UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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William Steele
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Lower Colorado Region
PO Box 61470
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May 15, 2000

Dear Mr. Steele:

The Environmental Protection Agency (EPA) has reviewed the Bureau of Reclamation's (Bureau) Draft Environmental Impact Statement (DEIS) for the project entitled **Salton Sea Restoration Project, Riverside and Imperial Counties, California**. Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. EPA provided comments on the Notice of Intent (NOI) to prepare an EIS on September 30, 1998, actively participated as a cooperating agency, and provided comments on the Administrative DEIS on September 9 and 13 and December 1, 1999. This letter reflects ongoing concerns we have raised during our participation in this project as well as recommendations to improve the project and its NEPA documentation.

The Salton Sea (Sea) is a eutrophic, hypersaline lake in the Salton Trough, a closed basin of the southern California desert. Historically the Colorado River would periodically flood into this basin forming a large lake, called Lake Cahuilla, which would eventually dry up. Geological evidence of marine deposits along the ridge marks the last great inundation. The current Salton Sea (Sea) was formed in 1905-1907 when flooding on the Colorado River breached a temporary diversion structure allowing virtually the full flow of the river water into the Salton Trough. The Sea is currently maintained by agricultural drainage from fields irrigated by diverted Colorado River water and smaller volumes of municipal effluent and storm water runoff. Due to the loss of historical migratory bird habitat in the Lower Colorado River Delta (Delta), the Sea has become a critical part of the Pacific Flyway, providing seasonal, migratory, and nesting habitat. Because of its highly eutrophic nutrient rich nature, the Sea also has a very productive non-native sports fishery. Despite the current high productivity of specific fisheries, increasing salinity, high nutrient loading, pesticides, selenium, DDT residues, discharges of agricultural chemicals, and changing water and land use are threatening the reproductive ability of the biota and are significantly reducing the ecological viability of the system.

Proposed Action by the Bureau

The purpose and need for this project is to maintain and restore ecological and socioeconomic values of the Sea. The objective of this effort is to evaluate alternatives which (1) maintain the Sea as a reservoir for agricultural drainage, (2) provide a safe, productive environment for resident and migratory birds and endangered species, (3) restore recreational uses, (4) maintain a viable sport fishery, and (5) identify opportunities for economic development.

Proposed actions are divided into two phases. The first phase seeks to maintain and restore the Sea for up to 30 years. The second phase includes additional actions required to maintain the Sea for up to 100 years. Since future water flows into the Salton Sea are uncertain, project effects have been evaluated against three No Action inflow scenarios.

Five action alternatives are described for Phase 1:
Alternative 1 - two evaporation ponds within the Sea,
Alternative 2 - Enhanced Evaporation System (EES) at Bombay Beach,
Alternative 3 - EES at the Salton Sea Test Base,
Alternative 4 - one evaporation pond and the EES at the Salton Sea Test Base, and
Alternative 5 - one evaporation pond with EES incorporated into the pond itself.

Depending on the alternative, reduced inflows would require the addition of a displacement dike, importation of Colorado River flood flows, and accelerated export of Salton Sea water. Other Phase 1 actions include construction of diked ponds to preserve existing north wetland and Desert Pupfish habitat and common actions to further address the project objectives. These common actions would be implemented regardless of the chosen alternative except for the No Action alternative. The proposed common actions are fish harvesting, improved recreational facilities, shoreline cleanup, an integrated wildlife disease program, a long-term management strategy, and a strategic science plan.

Phase 2 options include an expanded EES or export of Salton Sea water to the Gulf of California, the Pacific Ocean or to Palen Dry Lakebed. Reduced inflows would require importation of less saline water. Water could be imported from the Central Arizona Salinity Interceptor (CASI), designed to transport brackish water by gravity from the Tucson and Phoenix areas to Yuma, Arizona. This water is expected to be available in approximately 25 years.

EPA Comments:

It is clear that there are significant environmental problems at the Salton Sea that are likely to worsen in the future. The Salton Sea is a unique and valuable resource. Our objective is to assist the Bureau in developing restoration efforts which are ecologically sustainable and make sense within the context of sound science and regional environmental, ecological, and economic needs. Ultimately, our goal is to ensure decision makers and the public are provided an accurate and credible document upon which to make decisions.

We wish to recognize the hard work and dedication of the Bureau and Salton Sea Authority (Authority). Both have made admirable efforts to resolve complex and unique ecological problems within an exceedingly short time frame. We acknowledge the constraints the Bureau was under in developing this DEIS. The Bureau's work provides a good start for an effective and sustainable restoration program. We concur with the proposed common actions which can be implemented as early as 2003. We urge immediate implementation of the integrated wildlife disease program, strategic science plan and proposed common action pilot projects.

Overall, however, the Salton Sea Restoration Project focuses on but a few large engineering solutions to address only salinity and surface elevation problems. We believe restoration efforts must utilize a wide range of approaches to address the multiple complex and unusual problems of the Sea. A broader multi-faceted restoration project seems to comport more with the project purpose and need to maintain and restore ecological and socioeconomic values of the Sea. We question whether the narrowly defined project would result in a feasibly sustainable viable ecosystem as stated in the project's goals and objectives. The basis for our position is as follows:

1) <u>There are significant deficiencies in the environmental analysis.</u>

While the DEIS for the Salton Sea Restoration Project does acknowledge that nutrient loading and water quality issues, in addition to salinity, are problematic, the document fails to propose restoration actions for those aspects of the overall problem. Nutrient loading is one of the more immediate threats to the Sea's ecological health. There is ample evidence cited in the DEIS to suggest that without significant reductions in nutrient and other pollutant loading to the Sea, it is unlikely that there will be significant reductions in algal growth, odors, fish and bird die-offs, and other occurrences that currently make the Sea undesirable for many recreational, wildlife, and economic purposes.

The DEIS does not fully describe the Regional Water Quality Control Board's (RWQCB) development and implementation of Total Maximum Daily Loads (TMDLs) for the Salton Sea basin, nor does it incorporate TMDL actions into the proposed restoration alternatives. TMDLs are quantitative assessments of the sources of pollutants and reduction allocations of those pollutants in order to reduce pollution to levels that achieve water quality standards. EPA has a strong interest in ensuring restoration practices are consistent with TMDL requirements. We believe TMDL actions should be incorporated into the proposed restoration alternatives, where applicable, and fully described in the EIS. Potential impacts of restoration actions on development and implementation of TMDLs must be fully addressed in the EIS.

The Coachella Valley Tribes (e.g., Torres Martinez and Coachella Valley Tribal Consortium) are currently establishing beneficial use criteria for waters in and under their reservations, and are developing water quality standards and TMDLs to protect these uses. These water quality standards programs are not acknowledged, described or reflected in the proposed project. The regulatory authority of these tribes, for example, to set standards for salinity, nutrients, and other pollutants could play a key role in the restoration of the Sea. Furthermore, these tribes have already been working to restore portions of the Sea (e.g., Torres Martinez

northern wetlands proposal). EPA recommends more extensive consultation with potentially affected Indian Tribes on a government-to-government basis. We believe restoration options and the EIS should consider the role tribal water quality standards and restoration efforts can play in restoring the Sea.

Other significant deficiencies in the environmental analysis include an inadequate evaluation of the tradeoffs between project objectives, inconsistency between the assumed time-line for reduced inflows and proposed actions to address these inflow reductions, and inadequate evaluation of critical cost factors. The EIS should recognize and describe that the project objectives may, in part, be conflicting, whereby achieving one objective could result in an adverse effect in achieving other objectives. The assumed time-line for reduced inflows and the proposed implementation of actions to address these inflow reductions do not match. For instance, importation of water for reduced inflows is triggered in 2015, although it is assumed that these lower inflows would not occur until 2030. Cost factors which should be evaluated include the cost of maintenance following expected seismic effects, use of landfills for sediment and salt disposal, and long-term infrastructure costs to the local communities.

2) The DEIS does not demonstrate that the project alternatives are feasible or sustainable or that they will achieve project objectives.

Even with implementation of proposed restoration actions; salinity, surface elevation, and ecological goals may not be met. We believe there is no assurance the project will meet its objectives, even after a significant expenditure of effort and resources.

Construction related fugitive dust and vehicle emissions from Phase 1 actions would significantly exceed conformity rule de-minimis levels. The DEIS suggests a PM10 State Implementation Plan (SIP) amendment may be required to address conformity for project approval. We are very concerned that the project may rely on amending the PM10 SIP as the sole means of meeting conformity requirements. The feasibility of such an amendment to accomplish conformity is questionable.

3) Salton Sea restoration should be evaluated within the context of the Lower Colorado River watershed.

Sustainable restoration of the Salton Sea must consider its integration as a vital part of a thriving, healthy Lower Colorado River watershed to reflect reality. The Salton Sea, Lower Colorado River Basin and Delta must be considered in its entirety because actions taken in one part of the Basin, especially additional water diversions, could have significant adverse cumulative impacts on other parts of the Basin. It is questionable whether the entire watershed would remain ecologically viable without a comprehensive approach to its restoration.

This larger observation notwithstanding, the DEIS does not adequately evaluate potential direct, indirect, and cumulative impacts of the restoration project on the Lower Colorado River Basin and Delta. Nor does it provide a complete description of the present conditions in the Delta. In addition, the Bureau should analyze potential impacts from and to other regional projects (e.g.,

Imperial Irrigation District/San Diego Water Authority (IID/SDWA) water transfer, California 4.4 Plan, Delta restoration) on the Salton Sea Restoration Project, especially if the restoration project is modified or delayed. This information should be provided in the EIS.

4) The project scope is too narrow.

