from the island. During a five-month period (1989-1990) 54 occurrences of dredge disposal barges within 25-300 yards of Alcatraz were documented. 18

The FEIS\R should provide a detailed map identifying the Alcatraz disposal site in relation to submerged and surface areas at Alcatraz under GGNRA jurisdiction; provide an analysis of the extent of resource impact associated with continued use of this particular dredge disposal site; and provide an evaluation of establishing a "no entry" buffer area between Alcatraz and the SF-11 site.

In discussions with the COE during our review of this project, we were informed of a general policy wherein barges and hoppers disposing dredged materials are instructed to use Global Positioning System (GPS) equipment to pinpoint the disposal site. This practice serves two purposes: providing accurate disposal within designated dump sites, and providing a recorded location for each individual disposal.

The use of GPS equipment to locate approved dredge sites and record each disposal should be discussed in the FEIS\R. Also, to provide a baseline for this activity we suggest that historic data on past disposal placements should be incorporated in the FEIS\R. 19

Monitoring and penalties, which would discourage disposals outside the designated area, if enforced, should be identified and committed to. These would be part of an adaptive management plan, which the COE needs to present in the FEIS/R to indicate how mitigation measures would be enforced, monitored, and changed over time as necessary, to assure their effectiveness in protecting natural resources in the long term. 20

The DEIS\R indicates that disposal of dredged materials at Alcatraz disposal site has the potential to affect resources over a broader area. We agree with this finding as well as the general statement that settlement of dredged materials may affect organisms that inhabit rocky and sandy substrates. 21

However, this general discussion does not provide sufficient information to assess impacts of disposal actions on intertidal and subtidal resources, and should be expanded in the FEIS/R.

Such analysis should be accompanied by maps showing locations of historic and recent rocky intertidal and rocky and sandy subtidal habitats overlain by disposed materials. In addition, we request that dredge disposal impacts upon the Alcatraz bird population be discussed in the FEIS\R. 22

Alcatraz Island receives over 1 million visitors per year with peak numbers occurring during the summer. Up to 4,000 people per day visit the island to see and experience natural, cultural and historical resources. Visitors have commented to rangers about the altered water color associated with disposal activities.

23 The FEIS\R should addresses the specific environmental impacts of dredge disposal plumes and the impact increased turbidity has on visual aesthetics.

24 **SPECIFIC COMMENTS:**

Section 4.3.2.1. Affected Environment-Central Bay, Page 4-60: It is stated that "Cumulative effects associated with frequent disposal events over a limited period of time could be of more concern for these (aquatic) species." However, known avifauna on Alcatraz are not identified in Table 4.3-7, Summary of Resources of Concern for the Alcatraz Dredged Material Disposal Site.

24a The FEIS/R should analyze which wildlife resources on Alcatraz Island may be affected, and how. GGNRA staff can provide specific data on potentially affected wildlife.

In general, Alcatraz' wildlife includes San Francisco Bay's only Pelagic and Brandt's Cormorants, and Pigeon Guillemot colonies. The Western Gull colony on Alcatraz is the second largest in northern California. The Black-crowned Night Heron colony is the largest in the Bay region.

Feeding flocks of up to 500 gulls, cormorants, and common murres are present year-round adjacent to the disposal site. Hundreds of seabirds, particularly gulls, cormorants and occasionally common murres, roost on the island throughout the year.

Staff from GGNRA also indicate that foraging areas and resources for roosting and colonial nesting waterbirds include the island's intertidal zone and near-shore waters, as well as areas of the bay where concentrations of herring, anchovies, midshipman, and
24b smelt occur. In order to adequately identify mitigation measures, the FEIS\R needs to confirm where foraging areas occur relative to the alternative sites.

24c Page 4-54, 60: The DEIS\R states that fish avoid affected areas for up to several hours after a disposal. But the effect on breeding birds resulting from short-term absence of subsistence fish is not adequately addressed. This issue should be analyzed in the FEIS\R; mitigation measures should also be addressed.

In addition, Table 4.3-7 identifies "bottom fish and chinook salmon" as the only fish that may be affected by disposal at the Alcatraz site. We request similar analysis of impacts to and mitigation measures for other fish populations affected by disposal activities as well as wildlife, particularly birds. 24d

Section 5.1.1.2. Site Management and Monitoring: To be adequate the FEIS\R should identify and assess all resources at and adjacent to disposal sites, based on long-term monitoring data. The DEIS\R identifies COE monitoring of pollutants within dredge spoils as well as disposal volumes. 24e (1)

The FEIS\R should expand upon the monitoring program by identifying protocols which will quantify the impacts to foraging resources and verify to what extent disposal activities at Alcatraz are impacting rocky intertidal habitats, visitor experiences, and seabirds and marine mammals. 24e (2)

Table 5.1.1. (Pages 5-1 to 5-7) Policy-Level Mitigation Measures: The FEIS\R must identify timing restrictions for protecting breeding bird populations and intertidal resources to supplement those restrictions already in place or proposed to accommodate the sport fishing industry. 24f

The breeding season for many of the birds roosting on Alcatraz extends from February through August. This is the most sensitive time for breeding birds and their foraging resources must be protected. The FWS should be consulted in identifying key timeframes. 24g

Identified below is a brief synopsis by the GGNRA staff of the breeding bird populations at Alcatraz:

1996 Alcatraz Colonial Breeding Bird Populations

Brandt's Cormorant	>220 nesting pairs
Pelagic Cormorant	16 nesting pairs
Pigeon Guillemots	> 32 adults present
Western Gull	550 nesting pairs
Black Oystercatcher	1 nesting pair
Black-crowned Night Heron	>350 nesting pairs
Great Egret	2 nesting pairs

Federal Special-Status Species

Successful establishment of special status species habitat using dredged material has not yet been documented within San Francisco Bay. The Sonoma Baylands Project has identified creation of endangered species habitat as a goal (page 3-91), but the project is much too recent to evaluate as a functioning marsh system.

24h If creation of sensitive species habitat is a goal of LTMS, success monitoring standards should be incorporated into the policy framework of the FEIS/R. The presence of a species is not adequate in determining the long-term viability of a colonizing population. Fragmented or unsuitable habitat can act as a population "sink," which may in turn reduce the survival of an already vulnerable species.

24i Pages 1-7 through 1-11. Policy-Level Mitigation Measures: This section fails to identify seasonal restrictions for dredged material disposal to minimize or eliminate potential impacts to other federally listed species in addition to winter-run chinook salmon, steelhead trout, and longfin smelt.

For example, disposal of dredged material at future habitat enhancement or restoration project sites may need to avoid California clapper rail breeding season from February 1 through August 31 to minimize potential impacts to this endangered species.

24j Pages 1-7 and 5-2. Material Suitability and Sediment Quality Testing: According to the DEIS/R, only dredged material determined by LTMS agencies to be suitable for placement or disposal will be authorized. This discussion should clarify that dredged material would be suitable for placement or disposal only if the quality of material is consistent with sediment quality criteria identified by FWS in the Section 7 formal consultation for the LTMS.

24k Pages 1-9 and 5-8. Wetland Restoration: This discussion should clarify that site-specific aspects of proposed habitat restoration projects which may adversely affect any federally listed species or jeopardize the continued existence of any proposed species would have to meet requirements identified by FWS in the Section 7 consultation for the proposed site.

24l Page 3-88: Long-term reproductive success is essential in assessing habitat viability. Given prolonged natural anaerobic processes involved in the breakdown of anthropogenic contaminants, we find it premature to suggest that proposed CAD sites could be converted into beneficial habitat for special status species anytime in the near future.

24m Page 4-44. True Estuary Species: This section incorrectly states that Sacramento splittail occurs only within the San Francisco estuary, and is no longer distributed in the river systems of the Central Valley. Current data indicate that, although Sacramento splittail predominate in the San Francisco estuary, this fish species is also found in upper Sacramento and San Joaquin rivers.

Page 4-75. Species of Special Concern: This discussion incorrectly omits longfin smelt and delta smelt as species of concern along the Carquinez Strait. In addition, delta smelt occur within Napa River drainage. Both species may be affected by dredging activities and disposal at the Carquinez Strait Dredged Material Disposal Site. 24n

Page 4-84. Species of Special Concern: This section incorrectly identifies the western snowy plover as a candidate species. The coastal population of western snowy plover, which is found in south San Francisco Bay, is listed as threatened under the ESA. This section also misstates the scientific subspecies name for the endangered salt marsh harvest mouse in south San Francisco Bay. The correct subspecies name is *Reithrodontomys raviventris*. 24o

Many of the species identified in this section also occur in San Pablo Bay, central and south San Francisco Bay, Suisun Bay, and along the Carquinez Strait; however, they are not discussed in the respective "Species of Special Concern" sections.

