

Staff Report

Proposed Basin Plan Amendments to implement the Long Term Management Strategy for the Disposal of Dredged Material in the San Francisco Bay Region

June 13, 2001

Background and Existing Conditions

Disposal of dredged material at various sites within San Francisco Bay has been ongoing for at least 100 years and probably dates back to the gold rush era filling of the margins of the Bay surrounding San Francisco. Dredging in the past was used to provide fill material for the expansion of land around the Bay. Today, dredging is necessary to maintain the navigation channels, docks, and marinas in San Francisco Bay because of the deposition of sediments carried to the Bay by tributaries, especially the Sacramento-San Joaquin river system. The need is further exacerbated by the desire to deepen navigation channels and maritime facilities to accommodate increasingly large vessels. The trend to larger vessels has been accelerated in recent years for ports on the West Coast by the increase in trade with Pacific Rim countries. This has removed one of the barriers that had previously limited vessel size, the Panama Canal.

The most common practice for dredged material disposal for the past 20 years has been to place dredged material at in-Bay locations with the expectation that the material would be removed and redistributed by tides and currents. Since at least 1986, dispersive disposal has been limited to five designated disposal sites (Figure 1). Three of these sites, the Alcatraz, San Pablo, and Carquinez sites (SF-11, SF-10, and SF-9, respectively), are potentially available for use by any dredging project. The San Francisco Bar Channel disposal site (SF-8) is for exclusive use by the U.S. Army Corps of Engineers (USACE) for disposal of maintenance material from the San Francisco Bar Channel; similarly, the Suisun Bay site (SF-16) is reserved for material from USACE maintenance dredging of the Suisun Bay Channel and New York Slough federal channels.

As illustrated in Figure 2, the volume of dredged material disposed of at the designated in-Bay disposal sites since 1991 has averaged approximately 2.3 million cubic yards (mcy) per year. This is a reduction from disposal volumes in the 1970's and 1980's. Though the data from those decades is not of sufficient quality to provide accurate estimates of true disposal volumes, it is clear that the volume was more than 8 mcy in some years. The recent reduction in in-Bay disposal volumes is the result of a number of factors, including changes in commercial shipping patterns and competition between ports both in the Bay Area and with other West Coast ports. However, the primary factor in the reduction is the closure of military facilities that had previously required channel maintenance.

The major focus of recent concern about in-Bay disposal of dredged material has been the Alcatraz disposal site. The Alcatraz site has historically received the largest portion of the volume disposed. Figure 3 shows a reconstruction of the Alcatraz site prior to organized disposal activity. Figure 4 shows recent bathymetric data at the Alcatraz site,

illustrating one of the reasons for concern about in-Bay disposal: the potential for disposal to impact the use of the Bay for navigation, a designated beneficial use. The mounding of material at Alcatraz was probably the result of several factors. The first was high disposal volume (more than 8 mcy annually) during the 1980's. The second factor is earlier disposal practices that did not limit material type to dredged sediments. During this period, material other than Bay sediments, such as concrete rubble and construction debris, were placed at the Alcatraz disposal site. This practice may have limited dispersion or removal of material below an "armoring" layer of rubble and debris. These practices were eliminated in the late 1980's and early 1990's with actions by the Board and USACE to restrict the type and volume of material that could be placed at the Alcatraz site.

In addition to the potential for in-Bay disposal to impact the beneficial use of the Bay for navigation, there are additional concerns regarding the potential impacts of turbidity during dredging or disposal and possible impacts related to the mobilization of contaminants. The relationship of the proposed Basin Plan amendments to each of these potential impacts will be discussed in this report.

Concerns about the impacts of in-Bay disposal of dredged material led to the creation of the Long Term Management Strategy for the Disposal of Dredged Material in the San Francisco Bay Region (LTMS) program in 1990, by the USACE, the USEPA, the San Francisco Bay Conservation and Development Commission, the San Francisco Bay Regional Water Quality Control Board, and the State Water Resources Control Board, along with representatives from the dredging, fishing, environmental, and scientific communities. The LTMS was formed to resolve the Bay's "mudlock," a period in the late 1980's when concern by regulatory agencies and environmental and sportsfishing groups about the effects of in-Bay disposal of dredged material were so high that the permitting of disposal projects came almost to a standstill. The LTMS hoped to accomplish this by diversifying disposal options and identifying feasible alternatives to dependence on the in-Bay disposal sites. The goals of the LTMS are:

1. Maintain in an economically and environmentally sound manner those channels necessary for navigation in San Francisco Bay and estuary, and eliminate unnecessary dredging activities in the Bay and estuary;
2. Conduct disposal of dredged material in the most environmentally sound manner;
3. Maximize the use of dredged material as a resource; and
4. Maintain a cooperative permitting framework for dredging and disposal applications.

The federal partners in the LTMS signed a Record of Decision (ROD) in July 1999, certifying (pursuant to the National Environmental Policy Act) a Policy Environmental Impact Statement/Programmatic Environmental Impact Report (LTMS EIS/EIR) describing potential alternative long-term strategies for accomplishing these program goals (the State Board certified the document pursuant to the California Environmental Quality Act in October, 1999). The selected alternative identified in the ROD was to decrease reliance on in-Bay disposal of dredged material and to increase reliance on

disposal in the open ocean and on beneficial reuse of dredged material for uses such as wetland restoration and levee maintenance. The program's long-term goal is to reduce the total volume of in-Bay disposal to approximately 1 mcy per year, with a less-ambitious regulatory maximum (target) of 1.25 mcy per year. The LTMS agencies held a series of public workshops to discuss how to implement this target, and using the feedback received, developed a Management Plan, detailing the mechanisms the agencies proposed for implementation of the LTMS. A draft Management Plan was circulated for public comment in 2000, and a final will be completed by the fall of 2001.

General description of proposed amendments

The proposed amendments would implement the LTMS selected alternative identified in the ROD and further developed in the Management Plan. Additionally, the proposed amendments would provide updates and clarifications to the existing Basin Plan language. In general, the changes proposed fall under four general categories:

1. Changes in the limit on disposal at the designated in-Bay disposal sites;
2. Establishment of a two-phase process of allocation of the reduced in-Bay disposal volumes;
3. Revised permit conditions to reflect requirements of the resource agencies; and
4. Minor changes in definitions and updates.

