		Yes	Maybe	No
9.	Natural Resources. Will the proposal result in:			
	a. Increase in the rate of use of any natural resources?			X
	b. Substantial depletion of any non-renewable natural resource?			X
10.	Risk of upset. Will the proposal involve:			
	a. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil,, pesticides, chemicals or radiation) in the event of an accident or upset conditions?			X
	b. Possible interference with an emergency response plan or an emergency evacuation plan?			X
11.	Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?			X
12.	Housing. Will the proposal affect existing housing, or create a demand for additional housing?			X
13.	Transportation/Circulation. Will the proposal result in:			
	a. Generation of substantial additional vehicular movement?		X	
	b. Effects on existing parking facilities, or demand for new parking?			X
	c. Substantial impact upon existing transportation systems?		X	
	d. Alterations to present patterns of circulation or movement of people and/or goods?			X
	e. Alterations to waterborne, rail or air traffic?		X	

	Yes	Maybe	No
f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?		X	
14. Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Fire protection?			X
b. Police protection?			X
c. Schools?			X
d. Parks or other recreational facilities?			X
e. Maintenance of public facilities, including roads?		X	
f. Other governmental services?			X
15. Energy. Will the proposal result in:			
a. Use of substantial amounts of fuel or energy?		X	
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy.			X
16. Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
a. Power or natural gas?		X	
b. Communications systems?			X
c. Water?		X	
d. Sewer or septic tanks?			X
e. Storm water drainage?			X
f. Solid waste and disposal?		X	

		Yes	Maybe	No
17.	Human Health. Will the proposal result in:			
	a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
	b. Exposure of people to potential health hazards?			X
18.	Aesthetics. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
19.	Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
20.	Cultural Resources.			
	a. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?			X
	b. Will the proposal result in adverse physical or aesthetic effects to a prehistoric building, structure, or object?			X
	c. Does the proposal have the potential to cause physical change which would affect unique ethnic cultural values?			X
	d. Will the proposal restrict existing religious or sacred uses within the potential impact area?			X

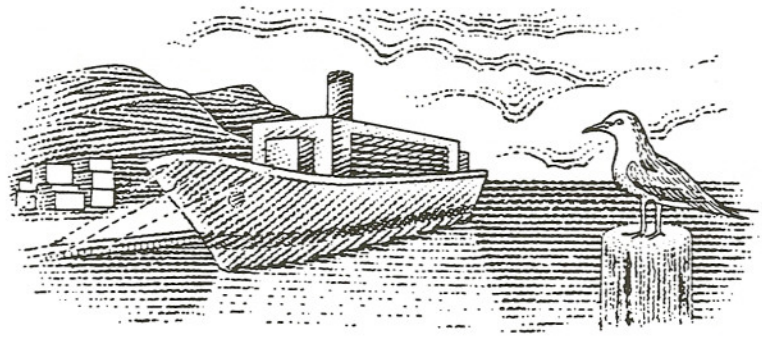
	Yes	Maybe	No
21. Mandatory Findings of Significance.			
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
b. Does the project have the potential to create short-term impacts, to the disadvantage of achieving long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long term impacts will endure well into the future).			X
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant).		X	
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

IV. DETERMINATION:

It has been determined that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

APPENDIX C

Dredging-Related Recommendations from the San Francisco Estuary Project's *Comprehensive Conservation and Management Plan*



Dredging and Waterway Modification

Goals:

- Eliminate unnecessary dredging activities.
- Maximize the use of dredged material as a resource.
- Conduct dredging activities in an environmentally sound fashion.
- Adopt a Sediment Management Strategy for dredging and waterway modification.
- Manage modification of waterways to avoid or offset the adverse impacts of dredging, flood control, channelization, and shoreline development and protection projects.

Problem Statement

Dredging

Each year approximately four thousand commercial ocean-going vessels move through the San Francisco Estuary carrying over fifty million tons of cargo worth an estimated $25 billion. These vessels depend on deepwater ports and shipping channels in the Bay and Delta, which must be dredged annually to maintain their navigability.

Approximately eight million cubic yards (mcy) of sediment is dredged annually in the Estuary. In addition, nineteen mcy of one-time new work dredging has been authorized by Congress for the Oakland Harbor, Richmond Harbor, John F. Baldwin ship channel, and two Navy projects.

In recent years, most dredged materials have been disposed of at one of the three in-Bay sites: near Alcatraz Island, at Carquinez Strait, and in Central San Pablo Bay. Mounding at the region's primary disposal site, Alcatraz Island, revealed the site's limited capacity and caused navigation concerns. To control impacts from in-bay disposal sites, there are restrictions on the quantity, quality, and timing of dredged material disposal.

