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NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

A GUIDE FOR MARINA AND HARBOR MANAGERS

by

Lizabeth Lepp Fruth

March 1991

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**A Guide for Small Craft Harbor and Marina
Managers in Coastal California**

by

**Lizabeth L. Fruth
Lieutenant, Unrestricted Line, United States Navy
B.S., University of Maryland, 1983**

**Submitted in partial fulfillment of the
requirements for the degree of**

MASTER OF SCIENCE IN MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
March 1991**

ABSTRACT

This thesis outlines and develops a management guide for small craft harbor and marina managers. The final product, a guide for marina and harbor managers, is included as an appendix. The thesis describes a need for the guide, explains how it was developed, and provides background information on small craft harbors and marinas. Further, the thesis describes how the information for the guide was collected and makes recommendations for future studies and applications.

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I. INTRODUCTION

A. BACKGROUND

The focus of this paper responds to the need for California marina and small boat harbor managers to have better access to information about their day to day operations. Based on this need for accessible information, a management guide was developed that references the critical agencies involved with managing small boat harbors and marinas. This section provides background information on harbors and marinas including their definitions and purpose, the importance of these facilities, and the importance of the managers that operate them. By defining marinas and harbors and the types of operations involved in these organizations, the information necessary for a management guide is identified.

1. Harbors and Marinas Defined

A harbor is a body of water that is protected from the open coast through natural barriers or man-made structures such as jetties, groins, or breakwaters. Harbors usually contain one or more ports or marinas. A port operates commercial loading and unloading of goods and materials. A marina is usually much smaller than a port and is centered around recreational boating.

If a harbor contains a port it is referred to as a large boat harbor, but if it contains only recreational boating facilities, it is referred to as a small boat harbor.

Small boat harbors usually house boats in berths, lease facilities, control navigation and safety of waterways and provide a wide range of boating related services such as fuel pumps and launching facilities. Most of these operations are controlled by marinas, however since they are a facility inside of a harbor, they do not control navigation and safety of the waterways.

The type of operations and skills required to manage large boat harbors are very different from the small boat harbors and marinas that have a recreational emphasis. Large boat harbors, or ports, due to their size and vast array of operations have specialized rather than multifaceted job positions. It is not unusual to have separate departments such as accounting, public relations, crane and equipment operations, and leasing. Each of these departments contain technical experts and departmental heads who are specially trained to perform the work involved in their particular section. The manager of these operations, though he may understand the basic requirements of each department, does not and could not possibly perform every facet of each job position.

Conversely, the small boat harbors and marinas do not involve the specialized aspects of cargo handling, storage, and international entry and exit of commercial vessels. Due to a more limited variety of operations, a small boat harbor/marina manager does not have a large staff dedicated to specialized departments. The manager of these facilities becomes directly involved in daily operations including accounting, leasing, contracting, layout, design, and funding.

2. Importance of California Small Boat Harbors/Marinas

Small boat harbors and marinas are important because they have a large impact on the California economy. In 1986, more than 700 small boat harbors and marinas generated over 6.7 billion dollars, traceable to recreational activity. Additionally, recreational boaters made purchases of over 1.6 billion dollars on boating trip-related items such as gasoline, groceries and lodging. Businesses supporting recreational boaters were responsible for over 191 million dollars in state and local tax revenues. (David M. Dornbusch and Company, Inc., 1988, pp. 1-2)

3. Importance of the Manager's Role

Recreational boating facilities must be managed effectively and efficiently so that these operations contribute to the local economy, protect the environment, and protect the safety and property of recreational boaters

and those working in the industry. A manager may contribute to the local economy by encouraging boating activity through efficient operations. If facilities are accessible, functional, and demanded by the public, then boaters will be attracted to the municipality. Not only do the boaters purchase boats, boating supplies, and boating services but they also use adjacent facilities such as restaurants and other local businesses. These expenditures contribute to increased profitability of local businesses, an improved job market, and additional tax dollars for the locality.

Small boat harbor and marina operations must be planned and supervised properly to prevent damage to the environment. Poor location of facilities, careless waterfront construction, and improper handling of fuel and other toxic substances can degrade water quality, disrupt the natural ecology of an area, and harm wildlife habitat and breeding areas. Permit authority and environmental protection agencies are designed to prevent destruction of the environment. It is important for the manager to be aware of relevant guidelines and agency resources to ensure that these facilities are not hazards to the environment.

A manager must follow safety regulations and laws to ensure safe operations for customers and employees of a small boat harbor or marina area. These regulations relate to navigation devices, handling of hazardous materials,

electrical codes, and construction criteria. Permit authority and safety education resources are designed to ensure that these facilities are safe, so it is also important for the manager to know which agencies should be involved and for what aspects of small boat harbor and marina operations.

B. NEED FOR THE STUDY

Small boat harbor and marina managers indicated in a 1986 study that most of the information needed to conduct daily business is acquired from "word of mouth" and professional associations. Furthermore, the study indicated that most managers desired further information in several areas (Johnson, L. T., August 1989). These areas are outlined later in this thesis.

This need for information need was again highlighted in February, 1990, by a small boat harbor employee who desired information and training in management of these facilities but was unable to locate a central source of guidance. Through phone calls and letters to key individuals in the recreational boating industry, this employee was instrumental in the organization of a meeting of professionals to address the need for a centralized information source.

The meeting, held in March, 1990, was a confirmation of the need for a centralized information source in the area of small boat harbor and marina management. This group requested an in-depth study of training requirements for harbormasters in the form of a research thesis, from the Naval Postgraduate School. Based on that request, informal interviews were conducted in June, 1990, in San Diego, California of four marina managers to further clarify the needs of the small boat harbor and marina managers. The following section details background research which was the foundation for this thesis.

1. Historical Research

In 1986, a study was conducted by the Sea Grant Division of the California Boating and Waterways Department to identify the management information needs of California coastal waterfront small boat and marina managers. The 206 California coastal waterfront managers who responded to the survey indicated that they used various sources of information to achieve the guidance needed for daily operations. The primary source of information was other managers. Additional sources included professional books, periodicals, associations, and trade journals.

All of the respondents expressed an interest in additional information and education. The study divided the topic areas desired into two categories: (1) management and

(2) technical. The management category involves the administrative aspect of managing small boat harbors/marinas and the technical category involves facilities and structure management of these operations. The five most commonly requested areas of management information were as follows, in order of priority:

1. Dockage Agreements/Marina Rules
 2. Risk Management/Liability
 3. Managing Pleasure Boat Tenants
 4. Financial Management
 5. Managing Live-Aboard Tenants
- (California Sea Grant, August 1989, p. 14)

The five most commonly requested areas of technical information were as follows, in order of priority:

1. Maintenance of Major Marine Structures
 2. Electrolysis Control
 3. Selection of Major Marine Structures
 4. Construction of Major Marine Structures
 5. Coastal Engineering
- (California Sea Grant, August 1989, p. 12)

Finally, it was the conclusion of the 1986 study that "...assistance was needed on several high priority technical and management topics". (California Sea Grant, August 1989, p. 21)

2. Professional Consensus

As a result of the efforts of a harbor office employee and one of the authors of the 1986 study, a meeting was held in March, 1990, at the California Maritime Academy, Vallejo, California to discuss the needs of California coastal harbors and marinas. Representatives from University of

California Sea Grant Program, California Association of Harbormasters and Port Captains, Monterey Bay Harbormaster Office, Naval Postgraduate School, United States Coast Guard, and California Maritime Academy were present.

The group consensus was that training courses, references, and professional journals for the operation of ports are extensive. However, information and training pertaining to marinas and small boat harbors is widely dispersed and not easily accessible to the managers. The information problem is compounded because of the relatively small size of these facilities. Unlike large organizations, the limited size of marinas and small boat harbors does not allow a manager to advance through levels and obtain specialized training. Further, the economies of these relatively small facilities generally do not have the personnel or financial resources to send the managers through extensive training programs. Since there is an economically based lack of demand for these training programs, availability of these programs is highly limited.

The members of the meeting decided that written guidance, in manual format, was a feasible training medium for these managers. They would not have to leave their facility, they could use it as necessary, and individuals could learn about harbors and marina management without being in a trainee position.

3. Current Practices

To begin the development of the written guidance, initial interviews were conducted with four marina managers in San Diego, California, in June of 1990. The objectives of these initial interviews were twofold. The first objective was to gather more in-depth responses from the managers about their day to day operations and their information needs. The second objective was to determine what format would make this information easily accessible.

While the 1986 survey identified the general topic areas, specific information needs were not identified. Personal interviews expanded the list of information needs to those areas that are not frequently encountered but are important for managers of small boat harbors and marinas. It was also determined through these interviews that the managers required vast amounts of information and that they spent a large portion of their time determining the appropriate source for the needed information.

A manual containing all the information needed by marina and harbor managers was beyond the scope and capability of this thesis. However, the interviews also indicated that a directory of information sources would be useful. Further, more management guidance in directory format could be accomplished in the time required, by this thesis, and still encompass the information needs of these managers.

C. OBJECTIVES

This study is a needs assessment of California harbor and marina managers that resulted in a guide which briefly describes the relevant authorities and agencies throughout California, their regions of responsibility, and what functions they control. The guide also includes a topic index that refers managers to agencies involved, and sources of information for particular marina/harbor manager tasks or functions.

D. SCOPE

This study includes only operations management of small boat harbors and marinas in coastal California. General topics such as personnel management, communications, and leadership will not be covered since the purpose of this paper is to provide a ready reference, not management training.

Further, since this is intended to be a ready reference, areas requiring technical expertise, detailed sub-units, and locality specific information will not be included.

E. OVERVIEW

1. Chapter II of this thesis will describe the organization and functions of coastal California marinas and harbors, the agencies that regulate them, and the scope of responsibility for the managers of these boating facilities.

2. **Chapter III** will describe the methodology used to gather information needed for the guide.

3. **Chapter IV** will summarize the information included in the guide and how it is presented.

4. **Chapter V** will assess the final product and include recommendations for future studies.

II HARBORS AND MARINAS

This chapter establishes a basic framework for the information needed in small boat harbors and marinas by describing the kinds operations conducted, organization of the controls and regulating authority over small boat harbors/marinas, and the responsibilities of the individuals who manage these facilities.

A. SMALL BOAT HARBOR AND MARINA OPERATIONS

1. Functions of Marinas and Small Boat Harbors

In 1986 there were 38 small boat harbors and 678 marinas in California (Williams-Kuebelbeck & Associates, Inc., 1986, p.2). By definition, a small boat harbor includes one or more marinas within its confines. In addition to marina facilities, a harbor is concerned with the maintenance and operation of the waterways and mooring areas, and navigation within the harbor.

Marina, a generic word coined in 1928 by the National Association of Engine and Boat Manufacturers, describes a modern waterfront facility for recreational boats. It generally provides a variety of services for boats and boat owners that include some or all of a variety of facilities including wet and dry berthing, launching by ramp or hoist, automobile parking, restrooms, fresh water, electricity,

showers, repairs, maintenance, winter storage, marine supplies, ice, and fuel (National Association of Engine and Boat Manufacturers, 1969, p. i).

Marinas are generally designed to serve boats of various sizes. They are usually constructed of wood or metal docks that are either mounted on piers, anchored, or of the floating variety. The berthing areas, called slips, are perpendicular to the docks and may be provided with catwalks between the slips, to facilitate access to boats (Schultz, 1984, p. 234).

2. Organization for Daily Operations

Marinas may be owned by a private enterprise, called a private marina; or by a city, county, or harbor district in which case it is called a public marina. The functional difference between private and public ownership is that the regulatory controls, authority to construct, and types of funding available vary between the two types of ownership.

In coastal California, approximately 70% of the berthing spaces are public marinas and about 30% are private marinas (Aurthur & Young Company, 1973, p. B-4). A public marina is either operated by the government agency staff or leased in whole to private enterprises or leased in part to private enterprise. Public marinas usually lease the

commercial activities areas such as stores, restaurants, and boat rentals. They do not typically lease fuel docks, dry storage areas and launching ramps.

The whole marina may also be leased to private enterprises, rather than just the commercial activities. Approximately 60% of the public marinas operate with public agency personnel and the remaining marinas are leased to private operators (Department of Boating and Waterways, Marina Management Study, Vol 1, pp. 14-16).

B. REGULATORY CONTROL OVER OPERATIONS

Marinas and small boat harbors are regulated in terms three primary activities. These activities include development, funding, and any activities that have a real or potential impact on the environment. Several agencies regulate more than one category, however the role and authority of each agency varies. This section explains what is involved in each of these primary activities and the regulatory interaction in each area.

1. Development

Marina and harbor development is controlled by several agencies at various levels depending upon region or municipality. In 1985 there were 38 controlling agencies that had jurisdiction over marinas and small boat harbors throughout California. These formal governmental entities are politically determined and include cities, counties,

harbors, and port districts. (Department of Boating and Waterways, Marina Management Study Vol 1, pp. 14-16)

These governing agencies are allowed to acquire, construct, own, operate, control, and develop harbor works or facilities within the limits established by political boundaries. A list of Federal and State governing agencies, the types of operations that are regulated, and the authorizing laws and acts are shown in Figure 1.¹ The areas that they control are anchoring, mooring, towing, and docking of vessels. They also control enforcement of all necessary rules and regulations (California Law, Harbors and Navigation Code, Appendix 1 Section 55-56 and Section 6042).

Since the small boat harbor and marina manager interacts with these governing agencies, it is important to know specifically which operations are regulated and the laws that apply to their facility.

2. Funding

The government agencies who have jurisdiction over development also assist small boat harbors and marinas in the funding of waterfront projects. Several other agencies also assist with financing depending upon the purpose of the funding. Table 1 shows the agencies that grant or assist with funding and what type of funding is available. The

¹The regulatory agencies for locality specific areas are not included in this list.

REGULATING AGENCIES

Board of Engineers for Rivers and Harbors
California Coastal Commission
CalTrans-Planning
Department of Conservation
Department of Boating and Waterways
Department of Fish and Game
Department of the Interior
Department of Natural Resources
Department of Transportation
Department of Water Resources
Environmental Protection Agency
Federal Communications Commission
Harbor District
Office of Planning and Research
Reclamation Board
State Lands Commission
State Water Resources Control Board
U.S. Army Corps of Engineers
U.S. Coast Guard
U.S. Department of the Interior
U.S. Fish and Wildlife Service
U.S. Forest Service

REGULATED OPERATIONS

Coastal Development
Collisions
Construction
Dredging
Electric
Encroachment
Environmental Impact
Funding
Harbor Law
Hazardous Waste
Licenses
Liens
Land Use
Leasing
Mooring
Navigation
Painting
Planning
Pollution
Safety
Towing
VHF

SMALL CRAFT HARBORS AND MARINAS

LAWS AND ACTS AFFECTING OPERATIONS

Aids to Navigation Standards
California Air Pollution Laws
California Boating Law
California Code of Regulations
California Environmental Quality Act
California Health and Safety Code
California Harbors and Navigation Code
California Land Use Planning Law
California Penal Code
California Public Resources Code
Clean Air Act
Clean Water Act
Coastal Zone Management Act of 1980
Code of Federal Regulations
Endangered Species Act Amendments of 1982
Federal Requirements for Recreational Boats
Federal Water Pollution Control Act
Fish and Game Code of California
Health and Safety Code
Inland Navigation Rules
Marine Protection, Research and Sanctuaries Act of 1969
Oil Pollution Act of 1990 (Wallop-Breaux Act)
Refuse Act of 1899
Resource Conservation and Recovery Act of 1976
River and Harbor Act of 1899
River and Harbor Act of 1945
River and Harbor Act of 1962
River and Harbor Act of 1968
U.S. Coast Guard Boating Accident Regulations
United States Code
Water Pollution Control Act of 1948
Water Quality Improvement Act of 1970
Water Resources Development Act 1985

Figure 1
Laws, Agencies, and Operations

primary State agencies are the California Department of Boating and Waterways and the State of California Coastal Conservancy Commission. The primary Federal agency is the U.S. Army Corps of Engineers. To maximize utilization of these funding sources, a guide can provide what managers need to know, agencies that can provide funding, what type of operations are funded, and what procedures are involved in obtaining funding.

3. Environmental Protection

The government agencies who have jurisdiction over development are also required to ensure that environmental issues are addressed with any proposal for waterside development. In addition to this jurisdiction, there are a multitude of State and Federal agencies who are concerned with environmental protection by either approving or disapproving any proposed action or enforcing standards in the context of daily operations. Figure 2 lists the laws that are designed to protect the environment, the agencies that regulate pollutants, and the agencies that are usually required to comment regarding proposed development.

State agencies concerned with this matter include the State of California Department of Fish and Game and the California Coastal Commission. The Federal agencies include the Environmental Protection Agency, United States Coast Guard, and U.S. Department of Fish and Wildlife.

TABLE 1.

FUNDING SOURCES AND PURPOSE FOR MARINAS AND SMALL CRAFT HARBORS

ORGANIZATION	D I S A S T E R R E L I E F	M A R I N A A S S I S T A N C E	S M A L L B U S I N E S L O A N S	B E A C H E R O S I O N G R A N T S	B I K E W A Y S G R A N T S	C O A S T A L H A B I T A T G R A N T S	L A B O R R E S O U R C E S	L A N D U S E G R A N T S	P L A N N I N G & C O N S T. L O A N S	P U B L I C M A R I N A L O A N S	O U T D O O R F A C I L I T I E S	R A M P S & R E S T R O O M S G R A N T S
California Office of Emergency Services	X											
California Coastal Conservancy						X		X	X	X		
Small Business Administration									X	X		
Department of Boating and Waterways		X		X	X		X			X	X	
Department of Fish and Game						X						
National Park Service								X				
U.S. Fish and Wildlife								X				X
California Coastal Commission								X		X		
U.S. Army Corps of Engineers	X	X		X		X	X	X				
U.S. Forest Service												X

AGENCIES THAT REGULATE POLLUTANTS

California Coastal Commission
Department of Fish and Game
U.S. Army Corps of Engineers
U.S. Coast Guard
Environmental Protection Agency

**LAWS DESIGNED TO
PROTECT THE ENVIRONMENT**

California
Environmental
Quality Act
California Public
Resources Code
Endangered Species Act
of 1982
National Environmental
Policy Act

**ENVIRONMENTAL
ISSUES IN
MARINA AND
SMALL CRAFT
HARBOR
MANAGEMENT**

AGENCIES THAT COMMENT ON PROPOSED DEVELOPMENT

Board of Engineers for Rivers and Harbors
Caltrans-Planning
Department of Conservation
Department of Natural Resources
Department of Transportation
Department of Water Resources
Reclamation Board
State Lands Commission
California Coastal Commission
Department of Fish and Game
State Water Resources Board

**Figure 2
Pollution, Laws, and Agencies Involved with Operations**

Useful guidance would provide managers with sources of permit information, they could then ensure that they contact the appropriate agencies and comply with all pertinent laws. Managers would not waste time trying to locate the appropriate agencies through trial and error contacts.

C. SMALL BOAT HARBOR AND MARINA MANAGER RESPONSIBILITY

The scope of responsibility for small boat harbor and marina managers includes the planning, organizing and directing of all operations; maintenance of the marina, outer harbor, and wharf facilities; and communicating with others to foster facility operations.

1. Planning

Planning includes preparing budgets and planning long-range maintenance.

2. Organizing

Organizing includes maintaining the facilities and administering the leased sites.

3. Directing

Directing includes directing a staff, and supervising expenditure and collection of funds.

4. Communicating

Communicating includes speaking before groups, negotiating contracts, coordinating with other

jurisdictions, cities, agencies, and private organizations concerned with harbor activities, and preparing correspondence and reports.²

A guide that provides complete operations information would allow managers to perform these responsibilities with greater success.

²Derived from Monterey Bay Harbormaster and the Breakwater Cove Marina Manager job descriptions, and City of Morro Bay Harbor Director and the Port San Luis Harbor District Harbor Manager job announcements

III METHODOLOGY

The development of the management guide required a five step process:

1. Initial Interviews of small boat harbor and marina managers to determine what these organizations do on a day to day basis.
2. Identification of primary sources of information that may not be known by the managers.
3. Visits to the primary agencies who interact with the small boat harbor and marina managers.
4. Development of a working draft of the management guide.
5. Feedback from small boat harbor and marina managers to evaluate the guide.

The following sections provide detailed information on the background and execution of each step.

A. INITIAL INTERVIEWS

Initial visits were made to four marina and small boat harbor managers in June, 1990 to determine specific information needs for these managers in terms of type and presentation of information. Major considerations for information needs were the level of experience, effectiveness of current information collection methods, and functions and responsibilities of facility managers.

Of the four marinas visited, two of the managers had less than one year of experience in marina management and did not have formal training in the field. One had limited experience and one had worked in the field for many years.

They collected the information needed to run their marinas by relying on historical practice, or by talking to other marina managers and agencies to determine how to best approach a situation that would yield a profitable result and ensure compliance with regulations. In addition to the major areas of interest stated in the 1986 study, they identified areas of their operations that were not part of everyday operations but were important to understand as marina and small boat harbor managers. The managers felt they would save considerable time if they knew where to find information. References and information were collected from these managers, Breakwater Cove Marina, and the Monterey Bay Harbormaster.

