

LONG TERM MANAGEMENT STRATEGY



ISSUE PAPERS *Allocation Strategy* *Dredging and Disposal Constraints* *September 17, 1999*

The two attachments provided here are to help the interested parties prepare for the upcoming LTMS Management Plan workshop on September 17, 1999.

Attachment No. One is a copy of an issue paper regarding the Allocation Strategy that was presented at an earlier LTMS Management Plan workshop held on December 3, 1998. The issues raised in this paper will be re-visited at the September 17, 1999, workshop, and be used to discuss further potential allocation strategies as well as potential revisions or changes to earlier concepts.

Attachment No. Two summarizes Bay Area dredging and disposal biological "windows." The federal *Endangered Species Act* (ESA) requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS), to ensure that their actions are not likely to jeopardize the continued existence of federally-listed endangered or threatened species or result in adverse impacts to critical habitat. Similarly, the *California Endangered Species Act* requires that each lead state agency consult with the California Department of Fish and Game (CDFG) to ensure that their action is not likely to jeopardize the continued existence of any state-listed species.

Since 1993, the LTMS agencies have consulted with the three resource agencies, FWS, NMFS, and CDFG, to identify the species of concern located within the LTMS Planning Area. The LTMS agencies also entered into formal consultation with the resource agencies to: (1) identify potential impacts to sensitive species from dredging and aquatic disposal operations; and (2) develop a set of common guidelines to avoid and reduce adverse impacts to species of concern from dredging and disposal activities and establish a more predictable regulatory environment. These consultations resulted in three biological opinions which identify the species of special concern, the resource agencies' restrictions on the timing and design of dredging and disposal projects, and resource agency consultation and permit requirements.

Tables 1 and 2 (attached) summarize these restrictions. At the identified locations and within the restricted periods defined in these tables, consultation with the resource agencies is necessary before permits may be issued. Table 3 (attached) is an example of how timing of dredging projects might be affected by the biological "windows." The table shows the timing of the fish windows in relation to several project types: federal (Corps), major dredgers (which dredge annually), and intermittent dredgers. If a project is timed to fall within a "window," resource agency consultation would not be needed. Alternatively, if the project falls outside the window, consultation would be required. Thus, a project such as the federal Richmond Outer Harbor and Pinole Shoal would fall outside the window thereby requiring a consultation.



LONG TERM MANAGEMENT STRATEGY

DISCUSSION PAPER (NO. TWO)

Proposed In-Bay Allocation Strategy

November 16, 1998

The *Final Environmental Impact Statement/Programmatic Environmental Impact Report (EIS/R) for the Long Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region* presents potential mechanisms for implementing the preferred alternative. The preferred alternative involves distributing dredged material amongst the in-Bay, Upland/Wetland Reuse (UWR), and ocean environments under a 20/40/40 percent formula, respectively, with a goal of ultimately disposing a maximum of 1.0 million cubic yards (mcy) of dredged material per year in the Bay.¹ A preliminary discussion regarding potential mechanisms for implementing the preferred alternative was presented in the Final EIS/R for the LTMS.

The transition from present disposal practices to the 20/40/40 distribution will be implemented over a period of twelve years in order to reduce economic dislocations to dredgers by allowing time for new UWR sites to come on-line, new equipment and practices to be implemented, and funding mechanisms and arrangements to be established. In addition, the preferred alternative will be implemented by: (1) using a starting point of 2.8 mcy as the starting point for the volume of material allowed for in-Bay disposal (mid-way between 3.3 mcy and 2.3 mcy, the historical (1991-1997) maximum and average, respectively, volumes disposed in the Bay); (2) allocating in-Bay disposal site capacity between three dredger types: small, medium, and U.S. Army Corps of Engineers (COE); and (3) setting overall in-Bay disposal volume limits (the sum of medium and COE average annual allocations and the average annual volume expected to be generated by small dredgers) that decrease every three years throughout the transition period.²

On July 8, 1998, a scoping meeting was held to present and discuss the following potential strategies for implementing the preferred alternative:

1. Total Allotments Over a Multi-Year Period With Trading. As a part of this strategy, each medium and COE dredging project sponsor would receive an in-Bay disposal allotment, mid-way between their seven-year in-Bay disposal average volume and seven-year maximum volume (derived from 1991-1997 disposal volumes), which could be used over a multi-year period or traded with other medium and COE dredgers;

¹ It should be noted that the "target" of 1.25 mcy is slightly less ambitious than the goal of 1.0 mcy, as noted on Figure 1. This allows more flexibility in the event historical average dredging and in-Bay disposal patterns change due to climatic conditions, etc..

² For planning purposes: small dredging projects have been defined by a dredging depth of less than -12 MLLW and generating less than 50,000 cy per year as a long-term average; medium dredging projects by a depth greater than -12 MLLW and/or average annual long term volumes greater than 50,000; and COE projects as those maintained by the COE. It should be noted that dredging project definitions will be further clarified in the Draft LTMS Management Plan.

2. **Average Annual Allotments With Trading and Without Banking.** Under this strategy, each medium and COE project sponsor would receive an annual in-Bay disposal allotment, mid-way between their seven-year (1991-1997) average and seven-year maximum volume, that could be used over a one-year period only or traded with other medium and COE dredgers;

3. **Average Annual Allotments With Trading and Banking.** Under this third strategy, each medium and COE project sponsor would receive an annual in-Bay disposal allotment which could be used over a one-year period only, banked for use at a later time, or traded with other medium and COE dredgers;

4. **First-come, First-served.** This strategy would involve allowing project sponsors to dispose of material at in-Bay sites on a first-come, first-served basis until the in-Bay disposal volume limits and target volumes for each in-Bay site had been met;

5. **Reduced In-Bay Disposal of COE Maintenance Material To Achieve Volume Targets.** Under this strategy, the maximum volume of COE maintenance material in any one year would be taken to UWR or ocean sites in order to meet the in-Bay disposal volume goal.