The Bureau has stated that authorizing legislation (PL 102-575 in 1992, PL 105-372 in 1998) focused the project scope on salinity reduction and stabilization of surface elevation. Salinity and surface elevation are considered by some as the primary factors making the Salton Sea undesirable for many recreational, wildlife, and economic purposes. Salinity and surface elevation are, however, only two of many factors that are significantly reducing the ecological viability of the Sea. In fact, the DEIS states that high nutrient loading, oxygen depletion, temperature fluctuations, pesticides, selenium, DDT residues, discharges of agricultural chemicals, and changing water and land use are also threatening the reproductive ability of the biota and the Sea's ecosystem (pg. 1-1). Furthermore, while authorizing legislation helps focus restoration efforts, the National Environmental Policy Act (NEPA) mandates an evaluation of all reasonable alternatives (to meet the stated need and achieve the project purpose), including those not within the jurisdiction of the lead agency [40 CFR Section 1502.14(a) and (c)].

We urge the Bureau to evaluate the project more comprehensively than that which is reflected in the DEIS, e.g., within the larger scope of the Lower Colorado River Basin and Delta. The analysis should include a broader range of alternatives which incorporate actions to address the source of nutrients and salinity; restoring seeps, creeks, springs and river deltas of the Sea; and integration of Salton Sea restoration within the Lower Colorado River restoration efforts. The analysis should also discuss how the over-arching issues of water quality and quantity would be resolved to achieve a successful and sustainable project.

Summary of EPA position

Based on our review, EPA has concluded the DEIS is inadequate and should be formally revised and reissued for public comment as a Supplemental Draft Environmental Impact Statement (SDEIS). EPA believes that the additional information, data, analyses, or discussions brought to your attention herein are of such a magnitude that they should have full public review at a draft stage. Therefore, we have rated the adequacy of the DEIS as Category "3" - Inadequate (see attached "Summary of EPA Rating Definitions"). On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the Council on Environmental Quality (CEQ). Our detailed comments are enclosed.

We encourage the Bureau and Authority to closely collaborate with EPA in an effort to achieve our common goal of the restoration of the Salton Sea. We appreciate the opportunity to review the DEIS and are available to discuss these issues with you further. Ms. Laura Fujii, our primary staff point-of-contact for this project, will contact you in the near future to schedule a meeting to discuss issues. In the interim, should you have questions, please call Ms. Deanna Wieman, Deputy Director of the Cross Media Division at (415) 744-1015, Mr. David Farrel,

Chief of the Federal Activities Office at (415) 744-1584, or have your staff contact Ms Fujii at (415) 744-1601.

Sincerely,

Signed by Felicia Marcus

Felicia Marcus
Regional Administrator

Enclosure: Summary of EPA Rating Definitions
Detailed comments

MI003119
Filename: salton2de.wpd

cc: David Hayes, Deputy Secretary DOI
Tom Kirk, Salton Sea Authority
Phil Gruenberg, RWQCB
Carol Roberts, USFWS

DETAILED COMMENTS - SALTON SEA DEIS

Water Resources

Nutrients

1. The purpose and need for the Salton Sea Restoration Project is described as ".. to maintain and restore ecological and socioeconomic values of the Salton Sea to the local and regional human community and to the biological resources dependent upon the Sea." The document states that several problems, including high nutrient loads to irrigation drains leading to the Sea "...must be addressed to benefit the fish and wildlife resources and habitats of the Salton Sea and to meet the directives of Congress."(pg. 1-5) Notwithstanding these statements, the Restoration Project contains no goals or objectives for reducing nutrient or other pollutant loading into the Sea.

The Salton Sea is eutrophic and under stress from nutrient loading and oxygen depletion (as well as increasing salinity). The DEIS clearly supports this fact. Previous studies have also concluded that the nutrient concentrations of the Sea have caused high rates of algal growth, leading to high concentrations of dissolved oxygen in near-surface waters and oxygen depletion in waters at depth (FWQA, 1970, cited on page 3-14). In addition, the Regional Water Quality Control Board (RWQCB) has designated the Salton Sea as an impaired water body due to selenium, salt, and nutrients. There is ample evidence to suggest that without significant reductions in nutrient and other pollutant loading to the Sea, it is unlikely that there will be significant reductions in algal growth, odors, fish and bird die-offs, and other occurrences that currently make the Sea undesirable for recreational, wildlife, and economic purposes.

Reduction of nutrient loads could be accomplished in a manner that would maintain the Sea's use as an agricultural drainage sink. There are several alternatives which may be feasible. These alternatives may also be very cost-effective, given the comparative costs of other alternatives already under consideration for reduction of salinity. A few possible alternatives include: construction of de-silting basins (which could reduce sediment loads and phosphate associated with sediments), partial reduction in fertilizer use, further treatment of domestic wastewater discharges in the U.S. and Mexico, and constructed treatment wetlands. There is no evaluation of such options in the DEIS either as alternatives or part of an alternative. The DEIS therefore fails to fully analyze reasonable alternatives which could meet the stated project purpose and need, goals, or objectives.

2. Given the key role of nutrients in restoration of the Sea, we urge that nutrient load reductions be added as a common action to further address objectives of wildlife maintenance and enhancement, restoration of recreational uses, maintenance of the sport fishery, and realization of economic development opportunities.

3. EPA questions whether the proposed fish harvesting activity alone will make a significant difference in the nutrient levels of the Sea. The executive summary of the DEIS states that Tilapia

harvesting is being considered as a method to reduce the internal nutrient load and fish populations. This statement is contradicted by the conclusions of 5.1, Fish Harvesting, which states, "...fish harvesting alone would have a limited effect on reducing the nutrient levels in the Sea. In order for the harvesting of Tilapia to have a more pronounced effect on nutrient levels it must be coupled with significant reductions in the nutrient input levels into the Sea. Even then the Sea is likely to be eutrophic for many decades." (pg. 5-2). While we believe the proposed fish harvesting proposal may have a minimal effect on nutrient levels, we believe a more comprehensive approach to fish population management may have some promise. We recommend the Bureau and Authority consider other options such as management of all fish species in the Sea and larger harvest levels (compared to the predicted 1% harvest of the biomass through the DEIS proposed activities). The SDEIS should provide a more detailed description of the fish harvesting proposal, including an evaluation of harvesting effects on fish size and species distribution, as well as nutrient loading reductions.

4. The DEIS states that shoreline cleanup would reduce nutrients from the Sea. There is no evaluation in the document to support the assertion that cleanup would significantly reduce nutrients from the Sea. Although the environmental consequences of shoreline cleanup are addressed in Section 5.3, the impact of cleanup on surface water resources is not assessed. It would appear that the impact of shoreline cleanup on nutrient loads would be similar to that of fish harvesting, which is not expected to have a significant effect on nutrient levels. An evaluation of the actual effect should be conducted and included in both the Executive Summary and Section 5.3 of the Supplemental Draft EIS (SDEIS).

5. The DEIS states, "Water used in irrigation *comes into contact with* various agricultural chemicals and fertilizers, as well as the natural mineral and organic substances contained in soils." (emphasis added). It states further, "Municipal waste water, depending on the degree of treatment it receives, *contains* varying amounts of dissolved and suspended organic material, nutrients, metals, hydrocarbons, and other compounds that originate from domestic, industrial, and urban runoff sources."(emphasis added)(Section 3.1.4, page 3-13, Other Water Quality Constituents). The italicized test in both statements should be made consistent, that is, that water originating both from irrigation and municipal wastewater *contains* various pollutants.

6. In evaluating the effect of reduced inflows under the no action alternative, the DEIS states that "...the concentration of nutrients and other constituents that are carried into the Sea also would increase." (Environmental Consequences of Phase 1 Actions, page 4-2). The DEIS does not adequately describe or address the potential impact of this increase in nutrients and other constituents on eutrophication, odors, fish and bird die-offs, water clarity, and general ecosystem health of the Sea.

Water Quality

1. The development and implementation schedule for the Salton Sea Total Maximum Daily Load standards (TMDL) falls within the Phase 1 time frame. The Regional Water Quality Control

Board (RWQCB) has already started on the development of a TMDL for salinity in the Salton Sea and expects to complete that effort in 2001. Work on TMDLs for selenium and nutrients in the Salton Sea are scheduled to begin in 2002 and be completed in 2007 and 2010, respectively. Thus, implementation of TMDLs for the Salton Sea and its tributaries should be listed as a common action for all alternatives. In order for the restoration project to achieve its stated goals and objectives, the Bureau will need to identify and commit to specific, quantitative reductions in nutrient loadings to the Sea as part of the TMDL process. These commitments are highly relevant to the TMDL process and could greatly facilitate its implementation. To ensure success of the project and adequate implementation of the TMDL, we strongly urge the Bureau, Authority, and other parties associated with the Salton Sea to take an active part in the TMDL process. The SDEIS should provide a complete description of the proposed Salton Sea basin TMDLs. This description should explain how the proposed restoration project will be consistent with specific TMDL actions and how the Bureau plans to coordinate with the RWQCB regarding TMDLs. Potential impacts to the TMDL process should be fully addressed in the SDEIS.

2. The DEIS includes 5 goals of the project, and lists individual objectives under each goal (Section 1.4 Salton Sea Restoration Project Goals and Objectives). Improvement of water quality is not listed as an objective under any goal, even though it is necessary in order to meet four of the five goals. For example, the document states that decreasing water quality and the increasing public perceptions of potential health risks at the Sea have led to a visitor decline. Improving water quality is therefore a necessary objective in order to meet Goal 3 – Restore recreational uses at the Sea. The document also lists several objectives that are dependent on improvements in water quality, such as, "address selenium health advisories on eating fish", "reduce objectionable odors", and "reduce the occurrence of algal blooms." Improvements in water quality are needed to realize each of these objectives. We recommend adding an objective for improvement of water quality, such as "Improve water quality to support beneficial uses of the Sea," to the following goals:

Goal 2 - Provide a safe, productive environment at the Sea for resident and migratory birds and endangered species.
Goal 3 - Restore recreational uses at the Sea.
Goal 4 - Maintain a viable sport fishery at the Sea.
Goal 5 - Identify opportunities for economic development.