B. INITIAL COLLECTION OF INFORMATION

Interviews led to the identification of current sources of information used by the four managers. Approximately 40 references were collected from the marinas during the initial interviews. These references were used by the managers in the performance of their jobs and formed a basic framework from which to develop the functions of marina and small boat harbor management. The subjects covered by the references, the bibliographies, the producing agencies, and

the agencies referred to by the references indicated involvement with these facilities and provided avenues for further investigation.

1. Primary Areas Covered

These references included guidelines for coastal engineering, boating studies, facilities studies, fiscal funding statements, organization manuals, waterfront construction information, marina management studies, and budget preparation outlines and information. They identified background information relating to coastal California small boat harbors and marinas including the extent, size, location, economics, and composition of these facilities. This background information served as a basis for pertinent topics for the guide.

2. Bibliographies

Other sources of information were collected by using the bibliographies of the initial references. This expanded the list of references relating to the operation of marinas and small boat harbors.

3. Producing Agencies

The agencies who produced several of the initial references appeared to be involved with these facilities on a regular basis. These references were reviewed to

determine the type of involvement (informational or regulatory) and to determine their location so that they may be interviewed to develop the guide.

4. Referenced Agencies

These references also identified some of the agencies that fund, assist in funding, provide information, provide services, require permits, and require approval for various aspects of operations.

C. AGENCY VISITS

The initial collection of references indicated that there were several agencies that provided both guidance and information to these facilities. The most prevalent agencies were the Department of Boating and Waterways, U.S. Army Corps of Engineers, United States Coast Guard, and Department of Fish and Game. These agencies were then visited to determine the full extent of their interaction, collect and research additional references, and determine other agencies that interact with these small boat facilities.

1. Department of Boating and Waterways

The Department of Boating and Waterways was identified as a source of funding, a boating and water area reference source, and a coordinating authority for development and construction of marina areas. During the interviews, they provided background and sources on the laws that authorize

funding, types of funding procedures, and requirements. Further, references for sale by this department were identified and added to the reference list.

The agency contact person defined the Department's purpose and all areas of interaction with marina and small boat harbor managers. Further, they identified other agencies that offer assistance to these managers and regulate their operations. These agencies included the State Lands Commission and the Office of Permit Assistance. Follow-up interviews were held with both of these agencies and relevant information was incorporated into the guide.

2. U.S. Army Corps of Engineers

Many of the references provided initially either referred to, or were coastal and engineering studies conducted by the U.S. Army Corps of Engineers. This agency had developed coastal areas, with authorization from Congress, and was identified in some of the studies as a permit agency for waterway construction operations such as dredging.

When this agency was visited, they provided information on how to access studies that they have conducted. They also provided names, addresses, and phone numbers for bookstores and publishing agencies that provide State and Government reports and documents.

They explained their interaction with marinas and small boat harbors, and outlined the regulating authority for

their operations. To assist these managers, they provide guidelines regarding the Corps of Engineers Permit Process and studies for coastal areas.

3. United States Coast Guard

The United States Coast Guard was identified as the enforcement agency for pollution and safety standards, and the controlling agency for navigation standards and operations. Title 33 of the Code of Federal Regulations is the governing legislation over the Coast Guard operations and includes equipment regulations, navigation standards, pollution regulations, and safe boating practices regulations.

They also have a library of safety brochures, films, and boating classes and they provided other sources and points of contact for these services.

4. Department of Fish and Game

The Department of Fish and Game has permit and comment authority for some coastal development. When visited they verified this position and provided the specific guidance and circumstances that require permits. Their purpose is to protect the Fish and Wildlife in the State of California through regulation, oversight, and enforcement. One of the circumstances in which they are required to comment is when the State Water Resources Board is required to issue a permit for and operation. A follow-up interview was then conducted with the State Water Resources Board to clarify

when a permit is required and for what type of operation. They provided general provisions and district point of contacts for the marina and small boat harbor manager.

D. DEVELOPMENT OF DRAFT GUIDE

Using the initial collected references, information ascertained from agency interviews, and a search of the state library system, a draft guide was compiled.

E. FEEDBACK FROM MANAGERS

The draft guide was mailed to ten small boat harbor and marina managers for review. Selection was designed to provide a cross section of population. Variation was desired in the areas of geographic region, ownership (public vs. private), harbor district, size of operation, level of experience, and age of operation.

The managers were asked to review the guide for content and structure. A questionnaire was mailed with the guide to prepare them to respond to questions in a follow up telephone interview. Appendix B is a sample of the cover letter sent and questions provided to the managers.

After allowing several days to review the guide, the managers were contacted by phone. They were asked to elaborate in each area of evaluation. Their comments were then incorporated into the guide, utilized as an assessment in the conclusion portion of this thesis, or used as a basis for suggestions for further study in this area.

IV FINDINGS

A. CONTENT

Based on the literature review and meetings with agencies, information was collected that involved small boat harbor and marina manager functions. This information fell into five major categories; funding, laws, engineering, and administration, and boating organizations and information.

1. Funding

Funding information involves the regulating authorities, the allowed purpose of various sources of funding, and the sources of guidance available to assist in procuring funding. Regulating authorities are those agencies that ensure funds are dispersed for the appropriate purposes and to the intended organizations. They oversee the funding process and ensure compliance of stipulations for various types of funding. These agencies include the Department of Boating and Waterways, The Office of Planning and Research, and the U.S. Army Corps of Engineers.

Funding may be intended for a public or private marina or small boat harbor or it may be intended to achieve a

particular state-wide goal such as erosion control. Table 1, on page 18, shows the types of funding available and the granting organizations.

It is important for a manager to know where to get funding. There are several expenditures listings and expenditure histories available so that the manager can determine what kind of funding is being granted and from whom. There are also references that guide a manager through the funding process. For example, the U.S. Army Corps of Engineers has a guidance booklet on how to obtain Legislative approval for the Corps of Engineers to do a study or construction in a water area.

2. Engineering

Engineering guidance involves technical assistance by types of construction for both shore facilities and water facilities, sources of studies that have been conducted by various locations, and regulating authorities for construction. Technical guidance is available for construction, design, and maintenance of structures such as berthing facilities, coastal areas, cofferdams, cellular structures, dredging, electrical power, equipment, shore facilities, breakwaters, and channels and fairways. This guide provides managers with relevant references and sources of information on studies. Information may be in the form

of references or studies. For studies the manager should know what agencies conduct, maintain, and provide historical studies, and how to get the study or studies desired.

3. Administration

Administration information includes guidance pertaining to liens, insurance, planning, leasing, concessions, economics, management, and accounting and bookkeeping for small boat harbors and marinas.

4. Laws

Both State and Federal laws govern small boat harbor and marina operations. These laws are comprised of both acts and legislative regulation for enforcement and permit authority. The primary laws governing boating, and boating facilities are shown in Figures 3 and 4. Each of these laws are enforced, monitored, and administrated by several agencies. These laws involve land use planning and protection of the environment (see Figure 2, page 19), funding for waterfront development (see Table 1, page 18), harbor operating procedures, and safety of facilities.

5. Boating Information and Organizations

Resources, other facilities, and organizations that assist small boat harbor or marina managers in the performance of their job. This includes listings of boating facilities and services, directories, California boating facilities reports and studies, boating organizations, and general information sources such as the "Boaters Source

California Boating Law

This compilation of State of California law related to boating including the Harbors and Navigation Code, Vehicle Code, California Code of Regulation, Penal Code, Fish and Game Code, Health and Safety Code, Water Code, and Government and Public Resources code. These codes involve regulations for small craft harbors and launching facilities, registration, equipment, and operation of vessels.

California Code of Regulations

Includes Department of Boating and Waterways loan and grant regulations, and authorizes California jurisdiction over casualty reporting, jurisdiction over equipment requirements, law enforcement vessels, rules of the road, waterway marking system, and for-hire and broker licenses. Legislative laws in effect for the current year.

California Harbors and Navigation Code

Includes guidance and regulation concerning the Department of Boating and Waterways and its jurisdiction, navigable waters and its California requirements, vessel law, liens, abandoned vessels, operation of vessels, for-hire licenses, and marine sanitation.

California Land Use and Planning Law

Procedures are outlined in the California Permit Handbook

California Penal Code

Includes selected penal provisions from the California Constitution, Business and Professions Code, Code of Civil Procedures, Health and Safety Code, Vehicle Code, Welfare Institutions Code, and the California Rules of Conduct. Available at State and local law libraries. Portions pertaining to California Boating are outlined in "California Boating Law"

California Public Resources Code

Compilation of legislative laws in effect that addresses the Environmental Quality Act (Section 21000), California Environmental Protection Program (Section 21190), California Coastal Act (Section 30000), Ocean Use Planning (Section 30950), State Coastal Conservancy (Section 31000), and Coastal Resources and Energy Assistance (Section 35000). It covers policy, state agencies involved, boards and commissions involved, local agencies, requirements for submission of information, and limitations.

Health and Safety Code

Part of the California Code of Regulations, these regulations outline water quality and air quality guidelines and is utilized primarily by the Water Resources Board.

Figure 3 State Laws that Control Operations

Code of Federal Regulations

Volume 33 Pertains to Boating and Waterways. It includes regulations pertaining to aids to navigation, international navigation rules, bridges, and boating safety. This is the primary guidance for the United States Coast Guard.

Federal Water Pollution Control Act

Prohibits the discharge of oil or hazardous substances in quantities which may be harmful into U.S. navigable waters, the contiguous zone, and waters within 200 miles. Violators are subject to a penalty of \$5,000. The U.S. Coast Guard must be immediately notified if your vessel or facility discharges oil or hazardous substances into the water.

Fish and Game Code of California

This is the law governing the California Fish and Game Department. It requires the Department of Fish and Game to authorize permits in cases of stream bed alteration, blasting, or encroachment on fish and game property. It also requires Fish and Game comment for any development where a lead agency is involved or if any endangered species are involved.

Inland Navigation Rules

Required action to avoid a collision, requirements for carrying of Inland Navigation Rules, and location of application of Inland Navigation Rules versus International Rules.

U.S. Coast Guard Boating Accident Regulations

According to Title 33 of the Code of Federal Regulations, "Boating accidents that involve a recreational boat or its equipment must be reported if a person dies within 24 hours, disappears from a vessel under circumstances that indicate death or injury, or is injured and receives medical treatment in addition to normal first aid". "Accidents involving only property or equipment damage must be reported within 10 days if the damage is in excess of \$200.00 or total boat loss". (U.S. Department of Transportation, 1986, p. 17)

United States Code, USGPO, Washington, D.C., 1989.

Legal reference containing general and pertinent laws of the United States that were in force on January 3, 1989. It is prepared and Published under authority of Title 2 of the U.S. Code by the Office of Law Revision Counsel. It is a printed compiled version of active legislative action.

Figure 4
Federal Laws that Control Operations

Directory", "Encyclopedia of Community Planning and Environmental Management", and "National Business Information Source".

B. DISPLAY OF INFORMATION

It was necessary to determine what format should be used to facilitate functionality and ease of use for the managers. Since the purpose of this guide was to provide sources of information for whatever the topic of interest may be, the draft guide was designed so that the manager could refer to a subject area and be given the appropriate references, agencies, or laws. For example, the manager would wish to find information on berthing facilities for possible construction. He would be referred to the laws section and the regulation that governs construction operations, the reference section for information on how to plan, and the agency section for those agencies who regulate this type of operation.

V CONCLUSION AND RECOMMENDATIONS

The preliminary guide was reviewed by several marina and harbor managers to evaluate the usefulness of the guide, to recommend changes in the context and format, and to determine possible future uses or future studies. Ten small boat harbor and marinas were selected throughout coastal California. Selections were designed to provide a good representation of various manager levels of experience, ages of facilities, sizes of facilities, ownership types (public versus private facility), and geographic locations.

A list of questions was provided to assist the ten managers in evaluating the guide. The questions were designed to determine the usefulness of the guide in terms of information provided and format, ways to improve the present guide, and recommendations for additional work in this area or suggestions for future use of this product. Appendix B shows the questionnaire that was provided to them. This was used as a basis for guide evaluation interviews.

Eight of the ten managers were available for interview, and provided feedback to the questionnaire. Appendix C shows the names and addresses of the facilities that responded. Three out of these eight individuals managed privately owned

marinas, two managed small craft harbors that were also harbor districts, and three managed small craft harbors owned and controlled by cities.

A. USEFULNESS OF THE GUIDE

To determine usefulness of the guide the managers were asked if information provided was applicable to their daily operations, if this source met their needs, and if the guide was easy or difficult to use.

1. Applicability of Information

The managers felt that the information provided did give information that was applicable to their operations. One manager stated that it was the kind of information that they previously had to locate through trial and error and that it appeared comprehensive. Another stated that the references and sources required for operation were now in one book with the production of this guide.

2. Need for Source

All of the managers stated that they previously had to go to several resource sources and agencies for the information. If they ran into a dead end with one source then they looked for another. Local area meetings, Coast Guard, Army Corps of Engineers, phone books, libraries, California Department of Boating and Waterways, and the local regulatory agencies were contacted in hopes of

locating the information desired. They stated that this guide will save considerable time by referring these managers to the applicable reference, regulation, or agency.

3. Ease of Use

The managers felt that this guide was easy to use because it was concise, explained what was involved in each reference, and contained where the information can be acquired. They stated that it is possible to cross reference and develop unfamiliar sources of information by scanning the references and subject title.

However they found the guide difficult to use at first and felt that some background information and complete instructions on use were needed so that the manager did not have to look over the whole document to fully understand how to use it.

They also desired more expansion for commonly encountered areas. For example, the managers felt that it would be useful to include an explanation of the types of permits required for dredging, what the provisions of each law were, and the section that applied. This is not in the scope of this study due to the extensive nature and is discussed in the recommendations for future section.

B. WAYS TO IMPROVE THE GUIDE

The managers were asked if there were ways to improve the guide by adding information, deleting information, or changing the format. None of the managers felt that any of

the information should be deleted, some recommendations were made for format changes, and all of the managers had recommendations for information that they felt should be included.

Changes in format included the inclusion of a table of contents so that the topics covered may be scanned and an instruction sheet in the beginning of the guide to clearly explain how to use the guide so that managers will not have to review the whole document to see how it works.

Table 2 shows additional information requested. The information requested was included in the guide with the exception of personnel management, and locality specific information.

Personnel management is a management course in general and would be useful to the managers however it is not particular to marina and harbor management. This topic is a good suggestion for recommendations for additional work and is discussed in the following section.

Locality specific information included information on port districts and regulating agencies for localities. This information would be useful, but is too vast for this project.

C. RECOMMENDATIONS FOR ADDITIONAL WORK

The managers were asked if they could think of any potential benefits of the guide. This included an expansion of the current information, method of distribution or

TABLE 2
INFORMATION MANAGERS WOULD LIKE TO ADD TO THE GUIDE

<p>PERSONNEL MANAGEMENT Includes skills and techniques for handling daily personnel matters.</p> <p>Two references suggested were: California Employment Guide, Summers Press, Inc., Texas, 1990</p> <p>Supervisors Factomatic, Jackson Horn, Prentice Hall, Englewood Cliffs, N.J., 1990</p>	
<p>PORT DISTRICT It was requested that the names, addresses, and authority for the various port districts be included in the topic index.</p>	
<p>ASSOCIATIONS The following associations were not included and it was felt that they were important to marina and small craft harbor operations: California Boating Safety Officers Association</p>	
<p>LAWS AND REGULATIONS Laws and regulations that are pertinent to operations and were not included are: Conservation Regulation</p>	
<p>INFORMATION SOURCES Information sources that were not included are: Bald Eagle Enterprises, San Francisco, CA, (415) 331-3423 Prints detailed listings of harbor and marina facilities by area. International Marina Institute (401) 294-9558 Has Training Classes</p>	
<p>REGULATING AGENCIES Agencies that had an impact on operations but were not adressed were: Bay Conservation and Development Commission This is the primary agency for the majority of operations in the San Francisco Bay Area</p>	
<p>REFERENCES Pacific Boating Almanac California Coastal Access Guide Merchant Marine Officers Handbook Small Boat Handling and Boating Manual</p>	

audience that was not originally intended, and recommendations to improve the accuracy and usefulness of the guide.

1. Expansion of Information

They felt that this guide would be more complete if it included information and references in the areas of personnel, specific laws and stipulations, particular problems throughout California, and local regulatory authority. Personnel is a management training area and is not within the scope of this thesis since it does not pertain specifically to small boat harbor and marina management. However, this area consumes a large majority of these managers' time and is an important issue that should be addressed in future studies.

Identification of specific laws and stipulations is not in the scope of this thesis due to the size constraint. However, it would make the guide much more useful if the manager did not have to search the law books to discover if a particular law applied to an area of interest. Thus, some effort to elaborate on specific aspects of laws and regulations would be an important aspect of future revisions to this guide.

2. Method of Distribution

It was recommended that this guide be distributed to all coastal California small boat harbor and marina managers. California Sea Grant has arranged for this

distribution. The managers also felt that this would be a useful basis for a course design. Rather than refer individuals to the source of the information, the information would be provided in course manuals.

3. Recommendations to Improve Existing Guide

Further circulation and review of this guide is required to become fully aware of its contributions and limitations. A true test will not be known until the managers have had the opportunity to use the guide for an extended period of time. After a period of time, they will be able to more fully comment on necessary revisions.

LIST OF REFERENCES

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- David M. Dornbusch and Company, Inc., Economic Impact of the Boating Industry in California, Prepared for the California Department of Boating and Waterways, San Francisco California, April 1988
- Department of Boating and Waterways, Boating Facilities Projects, State of California, The Resources Agency, August 1989
- Department of Boating and Waterways, Layout and Design Guidelines for Small Craft Berthing Facilities, State of California, The Resources Agency, January 1980
- Department of Boating and Waterways, Marina Management Study, Vol 1; Management and Operating Guidelines for Public Marinas, State of California, The Resources Agency, No Publication Date
- Department of Navigation and Ocean Development, Shore Protection in California, State of California, The Resources Agency, April 1976
- Hayman, B., Harbour Seamanship, Permagon Press, London, 1968
- Johnson, L. T., and Ryan, C. J., "California Coastal Waterfront Managers Survey", University of California, Cooperative Extension, Sea Grant Extension Program, August 1989
- Office of Planning and Research, "California State Clearinghouse Handbook", State of California, Sacramento, CA, 1987
- Pacific Coast Congress of Harbormasters & Port Managers, "Range Marker", Vol 3, no 3, December 1989
- U.S. Department of Transportation, Federal Requirements for Recreational Boats, United States Coast Guard, 2100 Second Street., S.W., Washington, D.C. 20593-001, Revised 1986
- William-Kuebeleck and Associates, Inc., Inventory of California Boating Facilities, State of California, Department of Boating and Waterways, August 1986

86th Congress 1st Session, "U.S. Corps of Engineers Study,
Monterey Bay, California", House Document Number 219, USGPO,
Washington, D.C., 1959.

**A GUIDE FOR SMALL CRAFT
HARBOR AND MARINA
MANAGERS**

March 19, 1991

A directory in four sections that provides small craft harbor and marina managers with sources of information for daily operations. It includes four sections:

-A topic index that guides you to the reference, agency, or law related to the topic of interest.

-A reference list with publications pertaining to small craft harbor and marina managers

-A list of laws and legal guidance that have an impact on operations

-A list of agencies that have an impact on operations

Developed by LT Elizabeth L. Fruth, USN, in conjunction with her Master's Thesis at the Naval Postgraduate School, Monterey, California: this guide is provided to Sea Grant for use and distribution so that it may be available to coastal California small craft harbor and marina managers and assist them in the performance of their job.

Listings for private organizations do not constitute endorsement and does not indicate a preference over organizations that may not have been included. It is believed that there are applicable organizations which were not included. These omissions are not intentional; rather an oversight due to a lack of availability of information.

It is recommended that a central source assume responsibility for the update of this guide, and the collection and addition of information that was inadvertently omitted.

HOW TO USE

To use this guide, locate the subject of interest in the topic section. The topic section then indicates the laws, agencies, or references that apply.

A description of these laws, agencies, or references is included in each section. The law and reference sections indicate where each law or reference may be located; ie: libraries, agencies, publishing companies, or supply companies. The agency section indicates the functions of each agency, where they may be located, and how they are involved in small craft harbor and marina operations.

TOPIC INDEX

The following section provides sources of information by subject area. This section refers the user to pertinent references, agencies involved, and laws for each area.

(R) Indicates reference, see Reference section

(L) Indicates law, see Law section

(A) Indicates agency, see Agency section.