Need for Amendments and Desired Result

Need: To protect beneficial uses

The proposed amendments are necessary to protect the beneficial uses of San Francisco Bay from the potential impacts of disposal of dredged material in the Bay.

Impacts of in-Bay disposal

During the development of the LTMS EIS/EIR, the Regional Board performed and funded studies to evaluate potential impacts of in-Bay disposal on the beneficial uses of San Francisco Bay. These studies evaluated the impacts of disposal at the existing in-Bay disposal sites, suitability testing for disposal of dredged sediments, and initiated studies to evaluate the fate of material disposed in the Bay. The potential impacts evaluated generally focused on two categories: impacts to navigation and impacts to biota.

Impacts to navigation

The potential for impacts to navigation are relatively easy to detect by the bathymetric monitoring performed by the USACE monthly at the Alcatraz disposal site and quarterly at the other sites. The potential for impacts can be addressed through management of disposal at the in-Bay sites. The impacts of certain dredging practices may affect the potential for mounding at the disposal sites. The proposed amendments would encourage more active site management that may include, for example, restriction on the disposal of

material by grain size or physical properties or disposal in more restricted portions of the designated disposal sites.

Impacts to biota

Impacts to biota can be further subdivided into those caused by mobilization of chemical pollutants and those caused by turbidity.

Mobilization of pollutants

The issue of chemical pollutants has largely been addressed by implementing new sediment testing protocols to evaluate the suitability of dredged material for disposal at the in-Bay disposal sites. These new protocols have greatly improved characterization of the potential toxicity of dredged materials and acceptability for disposal. Additionally, levels of contaminants considered acceptable for dispersive aquatic disposal have, in general, been reduced to near ambient levels. The rationale for this is based on the premise that the disposal of the material does not materially change the level of exposure for organisms. While ambient conditions may not be optimal it is difficult to change them. The proposed amendments would update the latest guidance on sediment testing requirements.

It has proven difficult to quantify the impacts of contaminant mobilization on beneficial uses. This is due in part to the complexity of the Bay system. For example, the transport and deposition of Bay sediments and disposed dredged material by Bay currents are difficult to model accurately, particularly over long time scales and distances. Also, Bay organisms have been impacted by a variety of activities, such as water diversions, historic diking and filling, waste discharges, and other urban activities.

PCB's are one of the constituents for which San Francisco Bay is listed under Section 303(d) of the Clean Water Act, and a TMDL is required. In order to prepare a TMDL, reasonable estimates of the sources of these contaminants must be developed. The five-year review of the Regional Monitoring Program (RMP) identified updating estimates of these loadings as a priority task, and the work has begun. The best estimates of loadings currently available are shown in Table 1. While this information is not yet sufficient to develop waste load allocations, it suggests that dredged material may be a source of PCB's that will need to be included in waste load allocations.

The available information about PCB's in dredged material shows that concentrations are very low. Nonetheless, and even though this material is already in the Bay, it appears that some removal of trace amounts of PCB's is prudent. The LTMS policies call for removal of 80% of the dredged material from the Bay, which will begin to remove or better manage some of the PCB mass. This can be done without creating problems for either the ocean environment or wetland creation because other regulatory requirements will make sure that contaminants are only present in trace amounts.

Table 1. Sources of PCBs to San Francisco Bay, with estimates for overall annual loading from each source.

Sources/Pathways	PCBs Mass Range (Kg/Year)
Atmospheric Inputs	1-100
Bay Sediments-Actively Resuspended*	100-1,000
Bay Sediments-Dredge Material Disposal	25-250
Industrial Wastewaters	0.5-250
Municipal Wastewaters	0.2-600
Surface Waters	100-800
Urban Runoff	?

Turbidity

Impacts of turbidity associated with recent in-Bay disposal rates are extremely difficult to quantify. Current estimates indicate that between 6 and 8 mcy of sediment enter San Francisco Bay from its major tributaries each year. More importantly, it is estimated that winds, tides, and currents combine to re-suspend more than 100 mcy of existing sediment within the Bay annually. The impacts of turbidity on aquatic organisms at levels normal to the Bay environment are difficult to measure. The potential impacts of reduced or impaired migration or lowered reproduction are difficult or impossible to measure in a laboratory. Field studies are of questionable value because the baseline conditions have been so altered that comparison to previous conditions is not possible. However, the potential impacts of any increase in turbidity related to dredging or disposal are intended to be largely avoided or minimized, particularly for anadromous fisheries, by the imposition of additional restrictions on the periods when dredging and disposal can occur without consultation with the United States Fish and Wildlife Service. Limited study of total suspended solids (TSS) has been completed through the Regional Monitoring Program for a small set of stations throughout the Bay. These stations were established and the data is interpreted by United States Geologic Service (USGS). These measurements provide a good surrogate measurement for water-column turbidity. These measurements show high variability in TSS driven by season, tide, and wind. A small-scale review of this TSS data near the San Pablo Bay disposal site was provided by USGS staff and indicated that TSS during disposal could not be distinguished from normal levels of TSS or turbidity.

Summary

Disposal at high volumes increases the risk of adverse impacts and reduction of disposal to low volumes will likely pose negligible risks. However, beyond such documented impacts as the mounding at the Alcatraz disposal site, the actual impacts of dredging and disposal activities on the Bay remain controversial and difficult to quantify. The proposed amendments would adopt the LTMS long-term goal of reducing in-Bay

disposal volumes, and would lead to a decrease of in-Bay disposal, thus decreasing the threats of the practice to beneficial uses of San Francisco Bay.

Desired Result: Reduce threat to beneficial uses

The proposed amendments will reduce the risk of threats to the use of the Bay for navigation by reducing the overall volume of in-Bay disposal, reducing the allowed volume at Alcatraz during periods when natural dispersion is relatively low, and allowing for better adaptive management of Alcatraz to reduce the threat of mounding.

As stated above, the effects of in-Bay disposal on aquatic biota are very difficult to isolate. With the reduction in overall in-Bay disposal volumes, the threats to the organisms are expected to be reduced. The proposed amendments would also reduce threats by implementing new testing protocols, updating monitoring requirements, and placing limits on the timing of dredging and disposal projects in order to protect special status species.

Reduction of in-Bay disposal and increased ocean disposal and beneficial reuse

The proposed amendments would lead to decreased disposal of dredged material in the Bay, and increased use of alternative disposal options: ocean disposal and beneficial reuse of dredged material. These two alternative disposal options are discussed below.