3. There is insufficient discussion of the short- and long-term effects of the dredging of Salton Sea sediments (6.0 or 7.0 million cubic yards, depending on which chapter of the document is referenced). The water quality effects resulting from resuspension of bottom sediments are itemized and assumed to be trivial over time. We question whether the water quality effects would be minimal especially if there is a reduction or alteration in circulation resulting from the evaporation ponds or displacement dikes, or an extension of the construction period. We note that construction would occur for 2-3 years. We are concerned with the physical effect of 6 to 7 million cubic yards on the bathymetry of the Sea. The SDEIS should describe and analyze the short- and long-term effects of dredging, including potential impacts due to changes in Sea size and circulation and potential impacts of disposing of the sediments elsewhere.

4. The DEIS states, "Although elevated concentrations of selenium, boron, and pesticides were found in tissue samples of waterfowl and fish, direct exposure to these contaminants in water does not appear to be an important exposure route. Rather, birds probably ingest fish, sediments, plants, or other organisms in which the compounds have become concentrated." (Section 3.1.4, page 3-17). This paragraph offers no explanation of why the pollutants might occur in fish. The SDEIS should describe where these pollutants originate and why direct exposure to contaminants in water is ruled out as a source for the chain of bioaccumulation. Bioaccumulation through the food chain is, in particular, the pathway for selenium. The particular tendency for selenium to bioaccumulate through the food chain, starting with uptake by algae, is the exposure pathway of concern. Conditions for selenium uptake do exist in the Salton Sea. Fish can also concentrate pollutants very quickly from low-level concentrations through uptake across their gills. This uptake pathway can often be far more efficient and more rapid than uptake through the food chain. Thus, we believe the DEIS fails to fully explain possible routes of pollutant loading and bioaccumulation of contaminants in the Sea, waterfowl and fish. The SDEIS should fully address these issues, including transport of contaminated water and sediments from tributaries.

5. The DEIS suggests that fecal coliform may not be able to survive in the highly saline conditions found in the Salton Sea (see page 3-15). Given ocean beach alerts and closures due to fecal coliform, the SDEIS should provide additional data to support the above suggestion. In addition, the SDEIS should evaluate the potential affect of reduced salinity on the survivability of these bacteria in the Sea.

Flood Flows

1. The discussion of Colorado River flood flows and their use is inadequate. For instance, the description of current conditions implies that flows are now going to the Sea ("The use of surplus water from the Colorado River is likely to continue for the next 10 to 15 years." Draft Alternatives Appraisal Report, pg. B-8). The SDEIS should state whether this is water that flows from the Colorado River through the All- American Canal to the water delivery system directly to the Sea (i.e., not through the fields). The discussion should include information on how long this practice has been occurring, why, and when the practice is expected to stop. If Colorado River water is going directly to the Sea, it is benefitting water quality by diluting contaminated flows from agriculture and municipal sources. The effect of reducing this input to the Sea should be fully addressed, including the potential impact on water quality.

2. There is no discussion of the competing interests in Colorado River flood flows, especially those with specific water rights to Colorado River water. We note that the flood flows to Mexico over the last decade have been a key factor in the revitalization of the Delta wetlands. The SDEIS should fully evaluate the potential impacts to other beneficial uses, such as the Delta and instream uses, caused by the reduction or loss of flood flows by 2015.

3. Except for Alternative 1, projections of salinity and surface elevation during Phase 2 demonstrate that flood flows do not contribute much to salinity and surface elevation control

(Figures 6.1-1 to 6.1-6, pgs. 6-5 to 6-10). Although flood flows may improve the quality of Central Arizona Salinity Interceptor (CASI) water, which is relatively high in salinity (projected at 4,100 mg/L, compared to Colorado River water at 800 mg/L), the reduction in Salton Sea salinity is not great even when flood flows and CASI water are used to augment Salton Sea inflows. On the other hand, Colorado River flood flows have had a proven large beneficial effect on the quality and extent of habitat in the Delta.

4. It appears reasonable that maximum allocation of Colorado River flood flows should be directed to high value, sustainable and beneficial uses. We urge evaluation of flood flow use within the context of the entire Colorado River basin. For instance, the evaluation should consider use of flood flows for other, perhaps more sustainable, beneficial uses such as Colorado River water quality (e.g., dilution of salinity, perchlorate, selenium) and restoration of the Colorado River Delta. The SDEIS should also fully evaluate the potential cumulative impact of diverted flood flows on the water quality and ecosystems of the Lower Colorado River and Delta. Over allocating flood flows to the Sea could result in further damage to a more productive habitat. Hence, adequate study of the totality of this issue is imperative.

We note that it is predicted that flood flow availability will decrease in the future, becoming increasingly unreliable at about the same time Salton Sea Phase 2 water needs will be more critical. It is well known that water of the Colorado River is already over-allocated (allocation of 16.3 million acre-feet(maf)/year(yr) with only an annual average yield of 15 maf or less/yr.) with fierce competition for the rights to flood flows and "surplus" water. Furthermore, the DEIS analysis demonstrates the high probability that flood flows may not occur for long periods of time, may be clustered, and may range widely in magnitude (pg. 3-28). Thus, we question the availability of Colorado River flood flows for the Salton Sea since the Sea does not have a specific Colorado River water right, the Colorado River is over allocated, there is fierce competition for these flows, and California must reduce its use of Colorado River water to be within its allocation.

5. The SDEIS should provide information on the legal mechanism(s) which would be used to assure use of Colorado River flood flows for the Salton Sea into perpetuity.

Wetlands and Section 404 of the CWA

1. We recommend the SDEIS include an 404(b)(1) analysis to demonstrate compliance with Section 404 of the CWA. The 404(b)(1) analysis includes preliminary identification of the least environmentally damaging practicable alternative (LEDPA) that meets the project purpose. From the standpoint of 404(b)(1) compliance, the various project goals that have been stated for the Salton Sea Restoration Project may not be given equivalent weight in determining which alternative constitutes the LEDPA. For example, the goal of maintaining the existing inputs of salts and contaminants within agricultural waste water will have to be weighed against water-quality improvement goals if, in fact, the purpose of the proposed project is environmental restoration. Furthermore, the 404(b)(1) alternatives analysis may necessitate consideration of

additional alternatives that assess the practicability of reducing inputs of salts and contaminants into the lake, or opportunities to reduce, rather than increase nearshore residential, commercial, or recreational development, if there are discharges of dredged or fill material that are associated with achieving these goals.

Generally, all discharges of dredged or fill material into "waters of the United States," including wetlands, are discouraged under the regulations, particularly if there is a less environmentally-damaging alternative that achieves the basic purpose of the project for which a discharge is proposed (the aforementioned LEDPA). In the case of the Salton Sea Restoration Project, the discharges of dredged or fill material would be primarily associated with construction of dikes and associated excavation, the purpose of which would be to attempt to reduce chemical loads (primarily salinity) within the Salton Sea. While these diking projects may reduce the rate at which salinity and chemical contamination is increasing, they may be less successful than alternatives that would not require dikes. However, these alternatives (such as treating or reducing inputs of agricultural waste water) are not assessed in the DEIS. Such alternatives should be considered.

2. The 404(b)(1) analysis should describe the construction material to be used for the dikes and provide an evaluation of the resuspension of materials that may have settled or been trapped in the Sea sediments. We understand that toxicity testing will be done to determine where and how the dredge material should be disposed. We recommend the SDEIS include a short description of proposed testing methodology and quality assurance protocols.

3. Although the DEIS states that permit approvals are required from the US Corps of Engineers (Corps) pursuant to Sections 9 and 10 and 404 of the Clean Water Act, there is no narrative describing these regulatory requirements or a preliminary application for the permits (Pg. 9-8 Table 9-1, Chap. 9). Given the potential for extensive fill within the waters of the US, we urge the Bureau and Authority to include in the SDEIS a separate appendix providing a complete Section 404 (b)(1) Guidelines analysis and/or a demonstration that the project fully meets these requirements.

National Environmental Policy Act

Purpose and Need and Project Goals and Objectives

1. EPA questions the whether the proposed alternatives would meet the project purpose, goals or objectives. The DEIS clearly demonstrates that even with implementation of restoration actions, surface elevations and salinity will not be stabilized for 30 years. In fact, even with current inflows there would be an initial increase in salinity above the target level of 37,500 mg/L (pg. 61)(Table 2.9-1). Reduced inflows limit the probability of success and may result in loss of lower tropic levels and sport fish during Phase 1 (pg. 2-61). Under the 0.8maf/yr inflow scenario, all action alternatives are not able to stabilize salinity and elevation even with Phase 2

implementation (Figure 6.1-5, Figure 6.1-6, pgs. 6-9, 6-10). By 2060 salinity would start to rise again and surface elevation of the Sea decrease.

We note that the Sea's fishery is the result of man-made introductions and lacks diversity. The lack of diversity in the Salton Sea ecosystem makes each link in the food chain vital to the survival of species in the higher trophic levels (pg. 3-65). Thus, this artificially created ecosystem may be highly vulnerable to even small perturbations. Collapse of the lower trophic levels could result in a cascade effect and potential collapse of higher tropic levels. On the other hand, we note that other eutrophic lakes with artificially created fisheries have been successfully managed through fish eradication and restocking.

2. The five project objectives may not be easily achieved without conflicts and tradeoffs between objectives. For instance, agricultural drainage is one of the primary sources of the nutrients, salts, and other pollutants that may be reducing the ecological viability of the Sea. Thus, maintaining the Sea as a reservoir of agricultural drainage without sufficient measures to minimize the inflow of pollutants could conflict with providing a safe, productive environment for birds and endangered species. We also note that simultaneously addressing salinity and surface elevation significantly constrains potential solutions. For example, pumping water in to reduce salinity could conflict with the desire to stabilize surface elevation. Stabilization of surface elevation also could reduce habitat since moderately fluctuating water levels often promote wetlands. The SDEIS should be clear in describing these tradeoffs between project objectives.

Alternatives Analysis

1. EPA believes there are reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the DEIS that would meet project purposes and objectives while reducing potentially significant environmental impacts. We recommend consideration and evaluation of these or similar alternatives and options in the SDEIS.