Concern has been raised about the impacts from dredging activities on aquatic organisms and water quality. Dredged material can disturb or bury benthic organisms, such as clams, worms, or crabs, as well as affect fishing success by increasing suspended sediments at the disposal site. Impacts can also occur beyond the disposal site when currents carry dredged material and associated contaminants to other parts of the Estuary. Organisms can also be impacted by contaminants that are redistributed into the water column during disposal of material.

Because of these impacts, new disposal alternatives must be found that maintain vital shipping and boating activities whil also protecting the Estuary's resources. Each disposal option—in-bay, ocean, and upland—poses its own set of economi and environmental problems that must be resolved.

Waterway Modification

The physical character of the San Francisco Estuary has been drastically altered by human activities. Modification began with hydraulic gold mining in the 1800s, which brought huge quantities of sediment into the Estuary. This additional sediment blocked waterways, causing flooding during heavy rainfall. Since that time, channelization, dredging, and shoreline riprapping, coupled with urban development and construction of flood control projects, have eliminated or degraded wetland and riparian wildlife habitats. Spawning areas for anadromous fish and habitat for both migrating waterfowl and resident wildlife have also been adversely impacted.

Most of the Estuary's historical tidal marshes have been diked or filled and are now used for agriculture, duck clubs, salt ponds, and urban development. These activities have reduced the tidally influenced area by 60 percent and caused most o the remaining major slough channels to silt up. Channelization of streambeds and diking of flood plains have increased seasonal storm flows and changed sediment movement and distribution in the estuarine system. Upland development has contributed to the volume of sediment entering the system and increased the production of pollutants that adhere to the sediments.

A future rise in sea level as a result of global warming could cause increased coastal flooding and erosion. Delta islands would be especially vulnerable to catastrophic flooding because of land subsidence and the risk of levee failure.

Existing Regulatory Structure

The U.S. Army Corps of Engineers (the Corps) has primary responsibility for maintaining navigable waters in the United States. The Corps' review of proposed dredging activities considers impacts of proposed activities on navigation, fish and wildlife, conservation, pollution, aesthetics, and the general public interest. The National Environmental Policy Act (NEPA) of 1969 requires environmental assessment of each permit application and the preparation of an environmental impact statement where the assessment indicates significant environmental impacts. In 1972, Section 404 of the Clean Water Act and Section 103 of the Marine Protection, Research, and Sanctuaries Act (MPRSA) gave the Corps the primary authority to regulate dredging and disposal activities, authority to issue permits for discharge of dredged material into inland and near-coastal waters of the United States, and permitting authority over the transportation of dredged material for dumping into coastal waters and open ocean.

The Clean Water Act and the MPRSA also assign the U.S. Environmental Protection Agency (U.S. EPA) a major role in the management of dredged material. Section 102 of the MPRSA grants U.S. EPA authority to designate ocean disposal sites and cooperate with the Corps in the development of criteria for evaluation of environmental impacts of proposed disposal activities.

Section 404 requires U.S. EPA to perform similar functions in regulation of dredging activities in estuaries and other inland waters. U.S. EPA, in cooperation with the Corps, has developed guidelines for evaluation of environmental impacts of dredged material discharges and responsibility of reviewing permit applications and providing comments to the Corps.

The State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards regulate water quality in California. Activities affecting water quality are evaluated by the State and Regional Boards. As part of the environmental review specified by the Clean Water Act, Section 401 requires state water quality agencies to verify that a dredged material discharge will not violate water quality standards.

The state McAteer-Petris Act (1965) created the San Francisco Bay Conservation and Development Commission (BCDC) and gave it permitting authority for dredging and filling activities in San Francisco Bay. BCDC reviews proposed activities to ensure compliance with the Bay Plan.

The State Lands Commission (SLC) administers public trust lands in coastal waters (within a three-mile state territorial limit) and other tidal and submerged areas. Written authorization from SLC must be obtained prior to dredging or depositing dredged material on lands under SLC jurisdiction.

Various government agencies are involved in the review of dredging applications and provide comments to the Corps. Some agencies providing comments to the Corps include the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Coast Guard, the California Department of Fish and Game, and the California Coastal Commission. Local government agencies have jurisdiction over some types of dredged material disposal activities.

Recommended Approach

A new cooperative effort by state and federal agencies, ports, environmental and fishing groups, and others was recently launched to develop a Long-Term Management Strategy (LTMS) for dredging. The LTMS Project was created in January of 1990 as a multi-participant regional effort to provide a mechanism to build consensus and to support cost-sharing demands. It involves over thirty different participants, including government agencies, environmental organizations, development interests, ports, and fishing organizations. The LTMS Project is led by an Executive Committee of the Corps of Engineers' South Pacific Division Commander, the Environmental Protection Agency's Regional Administrator, the Chairs of the San Francisco Bay Regional Water Quality Control Board and the San Francisco Bay Conservation and Development Commission, and a State Coordinator. This group is regularly advised on pertinent issues by the Policy Review Committee.