Ocean Disposal

In 1994 the USEPA designated a new deep ocean disposal site (SF-DODS) approximately 50 miles outside of the Golden Gate, past the Gulf of the Farallones Marine Sanctuary, located in waters over a mile deep, off the continental shelf. This designation was the culmination of studies conducted as part of the LTMS. These studies included characterization of water currents and bottom topography as well as sampling and surveys of marine organisms living in and using the potential sites. Currently, up to 4.8 mcv of dredged material may be disposed at the site per year.

Beneficial Reuse

As part of the LTMS, BCDC conducted studies on the potential of beneficial reuse as a viable alternative to in-Bay disposal. The beneficial reuse studies focused on ways to use dredged material as a resource, rather than disposing of it as a waste, thus avoiding many of the problems associated with in-Bay disposal. The three types of projects that the LTMS studies identified as most appropriate for the Bay are habitat restoration, rehandling facilities, and levee maintenance.

The LTMS studies evaluated approximately 100 sites around the Bay and in the Delta for a variety of beneficial reuse projects and found many that have high potential: nine sites with potential for habitat restoration areas using dredged material; eight sites for potential rehandling facilities where dredged material could be stored permanently, if necessary, or dried for construction or landfill use; three landfills where dredged material could be reused; and three Delta Islands where material could be used for levee restoration.

Cumulatively, these sites could provide a significant percentage of the capacity needed for disposal of Bay dredged material and thus diversify disposal options.

Habitat Restoration

Wetland restoration projects usually involve restoration of wetlands in the diked baylands, areas that have been diked from the Bay and are subsided below elevations suitable for the establishment of tidal wetland habitat. Dredged material can be used to raise existing elevations to allow wetland vegetation to establish thereby accelerating the restoration process. Dredged material can also be used to create elevated areas at sites that will be inundated only during maximum high tides or above the reach of the tides. These tidal pannes and seasonal wetlands provide habitat diversity and reestablish a more natural shoreline that can better adapt to sea level rise and other natural processes. Dredged material can also be used to enhance managed wetlands or for other habitat purposes. In the Bay Area, dredged material has been used to restore tidal wetlands at Muzzi Marsh in Marin County, Faber Tract in Santa Clara County, and Salt Pond No. 3 in Alameda County. In 1995, over two mcy of dredged material from the Port of Oakland's 42-foot deepening project were used to restore tidal wetlands at the Sonoma Land Trust's and Coastal Conservancy's Sonoma Baylands restoration site at the mouth of the Petaluma River in Sonoma County. However, diked baylands can also provide existing valuable habitat functions, including seasonal wetlands and resting and roosting areas for shorebirds and migratory waterfowl. The LTMS studies concluded that restoration and other projects need to take into account existing habitat values as part of project planning.

Rehandling Facilities and End Uses

Rehandling facilities are typically areas along the shoreline where dredged material can be readily off-loaded, and subsequently dried and transported off-site for use as construction material or landfill cover. Dredged material use at landfills has significant potential since these sites: (1) need large volumes of cover and capping material, and some landfills have insufficient on-site sources; (2) have limited natural resource value; and (3) are designed to contain contaminants and manage runoff. However, landfills cannot accept material unless it has first been dried. While demonstrating the feasibility of rehandling, existing Bay rehandling facilities are either temporary (e.g., Port of Oakland's Berth 10 facility) or limited to processing relatively small volumes (e.g., Port Sonoma Marina) or material from a specific sources (e.g., San Leandro Marina), thereby limiting the volume of material that can be used in landfills. The LTMS engineering analyses identified that rehandling facilities require deep-water access for barges at all tidal stages, access to utilities, and adequate landside areas in order to be economically viable.

Levee Restoration

The reclaimed islands and other low-lying areas of the Sacramento and San Joaquin River Delta region are surrounded by an 1,100-mile levee system which protects infrastructure, environmentally sensitive habitat, and, by preventing salinity intrusion, the drinking water supply for much of the state. The Delta levees consist mainly of peat material taken from adjacent channels and sloughs. The high organic matter content of

these materials together with inadequate maintenance and construction standards have resulted in decomposition, subsidence and instability of many of the Delta levees.

The state Delta Flood Protection Act of 1988 directed the California Department of Water Resources (DWR) to develop and implement flood protection for the eight western Delta islands. In 1994, the Federal Emergency Management Agency (FEMA) determined that 39 reclamation districts in the Primary Flood Control Zone of the Delta did not fully comply with the state's Flood Hazard Mitigation Plan, which outlines levee rehabilitation standards. The DWR, the Corps, and local reclamation districts have used Bay dredged material to upgrade Delta levees at Twitchell and Jersey Islands, and, most recently, at Winter Island using material from the Corps maintenance project at Suisun Channel. However, concerns about the potential impacts of saline material on a freshwater environment may limit use of Bay dredged material in the Delta.

Specific description of amendments

Below, the specific proposed amendments are described, grouped in four general categories. The description of each amendment is followed by a number that corresponds to numbers in the margin of the redline-strikeout version of the proposed amendments, showing where each proposed modification is incorporated into the Basin Plan.

Category 1: Establish Overall Annual Limit on in-Bay Disposal

1 mcy overall goal

The proposed amendment adopts a long-term goal for in-Bay disposal of dredged material of 1 mcy per year. (1-A)

1.25 mcy target and transition period

The proposed amendment adopts a long-term target of 1.25 mcy per year for in-Bay disposal along with a 12-year schedule for achieving the target. The transition schedule begins by reducing the current in-Bay disposal volume from the current 6.5 to 7.5 mcy per year limit to a limit of 2.8 mcy. The 2.8 mcy per year limit, selected in the ROD is halfway between the annual average and maximum in-Bay disposal volumes in the recent past (between 1991 and 1997). The transition schedule decreases the limit on in-Bay disposal every three years until the final target of 1.25 mcy per year is imposed in the twelfth year of the transition (Figure 5). The limit in each case is expressed, as a three-year average to allow for the inherent variability in dredging and disposal needs. So, for an individual year in any of the three-year periods, the volume of in-Bay disposal may exceed the limit for that step, but the average volume for the entire three-year period must be at or below the limit. (1-B)

Category 2: Establish Two-phase process for allocation of reduced in-Bay disposal volumes