Possible management alternatives include non-point source pollution control measures such as modified agricultural practices (e.g., reduction of fertilizer and pesticide use, crop modification), land retirement, treatment of drainage water (e.g., with constructed wetlands), water conservation, de-silting basins, restoration of local habitats (e.g., the river deltas in the Sea) and further treatment of domestic wastewater discharges. Integration of TMDL actions into alternatives is an additional option for addressing nutrient and pollutant loading sources. Structural alternatives could include salt harvesting, a wastewater treatment facility, and constructed wetlands for wastewater treatment

We recommend development and evaluation of an alternative based on the dynamic nature of the Sea which more closely mimics its natural cycle as a terminal lake in the desert and considers the potential tradeoffs between other locations in the Lower Colorado River Basin. Possible features of this alternative could include:

a) Periodic refreshment of Salton Sea with fresh water (once every 50-75 years) to a salinity ranging from 35 to 50 ppt over time. Sources of water could come from opportunistic use of very wet-year flood flows or a combination of sources utilized only once every 50-75 years.

b) Delivery of surplus or flood water of the Colorado River to the Delta wetlands for restoration of native and migratory bird and other endemic species habitat. The expansion of habitats in and out of the Salton Sea basin could reduce problems in the Sea, such as disease outbreaks associated with the high densities of birds in small and restricted habitat areas.

c) Removal of tilapia through higher harvesting effort and the reintroduction of Gulf of California fish species. Tilapia can increase phosphate nutrient loading in the Sea through their habit of stirring up the sediment which releases entrained phosphate.

d) Allowing the Sea to reach a salinity in which the system is dominated by invertebrates, providing invertebrate (brine shrimp) harvesting.

e) On-farm management to reduce pesticide, nutrient and selenium inputs to the Sea.

f) Restoration of riparian habitat along New, Alamo, and Whitewater Rivers, San Felipe Creek, and other unnamed creeks. Evaluate nearby water sources such as seepage from unlined portions of the water delivery system, natural springs, and creeks and develop a management strategy to maintain these water sources for the Sea.

g) Restoration of halophyte-dominated wetlands around the Sea shoreline.

A management scenario including all or some of these elements could help reduce salinity while allowing the system to change over time, thereby mimicking the natural drying and flooding cycle of the Sea. For example, the Sea could be allowed to cycle from brackish to saline to hypersaline conditions which would otherwise occur without the present inflow of agricultural drainage. In this case, sport fishing activities would dominate recreation for a time, to be replaced slowly by brine shrimp harvesting. If periodic refreshment is feasible, the system could be returned to a fish-dominated food chain. Migratory birds would use the Sea whether fish- or invertebrate-dominated, thus ensuring continued attraction of birders. In addition, restored habitat over a larger area could attract more visitors, bringing economic vitality without relying on extensive infrastructure, operations, and maintenance costs. Reliance on the inflow of agricultural drainage may be reduced thus ensuring the restoration solution is viable despite changes in land and water use. Indeed, if the commitment were made to restore habitat throughout the Lower Colorado River Basin, the project could be linked with other efforts, such as the Lower Colorado River Multi-Species Conservation Program, to maintain and restore the biodiveristy of the region. Increased habitat along the Pacific Flyway would reduce crowded conditions that may be a contributory cause of bird disease outbreaks.

As long as there is farming in the Imperial Valley, the effort of farmers to improve the quality of their drainage water by conservation, changing on-farm practices, or treatment, would allow for a wider range of reuse options for the drain water. A restoration project which considers and integrates the issues and needs of the entire Lower Colorado River Basin and Delta could restore not one but many areas in the region. Implementing such a scenario would require the cooperation of federal, state and local agencies in the U.S. and Mexico, and the support of the

public. Such cooperation and support is becoming more common in carrying out programs with wide-reaching objectives.

2. The DEIS does not discuss the negotiations and agreements which would be required prior to approval of Phase 2 Export to the Gulf of California Alternative, pages 2-43, 6-31. We question the feasibility of this alternative, given the need to obtain approval from Mexico and the fact that the discharge is located just outside of the United Nations-designated Upper Gulf of California Biosphere Reserve.

3. Exporting Salton Sea water to Palen Dry Lakebed pursuant to Phase 2 Export to Palen Dry Lakebed Alternative, page 6-40, would appear to transfer the problems of the Salton Sea to another location. We recommend the Bureau and Authority focus on long-term solutions for the Sea that would not result in a transfer of the salinity and water quality issues to another location.

Cumulative Impacts

1. The SDEIS should evaluate the cumulative impacts and the consequences of maintaining the Sea which could allow increased growth and development in the floodplain (e.g., anticipated resort developments, housing, retirement communities). Increased development could lead to an increase in nutrient and pollutant loading of this terminal lake and other potentially adverse cumulative impacts (e.g., to water and air quality, ecological health of the Sea, migratory birds, fisheries, water supply). The document should include an evaluation of reasonably foreseeable development with the assumption that full restoration of the Sea would be achieved. EPA is concerned with the potential for encouraging development that is not sustainable without Phase 2 implementation. The SDEIS should address the potential impacts on future development if Phase 2 actions are not implemented..

2. The cumulative impact analysis in the SDEIS should include an analysis of the relationship of the proposed project to other ongoing Bureau actions, e.g., the Colorado River Interim Surplus Criteria Rule, the Lower Colorado River Multi-Species Conservation Plan, and the IID/SDWA water transfer. These actions have the potential to significantly influence the availability of Colorado River flood flows for the Salton Sea or to be influenced by the success/nonsuccess of the restoration project.

3. The DEIS states that there would not be any adverse cumulative impacts from the restoration project (pg. 4-116). EPA questions this conclusion, considering the potential use of Colorado River flood flows and potential significant cumulative impacts to Desert Pupfish, migratory birds, and wildlife from the EES, evaporation ponds, pupfish pond and northern wetlands pond. We urge the Bureau to more fully evaluate the cumulative effects of this project on fisheries and avian resources, other than those of the Salton Sea. For instance, the SDEIS should clearly describe the tradeoffs which may occur between different populations of wildlife within the Lower Colorado River basin such as Salton Sea versus Colorado River Delta wildlife.

4. Restoration of the Sea may also have cumulative impact ramifications for other projects in the region such as the IID/SDWA water transfer, California 4.4 Plan, and Coachella Valley Water District Water Management Plan. These cumulative effects should be more fully described and assessed in the SDEIS. For example, the SDEIS should assess in more detail the specific cumulative effects of reduced inflows from the proposed IID/SDWA water transfer and implications for the water transfer if the restoration project is not successful.

Fish and Wildlife

1. The DEIS states that salinity and Sea elevation are recognized as the primary controlling factors determining which aquatic species can survive and thrive at a given point in time (pg. 4-93). While salinity and Sea elevation are important factors, EPA believes that other factors, including nutrient loading and other water quality characteristics, have an equal, if not greater, influence on the health of aquatic species in the Sea. In fact, the DEIS clearly states that nutrient loading plays a critical role in the high fisheries productivity, hugh fish die-offs, and unique Salton Sea food web (pg. 3-64 - 3-67). We question the apparent assumption that viability of the fisheries and aquatic resources is assured if only salinity and Sea elevation are stabilized. We urge the Bureau and Authority to evaluate the potential impacts of nutrient loading and factors, other than salinity and Sea elevation, on the long-term sustainability of fisheries and aquatic resources of the Sea.

2. The DEIS does not persuasively demonstrate that there would be no environmental impacts from the proposed displacement dike. The proposed displacement dike would be built, under reduced flow conditions, between the deltas of the New and Alamo Rivers. These areas are known to be the most biologically productive areas within the Sea. Although the DEIS states that the displacement dike feature would have little long-term effects on avian resources (pg. 4-121), there would still be a substantial loss of habitat and associated adverse impacts from bird exposure to concentrated metals, avian diseases, and contaminated salt spray. The potential impact of changing the physical configuration of the river inlets on the organisms, particularly the spawning fish and birds, should be fully analyzed in the SDEIS.

3. The DEIS does not clearly show that the evaporation pond dikes would have minimal environmental impacts. Given the high seismicity of the area and the potential for large seiches in the Salton Sea (pg. 3-41), we question the long-term sustainability of these structures. In fact, the DEIS assumes the dikes would have a limited life due to seismic events (pg. 6-3). We note the potential for significant adverse effects if the dikes fail allowing the highly concentrated salt brine in the ponds to enter into the main water body of the Sea (e.g. at pg. 4-46). Thus, there is no assurance that the evaporation ponds would solve the salinity problem.

4. We are concerned with the potential adverse impacts of dike failures, especially those dikes protecting Desert Pupfish habitat. The DEIS clearly states that it is unknown how the ponds and dikes would change the water quality and habitat of the pupfish in the area (pg. 4-109) and lists a number of adverse impacts to the existing pupfish habitat from the proposed pond. For

example, there may be increased sedimentation and scour, a change in water quality and flow velocities, and increased bird predation (pgs. 4-23, 4-109). Furthermore, the DEIS states that the Pupfish Pond dikes might be submerged for 8-10 yrs after they are completed (assuming completion in 2008) and would not function as intended for nearly 15 years (pg. 4-23). Given these unknowns, we have doubts regarding the feasibility and long-term viability of the proposed Pupfish Pond. The SDEIS should describe mitigation and fallback options if above adverse impacts occur. We also urge the Bureau and Authority to consider alternatives which avoid and minimize potential impacts to existing Desert Pupfish habitat.

5. The DEIS states that the evaporation ponds and EES could pose risks as a potential toxic hazard to wildlife using the ponds (pg. 4-20). It is not clear whether the proposed air cannons would be used to prevent birds utilizing the evaporation and EES ponds. We note that these facilities would be near or within the Sonny Bono Wildlife Refuge. Thus, the use of air cannon would likely have an adverse impact on wildlife utilizing the Refuge. We acknowledge the DEIS statement that the loss of birds that land in the evaporation ponds is a significant unavoidable impact (pg. 4-127).