LIST OF TOPICS COVERED

ACCOUNTING AND FINANCIAL MANAGEMENT
BERTHING FACILITIES
BOATING FACILITIES AND SERVICES
BOATING ORGANIZATIONS
BOATING REFERENCE SOURCES
CALIFORNIA ENVIRONMENTAL QUALITY ACT
CHANNELS AND FAIRWAYS
COASTAL DEVELOPMENT PERMIT
COASTAL STUDIES
COFFERDAMS AND CELLULAR STRUCTURES
COLLISION REGULATIONS
CONCESSIONS
CONSTRUCTION
DISTRESS AND URGENCY
DREDGING
ECONOMICS
EDUCATION
ELECTROLYSIS
EMERGENCIES
ENVIRONMENTAL IMPACT
ENVIRONMENTAL IMPACT REPORT
ENVIRONMENTAL IMPACT STATEMENT
EQUIPMENT
EROSION
FEASIBILITY STUDIES
FIRE
FLOATING STRUCTURES DESIGN CRITERIA
FUEL FLOAT
FUNDING
HARBOR DISTRICT
HARBOR ENTRY SIGNALS
HARBOR LAW
HAZARDOUS WASTE
INSURANCE
LAW ENFORCEMENT
LAWS AND REGULATIONS

LEAD AGENCY
LEASING
MANAGEMENT
MAINTENANCE
MOORING TECHNIQUES
NAVIGATION
NOTICE OF PREPARATION
PAINTS
PARKING AREAS
PLANNING
POLLUTION
REGISTRATION OF VESSELS
RETAINING STRUCTURES
SAFETY
SAILING
SALVAGE
SEWAGE PUMPOUT FACILITY
SHORE PROTECTION
SHORE STRUCTURES DESIGN AND
DEVELOPMENT
SPECIAL OR CONDITIONAL USE PERMIT
SPECIFIC PLAN
STATE BOATING OFFICE
TOWING
UTILITIES
VESSEL TRAFFIC SERVICES
VHF
WEATHER
WETLANDS
ZONING ORDINANCE AMENDMENT

T O P I C S	R E F E R E N C E S	L A G E N C I E S
<p>ACCOUNTING AND FINANCIAL MANAGEMENT Accounting Manual for Marinas and Boatyards</p> <p>Case Studies in Marina Operating Budgets</p> <p>Marina Management Study, Volume 1 Enterprise Fund Accounting, General Fund Accounting, Billing and Collecting, Marina Budgets, Record keeping for Accounting Systems, Uniform System of Accounts for Harbor and Port Districts.</p> <p>Governmental Accounting Auditing and Financial Reporting</p> <p>Guide to the Federal Budget</p>	<p>1R,</p> <p>45R,</p> <p>73R,</p> <p>57R,</p> <p>58R,</p>	
<p>BERTHING FACILITIES Architecture of Docks, Harbors Buildings, Harbors and Marinas</p> <p>Bulkheads, Marinas and Small Boat Facilities</p> <p>Demand Boating Resources Development Planning Study</p> <p>Inventory of California Boating Facilities</p> <p>Guide to California Boating Facilities</p> <p>Design of Marine Facilities for the Berthing, Mooring and Repair of Vessels</p> <p>Engineering Study of Concrete Berthing Systems</p>	<p>6R,</p> <p>14R,</p> <p>13R,</p> <p>65R,</p> <p>126R,</p> <p>35R,</p> <p>47R,</p>	

BERTHING FACILITIES CONT.		
Ferry Terminal and Small Craft Berthing Facilities (NAVFAC Manual)	87R,	
Harbors, Piers, and Wharves	62R,	
Hydraulic Design of Small Boat Harbors	63R,	
Layout and Design Guidelines for Small Craft Berthing Facilities	66R,	
Principles of Naval Architecture	96R,	
Protection, Inspection, and Maintenance of Marine Structures	99R,	
Small Craft Harbors: Design Construction and Operation see Construction Management Shore Structures	113.5R,	
BOATING FACILITIES AND SERVICES		
Directories		
California Coastal Access Guide	14.1R,	
Complete Guide to Harbors, Anchorages, and Marinas	23R,	
Guide to California Boating Facilities	126R,	
Mariner's World Marine Directory	127R,	
Pacific Boating Almanac	91.3R,	
Facilities Reports and Studies		
Boating Resources Development Planning Study	13R,	
Inventory of California Boating Facilities	65R,	

BOATING ORGANIZATIONS		
California Association of Harbor Masters and Port Captains	129R,	5A,
California Boating Safety Officers Association		5.5A,
California Marine Parks and Harbors Association		6.1A,
California Marine Affairs and Navigation Conference		6.2A,
California Park & Recreation Society		6.3A,
Marina and Recreation Association		23.1A,
Marine Associations Council of California		23.2A,
Information Sources		
Boaters Source Directory	10R,	
Encyclopedia of Community Planning and Environmental Management	46R,	
National Business Information Source Assists with name, phone number and address of businesses, 1-800-391-6734		
Pacific Coast Congress of Harbormasters and Port Captains		34A,
BOATING REFERENCE SOURCES		
American Boat and Yacht Council, Inc.		
Boaters Source Directory	10R,	
BOAT/U.S. Foundation		4A,
Corps of Engineers Libraries	30R,	
Department of Boating and Waterways		11A,
Index of Publications	64R,	
National Business Information Source		26A,
National Marine Manufacturers Association		25.1A,
National Sea Grant Marine Advisory Service		30A,

<p>BOATING REFERENCE SOURCES CONT. National Technical Information Service</p> <p>Naval Facility Engineering Command Manuals</p> <p>Office of Permit Assistance</p> <p>Pocket Guide to U.S. Army Corps of Engineers Library Program</p> <p>State Clearinghouse</p> <p>U.S. Army Corps of Engineers Publishing Depot</p> <p>U.S. Government Bookstore</p> <p>U.S. Government Printing Office</p> <p>Westec Services, Inc.</p> <p>Wildlife Leaflets</p>	<p></p> <p>87R,</p> <p>93R,</p> <p></p> <p></p> <p></p> <p></p> <p></p> <p>125R,</p>	<p>28A,</p> <p></p> <p>32A,</p> <p></p> <p>37A,</p> <p>43A,</p> <p>50A,</p> <p>51A,</p> <p>52A,</p>
<p>BUDGETS see Accounting and Financial Management</p>		
<p>CALIFORNIA BOATING INDUSTRY see Economics Demand Boating Facilities</p>		
<p>CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) Requires review of projects to identify significant effects of a project on the environment and recommended action. It may require an Environmental Impact Report, a Environmental Impact Statement, and NOP, and a Notice of Declaration.</p> <p>California Environmental Quality Act Guidelines</p> <p>California Harbors and Navigation Code Outlines CEQA regulation</p>		<p>19L,</p> <p>6L,</p> <p>8L,</p>

<p>CALIFORNIA ENVIRONMENTAL QUALITY ACT CONT. Controlling Agencies for Environmental Impact Report Determination</p> <ul style="list-style-type: none"> Department of Boating and Waterways Office of Permit Assistance State Clearinghouse <p>State Clearinghouse Newsletter Newsletter with updates and current information on CEQA action</p> <p>see Environmental Impact Report Environmental Impact Statement</p>	<p>131R,</p>	<p>11A, 32A, 37A,</p>
<p>CHANNELS AND FAIRWAYS Architecture of Docks, Harbor Buildings, Harbors, and Marinas</p> <p>Layout and Design Guidelines of Shallow Draft Waterways</p> <p>Problems and Opportunities in the Design Entrances to Ports and Harbors</p> <p>Small Craft Harbors: Design, Construction, and Operation</p> <p>see Navigation</p>	<p>6R, 67R, 97R, 113.5R,</p>	
<p>CHARTS see Navigation</p>		
<p>COASTAL DEVELOPMENT PERMIT Required by the California Coastal Commission when proposing to develop within the coastal zone.</p> <p>Guidance for procedures California Permit Handbook</p>		<p>6A, 12L,</p>
<p>COASTAL PROTECTION see Shore Protection</p>		

<p>COASTAL STUDIES Agencies that conduct, or maintain and provide historical studies Department of Boating and Waterways National Sea Grant Marine Advisory Service University of Berkeley U.S. Army Corps of Engineers U.S. Department of the Interior</p> <p>An Oral History of Coastal Engineering Activities in Southern California</p> <p>Beach Erosion Control and Protection Studies</p> <p>Coast of California Storm and Tidal Waves Study</p> <p>Coastal County Fish and Wildlife Resources and Their Utilization</p> <p>Coastal Protection Structures and Their Effectiveness</p> <p>Sediment Investigations of Rivers and Reservoirs</p> <p>Shore Protection in California</p> <p>Shore Protection Manual Volume 1-3</p> <p>see Erosion</p>	<p>2R,</p> <p>3R,</p> <p>8R,</p> <p>21R,</p> <p>22R,</p> <p>22.1R,</p> <p>106R,</p> <p>112R,</p> <p>113R,</p>	<p>11A, 30A, 42A, 47A,</p>
<p>COFFERDAMS AND CELLULAR STRUCTURES Case Histories of Corps Breakwaters and Jetty Structures</p> <p>Cellular Cofferdams Layout, construction, types of equipment used, advantages, and disadvantages.</p> <p>Cellular Structure Design Methods</p> <p>Design of Pile Structures and Foundations</p> <p>Design of Sheet Pile Cellular Structures, Cofferdams, and Retaining Structures</p> <p>see Shore Structures Construction Shore Protection Berthing Facilities</p>	<p>15R,</p> <p>17R,</p> <p>18R,</p> <p>33R,</p> <p>37R,</p>	

<p>COLLISION REGULATIONS</p> <p>Federal Regulations</p> <p>Require that the operator of a recreational boat involved in an accident must file a report if the accident results in:</p> <ol style="list-style-type: none"> 1. Loss of life 2. Personal injury which requires medical treatment beyond first aid 3. Damage to the vessel and other property exceeding \$500 4. Complete loss of the vessel 5. A person disappearing from the vessel under circumstances that indicate death or injury. <p>Accidents are filed with the State Boating Office (Boaters Source Directory)</p> <p>Rules 9 & 10, Hampered Vessels Harbour Seamanship</p> <p>USCG Boating Accident Regulations</p> <p>Boating accidents must be reported within 24 hours if a person dies, disappears from a vessel under circumstances that indicate death or injury, or is injured and receives medical treatment in addition to normal first aid. Accidents involving only property or equipment damage must be reported within 10 days if the damage is in excess of \$200.00, or total boat loss.</p>	<p>17L,</p> <p>10R,</p> <p>61R,</p> <p>40L,</p>	
<p>CONCESSIONS</p> <p>Food and Beverage, Retail Boat Sales, Parts Sales, Boat Repair, Boat Storage</p> <p>Architecture of Docks, Harbor Buildings, Harbors and Marinas</p> <p>Design of Marine Facilities for the Berthing, Mooring, and Repair of Vessels</p> <p>Development Feasibility Analysis for Stacked Boat Dry Storage</p>	<p>6R,</p> <p>35R,</p> <p>39R,</p>	

CONCESSIONS CONT.		
Dry Stack Boat Storage; Potential Energy Savings	44R,	
Marina Operations and Service	74R,	
see Accounting and Financial Management Management Economics Planning		
CONSTRUCTION		
Architecture of Docks, Harbor Buildings, Harbors, and Marinas	6R,	
Bulkheads, Marinas, and Small Boat Facilities	14R,	
Coastal Construction	20R,	
Conduits, Culverts, and Pipes	24R,	
Construction Estimates Planning and Design Stages	26R,	
Construction of Harbor and Inland Harbor Projects by Non- Federal Interests	27R,	
Construction With Large Stone	28R,	
Details of Reinforcement, Hydraulic Structures	38R,	
Drainage and Erosion Control, Mobilization Construction	40R,	
Harbors, Piers, and Wharves	62R,	
Materials and Equipment for Marine Construction	81R,	
Prescribed Procedures for Maintenance and Operations of Shore Protection Works	94R,	
Principles of Naval Architecture	96R,	
Standard Practice for Concrete	115R,	

<p>CONSTRUCTION CONT. State of the Art Procedures for Sealing coastal Structures With Grouts and Concrete</p> <p>Strength and Design of Reinforced Concrete Hydraulic Structures</p> <p>see Shore Structures Shore Protection Berthing Facilities Cofferdams Erosion Dredging</p>	<p>116R, 117R,</p>	
<p>DEMAND see Berthing Facilities</p>		
<p>DISTRESS AND URGENCY Federal Port Policy</p> <p>Federal Requirements for Recreational Boats All boats must carry approved visual distress signals in nighttime use and over 16 feet must carry for night and daytime use.</p> <p>Radio, Signals, CB, Safety Boats Harbour Seamanship</p> <p>USCG monitors CH 16 24 hours a day</p> <p>Visual Distress Signals Pamphlet description of different types of distress signals published by the U.S. Coast Guard.</p>	<p>51R, 61R,</p>	<p>20L, 44A, 44A,</p>
<p>DREDGING Beneficial Uses of Dredged Material</p> <p>Coastal Sedimentation and Dredging (NAVFAC Manual)</p> <p>Confined Disposal of Dredged Material</p> <p>Contaminated Dredged Material, Control, Treatment, and Disposal Practices</p> <p>The Dredging Dilemma: How not to Balance Economic Development and Environmental Protection</p>	<p>9R, 87R, 25R, 29R, 41R,</p>	

<p>DREDGING CONT.</p> <p>Dredging and Dredged Material Disposal</p> <p>Dredging Policies and Practices</p> <p>Establishment of WELANDS Area in Connection with Dredging</p> <p>Permit Required U.S. Army Corps of Engineers</p> <p>Users Guide for Models of Dredged Material Disposal in Open Water</p> <p>see Equipment Laws and Regulations Hazardous Waste</p>	<p>42R,</p> <p>43R,</p> <p>50R,</p> <p>122R,</p>	<p>34A,</p>
<p>ECONOMICS</p> <p>Boating Resources Development Planning Study</p> <p>City Centre Marinas: Their Role in Tourism and in Reversing the Decline of Commercial Harbors</p> <p>Development Feasibility Analysis for Stacked Boat Dry Storage</p> <p>Dredging Dilemma, How Not to Balance Economic Development and Environmental Protection</p> <p>Dry Stack Boat Storage: Potential Energy Savings</p> <p>Economic Impact of Boating in Coastal California Areas Boating Industry's Contribution to California Economy, Economic Impacts of a Hypothetical 500 Berth Marina, Recreational Boater Spending, State and Local Taxes Generated by Recreational Boating, Direct and Indirect Impacts of Boating Industry, and Construction impacts.</p> <p>see Management</p>	<p>13R,</p> <p>19R,</p> <p>39R,</p> <p>41R,</p> <p>44R,</p> <p>45R,</p>	

<p>EDUCATION Boating classes are available from: American Red Cross</p> <p>American Sailing Association</p> <p>State Boating Agencies. These boating classes include Basic Boating, Basic Sailing, and Advanced Navigation. More detail is outlined in the "Boaters Source Directory" or call U.S. BOAT Foundation course line for further information at 1-800-336-BOAT</p> <p>U.S. Power Squadrons (212) 889-3050</p> <p>U.S. Coast Guard Auxiliary</p> <p>International Marina Institute</p> <p>National Marine Manufacturers Association provides specialty training</p> <p>National Sea Grant Marine Advisory Service National network of over 200 universities and marine research institutions providing workshops, seminars, and publications.</p> <p>Safety California Association of Harbormasters and Port Captains Has training courses on fire fighting and rescue that are beneficial to managers</p> <p>Marine Safety Council</p>	<p>10R,</p>	<p>1A, 2A, 4A, 45A, 26A, 23.05A 30A, 5A, 24A,</p>
<p>ELECTRIC see Utilities</p>		
<p>ELECTROLYSIS Corrosion Prevention and Control (NAVFAC Manual)</p> <p>Cathodic Protection Systems, Maintenance (NAVFAC Manual)</p>	<p>87R, 87R,</p>	
<p>ELECTRONIC AIDS see Navigation</p>		

<p>EMERGENCIES Cost of Emergency Response California Code of Regulations California Boating Law</p> <p>see Fire, and Distress and Urgency</p>		<p>5L, 3L,</p>
<p>ENCROACHMENT PERMIT Department of Fish and Game Requires permit for encroachment on Fish and Game property</p> <p>Department of Transportation (Caltrans Planning) Requires an encroachment permit when opening or excavating a state highway for any purpose, changing an encroachment, placing any advertising sign or device, planting or tampering with vegetation growing along any state highway, constructing and maintaining road approaches or connections to any state highway, or any activity affecting the use of the highway.</p> <p>State Lands Commission Requires a permit for the use of state-owned lands for right of way uses or projects such as income producing enterprises such as private marinas or amusement areas. This includes the regulation or leasing of tidelands and submerged lands. These land use leases involve encroachments, docks, and crossings.</p> <p>A permit is also required for any dredging activity when a lead agency is involved,</p> <p>Authorized by the Public Resources Code, Section 6000.</p> <p>Guidelines for encroachment permits are outlined in the California Permit Handbook</p>	<p>12L,</p>	<p>13A, 8A, 17A, 38A,</p>

ENVIRONMENTAL IMPACT

Agencies Responsible

California Coastal Commission
Sets requirements for coastal protection

6A,

Department of Fish and Game
Reviews proposals and issues permits for
streambed alterations, underwater blasting,
and encroachment on Fish and Game
property. Comment is also required in an
Economic Impact Statement when a Federal
Agency is involved

13A,

U.S. Army Corps of Engineers
Assesses environmental impact

42A,

U.S. Coast Guard
Enforcement of oil discharge

44A,

Protection Programs

California Environmental Quality Act
Requires and Environmental Impact Report
for projects which may have an impact on
the environment

5.5L,

California Public Resources Code
Addresses Environmental Quality Act
(Section 21000), California Environmental
Protection Program (Section 21190),
California Coastal Act (Section 30000),
Ocean Use Planning (Section 30950), State
Coastal Conservancy (Section 31000), and
Coastal Resources and Energy Assistance
(Section 35000).

13L,

Endangered Species Act Amendment of 1982

18L,

National Environmental Policy Act
Requires an Environmental Assessment for
federal, federally funded, or federally
licensed projects to determine if an
environmental impact report will be required.

28L,

see Pollution

Hazardous Waste
Economic Impact Report
Economic Impact Statement

<p>ENVIRONMENTAL IMPACT REPORT (EIR)</p> <p>This review is required to comply with the California Environmental Quality Act</p> <p>It applies to projects where a lead agency is a state agency (ie: Department of Boating and Waterways), or there is a responsible or trustee state agency (as indicated by CEQA guidelines section 15206), or the project has statewide, regional, or areawide significance, (as indicated by CEQA guidelines section 15206), or is a project for which and EIR was prepared, or is located in or impacts the California Coastal Zone, or would substantially effect sensitive wildlife habitats.</p> <p>Submitted to the State Clearinghouse office for review and approval. It involves several steps including a Notice of Preparation, Draft EIR, and Notice of Determination. The whole process takes approximately one year for public facilities and usually less for private facilities.</p> <p>Agencies that control EIR process Department of Boating and Waterways Office of Permit Assistance State Clearinghouse</p> <p>Agencies that may, depending upon area and project, have Input into the EIR Process Board of Engineers for Rivers and Harbors</p> <p>Caltrans-Planning</p> <p>Department of Conservation</p> <p>Department of Natural Resources</p> <p>Department of Transportation</p> <p>Department of Water Resources</p> <p>Reclamation Board</p> <p>State Lands Commission</p>		<p>5.5L,</p> <p>11A,</p> <p>37A,</p> <p>11A, 32A, 37A,</p> <p>3A,</p> <p>8A,</p> <p>12A,</p> <p>15A,</p> <p>17A,</p> <p>18A,</p> <p>35A,</p> <p>38A,</p>
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<p>ENVIRONMENTAL IMPACT REPORT CONT. Agencies that Usually Have Input into EIR</p> <ul style="list-style-type: none"> California Coastal Commission Department of Fish and Game State Water Resources Board <p>Maintains Historical Record of EIRs</p> <ul style="list-style-type: none"> Department of Boating and Waterways Office of Permit Assistance U.S. Army Corps of Engineers Westec Services <p>Manuals and References Relating to CEQA</p> <ul style="list-style-type: none"> California Permit Handbook CEQA Guidelines California Code of Regulations see California Environmental Quality Act Notice of Preparation Lead Agency 		<p>6A, 13A, 41A, 11A, 32A, 34A, 52A, 12L, 6L, 5L,</p>
<p>ENVIRONMENTAL IMPACT STATEMENT</p> <p>These are environmental assessments for projects that are likely to significantly affect the quality of the human environment. (Schultz, 1984, p. 130)</p> <p>It is required by the National Environmental Protection Act, of the U.S. Code, for federal projects.</p> <p>Similar to an Economic Impact Report for State projects.</p>		<p>28L, 41L,</p>

<p>ENVIRONMENTAL IMPACT STATEMENT CONT.</p> <p>Agencies that may have input Department of the Interior Department of Fish and Game</p> <p>Procedure guidelines California Permit Handbook CEQA Guidelines</p> <p> see Environmental Impact Laws and Regulations</p>		<p>14A, 13A, 12L, 6L,</p>
<p>EQUIPMENT</p> <p>Dredging Equipment (NAVFAC Manual)</p> <p>Materials and Equipment for Marine Construction</p> <p>Pile Driving Equipment (NAVFAC Manual)</p> <p>Suppliers List by parts or equipment desired Marine Equipment Catalog Mariners World Marine Directory</p>	<p>87R, 81R, 87R, 17R, 128R, 127R,</p>	
<p>EROSION</p> <p>Control Functions Sections 65 through 67.3 of the California Harbors and Navigation Code, authorizes the Department of Boating and Waterways to conduct studies, advise, plan, design, and, construct in this area.(Department of Boating and Waterways, June 1990, p. 12)</p> <p> California Boating Law</p> <p> U.S. Army Corps of Engineers involvement and authorization to do erosion projects River and Harbor Act of 1962 River and Harbor Act of 1968</p>		<p>8L, 11A, 3L, 43A, 38L, 39L,</p>