Two-Phase process

The LTMS Management Plan describes a two-phased process to achieve the reduced in-Bay disposal targets described above. Phase I of the process relies on voluntary efforts by all interested parties to help bring online, fund, and use alternatives to in-Bay disposal of dredged material. If voluntary efforts are not successful, Phase II, in which in-Bay disposal will be decreased through the Regional Board's regulatory authority, will be initiated. (2-A)

The Dredged Material Management Office (DMMO), a multi-agency group consisting of staff members from the Regional Board, USEPA, USACE, BCDC, and the California State Lands Commission, reviews proposed dredging projects in the Bay Area and tracks dredging and disposal volumes. The DMMO will publish an annual report containing dredging and disposal volumes, and including an analysis of whether in-Bay disposal targets are being met. If the annual report suggests that targets are not being met or are likely to be exceeded in coming years, the LTMS Management Committee, of which the Regional Board's Executive Officer is a member, may recommend implementation of Phase II. Every third year of the transition, the Management Committee will hold a public workshop to consider the success of the transition. The Management Committee will make a recommendation of whether Phase II should be implemented, or if Phase II is in place, whether it should be rescinded, based on consideration of: success at meeting in-Bay disposal targets, forecasts of future in-Bay disposal needs, and regional efforts to implement alternatives to in-Bay disposal.

The annual reports and triennial reviews will help avoid the need for Phase II by giving all interested parties advance notice of the status of the transition and any problems with meeting the transition goals.

Regional Board Implementation of Phase II

If the Management Committee recommends the initiation or rescission of Phase II, the Regional Board will hold a public hearing and vote on the recommendation. Any action to implement or rescind Phase II would be discretionary, and therefore subject to review pursuant to the California Environmental Quality Act, under the Board's functionally equivalent process. In its consideration of the proposed action, the Board will consider the factors affecting the need for allocations, including (1) the status of alternatives to in-Bay disposal and cooperative efforts to implement them, (2) exigencies that hamper the use of alternative sites, and (3) other relevant factors. If Phase II is implemented, the Regional Board will allocate in-Bay disposal volumes among individual dredgers via general Waste Discharge Requirements for small and medium dredgers, and through individual Waste Discharge Requirements for USACE maintenance dredging work. (2-B)

If Phase II is initiated during the first three-year transition period, allocations to individual medium dredgers and the USACE for each year remaining in the period will be a proportion of the 2.8 mcy in-Bay disposal limit based on their average dredging

volumes over the nine-year period shown in Figure 2. Dredgers may use their total allocation for the three-year period at any point during that period, to allow flexibility in scheduling dredging projects.

Small dredgers are exempt from the allocations due to logistical and economic difficulties they typically face in implementing alternatives to in-Bay disposal, relative to the other Bay dredgers. The average annual in-Bay disposal volumes for all small dredgers, 250,000 cubic yards is constant throughout the transition (Figure 5).

The allocations will not confer or constitute a right to dispose of material in the Bay. If alternatives are available and feasible, then dredgers must use them, regardless of allocations. All dredgers will be able to apply for use of a portion of the annual 250,000 cubic yard contingency volume each year in addition to their allocation. This volume is reserved for unanticipated dredging needs and emergency situations. Dredgers wishing to dispose of material in the Bay in excess of an allocation must provide detailed documentation to show that they cannot use any alternative disposal location, that they cannot wait to dredge until additional allocation is available, and that disposal in the Bay has little chance of causing environmental impacts.

Allocations for the ensuing three-year periods will be equal to the dredgers' proportions of the reduced total in-Bay disposal volumes for those periods.

This phased approach emphasizes cooperative efforts, while still providing a mechanism to achieve the in-Bay disposal goal if those voluntary efforts are not successful. Regional Board staff will work with the other LTMS agencies and interested parties to implement the transition. These efforts will involve regional planning to coordinate dredging projects, for example to reduce "spikes" of in-Bay disposal simply because several routine maintenance projects are scheduled for the same year.

Category 3: Revised permit conditions to reflect requirements of the resource agencies

The California Department of Fish and Game, the U. S. Fish and Wildlife Service, and the National Marine Fisheries Service have made recommendations on the timing of dredging and disposal projects in order to protect special status species and important commercial and recreational species and their critical habitat, under the state and federal Endangered Species Acts. In addition, through participation in the Dredged Material Management Office, these resource agencies may make project-specific recommendations to protect the biological resources of the Bay and surrounding areas. The proposed amendments clarify that Regional Board permits for dredging and disposal projects will include compliance with such recommendations as permit conditions. These recommendations include, but are not necessarily limited to environmental windows adopted in the federal Record of Decision for the LTMS, and provided by the Resource Agencies. (3-A and 3-B)

Category 4: Minor Changes in Definitions and Updates

Update of background text

The proposed amendments provide extensive updates of the existing background information on dredging and dredged material disposal. (4-A)

Need for regional and local monitoring: Update

Management and monitoring efforts are necessary to help us understand and address the impacts of dredging and disposal. The RMP, which is funded in part by dredgers, provides information on the effects of contaminants in San Francisco Bay. The in-Bay disposal sites have a more limited monitoring program, while efforts for beneficial reuse sites are typically prepared on a case-by-case basis. The LTMS agencies, intend to improve and standardize monitoring programs for all disposal sites where Bay dredged material is placed. An LTMS workgroup has been established and is working on improved monitoring program for the in-Bay sites. Beneficial reuse site monitoring guidelines will then be prepared, based on the specific management and monitoring plans that are developed for the Montezuma, Hamilton, and other beneficial reuse projects. The proposed amendments update the policy on the need for regional and local monitoring, clarifying role of the RMP in meeting regional-scale monitoring needs and stressing the importance of site-specific monitoring programs at the designated in-Bay disposal sites. (4-B)

Material Disposal Restriction: Updated to encourage adaptive management of disposal sites

The proposed amendment would update the restrictions on disposal of material at the in-Bay disposal sites to clarify that more specific restrictions may be imposed through adaptive management of the sites. (4-C)

Implement reduced monthly volume at Alcatraz disposal site: Update

The USACE is responsible for managing the in-Bay disposal sites. Through their management and monitoring of the mound at the Alcatraz disposal site, the USACE determined that disposal volume limits at Alcatraz needed to be lowered during low-flow (summer) months to prevent build-up of material at the site. This proposed amendment updates the monthly volume target to be consistent with USACE restrictions. (4-D)