6. EPA supports the intent to protect the important northern wetland habitat of the Salton Sea. While we believe this objective is worthwhile, we question whether the proposed dikes would truly provide a feasible and sustainable method of protection. As stated in the DEIS, there are numerous potential adverse impacts which could occur with construction of these dikes (pg. 4-109). Many of these impacts; such as sedimentation, reduced water quality, and a high level of evaporation, would affect the functioning of the wetlands to be protected. We urge the Bureau and the Salton Sea Authority to work with the Torres-Martinez Tribe to consider alternative ideas and options for maintaining and enhancing the north wetland habitat. For example, we recommend monitoring and adapting to changes seen through real-time review of conditions. A more detailed description of the proposed northern wetland habitat should be provided in the SDEIS.

7. While tilapia is the most abundant fish in the Sea, the "sport" fish is corvina. There is very little information about corvina in the fisheries resources section of the DEIS. The SDEIS should include catch information from the State Park records, biological information about corvina in the Gulf of California, and the origin of the Sea's population. The discussion of fish harvesting should include a more detailed analysis of how reducing the tilapia population might be expected to affect corvina. For example, the SDEIS should include information on the interaction, if any, between corvina and tilapia, their relationship in the food web, and whether harvest of tilapia will also result in harvest of corvina. In general, there is only a very limited picture in the DEIS of what organism are contained in the Sea and how these organisms interact with one another and with the physical environment. We urge the Bureau and Authority to pursue an active research program which includes a comprehensive study of the Sea as an ecosystem, no matter what changes the Sea undergoes in the next 30 years.

8. The discussion of the possible problems associated with the Enhanced Evaporation System towers is of great concern to EPA and implies a likely scenario of intermittent operation at best.

The problems include periods of high wind and seasonal bird activities. The DEIS states that the area is subject to strong winds and that the towers will not be in operation during periods of high winds (>14mph). However, the DEIS does not provide an analysis of how this translates into projected number of hours the system would need to shut down on an annual, seasonal or monthly basis. In the Avian Resources chapter, it is acknowledged that the physical structures themselves can be a nuisance to birds on their migratory pathway, that the spray can interfere with weather signals the birds use as flyway guides, and that the high salt content could be damaging to birds subjected to its spray. The SDEIS should provide an analysis of the projected hours the EES would be shut down due to wind and seasonal bird activities. If possible, the SDEIS should provide an estimate of the level of risk to avian populations from the operation of the EES.

Air Quality

1. EPA remains very concerned with the potential adverse health effects of exposed Sea sediments which would result from the proposed reduction in the Sea's surface elevation. We note that high winds are common in the area and that there is the potential for contaminants, such as selenium, heavy metals, DDT residues, and salts in the sediment. The DEIS evaluation appears to minimize the risks of increased air pollution from this dried sediment source by stating that exposed sediments would revegetate and that salt deposits exposed by receding water levels would be primarily chloride based and thus more resistant to wind erosion (pg. 4-76). We do not find these arguments convincing; especially given the sparsely vegetated desert habitat, current PM10 nonattainment status, high and frequent winds, and similarity to other desert terminal lakes with significant air quality problems. The SDEIS should provide a much more thorough description of the potential for air quality impacts from exposed sediments. We recommend studying other similar situations around the world as a means of determining additional mitigation options.

2. The DEIS states that a formal Clean Air Act conformity determination would be required for all restoration alternatives to address construction-related emissions (pg. 4-70). We recommend that the conformity determination be included in the SDEIS. We note that the DEIS states that there appears to be no feasible way to reduce construction-related dust emissions to a less than significant level. Thus, general conformity rules (40 CFR 93.150. Imperial County Rule 925 and South Coast Rule 1901) would preclude adoption of any of the alternatives unless state and local agencies can prepare a PM10 SIP amendment that accounts for the selected alternative while still meeting Clean Air Act deadlines and requirements (pg. 4-87). We are very concerned with the feasibility of a PM10 SIP amendment, especially if it is the only option for meeting conformity requirements. We urge the Bureau to work proactively with the State and local air agencies to determine if a SIP amendment is possible.

3. The DEIS states that the Enhanced Evaporation System (EES) is expected to require stationary source permits for air quality and thus is excluded from separate Clean Air Act conformity reviews (pg. 4-78). It is our understanding that Phase I would include a pilot of the EES, featuring a smaller version of the proposed system. The SDEIS should describe the air

quality permitting requirements of the pilot project and proposed mitigation for the potential significant salt drift, construction fugitive dust, and vehicle emissions. The SDEIS should also clearly describe the emissions which will be covered by the New Source Review or Prevention of Significant Deterioration permits as these emissions are not subject to conformity requirements (40 CFR 93.153(d)(1)).

4. The SDEIS should address the effect of salt spray on agricultural lands.

General Comments

Tribal Issues

1. While Table 5-1, page 5-19 lists expected impacts to Cultural Resources, Indian Trust Assets, and Environmental Justice, there is no specific mention of potential impacts to tribes that historically used the Salton Sea area (with one exception -- the Torres-Martinez Tribe). We recommend that additional government-to-government consultation be conducted with all tribes located in and near the Coachella Valley. At a minimum, we recommend the following tribes be contacted and encouraged to participate in the planning process: Torres Martinez Desert Cahuilla, The Morongo Consortium of Coachella Valley Tribes, The Morongo Band of Mission Indians, The Agua Caliente Band of Cahuilla Indians, Twenty Nine Palms Band of Mission Indians, Augistine Band of Desert Cahuilla Indians and the Cabazon Band of Desert Cahuilla Indians.

We acknowledge the daily working relationship the Bureau has with tribes along the Colorado River. The Bureau's government-to-government relationship appears to work well with the River Tribes. We suggest that a similar relationship with the Coachella Valley Tribes will work as well. We recognize that your coordination with the six tribes located in the Coachella Valley has just begun and may not have had as much time to evolve into an effective working relationship. An effective collaborative working relationship can have benefits. For example, the Coachella Valley Tribes enjoy a good working relationship with the California Regional Water Quality Control Board (RWQCB), Colorado River Region. Both the Coachella Valley Tribes and RWQCB work together on surface and groundwater protection. Governor Davis has appointed Tribal leaders from two of the Coachella Valley Tribes to the RWQCB. To assist in developing a more effective restoration of the Salton Sea, an enhanced working relationship with all of the Coachella Valley Tribes should be developed. Mr James Fletcher of our San Diego Office can assist in this matter. He can be reached at 619-235-4763.

2. Table 9-1, page 9-9 lists agencies with project approval responsibilities for the Salton Sea Restoration Project. While "Native American tribal groups" are listed as the appropriate party for consultation on several requirements pertaining to cultural resources, no mention is made of the broad regulatory and land management authority and Water Quality Standards authorities of the Torres-Martinez and other tribes. Given the extended time-frame covered by this document (year 2030 and beyond), the regulatory authority of these tribes to set standards for salinity, nutrients, and other pollutants should be made clear. The SDEIS should describe the authorities of the tribes

and, if possible, specific actions the tribes may take including, for example, development and implementation of water quality standards. Any new or modified water quality standards could significantly affect the goals and objectives of the project. The SDEIS should explicitly state that proposed restoration actions will need to comply with current and future state and tribal water quality standards and other applicable regulations.

Each of the six tribes in the Coachella Valley operate and co-regulate environmental programs. Five of the six have come together to form the Morongo Consortium of Coachella Valley Tribes. This Consortium was organized to develop a watershed approach for control programs to address surface and groundwater pollution. The Coachella Valley Tribes are currently establishing beneficial use criteria and developing surface water quality standards and future TMDL's to protect these uses. It is our understanding that the Bureau has worked most extensively with the Torres Martinez, only one of the Coachella Valley Tribes. We urge the Bureau to develop a better working relationship with all the tribes, especially in regards to their efforts to develop water quality standards, beneficial use criteria, TMDLs, and effective water pollution control programs. Restoration actions should be consistent with state and tribal efforts to develop and implement water quality standards and TMDLs.

3. The DEIS inadequately represents the input of potentially affected tribes. The DEIS states that the Bureau sent letters to 29 tribal organizations with follow-up telephone calls and faxes by a contractor to ascertain the interests and concerns of these tribes (pg. 3-175). We recommend that the Bureau personnel directly contact the leaders of these tribes to more fully explore tribal concerns now that the DEIS is published. Telephone contacts and faxes by a contractor do not constitute government-to-government consultation. We would also suggest contacting the Bureau of Indian Affairs to obtain an up-to-date list of tribes that may have cultural affiliation or other ties to the Salton Sea.

4. Several aspects of the alternatives presented in the DEIS include projects or phases of projects to be developed on Torres-Martinez land, including taking borrow material for dikes from the reservation lands. It is not clear, however, whether the Tribe has been contacted or consulted regarding these various possibilities. The northern wetlands project at the mouth of the Whitewater River is a project that the Tribe has been working on for some time. The SDEIS should clearly demonstrate that proposed restoration alternatives integrate the Salton Sea restoration work of the Tribe.

Funding and Administration

1. We recommend that the SDEIS include a detailed description of who pays, who benefits, cost/benefit ratios for each alternative, the proposed cost/share ratio, a short- and long-term financing plan, and enforcement/accountability mechanisms. Phase 1 construction costs range from approximately $335 million to $580 million while Phase 2 construction costs could cost as much as $1.2 billion dollars (Section 4.9 and Chap. 6 Table 6.3-1).

2. Using different "study area" boundaries for the economic analyses is questionable. The inclusion of the heavily populated portions outside of the Salton Sea watershed boundaries (e.g., Riverside County west of the San Jacinto Mountains)(Section 3.9.4), would appear to skew the description of the economic base of the Salton Sea area. We question the suggestion of a strong relationship between the economics and population of the greater Los Angeles area and the sparsely populated area around the Salton Sea. We recommend that more consistent study area boundaries be used in evaluating baseline economics and beneficiaries of the project. Boundaries should be based upon the Salton Sea basin from which water flows into the Salton Sea.

3. The project costs described in the DEIS include construction and maintenance costs. It is unclear whether these costs include the repairs resulting from earthquake damage. The Salton Sea region is rich with active faults; in fact, the evaporation ponds are assumed to have limited life as a result of seismic activity (pg. 6-3). Maintenance should include the costs associated with these anticipated emergency repairs.