The LTMS is designed to develop technically feasible, economically prudent, and environmentally acceptable long-term solutions over the next fifty years. Ocean, in-bay, and upland disposal sites will be evaluated, as well as the potential for using clean dredged materials to create wetlands or restore levees.

Capitalizing on the valuable work of the LTMS Project, most of the dredging activities recommended in this program are drawn from its workplan. In addition, activities to specifically address waterway modification were developed. These include shoreline protection and acquisition of buffer areas. This program is intended to comprehensively address both dredging and waterway modification actions.

Dredging and Waterway Modification Actions

Objective DW-1

Determine the behavior and fate of sediments in the Estuary and adopt policies to manage their modifications.

ACTION DW-1.1

Conduct studies, research, and models of sediment dynamics.

Who: LTMS Project

What: To better understand the behavior and fate of sediments in the Estuary, the following activities have been developed in the LTMS proposed workplan:

- Identify and summarize quantitative models available for application in the Estuary and the current status and variety of existing numerical modeling. As necessary, conduct tracer studies to define the short- and long-term transport of suspended particles from estuarine disposal sites. (LTMS Phase II, Task 3, Work Element F)

- Conduct an annual sediment budget for the period 1956 to 1990 and project next fifty years. Calculate the distribution of in-bay deposits and loss to the ocean by difference between input and net accumulation. Obtain annual maintenance dredging volumes to relate annual sediment supply to maintenance requirements. (LTMS Phase II, Task 3, Work Element F)

- Conduct field and laboratory studies to characterize suspended and deposited sediment. Complete detailed hydrographic surveys of navigation and disposal areas for verification of sediment transport models. (LTMS Phase II, Task 3, Work Element F)

- Measure sediment afflux and influx through the Golden Gate over tidal cycle to determine suspended sediment losses. (LTMS Phase II, Task 3, Work Element F)

- Develop three-dimensional sediment transport models that could be incorporated into existing two-dimensional models. (LTMS Phase II, Task 3, Work Element F)

When: Initiated in July of 1991, with activities to be completed by December, 1993

Cost: Approximately $780,000

ACTION DW-1.2

Conduct studies on sediment changes aimed to define accumulation and erosion processes in marsh and mudflat areas.

Who: U.S. Geological Survey (lead), NOAA, and Regional Water Quality Control Boards

What: Through the National Coastal Plan program, study estuarine sediment dynamics with particular focus on processes acting in near-shore areas. Identify trends in accumulation and erosion sediment and what management practices may be responsible for those trends. Integrate this effort with the LTMS and other sediment research efforts and watershed plans being developed by the RWQCBs.

When: Begin in 1993

Cost: Approximately $2,225,000

ACTION DW-1.3

Adopt policies to manage modification of estuarine sediment production, movement, and deposition.

Who: Lead and responsible agencies under CEQA and NEPA (i.e., U.S. Army Corps of Engineers, Regional Water Quality Control Boards, San Francisco Bay Conservation and Development Commission, and State Lands Commission)

What: Require applicants for waterway modification projects to avoid or minimize, where appropriate, project impacts on sediment production, movement, and deposition through development of erosion and sediment control plans and Corps of Engineers' Clean Water Act, Section 404 permits.

- Condition project approvals to avoid adverse impacts to estuarine sediment dynamics.

When: 1994

Cost: No direct costs

Objective DW-2

Determine the bioavailability of contaminants released by disposal of dredged material through methods such as bulk chemistry assays, toxicity bioassays, and bioaccumulation tests.

ACTION DW-2.1

Conduct laboratory and field bioaccumulation investigations and studies on suspended sediment effects on sensitive life stages throughout the food chain.

Who: LTMS Project

What:

- Prepare a detailed bioaccumulation study plan and conduct field investigations to produce a baseline bioaccumulation survey with conclusions about the levels of aquatic species contamination related to deposited and suspended sediment conditions. (LTMS Phase II, Task 3, Work Element G)

- Conduct tests with pelagic eggs of fish species representative of those that spawn in San Francisco Bay. Eggs/embryos/larvae of other species representative of species that spawn in the Estuary might also be considered.