Modify small dredger definition to be consistent with other LTMS agencies

The LTMS Management Plan defines “small dredgers” as those whose projects have a maximum depth of –12 feet Mean Lower Low Water and with an average dredging volume of below 50,000 cubic yards per year. This proposed amendment would modify the Basin Plan’s definition to be consistent with those of the other LTMS agencies. (4-E)

Add requirement for alternatives analysis: clarification

This proposed amendment adds language to clarify the existing requirement (pursuant to Section 401 of the Clean Water Act) that disposal of dredged sediments in waters of the

U.S. is permissible only if the project proponent demonstrates, through an alternatives analysis pursuant to Section 404(b)(1) of the Clean Water Act, that there is no other less damaging practicable alternative to the proposed fill. (4-F)

Use of testing guidelines: update to incorporate latest federal guidance, add our plans for upland document, RIM

In 1998, the USACE and EPA issued new guidelines for evaluating the suitability of dredged material proposed for disposal in inland waters of the U.S., such as San Francisco Bay. The LTMS agencies have committed to produce a single document, a Regional Implementation Manual, outlining procedures for evaluating the suitability of dredged sediments for all disposal environments. The proposed amendment updates the reference to the federal testing guidelines for in-Bay disposal and states the Regional Board's intention to participate in the development of the Regional Implementation Manual. (4-G)

Policy on land and ocean disposal: update on coordination with Region 5

One of the potential beneficial reuses for San Francisco Bay dredged sediments is for maintenance of levees in the Delta. Most of the Delta lies within the jurisdiction of the Central Valley Region (Region 5). Some obstacles need to be overcome for this potential beneficial reuse option to be widely available, mainly Region 5's concerns about the possibility that Bay sediments may introduce unacceptable salt loads into the Delta must be addressed. This proposed amendment updates language regarding our plans to continue to work with Region 5 to address these concerns. (4-H)

Policy on permit coordination: update

This portion of the proposed amendments provides a minor update to text about the DMMO, which the Regional Board has been participating since 1995. (4-I)

Updates to Plans and Policies

The references to various Regional Board Resolutions in Chapter 5 would be updated to reflect the current status of sediment testing guidelines, and the coordinated permitting process of the Dredged Material Management Office. This would also remove some specific policies that have been superseded by the actions of other agencies. (4-J)

Re-number tables

A new Table, Table 4-16, is part of the proposed amendments. Therefore, existing Tables 4-16 through 4-19 would be renumbered, and references to the tables updated. The contents of these tables would not be altered. (4-K)

Impacts of amendments and compliance

Environmental impacts

Compliance with restrictions implemented through the proposed amendments is not anticipated to lead to significant adverse environmental effects. The result of the

amendments should be a decrease in in-Bay disposal of dredged material, and an increase in ocean disposal and beneficial reuse of dredged material. The attached Functionally Equivalent Document (Appendix A) show that with the described mitigation measures, the proposed amendment will not lead to significant environmental impacts.

Economic impacts

This section is intended to summarize the consideration of potential impacts that were considered when formulating this policy. The consideration of economics is required by CEQA. However, since this policy change does not include water quality objectives the water code requirements for a more detailed economic analysis that considers specific factors is not required and is not included.

The economics of dredging are currently controlled by the process of obtaining a cost sharing agreement with the primary federal agency responsible for maintaining navigation channels in the Bay, USACE. This agreement allows USACE, as the federal partner in a project to provide funding for a specified portion of a project, with the local sponsor responsible for the remaining cost. This agreement, the manner in which the federal interest, and percentage of the cost borne by the USACE in a project is determined, is a complex process beyond the scope of this report. However, any potential evaluation of economic impacts on dredging cannot ignore the overriding control that the federal interest and cost share basis has on local projects. This introduces an element of economics that is beyond this policy, however the policy is intended to be reviewed every 3 years and the economics of dredging and the status of federal cost sharing for the planned reuse projects will be evaluated in each revision cycle.

The program, as currently proposed does not have direct economic impacts to baseline dredge operations. This conclusion is based on two parts of the current proposal, first the voluntary nature of the initial program, which relies upon the largest dredger, the USACE, to voluntarily place material for wetland restoration or enhancement, or ocean disposal, rather than at in-bay disposal sites. The increased cost is borne by the USACE. This will affect the budget of the USACE but will, presumably, not affect the maintenance of navigation channels and harbors. This presumption is based on the current baseline, which provides additional funding for projects that achieve an environmental benefit, that is the project baseline is changed by increasing the project value by including the value of habitat restoration and projections by USACE that their budget with augmentation for this environmental benefit will allow them to achieve this goal. The federal budget process and existing programs and funding, none of which provide certainty of funding, govern this.

The second portion of the area that has been evaluated is the impact on small dredgers. These projects are allotted a separate disposal volume (250,000 yds³/year), and this volume is essentially a control or planning volume that will not be restricted. This should provide continued access to in-Bay disposal sites for small dredging projects with economic conditions similar to the current baseline. The impact on the current baseline of changing business conditions, unrelated to this policy, for dredge contractors and the differences in equipment availability is difficult to project. The cost for small dredging projects varies by year and is affected by equipment availability, competition from other projects, and the overall size of the market for service. Some of these factors may be

influenced by this proposed policy and result in an indirect effect on the cost of small dredging projects, however these are market driven forces, and cannot be quantified at this time.

One area that may have economic impact is on new work projects, loosely defined as projects that are not included in the historic database, typically resulting from expansion of existing facilities or creation of new facilities at ports or marinas. The most advanced new project in the Bay area at this time is the Port of Oakland expansion. This project has been planned to be consistent with the proposed policy and includes a mix of innovative disposal for habitat creation, disposal for wetland construction and restoration and diversion of some material to landfill or other approved disposal locations. The current estimated cost (all costs are approximate) for the Port of Oakland deepening project for all disposal options are listed below.

Middle Harbor	\$5.00/cy
Alcatraz:	\$8.00/cy
Ocean	\$14.00/cy
Hamilton	\$18.00/cy
Montezuma	\$20.00/cy
Berth 10/Landfill	\$50.00/cy

Through careful planning and a long pre-planning phase the average disposal cost, with a mix of volumes going to Middle Harbor, Montezuma, Hamilton, onsite reuse, and Landfill, is projected to be similar to disposal at the in-Bay dispersive sites. That is, by combining innovative lower cost alternatives, with the more expensive restoration projects and the high cost of removing material that is unacceptable for reuse or dispersive disposal, the project plan has provided a disposal cost similar to disposal at Alcatraz. This model shows the presumption that the policy is based on regarding *new work projects*, which is that through careful planning and with the long project lead times related to these new projects, at least one new project has minimized or avoided economic impacts as a result of the proposed policy.