These five potential strategies also had several features in common including: (1) an exemption from in-Bay disposal volume limits for small dredgers; (2) a contingency set-aside at in-Bay disposal sites for emergencies; and (3) an in-Bay disposal fee to monitor and manage sites. (A more detailed discussion of these five strategies is presented in *Discussion Paper: Potential In-Bay Allocation Strategies*, July 3, 1998.) In addition, two other strategies were proposed at the July 8, 1998, scoping meeting:

6. **Free Market System (Mr. Ed Ueber, Farallones National Marine Sanctuary).** Under this strategy, in-Bay disposal allotments would be sold to dredging project sponsors using an open-bid process, thereby getting away from giving and basing allotments on a historical "right;" and

7. **Decreasing In-Bay Disposal (Mr. Keith Nakatani, Save San Francisco Bay Association).** This strategy would use incentives aimed at decreasing in-Bay disposal over time.³

The comments regarding these potential implementation strategies raised at both the July 8, 1998, scoping meeting and in letters received following the meeting (Attachments 1-5) primarily focused on:

- a. The difficulty—from an administrative standpoint—of tracking allotted volumes actually disposed in the Bay;
- b. The potential navigational and economic impacts of *any* restrictions on in-Bay disposal on proposed dredging projects;
- c. The problem of using one-year—as opposed to multi-year—allotments particularly for areas not dredged on an annual basis;
- d. The value of a multi-year strategy involving banking and/or trading in light of the potential for longer-term planning and consequently, reliability;
- e. The consequences of strategies involving banking allotments which in turn might result in fewer incentives to trade;
- f. The inherent "unfairness" of a first-come, first-serve strategy;

³ Specific incentives were not presented at the July 8, 1998, meeting.

- g. The potential navigational impacts resulting from a strategy focused on the disposal of COE maintenance material out of the Bay since use of UWR and ocean disposal options would depend on available funding;
- h. The perceived "preferential" treatment of small dredgers over COE and medium dredgers in light of the proposed exemption from in-Bay disposal restrictions;
- i. The existing difficulties regarding use of UWR and ocean disposal options and absence of clear direction as to how feasibility of use would be improved over time;
- j. The necessity of increasing UWR and ocean disposal options over time in order to decrease in-Bay disposal volumes;
- k. The reason for establishing the starting point at 2.8 mcy when in-Bay disposal volumes for 1997 were considerably less, approximately 1.5 mcy;
- l. the potential redundancy of an in-Bay disposal fee with the existing Regional Monitoring Program (RMP) fees; and
- m. the fact that any strategy should ultimately discourage dredgers from disposing material in the Bay.

In response to comments raised to date regarding the potential strategies presented at the July 8, 1998, scoping meeting, a new strategy has been developed. The proposed strategy recognizes many of the concerns raised during the public comment period in that it: (1) gives dredging project sponsors multi-year—as opposed to one-year—in-Bay disposal allotments; (2) recommends potential initial steps for addressing limited UWR options; and (3) allows for trading and banking of allotments between dredgers to allow for greater flexibility and better planning.

However, some features of strategies presented at the July 8, 1998 meeting, which received an unfavorable response from several members of the public have been retained as a part of the proposed strategy. For example, the proposed strategy includes a small dredger exemption from in-Bay disposal volume restrictions in the event UWR or ocean disposal options are not feasible, as a way to minimize economic impacts on those entities which historically have generated and disposed relatively small and, typically, infrequent volumes of material in the Bay. Regarding setting the starting point at 1.5 mcy per year as a mechanism for decreasing in-Bay disposal volumes from the outset of the transition, the proposed strategy retains a starting point of 2.8 mcy. This figure, which is mid-way between the seven-year (1991-1997) maximum volume and seven-year average volume, allows for some flexibility in annual dredging and disposal volumes which can vary from year-to-year depending on climatic conditions, sediment loads, and economic variables.⁴

Proposed Strategy: Total Allotments Over a Multi-Year Period With Trading and Banking

1. **Small dredger exemption.** Small dredgers would be exempt from any in-Bay disposal allocations, and thus would be allowed to dispose in the Bay as long as there are no UWR or ocean alternatives. Each small dredger would therefore be required to determine and document whether UWR and ocean disposal alternatives could be used as a part of the permit application process to the Dredged Material Management Office (DMMO). Between 1991 and 1997, an annual average of approximately 250,000 cubic yards (cy) were dredged by the small dredgers. Therefore, it is anticipated that an average of 250,000 cy per year capacity at in-Bay sites would be needed to accommodate the small dredgers.

⁴ The 2.8 mcy starting point figure is the sum of the medium and COE average annual allocations and the average annual volume expected to be generated by small dredgers.