<p>EROSION CONT.</p> <p>Studies Conducted</p> <p> Assessment and Atlas of Shoreline Erosion</p> <p> Beach Erosion Control and Shore Protection Studies</p> <p> Drainage and Erosion Control, Mobilization Construction</p> <p> Shore Protection in California</p> <p> Westec Services, Inc.</p> <p> see Shore Protection Coastal Studies</p>	<p>5R, 8R, 40R, 112R,</p>	<p>52A,</p>
<p>FEASIBILITY STUDIES</p> <p>Agencies that conduct harbor, marina, development, and construction studies</p> <p> Department of Boating and Waterways</p> <p> U.S. Army Corps of Engineers</p>		<p>11A, 42A,</p>
<p>FIRE</p> <p>Extinguishers</p> <p> Marine Portable Fire Extinguishers An illustrated pamphlet explaining types of fires and fire extinguisher, maintenance and fire fighting techniques aboard. Available from BOAT/U.S. Foundation.</p> <p>Instruction</p> <p> California Department of Boating and Waterways, in cooperation with the Orange County Sheriff's Department, has produced a 15 minute video to help citizens respond properly to a vessel fire in a marina.</p> <p>Precautions</p> <p> Shipshape is Fire Safe</p> <p> A pamphlet that describes precautions a boater should take to avoid fires and explosion on recreational boats. Available from the U.S. Coast Guard.</p> <p> see Safety</p>	<p>79R, 108R,</p>	<p>4A, 11A,</p>

<p>FLOATING STRUCTURES DESIGN CRITERIA Architecture of Docks, Harbor Buildings, Harbors, and Marinas</p> <p>Coastal Construction</p> <p>Layout and Design Guidelines for Small Craft Berthing Facilities</p> <p style="padding-left: 40px;">see Berthing Facilities Fuel Float Construction</p>	<p>6R,</p> <p>20R,</p> <p>66R,</p>	
<p>FUEL FLOAT Design Criteria Harbour Seamanship</p>	<p>61R,</p>	
<p>FUNDING Disaster Relief California Office of Emergency Services, 2800 Meadowview Rd. Sacramento, CA 95832 (916) 427-4347</p> <p>Expenditures Listings and History Boat Facilities Projects Boat Facilities Division Proposed Projects Seventeenth Biennial Report</p> <p>Guides and Information Sources Boaters Source Directory</p> <p>Catalog of California State Grants Assistance</p> <p>Construction of Harbor and Inland Harbor Projects by Non-Federal Interests</p> <p>Guide to Public Debt Financing for Waterfront Restoration</p> <p>Guide to Public Debt Financing in California</p> <p>Corps of Engineers Participation in the National Estuary Program</p> <p>Financing Public Facilities in the 1990s</p>	<p>12R, 11R, 107R,</p> <p>108R,</p> <p>16R,</p> <p>27R,</p> <p>60R,</p> <p>89R,</p> <p>31R,</p> <p>53R,</p>	

FUNDING CONT.		
Public Officials Guide to Mello-Roos Financing		101R,
State Clearinghouse Newsletter		131R,
Reimbursement for Advance Non Federal Construction of a Federally Authorized Harbor and Inland Harbor Improvement		104R,
Regulations		
California Boating Law		3L,
California Code of Regulations Title 14		5L,
California Harbors and Navigation Code		8L,
Recreational Boat and Sport Fishing Enhancement Act of 1984		32L,
Private Planning and Construction Financing Source		
State of California Coastal Conservancy		40A,
Marina Assistance Loans		
To develop or improve recreational marina facilities. Authorized under Section 76 of the California Harbors and Navigation Code. The rate is prime plus 1% and may be used for construction costs. Administered by the Department of Boating and Waterways		8L, 11A,
Small Business Loans		
Small Business Administration		36A,
Public Planning and Construction Financing Sources		
Beach Erosion Grants Department of Boating and Waterways		11A,
Bikeways		
Department of Boating and Waterways		11A,
Coastal Habitat Grants		
Department of Fish and Game State of California Coastal Conservancy		13A, 40A,
Labor Resources		
Department of Boating and Waterways		11A,

FUNDING CONT.	
Land Use and Public Area Grants	
State of California Coastal Conservancy	40A,
State of California Resources Agency	39A,
Coastal Zone Management Act	16L,
National Park Service	29A,
U.S. Fish and Wildlife Service	48A,
California Coastal Commission	6A,
Loans	
Department of Boating and Waterways	11A,
Small Business Administration	36A,
Marinas	
California Coastal Commission	6A,
State of California Coastal Conservancy	40A,
Ramps, Parking, and Rest Room Grants	
Department of Boating and Waterways	11A,
U.S. Forest Service	49A,
U.S. Fish and Wildlife Service	48A,
Outdoor Recreation Facilities	
Department of Boating and Waterways	11A,

<p>HARBOR DISTRICT A local or County wide harbor district may be formed to assist in costs of constructing or developing a harbor.(86TH Congress, 1959, p. xiii) The purpose of this jurisdiction is the development and improvement of commercial fishing and recreational boating. This involves providing recreational boating facilities, manpower, and maintenance of those facilities. It also includes the regulation and control of the anchoring, mooring, towing and docking of vessels, and enforcement of all necessary rules and regulations.(California Law, Harbors and Navigation Code, Appendix 1 Section 55-56 and Section 6042)</p>		
<p>HARBOR ENTRY SIGNALS California Code of Regulations Harbour Seamanship Marina Management Study see Navigation Safety</p>	<p>61R, 73R,</p>	<p>5L,</p>
<p>HARBOR LAW State California Boating Law California Harbors and Navigation code The Laws of Harbours and Pilotage Pleasure Boats Federal Federal Port Policy in the U.S. Federal Requirements for Recreational Boats Use of Navigable Waters; Policy, Practices and Procedures U.S. Customs Service</p>	<p>52R,</p>	<p>3L, 8L, 26L, 30L, 20L, 43L, 46A,</p>

<p>HARBOR LAW CONT.</p> <p>see Towing Pollution Salvage Laws and Regulations Harbor Entry Signals Moorings Hazardous Waste Navigation Registration of Vessels Safety VHF Collision Regulations</p>		
<p>HAZARDOUS WASTE</p> <p>Confined Disposal of Dredged Material</p> <p>Contaminated Dredged Material: Control, Treatment, and Disposal</p> <p>Dredging and Dredged Material Disposal</p> <p>Environmental Protection Agency Defines Hazardous Waste</p> <p>Health and Safety Code Includes hazardous waste regulations and Air Pollution regulations. Excerpts included in "California Boating Law".</p> <p>Marine Protection and Sanctuaries Act of 1972</p> <p>Resources Conservation and Recovery act of 1976</p> <p>Users Guide for Models of Dredged Material Disposal in Open Water Dredging</p> <p>see Pollution Laws and Regulations</p>	<p>25R,</p> <p>29R,</p> <p>42R,</p> <p>122R,</p>	<p>21A,</p> <p>24L,</p> <p>27L,</p> <p>35L,</p>

<p>INSURANCE Insurance Information Institute, 110 William street, New York, NY 10038, (212) 669-9200. A national clearing house for information and research on property and casualty insurance. Provides financial ratings of companies, assist consumers in purchasing insurance and handling disputes with insurance companies. sponsors a national Hotline (1-800-221-4954).</p> <p>Other References Accounting Manual for Marinas and Boatyards Harbour Seamanship</p>	<p>1R, 61R,</p>	
<p>LAUNCHING RAMP see Facilities Design</p>		
<p>LAW ENFORCEMENT California Code of Regulations Authorizes Law Enforcement Vessels and Jurisdiction</p> <p>U.S. Coast Guard has enforcement authority o the water see Laws and Regulations</p>		<p>5L, 44A,</p>
<p>LAWS AND REGULATIONS Abandoned Vessels California Harbors and Navigation Code California Boating Law Boaters Source Directory Encyclopedia of Community Planning and Environmental Management Equipment Requirements see safety Federal Requirements for Recreational Boats U.S. Coast Guard publication explaining Boating Regulations and Equipment Requirements Larceny California Penal Code California Boating Law Licenses California Code of Regulations California Harbors and Navigation Code California Boating Law</p>	<p>10R, 46R,</p>	<p>8L, 3L, 20L, 11L, 3L, 5L, 8L, 3L,</p>

LAWS AND REGULATIONS CONT.	
Liens	
Boaters Lien Law	
California Boating Law	3L,
California Harbors and Navigation Code	8L,
The Coast Guard controls lien laws on Documented boats	
For State of California Registered Boats the Department of Transportation is the Controlling Agency.	
Negligent Operation	
Defined as operation of a vessel that endangers lives and property.	
The U.S. Coast Guard may impose a penalty of up to \$5,000 and one year imprisonment for grossly negligent operation.	44A,
Negligent operation may include operating a boat in a swimming area, under the influence of alcohol or drugs, excessive speed in vicinity of other boats, hazardous water skiing, and bow seatback, gunwhale or transom riding.	
Permit Authority	
Cities and counties regulate land use by way of planning, zoning and subdivision controls.	
California Land Use Regulation	9L,
California Land Use Planning Law	10L,
State agencies regulate the private use of state land and resources and certain activities of statewide significance.	
California Coastal Commission	6A,
Caltrans Planning	8A,
Fish and Game Code of California	23L,
State Clearinghouse	37A,
State Lands Commission	38A,
State Water Resources Control Board	41A,

LAWS AND REGULATIONS CONT.	
Federal agencies have permit authority over activities on federal lands and over certain resources Department of Fish and Game	13A,
Marine Protection Reservation and sanctuaries Act of 1972	27L,
River and Harbor Act of 1899	36L,
U.S. Army Corps of Engineers	42A,
In California the development permit process is coordinated with an environmental review process under the California Environmental Quality Act (CEQA). Water Resources Development Act	46L,
Information and Assistance California Permit Handbook	12L,
Office of Permit Assistance	32A,
Office of Planning and Research	33A,
Regulatory Program Application Handbook	34L,
Possession of Alcohol California Business and Professions Code California Boating Law	11L, 3L,
Radiotelephone Obscene, indecent or profane language during radio communications is punishable by a \$10,000 fine, imprisonment for two years, or both. Improper use of distress frequencies is also a violation of the law (Bridge to Bridge Radiotelephone Act). Enforced by the U.S. Coast Guard.	44A,
Rendering of Assistance An operator of a vessel is required by law to provide whatever assistance can safely be provided to any individual at sea in danger of being lost. Enforced by the U.S. Coast Guard.	44A,

<p>LAWS AND REGULATIONS CONT.</p> <p>Registration see Registration of Vessels</p> <p>Sale of Vessels at Temporary Locations California Business and Professions Code California Boating Law</p> <p>Stolen Vessels California Boating Law</p> <p style="text-align: right;">U.S. Entry of</p> <p>Recreational Boats reporting and requirements California Harbors and Navigation Code</p> <p>Vessel Title, Registration and Transfer California Vehicle Code California Boating Law</p> <p>see Pollution Navigation Safety Collision regulations Funding Environment Impact Planning Harbor Law Registration of Vessels Utilities</p>		<p>11L, 3L,</p> <p>3L,</p> <p>8L,</p> <p>11L, 3L,</p>
<p>LEAD AGENCY</p> <p>A governmental body that processes plans and development proposals by integrating permits and comments from all appropriate agencies. In Coastal California the Lead agency is usually the Department of Boating and Waterways.</p>		<p>11A,</p>

<p>LEASING Economic Impact of the Boating Industry in California. Case Studies in Leases</p> <p>Marina Management Study, Volume 1 Potential Revenue Generation, Minimum rents, Guidelines for Leasing Programs, Model Leases</p> <p>Sample Leases Department of Bating and Waterways see Management</p> <p>Southern California Marine Lease Information Exchange Comittee</p>	<p>45R,</p> <p>73R,</p> <p>11A,</p> <p>41.1A,</p>	
<p>LIENS see Laws and Regulations</p>		
<p>MANAGEMENT For small craft harbors and marinas. General information on overall design, construction and operation is listed in this section. For more detailed information see specific sections.</p> <p>Financial Structure and Performance of Florida</p> <p>Recreational Marinas and Boatyards</p> <p>Marina Management Study, Volume 1</p> <p>Marinas, A Working Guide to their Development and design</p> <p>Marina Dockage Agreements: Sample provisions</p> <p>Marinas, Recommendations for Design, Construction, and Maintenance</p> <p>Merchant Marine Officers Handbook</p> <p>Protection, Inspection, and Maintenance of Marine Structures</p>	<p>54R,</p> <p>73R,</p> <p>76R,</p> <p>72R,</p> <p>77R,</p> <p>83.1R,</p> <p>83.1R,</p> <p>99R,</p>	

<p>MANAGEMENT CONT.</p> <p>Rules of Thumb for Marinas</p> <p>Small Boat Handling and Boating</p> <p>Small Craft Harbors: Design Construction and Operation</p>	<p>105R,</p> <p>113.5R,</p> <p>113.1R,</p>	
<p>MAINTENANCE</p> <p>Maintenance of Fender Systems and Camels (NAVFAC Manual)</p> <p>Maintenance of Waterfront Facilities (NAVFAC Manual)</p> <p>Marinas, Recommendations for Design Construction, and Maintenance</p> <p>see Construction</p> <p>Shore Structures</p> <p>Shore Protection</p> <p>Berthing Facilities</p> <p>Cofferdams</p>	<p>87R,</p> <p>87R,</p> <p>77R,</p>	
<p>MOORING TECHNIQUES</p> <p>Anchoring, all techniques for all bottoms</p> <p>Anchoring and Making Fast</p> <p>Harbour Seamanship</p> <p>Design of Marine Facilities for the Berthing, Mooring, and Repair of Vessels</p> <p>Fixed Moorings (NAVFAC Manual)</p> <p>Fleet Mooring (NAVFAC Manual)</p> <p>Law</p> <p>Harbour Seamanship</p> <p>Mooring Design (NAVFAC Manual)</p> <p>Motions of Small Boats Moored in Standing Waves</p> <p>see Berthing Facilities</p>	<p>4R,</p> <p>61R,</p> <p>35R,</p> <p>87R,</p> <p>87R,</p> <p>61R,</p> <p>87R,</p> <p>84R,</p>	

NAVIGATION		
Aids to Navigation Standards		1L,
Boaters Source Directory Identifies agencies and publications relating to navigation	10R,	
California Code of Regulations, Title 14 Pilot Rules of the Road, Waterway Marking Systems		5L,
Code of Federal Regulations, Federal Inland Navigation Rules United States Aids to Navigation System requirements and procedures, Steering and Sailing Rules, Lights and Shapes, Sound and Light Signals		17L,
California Boating Law		3L,
Global Positioning System Surveying Service	56R,	
Inland Navigation Rules		25L,
Layout and Design of Shallow Draft Waterways	67R,	
Light Lists U.S. Coast Guard Publications containing information on fog signals, radiobeacon characteristics, daymarkers, unlighted buoys, lighted navigational aids, and loran stations. Updated weekly by U.S. Coast Guard's Notice to Mariners. Available from U.S. Government Printing Office, Washington, D.C. 20402. Price \$13-\$20.	68R,	
Local Notice to Mariners Published Weekly by the U.S. Coast Guard this publication updates U.S. Coast Guard and NOS charts for small boats and small boat harbors. To receive this publication you must request in writing that your name be added to the mailing list for your Coast Guard District.	69R,	44A,

NAVIGATION CONT.		
Marine Weather Service Charts	80R,	
National Ocean Service (NOS) a division of the National Oceanic and Atmospheric Administration (NOAA). is the principal government chart agency for U.S. waters. NOS distributes free charts covering the four U.S. recreational boating areas. Free Catalogs are available from NOAA showing publications and charts available.		27A,
Navigation Charts For Inland Waterways	88R,	
Navigation Lights, Aids to Navigation, Charts, and Related Date	89R,	
National Weather Service, Provides reporting, forecasting, broadcast and warning services to promote navigation safety among private and commercial boaters. Publishes weather maps and Marine Weather Service Charts.		31A,
Navigation, the Role of the Corps	90R,	
Navigation rules Required action to avoid a collision, requirements for carrying of Inland Navigation Rules, and location of application of Inland Rules. Copies of Inland Navigation Rules may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402 (202)738-3238. Stock no. 050-012-00192-8. Price is about \$6.00 per copy.		25L,
Navigation techniques for using charts, tide publications, electronic Aids Harbour Seamanship	61R,	
Ocean Fishery Maps	91R,	
Requirements for Navigation Devices Federal Requirements for Recreational Boats		20L,
Small Boat Handling and Boating		

<p>NAVIGATION CONT.</p> <p>Tidal Current Tables</p> <p>Tide Tables</p> <p>United States Coast Guard Installs and maintains aids to navigation, requires compliance with the Inland Navigation Rules, and maintains lighthouses, minor lights, and buoys in on or near prominent coastal points, channels and entrances.</p> <p>United States Coast Pilot see Harbor Entry Signals Channels and Fairways</p>	<p>119R,</p> <p>120R,</p>	<p>27A,</p> <p>44A,</p>
<p>NAVIGATIONAL WARNINGS see Navigation</p>		
<p>NOTICE OF PREPARATION Part of the Economic Impact Report Process, it requires a 30 day review period and is required according to CEQA guidelines. It is Administered by the State Clearinghouse. see Environmental Impact Report</p>		<p>37A, 19L,</p>
<p>ORGANIZATIONS AND ASSOCIATIONS see Boating Organizations</p>		
<p>PAINTS Paints and Protective Systems (NAVFAC Manual)</p> <p>Content regulated by the EPA</p> <p>see pollution</p>	<p>87R,</p>	<p>21A,</p>
<p>PARKING AREAS see Shore Structures Design Criteria Berthing Construction Planning Management</p>		
<p>PERMITS see Laws and Regulations</p>		

<p>PIERS see Shore Structures Design Criteria Berthing Facilities Construction Planning Management</p>		
<p>PILE DRIVING EQUIPMENT see Equipment</p>		
<p>PLANNING California Land Use Regulations California Land Use Planning Law Construction Estimates Planning and Design and Encyclopedia of Community Planning and Environmental Mangement Marinas Siting Considerations</p>	<p>26R, 46R, 75R,</p>	<p>9L, 10L,</p>
<p>PLANNING CONT. Marinas, a Working Guide to Their Development and Design Marinas, Recommendations for Design, Construction, and Maintenance Principles of Urban Planning Thinking of Marina Development? see Management</p>	<p>76R, 77R, 95R, 118R,</p>	
<p>POLLUTION Air Pollution Permit required from regional air pollution control district if development may emit pollutants from a stationary source into the atmosphere. Standards are according to the federal environmental protection agency and the State Air Resources Board. required, consult California Permit Handbook. Local APCDs are listed in the handbook.</p>		<p>21A, 12L,</p>

<p>POLLUTION CONT. California Air Pollution Control Laws</p>		2L,
<p>California Boating Law Includes the Health and Safety Code and the Water Code</p>		3L,
<p>Clean Water Act Requires a permit from the U.S. Army Corps of Engineers for the discharge of dredged material and requires a permit for the discharge of waste into surface water by the State Water Resources Control Board</p>		15L, 42A, 41A,
<p>Code of Federal Regulations</p>		17L,
<p>Environmental Protection Agency Has pollution toxicity standards</p>		21A,
<p>Federal Water Pollution Control Act Prohibits the discharge of oil or hazardous substances in quantities which may be harmful into U.S. navigable waters, the contiguous zone, and waters within 200 miles. Violators are subject to a penalty of \$5,000 if a discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. You must immediately notify the U.S. Coast Guard if your vessel or facility discharges oil or hazardous substances into the water. The phone number to contact the U.S. Coast Guard is 1-800-424-8802. (U.S. Department of Transportation, 1986, p. 16)</p>		21L,
<p>Fish and Game Code</p>		23L,
<p>Health and Safety Code The State of California has assumed responsibility for implementing the federal Clean Water Act in California by issuing discharge permits, operating the grants programs, and setting water quality standards.</p>		24L,
<p>Marine Sanitation Devices All recreational boats with installed toilet facilities must have and installed, operable Marine Sanitation Device (MSD). Other restrictions apply for different</p>	10R,	

