetration to the Bay bottom, would not block views of the Bay significantly from the shoreline, and would not result in increased sedimentation in the area;
- (f) The project would provide substantial public access to the Bay;
- (g) The project would comply with local government plans and enforceable regulations and standards for mooring locations and safety, wastewater collection, necessary utilities, building and occupancy standards, periodic monitoring and inspection, and provide for the termination of the residential use when the lands are needed for trust purposes;
- (h) The project would be limited in cost and duration so that the tidelands and submerged lands used could be released for water-oriented uses and public trust needs and, in no case, would the initial or any subsequent period of authorization exceed five years; and

- (i) The project would be consistent with the terms of any legislative grant for the area.

Live-aboard Boats

The Bay Plan now contains no findings or policies concerning live-aboard boats. The staff believes the Commission should add such findings and policies to the Plan to guide the Commission in its permit actions and to inform the public and applicants of the Commission's policy on this matter. The staff further believes that the appropriate section of the Bay Plan for findings and policies related to live-aboard boats is the Recreation section (pages 21 and 22) and that the additions should be to the existing findings and policies concerning marinas. The staff suggests that following new findings be added to the Plan:

Live-aboard boats are designed and used for active navigation but are distinguished from the normal navigable boat in that they are also used as a primary place of residence. Although residential use is neither a water-oriented or a public trust use, live-aboard boats can be converted easily to a navigable, recreational use and, when properly located within a recreational boating marina, can provide a degree of security to the marina.

The staff further suggests that the following new policy be added to the Plan:

Live-aboard boats should be allowed only in marinas and only if:

- (1) the number would not exceed five percent of the total authorized boat berths;
- (2) the boats would promote and further the recreational boating use of the marina, e.g. providing a degree of security, and are located within the marina consistent with such purpose;
- (3) the marina would provide, on land, sufficient and conveniently located restrooms, showers, garbage disposal facilities, and parking adequate to serve live-aboard occupants;
- (4) the marina would provide and maintain an adequate number of vessel sewage pumpout facilities in locations that are convenient to all boats in the marina, particularly live-aboard boats, and would provide the service free of charge or at a reasonable fee only to offset maintenance costs; and
- (5) there would be adequate tidal circulation in the marina to mix, dilute, and carry away any possible wastewater discharge.

Live-aboard boats moored in a marina on July 1, 1985 but unauthorized by the Commission should be allowed to remain in the marina provided the test of (2), (3), (4), and (5) are met. Where existing live-aboard boats in a marina exceed five percent of the authorized berths, no new live-aboard boats should be authorized until the number is reduced below that number and then only if the project is in conformance with tests (1), (2), (3), (4), and (5) above.

ADOPTED FINDINGS, POLICIES, AND DEFINITIONS

On March 20, 1986, the Commission amended the San Francisco Bay Plan by adopting new findings and policies concerning houseboats and live-aboard boats. The new live-aboard boat findings and policies were added to the Bay Plan Recreation section and the new houseboat findings and policies were added to the Other Uses of the Bay and Shoreline section. In addition, the Commission adopted definitions of the terms "houseboat" and "live-aboard boat" as amendments to its administrative regulations. On August 6, 1987, the state Office of Administrative Law approved the definitions as an amendment to the Commission's regulations. The adopted findings, policies, and definitions follow as well as the California Government Code definition determining a place of residence as used in the live-aboard boat definition.

Adopted Findings and Policies Concerning Houseboats

1. Finding

Houseboats are designed for and used as permanent private residences and occasionally for office and similar non-navigation purposes and are not used for active navigation. A houseboat is neither a water-oriented use nor a use that furthers the public trust and does not serve a statewide public benefit. Because of size and bulk, houseboats can restrict views of the Bay from the shoreline, block sunlight penetration to Bay waters, and in shallow areas, reduce wind and wave action that can result in sedimentation and detrimentally affect the Bay. Houseboat marinas also compete for sites needed for future recreational boat berths, other recreational activities, open space, and wildlife habitat.

2. Policy

Because of the requirements of existing law, the Commission should not allow new houseboat marinas.

The Commission should authorize houseboats used for residential purposes in existing houseboat marinas only when each of the following conditions is met;

- (a) The project would be consistent with a special area plan adopted by the Commission for the geographic vicinity of the project;
- (b) As to marina expansions, the houseboats would be limited in number and would be only a minor addition to the existing number of authorized houseboat berths;