2. **Medium and COE dredgers.** At the beginning of the transition to the preferred alternative, each medium and COE dredging project sponsor would receive an in-Bay disposal volume allocation mid-way between their seven-year average and seven-year maximum volumes derived from their 1991-1997 disposal volumes. Accordingly, the overall in-Bay disposal volume limit would initially be set at 2.8 mcy, which is the combined total of the medium and COE average annual allocations and the average annual volume expected to be generated by small dredgers. In order to implement the goals of the preferred alternative, individual medium and COE allocations would be reduced every three years. Consequently, the overall in-Bay disposal volume limit would be reduced; a reduction of approximately 380,000 cy every three years would result in achieving the in-Bay disposal volume goal of 1.0 mcy in twelve years. (Figure 1)

The total volume allotted to each medium and COE project sponsor could be used for a single dredging episode or a series of episodes over a three-year period. Dredging project sponsors could dispose their allotted volume at any time during the three-year period as long as the total in-Bay disposal limit was not exceeded. Medium and COE dredgers would be required to determine whether UWR and ocean disposal alternatives could be used as a part of the permit application process through the DMMO; in the event either alternative could be used, in-Bay disposal would not be allowed. Once a project sponsor had used their total in-Bay disposal allocation for any three-year period, no material from subsequent dredging episodes could be disposed in the Bay during that period unless trading occurred. Instead, any material in excess of the allocated in-Bay disposal volume for that three-year period would require use of alternative disposal options or trading of disposal allocations.

3. **Trading and Banking.** Any unused portion of a particular volume allotment could be exchanged between medium and COE dredging project sponsors. It would be up to the discretion of project sponsors to make these exchanges. In the case where an "exchange" had occurred, DMMO permit applicants would be required to provide evidence and verification from another dredger that all or a portion of their allotted in-Bay disposal volume had been granted to the applicant.

Medium and COE project sponsors might also choose to "bank" their dredging allotments from one three-year period to the next so as to reserve sufficient volume for a future in-Bay disposal event. However, unless used during the subsequent three-year period, these credits would essentially "expire" at the end of that period and could not be carried any further into the future. In addition, banked volumes carried from one three-year period to the next would be reduced to reflect reductions in individual three-year allotments and the overall in-Bay disposal volume limit.

Dredging project sponsors whose volume allotment would not allow all of the volume generated from a project to be disposed in the Bay, and who might be unable to obtain additional in-Bay volume allotments from other dredgers or who had used up any reserved volumes under the banking system, would need to find alternative disposal sites. Because of their exemption, small dredgers would not be a part of this trading and banking system.

4. **Contingency Allotment.** In each three-year period, a specific volume of in-Bay disposal site capacity would be reserved to allow for in-Bay disposal in the event of an emergency. Up to 250,000 cy per year would be reserved at in-Bay disposal sites for potential contingencies. As shown in Figure 1, the contingency allotment would not affect volume allocations for medium or COE dredgers or the small dredger exemption but would exceed the overall in-Bay disposal volume limit.⁵

⁵ The types of emergency conditions approved under the contingency allotment will be defined in the Draft LTMS Management Plan.

5. **Site monitoring disposal fees.** Disposal fees would be administered in order to analyze more fully the impacts associated with on-going dredged material disposal activities at the existing in-Bay disposal sites. The fees would be used to conduct an Ecological Risk Assessment over the 12-year transition period. The fee would vary according to the volume disposed with those generating smaller volumes paying lower fees per cubic yard and those dredging larger volumes paying higher fees per cubic yard. As such the fee would be proportionate to the level of use and potential for impacts. This fee would not be intended to supplant the existing Regional Monitoring Program (RMP) fee, but instead would be used to complement efforts currently funded through the RMP fee. It should be noted that a new fee would require state legislation prior to implementation.

6. **UWR Site Development.** Implementation of the proposed strategy is highly dependent on, among other things, the availability of disposal and/or reuse alternatives to in-Bay disposal sites. The federal deep-ocean disposal site (SF-DODS) currently has an annual capacity of 4.8 mcy. At the end of 1998, a permanent site disposal limit and designation is expected. Although, several UWR projects have been implemented to date, opportunities for material generated from a variety of sources and for material that is unsuitable for unconfined aquatic disposal remain limited.

Currently, planning efforts are underway for two potential UWR sites, one located at the former Hamilton Army Airfield and adjacent antenna field in Marin County and another at the Montezuma Wetlands restoration site in Solano County. The potential capacity for dredged material at the Hamilton restoration site is approximately 10 mcy, and up to 20 mcy at the Montezuma site. It is presently expected that dredged material could be accepted at the Hamilton site for construction purposes as early as July, 1999, and at Montezuma a few years later. In addition to these projects it is expected that current volumes of dredged material going to the Delta will increase over time. Lastly, the Dredged Material Reuse Project—a consortium of members from the regulatory, environmental, and business communities—has committed to locating and preparing planning and development materials needed to develop at least one rehandling facility, if found feasible through its efforts, by fall, 1999. Consequently, over the twelve-year transition period upland sites could accommodate a significantly large percentage of dredged material. (Figure 2).

However, the implementation of the above-referenced sites and those found feasible for implementation through any efforts currently underway will depend highly on the continued leadership of the LTMS federal and state partners. As such, the COE would commit to taking the maximum volume of maintenance material out of the Bay necessary to meet the in-Bay disposal goal of 1.0 mcy and to obtaining the funds necessary to develop and sponsor UWR projects, while the LTMS state agencies would commit to pursuing legislation to obtain funds necessary to, for instance, provide the local cost share for UWR projects (as well as to institute a new site monitoring fee, as discussed earlier). The Draft LTMS Management Plan will address other ways to increase UWR opportunities.

7. **Schedule and Periodic Review.** The transition is scheduled to begin after the Record of Decision is signed beginning in December 1998. At the close of each three-year period following initiation of the transition, the proposed strategy and other elements of the Final LTMS Management Plan would be reviewed and revisions made, where necessary, to reflect changing statutory, regulatory, scientific, or environmental conditions.