<p>POLLUTION CONT. Public resources Code, State of California Addresses Environmental Quality (21000). This includes policy, state agencies involved, boards and commissions involved, local agencies, requirements for submission of information and limitations. It also addresses the California Environmental Protection Program (Section 21190), California Coastal Act (Section 30000), Ocean Use Planning (Section 30950), State Coastal Conservancy (Section 31000), and Coastal Resources and Energy Assistance (Section 35000).</p> <p>Refuse Act of 1899 Prohibits throwing discharges or depositing of any refuse matter of any into the waters of the U.S. to a distance of three miles from the coastline.</p> <p>Water Pollution Control Act of 1948, States that no unlawful discharge of pollution to U.S. waters is allowed. Responsibility is assigned to Environmental Protection Agency to set quality standards.</p> <p>Water Quality Improvement Act Of 1970 Regulates the discharge of oil and hazardous substances into navigable waters. These stipulations are incorporated in the Federal Water Pollution Control Act.</p> <p>see Hazardous Waste Laws and Regulations</p>		<p>13L,</p> <p>33L,</p> <p>44L,</p> <p>45L,</p>
<p>PROPERTY MANAGEMENT see Leasing</p>		
<p>REFERENCE SOURCES see Boating Reference Libraries</p>		
<p>REGISTRATION OF VESSELS Boaters Source Directory California Vehicle Code California Code of Regulations California Boating Law Code of Federal Regulations</p>	<p>10R,</p>	<p>11L, 5L, 3L, 16L,</p>

<p>RETAINING STRUCTURES see Shore Protection Shore Structures Construction</p>		
<p>SANITARY FACILITIES see Facilities Design Criteria Shore Structures Berthing Facilities Construction</p>		
<p>SAFETY American Red Cross (National HQ):17th and D Streets NW, Washington D.C. 20006, (202) 639-3686. Sponsors basic boating, rescue, swimming and water safety courses. They also maintain an audio visual loan library at Frank Stanton Production Center, American Red Cross, 5816 Seminary Road, Fall Church VA 20041.</p> <p>BOAT/U.S. Foundation Has a reference center with over 15,000 books, periodicals, slides, videotapes, and government publications, including safety.</p> <p>Coast Guard Boating Safety Hotline 1-800-368-5647 To find out about safety recalls and may report problems you are experiencing with your boat.</p> <p>Equipment Requirements California Code of Regulations, Title 14 Code of Federal Regulations, 33, U.S. Coast Guard U.S. Coast Guard Equipment Requirements A handy index for requirements for personal floatation devices, extinguisher, visual distress signals, bells, whistles, ventilation, and flame arresters. Available at local Coast Guard facility.</p> <p>Films BOAT/U.S. Foundation has a boating reference resource center.</p>	<p>121R,</p>	<p>1A, 4A, 44A, 5L, 17L, 44A, 4A,</p>

<p>SAFETY CONT. Department of Boating and Waterways has on loan approximately 60 safety films and videos. (Department of Boating and Waterways, June 1990, p. 18)</p> <p>Marine Safety Council Administrative sub-agency of the United States Coast Guard</p> <p>Pamphlets and Guidance Boaters Source Directory</p> <p>Marine Portable Fire Extinguisher. An illustrated pamphlet explaining types of fires and extinguisher, maintenance and fighting techniques aboard. Available from BOAT/U.S. Foundation.</p> <p>Shipshape is Fire Safe is a pamphlet that describes precautions a boater should take to avoid fires and explosion on recreational boats. Available from the U.S. Coast Guard.</p> <p>Protection, Inspection, and Maintenance of Marine Structures</p> <p>see Navigation Weather Fire</p>	<p>11A,</p> <p>24A,</p> <p>10R,</p> <p>79R,</p> <p>108R,</p> <p>99R,</p>	
<p>SAILING American Sailing Association, 13922 Marquesas Way, Marina de Rey CA 90292, (213) 822-7171. Trains and certifies professional sailing instructors, offers public instruction through 150 affiliated sailing schools nationwide. Publishes "American Sailing" newsmagazine.</p>		<p>2A,</p>
<p>SALVAGE Law Harbour Seamanship</p>	<p>61R,</p>	
<p>SEAWALLS see Shore Protection</p>		

<p>SEWAGE PUMPOUT FACILITY Layout and Design guidelines for Small Craft Berthing Facilities</p> <p>66R,</p> <p>Proposal for Design and Construction Services for Phase II Sewer Water and Storm Drains</p> <p>98R,</p> <p>see Shore Structures Berthing Facilities Construction</p>		
<p>SHORE PROTECTION Beach Erosion Control and Shore Protection</p> <p>8R,</p> <p>Case Histories of Corps Breakwater and Jetty studies</p> <p>15R,</p> <p>Coastal Protection (NAVFAC Manual)</p> <p>87R,</p> <p>Design of Breakwaters and Jetties</p> <p>32R,</p> <p>Design of Pile Structures and Foundations</p> <p>33R,</p> <p>Environmental Engineering for Shore Protection</p> <p>48R,</p> <p>Functional Design of Breakwaters for Shore Protection</p> <p>55R,</p> <p>Performance and Stability of Low Crested Breakwaters</p> <p>92R,</p> <p>Prescribed Procedures for Maintenance and Operation of Shore Protection Works</p> <p>94R,</p> <p>Principles of Naval Architecture</p> <p>96R,</p>		

<p>SHORE PROTECTION CONT. Role of Agencies in Shore Protection Army Corps of Engineers</p> <p>California Coastal Commission</p> <p>Department of Boating and Waterways</p> <p>State of California The California Harbors and Navigation Code authorizes "the State (1) to study and report upon problems of beach erosion and means for stabilization of beaches and shoreline areas; (2) to prepare plans for and construct such works as its studies and investigations indicate to be necessary; (3) to conduct studies or design and construct projects either by it self or in cooperation with any local or federal agency or any other State agency; and (4) to act as advisors to all agencies of government."(Department of Navigation and Ocean Development, 1976,p. 37)</p>	<p>49R,</p>	<p>43A, 38L, 39L, 41L,</p> <p>10A,</p> <p>11A,</p> <p>8L,</p>
<p>Seawalls, Bulkheads, and Quaywalls (NAVFAC Manual)</p>	<p>87R,</p>	
<p>Shore Protection in California</p>	<p>112R,</p>	
<p>Shore Protection Manual Volumes I, II, and III</p>	<p>113R,</p>	
<p>Stability of Reef Breakwaters</p>	<p>114R,</p>	

<p>SHORE PROTECTION CONT.</p> <p>Supporting Regulation</p> <p>Environmental Policies, Objectives, and Guidance for the Civil Works Program of the Corps of Engineers</p> <p>Federal Participation in Shore Protection</p> <p>General Criteria for Waterfront Construction (NAVFAC Manual)</p> <p>see Erosion Construction Shore Structures Cofferdams</p>	<p>49R,</p> <p>51R,</p> <p>87R,</p>	
<p>SHORE STRUCTURES DESIGN AND DEVELOPMENT</p> <p>Architecture of Docks, Harbor Buildings, Harbors and Marinas</p> <p>Bulkheads, Marinas, & Small Boat Facilities</p> <p>Coastal Construction</p> <p>Design of Breakwaters and Jetties</p> <p>Design of Coastal Revetments, Seawall, and Bulkheads</p> <p>Design of Marine Facilities for the Berthing, Mooring, and Repair of Vessels</p> <p>Development Feasibility Analysis for Stacked Boat Dry Storage</p>	<p>6R,</p> <p>14R,</p> <p>20R,</p> <p>32R,</p> <p>34R,</p> <p>35R,</p> <p>36R,</p>	

<p>SHORE STRUCTURES CONT.</p> <p>Design of Recreation Sites Areas and Facilities</p> <p>Dry Stack Boat Storage: Potential Energy Savings</p> <p>Harbors, Piers, and Wharves</p> <p>General Criteria For Waterfront Construction</p> <p>Inspection of Shore Facilities</p> <p>Maintenance Management of Shore Facilities</p> <p>Methods to Reduce Wave runup and Overtopping of Existing Structures</p> <p>Layout and Design Guidelines for Boat Facilities Project Signs</p> <p>Parking, Sanitary Facilities, Launching Ramps</p> <p>Principles of Naval Architecture</p> <p>Protection, Inspection, and Maintenance of Marine Structures</p> <p> see Shore Protection</p> <p> Sewage Pumpout</p> <p> Berthing Facilities</p> <p> Construction</p> <p> Management</p>	<p>39R,</p> <p>44R,</p> <p>62R,</p> <p>87R,</p> <p>87R,</p> <p>87R,</p> <p>82R,</p> <p>83R,</p> <p>87R,</p> <p>96R,</p> <p>99R,</p>	
<p>SIGNALS</p> <p> see Channels and Fairways</p> <p> Harbor Entry Signals</p> <p> Navigation</p>		
<p>SPECIAL OR CONDITIONAL USE PERMIT</p> <p> Required when a proposal does not comply with zoning but may be tailored to fit the specific location.</p> <p> California Permit Handbook</p> <p> California Land Use Planning Law</p>		<p>12L,</p> <p>10L,</p>

<p>SPECIFIC PLAN A plan for development of property that is consistent with city or county general plan but provides more precise development standards requires a specific plan approval. Check with the county clerk for the appropriate office. Specific plans are required by the U.S. Government Code Sections 65450-65457. California Permit Handbook California Land Use Planning Law</p>		12L, 10L,
<p>STATE BOATING OFFICE California Department of Boating And Waterways</p>		11A,
<p>TIDES see Navigation Techniques</p>		
<p>TOWING "Federal regulations now require boat operators towing disabled vessels to be licensed by the Coast Guard. Code of Federal Regulations</p>		17L,
<p>TRAINING see Education</p>		
<p>UTILITIES Architecture of Docks, Harbor Buildings, Harbors and Marinas Conduits, Culverts, and Pipes Dockside Utilities for Ship Service Electric Safety and how to tell if overloaded Layout and Design Guidelines for Small Craft Berthing Facilities Marine Safety Council National electrical Code</p>	6R, 24R, 87R, 66R, 85R,	24A, 24A,

<p>UTILITIES CONT. National Electrical Safety Code</p> <p>Report on Electrical Distribution systems</p> <p>Small Boat Handling and Boating see Shore Structures Berthing Facilities Construction</p>	<p>86R, 103R, 113.1R,</p>	
<p>VESSEL TRAFFIC SERVICES Principles Harbour Seamanship</p>	<p>61R,</p>	
<p>VHF Licenses</p> <p>A station license is required for all vessels with VHF.</p> <p>A station license is required from the Federal Communications Commission for all shore stations</p> <p>An operators license is required to travel to a foreign port.</p> <p>Forms for licenses are available at FCC offices or FCC Radio Bureau Licensing Division, P.O. Box 1040, Gettysburg PA 17325 (717) 337-1212.</p> <p>Marine Radiotelephone Users Handbook A source of marine radiotelephone information. May be purchased from the Radio Technical Commission for Maritime Services, at P.O. box 19087, Washington, D.C. 20036. Price is approximately \$8.00 a copy.</p> <p>Principles, Harbor Radio, Model Calls</p> <p>VHF Marine Radio Information for Recreational Boaters, Federal Communications Commission, Public Service Division, Field Operations Bureau, 1919 M Street NW, Washington DC 20554 (202) 634-1940. An information packet covering the basics of using and licensing a VHF radio on a boat. Also available is a fact sheet "How to Use Your VHF Marine Radio". Both of these are free of charge from the FCC.</p> <p>see Laws and Regulations</p>	<p>10R, 10R, 78R, 61R, 123R,</p>	<p>22A, 22A,</p>

WATER FACILITIES see Utilities		
WEATHER Charts <ul style="list-style-type: none"> <li> Marine Weather Service charts Issued by National Oceanographic and Atmospheric Administration: Weather service charts for sale for \$1.25 each that includes information on weather radio broadcast times and frequencies, national weather service office telephone numbers, phone numbers for marine weather recordings, coastal warning display sites, and NOAA weather radio transmitter locations. <li> Downbursts are Dangerous to Boaters Brochure on Dangers <li> Thunderstorms and Lighting Information brochure available from the National Weather Service <li> Hurricane Preparedness Information brochure available from BOAT/U.S.Foundation, 1-800-336-BOAT <li> National Weather Service Publishes weather maps and marine weather service charts. (31A,) <li> U.S. Coast Pilot Gives weather summaries <li> Weather for Mariners Basic weather information, emergency procedures, broadcast frequencies, weather advisories, suggested readings <p>see Navigation</p>	<p>80R,</p> <p>124R,</p>	<p>27A,</p> <p>44A,</p> <p>31A,</p> <p>4A,</p> <p>31A,</p> <p>120A,</p>
WEATHER MESSAGES see Navigational Techniques		

<p>WETLANDS Permits are required from the U.S. Army Corps of Engineers for dredging, filling and similar activities.</p> <p>see Coastal Studies Dredging Laws and Regulation</p>		42A,
<p>ZONING ORDINANCE AMENDMENT This is required if a owner wants to develop and proposal is not currently permitted by zoning ordinance. Must get zoning amendment. Contact the County or City Clerk for appropriate division. Required by Government Code Section 65800.</p>		41L,

REFERENCES

The following list of references is a listing of information that may be useful to small craft harbor and marina managers. The primary avenue to acquire a copy of each reference is listed, however, other likely sources are Government Bookstore, Government Printing Office, National Technical Information Service, U.S. Army Corps of Engineers Publishing Depot, National Sea Grant, the local governmental offices, local libraries, and the publishing agencies. The addresses and phone numbers of these agencies are located in the Agencies section of this guide.

1R. Accounting Manual for Marinas and Boatyards, Inselberg, H. S., National Association of Engine and Boat Manufacturers, Inc., 1969

"The purpose of this manual is to help the marina and boatyard operator establish an accounting system that will provide him with the financial controls and information necessary for a profitable operation." (p. 5)

2R. An Ocean Engineering Study of Morro Bay, Robert L. Wiegel, University of California at Berkeley, San Francisco, California, July 1967

3R. An Oral History of Coastal Engineering Activities in Southern California 1930-1981, U.S. Army Corps of Engineers, Los Angeles District, Jan 1986

Includes Studies in San Luis Obispo County, Santa Barbara County, Ventura County, Los Angeles County, Orange County, San Diego County. Also includes some specific coastal studies. For a copy of this or other local studies, contact U.S. Army Corps of Engineers, Los Angeles District or Westec Services, Inc.

4R. Anchoring: All Techniques for All Bottoms, Don Bamferd, New Port, CT, Seven Seas Press, 1985.

Available at University of California San Diego.

5R. Assessment and Atlas of Shoreline Erosion, Department of Boating and Waterways, Resources Agency, State of California, July 1977

Contact Department of Boating and Waterways or State Library for a copy.

6R. Architecture of Docks, Harbor Buildings, Harbors and Marinas, a Bibliography, Coppa & Avery Consultants, Monticello, Ill, Vance Bibliographies, 1984.

Available from University of California at Berkeley and University of California Santa Barbara.

8R. Beach Erosion Control and Shore Protection Studies, Chapter 1, U.S. Army Corps of Engineers Manual, EM 1110-2-3300, 31 March 1966, Available from Westec Services.

9R. Beneficial Uses of Dredged Material, U.S. Army Corps of Engineers Manual EM 1110-2-5206, 30 June 1987, Available from Westec Services.

10R. Boaters Source Directory, U.S. Coast Guard, Created by BOAT/U.S. Foundation 880 South Pickett Street, Alexandria, VA 22304, (703) 823-9550, 1990

Lists information on registering pleasure boats, location and function of state boating offices, boating accident reporting, U.S. Coast Guard Districts, boating courses and education, commercial licenses, weather information , required equipment, courtesy marine examinations, radio licensing and the FCC, navigation aids availability, consumer information on boating safety and defects, brochure availability, and boating organizations information. Available from BOAT/U.S. at 1-800-336-BOAT or from the local USCG office.

11R. Boating Facilities Division Proposed Projects, State of California, The Resources Agency, Department of Boating and Waterways, January 1991

Projects that are scheduled for funding or state sponsored construction are listed for each funding year. Available from the Department of Boating and Waterways.

12R. Boating Facilities Projects, State of California, Department of Boating and Waterways, August 1989

Provides expenditure for marina and harbor project by source, amount, type of project, recipient, and year for the years 1961-1989, Available from the Department of Boating and Waterways.

13R. Boating Resources Development Planning Study, California Department of Navigation and Ocean Development, Aurthur and Young Company, October, 1973

An inventory of boating resources, needs, plans, boat types and patterns of occurrence, and boat use. This was designed to be used so that funding resources were directed to the best areas. Available from the State Library System.

- 14R. Bulkheads, Marinas, & Small Boat Facilities**, Pile Buck, Inc., P.O. Box 1056, Jupiter Fl, 1990
A comprehensive guide discussing the design and construction of these facilities and provides references for further investigation. Available for purchase from Pile Buck, Inc.
- 14.1R. California Coastal Access Guide**, Coughman, M., and Ginsberg, J, Prepared for the California Coastal Commission, University of California Press. Berkeley, California, 1983
- 15R. Case Histories of Corps Breakwater and Jetty Structures**, Report 2, South Atlantic Division, Francis E. Sargent, Coastal Engineering Research Center, Prepared for Department of The Army, U.S. Army Corps of Engineers, Springfield, VA., 1988.
Available from the National Technical Information Service and University of California at Berkeley. Other regions including the southwestern region are also available.
- 16R. Catalog of California State Grants Assistance**, California Library Foundation, 1898, P.O. Box 942837, Sacramento, CA 94237-0001 (916) 322-4547
This agency will provide a listing of grants available. Similar catalogues are available at most public libraries.
- 17R. Cellular Cofferdams**, Pile Buck, Inc., Jupiter FL, 1990
Covers design, layout, construction, types of equipment used, advantages, and disadvantages of various types of cofferdams. Also has an extensive list of suppliers according to parts or equipment desired. The list of references shows other publications related to Cellular Cofferdams. May be purchased directly from Pile Buck, Inc., P.O. Box 1056, Jupiter, FL
- 18R. Cellular Structure Design Methods**, Proceedings Conference on Design and Installation of Pile Foundations and Cellular Structures, Beltz, C. A., Envo Publishing Co., 1970
- 19R. City Centre Marinas: Their Role in Tourism and in Reversing the Decline of Commercial Harbours**, D.W. Adie, Greater London Consultants, from planning and Transport Research and Computation Co. Meeting, 1987.
Available from the University of Berkeley, Transportation Library.
- 20R. Coastal Construction**, Pile Buck, Inc., P.O. Box 1056, Jupiter Fl, 1990
Comprehensive manual on this subject including design and practice techniques. May be purchased directly from Pile Buck, Inc.

- 21R. Coast of California Storm and Tidal Waves Study**, U.S. Army Corps of Engineers, Los Angeles District, Dec 1985
Available from U.S. Army Corps of Engineers.
- 22R. Coastal County Fish and Wildlife Resources and Their Utilization**, Department of Fish and Game and California Sea Grant, August 1, 1973
Shows the type of wildlife and the economic impact of boating for coastal California Areas
- 22.1R. Coastal Protection Structures and Their Effectiveness**, Kim Fulton-Bennet and Gary B. Griggs, University of California at Santa Cruz, Joint Publication of the State of California Department of Boating and Waterways at the Marine Science Institutes of the University of California at Santa Cruz, 1986
A readily useable "manual that deals with protective structures and their effectiveness in reducing storm damage".(p.1) It describes and evaluates coastal protection measures. Available from the Department of Boating and Waterways.
- 23R. The Complete Guide to Harbors, Anchorages, and Marinas**, Written and compiled by R. H. Smith, "C" Books, Del Mar California, 1981.
Available at University of California San Diego.
- 24R. Conduits, Culverts, and Pipes, CH 1-3**, U.S. Army Corps of Engineers Manual EM 1110-2-2902, 3 March 1969.
Available from Westec Services, Inc.
- 25R. Confined Disposal of Dredged Material**, U.S. Army Corps of Engineers Manual, EM 1110-2-5027, 30 September 1987.
Available from Westec Services, Inc.
- 26R. Construction Estimates Planning and Design Stages CH 1-2**, U.S. Army Corps of Engineers Manual EM 1110-2-1301, 31 July 1980.
Available from the Westec Services, Inc.
- 27R. Construction of Harbor and Inland Harbor Projects By Non Federal Interests**, U.S. Army Corps of Engineers Report ER 1165-2-124, 1 October 1990.
Available from Westec Services, Inc.
- 28R. Construction With Large Stone**, U.S. Army Corps of Engineers Manual EM 1110-2-2302, 24 October 1990.
Available from Westec Services, Inc.

29R. Contaminated Dredged Material: Control, Treatment, and Disposal Practices, by John Cullinane et. al., Park Ridge, N.J., U.S.A.: Noyes Data Corporation, 1990.
Available at University of California at Berkeley, UCD, and University of California Santa Barbara.

30R. Corps of Engineers Libraries, U.S. Army Corps of Engineers Publication EP 25-1-96, 1 June 1990.
Available from Westec Services, Inc.

31R. Corps of Engineers Participation in the National Estuary Program, U.S. Army Corps of Engineers Publication EC 1105-2-193, 15 June 1990.
Available from Westec Services, Inc.

32R. Design of Breakwaters and Jetties, U.S. Army Corps of Engineers Manual EM 1110-2-2904, 8 August 1986.
Available from Westec Services, Inc.

33R. Design of Pile Structures and Foundations, U.S. Army Corps of Engineering Manual EM 1110-2-2906, 1 July 1958.
Available from Westec Service, Inc.

34R. Design of Costal Revetments, Seawalls, and Bulkheads, U.S. Army Corps of Engineers Manual EM 1110-2-1614, 30 April 1985.
Available from U.S. Army Corps of Engineers.