- (c) All wastewater producing facilities would be connected directly to a shoreside sewage treatment facility;
- (d) No additional fill would be required except for the houseboat itself, a pedestrian pier on pilings, and for minor fill for improving shoreline appearance or for producing new public access to the Bay;
- (e) The houseboats would float at all stages of the tide to reduce impacts on benthic organisms and to allow light penetration to the Bay bottom, unless it is demonstrated that requiring flotation at all tidal stages would have a greater adverse environmental effect on the Bay, and would not result in increased sedimentation in the area;
- (f) The houseboats would not block views of the Bay significantly from the shoreline;
- (g) The project would comply with local government plans and enforceable regulations and standards for mooring locations and safety, wastewater collection, necessary utilities, building and occupancy standards, periodic monitoring and inspection, and provide for the termination of the residential use when the lands are needed for public trust purposes;
- (h) The project would be limited in cost and duration so that the tidelands and submerged lands could be released for water-oriented uses and public trust needs, and, in no case, would the initial or any subsequent period of authorization exceed 20 years. The Commission should conduct a study of public trust needs of the project area within five years of project authorization or reauthorization and every five years thereafter. If the Commission determines within the first five years of authorization that the area is needed for water-oriented uses and public trust needs, the project should be terminated at the end of the 20-year authorization period. If after the first five-year period of project authorization the Commission determines that the area is needed for water-oriented uses and public trust needs, the project should be terminated no less than 15 years from the date of Commission determination. In any event, the original 20 years of the permit's authorization period cannot be extended or renewed by the Commission unless an application is filed for such purpose.

- (i) The project would be consistent with the terms of any legislative grant for the area.

Houseboats moored in recreational boat marinas in the Bay on July 1, 1985 but unauthorized by the Commission should be allowed to remain in the marina provided that the total number of houseboats and live-aboard boats would meet all the live-aboard boat policy tests and the tests of houseboat policies (b), (c), (d), (e), (f), (g), (h), and (i).

Adopted Finding and Policy Concerning Live-aboard Boats

1. Finding

Live-aboard boats are designed and used for active navigation but are distinguished from other navigable boats in that they are also used as a primary place of residence. Although residential use is neither a water-oriented or a public trust use, live-aboard boats can be converted easily to navigable, recreational use and when properly located within a recreational boat marinas, can provide a degree of security to the marina.

2. Policy

Live-aboard boats should be allowed only in marinas and only if:

- (1) the number would not exceed ten percent of the total authorized boat berths unless the applicant can demonstrate clearly that a greater number of live-aboard boats is necessary to provide security or other use incidental to the marina use;
- (2) the boats would promote and further the recreational boating use of the marina (for example, providing a degree of security), and are located within the marina consistent with such purpose;
- (3) the marina would provide, on land, sufficient and conveniently located restrooms, showers, garbage disposal facilities, and parking adequate to serve live-aboard boat occupants and guests;
- (4) the marina would provide and maintain an adequate number of vessel sewage pumpout facilities in locations that are convenient in location and time of operation to all boats in the marina, particularly live-aboard boats, and would provide the service free of charge or at a reasonable fee; and

- (5) there would be adequate tidal circulation in the marina to mix, dilute, and carry away any possible wastewater discharge.

Live-aboard boats moored in a marina on July 1, 1985, but unauthorized by the Commission, should be allowed to remain in the marina provided the tests of (2), (3), (4), and (5) above are met. Where existing live-aboard boats in a marina exceed ten percent of the authorized berths, or a greater number is demonstrated to be clearly necessary to provide security or other use incidental to the marina use, no new live-aboard boats should be authorized until the number is reduced below that number and then only if the project is in conformance with tests (1), (2), (3), (4), and (5) above.

Approved Definition of Houseboat and Live-aboard Boat

10127. Houseboat. A "houseboat" is a boat that is used for a residential or other nonwater-oriented purpose and that is not capable of being used for active navigation.

10128. Live-aboard Boat. A "live-aboard boat" is a boat that is not a transient boat, that is capable of being used for active self-propelled navigation, and that is occupied as a residence as that term is defined in California Government Code Section 244.

California Government Code Section 244. Determination of Place of Residence. In determining the place of residence the following rules shall be observed.

- (a) It is the place where one remains when not called elsewhere for labor or other special or temporary purpose, and to which he or she returns in seasons of repose.
- (b) There can only be one residence.
- (c) A residence cannot be lost until another is gained.
- (d) The residence of the parent with whom an unmarried minor child maintains his or her place of abode is the residence of such unmarried minor child.
- (e) The residence of an unmarried minor who has a parent living cannot be changed by his or her own act.
- (f) The residence can be changed only by the union of act and intent.
- (g) A married person shall have the right to retain his or her legal residence in the State of California notwithstanding the legal residence of domicile of his or her spouse.

NOTES

CHAPTER I

1. A weekly review of The Independent Journal (Marin County) real estate section indicates many houseboats are offered for sale for prices ranging between \$100,000 to \$200,000. In Seattle, Washington, in the newest, and reported last houseboat development in that city, Roanoke Reef, underwater lots may be purchased for \$250,000 and the construction cost of individual houseboats averages approximately \$250,000 (1983 dollars).
2. Judy Talman, City of Seattle Department of Construction and Land Use, August 1983, personal communication.
3. Pacific Inter-Club Yachting Association, "A Response to 'Staff Report on Houseboats and Live-aboards,'" February, 1984, page 4.
4. Copper, M., "The Cruising Yacht," McGraw-Hill, New York, N.Y. (1945), p. 175, as reported in Pacific Inter-Club Yacht Association, p.4.
5. Bay Area Boaters, Live-aboard Report, February, 1984, Redwood City, CA.
6. Ibid, p. 39 (According to the report, some of the marinas, were outside the Commission's jurisdiction).
7. Pacific Inter-Club Yachting Association, "A Response to 'Staff Report on Houseboats and Live-aboards,'" February, 1984, pages 4-5.