Conclusions

These proposed amendments are the final step in a ten-year process and the first step in a continuing plan to reduce in-Bay disposal, while increasing the beneficial reuse of dredged material. For the path forward to be a success will require the continued cooperation of not just the five agencies that were part of the process so far, but must include new agencies as key partners. These include the resource agencies, the CalFed agencies that are not included, and the Coastal Conservancy. The continued cooperation of both proponents of projects that include dredging and members of the environmental community will also be necessary for success.

There are a number of outstanding tasks that are identified as continuing actions in the LTMS Management Plan that will require the participation of Board staff that are key to maintaining the cooperative nature of the LTMS program and process. These include:

1. Continuing to meet as a group to discuss and make recommendations regarding applications for dredging projects received by any of the LTMS agencies,
2. Commitment to the ongoing process to develop appropriate reuse sites,
3. An ongoing program to develop appropriate disposal site monitoring requirements and more active site management plans, and
4. The development of improved and clearer suitability criteria for in-Bay disposal and beneficial use.

The proposed amendments would result in lower volumes of in-Bay disposal of dredged material. The proposed amendments will protect the beneficial use of navigation for the Bay. While there is a great deal of uncertainty about the magnitude of impacts that current disposal levels have on the Bay's biological systems, via turbidity, and mobilization of contaminants, including bioaccumulative substances, it is clear that reducing disposal volume will reduce the potential for impacts. Staff recommends that the Board move forward with the proposed amendments that provide for voluntary reductions in disposal volumes and a process for recommending future actions that may include mandatory reductions, if necessary.

Acronyms

BCDC	San Francisco Bay Conservation and Development Commission
DMMO	Dredged Material Management Office
DWR	Department of Water Resources
FEMA	Federal Emergency Management Agency
LTMS	Long Term Management Strategy for the Disposal of Dredged Material in the San Francisco Bay Region
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
ROD	Record of Decision, Federal document memorializing decisions, usually based on environmental documents.
RWQCB	San Francisco Bay Regional Water Quality Control Board
EIS/EIR	Environmental Impact Statement/ Environmental Impact Report

FIGURES

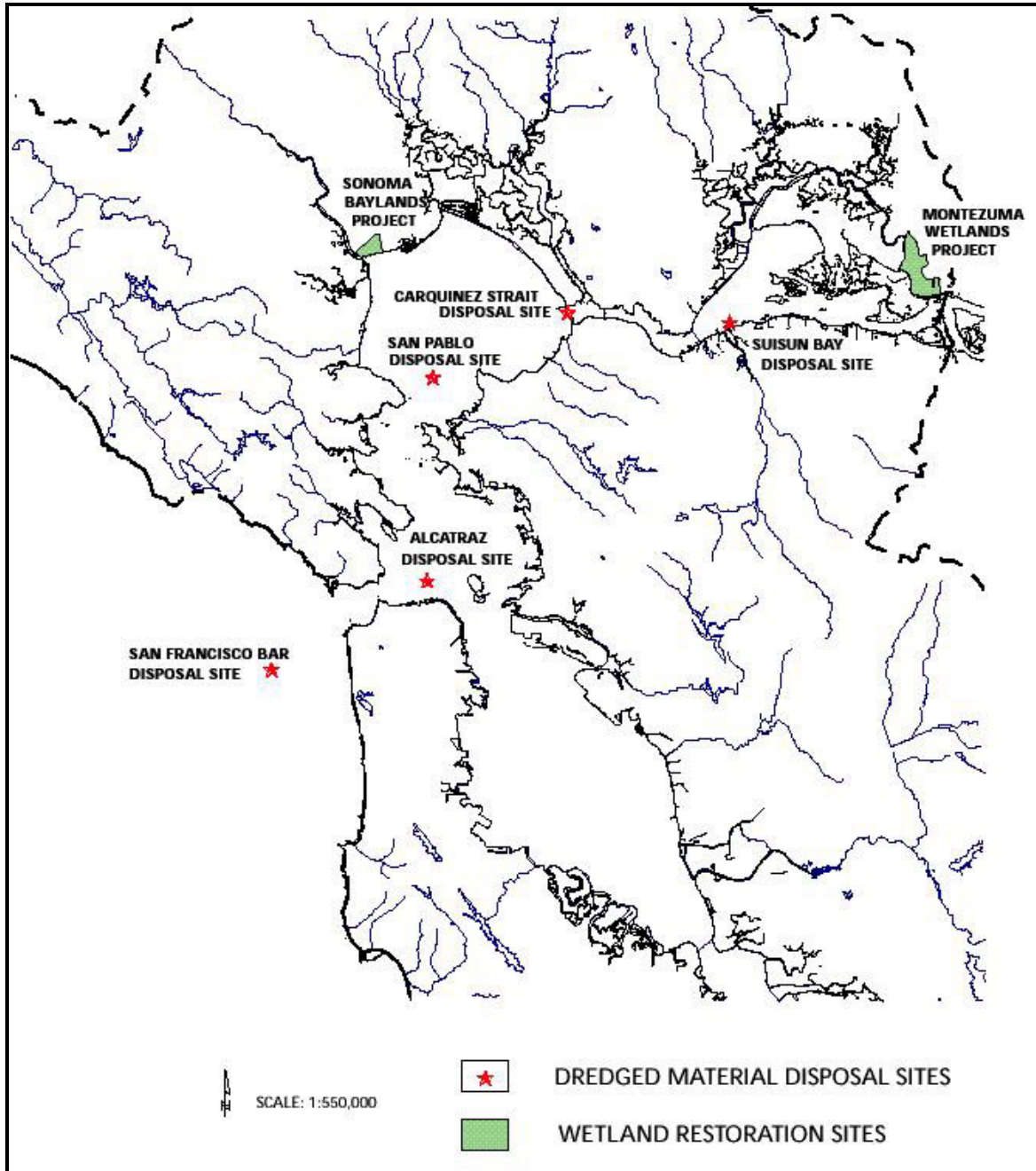


FIGURE 1. Locations of Bay Area Aquatic dredged material disposal sites and two wetland restoration projects. The Sonoma Baylands wetland restoration project has already been completed. The Montezuma wetland restoration project is expected to begin construction in 2002.