4. All the costs, including construction, operation and maintenance, disposal of sediment or salts, replacement and emergency repair, should be estimated and described in the SDEIS for every alternative.

5. The SDEIS should include a short discussion of backup options if funding for maintenance and emergencies proves to be inadequate or is not allocated.

Other Comments

1. The DEIS contains inconsistent conclusions regarding the affect of possible flow reductions. For example, on page 4-144, the document states,

> "If annual inflow to the Sea were reduced below current flows from other actions (e.g., 4.4 Plan), the Sea's elevation would decline. However, with the timely implementation of Phase 2 actions, the Sea elevation would temporarily decline to a level no lower than approximately -237 feet msl.[which would concentrate/increase salinity levels]. Since all alternatives would ultimately achieve the target levels of salinity and elevation, with consequent economic benefits of restoration, the temporary, negative impacts of changes in Sea elevation are not considered to be significant."

This statement is flawed because it depends on Phase 2 actions, which are speculative and may not be in place until 2030, and because it inaccurately characterizes the impacts as not significant. This contradicts the entire premise of the DEIS, which holds that the trend toward increasing salinity and lower elevation must be reversed in order to meet the project goals, and that further deterioration of the Sea would be a significant environmental impact.

2. The schedule for reduced inflow scenarios are 30 years to reach 1.06maf/yr and 26 years to reach 0.8maf/yr. Nevertheless, the schedule for implementing actions to address these reduced inflows starts in 2015 or before. This inconsistency may result in time lines for reaching salinity

and surface elevation targets that may not be consistent with those predicted. The SDEIS should provide a consistent and well supported description of reduced inflow schedules and the schedules for Phase 1 and 2 actions.

3. The socioeconomic analysis contained in the DEIS is cursory and quite optimistic. It assumes that increased tax revenues from increased use of existing services (e.g., hotel/motel, restaurant, retail facilities) will cover the costs of additional services required by additional development in the area (pg. 4-139). This assumption is not supported in the DEIS and does not acknowledge that increased population, be it permanent or transient, will require more potable water, the one resource the DEIS assumes will be decreasing. There is little information in the DEIS to tie economic development to the possibility that any alternative would be economically self-sustaining at any level. Public recreational developments are often encouraged to demonstrate that the attraction can help pay for itself. The SDEIS should discuss ways for the recreational development to be self-sustaining.

4. Phase 1 EES would create 9-10 million tons of salt per year (pg. 31). We recommend the SDEIS include more detailed information on the feasibility of using this salt. Since one of the project goals is to provide an opportunity for economic development, investigation of the commercial use of this salt would seem appropriate. Scenarios of disposal, other than resale, should also be provided.

5. We recommend prioritizing the proposed common actions, so that high priority programs are funded first if funds are limited. Given the large fish and bird die-off and the many unknowns regarding the Salton Sea ecosystem, EPA advocates implementation of the Integrated Wildlife Disease Program and Strategic Science Plan first.

6. The DEIS has inconsistent acreage values of damage for Alternative 2. Page 4-121 Avian impacts states that 13,000 acres of desert habitat will be lost while page 4-131 Vegetation and Wildlife states that only 7,500 acres will be lost. The SDEIS should ensure accurate data is consistently presented throughout the document.

7. Much of the evaluation of the proposed restoration alternatives utilizes very speculative language (e.g., "If these actions are successful in reducing Sea water salinity,"pg. 4-159), implying that the alternatives may not be able to achieve their proposed purpose even after 30 years. Given the high level of uncertainty regarding the feasibility and success of the proposed alternatives, we support the proposed pilot projects, prior to full commitment to the proposals. We are concerned that approval of the restoration project, as proposed, would commit funds and resources to major construction actions with uncertain outcomes.

8. The DEIS contains a number of typographical mistakes which should be corrected in the FEIS. For example, the three sections describing the effect of alternatives with reduced inflow conditions on visual resources appear to be identical [Alternative 3 (pg. 4-181), Alternative 4 (pg

4-183), Alternative 5 (pg. 4-184)]. All three sections refer to Alternative 3 although two of the sections are supposedly evaluating Alternatives 4 and 5 respectively.

9. Some bibliographic references are not in the bibliography. For example:(Irwin, 1971), cited on page 3-14; (Setmire and Schroeder, 1998), cited at several place; (Bureau of Land Management, California Desert District, and County of Imperial Planning and Building Department, 1995) cited on page 3-41 are not in the bibliography.

10. The DEIS does not appear to describe or evaluate the electrical energy requirements of the EES. The high annual operating cost of the EES, 9.1 to 9.5 million dollars (pg. 4-140, 4-141), implies there may be a significant use of resources and utilities during operation. We note that local geothermal electrical sources have been developed which may be able to provide energy for the project. The SDEIS should provide additional information on operation costs of the EES and whether there may be potential impacts to local utilities.

Page Specific Comments

The comments below are provided in response to the request by the Bureau and their EIS contractor for page specific comments.

Draft Alternatives Appraisal Report (Report)

1. Pg. 4: Relationship to other projects. Only the California 4.4 Plan is listed in this section and no text is provided on other projects. Other projects that should be included in the project list are the Proposed IID/SDWA Water Transfer, Bureau's Proposed Interim Surplus Criteria Rule, Bureau's Off-Stream Storage Rule, RWQCB Total Maximum Daily Load Program, and the Coachella Tribal Consortium and Torres Martinez Tribal Water Quality Standards Program.

2. Pg. 8: It is stated that there is a "...need to act quickly under reduced inflows." However, under the scenario presented, the only reduction of Salton Sea inflows currently being considered; 200,000 af/yr of water to San Diego (IID/SDWA water transfer); is to be phased-in over a period of 30 years. Furthermore, it is not clear when this project will actually begin. (See comments 37, 41.) The implementation of phased actions and the schedule for reduced inflows should be consistent in the Final Alternatives Appraisal Report (Final Report) and SDEIS.

3. Pg. 9: Table 1 - All alternatives which concentrate salt should have a salt export component. Table 1 shows salt export for Alternative 5 only. Plans for handling the large amount of accumulated salts should be included and described under all relevant alternatives.

4. Pg. 11: "These [common] actions will help stem further degradation." There is no information or data in the Report that demonstrates how the common actions will stop further degradation. We acknowledge that these common actions may improve present conditions, i.e., repair of boat ramps. However, fish harvesting, for example, may have very little, if any, affect on

degrading conditions, defined either as increasing salinity, unstable surface elevation, or increasing nutrient or organic chemical loads going into the Sea. The Final Report and SDEIS should provide sufficient data and information to support the statement that common actions will help stem further degradation.

5. Pg. 15: Discussion of shoreline cleanup includes removing dead fish: This is a large task that will require readily mobilized equipment and staff and a detailed emergency response plan. There will be capital costs, although only operating costs are presented in the text. The cost of the equipment and emergency response plan should be discussed in the Final Report and SDEIS. Furthermore, it is not clear why incinerated fish would need to be deposited into a landfill (also see pg. 2-37 DEIS). The ash might be useful in some industrial processes or as a soil amendment. These disposal possibilities should be explored and described in the Final Report and SDEIS. All costs associated with shoreline cleanup, including hauling of ash should be included in the operating costs of the project.

6. Pg 16: Discussion on Improving Recreational Facilities: It is not clear whether the discussion includes both public and private recreational facilities. If private facilities are included in this action, we recommend outlining a cost share arrangement with the private parties.

7. Pg. 18: The current wildlife disease program includes one field technician and is already in operation. We recommend the Final Report and SDEIS include a description of the collaboration with the Torres-Martinez Indian Tribe or other interested local groups regarding this effort. The wildlife disease program could readily lend itself to future cooperative or collaborative agreements with agencies or universities.

8. Pgs. 17-19: The long-term management strategy should include data collection feedback loops, clearly defined triggers for evaluation and changes in strategy (adaptive management), and schedules for analysis and reporting.

9. Pg. 25: Figure 5 shows a "Shore Bird Pond Area". The proposal to build a shore bird pond was discussed during the preparation of the DEIS and was rejected. This component of the project should be deleted from the EIS. (See comment 44.)

10. Pg. 24: North Wetland Habitat: We recommend the Final Report and SDEIS include a schematic drawing of the proposed wetlands. The Report states that the water for the wetlands will come from the Whitewater River. Baseline information on the quality and quantity of this water should be provided and compared to post-wetlands conditions. We note that other water-related projects in the area may impact the quality and quantity of this source of water. Finally, information on the water quality resulting from the North Wetland Habitat should be integrated into the RWQCB TMDL program and the Coachella Consortium and Torres-Martinez Water Quality Standards Programs. (See comment 30.)

11. Pg. 27, 28, 63: The discussion of the displacement dike should include an evaluation of the potential impacts on existing habitat and the New and Alamo River deltas. We note that these deltas have been cited as the richest and most diverse habitat in the Sea. In figures B-8 and B-9 regarding Alternative 2 (pgs. B-33, B-35), the project appears to reach the same salinity and elevation at both reduced inflow scenarios with or without the displacement dike in place. For instance, the effect with and without a dike in place at the lowest predicted surface elevations is shown to be a difference of about 4 feet. The Final Report and SDEIS should provide an explanation and data on how the displacement dike would achieve project objectives and why it should remain a feature of the project alternatives. (See comment 40.)

12. Pg. 29: The impacts to the Alamo River and dry creek beds resulting from inflow of flood flows or CASI project flows should be evaluated in detail in the Final Report and SDEIS and be compared to present conditions. This evaluation should include potential impacts to habitat and water quality. (See comment 24.)

13. Pg. 31: Description of the Enhanced Evaporation System (EES): The Report states that operation of the EES would shut down when winds exceed 14 mph. An estimate as to how often these conditions are expected to occur should be provided in the Final Report and SDEIS. There is a concern that the EES may not be in operation consistently enough to be effective, especially given high wind constraints and the potential for seasonal interference by bird migration patterns. Information should be provided in the Final Report and SDEIS regarding the minimum and maximum time the system should be in operation per day/week/month to achieve project objectives. (See comment 45.)