The FEIS/R should expand these sections to identify all special status species likely to occur, and discuss potential impacts from disposal (and dredging) activities in these areas. FWS will provide EPA with updated species lists upon request. 24p

Page 4-102. Special Status Species: This section fails to evaluate and discuss potential impacts to special status species which could result from disposal (and dredging) activities within the LTMS Planning Area. 24q

Page 5-5. In-Bay Fish Habitat Conservation: This section should discuss conservation measures for threatened delta smelt and proposed threatened Sacramento splittail. These species are found in certain areas of San Francisco Bay estuary. 24r

Appendix J. Table J-1: Two federally-listed endangered plants, Sebastopol meadowfoam (*Limnanthes vinculans*), and Burke's goldfields (*Lasthenia burkei*), are found in wetlands within the project area but were not in the table. These should be included in the FEIS/R. Solano grass (*Tuctoria mucronata*) is found only near Davis, which is presumably outside the project area, therefore, this species may be deleted from the table. 24s

Appendices, Volume II, Table J-1. Species of Concern: California red-legged frog and the coastal population of western snowy plover are federally threatened species. 24t

24u Appendices, Volume II, Page J-13. Recommended Action/Period during which Recommended Action Necessary: This discussion incorrectly states that aquatic disposal activities conducted outside the identified restricted periods for aquatic species of special concern can proceed without contacting FWS, thereby precluding the need to conduct a Section 7 formal consultation with FWS.

FWS must review proposed aquatic disposal (and dredging) activities to concur with any determination by LTMS agencies that the proposed disposal (and dredging) activities would not adversely affect any federally listed species or jeopardize the continued existence of any proposed species.

If FWS concurs with the determination, then no further action pursuant to the ESA would be necessary. This regulatory procedure also would be required for any disposal activities designed to provide habitat enhancement or restoration to ensure activities would not adversely affect any federally listed or jeopardize the continued existence of any proposed terrestrial or aquatic species.

Upland/Wetland Reuse

25 Wildlife Habitat Restoration/Wetland Creation

As stated previously, tidal wetland creation should begin with small demonstration projects using SUAD material, followed by progressively larger units, and monitored sufficiently to document successful plant development, channel stability, hydrologic functions, and biodiversity support.

25a FEIS/R should expand discussion of existing wetland-creation projects in San Francisco Bay that have utilized dredged material (page 3-9), and articulate parameters currently used to define "success," which remediation measures are in place, and how data from these sites will be used in adaptive management for future projects.

25b FWS opposes disposal of NUAD material of any significant scale at wetland reuse sites until adequate data exist to predict its ecological fate. We do not oppose NUAD disposal at rehandling facilities and for reuse at industrial sites, landfills, and other upland sites in which contact with wildlife is minimized.

25c Page 1-1, paragraph 2: The document combines several beneficial reuse sites (wetland, upland, landfill) which have fundamentally different benefits and risks. The FEIS/R should separate wetland uses from other uses.

Page 1-16, paragraph 3: The discussion of risks and benefits does not acknowledge risks of contaminant dispersion or bioaccumulation. 25d

Page 1-17, paragraph 3: The discussion of phasing in alternatives should include the need to gather site-specific data in order to ensure minimal risks of large-scale wetland placement, and to promote an adaptive management strategy, whereby successes and failures on small-scale demonstration projects are used to refine designs and ensure success of sequentially larger-scale projects. 25e

Page 2-17, bulleted items: The FEIS/R should add another bullet stating that proposed projects are to be evaluated in terms of likelihood of success, as shown in monitoring of smaller-scale demonstration studies conducted within the San Francisco Bay region. 25f

Page 3-8, section 3.1.1.5: The text immediately preceding this section includes construction and industrial uses; however, this section only briefly discusses construction purposes, and excludes it from scenarios in chapter 4 (p. 4-122) which include wetlands, levees, and landfills. 25g

The recently constructed Oakland Harbor improvements disposed of 1.2 million cy of dredged material at Galbraith Golf Course, while Richmond Harbor will use 183,000 cy of NUAD as remedial cover over a former scrap yard. Industrial uses typically have less stringent regulatory criteria, and may have better containment potential.

The FEIS/R should provide projected volume estimates for future construction and industrial uses. 25h

Page 4-126, paragraph 2: One of several important reasons for underfilling disposal sites is that plant establishment is affected by differences in sediment texture and/or chemistry between subtidal dredged material and naturally deposited material. Underfilling a marsh permits a veneer of natural material to accrete over the dredged material.

Computer modeling of natural sediment deposition in the top layer of a restoration marsh in San Francisco Bay predicted the process of accretion to take several years to reach a state of equilibrium (Johnson and Krone, 1994).

The FEIS/R should address dynamics of natural sedimentation and discuss how it will be incorporated in planning marsh creation projects. 25i

25j Page 4-128, section 4.4.4-2: The 55 million cy estimate to repair "substandard levees" exceeds 26 million cy in the "high" scenario in Table 4.4-5. It is not known if the discrepancy is for lack of material, costs, or both. The FEIS/R should discuss current annual use of fill for levee repair.

25k Page 6-14, section 6.1.2.3: The conclusion that environmental benefits of dredged material would be maximized by directing disposal at wetland reuse assumes that development of these sites will be successful.

Such success is best achieved by gathering intensive pre- and post-dredge placement data on small scale projects before proceeding to larger scale projects.

The opportunities for wetland reuse, though significant, are also finite, and baseline data should be gathered on existing resources prior to converting wetlands from one type to another.

25l Page 7-10, section 7.3.1.6: As a financing option to provide incentive for wetland reuse, the document discusses establishing wetland "banks" at reuse sites, to be used for mitigating future dredging or filling projects. This concept, though promising, could result in replacement of smaller, unique, natural wetlands with consolidated, large, constructed wetlands.

A possible adverse impact may be a reduction in the genetic diversity of some species and loss of unique habitats.

26 Use of NUAD Material in Wetland Creation

26a Page 3-88 The DEIS/R states wetland habitat creation can be accomplished using NUAD material as non-cover material, as proposed in the Montezuma Wetlands Project currently under design. However, on page 3-62, the LTMS Containment Sites Committee cautions that it is essential to make sure that channels do not erode the placed sediments, and that this alternative is less certain than landfill disposal.

26b Page 3-81 states that residue-effects information that would facilitate direct ecological evaluation using bioaccumulation data is not available for many contaminants of concern; and page 3-89, item 4 states "testing guidelines need to be developed for upland reuse and disposal" (diked baylands and other seasonal wetlands are classified as "uplands" in the DEIS/R).

Although precautions can be taken in constructing large (fifth and sixth order) channels to minimize erosion into contaminated sediments, natural formation of smaller order channels is not easily predicted. Data taken on naturally formed second and

third order channels on the San Francisco Bay National Wildlife Refuge, show depths ranging from 2 to 5 feet (pers. commun. Joy Albertson, San Francisco Bay National Wildlife Refuge). 26b

Placing contaminated sediment 3 feet beneath cover material, as proposed for Montezuma Wetlands, may not adequately prevent mobilization of contaminants into the biotic environment during the course of channel formation. Natural channel formation and channel complexity is especially important in establishment of California clapper rail habitat.

Using contaminated material for marsh creation may subject this endangered species to adverse impacts from chemical exposure. Pages 3-85, 86 address opportunities to streamline sediment testing, and state that less sediment testing may be needed if the NUAD material is used as non-cover in wetland creation. This statement seems speculative and premature given the current lack of information on contaminant mobility, and should be eliminated in the FEIS/R. 26c

Too little is known about the environmental fate of contaminants in sediment to consider wetland creation a viable disposal option for NUAD material. Minimum regulatory standards for testing, long-term monitoring, and remediation should be developed in a policy framework prior to permitting this disposal option. 26d

Specific monitoring plans may then be developed on a site-by-site basis. Many seasonal wetland areas that would be considered for dredge placement are relatively free of contaminants now. Tidally influenced wetlands in the Bay are already susceptible to pollutants due to their occurrence in depositional areas and composition of finer-grained sediments. This issue should be discussed in the FEIS/R. 26e

SUMMARY COMMENTS 27

The Department generally supports the LTMS agencies' approach to transition from emphasizing aquatic disposal to balancing ocean disposal and beneficial reuse. The practice of unconfined in-Bay disposal should be discontinued; however, we do not believe disposal of NUAD material in confined aquatic disposal sites is appropriate for San Francisco Bay. 27a

27b | Heavier emphasis must be given to ocean disposal, industrial and landfill reuse, levee maintenance, and other forms of upland disposal, until wetland creation using dredged material has proven to be successful.