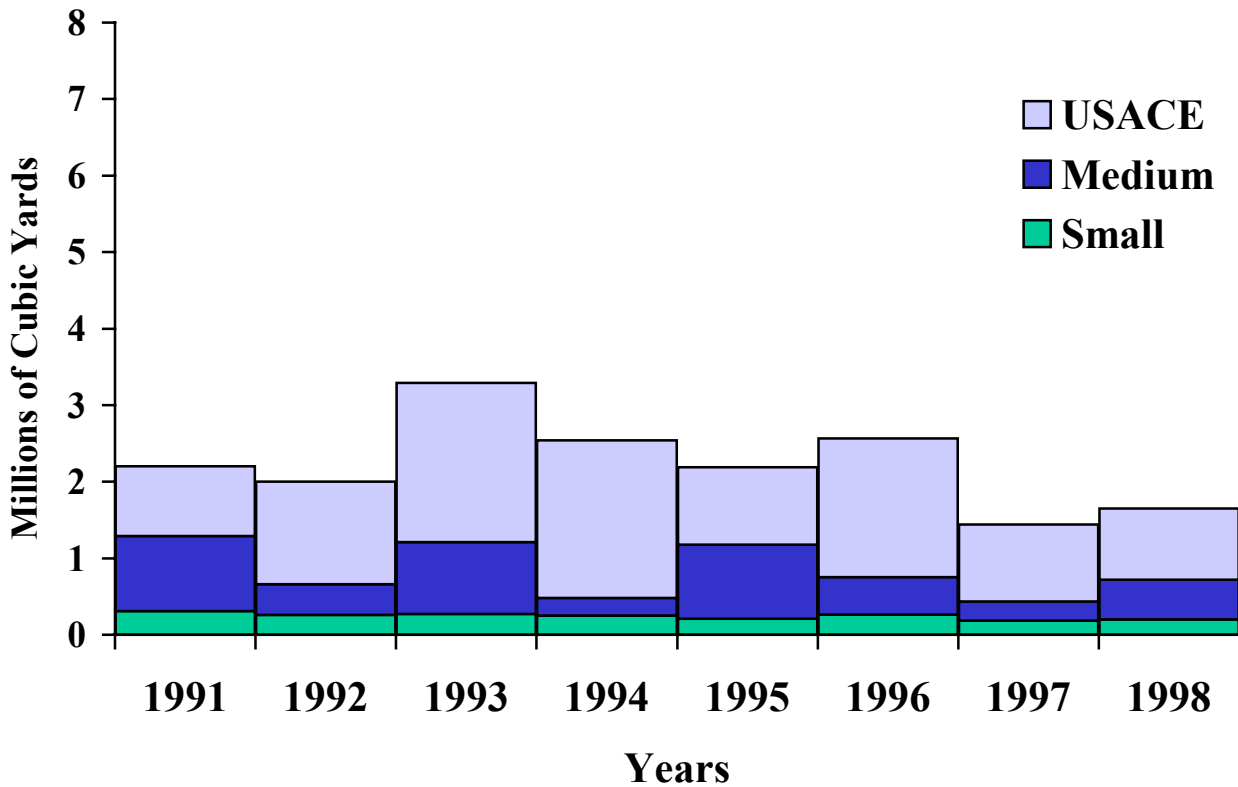


FIGURE 2. Recent volumes of in-Bay disposal of dredged material at the four multi-user aquatic disposal sites. **Small** projects are those that are dredged to a depth of less than -12 feet mean lower low water and with an annual average volume of less than 50,000 cubic yards of dredging. **Medium** projects are those that are either dredged deeper than -12 feet mean lower low water or have average annual dredging volumes greater than 50,000 cubic yards, or both, but that are not federally maintained channels. **USACE** projects are those carried out by the USACE to maintain federal navigation channels in San Francisco Bay.

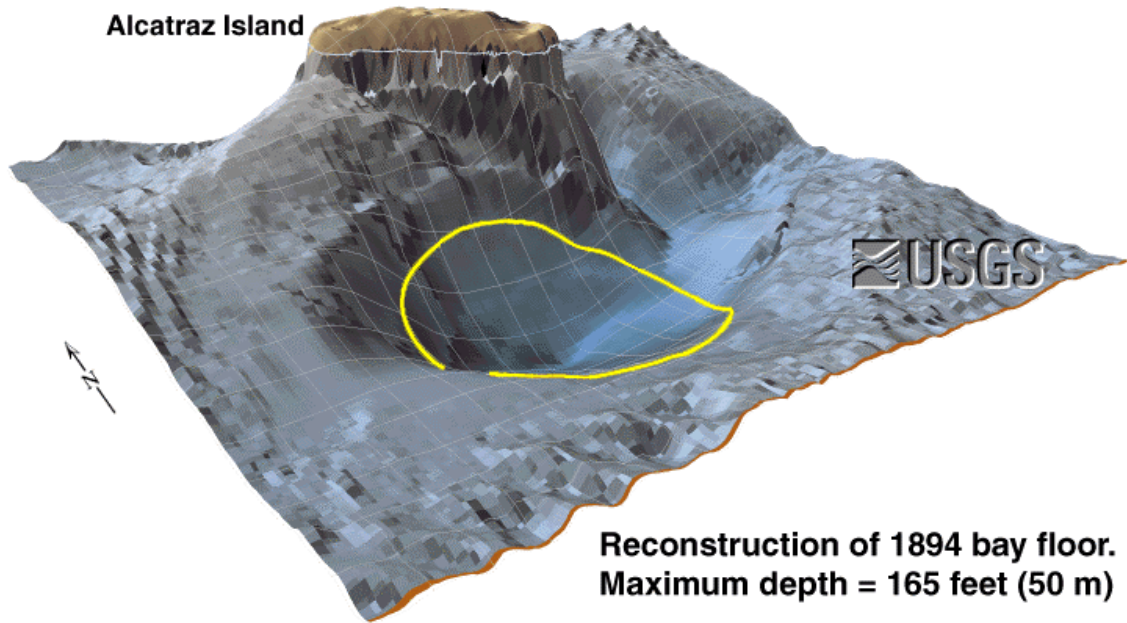


FIGURE 3. Reconstruction of the Bay Floor near Alcatraz Island in 1894. The current boundary of the Alcatraz Disposal site (SF-11) is delineated.