8. **Pros and Cons.** Potential advantages and disadvantages associated with the proposed strategy are listed below.

Pro. A reduction in in-Bay disposal volumes would reduce the potential for adverse impacts to the Bay and may significantly increase the number of beneficial reuse projects, such as wetland restoration and other environmentally beneficial projects.

Pro. The starting point for medium and COE dredgers is high enough (i.e., it reflects a multi-year volume as opposed to an annual average volume) to facilitate dredging without the need for trading or waiting over a multi-year period to commence projects.

Pro. During the period when the overall in-Bay disposal volume limit is 2.8 mcy, there would be adequate in-Bay disposal capacity in the event all medium and COE dredgers intended to dredge their combined total average annual in-Bay disposal volume allocation (i.e. equal to their proportion of the 2.8 mcy starting volume derived from their total average 1991-1997 disposal volumes), approximately 2.4 mcy.

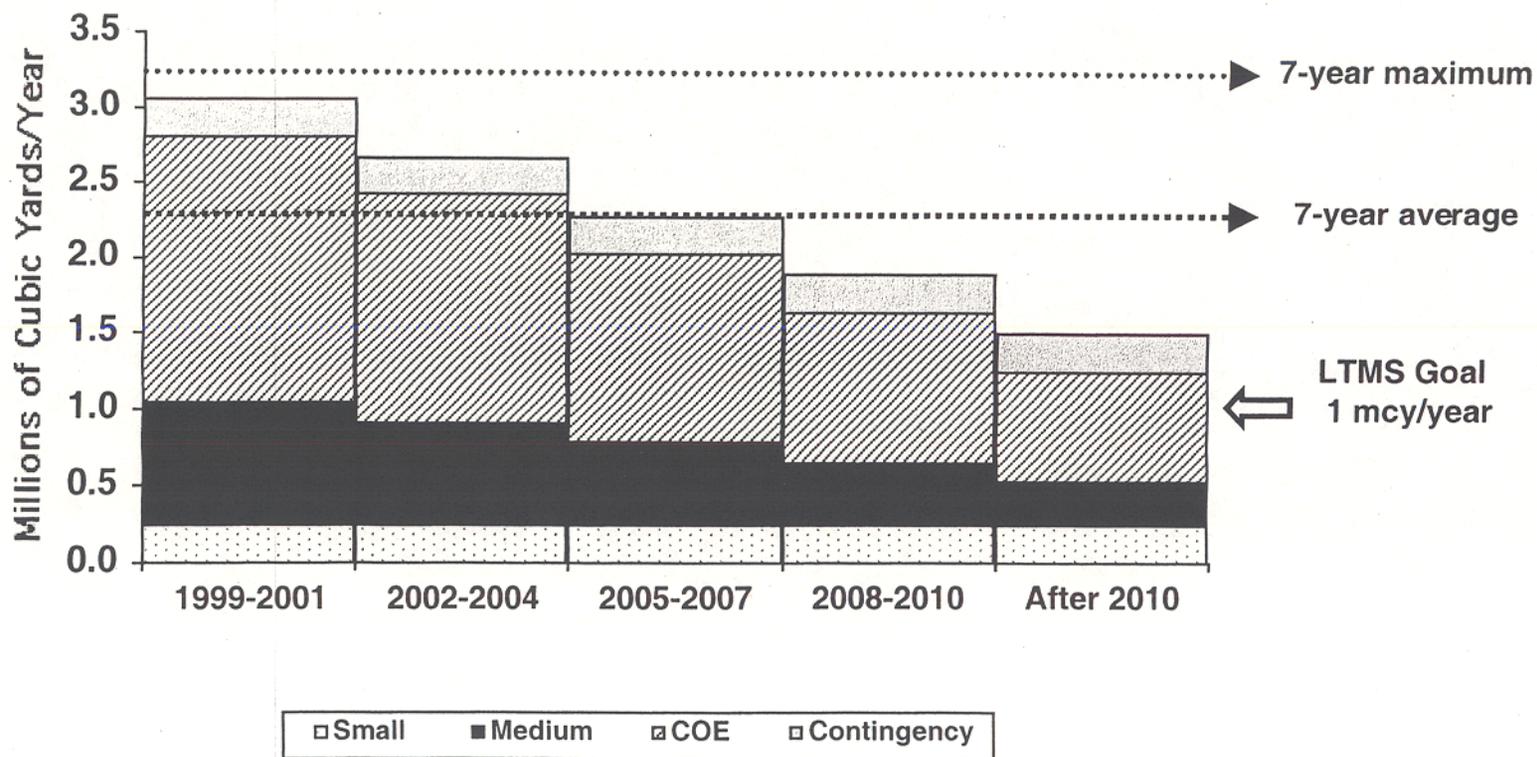
Con. With the banking option, if the preferred disposal option were in the Bay, then there would be greater incentive to bank than to trade. As a result, dredgers might not be able to obtain credits via the trading system.

Con. Banked volumes would decrease overtime in proportion to decreases in the in-Bay disposal volume limits. Therefore dredgers risk reduced banked volumes over time.

Con. If all medium and COE dredgers opt for using their combined total—as opposed to average—volume allotments in a single year, the initial starting point of 2.8 mcy could be exceeded. Thus, there would be insufficient capacity at in-Bay sites for the combined medium and COE total volume allotments during that time.