27c | Dredging and dredge disposal are interrelated and interdependent activities, and must be evaluated as such under the National Environmental Policy Act and the ESA. The Department recommends a programmatic Section 7 consultation for the LTMS.

27d | The FEIS/R should address, at a programmatic level, potential impacts of dredging on federally listed, proposed, and candidate species and resources managed by the National Park Service.

27e | The FEIS/R should clarify how proposed site-specific dredge management plans would incorporate adaptive protective measures for these species and resources, so that their long-term protection is ensured.

27f | Seasonal wetlands/diked baylands should be reclassified in the FEIS/R as wetlands. Under each alternative, the FEIS/R should estimate the acreage of uplands and seasonal wetlands potentially impacted by disposal or reuse. In-kind compensation for high value seasonal wetlands should be included as a policy-level mitigation measure in the FEIS/R.

27g | In the FEIS/R, less emphasis should be given to using NUAD material in creation of wildlife habitat, including wetlands, until small-scale pilot projects have adequately characterized the ecological fate of sediment-borne contaminants.

27h (1) | Regulatory testing standards for upland/wetland reuse must be developed prior to authorizing wetland creation using NUAD
27h (2) | material. More of the LTMS budget should be allocated to Upland/Wetland Reuse for restoration ecology studies. Natural
27h (3) | wetland processes need to be further characterized to increase the likelihood of duplicating them in created systems.

27i (1) | Quantitative success criteria should be developed for restoration of endangered species habitat, and the ecological fate of
27i (2) | sediment-borne contaminants should be studied. The FEIS/R should identify which adaptive management strategies are iterative, and utilize information from existing projects.

If you have any specific questions, please refer them to Ms. Meri Moore, project biologist at the FWS's Sacramento Field Office at (916) 979-2113.

Contacts at the NPS Pacific Great Basin System Support Office are Dr. Mietek Kolipinski, Aquatic Biologist and Chief, Natural

Resources and Research at (415) 744-3870 and Matt Wagers, Environmental Protection Specialist at (415) 744-3969.

For information concerning GGNRA, contact Superintendent Brian O'Neill at (415) 556-2920.

We appreciate the opportunity to comment.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc: OEPC, Washington D.C. (w/original incoming)
FWS, Regional Director, Region I
NPS, Pacific West Field Area,

Responses to the DOI — U.S. Department of Interior, Office of Environmental Policy and Compliance, letter dated July 19, 1996

1a. Although no preferred alternative was selected in the Draft EIS/EIR, we have now identified Alternative 3 as the preferred alternative, which emphasizes ocean disposal and beneficial reuse of sediments over the historic practice of in-Bay disposal. There will be some period of time before Alternative 3 can be fully implemented. Therefore, the LTMS will transition to Alternative 3. The nature and extent of this transition period will be addressed in the Management Plan.

1b. It was determined during public scoping meetings for the LTMS that the alternatives considered should include disposal in all three environments (i.e., ocean, in-Bay, and upland/wetland reuse). This decision was based on several evaluation criteria such as the potential risks and benefits to ecological systems, regulatory certainty, and effects on dredging-related economic sectors (i.e., small dredgers) (see Chapter 1, Executive Summary). In addition, all alternatives considered provide for the reduction in dredged material disposed at Alcatraz.

The preferred alternative would greatly reduce in-Bay disposal overall to 40% of the volumes allowed in the past. Allowable disposal volumes at the Alcatraz site will be decreased as part of this overall reduction; see the discussion of the transition to Alternative 3 (section 6.5). Given the size of the Bay and tidal movements, and suspension of sediment, the proposed levels of in-Bay disposal are not expected to result in significant adverse environmental impacts.

2. Wetland creation using dredged material has been successful nationally in projects such as the wetlands and establishment of seabird habitat at Gaillard Island, Mobile, Alabama; creation of a cordgrass marsh at Sunken Island extension, Tampa, Florida; and wetlands created at Faber Tract, Palo Alto, California; Muzzi Marsh, Corte Madera, California; Bolivar Peninsula, Galveston, Texas; and Miller Sand Island, Columbia River, Oregon.

As section 4.3.3 emphasizes, the potential dredged material reuse volume (capacity) estimates were developed for the LTMS for planning purposes only. These estimates are speculative, based on available information. They are not intended to predict with any degree of certainty the actual breakdown percentages of reuse volumes by types of beneficial reuse projects. Rather, these estimates were developed as potential reuse scenarios over the 50-year LTMS planning period. Larger volumes would likely be used for wetland restoration purposes, not because this is the preferred upland/wetland reuse option, but because individual wetland restoration projects would likely involve the use of larger volumes of dredged material than other upland reuse options. Each individual upland/wetland reuse option has its own set of impacts. However, wetland restoration by reusing dredged material also offers benefits to the environment by facilitating fish and wildlife habitat creation. Also see the response to DOI comment 11.

3. NUAD material must be carefully sited and placed with engineering controls specific to each project. However, note that while NUAD material is not as clean as SUAD material, it is not necessarily contaminated enough to be classified as hazardous waste. In fact, less than 1 percent of all dredged material is classified as hazardous waste. Also, please see the response to DOI comment 10a.

4. The acronym NUAD means "Not suitable for Unconfined Aquatic Disposal." Standards for material deemed Suitable for Unconfined Aquatic Disposal ("SUAD") are very strict, especially for dispersive locations such as the existing in-Bay disposal sites. Not meeting one or more of these standards does not necessarily mean that the material is not suitable to use in situations where it can be confined, or where its chemical exposure pathway(s) of concern (as described in Chapter 3 of the EIS/EIR) can be adequately controlled. Each individual wetland, whether SUAD or NUAD, along with any other types of facilities for the placement of NUAD material (e.g., CDFs), would require individual environmental impact analyses as mandated by both the California Environmental Quality Act and the National Environmental Policy Act. Please see the response to DOI comment 10a.

5. The environmental impacts of dredging are specific to the location, depth, areal extent, and timing of the dredging project. It would be difficult for a programmatic discussion to cover the full range of potential impacts — from the salinity impacts of a deep-draft channel, to the impacts on wetland vegetation from a dredging project in a small channel or tributary of the Bay. The alternatives presented in the EIS/EIR do not vary the location or extent of dredging in the Bay and, therefore, such an analysis is not required. Furthermore, site-specific analysis of the environmental impacts of dredging will be undertaken in documents tiered under the LTMS EIS/EIR (e.g., a "blanket" EIS/EIR for federal maintenance dredging projects or the Port of Oakland 50-foot deepening project).

   See also Appendix E of the EIS/EIR. Disposal from all dredging projects in the LTMS area — including projects not listed in Appendix E — would be managed under LTMS policies and the Management Plan. Revisions to the Management Plan will be made, as needed, every 3 years. Every 6 years a major programmatic review of and revisions to the Management Plan will be undertaken. In addition, on a 6-year cycle, any necessary amendments to the San Francisco Bay and Basin Plans will be initiated. See also an expanded discussion of generic dredging impacts (section 3.1.1.3) and mitigation measures (Table 5.1-1).

6. Further ESA consultation has been conducted and incorporated in the Final EIS/EIR. In addition, formal consultation has been initiated. In particular, Table 5.1-1 has been replaced with new tables and discussion and Appendix J has been revised. These new discussions will likely constitute programmatic Section 7 consultation for any dredging projects able to meet the restrictions listed. Projects unable to meet the restrictions listed will have to conduct individual consultation with the USFWS, NMFS, and/or CDFG, as appropriate, before the LTMS agencies will consider processing permits for them. These new requirements will be incorporated into the LTMS Management Plan. In addition, development of any new placement sites (such as wetland restoration projects) will generally require individual, project-specific analysis for the presence of and potential impacts to species of special concern, including individual consultation as appropriate (see the response below to DOI comment 7).