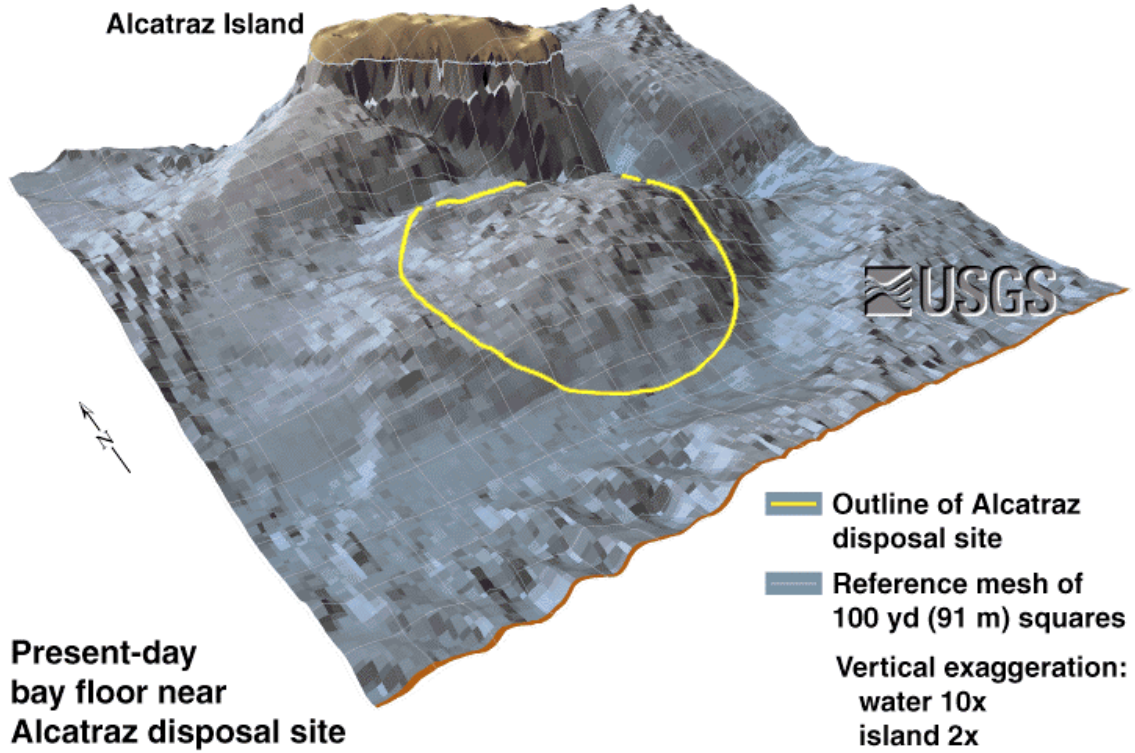


FIGURE 4. Bathymetry of the Bay Floor near Alcatraz Island today. Again, the current boundary of the Alcatraz Disposal site (SF-11) is delineated.

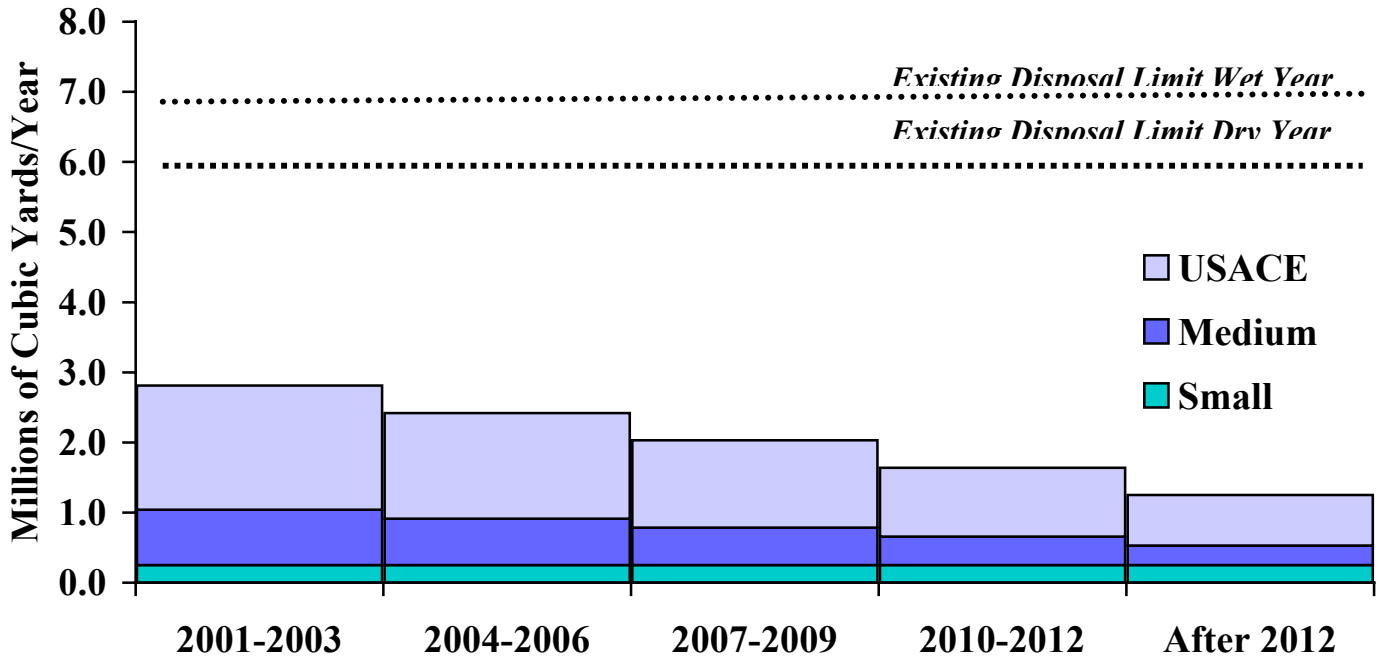


FIGURE 5. Transition period. The targets for in-Bay disposal volumes for each type of dredging project (small, medium, and USACE, described in Figure 2, above), lead to decreasing targets for overall in-Bay disposal volumes. After 2012, the long-term LTMS target of 1.25 million cubic yards per year is achieved. These targets will be implemented through a voluntary program initially, but a mandatory allocation of in-Bay disposal volumes may be used to implement these volumes if the voluntary program is not successful.