14. Pg. 58: Fish Harvesting: We understand that the objective for this component is to remove nutrients which the Report states is challenging. A more detailed description of the conditions at the Sea, including the affect of agricultural drainage on water quality, should be presented in the Final Report and SDEIS. The document states that this component is expected to remove only 1% of the fish population. An explanation of how this 1% estimate was arrived at should be provided in the Final Report and SDEIS. (See comment 31.)

15. Pg. 58: Shoreline Cleanup: It is stated that cleanup, not only of the shoreline, but of rafts of dead fish within the Sea, may remove some nutrients. The relationship between shoreline cleanup and nutrient removal should be fully explained in the Final Report and SDEIS. The statement is made that removing debris could result in minor local cloudiness in the Sea and increase shoreline erosion. Debris, if it is wood, can provide habitat for birds or other organisms. We recommend the removal of this type of material be avoided when possible.

16. Pg. 63: Alternatives without imports: Figures 12-14 appear to indicated that all project alternatives would require a substantial and reliable water supply in the future. The only water supply source identified in the Report and DEIS is wastewater from the Central Arizona Salinity Interceptor (CASI), a project that may be on line in 25 years. Given the scarcity of future reliable

water supply sources, we believe there is a need to develop alternatives that rely as little as possible on inputs from outside the Salton Sea watershed.

17. Pg. A-1: Water Import Assumptions: While we understand that the Alternatives Assessment Report discusses the engineering aspects of the project, it would be helpful to provide information regarding the likelihood that the Salton Sea would receive Colorado River flood flows. We note that there are many other entities with conveyance systems in place that have priority in water rights. The issue of water rights, Colorado River flood flows, likelihood of allocation of water to the Sea, and the environmental needs for water should be fully evaluated in the Final Report and SDEIS and referenced here. (See comment 38.)

18. Pgs. A-3 to -4: Saline Water Concerns: The sentence, "Pipelines become completely clogged with hardness values much less than is available in Denver," is not clear. The discussion of water hardness raises the possibility of pipeline failure or the on-going expense of continual pipeline maintenance and replacement. The Final Report and SDEIS should include an estimate of the cost to use non-corrosive or scale-resistant pipeline materials.

19. Pg. A-4: Additional Detailed Costs: The Report states that the costs do not include the expense of purchasing water to be delivered to the Salton Sea. The issue of the cost of water may become more important with time and should be evaluated in the Final Report and SDEIS, especially in relation to this project. The cost of water should be included in all Phase 2 cost estimates and in Phase 1 cost estimates, where appropriate.

20. Pg. B-5: Assumption 2. The Report assumes that area soils are relatively porous and sandy and would not store additional salts or leach salts from the soil profile. This assumption does not match published descriptions of Imperial Valley soils. The Final Report and SDEIS should clearly describe what area within the project area the soil description refers to and how the salinity model might change if this assumption changes.

21. Pg. B-8: The statement is made that "Bank storage effects are likely to offset minor reductions in inflow." It is not clear what this statement refers to. The Final Report and SDEIS should include more information on bank storage programs in the area and how they may relate to present and future conditions at the Sea. If possible, describe the details of the programs, such as how much water is stored, whether the water would be available to offset projected reductions in Salton Sea inflow, and the potential for these programs to postpone or minimize inflow reductions to the Sea.

22. Pg. B-8: The context for the statement, "The use of surplus water from the Colorado River is likely to continue for the next 10 to 15 years," requires additional explanation and clarification. If the Imperial Irrigation District (IID) is already delivering "surplus water" to the Sea (i.e., more water than is needed by IID to satisfy agricultural water needs), this water may be moving directly through the system without picking up nutrients and pesticides from the fields. If this is the case, this water contributes to the water profile of the Sea's inputs and may help dilute existing

constituents. The Final Report should note whether the loss of this "diluting" water has been factored into the salinity projections.

If IID has been able to send unused water to the Sea, this has implications for the possible availability of water for environmental benefits throughout the Lower Colorado River Basin and the water budget for the region. The flow of "surplus" water to the Salton Sea and Lower Colorado River Delta should be fully described and discussed as present conditions in the Final Report and SDEIS.

23. Pg. B-10: The Report states that "Reclamation has not adopted formal criteria for determining surplus, normal or shortage conditions in the Lower Basin." Although this statement is true, the Final Report and SDEIS should state that a new interim surplus criteria rule is about to be promulgated by the Bureau. Once the new rule is in place, it may be more difficult to obtain surplus water. The implications of the Interim Surplus Criteria Rule should be fully discussed in the SDEIS.

24. Pg. B-11: The scenarios in Phase 2 that involve sending large pulses of water down the Alamo River and down a wash in the Imperial Valley may have significant impacts on those habitats. A possible effect is scouring of the Alamo River which may affect the sediment load carried by the Alamo. The change in sediment load may conflict with the proposed Total Maximum Daily Load (TMDL) allocation for sediment in the Alamo River. The Final Report and SDEIS should fully evaluate the potential effects of large pulse flows on Alamo River scouring, sediment load, TMDLs and riparian habitat. (See comment 12.)

25. Pg. B-15, -16, Figs. B2 and B3: Figures B2 and B3 are difficult to read due to their size (B2) and lack of color (both). Furthermore, Figure B2 is not discussed in the text. It would also be helpful to provide a graph of historic flood flows. If IID has been using surplus flows, and plans to do so for the next 10-15 years, as stated on pg. B-8, then historic diversions should also be shown. It should be acknowledged in the Final Report and SDEIS that flood flows provide an environmental benefit to the Colorado River Delta. A full description of this environmental benefit should be included in the Final Report and SDEIS. We believe such a description would help in the evaluation of potential trade-offs between the environmental benefits of the Delta and the Sea. The description should address timing of water deliveries to the Sea and their effects, the relationship to agricultural practices, and the relationship to seasonal climatic conditions. (See comment 22.)

26. Pg. B27-28: Although it is difficult to compare the outcomes of the five alternatives under three inflow scenarios, it appears that none of the alternatives will meet project objectives in the future without a reliable source of inflow to the Sea. Thus, Phase 2 actions may be required to ensure long-term sustainability of the Salton Sea. If Phase 2 actions are required to meet project objectives, the Final Report and SDEIS should provide a more detailed discussion of Phase 2 actions, including the history of the CASI project, the likelihood of its coming on line, and the potential for CASI wastewater becoming available for the Sea.

According to the information presented, Colorado River flood flows may not be reliable as a source of inflow for the Sea, especially given existing water rights. Furthermore, these flood flows do not appear to affect project objectives greatly and are trivial compared to the amount of CASI water that may be available. We recommend the Final Report and SDEIS provide a complete evaluation of the use of CASI water as compared to flood flows, including environmental tradeoffs, reliability, availability, and cost.

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27. Pg. 2-9: The DEIS states that system improvements to conserve water may reduce the proportion of "good" water going into the Sea and suggests that modified land use could avoid contaminant concentration effects on water quality caused by these system improvements. Serious consideration of water conservation, alternative land use, and the interplay between tail water and tile water might have led to the development of other practicable project alternatives. For example, changes in land use may be able to provide local water for environmental benefits such as restoration of the Sea. The SDEIS should explore restoration opportunities provided by water conservation, modified land use, and tradeoffs between tailwater and tile water.

28. Pgs. 2-20, 4-17: The effect of dumping dredged material (approximately 6-7 million cubic yards from the construction of the evaporation ponds) into the Sea should be evaluated more fully in the SDEIS. While larger bodies of water may equilibrate at a rate that reduces potential impacts to the reestablishment of benthic invertebrates, a shallow system such as the Salton Sea may not be as resilient. In addition to an evaluation of the short-term disruption of the benthos, the SDEIS should evaluate the affect of this activity on the water circulation pattern of the Sea. If toxicity tests indicate the sediment cannot be placed in the sea, there will be a significant disposal cost for this material. The disposal cost of dredged material should be evaluated in the SDEIS.

29. Pgs. 2-22, 4-23, 4-49: Special attention has been paid to maintaining endangered desert pupfish habitat in the Sea. Thus, the proposed pupfish pond is a key project component and critical in ensuring maintenance of pupfish habitat. Management of the pond could be intensive. For instance, the possibility of erosion and sedimentation in the pupfish pond underscores the need for active maintenance of this area. Furthermore, having evaporation ponds adjoining pupfish habitat may make it even more difficult to manage the system. The SDEIS should describe in detail the level of resources, costs, and management that the pupfish pond may require.

30. Pgs. 2-25, 4-110: The plans for creating wetlands in the Whitewater River are only briefly described. We note that this component is located in another of the important existing habitats at the Sea. The description of this North Wetland Habitat project should be expanded to include details regarding scale and location, management, financing, monitoring, and the role the Torres Martinez Indian Tribe has played and is expected to play in developing and implementing the project. At a minimum, a labeled schematic of the proposed wetland habitat should be included in the SDEIS. (See comment 10.)

31. Pgs. 2-34, 5-1: Fish harvesting: This common action is the only one that addresses the nutrient loading in the Sea. However, the DEIS states that fish harvesting will not remove a significant amount of the nutrient load. Very little information is provided regarding nutrient cycling in the Sea, the percentage of available nutrients represented by the fish populations, and how estimates of fish harvesting effects on the eutrophic conditions were made. This information should be provided in the SDEIS. Fish harvesting can have other benefits, including enhanced economic development, if the harvestable material is useable. This connection between efforts to reduce nutrient loading and providing economic development should be clearly described in the SDEIS. The DEIS states that harvesting is expected to improve the health of the tilapia population. Supporting information and the context for this statement should be included in the SDEIS. The SDEIS should also include the rational for the proposed location of harvesting activities. (See comments 14.)

32. Pg. 2-36 to -37: Boat ramp and road improvements: There is little discussion of the potential impact of increased traffic caused by improved boat ramps. The area is served on the east by a two-lane highway which is already heavily affected by trailer truck traffic traveling to and from the border. The present and expected use of the proposed boat ramps should be discussed in the SDEIS. A map showing the location of the ramps relative to other project installations and critical bird habitat would also be helpful.