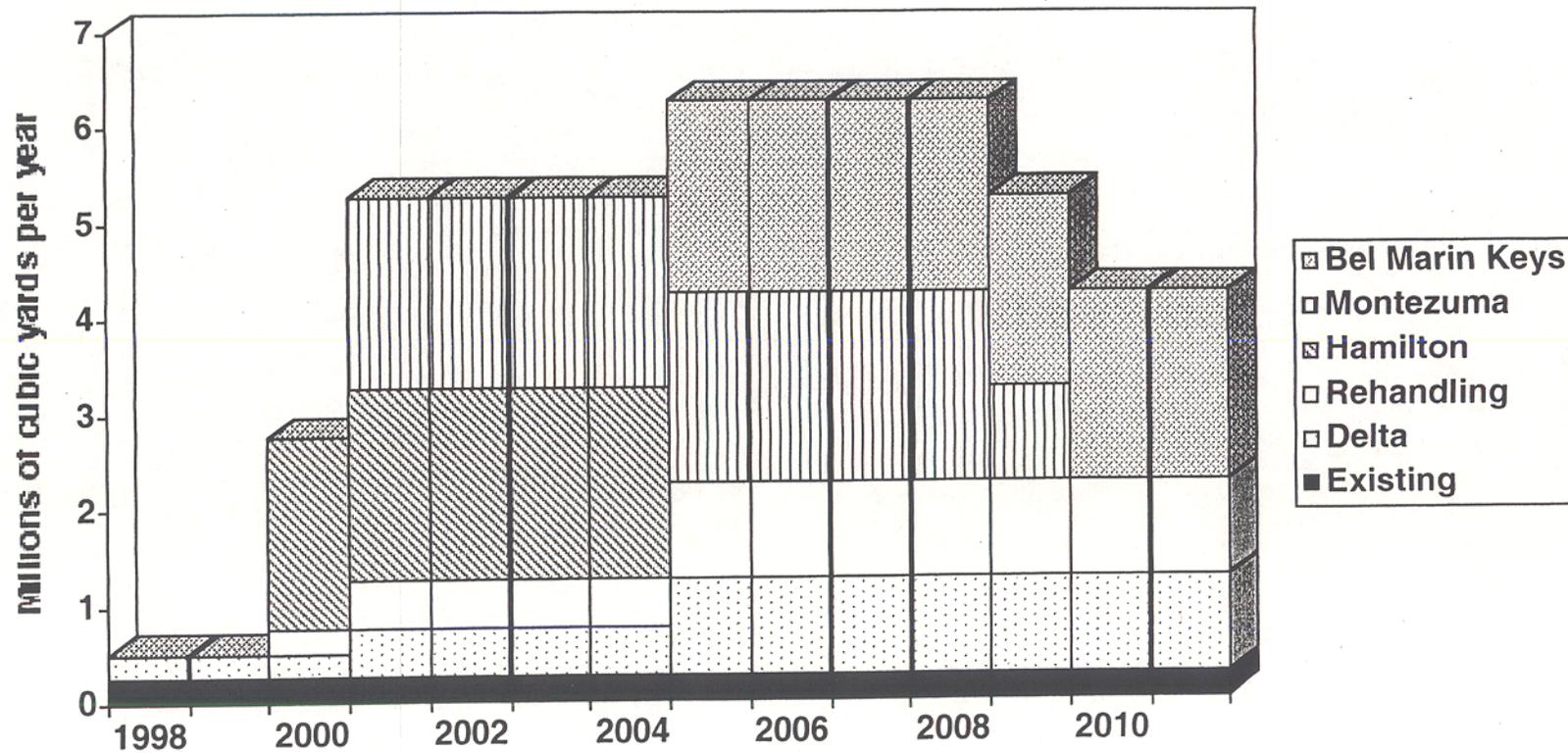


Proposed Transition Limits





Potential UWR Capacity



Legend for Tables 1 and 2

<i>Species Ranking</i>	<i>Consultation and Permit Requirements (Dredging and Disposal Restrictions)</i>	
1. Federal or state-listed endangered or threatened species. Consultation is required with USFWS, and possibly CDFG, if dredging or disposal is proposed during the period of restricted activity in critical locations.	A. Clamshell dredging shall be required whenever practicable in areas within 250 feet of a shoreline OR in depths less than 20 feet.	E. Best Management Practices to reduce turbidity (including silt curtains or other physical or operational measures) shall be required for these projects.
2. Species proposed for listing under the federal ESA, candidate for listing under the California ESA, or CDFG Species of Special Concern for which impacts from dredging or disposal could pose significant problems to existing or future population levels.	B. If hydraulic dredging in depths less than 20 feet, dredge head must be maintained at or below substrate surface. Head may not be raised more than 3 feet off bottom for flushing; shut off pump when raising head more than 3 feet off bottom (e.g., at end of dredging).	F. Restriction applies within the identified critical period, and within 250 feet of emergent vegetation. USFWS and CDFG must be contacted in these circumstances.
3. Status reviews are being conducted. Species with established recreational or commercial value or ecological function for which impacts from dredging or disposal may pose significant problems to existing or future population levels.	C. For new-work projects where eelgrass will be unavoidably affected, a compensatory mitigation plan must be submitted and approved by USFWS, NMFS, CDFG, USACE, and EPA prior to permitting.	G. If dredging must be conducted during this period, CDFG must be contacted and the permittee must provide an observer to identify herring spawning activity. Dredging must stop immediately if herring are within 200 m of the work site, and may not continue until hatch-out is complete (approximately 10-14 days).
4. Species with established recreational or commercial value or ecological function for which impacts from dredging or disposal should pose only minor problems to existing or future population levels.	D. If project will cause unavoidable direct or indirect effects to submerged or emergent aquatic vegetation, compensatory mitigation at 3:1 ratio is required for lost functions and values. Other proposed ratios require consultation with USFWS and CDFG.	H. Other historically used nesting areas include Bair Island, Oakland Airport, Alvarado salt ponds, PG&E Pittsburg, and Port Chicago. Contact USFWS to determine whether species may be present; if present, dredging restriction in Table applies.