7. The Final EIS/EIR now includes programmatic measures that have been developed in coordination with the USFWS, NMFS, and CDFG. These measures include necessary restrictions on dredging and disposal activities throughout the estuary and will likely constitute programmatic Section 7 consultation. This consultation will streamline the process for the agencies and project sponsors who can meet the programmatic requirements. We believe this will significantly reduce the number of projects that will undergo individual formal Section 7 consultation.

8. Statement noted. The LTMS Management Committee and the respective LTMS agencies recognized the need to continue scientific research in the fields associated with the proposed reuse of dredged material, including but not limited to habitat restoration, polluted sediment treatment and containment, sediment transport, and potential uses for dredged material. The LTMS is not a finite program; it is an ongoing effort. As explained in Chapter 2 of the EIS/EIR, the LTMS is a multi-phased process. Phase V of the LTMS is designed to allow for periodic re-evaluation of the Management Plan, based on changing regulatory, environmental, technological/scientific, and economic conditions. Public and resource agency involvement will also be a critical component of these periodic reviews and LTMS Management Plan updates.

9. At the start of the LTMS, a principal concern of the new program was to alleviate the "mudlock" situation that was curtailing the ability of the Bay area ports, the U.S. Army Corps of Engineers, and others to conducting dredging and associated disposal activities in the Bay. At that time, the potential impacts that dredged material disposal had on the receiving waters and habitats of the in-Bay environment had not been extensively studied. Therefore, a significant portion of the LTMS funds were directed to this purpose. It was also envisioned that the most likely short-term disposal alternative would be the establishment of an ocean disposal site. Again, a significant portion of the LTMS study funds were directed toward the analyses and subsequent interim designation of the San Francisco Deep Ocean Disposal Site. The reuse of dredged material for wetland habitat creation/restoration and in the upland environments is an overall goal of the LTMS. As site-specific proposals come up, substantial resources will be directed towards addressing site-specific issues as appropriate.

While a principal component of qualitative success determinations is the comparison of the site to baseline conditions, the LTMS EIS/EIR is a programmatic document. As such, baseline conditions at individual dredged material reuse sites will need to be conducted on a project-specific basis as required by the CEQA and NEPA.

10a. Statement noted. The LTMS agencies agree that additional study regarding the placement of polluted sediments as non-cover material in wetland restoration sites requires some additional analysis. Analysis of polluted dredged material placement will also need to occur on a project-specific level. However, the ability to contain polluted sediments at a given location through the use of engineered control measures is well documented. The combination of such containment with other clean dredged material reuse options, such as wetland restoration, is likely to occur to some extent during the 50-year LTMS planning period. Therefore, it was necessary to address this potential placement option in the draft programmatic document.

10b. Statement noted. An initial study of the importance of diked baylands as refugia, roosting, and foraging habitat for migratory birds, including overwintering shorebirds and waterfowl, was conducted by the LTMS (LTMS 1994h). While the LTMS agencies acknowledge that this study is not definitive and that additional studies in this field are greatly needed, the study did suggest that the restoration of some of the diked bayland acreage to tidal wetlands would not significantly impact migratory birds, waterfowl, or shorebirds since many of the functions of these sites would be augmented by the creation of tidal wetland habitat. As discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is an ongoing effort designed to allow for management updates based on the availability of information. This would include data derived from any ongoing or future studies regarding bird uses of the diked historic baylands.

10c. Statement noted. The LTMS agencies agree with this comment and will recommend that such analyses be conducted at the project-specific level. However, it should also be noted that many of the sites which were ranked high for potential wetland restoration using dredged material do not presently exhibit many, if any, wetland characteristics specific to the special status species that would potentially use these restored sites. Establishing performance criteria based solely on the successful establishment of wetland characteristics of special status species may not be the most desirable result for all projects. The recommendation of such analysis has been added to Table 5.1-3.

11. Statement noted. Wetland restoration projects which have used SUAD dredged material are underway and the success of these projects has been and will continue to be evaluated. The data collected from past dredged material reuse projects have been used in the design of projects like the Sonoma Baylands Restoration Project. The information derived from these newer reuse projects will aid in the design of future projects. However, given the LTMS goal of reducing impacts to the in-Bay environment associated with the disposal of dredged material in the Bay and the potential environmental benefits gained through the reuse of dredged material for wetland restoration, it is prudent to move cautiously forward, with continued reuse of dredged material for such purposes. This might include establishing demonstration projects which evaluate the ability to contain polluted sediments associated with the reuse of NUAD dredged material as non-cover sediments at wetland restoration sites.

12. The 40- to 50-cm figure was just one of several factors that would be considered to determine the final cap thickness. The table has been clarified to show that the determination of cap thickness should include all of the factors listed.

13. Clarification throughout the UWR sections of the Final EIS/EIR is provided to better separate and acknowledge differences between true uplands, seasonal wetlands, and tidal wetlands, including diked and subsided baylands that support both jurisdictional "uplands" and seasonal wetlands. However, completely separating the analysis contained in the UWR sections is unwarranted since such a restructuring would not affect the broad policy-level decisions made in the document, or alter the selection of a preferred alternative.

Policy-level mitigation measures in section 5.1 were developed for upland reuses of dredged material in the Final EIS/EIR. See Tables 5.1-3 through 5.1-6.

14. Great care was made in the Draft EIS/EIR to point out that different efforts directed at the restoration of habitat, particularly in the North Bay region, are currently underway, and these efforts are laudable. While individual LTMS agencies are involved in many of these restoration planning efforts, these projects are not under the direction or authority of the LTMS per se. As stated in section 4.4.5.1, the LTMS will need to coordinate restoration efforts with the various planning efforts underway to ensure that habitat restoration projects that use dredged material will be consistent with regional habitat planning efforts.

15. This analysis is included in the Final EIS/EIR. Section 6.1.1.3 of the Draft EIS/EIR discusses acres of wetlands that could be created under each alternative. However, the quantity of seasonal wetlands and upland areas that could be impacted by the reuse of dredged material in the UWR environment was not calculated.

16. As is explained in the early portions of the Draft EIS/EIR, over 85 percent of the San Francisco Bay has been lost to diking, fill, and development. The majority of the lost areas of the Bay were wetlands that lined the margins of nearly the entire Bay. While the regional planning efforts directed at wetland restoration are outside the scope of this document, the Draft EIS/EIR does contain information regarding the numerous efforts underway. The Final EIS/EIR also contains updated information regarding planning efforts.

In addition, the LTMS agencies have developed a policy-level mitigation measure to ensure that beneficial reuse project are consistent with the regional planning efforts and have added a new policy-level mitigation measure to encourage mitigation for lost seasonal wetland habitat. Please see revised section 5.1.2.

17. Chapter 4 of the Draft EIS/EIR addresses the current conditions at the Alcatraz disposal site. Chapter 6 describes the potential environmental effects of disposal at Alcatraz. Section 4.3.2.1 has been expanded to discuss avian resources on Alcatraz Island (see subsection titled Wildlife Resources). However, due to the complexity of sedimentary processes in the aquatic environment, the LTMS agencies cannot determine the degree to which past dredged material disposal practices may have affected the intertidal and subtidal resources of the island. We note that bird nesting has greatly increased on Alcatraz Island over the last 10 years. Nevertheless, the preferred alternative selected by the LTMS agencies allows the least amount of in-Bay dredged material disposal.. Please also see the expanded discussion of generic dredging impacts in section 3.1.1.3.

18. New Figure 4.3-9 shows the location of the Alcatraz disposal site relative to that of the GGNRA. Please also see the response above to DOI comment 1b.

Providing a buffer along the north edge of the circular SF-11 site may conflict with the need to manage and minimize mounding of dredged material disposed at this site by reducing the COE's ability to specify where individual disposal should occur within the overall site. Disposal has already been reduced, from a maximum of 9 mcy in 1985 to about 2 mcy per year recently. In any event, any potential impacts will be significantly reduced with implementation of Alternative 3, which calls for the greatest reduction of in-Bay disposal.

19. GPS (Global Positioning System) is one type of spatial tracking system. It is up to the contractor doing the dredging and disposal to determine what type of spatial tracking system they will use. The COE does not specify the spatial tracking system for dredging or disposal activities.

In response to the comment that historical data on past disposal placement should be incorporated into the document, the COE conducts quarterly bathymetric surveys of the three existing in-Bay disposal sites, and keeps a record of these surveys for inspection by the Regional Board, other regulatory agencies, and interested members of the public upon written request to the COE staff.