35R. Design of Marine Facilities for the Berthing , Mooring, and Repair of Vessels, John W. Gaythwaite, New York, NY, Van Nostrand Reinhold, 1990.
Available at the University of California at Berkeley and the University of California San Diego

36R. Design of Recreation Sites Areas and Facilities, U.S. Army Corps of Engineers Report ER 1110-2-400, 31 May 1988.
Available from Westec Services, Inc.

37R. Design of Sheet Pile Cellular Structures, Cofferdams, and Retaining Structures, U.S. Army Corps of Engineers Manual 1110-2-2503, 30 September 1990.
Available from Westec Services, Inc.

38R. Details of Reinforcement, Hydraulic Structures, U.S. Army Corps of Engineers Manual EM 1110-2-2103, 31 May 1971.
Available from Westec Service, Inc.

39R. Development Feasibility Analysis for Stacked Boat Dry Storage, Williams-Kuebelbeck and Associates, Inc., Department of Boating and Waterways, The Resources Agency, State of California, August 1975

This study "provides recommendations for the types of stacked dry storage that should be developed, the general locations with the highest potential and the methods of implementing new locations with the highest potential and the methods of implementing new projects."(p. 3)

40R. Drainage and Erosion Control, Mobilization Construction, U.S. Army Corps of Engineers Manual EM 1110-3-136, 9 April 1984.

Available from Westec Services, Inc.

41R. The Dredging Dilemma: How not to Balance Economic Development and Environmental Protection, Robert A. Kagan, Berkeley, CA, Institute of Governmental Studies, 1990.

Available from University of California at Berkeley.

42R. Dredging and Dredged Material Disposal, U.S. Army Corps of Engineers Manual EM 1110-2-5025, 25 March 1983.

Available from Westec Services, Inc.

43R. Dredging Policies and Practices, U.S. Army Corps of Engineers Publication EP 1130-2-357, 31 October 1968.

Available from Westec Services, Inc.

44R. Dry Stack Boat Storage: Potential Energy Savings, Kennedy A Wenner, Ohio Sea Grant, Columbus, Ohio, 1982.

Available at University of California at Berkeley.

45R. Economic Impact of The Boating Industry in California, David M. Dornbusch and Company, Inc., Prepared for the California Department of Boating and Waterways, San Francisco California, April 1988

Evaluates the economics of the statewide boating industry and conducts case studies of four marinas to evaluate the impact of boating on local economies. Available for purchase from the Department of Boating and Waterways or at the University of California at Berkeley.

46R. Encyclopedia of Community Planning and Environmental Management, Schultz, M.S., and Kasen, V. L., Facts on File Publications, New York, New York, Bicester, England, 1984

An index by topic, organization, and regulation that includes marina and harbor information.

- 47R. Engineering Study of Concrete Berthing Systems**, Prepared for the Department of Boating and Waterways, Winzler and Kelly, Jan 1979
The purpose of this study is to investigate the basic principles and requirements for the structural evaluation of concrete berthing systems and provide recommendations.
- 48R. Environmental Engineering for Costal Shore Protection**, U.S. Army Corps of Engineers Manual EM 1110-2-1202, 10 July 1989.
Available from Westec Services, Inc.
- 49R. Environmental Policies, Objectives, and Guidelines for the Civil Works Program of the Corps of Engineers**, U.S. Army Corps of Engineers Publication EP 1165-2-501, 18 December 1988.
Available from Westec Services, Inc.
- 50R. Establishment of Wetlands Area in Connection with Dredging**, U.S. Army Corps of Engineers Report ER1165-2-27, 18 August 1989.
Available from Westec Services, Inc.
- 51R. Federal Participation in Shore Protection**, U.S. Army Corps of Engineers Report ER 1165-2-130, 15 June 1989.
Available from Westec Services, Inc.
- 52R. Federal Port Policy in the U.S.**, Marcus, Short, Kuypers, Roters, M.I.T. Press, 1976
- 53R. Financing Public Facilities in the 1990's**, California Debt Advisory Commission, 1990, 915 Capitol Mall, Room 400, Sacramento, CA 95814, (916) 324-2585
- 54R. Financial Structure and Performance of Florida's Recreational Marinas and Boatyards**: a Report on Financial and Operating Ratios for 1979 through 1981, J. Walter Milon, Gary H. Wilkowske, George L. Brinkman, Florida Sea Grant College, Gainesville, 1983.
Available at University of California at Berkeley.
- 55R. Functional Design of Breakwaters for Shore Protection**, Empirical Methods, Julie Dean Rosati, Prepared for Department of the Army, U.S. Army Corps of Engineers, Springfield, Va., 1990.
Available from the National Technical Information Service, and University of California at Berkeley.
- 56R. Global Position System Surveying Services**, U.S. Army Corps of Engineers Manual TL 1110-1-133, 15 October 1986.
Available from Westec Services, Inc.

- 57R. Governmental Accounting, Auditing, and Financial Reporting, M.F.O.A., 1980**
- 58R. Guide to the Federal Budget, Collender, S., Urban Institute Press, 1990, 2100 M Street, NW, Washington DC 20037, (202) 833-7200**
- 59R. Guide to Public Debt Financing in California, Horler, V., Packard Press, 1987, 221 Main Street, Suite 1400, San Francisco, CA 94105 (415) 974-1100**
- 60R. Guide to Public Financing for Waterfront Restoration, Urban Waterfronts Program, The State Coastal Conservancy, Oakland, CA, June 1990**
This publication includes a description of the "program's purpose, project and applicant eligibility requirements, recent examples of how coastal communities have used funds from the program, information deadlines for 1990-91 fiscal year, contact, names, addresses and phone numbers".(p.1)
- 61R. Harbor Seamanship, Bernard Hayman, Pergamon Press, 1968**
International Port Entry Signals, Tidal Signals, VHF procedures, Vessel Traffic Services, Collision Regulations, Navigational Warnings, Weather Messages, Mooring, Distress and Urgency
- 62R. Harbors, Piers, and Wharves, Pile Buck, Inc., P.O. Box 1056, Jupiter Fl, 1990**
- 63R. Hydraulic Design of Small Boat Harbors, U.S. Army Corps of Engineers Manual EM 1110-2-1615, 25 September 1984.**
Available from Westec Services, Inc.
- 64R. Index of Publications, U.S. Army Corps of Engineers Publication EP 25-1-1, 15 December 1990.**
Available from Westec Services, Inc.
- 65R. Inventory of California Boating Facilities, State of California Department of Boating and Waterways, Williams-Kuebelbeck and Associates, Inc., August 1986**
This is a survey that provides "comprehensive and up-to-date information on the facilities and services offered at harbors, lakes, rivers and other bodies of water throughout the state" (p. 1)
- 65.1R. Layout and Design Guidelines for Boat Facilities Project Signs, State of California Resources Agency, Department of Boating and Waterways, Boating Facilities Development Division, July 1986**
Describes recommended design and standards for boating facility signs.
Available from Department of Boating and Waterways.

- 66R. Layout and Design Guidelines for Small Craft Berthing Facilities**, State of California Resources Agency, Department of Boating and Waterways, JAN 1984
"Guidelines have been provided to assist in the layout and design of small craft berthing facilities...the primary purpose of these guidelines is to provide technical assistance in the development of those projects funded under the local assistance program of the Department of Boating and Waterways (Cal Boating)" (p. i)
- 67R. Layout and Design of Shallow Draft Waterways**, U.S. Army Corps of Engineers Manual 1110-2-1611, 31 December 1980.
Available from Westec Services, Inc.
- 68R. Light Lists**,
U.S. Coast Guard Publication containing information on fog signals, radiobeacon characteristics, daymarkers, unlighted buoys, lighted navigational aids, and loran stations. Updated weekly by U.S. Coast Guard's Notice to Mariners. Available from U.S. Government Printing Office, Washington, D.C. 20402. Price \$13-\$20.
- 69R. Local Notice to Mariners**, U.S. Coast Guard, Published Weekly
Updates U.S. Coast Guard and NOS charts for small boats and small boat harbors. To receive this publication you must request in writing that your name be added to the mailing list for your Coast Guard District.
- 70R. Major Waterways and Ports of U.S.**, U.S. Army Corps of Engineers Map MP ENG Map-4A, 4B, and 4C.
Available from U.S. Army Corps of Engineers.
Also available for East Coast (5A, 5B, 5C) and Pacific Coast (6A, 6B, 6C).
- 71R. Management and Operating Guidelines for Public Marinas**, Department of Boating and Waterways, Resources Agency, State of California, 1977
A newer version is available. See Marina Management Study, Volume 1; Management and Operating Guidelines for Public Marinas.
- 72R. Marina Dockage Agreements: Sample Provisions**, Florida Sea Grant College, Gainesville Florida, 1985
Available from University of California at Berkeley.

73R. Marina Management Study, Volume 1; Management and Operating Guidelines for Public Marinas, State of California Department of Boating and Waterways, No Publication Date

"Provides a management handbook and an information source for administration and management personnel who are either unfamiliar with or wish to know more about the requirements for successful marina operation"(p. 1)

74R. Marina Operations and Service, National Association of Engine and Boat Manufacturers, Inc., 1967

Includes Accounting, Laws Rules and Regulations, Insurance, Marina Maintenance, Repair Facilities, Space Sales, Utilities, Commodities and Services, Food and Beverage Services, Motel Operations, General Sales, and Marina Consultants. Since this is an old reference the state library system is probably only access to this material.

75R. Marina Siting Considerations, A Guide to the Permit Process in Maryland, Patricia Ann Bednarz, Prepared for Coastal Resources Division, Tidewater Administration, Coastal Resources Division, Annapolis, 1983.

Available at the University of California at Berkeley.

76R. Marinas, a Working Guide to Their Development and Design, Donald W. Adie, 3rd edition, New York, Nichols Publishing Company, 1984.

Available at University of California at Berkeley, University of California LA, and University of California Riverside.

77R. Marinas, Recommendations for Design, Construction, and Maintenance, Chaney C. A., National Association of Engine and Boat Manufacturers, New York, N.Y., 1961

78R. Marine Radiotelephone Users Handbook

A source of marine radiotelephone information. May be purchased from the Radio Technical Commission for Maritime Services, at P.O. box 19087, Washington, D.C. 20036. Price is approximately \$8.00 a copy.

79R. Marine Portable Fire Extinguishers

An illustrated pamphlet explaining types of fires and fire extinguishers, maintenance and fire fighting techniques aboard. Available from BOAT/U.S. Foundation.

- 80R. Marine Weather Service Charts**, National Oceanographic and Atmospheric Administration (NOAA), 1990.
Includes information by region on weather radio broadcast times and frequencies, National Weather Service Office telephone numbers, and phone numbers for marine weather radio transmitter locations. Price is \$1.25 each from NOAA.
- 81R. Materials, & Equipment for Marine Construction**, Pile Buck, Inc., P.O. Box 1056, Jupiter Fl, 1990
Comprehensive guide on this topic with other references listed. Available for purchase directly from Pile Buck, Inc.
- 82R. Methods to Reduce Wave Runup and Overtopping of Existing Structures**, John P. Ahrens, prepared for Department of the Army, U.S. Army Corps of Engineers, Vicksburg, Miss., 1988.
Available from the National Technical Information Service.
- 83.1R. Merchant Marine Officers Handbook**, available from the California Maritime Academy, and Government Bookstore
Basic boating principles
- 84R. Motions of Small Boats Moored in Standing Waves**, F. Raichlen, W.M Keck Laboratory of Hydraulics and Water Resources, California Institute of Technology, Report # KH-R-17, Pasadena, CA, 1968
- 85R. National Electrical Code**, NFPA no 70-1990, U.S. Army Corps of Engineers Manual TL 1110-3-423, 23 February 1990.
Available from Westec Services, Inc.
- 86R. National Electrical Safety Code**, ANSI-C@, U.S Army Corps of Engineers Manual TL 1110-3-422, 23 February 1990.
Available from Westec Services, Inc.
- 87R. Naval Facility Engineering Command Manuals**, U.S. Government, Naval Publications and Forms Center, 5801 Tabor Ave., Philadelphia, PA 19120
Has Design Manuals and Military Handbooks on a wide range of topics including design and construction, piers and wharves, general criteria for waterfront construction, dredging equipment, and many others. These may be purchased by contacting the above address. A partial list of the available manuals is published in the Pile Buck, Series
- 88R. Navigation Charts for Inland Waterways**, U.S. Army Corps of Engineers Report ER 1130-2-315, 14 November 1990.
Available from Westec Services, Inc.

- 89R. Navigation Lights, Aids to Navigation, Charts and Related Data**, U.S. Army Corps of Engineers Report ER 1130-2-306, 8 May 1978.
Policies, Practices and procedures.
Available from Westec Services, Inc.
- 90R. Navigation, the Role of the Corps**, U.S. Army Corps of Engineers Publication EP1165-2-312, October 1983.
Available from Westec Services, Inc.
- 91R. Ocean Fishery Maps**, Department of Fish and Game, State of California, The Resources Agency.
Maps for Del Norte, Humbolt & Mendocino Counties, Los Angeles County, San Francisco, San Mateo & Santa Cruz Counties, and Sonoma & Marin Counties are available for a nominal fee from the Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814.
- 91.1R. Pacific Boating Almanac**, Southern and Northern California Editions, Western Marine Enterprises, Ventura, California, 1985
- 92R. Performance and Stability of Low Crested Breakwaters**, D. M. Sheppard, and J.K. Hearn, Gainesville, FL, Coastal and Oceanographic Engineering Department, University of Florida, 1989.
Available at the University of California at Berkeley.
- 93R. Pocket Guide to U.S. Army Corps of Engineers Library Program**, U.S. Army Corps of Engineers Publication EP 1-1-12, No Pub Date.
Available from Westec Services, Inc.
- 94R. Prescribed Procedures for Maintenance and Operation of Shore Protection Works**, U.S. Army Corps of Engineers Report ER 1110-2-2902.
Available from Westec Services, Inc.
- 95R. Principles and Practices of Urban Planning**, International Managers Association, Library of Congress Cat no. 67 30622, 1968
Contains considerations and planning principles that may be utilized when planning harbor development
Also included in this series is Municipal Recreation Administration.
- 96R. Principles of Naval Architecture**, (Revised), The Society of Naval Architects and Marine Engineers, New York, N.Y., 1967

97R. Problems and Opportunities in the Design of Entrances to Ports and Harbors, proceedings of a symposium, August 13-15, 1980, Fort Belvoir, VA, convened by the Panel on Harbor/Port Entrance Design for the Marina, Washington, D.C., National Academy Press, 1981.

Available at the University of California San Diego

98R. Proposal for Design and Construction Services for Phase II Sewer, Water, and Storm Drains, Marine Redevelopment Project Area, prepared by Enartec Consulting Engineers, Inc., San Diego, California, 1988.

Available at University of California San Diego.

99R. Protection, Inspection, & Maintenance of Marine Structures, Pile Buck, Inc., P.O. Box 1056, Jupiter Fl, 1990

100R. Protection of Public Health and Safety at Jetties and Groins, and Breakwaters, Policies and Procedures, U.S. Army Corps of Engineers Report ER 1130-2-439, 22 December 1987.

Available from Westec Services, Inc.

101R. Public Officials Guide to Mello-Roos Financing, Orrick, Herrington and Sutcliff, 1989, 600 Montgomery Street, San Francisco, CA 94104 (415) 392-1122

102R. Reimbursement for Advance Non-Federal Construction of a Federally Authorized Harbor and Inland Harbor Improvement, U.S. Army Corps of Engineers Report ER 1165-2-120, 15 June 1988.

Available from Westec Services, Inc.

103R. Report on Electrical Distribution Systems For Small Craft Berthing Facilities, Prepared by Roy Bryan Electrical Design, for the State of California Resources Agency, Department of Boating and Waterways, March 1982

Discusses power requirements, metering of individual berth power, ground fault interrupters, power receptacles, transformers, harbor corrosion and electrolysis, connection between shore and floating structures, and equipment suppliers. Available from the Department of Boating and Waterways or the State Library system.

104R. Retaining and Flood Walls, U.S. Army Corps of Engineers Manual EM 1110-2-2502, 29 September 1989.

Available from Westec Services, Inc.

105R. Rules of Thumb for Marinas, Charles Eckenstahler and Ronald Schults, Urban Land, Vol 48, no. 9, September 1989

Available at the University of California at Berkeley

- 106R. Sediment Investigations of Rivers and Reservoirs**, U.S. Army Corps of Engineers Manual EM 1110-2-4000, 15 December 1989.
Available from Westec Services, Inc.
- 107R. Seventeenth Biennial Report**, Department of Boating and Waterways, State of California, The Resources Agency, June 1990
Explanation of programs, amount, source, and use of funding granted through the Department of Boating and Waterways.
- 108R. Shipshape is Fire Safe**, U.S. Coast Guard, no publishing date
A pamphlet that describes precautions a boater should take to avoid fires and explosion on recreational boats. Available from the U.S. Coast Guard district offices.
- 112R. Shore Protection in California**, State of California, The Resources Agency, Department of Navigation and Ocean Development, April 1976
This report "contains a brief description of the forces of nature that form the beaches and erode the bluffs, the effect man has had on the process, and the means available for corrective action".(p.3)
- 113R. Shore Protection Manual, Volumes I, II, and III**, Shore Protection Research Center, U.S. Army Corps of Engineers, USGPO, Washington, D.C., 1973
Available from Westec Services, Inc.
- 113.1R. Small Boat Handling and Boating**, Albert S. Malone, Chapman's Pilot Series, Hearst Marine Books, William Morrow Company, Inc, 105 Madison Avenue, NY, NY
A thorough basic reference for boating and boating operations. It includes information on navigation, charts, tides, utilities, and definitions.
- 113.5R. Small Craft Harbors: Design, Construction and Operation**, J. W. Dunham and Arnold Finn, Coastal Engineering Research Center, U.S. Army Corps of Engineers, Special Report # 2, Ft Belvoir, VA, 1973
- 114R. Stability of Reef Breakwaters**, John P. Ahrens, Journal of Waterway, Port, Coastal, and Ocean Engineering, Vol. 115, no. 2, March 1989.
Available at University of California at Berkeley.
- 115R. Standard Practice for Concrete**, U.S. Army Corps of Engineers Manual EM 1110-2-2000, 5 September 1985.
Available from Westec Services, Inc.

116R. State of the Art Procedures for Sealing Costal Structures With Grouts and Concretes, David P. Simpson, Coastal Engineering Research Center, Prepared for the Department of the Army, U.S. Army Corps of Engineers., Springfield, VA, 1989.

Available from the National Technical Information Service and the University of California at Berkeley and the University of California Southern Campus.

117R. Strength Design for Reinforced Concrete Hydraulic Structures, U.S. Army Corps of Engineers Manual EC 1110-2-267, 31 January 1990.

Available from U.S. Army Corps of Engineers.

118R. Thinking of Marina Development?, A Brief Resource Guide and Bibliography, Nancy L. Minter, Urban Land, Volume 48, no 11, November 1989.

Available at the University of California at Berkeley.

119R. Tide Tables, National Ocean Service (NOS), National Oceanic and Atmospheric Administration, Published Annually

NOS predictions of the times and heights of high and low waters for major and minor harbors. Order from NOAA. Price about \$7.00.

120R. United States Coast Pilot, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, D.C. 1987

For sale by National Ocean Service, subsidiary of NOAA, the Coast Pilots supplement the navigational information shown on nautical charts. they give weather summaries, climate data, navigation, channel and anchorage information, pilotage, etc. for specific coastal waters. Price under \$20.00. Revised annually.

121R. U.S. Coast Guard Equipment Requirements

A handy index for requirements for personal floatation devices, fire extinguishers, visual distress signals, bells, whistles, ventilation, and flame arresters. Available from local Coast Guard facility.

122R. Users Guide for Models of Dredged Material Disposal in Open Water, Billy H. Johnson, U.S. Army Corps of Engineers, Water Resources Support Center, Springfield, VA, 1990.

Available from National Technical Information Service and University of California at Berkeley.

123R. VHF Marine Radio Information for Recreational Boaters, Federal Communications Commission, Public Service Division, Field Operations Bureau, 1919 M Street NW, Washington DC 20554 (202) 634-1940.

An information packet covering the basics of using and licensing a VHF radio on a boat. Also available is a fact sheet "How to Use Your VHF Marine Radio". Both of these are free of charge from the FCC.

124R. Weather for Mariners, BOAT/U.S. Foundation, 1990

A brochure that gives basic weather information, emergency procedures, broadcast frequencies, weather advisories, and suggested readings. Order by contacting BOAT/U.S. Foundation at 1-800-336-BOAT.

125R. Wildlife Leaflets, California Department of Fish and Game, State of California, The Resources Agency.

Bulk quantities of leaflets at \$.04 each (1990 price) are available from the Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814. Abalone, California Gray Whale, Sea Lion, and Sea Otter are examples of brochures offered.

Periodicals

126R. Guide to California Boating Facilities, By Region, State of California, Department of Boating and Waterways, no date

127R. Mariners World Marine Directory, Mariners World Publishing Company, Inc, P.O. Box 2225, Newport Beach, CA 92662

128R. 1991 Marine Equipment Catalog, Marine Activity Reports, Inc., 118 East 25th Street, NY, NY 10010, (212) 477-6700

Lists products and services by category and contains an index of manufacturers and distributors nationwide

129R. Range Marker, P.O. Box 921, Newport, OR 97365, (503) 265-7875
Pacific Coast Congress of Harbormasters and Port Managers

130R. Spindrift, P.O. Box 1209, Seattle, WA 98111, tel (206) 728-3385
Monthly boating magazine

131R. State Clearinghouse Newsletter, Office of Planning and Research, State of California, 1416 10th Street, Sacramento, CA, (916) 322-3784

It "contains general information regarding state and federal grant monies available, notice of federal government projects within the state, and articles concerning the Office of Permit Assistance, State Clearinghouse, and CEQA." "It lists all federal grant applications received under Executive Order 12372 and all Notices of Determination, Exemption, and Completion received by the Clearinghouse during the prior week."(Office of Planning and Research, 1987, p. 22)

LAWS

This section lists the laws, acts, and regulatory information that pertains to marinas and small craft harbors.

1L. Aids to Navigation Standards, U.S. Army Corps of Engineers Report, ER 1130-2-317, 10 May 1989, Available from Westec Services, Inc.

2L. California Air Pollution Control Laws, Published by the Air Resources Board

Available at Air Pollution Control District offices, County or State law libraries, or the Air Resources Board P.O. Box 2815 1102 Q Street, Sacramento, CA 95812.

3L. California Boating Law, State of California Resources Agency, Department of Boating and Waterways, 1990

This compilation of State of California law related to boating including the Harbors and Navigation Code, Vehicle Code, California Code of Regulation, Penal Code, Fish and Game Code, Health and Safety Code, Water Code, and Government and Public Resources code. These codes involve regulations for small craft harbors and launching facilities, registration, equipment, and operation of vessels. Available from the Department of Boating and Waterways.

4L. California Coastal Commission Interpretive Guidelines, Available at Coastal Commission District Offices, the State Coastal Commission Office.

5L. California Code of Regulations, Various Publishers, Updated Annually

Title 14 includes Department of Boating and Waterways loan and grant regulations, and authorizes California jurisdiction over casualty reporting, jurisdiction over equipment requirements, law enforcement vessels, rules of the road, waterway marking system, and for-hire and broker licenses. Legislative laws in effect for the current year. Available at state and local libraries. Title 14 is also outlined in "California Boating Law". Available at most state and local libraries and from the National Technical Information Service.

5.5L. California Environmental Quality Act (CEQA)

The purpose of the act is to "identify the significant effects of a project on the environment, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." (California Environmental Quality Act Guidelines, June 1986, p. 5)

Administered by State Clearinghouse office. (Office of Planning and Research, 1987, p. 1)

This regulation may be located in the Harbors and Navigation Code of the California Public Resources Code.

A handbook (California Environmental Quality Act Guidelines) is provided by Office of Planning and Research explaining compliance procedures, rules and regulations.

6L. California Environmental Quality Act Guidelines, Office of Planning and Research, Office of Permit Assistance, State of California, June 1986

Outlines requirements and procedures to comply with the "California Environmental Quality Act". Available from Office of Planning and Research or General Services, Publications Section, P.O. Box 1015, North Highlands, California 95660, (916) 924-4800. Coastal Zone projects are addressed in Section 15206(b)(4)(C).

7L. California Health and Safety Code, See Health and Safety Code.

8L. California Harbors and Navigation Code

Includes guidance and regulation concerning the Department of Boating and Waterways and its jurisdiction, navigable waters and its California requirements, vessel law, liens, abandoned vessels, operation of vessels, for-hire licenses, and marine sanitation. Pertinent areas are included in "California Boating Law" in this section.

9L. California Land Use Regulations, James Longtin, No publisher provided.

Available from State and Local Libraries.

10L. California Land Use and Planning Law, General Guidelines, Daniel J. Curtin, No publisher or date provided.

Available from State and local libraries. Procedures are outlined in the California Permit Handbook included in this section.

11L. California Penal Code, West Publishing Company, St Paul Minnesota, 1991 compact edition.

Includes selected penal provisions from the California Constitution, Business and Professions Code, Code of Civil Procedures, Health and Safety Code, Vehicle Code, Welfare Institutions Code, and the California Rules of Conduct. Available at State and local law libraries. Portions pertaining to California Boating are outlined in "California Boating Law" listed in this reference guide.

This document available from several publishers, U.S Government Bookstore, and state and local libraries.

12L. California Permit Handbook, Office of Planning and Research, 1400 10th Street Sacramento, CA 95814, 1987, Revised

December 1990.

Describes all of the major local, state and federal permit requirements. Topics addressed include land use permit process, guidance for complying with the State's environmental quality goals and the CEQA process, the permit streamlining law, Fish and Game stream bed alteration permits, and encroachment permits. Available for purchase by contacting the Office of Planning and Research at (916) 322-4245.

13L. California Public Resources Code, Published by a variety of companies.

Compilation of legislative laws in effect that addresses the Environmental Quality (Section 21000), California Environmental Protection Program (Section 21190), California Coastal Act (Section 30000), Ocean Use Planning (Section 30950), State Coastal Conservancy (Section 31000), and Coastal Resources and Energy Assistance (Section 35000). It covers policy, state agencies involved, boards and commissions involved, local agencies, requirements for submission of information, and limitations. It is available throughout the state and local library system, and from the U.S. Government Bookstore. Interpretations of this are also available from various publishers, for example "Public Resources Code Analysis", listed later in this section.

14L. Clean Air Act, United States Code, Available at Air Pollution Control District offices, county or state law libraries, or at the Air Resources Board, P.O. Box 2815 1102 Q Street, Sacramento California 95812

15L. Clean Water Act, United States Code

Federal Legislation that modifies portions of the Water Pollution Control Act, Section 404, Title 33 United States Code. It also prohibits the discharge of dredged or fill material into waters of the United States without a permit from the Corps of Engineers and prohibits the discharge of waste into the surface water without a State Water Resources Control Board permit.

A Copy of this regulation is available from Corps District Offices.

see Water Pollution Control Act

16L. Coastal Zone Management Act of 1980, California Public

Resources Code

Creates a grant program for "waterfront and port redevelopment and for obtaining increased public access to beaches and other coastal areas."(Schultz, 1984, p. 68)

It authorizes 80%-90% funding for these projects which includes coastal zone planning, policy development, and implementation.(Schultz, 1984, p. 68)

17L. Code of Federal Regulations

Volume 33 Pertains to Boating and Waterways. It includes regulations pertaining to aids to navigation, international navigation rules, bridges, and boating safety. This is the primary guidance for the United States Coast Guard. Available at the Government Bookstore, and throughout the local and state library system.

18L. Endangered Species Act Amendments of 1982

Requires early notification of projects by agencies under federal authority to the Department of Interior.(Schultz, 1984, p. 128)

19L. Environmental Quality Act (CEQA)

See California Environmental Quality Act

20L. Federal Requirements for Recreational Boats, U.S. Department of Transportation, United States Coast Guard, 2100 Second Street., S.W., Washington, D.C. 20593-001, Revised 1986
A pamphlet outlining U.S. Coast Guard boating regulations and equipment requirements. Available at local U.S. Coast Guard office and Department of Boating and Waterways.

21L. Federal Water Pollution Control Act

Prohibits the discharge of oil or hazardous substances in quantities which may be harmful into U.S. navigable waters, the contiguous zone, and waters within 200 miles. Violators are subject to a penalty of \$5,000 if a discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. You must immediately notify the U.S. Coast Guard if your vessel or facility discharges oil or hazardous substances into the water. The phone number to contact the U.S. Coast Guard is 1-800-424-8802. (U.S. Department of Transportation, 1986, p. 16)

The 1972 act authorizes the Corps of Engineers to protect fish, shellfish, wildlife habitats, and recreational

areas in coastal waters.(Schultz, 1984, p. 31)

23L. Fish and Game Code of California, Gould Publications, 199 State Street, Binghamton, NY 13901, 1991

This is the law governing the California Fish and Game Department. It requires the Department of Fish and Game to authorize permits in cases of stream bed alteration, blasting, or encroachment on fish and game property. It also requires Fish and Game comment for any development where a lead agency is involved or if any endangered species are involved.

These regulations are available from several publishers, and is available from the State and county library system.

Applicable sections are outlined in "California Boating Law", located in this section.

This particular publisher, "Gould Publications" will sell you a current edition for a nominal fee that includes pertinent sections of the "Civil Code, Food and Agriculture Code, Government Code, Penal Code, Public Resources Code, Water Code, Federal laws and Treaties," seashores on which wildlife is protected, and policies adopted by the California Fish and Game Commission.(Department of Fish and Game, Price List, 1990, p. 2) Portions pertaining to California Boating are listed in "California Boating Law" listed in this reference guide.

24L. Health and Safety Code, California Code of Regulations, published by various, updated annually.

Includes Hazardous waste regulations and Air Pollution regulations. Excerpts included in "California Boating Law". Available at State and local libraries and the U.S. Government Bookstore.

25L. Inland Navigation Rules, National Oceanic and Atmospheric Administration, Published annually

Required action to avoid a collision, requirements for carrying of Inland Navigation Rules, and location of application of Inland Navigation Rules versus International Rules.

Copies of Inland Navigation Rules may be obtained from the U.S. Government Printing Office, Washington, D.C. 20402 (202)738-3238. Stock no. 050-012-00192-8. Price is about \$6.00 per copy.

26L. The Law of Harbours and Pilotage, London, Lloyds of

London Press, 1989.

Available at University of California San Diego.

26.1L. Marine Pollution Control Act (MARPOL),
Primary regulatory authority for the pollution of the waterways. Administered by the U.S. Coast Guard.

27L. Marine Protection, Research and Sanctuaries Act of 1972
This requires that permits be issued by the U.S. Army Corps of Engineers and the Environmental Protection Agency for waste disposal in the ocean of non land-based waste.

28L. National Environmental Policy Act of 1969
Requires federal participation, comment, and review for some projects.

It further requires an "Environmental Assessment for proposed federal, federally funded, or federally licensed or sponsored projects or actions." (Schultz, 1984, p. 129) This determines if a project is environmentally significant and if a Environmental Impact Statement is required.

29L. Oil Pollution Act of 1990
Located in the Code of Federal Regulations, Title 33. It establishes responsibility for pollution of navigable waters by oil, and is enforced by the U.S. Coast Guard.

30L. Pleasure Boats, U.S. Customs Service, Washington D.C. 20029
Describes reporting & U.S. entry requirements for recreational boaters. Available from the U.S. Customs Service.

31L. Public Resources Code Analysis, 1987, Amended January 1, 1991, State of California
Shows the regulations covered by the Public Resources Code at the conclusion of the 1986 Legislative Session. Updates are in supplements of this code.

It addresses the Environmental Quality Act (Section 21000), California Environmental Protection Program (Section 21190), California Coastal Act (Section 30000), Ocean Use Planning (Section 30950), State Coastal Conservancy (Section 31000), and Coastal Resources and Energy Assistance (Section 35000).

This analysis includes policy, state agencies involved, boards and commissions involved, local agencies, requirements for submission of information and

limitations.

32L. Recreational Boating and Sport Fishing Enhancement Act of 1984, (Wallop-Breaux Act)

Gives an apportionment to Department of U.S. Fish and Wildlife and stipulates that 10% of these funds must be used for boating facilities. Facilities include ramps, boat lifts, clocking facilities, breakwaters, fishing and boating lakes, rest rooms, parking areas, maintenance of marinas that support the state's sport fish management objective.

33L. Refuse Act of 1899

Prohibits the throwing, discharging or depositing of any refuse matter of any kind (including trash, garbage, oil and other liquid pollutants into the waters of the United States to a distance of three miles from the coastline. (U.S. DEPARTMENT OF TRANSPORTATION, 1986, p. 16)

34L. Regulatory Program Application Handbook, U.S. Army Corps of Engineers, (EP 1145-2-1), May 1985

Available from the U.S. Army Corps of Engineers free of charge. Summarizes Title 33 Code of Federal Regulations, Parts 320-330, which outline the permit process for the Corps of Engineers.

35L. Resource Conservation and Recovery Act of 1976

"Hazardous waste generation, transportation, storage and disposal in the United States is regulated by" this act. (Schultz, 1984, p. 178)

36L. River and Harbor Act of 1899, Section 10

Prohibits the obstruction or alteration of navigable waters without a permit from the Corps of Engineers.

37L. River and Harbor Act of 1945

This is one of the acts that authorized the U.S. Army Corps of Engineers to conduct particular studies for possible modification of harbors. The majority of U.S. Army Corps of Engineers efforts, studies or construction, must be authorized by Congress. (86th Congress, 1959)

38L. River and Harbor Act of 1962, Section 103

"Authorizes the U.S. Army Corps of Engineers to construct certain small beach erosion control projects without specific authorization by Congress." (Department of Navigation and Ocean Development, 1976, p. 39)

It also authorizes the Department of Boating and

Waterways to participate in these Corps projects.
(Department of Boating and Waterways, June 1990, p. 12)

39L. River and Harbor Act of 1968

Authorizes the Army Corps of Engineers to make an appraisal investigation and study erosion along the Pacific Coast. It also authorizes "the Army Corps of Engineers to investigate, study, and construct projects for the prevention or mitigation of shore damages attributable to federal navigation works." (Department of Navigation and Ocean Development, 1976, p. 37)

39.1L. Sport Fishing Enhancement Act

see Recreational Boating and Sport Fishing Enhancement Act

40L. U.S. Coast Guard Boating Accident Regulations

According to Title 33 of the Code of Federal Regulations, "Boating accidents that involve a recreational boat or its equipment must be reported if a person dies within 24 hours, disappears from a vessel under circumstances that indicate death or injury, or is injured and receives medical treatment in addition to normal first aid". "Accidents involving only property or equipment damage must be reported within 10 days if the damage is in excess of \$200.00 or total boat loss". (U.S. Department of Transportation, 1986, p. 17)

41L. United States Code, USGPO, Washington, D.C., 1989.

Legal reference containing general and pertinent laws of the United States that were in force on January 3, 1989. It is prepared and Published under authority of Title 2 of the U.S. Code by the Office of Law Revision Counsel. It is a printed compiled version of active legislative action.

The Clean Air Act and The Clean Water Act are included in this code.

This publication is also provided by several publishers, is available at local and state libraries, and is available for purchase from the U.S. Government Bookstore.

42L. U.S. Army Corps of Engineers Regulatory Program Applicant Information, see Regulatory Program Application Handbook

43L. Use of Navigable Waters Policy Practice and Procedure,

U.S. Army Corps of Engineers Report ER 1145-2-301, 1 July 1968.

Available from Westec Services, Inc.

44L. Water Pollution Control Act of 1948, Amended 1972 and 1977, Public Law 92-500.

45L. Water Quality Improvement Act of 1970

Regulates the discharge of oil and hazardous substances into navigable waters. These stipulations are incorporated in the Federal Water Pollution Control Act.

46L. Water Resources Development Act of 1985 revised 1990, USGPO, 1985

Designed to protect coastal and stream bed areas in the U.S. Available at University of California Berkeley and University of California Los Angeles.,

AGENCIES

This section lists the agencies that have an impact on marina and small craft harbor operations.

1A. American Red Cross, (National HQ):17th and D Streets NW, Washington D.C. 20006, (202) 639-3686.

Sponsors basic boating, rescue, swimming and water safety courses. They also maintain an audio visual loan library at Frank Stanton Production Center, American Red Cross, 5816 Seminary Road, Falls Church VA 20041.

2A. American Sailing Association, 13922 Marquesas Way, Marina de Rey CA 90292, (213) 822-7171.

Trains and certifies professional sailing instructors, offers public instruction through 150 affiliated sailing schools nationwide. Publishes "American Sailing" newsmagazine.

2.1A. Bald Eagle Enterprises (415) 331-3423

Prints a detailed listing of harbor and marina facilities.

3A. Board of Engineers For Rivers and Harbors

This agency may have input into the Economic Impact Report. For example, a preliminary U.S. Civil Corps of Engineers report for the construction of a breakwater for Monterey Harbor was submitted to them for comment. The California Department of Boating and Waterways or the U.S. Army Corps of Engineers will indicate if submission to this agency is required.(86TH Congress, 1959, p.viii)

4A. BOAT/U.S. Foundation, 880 S. Pickett Street, Alexandria VA 22304, (703) 823-9550.

National non-profit boating safety organization with toll-free courseline for information on free boating courses (1-800-336-BOAT). Also maintains a national recreational boating reference library with over 15,000 books, periodicals, slides, videotapes, and government publications.

4.1A Boating Safety Office, has locations in Alameda (415) 437-3135, Long Beach (213) 499-5500, and San Diego (61) 557-5860

Part of the United States Coast Guard, they distribute safety and regulatory information.

see Marine Safety Council

5A. California Association of Harbor Masters and Port Captains, 3112 O Street Suite 1, Sacramento, CA

The objectives of this organization are to:

exchange information relative to construction, maintenance, operation, regulation, enforcement, administration, and management pertaining to boats, marinas, and harbors. To formulate policies and plans to standardize and establish uniformity in operation and management of marina and harbor facilities and to recommend to various marinas or harbors represented in the association the adoption thereof. To promote and encourage development of marinas and harbors along sound management environmental, and economic lines, and to assist wherever and whenever possible any group or individual whether private or governmental in the development of new marinas and harbors. To keep all members of the associations informed by periodical bulletins or newsletter, of new developments or improvements in facilities of member marinas and harbors and any other items of interest to members.(1991 Membership Roster, Bylaws, p. 15)

Dues of this organization for 1991 were \$35.00-\$250.00

5.5A. California Boating Safety Officers Association

6A. California Coastal Commission, 631 Howard Street, 4th Floor, San Francisco, CA 94105, (415) 543-8555, Central Coast District located at 701 Ocean Street, Room 300, Santa Cruz, CA 95060 (408) 426-7390

Created in 1972 by proposition 20 to draft a plan for the protection of the coast and consists of one state commission and six regional offices. The California Coastal Act of 1976 authorized the Coastal Commission to issue Coastal Development Permits or by an authorized local agency. It also provides grants to public agencies for planning. See "California Commission Interpretive Guidelines" in the resources section.

District offices are San Francisco (415) 543-8555, Santa Cruz (408) 426-9740, and Long Beach (213) 297-9740.

6.1A. California Marine Parks and Harbors Association, 4521 Campus Drive, Suite 287, Irvine, CA 92715

A boating association for coastal California.

6.2A. California Marine Parks and Harbors Association

A boating association for coastal California.

6.3A. California Park and Recreation Society

California boating association.

7A. California State Boating and Waterways Commission

see Department of Boating and Waterways

8A. Caltrans-Planning, P.O. Box 942874, Sacramento, CA 94274-0001, (916) 445-5570

Part of the Department of Transportation.

An Encroachment Permit is required from this agency when opening or excavating a State highway for any purpose, changing an encroachment, placing any advertising sign or device, planting or tampering with vegetation growing along any State highway, constructing and maintaining road approaches or connections to any state highway, or any activity affecting the use of the highway. District offices listed under Department of Transportation in the Agency Section.

Permit guidelines included in the "California Permit Handbook".

9A. Coastal Conservancy

see State of California Coastal Conservancy

10A. Coastal Commission

see California Coastal Commission

11A. Department of Boating and Waterways (Cal Boat)

Part of the State of California Resources Agency 1629 S Street, Sacramento, California, 95814, Tel (916) 445-9657 (Department of Boating and Waterways, 1980)

A State Agency which may assist local communities in meeting funding requirements, when funds are available. The State Legislature approves these loans.(86TH Congress, 1959, p. xiii)

"The Department's primary objective continues to be to plan and develop boating facilities in environmentally acceptable areas with priority on the development or expansion of facilities where the greatest needs exist."(Department of Boating and Waterways, June 1990, p. 6)

The Department of Boating and Waterways has responsibility for beach preservation activities by authority of State Harbors and Navigation Code Sections 65-67.3, and provides loans and grants to cities, counties, private marinas, and districts for planning and marina construction.

This agency also "has extensive information resources concerning boating resource development in California." There are two general classes of information sources. One is "feasibility studies for harbors, marinas, or other boating facilities, submitted by local jurisdictions in support of loan or grant applications to the department". The other type of information is "special studies or reports dealing with topics which are directly related or relevant to boating facilities in California".(Aurthur & Young, 1973, pp. A-1/A-2)

It is frequently the lead agency for Economic Impact Reports.(Office of Planning and Research, 1987, p. 57)

12A. Department of Conservation, 1416 Ninth Street, Room 1326-2, Sacramento, CA 95814 (916) 322-5873

May have input into the Environmental Impact Report.(Office of Planning and Research, 1987, p. 57) The California Permit Handbook and CEQA Guidelines identify when input from this agency is required.

13A. Department of Fish and Game, Has regional offices located in Redding (916) 246-6511, Rancho Cordova (916) 355-7040, Napa (707) 944-2011, Fresno (209) 590-5177, and Long Beach (213) 590-5137

Permits are required by this agency for stream bed alteration, underwater blasting, or encroachment on Fish and Game Property. They are required to comment on any project that requires a U.S. Army Corps of Engineers Permit, Water Control Board Permit, Economic Impact Report for a lead agency in compliance with CEQA, an Economic Impact Statement when a federal lead agency is involved in compliance with NEPA, or affects endangered species.

This agency operates under the Fish and Game Code. Section 5650 of this code states that it is unlawful to put anything in the water deleterious to fish.

Also, the Department of Fish and Game provides funding to public facilities for land use planning and construction.

14A. Department of the Interior, Office of the Secretary, Washington, 25, D.C.

May be required to comment on and Environmental Impact Statement to ensure use of "safe" construction materials for federal projects.(86TH Congress, 1959)

15A. Department of Natural Resources

May have input into an Environmental Impact Reports or U.S. Army Corps of Engineers Studies.(86TH Congress, 1959). They are interested in the effect of the a proposed harbor project on the water resources of the State of California and the effect on the beaches and the shore line. The California Permit Handbook and the CEQA Guidelines outline when input is required from this agency.

16A. Department of Navigation and Ocean Development

Current Title is The Department of Boating and Waterways

17A. Department of Transportation

Applications for encroachments are made to the Caltrans Planning District Office. District offices are in Eureka (707) 442-5761, Redding (916) 246-6400, Marysville (196) 741-4401, San Francisco (415) 557-1984, San Luis Obispo (805) 549-3151, Fresno (209) 488-4073, Los Angeles (213) 620-2206, San Bernardino (714) 383-4017, Bishop (619) 873-8411, Stockton (209) 948-7882, and San Diego (619)237-6843. See Caltrans Planning in this section for further information.

18A. Department of Water Resources, 1416 Ninth Street, Room 215-4, Sacramento, CA 95814 (916) 445-7416

May have input into the Environmental Impact Report.(Office of Planning and Research, 1987, p. 58)

20A. Division of Small Craft Harbors

Established to provide boating safety and facilities in California. It became the Harbors and Watercraft Commission in 1966. In 1969 it became the Department of Navigation and Ocean Development. In 1979 it became the Department of Boating and Waterways. (Department of Boating and Waterways, June 1990, p. 2)

21A. Environmental Protection Agency

Has a list of hazardous wastes based upon the criteria of corrosivity, reactivity, and toxicity.(Schultz, 1984, p. 177)

22A. Federal Communication Commission, (FCC), Aviation & Marine Division, 2025 M Street NW, Washington D.C. 20554, (202) 632-7197.

Regulates interstate and foreign radio and wire communications, prescribes qualifications and classifications for operators, and issues operator and station licenses.

23A. Harbor District

A local or County wide harbor district may be formed to assist in costs of constructing or developing a harbor.(86TH Congress, 1959, p. xiii) The purpose of this jurisdiction is the development and improvement of commercial fishing and recreational boating. This involves providing recreational boating facilities, manpower, and maintenance of those facilities. It also includes the regulation and control of the anchoring, mooring, towing and docking of vessels, and enforcement of all necessary rules and regulations. (California Law, Harbors and Navigation Code, Appendix 1 Section 55-56 and Section 6042)

23.05A. International Marina Institute, Wickford, RI, (401) 294-9558 FAX 401-294-1630
Conducts training and has national courses pertaining to small craft boating management.

23.1A. Marina and Recreation Association

A boating association in California.

23.2A. Marine Associations Council of California

24A. Marine Safety Council

A sub agency of USCG. Located at USGC Headquarters, Room 3600, 2200 2nd Street. S.W. Washington, DC 20593-0001: Att CGD 88-002, 503-265-3262. Administrates regulations concerning operation of vessels.

25A. National Association of Engine and Boat Manufacturers,

see National Marine Manufacturers Association

25.1A. National Business Information Source

Assists with name, phone number and address of businesses, 1-800-391-6734

26A. National Marine Manufacturers Association, 401 N. Michigan Avenue, Chicago, IL 60611, (312) 836-4747

Compiles statistics and provides specialized education. It also maintains a speakers bureau and a 600 volume library on recreational boating. Has weekly publications and publishes booklets on marinas, statistics, and boating writer's information guide.

27A. National Oceanographic and Atmospheric Administration (NOAA), National Ocean Service, Public Affairs Office, Room 5805 Herbert C. Hoover Building, Washington D.C., (202) 377-4190.

Collects, analyzes and disseminates data and information on physical properties of oceans, U.S. coastal waters, estuaries and Great Lakes. Publishes charts, tide and current tables, Coast Pilots, ect. To order NOAA/NOS charts and other publication call or write: Distribution Branch, N/CG33 National Ocean Service, Riverdale MD 20737-1199.

28A. National Technical Information Service (NTIS), 5285 Fort Paul Road, Springfield VA 22161 (703) 487-4660, or 4620

Provides government reports and documents for a fee published by agencies such as the U.S. Coast Guard, NOAA, U.S. Navy, U.S. Army, and EPA. Order desk phone number is 1-800-336-4700.

29A. National Park Service

Provides grants for waterway access projects, and floating restrooms.(Department of Boating and Waterways, 1989, pp. 1-48)

30A. National Sea Grant Marine Advisory Service, 6010 Executive Boulevard, Rockville MD 20852, (301) 443-8886.

A division of NOAA supporting a national network of over 200 universities and marine research institutions. Provides information to help improve productivity of marine resources through public education workshops, seminars, TV, and publications provides research findings on marine resources, boating coastal engineering and environmental and economic impacts.

31A. National Weather Service, Public Affairs Office, 8060 13th Street, Silver Spring, MD 20910, (301) 443-8910

Provides reporting, forecasting, broadcast and warning services to promote navigation safety among private and commercial boaters. Publishes weather maps and Marine Weather Service Charts.

32A. Office of Permit Assistance, State of California, 1416 10th Street, Sacramento, CA 94814

This agency assists construction applicants with the governmental permit process. They have an information base of applications received in the past and provide environmental impact reports and studies previously conducted. This information can provide managers historical information on marina or harbor projects and also eliminate duplication of efforts.

This agency is part of the State Clearinghouse.

33A. Office of Planning and Research, State of California, 1416 10th Street, Sacramento, CA 94814, (916) 322-3784

This agency has some publications for sale pertaining to permits, and printed documents for the Office of Permit Assistance and the State Clearinghouse office. Has available for sale "California Permit Handbook", which is a vital tool in understanding the permit process in California.

This agency is part of the State Clearinghouse.

34A. Pacific Coast Congress of Harbormaster & Port Managers, P.O. Box 921, Newport, OR 97365, tel 503-229-5625, 503-265-7875

Has Newsletter "Range Marker", Addresses issues and problems of Marina and Harbor Managers, has meetings periodically with California Harbormasters and Port Managers, membership is open to ports and businesses which support the objectives of the congress. Dues as of December 1989 are \$90-\$150

Objectives are "To exchange information on all aspects of harbor and marina operations. To recommend policies to establish uniformity in all aspects of harbor and marina operations. To promote and encourage the development of marinas and harbors in a sound and economic manner. To keep all members of the Congress informed of new developments through a periodic bulletin. To keep in mind at all times that serving the commercial and recreational boating public is our basic purpose."(Pacific Coast Congress, 1989, p. 7)

35A. Reclamation Board, 1416 9th Street, Room 204-8, Sacramento, CA 95814, (916) 445-2458

Has interest in flood control. Also they may have input into Environmental Impact Reports. (Office of Planning and Research, 1987, p. 57)

see National Environmental Policy Act

36A. Small Business Administration, 450 Goldengate Ave., San Francisco, CA 94012 (415) 556-7487

May provides 30%-40% of the financing required for small business projects.

37A. State Clearinghouse, State of California, 1416 10th Street, Sacramento, CA 95814, (916) 445-0613, part of the Office of Planning and Research.

This is a state entity responsible for receiving and distributing documents prepared according to the California Environmental Quality Act (CEQA). They are responsible for "coordinating state and local review of federal financial assistance, federally required state plans, direct federal development activities, and federal environmental documents." "They also provide assistance and information about the environmental review process to state and local government officials and the public."(Office of Planning and Research, 1987, p. 1)

Their responsibilities, an explanation of how environmental documents are processed, and samples of forms, are provided in the "California Clearinghouse Handbook". This agency has available a computerized information system of all environmental documents it processes. Review is required for projects where a lead agency is a state agency (ie: Department of Boating and Waterways), or there is a responsible or trustee state agency (as indicated by CEQA guidelines section 15206), or the project has statewide, regional, or areawide significance (as indicated by CEQA guidelines section 15206)

It also coordinates the "intergovernmental review of selected federal grants, filing and posting certain notices, publishing a weekly newsletter, and providing a computer database search service". (Office of Planning and Research, 1987, p. 19)

38A. State Lands Commission, 1807 13th Street, Sacramento, CA 95814, (916) 445-7813 or 445-7738 or 445-7738

Requires a permit for the use of state-owned lands for right of way uses or projects such as income producing enterprises such as private marinas or amusement areas. This includes the regulation or leasing of tidelands and submerged lands. These land use leases involve encroachments, docks, and crossings. Authorized by the Public Resources Code, Section 6000. This agency requires a permit, when a lead agency is involved, for any dredging activity.

39A. State of California Resources Agency

Provides studies and information in the field. Department of Boating and Waterways is part of this agency. (Department of Boating and Waterways, 1980)

40A. State of California Coastal Conservancy, 1330 Broadway, Suite 1100, Oakland, CA 94612, (415) 464-1015

This agency was created by the "Legislature in 1976 to fund projects which preserve, enhance and restore coastal resources." It "funds projects in California's Coastal Zone and in the San Francisco Bay". (Coastal Conservancy, June 1990, p. 2) "Guide to Public Financing" and other information is available from this agency. It provides grants to local agencies for planning and development of projects of statewide and regional importance. "The California State Coastal Conservancy Annual Report", available from this agency, lists type of projects funded for each year. These projects include public access, protection and restoration of coastal wetlands, and acquisition of coastal land.

Authority is outlined in the California Resources Code.

This agency may be contacted directly concerning possible assistance for projects.

41A. State Water Resources Control Board, P. O. Box 100, Sacramento, CA 95801, (916) 445-9552

Has regions throughout California. Coastal regions are North Coast Region in Santa Rosa (707) 576-2220, San Francisco Region (415)464-1255, Central Coast Region in San Luis Obispo (805) 549-3147, Santa Anna Region in Riverside (714) 782-4130, and the San Diego region (619) 265-5114.

According to the Clean Water Act, they require a National Pollutant Discharge Elimination System Permit for any operations that discharge waste into surface waters.

According to the Porter-Cologne Water Quality Control Act, a water quality certification is required for operations such as boat cleaning.

They are required to input comments into EIR when CEQA is involved. It also has regulations concerning waste discharge requirements and the national pollutant discharge Elimination System.

Publications are available at the State Water Resources Control Board, Office of Public Affairs, 901 P Street, 4th floor, Sacramento, CA 95814.

41.1A. Southern California Marine Lease Information Exchange Committee

42A. U.S. Army Corps of Engineers, P.O. Box 2711, Los Angeles, CA 90053 Headquarters located at 20 Massachusetts Avenue NW, Washington, D.C. 20314-1000, Regulatory Functions Branch located at 211 Main Street, San Francisco, California 94015 (415) 974-0418 or 744-3036, permits (415) 556-2752

"A command of the United States Army that is responsible for the Civil Works Program, and water resources development activity since 1824."(Schultz, 1984, p. 30)

"Navigation, the original jurisdiction of the Corps, is one of its primary activities. Navigation improvements extend to providing waterway channels, anchorages, turning basins, locks, dams harbor areas, protective jetties and small boat harbors."(Schultz, 1984, p. 30)

Beach erosion control, an ongoing program, is available for continued restoration of the historic shorelines or coastal areas...provided the areas are open to public use. Other projects include fish and wildlife protection, and wetlands conservation.

Permits are required from this agency to discharge "...dredged or fill material into navigable waters and the transportation of dredged material for dumping in ocean waters." (Schultz, 1984, p. 31) Permits are also required for dredging, filling and similar activities, waste disposal in the ocean of non land-based waste.

The obstruction or alteration of navigable waters is prohibited without a permit from the Corps of Engineers.

They have provided funding for projects, and floating restroom grants. "Cost sharing is usually on a 50% federal, 50% local government basis."(Schultz, 1984, p. 30)

They conduct studies, with congressional authorization, for construction and changes to marinas and harbors.

They have an extensive library of studies conducted for coastal areas throughout California. The "Index of Publications" for the U.S. Army Corps of Engineers, provides a current listing for most of their documents and is available free of charge from the U.S. Army Corps of Engineers District Office library. All Documents are available from WESTEC publishing and U.S. Army Corps of Engineers Publishing Depot. Limited Availability at NTIS, USGPO, and U.S. Government Bookstore in San Francisco. Documents may also be acquired by contacting the U.S. Army Corps of Engineers library system or the local or state library system.

Beginning with an act approved July 2, 1930, the U.S. Army Corps of Engineers was authorized to investigate shore processes and beach erosion problems, in cooperation with the states.(Department of Navigation and Ocean Development, 1976, p. 39)

Permit information is available in the "California Permit Handbook" and from U.S. Army Corps of Engineers "Regulatory Program Application Handbook".

see Federal Water Pollution Control Act

River and Harbor Act of 1945

River and Harbor Act of 1962

River and Harbor Act of 1968

Marine Protection, Research and Sanctuaries Act of 1972

Marine Pollution Act

River and Harbor Act of 1899

Clean Water Act

43A. U.S. Army Corps of Engineers Publishing Depot, Department of the Army, Corps of Engineers Publishing Depot 2803 52 Hyattsville MD 20781 (301) 436-2063

Provides U.S. Army Corps of Engineers reports, manuals, pamphlets, technical letters, and guide specs free of charge. "Index of Publications" EP 25-1-1 Dec 1990 provides a listing of publications, titles, and numbers for ease of ordering.

44A. U.S. Coast Guard, (Eleventh District) 400 Oceangate, Long Beach, CA 90822-5399 (213) 499-5310, (Headquarters) Commandant G-NAB, 2100 Second Street SW, Washington D.C.20593-0001, (202) 267-0972.

Principle Guidance is Title 33 Code of Federal Regulations. Minimizes loss of life and property on high seas and U.S. waters through search and rescue, assures

safety and security of vessels, installs and maintains aids to navigation, enforces laws, promotes safety among commercial and recreational boaters.

Publishes consumer fact sheets for boaters, "Federal Requirements for Recreational Boats", and has a Boating Safety Hotline 1-800-368-5647.

May fine up to 5,000 for negligent or grossly negligent operation of a vessel. Requires that a person operating a vessel renders assistance to any individual at sea in danger of being lost.

Has minimum requirements for safety and boating safety equipment. Enforces registering and numbering of vessels. Requires reporting of boat accidents. Requires compliance with the Inland Navigation Rules. Enforces proper use of VHF/Ship to Shore.

This agency is Under the Department of Transportation.
The Marine Safety Council is a subunit of the U.S. Coast Guard. Locations of other district offices are located in "Boaters Resource Directory"

Maintains lighthouses, minor lights, and buoys in on or near prominent coastal points, channels and entrances.

This agency also has responsibility for enforcing marine environmental protection regulations.

see Refuse Act of 1899
Federal Water Pollution Control Act
Marine Pollution Act
Pollution Act of 1990

45A. U.S. Coast Guard Auxiliary, Commandant (G-NAB), 2100 Second Street SW, Washington D.C. 20593-0001, (202) 267-0972.

Voluntary civilian arm of the U.S. Coast Guard. Sponsors free boating courses, conducts Courtesy Marine Exams (CMEs), patrols marine events & regattas, assists boaters in distress. For Boating Course Information: 1-800-336-BOAT.

46A. U.S. Customs Service, Washington D.C. 20029, (202) 566-3962

Controls importation and reporting requirements for vessels entering the U.S. Publishes "Pleasure Boats", describing reporting & U.S. entry requirements for recreational boaters.

47A. U.S. Department of Interior

Provided Geological Survey "A Field Study of Littoral Processes in Estero Bay, California", John Dingler, Roberto J. Anma, David Molzan, Gretchen Luepke, and Curt Peterson, Estero Bay, California, June 1982

A provision of the Endangered Species Act Amendments of 1982 requires early informal notification projects, to the Department of the Interior, by agencies under federal authority.(Schultz, 1984, p. 128)

48A. U.S. Fish and Wildlife Service, Division of Federal Aid, 18th and C Streets NW, Washington D.C. 20240, (703) 235-1526

Provides grants through Federal Sport Fishing Restoration Trust(also known as the Dingle Johnson Act) to the states to construct and improve boating access facilities. Also provides grants through Hunter Education and Aquatic Resources to states to encourage safe boating.

49A. U.S. Forest Service

Has provided funding for ramp repairs, grants for projects, and floating restroom grants.(Department of Boating and Waterways, 1989, pp. 1-48)

50A. U.S. Government Bookstore, San Francisco. (415) 252-5334

Has U.S. Government and California State documents and publications for sale.

51A. U.S. Government Printing Office, Washington D.C. 20402, (202) 738-3238

Provides Materials published by federal and state agencies for a fee.

52A. WESTEC Services, Inc.,

Provides impact reports

Publishes Reports created by the U.S. Army Corps of Engineers

APPENDIX B

DISCUSSION QUESTIONS FOR GUIDE EVALUATION

DOES THIS GUIDE PROVIDE USEFUL INFORMATION?

IS THIS TYPE OF INFORMATION USEFUL TO YOU?

ARE THERE SOURCES THAT HAVE NOT BEEN INCLUDED THAT YOU WOULD LIKE TO SEE?

IS THE INFORMATION PROVIDED CLEAR AND/OR UNDERSTANDABLE?

DO YOU LIKE THE FORMAT OF THE GUIDE?

HOW WOULD YOU EVALUATE THE LAYOUT OF THE GUIDE: IS IT EASY TO USE AND FUNCTIONAL?

IF NOT, HOW WOULD YOU LIKE IT CHANGED?

IS THERE INFORMATION THAT IS UNNECESSARILY REDUNDANT?

DO YOU THINK THAT THIS GUIDE SERVES A USEFUL PURPOSE?

WHAT HAVE BEEN YOUR PREVIOUS SOURCES FOR THIS TYPE OF INFORMATION?

WHAT ARE THE POTENTIAL BENEFITS OF THIS GUIDE?

OTHER COMMENTS OR RECOMMENDATIONS?

LT Elizabeth L. Fruth, USN
177 Webster Street, A313
Monterey, CA 93940

Pier 39 Marina
P.O. Box 3730
San Francisco, CA 94119

Dear Ms. Best,

The enclosed guide is forwarded for your review. It is designed to direct small craft harbor and marina managers to the references, laws, and agencies that impact on daily operations. I am developing this guide for coastal California marina and harbor managers, in conjunction with my thesis work at the Naval Postgraduate School, and would appreciate your comments for changes in format, additions, or deletions.

I will be calling for your feedback on Monday, March 18. The following questions are enclosed to assist you in making your recommendations. You are only one of ten managers that I will be contacting for comment. Your co-operation is greatly appreciated so that this guide will be sure to meet your needs and provide a service to coastal California marina and small craft harbor managers.

A completed version will be provided to you in April of 1991. If you have any questions you may contact me at (408) 373-6245.

Thank you for your assistance

APPENDIX C
LIST OF MARINAS WHO EVALUATED THE GUIDE

Breakwater Cove Marina
32 Cannery Row
Monterey, CA 93940

General Manager
Bruce Marshall

Monterey Bay Harbor
City of Monterey
Monterey, CA 93940

Harbormaster
Brooks Bohway

Oyster Cove Marina
385 Oyster Point Blvd. Suite B
San Fransico, CA 94080

Harbormaster
Dick Timothy

Moss Landing Harbor
Moss Landing Harbor District
7881 Sandholt Road
Moss Landing, CA 95039

General Manager
Craig Winter

Berkeley Marina
City of Berkely
201 University Ave.
Berkeley, CA 94710

Marina Supervisor
John P. Cruger-Hansen

Woodley Island Marina
Humbolt Bay Harbor Recreation &
Conservation District
601 Startaye Drive
Eureka, CA 95502

CEO
Jack B. Alderson

Pier 39 Marina
P.O. Box 3730
San Francisco, CA 94119

Marina Manager
Sheila Best

Sunroad Resort Marina
955 Harbor Island Drive
San Diego, CA 92106

Marina Manager
Joe Frick

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Monterey, CA 93940
4. City of Monterey 2
Monterey Bay Harbormaster
City Hall
Monterey, CA 93940
5. Oyster Cove Marina 1
385 Oyster Point Blvd. Suite B
San Fransico, CA 94080
6. Moss Landing Harbor 1
Moss Landing Harbor District
7881 Sandholt Road
Moss Landing, CA 95039
7. Berkeley Marina 1
City of Berkely
201 University Ave.
Berkeley, CA 94710
8. Woodley Island Marina 1
Humbolt Bay Harbor Recreation & Conservation District
601 Startaye Drive
Eureka, CA 95502
9. Pier 39 Marina 1
P.O. Box 3730
San Francisco, CA 94119
10. Sunroad Resort Marina 1
955 Harbor Island Drive
San Diego, CA 92106
11. California Maritime Academy 1
P.O. Box 1392
Vallejo, California 94590

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