Table 1. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern

(Page 1 of 5)

<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>DISPOSAL Restriction (2)</i>	<i>Period of Restriction (3)</i>
Chinook Salmon (ADULTS)	1	SF-16 (Suisun Bay disposal site), and SF-9 (Carquinez Strait disposal site)	Degradation of water quality; interference with migration	Minimize disposal at these sites during period of restriction	January 1 - May 31
		Aquatic disposal east of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	October 1 - May 31
Chinook Salmon (JUVENILES)	1	SF-16 (Suisun Bay disposal site), and SF-9 (Carquinez Strait disposal site)	Degradation of water quality; interference with foraging habitat and food resources	Minimize disposal at these sites during period of restriction.	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	October 1 - May 31
Steelhead Trout	1	SF-9, SF-10 (San Pablo Bay), & SF-11 (Alcatraz) disposal sites	Degradation of water quality; interference with foraging habitat and food resources	Minimize disposal at these sites during period of restriction.	January 1 - October 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Degradation of water quality; interference with foraging habitat and food resources	Restrict disposal to the extent feasible in these areas during period of restriction. Otherwise, Consultation and Permit Requirements A, B, C, D and E apply.	October 1 - May 31

Table 1. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>DISPOSAL Restriction (2)</i>	<i>Period of Restriction</i>
Delta Smelt	1	All Delta critical habitat (see Figure 6.2.3-4)	Spawning ground habitat degradation	Formal Consultation with FWS and CDFG is REQUIRED for any aquatic disposal outside of levees in this area, at any time. No restrictions on upland disposal relative to this species.	January 1 - December 31 (all year)
Sacramento Splittail	2	SF-16, SF-9, SF-10, SF-11, and SF-8 (San Francisco Bar Channel) disposal sites	None	None	N/A
	2	North San Pablo Bay, Napa and Petaluma Rivers, Suisun Bay including marshes, and Delta (all), other than SF-8, SF-9, SF-10, SF-11, SF-16	Habitat degradation	Formal conferencing (consultation if listed) with FWS and CDFG is REQUIRED for any aquatic disposal outboard of levees in this area, at any time. No restrictions on upland disposal relative to this species.	January 1 - December 31 (all year)
Longfin Smelt	3	San Pablo Bay (other than SF-10) and Suisun Bay (other than SF-16) including marshes from Benicia Bridge east to Collinsville, and Western (= Northern) Delta (see Figure 6.2.3-1)	Spawning ground habitat degradation	Minimize disposal in these areas as much as possible.	January 1 - December 31 (all year)
Pacific Herring	3	None	None	None	N/A
Recreational marine fishes	3	SF-10 and SF-11 disposal sites	Habitat degradation	Minimize disposal at these sites during peak sportfishing season.	May 1 - October 31

Table 1. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>DISPOSAL Restriction (2)</i>	<i>Period of Restriction</i>
Dungeness Crab	4	None	None	None	N/A
California Least Tern	1	All eelgrass beds from San Francisco Bay east through Suisun Bay (see Figure 6.2.3-3)	Potential direct habitat loss of eelgrass habitat associated with in-Bay disposal	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect eelgrass habitat.	January 1 - December 31 (all year)
		Coastal waters, sloughs, and salt ponds in San Francisco Bay, or within 3 miles of the NAS Alameda nesting site.	Habitat degradation associated with in-Bay disposal	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect eelgrass habitat.	January 1 - December 31 (all year)
Delta Smelt	1	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville (other than SF-16)	Rearing and limited spawning habitat degradation	Formal Consultation with FWS and CDFG is REQUIRED for any aquatic disposal in this area, at any time.	January 1 - December 31 (all year)
Delta Smelt (continued)	1	Coastal waters, sloughs, and salt ponds within 3 miles of nesting area at NAS Alameda (see Consultation and Permit Requirement I for other possible restriction areas)	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)

Table 1. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>DISPOSAL Restriction (2)</i>	<i>Period of Restriction</i>
	1	Coastal waters, sloughs, and salt ponds in South San Francisco Bay	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
California Clapper Rail	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
Western Snowy Plover	1	South San Francisco Bay, San Pablo Bay	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)
California Brown Pelican	1	Significant roost sites at: Alameda breakwater; Angel Island; Brooks Island; and Sisters Island	Disturbance of individuals at large communal roosts	No disposal within 300 feet of known roost sites when species is present	April 1 - November 30
Salt Marsh Harvest Mouse	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh east to Collinsville	Potential direct habitat loss associated with nearshore or upland disposal or beneficial use projects	None at SF-8, SF-9, SF-10, SF-11, SF-16. However, Consultation with FWS and CDFG is REQUIRED for other nearshore, upland, or beneficial use disposal activities that may affect this habitat.	January 1 - December 31 (all year)

Table 1. Areas and Times of Restricted DISPOSAL Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>DISPOSAL Restriction (2)</i>	<i>Period of Restriction</i>
<p><i>Notes:</i> 1. Refer to Table 6.2.3.2-1 for definitions of species' ranks and for consultation and permit requirements identified under <i>Disposal Restriction</i>.</p> <p>2. The term "RESTRICT" in this column means that dredging or disposal activities generally will not be authorized during periods of restriction unless approved via a project-specific consultation conducted by or for the applicant, except as noted under the specified consultation and permit requirements (Table 6.2.3.5-1). The term "MINIMIZE DISPOSAL" in this column means that the LTMS agencies will ensure that no more disposal than necessary occurs at the times and sites listed, (1) through management limitations placed on disposal sites themselves, and/or (2) through project-specific review.</p>					

Table 2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>Dredging Restriction (2)</i>	<i>Period of Restriction</i>
Chinook Salmon (ADULTS)	1	Pinole Shoal (San Pablo Bay), Suisun Bay channel	Interference with migration; degradation of water quality	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Interference with migration; degradation of water quality	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	November 1 - May 15
Chinook Salmon (JUVENILES)	1	SF Bay Bridge upstream to Sherman Island, including sloughs	Direct habitat loss or degradation; water quality degradation; interference with foraging or food resources; entrainment by dredge	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B (re. Entrainment); C, D (re. habitat loss); and E (re. habitat/water quality degradation).	January 1 - May 31
		East of Sherman Island, along migratory corridors to and from the Sacramento River	Direct habitat loss or degradation; water quality degradation; interference with foraging or food resources; entrainment by dredge	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B (re. entrainment); C, D (re. habitat loss); and E (re. habitat/ water quality degradation).	October 1 - May 31
Steelhead Trout	1	SF Bay Bridge upstream to Sherman Island, including sloughs	Interference with migration; degradation of water quality; direct habitat loss or degradation; interference with foraging or food resources	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	January 1 - May 31
	1	Napa River, Petaluma River, Sonoma Creek	Habitat degradation; adverse effects on life stages	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	October 15 - July 31

Table 2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>Dredging Restriction (2)</i>	<i>Period of Restriction</i>
Steelhead Trout (continued)		Central San Francisco Bay	Interference with migration; degradation of water quality; direct habitat loss or degradation; interference with foraging or food resources.	Restrict dredging in these areas when species present, otherwise individual consultation with NMFS and CDFG is REQUIRED. See Consultation and Permit Requirements: A, B (re: entrainment); C, D (re: habitat loss); and E (re: habitat/water quality degradation).	January 1 - May 31
Steelhead Trout	1	East of Sherman Island, along migratory corridors to and from the Sacramento River	Interference with migration; degradation of water quality; direct habitat loss or degradation; interference with foraging or food resources	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with NMFS is REQUIRED.	October 1 - May 31
Delta Smelt	1	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge; spawning ground habitat degradation	NOTE: Formal ESA Consultation is REQUIRED for any dredging project in this area, at any time.	January 1 - December 31 (all year)
	1	Southern Delta (see Figure 6.2.3-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas when species is present. Otherwise, see Consultation and Permit requirements: A, B, (re: Entrainment); E (re: Habitat degradation).	February 1 - June 30
	1	Central Delta (see Figure 6.2.3-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with FWS and CDFG is REQUIRED.	December 1 - June 30
	1	Northern Delta (see Figure 6.2.3-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas during period of restriction. Otherwise, individual Consultation with FWS and CDFG is REQUIRED.	September 15 - July 31

Table 2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>Dredging Restriction (2)</i>	<i>Period of Restriction</i>
Sacramento Splittail (JUVENILES)	2	North San Pablo Bay, Napa and Petaluma Rivers	Direct entrainment by dredge	Restrict dredging in these areas during period of restriction. Otherwise, individual conferencing (consultation if species is listed as endangered) with FWS and CDFG is REQUIRED.	February 1 - July 31
	2	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge	NOTE: ESA conferencing (consultation if species is listed as endangered) is REQUIRED for any dredging project in this area, at any time.	January 1 - December 31 (all year)
	2	Delta	Direct entrainment by dredge	Restrict dredging in these areas during period of restriction. Otherwise, conferencing (consultation if species is listed as endangered) with FWS and CDFG is REQUIRED.	December 1 - October 31
Longfin Smelt	3	San Pablo Bay	Direct entrainment of juveniles by dredge	Restrict dredging in these areas as much as possible during period of restriction.	February 1 - July 31
	3	Suisun Bay including marshes, from Carquinez Bridge east to Collinsville	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas as much as possible during period of restriction.	December 1 - August 31
	3	Western (= Northern) Delta (see Figure 6.2.3-1)	Direct entrainment by dredge; spawning ground habitat degradation	Restrict dredging in these areas as much as possible during period of restriction.	December 1 - February 28
Pacific Herring	3	Historical spawning areas in Central San Francisco Bay and Richardson Bay (see Figure 6.2.3-2)	Interference with spawning activity; reduced hatching success and larval survival	Restrict dredging in these areas when species is present; see Consultation and Permit requirement G.	December 1 - February 28
Recreational marine fishes	3	None for dredging	None for dredging	None for dredging	N/A