The COE also keeps a record of all disposal events that occur at the in-Bay and ocean (aquatic) disposal sites in the San Francisco Bay area. A quarterly summary report (Quarterly Report) of all dredging activities in San Francisco Bay is available to the Regional Board staff and interested members of the public through the Dredged Material Management Office (DMMO), which is hosted by the COE. The Quarterly Report contains the following information for each project: the name of the project, the dates dredged, the volume of material proposed for removal (in place, surveyed), the dredged volume disposed (referred to as the "bin"), the disposal site(s) used, and the name of any affiliated dredging permit holders (permittees).

On a quarterly basis, the COE provides a report summarizing the site capacity and topography for all three of the in-Bay disposal sites — SF-9, SF-10, and SF-11 — based on recent bathymetric surveys. A written summary of disposal and reuse at upland locations is also included. This requirement is applicable to all dredging activities by public and private sector entities which occur in the quarterly period.

Material is sampled for contaminants prior to being disposed of at Alcatraz (SF-11) or is granted an exclusion from testing. The reference site for Alcatraz is sampled periodically to determine if there is any increase in contaminants at the reference site. The limit of disposal of material at Alcatraz is required to conform with Public Notice No. 93-3.

Use of the Alcatraz disposal site is limited to small areas for clamshell and hopper dredging; see new Figure 4.3-6 in the Final EIS/EIR.

20. Monitoring, enforcement, and penalties are details that will be addressed in Management Plan and are requirements at any site for an enforceable operation. Section 4.3.2.1 of the Final EIS/EIR has been expanded to include more information about ongoing monitoring of in-Bay disposal sites, including Alcatraz. The LTMS agencies have enforcement authorities under existing federal and state statutes. These enforcement and penalty authorities will be addressed in more detail in the Management Plan and are requirements at any site for an enforceable operation.

21. Please see the response above to DOI comment 17. Due to the complexity of sedimentary processes in the aquatic environment of San Francisco Bay, as described in the EIS/EIR, the LTMS agencies cannot easily determine to what extent dredged material disposal in the Bay affects intertidal and subtidal resources. It would be necessary first to be able to differentiate sediment from dredging vs. sediment from other sources. There have been substantial reductions in in-Bay disposal already, and these reductions will continue with any of the proposed alternatives (except the no-action alternative). In addition,, the preferred alternative allows the least amount of dredged material disposal at in-Bay sites, thereby minimizing any potential impacts to GGNRA resources.

22. Please see the response above to DOI comment 21. The LTMS agencies are unaware of evidence that dredged material adversely affects Alcatraz bird populations. Bird population is increasing on the island. Increased tourism is another factor that could impact these populations (see section 4.3.2.1).

Please see also the response above to DOI comment 17.

23. The LTMS agencies acknowledge that dredged material disposal, particularly at the Alcatraz site, can result in aesthetic impacts to the water in the disposal area. Turbidity plumes are not only visible during disposal but also during subsequent resuspension from this dispersive site. However, except for aesthetics, there is no conclusive evidence of long-term environmental impacts of disposal plumes.

Please see also the response above to DOI comment 17.

24. See the specific responses below to DOI comments 24a through 24u.

24a. Many factors may affect wildlife resources at Alcatraz Island. GGNRA has studied bird nesting at the island. The LTMS agencies are not aware of any evidence that dredged material disposal affects

wildlife resources at Alcatraz Island or that there is any evidence of other impacts at Alcatraz Island from dredged material disposal.

Please see also the response above to DOI comment 17.

24b. As indicated in the EIS/EIR, one potential impact of dredged material disposal is avoidance by fish of the area around the disposal site. Avoidance may interfere with foraging habitat and food resources, but there is little information available with which to evaluate those effects. In addition, Alternative 3, the preferred alternative, provides for the greatest reduction of in-Bay disposal and should reduce any potential impacts. Please see the responses to DOI comments 17, 24e.

24c. Please see the responses above to DOI comments 17 and 24b.

24d. Dredged material disposal is controlled to avoid impacts on fish at critical periods and locations. There have been substantial reductions of in-Bay disposal, and these reductions will continue with any of the proposed alternatives (except the no-action alternative), thereby reducing any impacts.

Please see also the response above to DOI comment 17.

24e(1). Since few data exist on resources near disposal sites and disposal has occurred for some time, it is not possible to determine the impacts of the disposal activity. Section 5.1.1.2 (Site Management and Monitoring) of the EIS/EIR proposes to develop and implement a monitoring program. The Regional Board also operates a Regional Monitoring Program (RMP).

Section 4.3.2.1 of the EIS/EIR now contains additional information on the existing monitoring programs of dredging and dredged disposal activities that occur in the San Francisco Bay. In addition, the LTMS Management Plan will also contain information on monitoring programs. Please also see the response to DOI comment 21.

24e(2). The LTMS is willing to work with DOI to develop protocols for surveys and monitoring at Alcatraz, if there may be impacts from disposal activities. However, DOI has not presented any evidence to support the claim. Section 4.3.2.1 of the EIS/EIR now contains additional information on the existing monitoring programs of dredging and dredged disposal activities that occur in the Central Bay, particularly adjacent to and at the Alcatraz disposal site.

Please see also the response above to DOI comments 17, 18, and 21.

24f. Since there is no evidence of disposal impacts on breeding bird populations or intertidal resources, there is no need for additional timing restrictions ("windows"). Please see also the response above to DOI comments 17 and 21.

24g. This comment appears to suggest that there are adverse impacts to nesting birds on Alcatraz Island associated with the use of the Alcatraz Dredged Material Disposal Site. Some surveys have been conducted on the bird populations found on the island. However, to date, studies conducted by the NPS are inconclusive in regards to direct or indirect impacts associated with the use of the disposal site on the nesting and/or breeding birds utilizing the island. In fact, it appears that the bird populations on the island are thriving. Studies specifically designed to address the issue of disposal site use impacts on the island's bird population have not been conducted and would need to be before conclusions regarding impacts could be drawn.

Information regarding the birds species using Alcatraz Island and their basic life cycle has been added to the Final EIS/EIR (section 4.3.2.1). The final document also addresses the likelihood of impacts to these species. However, the direct impacts to these species associated with use of the Alcatraz Dredged Material Disposal Site are difficult to assess, particularly in light of the high degree of non-disposal-related vessel traffic in the area, including the tour boats going around and directly to Alcatraz Island daily, as well as the large numbers of visitors on the island.

24h. The policy framework represented by the alternatives evaluated in the EIS/EIR does call for monitoring standards to be included in the management plan for each multi-user disposal or placement site (see sections 7.1.2 and 5.1.1.2).

Creation of sensitive species habitat is one potential goal for some disposal sites and it is not appropriate to develop monitoring standards in this policy level EIS/EIR.

24i. Statement noted. This comment pertains to the Executive Summary of the EIS/EIR. As explained in the first paragraph of section 1.6.2, the LTMS agencies are taking a number of steps to ensure that potentially significant environmental impacts will not occur as a result of dredged material reuse in the UWR environment. This concept is expanded in the body of the document. Specifically, Table 5.1-3 identifies the need for full compliance with appropriate regulatory requirements, as well as mitigation and monitoring plans for each UWR project on a case-by-case, project-specific basis. Analyses of potential impacts to species of special concern at impacted sites receiving dredged material would also need to be conducted on a project-specific basis as mandated by both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA).

24j. The LTMS agencies disagree that sediment quality criteria would be set via Section 7 consultation. Federal sediment quality standards may be established by EPA in accordance with Clean Water Act Sections 304(a)(1) and 118(c)(7)(c). Similarly, states may adopt their own criteria in accordance with CWA Section 303(c). Standards would apply to all waters of the U.S. of the type addressed (e.g., fresh water, marine water), while state criteria would generally apply to all state water bodies with the same types of designated beneficial uses (e.g., drinking water source, industrial supply, fish and wildlife habitat). Opportunity for public comment, including review by DOI agencies, is included in the processes for promulgating both federal standards and state criteria.

At the present time, no sediment quality standards or criteria have been promulgated that establish when dredged material may be suitable for unconfined aquatic disposal. Instead, EPA and the COE have developed a national tiered sediment evaluation framework, and national sediment testing guidelines (as discussed in Chapter 3). If and when sediment quality standards or criteria are developed under the processes outlined above, they will be incorporated as appropriate into these national guidance documents. Of course, project-specific Section 7 consultation may result in more stringent protections on a case-by-case basis. However, the LTMS agencies do not envision that sediment quality standards or criteria would themselves be set via Section 7 consultation associated with either the LTMS program, or with individual projects.