CHAPTER II

1. California Government Code, Section 66632.
2. Ibid.
3. California Administrative Code, Chapter 14, Section 10443.
4. California Administrative Code, Chapter 14, Section 10444.
5. Letter from George Deukmejian, N. Gregory Taylor, Dennis Egan, and Kathleen Mikkelson to Michael B. Wilmar, dated April 28, 1982, page 56.
6. Ibid, pages 2-3.
7. Ibid, page 3.

8. Ibid, page 22.
9. Ibid, pages 13-14.
10. Ibid, page 7.
11. Ibid, pages 61-62.
12. California Constitution, Article XVI, Section 6.
13. Letter from George Deukmejian, N. Gregory Taylor, Dennis Egan, and Kathleen Mikkelson to Michael B. Wilmar, dated April 28, 1982, page 59.
14. Ibid, page 3.
15. Public Resources Code, Sections 6301, 6302, 6303, 6303.1, 6224.1, 6224.2, 6216, 6216.1 6221, 6224.1, etc.
16. Public Resources Code, Section 6374.
17. William F. Northrop, State Lands Commission, Letter to Senator Dennis E. Carpenter, dated January 10, 1978.
18. State Lands Commission, meeting of October 28, 1982.
19. Health and Safety Code, Section 4431.
20. Regional Water Quality Control Board, Water Quality Control Plan, San Francisco Bay Basin, Abstract, 1974, page 55.
21. Harbors and Navigation Code, Section 2831.
22. Administrative Code, Title 23, Section 283.1.
23. 33 U.S.C., Section 403 (Referred to also as Section 10 of the Rivers and Harbors Appropriation Act of 1899).
24. Water Code, Section 139000, et. seq.
25. 33 U.S.C., Section 403 (Referred to also as Section 10 of the Rivers and Harbors Appropriation Act of 1899).
26. 33 CFR, Section 322, 2(b).
27. United States v. Boyden, 696 F 2d 685 (9th Cir. 1983).
28. Procedure Memo No. 12, April 14, 1977.
29. 33 CFR, Section 320.4
0. See Bass River Associates v. Mayor, Township Commissioner.

CHAPTER III

1. Regional Water Quality Control Board, San Francisco Bay Region, Vessel Waste Discharge Survey, 1981, page 1.
2. Ibid.
3. 33 U.S.C., Section 1322.
4. Priority Review of the Marine Sanitation Device Regulations, 33 CFR, 159; Appendices, pages 8 and 9.
5. State Water Resources Control Board, Regional Water Quality Control Board, San Francisco Bay Region, Water Quality Control Plan San Francisco Bay Basin, November 1974, as amended 1982, pages 4 through 37.
6. Regional Water Quality Control Board, Vessel Discharge Survey, page 11.
7. Ibid, page 9.
8. Regional Water Quality Control Board, Water Quality Control Plan San Francisco Bay Basin.
9. Pacific Inter-Club Yachting Association, "A Response to 'Staff Report on Houseboats and Live-aboards,'" February 1984, page 22.
10. Federal Marine Sanitation Device Regulations, June, 1978.

APPENDIX A

NEW REGULATIONS PROPOSED TO DEFINE THE
TERMS "HOUSEBOAT," "LIVE-ABOARD BOAT," AND
"MOORED FOR AN EXTENDED PERIOD"

10140. Houseboat. A houseboat is a boat that is used for a residential or other non-water-oriented purpose and that is not used for active navigation.

Authority: California Government Code Section 66632(f) and California Public Resources Code Section 29201(e).

References: California Government Code Section 66632, California Public Resources Code Section 29008, and the San Francisco Bay Plan.

10141. Live-Aboard Boats. A live-aboard boat is a boat that is used or capable of being used for active self-propelled navigation, that is moored for an extended period, and that is used during the period of mooring as a private principal place of residence.

Authority: California Government Code Section 66632(f) and California Public Resources Code Section 29201(e).

References: California Government Code Section 66632, California Public Resources Code Section 29008, and the San Francisco Bay Plan.

10142. Moored for an Extended Period. Moored for an extended period means secured, made fast, attached, or anchored for more than 31 days to the bottom or shore of any body of water within the jurisdiction of the San Francisco Bay Conservation and Development Commission or to any float, pier, or other similar structure located within any body of water within the jurisdiction of the San Francisco Bay Conservation and Development Commission.

Authority: California Government Code Section 66632(f) and California Public Resources Code Section 29201(e).

References: California Government Code Section 66632, California Public Resources Code Section 29008, and the San Francisco Bay Plan.