Table 2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>Dredging Restriction (2)</i>	<i>Period of Restriction</i>
Dungeness Crab	4	Shallow berthing areas and channels, North San Francisco Bay and San Pablo Bay	Direct entrainment by dredge of early juvenile stages	Consultation and Permit requirements A and B apply when juveniles are present	May 1 - June 30
California Least Tern	1	All eelgrass beds from San Francisco Bay east through Suisun Marsh (Figure 6.23-3)	Loss of eelgrass bed foraging habitat	Consultation with FWS and CDFG is REQUIRED for any direct or indirect impacts to this habitat	January 1 - December 31 (all year)
	1	Coastal waters and sloughs within 1 mile of the coastline from Berkeley Marina south through San Lorenzo Creek.	Turbidity effects on foraging success	Restrict dredging within 3 miles of active nesting areas during Tern foraging period, and when prey species are at critical life stages (see Consultation and Permit Requirement G).	March 15 - July 31
	1	Coastal waters, sloughs, and salt ponds in South San Francisco Bay south of the Highway 92 bridge.	Turbidity effects on foraging success	Restrict dredging when foraging Tern are present (see Consultation and Permit Requirement G).	June 1 - September 7
California Clapper Rail	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Destruction of breeding and nesting habitat, and/or loss of upland refugial cover.	Consultation with FWS and CDFG is REQUIRED for projects that will result in direct habitat loss; see Consultation and Permit requirements D and F.	January 1 - December 31 (all year)
California Clapper Rail (continued)	1	In and adjacent to tidal salt marshes throughout San Francisco Bay and Suisun Marsh	Disturbance during breeding season (without direct habitat loss)	Restrict dredging in these areas when species is present; see Consultation and Permit requirements D and F.	February 1 - August 31

Table 2. Areas and Times of Restricted DREDGING Activity in the San Francisco Bay/Delta Estuary for Species of Special Concern
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<i>Species</i>	<i>Rank (1)</i>	<i>Critical Location</i>	<i>Potential Impacts</i>	<i>Dredging Restriction (2)</i>	<i>Period of Restriction</i>
Western Snowy Plover	1	South San Francisco Bay, San Pablo Bay	Loss of mudflat foraging habitat (new-work projects)	NOTE: Consultation is REQUIRED with FWS and CDFG for any new-work projects that will cause a direct loss of mudflat habitat in these areas (LTMS working to conclude "programmatic consultation" for inclusion in a future LTMS Management Plan).	January 1 - December 31 (all year)
California Brown Pelican	1	Significant roost sites at: Alameda breakwater; Angel Island; Brooks Island; and Sisters Island	Disturbance of individuals at large communal roosts	No dredging within 300 feet of known nighttime communal roost sites during the time period between one hour before sunset to sunrise.	July 1 - September 30
Salt Marsh Harvest Mouse	1	In and adjacent to diked and tidal salt marshes throughout San Francisco Bay and Suisun Marsh east to Collinsville	Loss of salt marsh habitat and adjacent upland refugial cover	NOTE: Consultation is REQUIRED with FWS and CDFG for any project that will cause a direct loss of salt marsh habitat in these areas	January 1 - December 31 (all year)

Notes:

1. Refer to Table 6.2.3.2 -1 for definitions of species' ranks and for consultation and permit requirements identified under *Dredging Restriction*.
2. The term "RESTRICT" in this column means that dredging or disposal activities generally will not be authorized during periods of restriction unless approved via a project-specific consultation conducted by or for the applicant, except as noted under the specified consultation and permit requirements (Table 6.2.3.5-1). The term "MINIMIZE DISPOSAL" in this column means that the LTMS agencies will ensure that no more disposal than necessary occurs at the times and sites listed, (1) through management limitations placed on disposal sites themselves, and/or (2) through project-specific review.

Biological Opinion

ALCATRAZ LIMIT (CUBIC YARDS)

PROJECT	PROJECT VOLUME	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
CORPS	1,200,000													
RICHMOND INNER (Ocean This Year)	200,000													
RICHMOND (Outer & Southampton Shoal)	400,000													
OAKLAND (Inner & Outer)(Ocean This Year)	500,000				200,000	200,000								400,000
SAN RAFAEL CREEK (4yr, 4yr, 7yr)														0
REDWOOD CITY HARBOR (3yr)														0
SAN LEANDRO (Normal Upland) (8yr)														0
TOTAL Corps		0	0	0	200,000	200,000	0	0	0	0	0	0	0	400,000
Annual Permit Dredgers														
PORT OF OAKLAND - BERTHS	150,000													0
Chevron	200,000													0
Port of Richmond	50,000													150,000
Port of San Francisco - Berths	300,000													200,000
														50,000
														300,000
Intermittent Dredgers														
San Francisco Marina	100,000													0
San Francisco Dry Dock														100,000
OYSTER POINT MARINA	60,000													0
														60,000
TOTAL PER MONTH		0	0	0	200,000	200,000	0	150,000	150,000	150,000	200,000	210,000	0	1,260,000
DIFFERENCE		400,000	400,000	400,000	200,000	100,000	300,000	150,000	150,000	150,000	200,000	190,000	400,000	
Pinole Shoal Channel (SF-10)														
Suisun Bay Channel (Upland or SF-16)	100,000													
Petaluma Cross-the-Flats (SF-10)									50,000	50,000				
Petaluma River (Upland)														
Napa River (Upland)														
Mare Island (SF-9)														
Main Ship Channel (SF-8)	600,000													

Site	Target Volume (CY)	October - April	May - September
Alcatraz (SF-11)	4.0 million	1.0 million	0.3 million
Carquinez Strait (SF-9)	2.0 million(Normal Year) 3.0 million(Wet Year)	1.0 million any month	
San Pablo Bay (SF-10)	0.5 million		0.5 million
Alcatraz (SF-11) LTMS Limit to Start	2.8 million		

LTMS FIRST YEAR LIMIT = 2,800,000 CUBIC YARDS

-  Can dredge, but need to monitor and avoid herring
-  Can dredge, but need to minimize turbidity
-  Dredging allowed during daylight hours only
-  Can Dredge
-  Will require consultation