24k. Statement noted. The Final EIS/EIR reflects this suggested revision (see revised sections 1.6.2 and 5.1.3.2, and revised Tables 5.1-3, 5.1-4, 5.1-5, and 5.1-6).

24l. Some CAD sites have been designed specifically to provide beneficial habitat. For example, the nearly 200-acre site in the Port of Los Angeles provides shallow water foraging habitat for the California least tern as well as isolating approximately 500,000 cy of NUAD material from the marine environment.

Confined Aquatic Disposal (CAD) sites are designed primarily to isolate contaminated sediments from the aquatic ecosystem, not "treat" the contaminated sediments so that they are rendered inert. The discussions regarding CAD in Chapter 3 (section 3.2.6.1), Chapter 5 (section 5.1.3.3 and the policy-level mitigation measure Table 5.1-5), and Appendix G are not intended to imply that these sites would necessarily be developed primarily as habitat sites. In practice, however, habitat develops, or can be developed, over the top of the clean ("SUAD") overlying materials of a CAD site. One of the main design considerations for any CAD site is the thickness of the clean material needed to cap the site. This cap needs to be designed to adequately and effectively isolate the underlying material not only from the water column, but also from organisms (whether rooted plants, or burrowing animals) inhabiting the cap. Extra capping material for erosion control, and to prevent bioturbation (burrowing) into the isolated material, may be necessary in some locations.

24m. Statement noted; this suggested revision has been made in the Final EIS/EIR.

24n. Statement noted. These suggested revisions have been made in the Final EIS/EIR; see "Species of Special Concern" under section 4.3.2.3.

24o. Statement noted; these suggested revisions have been made in the Final EIS/EIR.

24p. As indicated in the response to DOI comment 24o, species have been added to the discussions. Consultation pursuant to Section 7 of the Endangered Species Act is ongoing with the resource agencies. In accordance with discussions during this consultation, additional species have been added to the species restrictions tables in Appendix J and section 5.1.2.2, USFWS has provided a general updated species list which has been used to update the list in Appendix J, and additional discussion of impacts has been added to sections 3.1.1.3. and 5.1.2.2.

24q. Section 4.4.2 addresses the resources of the upland and diked historic baylands areas. A discussion of the potential impacts to these areas, including the potential impacts to species of special concern, are addressed in section 4.4.5.1. Please also see the response above to DOI comment 24p.

24r. These fish have been added to the new species restrictions tables in section 5.1 and discussion has been added to the text.

24s. Statement noted; the suggested revisions in regard to the two federally listed endangered plants have been made in the Final EIS/EIR. Those species that are not in the LTMS study area but are on the list supplied by the USFWS are indicated with an asterisk. Solano grass falls under this category.

24t. Statement noted. Text has been changed accordingly.

24u. Statement noted. It was the understanding of the LTMS agencies, through discussions with all of the resource agencies involved with dredging activities in the LTMS Planning Area, that an agreement had been reached in regard to the time periods when disposal activities could occur without an impact to listed or sensitive species. These periods differed by disposal location. Subsequently, the LTMS developed policy-level mitigation measures to address this issue, designating periods of disposal site use that would not result in sensitive fisheries impacts. It was not the intent of the LTMS agencies to usurp the USFWS' authority regarding formal Section 7 consultations. Rather, the policy-level mitigation measures were developed to serve as guidance for when dredged material could be disposed in the Bay at designated sites without adverse impacts to listed species or the requirements of obtaining a formal Section 7 consultations. Any changes in the USFWS' position on this matter are included in the Final EIS/EIR.

25. Please see the responses immediately below to DOI comments 25a through 25l.

25a. Such analysis was conducted for an LTMS technical study. This study, entitled *A Review of the Physical and Biological Performances of Tidal Marshes Constructed with Dredged Material* (LTMS 1994c), was prepared by Gahagan and Bryant Associates, Inc., with Bechtel Corporation, ENTRIX, Inc., and Philip Williams & Associates. A significant amount of information provided by this report was used in the preparation of the Draft EIS/EIR. As discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is an ongoing effort designed to allow for management program updates based on the availability of information. This would include data derived from any ongoing or future studies, including wetland restoration site monitoring or other specific scientific studies.

25b. Please see the response to DOI comments 3 and 4.

25c. Please see the response above to DOI comment 13. However, this comment refers specifically to page 1-1 of the Draft EIS/EIR (Executive Summary). The Draft EIS/EIR discussed (as does the Final EIS/EIR) the different benefits and risks of the various kinds of upland and wetland reuse of dredged material (see sections 3.2.4; 5.1.3.2; 6.1.1.3; 6.1.2.3; 6.1.3.3; 6.1.4.3; 6.1.5.4; and 6.2).

25d. Section 3.2.4 discusses the risks in different placement environments and includes a discussion of dispersion and bioaccumulation. In addition, as discussed in Chapter 3, dispersive sites are primarily in-Bay, are considered for clean material only, and would be used less frequently under the preferred alternative.

25e. Chapter 1 of the Draft EIS/EIR is an Executive Summary. The issue raised by this comment is addressed in much greater detail in chapters 4, 5, and 6 of the document.

25f. Statement noted. We will also evaluate projects in terms of likelihood of success. This is indicated in revised Table 5.1-4 (formerly Table 5.1-3).

25g. Construction and other upland reuses of dredged material are further discussed in section 4.4.2.5 of the document. However, information regarding the potential uses of dredged material in the upland/urbanized environment is greatly limited. This lack of information is likely due to the lack of reuse of this material in this setting due to its water content. As the document suggests, this problem would be alleviated by the construction and operation of rehandling facilities.

25h. The task of estimating the potential volume of dredged material reuse for construction and industrial purposes over the 50-year LTMS planning period is difficult. Presently, millions of cubic yards of material are used for construction fill purposes around the Bay and in the Delta regions, including material used for levee maintenance and stabilization. However, the majority of this material is derived from upland sources. The use of dredged material in place of these upland material sources is an emerging market. Planning estimates for upland/levee dredged material reuse were provided in the Draft EIS/EIR (see section 4.4.4). The extent of dredged material reuse for these purposes will primarily depend on the development of dredged material rehandling facilities. As discussed in the Draft EIS/EIR, the development and operation of these facilities will likely be market driven, as well as the need to deal with material deemed unsuitable for other reuse/disposal alternatives. Updated estimates of the potential uses for dredged material in the upland environment, particularly in light of the CALFED program and increased potential uses in the Delta, are provided in the Final EIS/EIR.

25i. The available information regarding sediment dynamics and wetland creation, derived from studies implemented by the U.S. Geological Survey and others in the San Francisco Bay region, are incorporated in the Final EIS/EIR (see section 4.3.2.2).

25j. Statement noted. The discrepancy between the volume of material needed in the Sacramento/San Joaquin Delta region for levee maintenance and repair and the estimated Delta levee reuse volume presented in Table 4.4-14 (Dredged Material Capacity Estimates for Upland and Wetland Reuse "High Scenario") are unrelated. The 55 mcy figure cited in section 4.4.5.2 was developed by the California Department of Water Resources based on their estimated materials need for Delta levee protection. The 26 mcy estimate by the LTMS (see column labeled "Delta Restoration" in Draft EIS/EIR Table 4.4-7) was based on the known feasibility and obstacles of using saline dredged material in the fresh water environment of the Delta. It would be ideal if the obstacles to Delta reuse of dredged material in excess of the estimated 26 mcy could be overcome, however, as discussed in detail in section 4.4.5.2, the issues of salinity and other potential pollutant impacts are substantial and will take much additional work to overcome. It is clear that there is a need for material within the Delta region. It is a goal of the LTMS to promote the beneficial reuse of dredged material for this purpose to the fullest amount feasible. Should dredged material not be used for this purpose, other material, "most likely upland sources," will need to be acquired.

25k. Statement noted. Please see the responses to DOI comments 9 and 25a.

25l. Statement noted. Chapter 7 of the Draft EIS/EIR was developed to initiate development of an LTMS Management Plan by presenting a number of options for achieving the desired dredged material distribution. All the concepts presented in this chapter were preliminary. This comment will be taken into consideration during preparation of the LTMS Management Plan.