33. Pg. 2-62: Table 2.9-1 Summary of Potential Environmental Consequences of Phase I Alternatives: Alternatives 2 and 3 appear to have the potential to adversely affect bird populations using the Sea. These salinity reduction alternatives could significantly conflict with the objective to make the Sea a safe and healthy environment for birds. Furthermore, the proposed mitigation measures may be costly and may not be effective for all bird species. These issues should be fully evaluated in the SDEIS.

34. Pgs. 2-62, 4-136 to -144: The DEIS states that local taxes will offset the increased need for public services. The SDEIS should provide estimates of the costs of providing infrastructure needed to serve the expected tourist influx to the Sea. Imperial County and eastern Riverside County are relatively sparsely populated and poor. The SDEIS should discuss self-sustaining options for these Counties to meet the tourist infrastructure demands caused by the project.

35. Pg. 3-16: The discussion of the low selenium concentration in Salton Sea water does not include that of uptake by food ingestion, the most important pathway leading to biotoxicity. Though selenium may be removed from water by precipitation or incorporation by microbes with subsequent volatilization, toxic effects occur as selenium bioaccumulates up through the food chain. Bioaccumulation starts with microbes and algae ingesting selenium from the water column. This pathway has been well documented at many other sites in the West and work has also been published demonstrating increased levels of selenium in tissue from birds found at the Salton Sea. The SDEIS should provide a more detailed evaluation of selenium concentration in the Sea.

36. Pg. 3-21: The DEIS states that operationally wasted water represents approximately 15% of the flow of the Alamo River. This raises the question of whether the loss of this relatively clean water (total dissolved solids equaling approximately 800 mg/L compared to agricultural water of 2100 mg/L) has been factored into the predictions of increased salinity in the Sea over time. The increased concentration of contaminants in inflow and the interplay between tailwater and tile water are related issues. (See comment 27.)

37. Pg. 4-5: The model used to develop salinity-elevation scenarios at various inflows assumes that the reduction of inflow from 1.36 maf/yr to 1.06 maf/yr will take 30 years (reductions of 10,000 af/yr), with further reductions to 0.8 maf/yr over another 26 years. Thus, the worst case reduced inflow scenario would occur in 2056, well after Phase 2 actions are expected to be in place. The schedule for inflow reductions and the accelerated Phase 2 implementation (2015) and Phase 2 actions do not appear synchronized or consistent. While difficulty of ensuring consistent timelines is acknowledged, an effort should be made to run the projection model on a more realistic time frame. The potential impact of the occasional storms that come through the area should also be included in the projection model. These events can have a substantial effect on elevation and salinity which can persist for several years.

38. Pg. 4-6: The discussion of availability of flood flows from the Colorado River should mention that historical water users have prior rights to those flows, while the Salton Sea has none. The environmental benefits of water for the Colorado River, the Delta and the Salton Sea should be presented in this discussion in the SDEIS. Such a discussion could serve as a basis for negotiation with water users and other stakeholders regarding best use of the scarce water resource in the region. (See comments 17, 22.)

39. Pgs. 2-20, 4-20: The probability of seismic activity is very high in the project area. The proposal to cap the evaporation ponds after 30 years' use does not appear to adequately consider this seismic activity. The SDEIS should fully evaluate the affect of seismic activity on the long-term stability of the closed evaporation ponds. In addition, evaporation pond or in-sea EES project costs should include the cost of repair, construction, and maintenance for a seismic event. We note that the Sea could revert to its current condition under a scenario where evaporation ponds would reach capacity within 30 years, be capped, and then fail due to a seismic event. Removing collected salt may be a means of reducing the impact of earthquakes on long-term project objectives.

40. Pg. 4-25: The DEIS states that the displacement dike will "have no effect" on the Sea, except to cut a deep indentation in the shoreline at the New River inlet and cause eddying on the east side of the dike (Alamo River). These areas have the highest habitat quality and biodiversity at the Sea. The SDEIS should clearly demonstrate that the proposed displacement dike would be effective in meeting project objectives. If effectiveness is not proven, then the need to include this component in the project should be re-evaluated. (See comment 11.)

41. Pg. 4-26: Alternatives 2 and 3: The DEIS states that, with current inflow, CASI water would not be needed until 2030. If inflows are reduced, the DEIS indicates that it would be necessary to use Colorado River flood flows by 2015, especially since CASI water would not be available before 2030. Earlier in the document (see comment 37), it is stated that the reduced flow scenario (to 1.06 maf/yr) will not be fully in place until 2030. Given this case, it may not be necessary to import water until much later in the century. The schedule for implementing components of the alternatives should be adjusted to reflect actual conditions.

42. Pg. 4-32: Alternative 5: The design lives for Alternative 1 evaporation ponds and Alternative 5 in-sea EES with evaporation ponds is 23 years. After 23 years a mechanism would be needed to remove the accumulated salt. This design life is within the 30-year period for Phase 1. Thus, the cost of salt removal should be included in the cost of this alternative.

43. Pg. 4-45: Borrow material to construct the evaporation and displacement dikes may come from a borrow area identified within the Torres Martinez Indian Reservation. The SDEIS should provide an explanation as to why this area was chosen and whether the Torres-Martinez have agreed to use of their land for borrow material.

44. Pg. 4-52: We assume the discussion of the southeast shorebird and pupfish protection pond and island protection with deep water habitat is included by mistake. It is our understanding that these project features were eliminated since they were not likely to meet project objectives. These features should be removed from the EIS. (See comment 9.)

45. Pg. 4-53 to -54: In the discussion of Alternative 2, it is stated that "[s]ubstantial winds are common in the Salton Sea Basin" (pg. 4-54). In an earlier chapter, it is stated that the EES towers will not operate when wind velocity is over 14 mph. Little information is provided on how often the shutdown of operations is likely to occur. The description of local wind speed frequencies indicates that winds over 14 mph may not occur very often (extrapolated from data collected during the two-week period in October)(pg. 3-63)). The statement on page 4-54 appears to contradict the earlier wind speed frequency discussion. A full discussion of the effect of the local wind patterns on the operation of any evaporation equipment should be fully evaluated in the SDEIS. (See comment 13.)

46. Pg. 4-108: The DEIS states "River and stream deltas may also be affected due to the different circulation patterns likely to develop" as a result of the north evaporation pond dikes. The river and stream deltas are some of the most sensitive habitats at the Sea, where, it is presumed, the nursery for Gulf of California-native fish, is to be found. The potential impact of changing circulation patterns in this sensitive area should be assessed more fully in the SDEIS.

47. Pgs. 4-109 to -110: Potential impacts associated with management of the proposed pupfish pond are listed here. These impacts are a result of the general plan to concentrate pupfish within a certain confined area. In this area the pupfish may be more susceptible to predation, to physical and water quality changes, and to the effects of sedimentation. Additional information is needed

regarding pupfish habitat requirements in order to adequately evaluate the feasibility and sustainability of the proposed pupfish pond. This information should be included in the SDEIS.

48. Pg. 4-118: Avian Resources: For many sectors of the public, maintaining the avian resources is the most compelling reason to be concerned about current conditions, including increasing salinity in the Sea. According to the discussion in this section, implementing the proposed alternatives may not achieve the project objective to provide a safe, productive environment for birds. The description states that without a project, concentration of minerals and contaminants will increase the potential of toxicity to birds. However, none of the proposed alternatives address minerals, other than salinity, nutrients or contaminants in the Sea. Without an alternative or project component to specifically address water quality, environmental conditions are likely to continue to degrade with its associate adverse impacts on the bird populations. We urge the Bureau to consider a broader range of alternatives in order to ensure the protection and maintenance of avian resources at the Sea.

49. Pg. 4-118: Project alternatives reduce both upland and near-shore bird habitat. The reduction of avian habitat and the rapid spread of disease caused by crowded conditions are some of the reasons cited to choose action over no action. Nevertheless, birds may be crowded into even smaller habitat units as a result of project implementation. The potential conflict between project alternatives and the objective to provide a safe, productive environment for birds and endangered species should be fully addressed in the SDEIS.

50. Pg. 4-121: The DEIS describes a number of potential adverse effects of the EES on avian populations. These adverse effects may include physical interaction with the constructed towers (e.g., collisions), interference with migration patterns, attraction to the potentially toxic salt ponds, loss of habitat, and ingestion of potentially toxic salt-loaded spray. Described mitigation measures include the use of radar to detect migrating birds, shutting down of the system, and the use of air cannons to scare birds away. These are labor and/or equipment intensive measures and would require long-term monitoring efforts. The SDEIS should evaluate whether the proposed EES would achieve project objectives, such as controlling salinity, given the above operational constraints. (See comments 13, 45.)

51. Pg 4-121: The potential effect of the expected increase of human use of the Sea on avian populations and bird use of the Sea should be evaluated in the SDEIS.

52. Pg. 4-136 to144: The discussion regarding the public resources required to support the restoration project is incomplete. For example, the proposed alternatives have on-going costs that have not been discussed, including the cost of removal and disposal of sediments and salts; mitigation activities; seismic repairs; adaptive management efforts; and of an adequate monitoring program. The SDEIS should provide additional information and data on the public resources that will be needed to support the entire restoration project.

53. Pg. 4-145 to -152: Land Uses: The fact that there is considerable unexploded ordinance (UXO) in the Salton Sea Test Base Area may not have been a great concern when little activity was anticipated at the site. If the site is chosen for the construction of the EES, which will require regular visits for operation, maintenance, monitoring, a UXO disposal plan should be developed and evaluated. The added cost of UXO disposal should be evaluated in the SDEIS.

54. Pg. 4-153: Agricultural Resources: The SDEIS should evaluate the potential effects on agricultural land located near exposed Sea sediment or the proposed EES. The issue of potential effects to agricultural lands is related to wind conditions at the Sea and should also be described in the sections regarding these conditions at the Sea.

55. Pg. 5-5: The costs of the Phase 1 common actions should be included in the cost of each project alternative.