- Document the distribution of suspended sediment in time and space from individual and multiple disposal activities in relation to long-term background concentrations of suspended sediments in the Central Bay. Hydraulically dredged sediment from hopper dredges and mechanically dredged sediment from barges will be monitored. All the data will be evaluated from a mass balance approach to assess the distribution of disposal-related suspended sediments and the role of disposal operations in the suspended sediment in the Central Bay. (LTMS Phase II, Task 3, Work Element G)

When: December, 1993

Cost: Approximately $250,000

ACTION DW-2.2

Develop and set sediment quality objectives.

Who: State Water Resources Control Board and Regional Water Quality Control Boards

What: Develop a more objective method by which the results of sediment testing may be evaluated. Establish criteria th quantitatively define when test results are considered to be significant in predicting an adverse environmental effect. Establish numerical limits for pollutant levels in material proposed for dredging.

When: Initiated in July of 1991, scheduled to be completed by 1997

Cost: $2,605,000 estimated total ($105,000 federal and $2.5 million state)

Objective DW-3

Develop a comprehensive regional strategy to better manage dredging and waterway modification and ancillary activities.

ACTION DW-3.1

Develop a dredge project needs assessment and, as necessary, a prioritization plan, including structural and nonstructural methods to minimize volume requirements.

Who: LTMS Project

What:

- Compile long-term dredging volume estimates for all federal projects, public and private ports, marinas, and harbors. Prioritize the disposal needs of each individual dredging project. ($25,000)

- Identify alternative dredging practices and general design considerations for new projects and recommend modifications for existing projects to reduce dredged material volumes. Require implementation of the dredging design modifications for all applicable projects through the Clean Water Act Section 404 permitting process. (LTMS Phase II, Task 3, Work Element C) ($22,000)

When: June, 1992, through January, 1993

Cost: $47,000

ACTION DW-3.2

Identify dredged material reuse and non-aquatic disposal opportunities and constraints.

Who: LTMS Project

What:

- Complete a comprehensive inventory of geographic sites that are suitable for reuse and/or disposal alternatives. Include preliminary cost estimates for the range of sites, review existing state or federal bonds available for restoration projects, and identify monetary benefits and intrinsic value to the public of created habitats. Working with local agencies, constraints on potential reuse sites such as laws, regulations, agency policies, engineering impediments, and environmental considerations, including contaminants, wetland impacts, endangered species, etc., will be evaluated. (LTMS Phase II, Task 2, Work Element B) ($200,000)

- Document procedures necessary to evaluate acceptable material type, consistency, and contaminant levels for reuse projects; coordinate with regulatory and resource agencies to share information and achieve agreement(s). Estimate amount of material not acceptable for aquatic and unmanaged or unconstrained non-aquatic disposal. Identify potential benefits and impacts resulting from disposal on terrestrial, wetland, and aquatic ecosystems. Plan and conduct field/laboratory experiments/demonstrations as needed to determine effectiveness and feasibility of dredged material reuse techniques. (LTMS Phase II, Task 3, Work Element D) ($790,000)

- Develop site-specific conceptual reuse/non-aquatic disposal plans. Provide preliminary engineering, with cost estimates, for site improvements, unloading facilities, transportation improvements, site preparation, and maintenance. Develop "value-added" guidelines to determine intrinsic value to the public for restored or created wetlands. Develop "capitalization" programs for dredge material reuse projects, such as federal or state bonds to pay for reuse projects. (LTMS Phase II, Task 3, Work Element E) ($500,000)

- The United States Congress should authorize and appropriate funding for the U.S. Army Corps of Engineers to purchase and implement upland disposal and reuse sites within the Estuary including Sonoma Baylands Project. In addition, incentives should be developed for private disposal and wetland restoration opportunities.

When: January, 1991, to January, 1994

Cost: Approximately $1,640,000

ACTION DW-3.3

Develop regulatory land use procedures to promote reuse of dredged material, wetlands restoration and/or creation, and other beneficial uses.

Who: LTMS Project, local land use agencies, and regulatory agencies

What: Evaluate state, regional, and local land use agencies' long-term plans with respect to promoting the beneficial reuse of dredged material for projects such as wetlands restoration/creation. Make recommendations to local land use agencies for procedures to promote the beneficial reuse of dredged material. Follow up with active effort to obtain adoption of recommended procedures by local agencies.

When: July, 1994

Cost: Approximately $50,000

ACTION DW-3.4

Identify the aquatic and terrestrial resources that are affected by dredging and disposal and are to be protected in the Bay and Delta.

Who: LTMS Project

What: Establish and document existing resources and beneficial uses to be protected. Document health and distribution of resources to be protected. Conduct a two-day intensive workshop on the impacts to resources and beneficial uses caused by dredging. Document effects of dredged material disposal on resources of concern. (LTMS Phase II, Task 2, Work Element A) ($50,000)

When: January, 1992

Cost: $50,000