26. Please see the responses immediately below to DOI comments 26a through 26e.

26a. The scientific documentation about containment of NUAD material in a wetland setting is not as extensive as that of landfill containment of pollutants. However, the principles of containment of polluted sediments at wetland sites have been analyzed in numerous locations. It is a principal goal of the LTMS to use dredged material, particularly NUAD material, as a resource at regional landfills. This position would not preclude the use of NUAD sediments as non-cover material at wetland restoration sites; rather the Draft EIS/EIR recognizes that there would be an increased necessity for thorough scientific study and engineering before such a placement could occur.

26b. The LTMS agencies recognize that additional scientific study is necessary. As discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is an ongoing effort designed to allow for management program updates based on the availability of information. This would include data derived from any ongoing or future studies regarding chemical constituent bioaccumulation and upland-use sediment quality analyses.

Extensive analyses would need to be conducted on a project-by-project basis during the design phase of all wetland restoration projects, whether NUAD material is used or not. Appropriate isolation measures would need to be incorporated into the design of wetland restoration projects which use NUAD sediments as non-cover material to ensure that such material remains isolated and would not be exposed for any reason. Such measures have been incorporated into the redesign of the Montezuma Wetlands. Additionally, extensive design and engineering review of wetland projects using NUAD material, as with all wetland restoration projects, would be required as mandated by both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA).

26c. The Draft EIS/EIR referred (section 3.2.5.4) to the ability to "streamline" sediment quality testing as the LTMS agencies develop more comprehensive means of conducting such evaluation. This does not mean reduced sediment evaluation or an increased disposal of NUAD material at inappropriate disposal environments. The development of sediment screening criteria, such as numerical screening values and Theoretical Bioaccumulation Potentials, may actually reduce the number and extent of the required sediment quality analyses while at the same time offer a more advanced means of environmental protection. The development and adoption of Upland Sediment Screening Criteria would greatly aid in defining where sediments can safely be used in such reuses as wetland restoration. Science can thus be used to streamline sediment analyses while increasing agencies' evaluation ability.

26d. In the absence of policy-level regulatory standards, project-specific testing and monitoring standards can be established so contaminant concentrations and specific environmental considerations can be taken into account. Specific projects will only be authorized when impacts can be adequately mitigated. Please also see the responses below to CDWR comments 2 and 3a.

26e. The quality of dredged material proposed for use in habitat restoration projects is discussed in section 4.4.4.1 of the Draft EIS/EIR.

27. Please see the specific responses below to DOI comments 27a through 27i.

27a. Please see the response to DOI comments 1, 3, and 4.

27b. Statement noted. The preferred alternative, selected in response to public comments, is identified as Alternative 3 in the Final EIS/EIR. This alternative provides for a split in disposal environments of 20 percent in-Bay, 40 percent UWR, and 40 percent ocean. The LTMS agencies recognize that a period of time will be necessary to transition into full implementation of the preferred alternative. This transition period should not only allow for the planning process needed by the dredging community to adjust to the reduction of in-Bay disposal volumes, but also provide for further scientific study of beneficial reuse in the UWR environment. In addition, as illustrated in Tables 4.4-12, 4.4-13, and 4.4-14, it is estimated that a number of years will be necessary to bring UWR sites on line. Under the medium scenario, representing approximately 50 percent reuse in the UWR environment,

approximately one or two small wetland restoration project would be brought on line during the first 5 years following LTMS implementation. It is the LTMS agencies' position that this pace, in comparison to the present almost exclusive use of the in-Bay environment for dredged material disposal, is quite conservative and allows for the incorporation of data from existing and proposed restoration project analyses into the development and management of future efforts. Further, as discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is ongoing and designed to allow for management updates based on the availability of information. This would include data derived from any ongoing or future studies regarding wetland restoration efforts using dredged material.

27c. Please see the response above to DOI comments 5, 6, and 7.

27d. A policy-level mitigation measure addressing dredging has been added to the Final EIS/EIR; please see section 5.1.2.2 and Table 5.1-1. The LTMS agencies expect the new requirements to constitute programmatic consultation under Section 7 of the Endangered Species Act. Those dredging projects that meet the requirements set out in the table will not undergo separate project-specific consultation. However, this does not preclude project-specific evaluation for those projects that do not meet the requirements. Please also see the responses to DOI comments 5, 6, and 7.

27e. Please note that the alternatives presented in the EIS/EIR do not vary in the amounts of dredging so such an analysis is not required. Analysis of impacts to species of special concern at impacted UWR sites receiving dredged material would need to be conducted on a project-specific basis as mandated by both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA). As noted above, the LTMS is not a finite program. Rather, it is ongoing and designed to allow for management updates based on the availability of information and regulatory changes. Implementation of an adaptive management program will be further analyzed in the LTMS Management Plan. Further, the Final EIS/EIR now includes programmatic measures developed in coordination with the USFWS and NMFS. These measures include necessary restrictions on dredging and disposal activities throughout the Estuary and will constitute programmatic Section 7 consultation. This consultation will streamline the process for the agencies and project sponsors who can meet the programmatic requirements. We believe this will significantly reduce the number of projects that will have to undergo individual formal Section 7 consultation. Please also see the responses to DOI comment 5.

27f. The category of UWR, as described in section 4.4 in the Draft EIS/EIR, includes a wide variety of wetland types, including the seasonally inundated wetlands typically found within the diked historic bayland. An initial study of the importance of diked baylands as refugia, roosting, and foraging habitat for migratory birds, including overwintering shorebirds and waterfowl, was conducted by the LTMS (LTMS 1994h). Only a portion of the diked historic baylands contain wetlands. There are some seasonal wetlands components on the individual diked bayland parcels; however, each parcel in itself is not entirely a wetland. Clarification throughout the UWR sections of the Final EIS/EIR has been provided (section 4.4.2.1) to better separate and acknowledge differences between true uplands, seasonal wetlands, and tidal wetlands, including diked and subsided baylands that support both jurisdictional "uplands" and seasonal wetlands. However, completely separating wetland types contained in the UWR sections is unwarranted since such a restructuring would not affect the broad policy-level decisions made in the EIS/EIR, or alter the selection of a preferred alternative. Section 4.4.5 presents information regarding the potential impacts of dredged material reuse for wetland restoration. The extent of seasonal wetland versus upland acreage impacted by Alternative 3 can only be determined at a planning level. Such estimates are provided in the Final EIS/EIR (section 4.4.4.5). However, given the need to determine such impacts on a site-by-site basis as reuse projects are proposed, an analysis of seasonal wetland impacts (as well as other associated environmental impacts) will need to be determined and mitigated appropriately as mandated by both state and federal law on a site-by-site basis.

The Final EIS/EIR includes policy-level mitigation measures for the loss of seasonal wetlands associated with tidal habitat restoration within the diked baylands (see section 5.1.2.1).

27g. As discussed in section 4.4.5.1 of the Draft EIS/EIR, the dredged material used for habitat restoration would need to meet strict sediment quality standards. The discussion (in section 3.2 of the Draft EIS/EIR) of the use of NUAD sediment as non-cover material in habitat restoration projects is conceptual. Pilot programs as well as site-specific analyses and engineering design would be necessary before NUAD material could be used in such a manner.

27h(1). As discussed in section 3.2.5.3, the San Francisco Bay Regional Water Quality Control Board has developed interim screening guidelines for the use of NUAD material in habitat restoration projects. However, additional analysis regarding the use of NUAD sediments as non-cover material is ongoing and the Regional Board's interim guidelines may change prior to establishment of formal sediment screening protocols.

27h(2). Statement noted. While this comment could apply equally to all of the LTMS study areas, it is recognized that additional analysis will be needed in regard to the development, design, and implementation of habitat restoration sites. The EIS/EIR serves as a programmatic document; site-specific analyses will need to be conducted on a project-specific basis as mandated by both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA).

27h(3). This issue was addressed through various LTMS upland studies and monitoring efforts, including a review of the biological performance of tidal marshes constructed with dredged materials (LTMS 1994d); analyses of the existing habitat functions of the diked historic baylands (LTMS 1994g, 1994h); and on-going monitoring efforts at the Sonoma Baylands Wetland Restoration Project site. This issue is discussed in section 4.4.5 of the Draft EIS/EIR. The LTMS agencies recognize that processes that govern wetland functions, as well as the ability to duplicate these in a created/restored wetland, are quite complex. As discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is ongoing and designed to allow for management and programmatic updates based on the availability of information. This would include data derived from any ongoing or future studies regarding wetland creation/restoration.

27i(1). This issues was addressed on a programmatic basis in section 5.1 of the Draft EIS/EIR. It is recognized that success criteria will need to be developed for each proposed habitat restoration project. Such analyses would need to be conducted on a project-specific basis as mandated by both the California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA).

27i(2). As discussed in the responses to other comments, the LTMS is not a finite program. Rather, it is ongoing and designed to allow for management updates based on the availability of information. This would include data derived from any ongoing or future wetland restoration studies and efforts. Data regarding previous wetland restoration projects, including projects such as the Faber Tract, Muzzi Marsh, and Hayward Salt Pond No. 3 were used in the preparation of the Draft EIS/EIR. The Final EIS/EIR includes a summary of the recently collected data at the Sonoma Baylands Wetland Restoration Project site. As data collected at these previous sites are analyzed and new data are collected from future wetland restoration projects, management strategies for these projects may change. Tables 5.1-1 through 5.1-5 were developed as initial guidance for individual dredged material reuse projects. Each project and its associated management strategy will need to be developed and monitored on a case-by-case basis to ensure its success.

Letters from State Agencies

State of California — The Resources Agency of California

Memorandum

Date : July 19, 1996

To : U.S. Environmental Protection Agency
LTMS EIS/EIR Coordinator

From : **Department of Boating and Waterways**

Subject : Long-Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region

The Department of Boating and Waterways has reviewed the draft of the Policy Environmental Impact Statement/Programmatic Environmental Impact Report for the LTMS. Our comments, which follow, concern the LTMS strategy for the disposal of dredged material originating from recreational marinas.

We feel that recreational marinas in the San Francisco Bay Region provide public access for activities and attractions to the general populace, as well as boaters. Because marinas provide access for fishing and viewing through such amenities as piers, pedestrian pathways, promenades and park areas, we feel that maintaining recreational marinas should be a high priority. Therefore, we strongly recommend that the LTMS 1 2

a) recognize the special importance of recreational marinas by giving these marinas first priority to aquatic disposal of dredged materials, and

b) not include language (see 5.1.1.3, Site Management and Monitoring) encouraging the Bay Conservation and Development Commission to work to reduce dredging associated with recreational marinas.

Don Waltz, Chief
Boating Facilities Division

cc: Resources Agency

I:\FACI\CORRESP\MI.TMSCOM.076July 19, 1996 (10:28am)

Responses to the CDBW — California Department of Boating and Waterways, letter dated July 19, 1996

1. The overall goals of the LTMS are described in Chapter 2 (section 2.1.2). Providing for environmentally appropriate and cost efficient (i.e., practicable) maintenance of projects, including recreational marinas, is a high priority for the LTMS agencies. As section 6.3.1 notes, special socioeconomic consideration will be given to small dredgers to ensure feasible disposal options are available. These types of techniques will be outlined in the Management Plan. Provisions for small dredgers are outlined in the new description of the transition to Alternative 3 (section 6.5.7) in the Final EIS/EIR.

   The preferred alternative provides for a small dredger set-aside within the cap on in-Bay disposal. Most, if not all, marinas will be included under this small dredger set-aside. The LTMS agencies agree that recreational boating and marinas are important. The set-aside is based on the relative difficulty for small dredgers to use the SF-DODS or many UWR sites. All project sponsors will still be required on a case-by-case basis to evaluate and implement UWR or ocean disposal if feasible and practicable.

2. Please see the response immediately above to CDBW comment 1. LTMS (and BCDC) will continue to review individual projects for opportunities to reduce dredging and to ensure that only the amount of dredging necessary is done for *any* project (including both large ports and small marinas). The text in section 5.1.1.3 has been changed accordingly. Please also see the response to CMPHA comment 3.

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, *Governor*

DEPARTMENT OF FISH AND GAME
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July 16, 1996

Ms. Karen Mason
LTMS EIS/EIR Coordinator
c/o U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street, (W-3-3)
San Francisco, CA 94105-3901

Dear Ms. Mason:

The Department of Fish and Game (DFG) has reviewed the Draft Policy Environmental Impact Statement/Programmatic Environmental Impact Report (DEIS/EIR) for the Long Term Management Strategy (LTMS) for the Placement of Dredge Material in the San Francisco Bay Region. LTMS is a comprehensive multiagency effort to establish a 50-year regional program which will allow dredging and dredged material disposal to be conducted in an environmentally sound and economically prudent manner, will maximize the beneficial reuse of dredged material, and will develop a coordinated permit review process for dredging projects. The lead state and federal agencies for this project, which was initiated in 1990, are the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers (COE), the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), the Bay Conservation and Development Commission (BCDC), and the State Water Resources Control Board (SWRCB).

The DFG strongly supports the overall objectives of LTMS, for we believe that the eventual fulfillment of these objectives will benefit fish and wildlife resources in the San Francisco Estuary and adjacent coastal waters. To this end, we have had a longstanding and constructive involvement with LTMS, including our active participation in the Policy Review Committee, several technical work groups (e.g., Ocean, In-Bay/Upland, and Implementation), and the pilot Dredged Material Management Office (DMMO). It is our hope that we will be able to continue this close and productive relationship as we move into the implementation phase of the Program. In considering the broad scope and 50-year duration of the LTMS, the DFG agrees that a policy/programmatic level environmental document is most appropriate, and that many details regarding policy implementation, timing, protocols, etc., are best reserved for the comprehensive Management Plan proposed to be developed immediately following completion of the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) processes. We look forward to assisting the LTMS agencies in developing the Management Plan.

The DFG concurs with the general approach taken in the DEIS/EIR of closely examining three operational disposal alternatives, in addition to a "no action" alternative, all three of which will reduce the amount of dredged material authorized for in-Bay disposal sites, as well as increase beneficial reuse opportunities in upland and wetland environments, and increase use of the EPA-designated deep ocean disposal site (SF-DODS). These "action" alternatives were selected using criteria that included the degree of risks and benefits to the environment, regulatory certainty, and economic effects. We believe that the DEIS/EIR adequately addresses the environmental circumstances and agency rationale that led to adoption of this approach and fully, as well as accurately, discusses the relevant aspects of the selected alternatives.

The DFG is pleased that all three of the "action" alternatives provide for a substantial reduction of in-Bay disposal. We have long believed that the disposal of high volumes of dredged material within the Estuary posed a significant risk to fish and wildlife resources and their habitats, and have frequently advised the LTMS agencies of this view. The DEIS/EIR does not put forward a preferred alternative as is the custom in most NEPA and CEQA documents , however, the DEIS/EIR is particularly clear about looking toward a phased transition from Alternative 1, which emphasizes aquatic disposal balanced between in-Bay and open ocean, and Alternative 3, which emphasizes beneficial reuse and ocean disposal, with more limited in-Bay disposal. The DFG has evaluated all the alternatives and strongly supports Alternative 3 as the ultimate goal of the LTMS process because it maximizes environmental benefits and minimizes risks to the Estuary . Nevertheless, we recognize the existing constraints on the LTMS agencies with regard to beneficial reuse opportunities, existing agency authorities, and cost-sharing requirements which may not allow an immediate implementation of this alternative. Therefore, we endorse the concept of a transition from Alternative 1 to Alternative 3, and recommend that the Final EIS/EIR (FEIS/EIR) adopt it as the preferred alternative. The DFG will work cooperatively with the LTMS agencies to ensure the full realization and implementation of this transition.

We do not support the "no action" alternative, as many of the environmental problems and other contentious issues that stimulated the initial formation of LTMS (e.g., reliance on in-Bay sites, particularly Alcatraz, for the greatest percentage of disposal volumes) would remain unresolved. Alternative 2, which emphasizes in-Bay over ocean disposal, is, in our view, environmentally inferior to Alternative 3 as a final goal of the LTMS Program, and appears to be substantially less practical than Alternative 1 as a starting point due, in large part, to the current shortage of, and constraints related to, beneficial reuse opportunities.

Notwithstanding our strong support for the LTMS Program, and the prospect of a transition from Alternative 1 to Alternative 3 as the preferred alternative in the FEIS/EIR, we do have some specific concerns and comments regarding the DEIS/EIR. These concerns and comments are discussed below; and, additionally, a list of typographical and other minor technical errors are provided separately as an addendum to this letter: