CHAPTER 1
INTRODUCTION

1.1 SALTON SEA RESTORATION PROJECT BACKGROUND

Salton Sea Facts

- Located south of Palm Springs in Imperial and Riverside counties
- Surface elevation is 227 feet below mean sea level
- Deepest area of the Sea bed is only five feet higher than lowest point in Death Valley
- Surface area is 365 square miles
- Contains 7.5 million acre-feet (maf) of water
- Evaporates 1.36 maf each year
- Salinity is 44,000 mg/L, compared to 35,000 mg/L for sea water
- All values are approximate and fluctuate with time

The Salton Sea is an excessively salty, eutrophic (nutrient-rich) lake in a closed basin. The Sea exists primarily due to continued agricultural drainage from the Imperial, Coachella, and Mexicali valleys and smaller contributions from municipal effluent and stormwater runoff. A eutrophic lake is enriched in dissolved nutrients that stimulate the growth of aquatic life, usually resulting in the reduction of dissolved oxygen. The Sea has a productive sport fishery and provides important migratory and resident bird habitat within the Pacific Flyway. Seasonal bird use includes millions of birds, and approximately 400 bird species have been recorded at the Salton Sea and adjacent areas. Several endangered species, including the desert pupfish, brown pelican, and the Yuma clapper rail, inhabit the Salton Sea or adjacent habitats.

The Salton Sea is under stress from increasing salinity, nutrient loading, oxygen depletion, and temperature fluctuations that may be threatening the reproductive ability of some biota, particularly sportfish species, and also causing additional ecosystem health problems. There are indications that the deteriorating environmental conditions may be contributing to the prominence of avian disease at the Sea. If these trends continue, the Sea will continue to deteriorate.

In addition to impacts on biota, the fluctuations of the Sea's level and deteriorating water quality may be limiting the potential for economic development that depends on the Sea. A long-term rise in the Sea level along with seasonal fluctuations has contributed to alternately flooding and stranding of facilities for lake-dependent activities, including camping and boat launching. Continued increases along with seasonal or short-term fluctuations in water elevation also may adversely affect nesting success for some avian species.

Congress passed Public Law (PL) 102-575 in 1992. The law directs the Secretary of the Interior to "conduct a research project for the development of a method or combination of methods to reduce and control salinity, provide endangered species

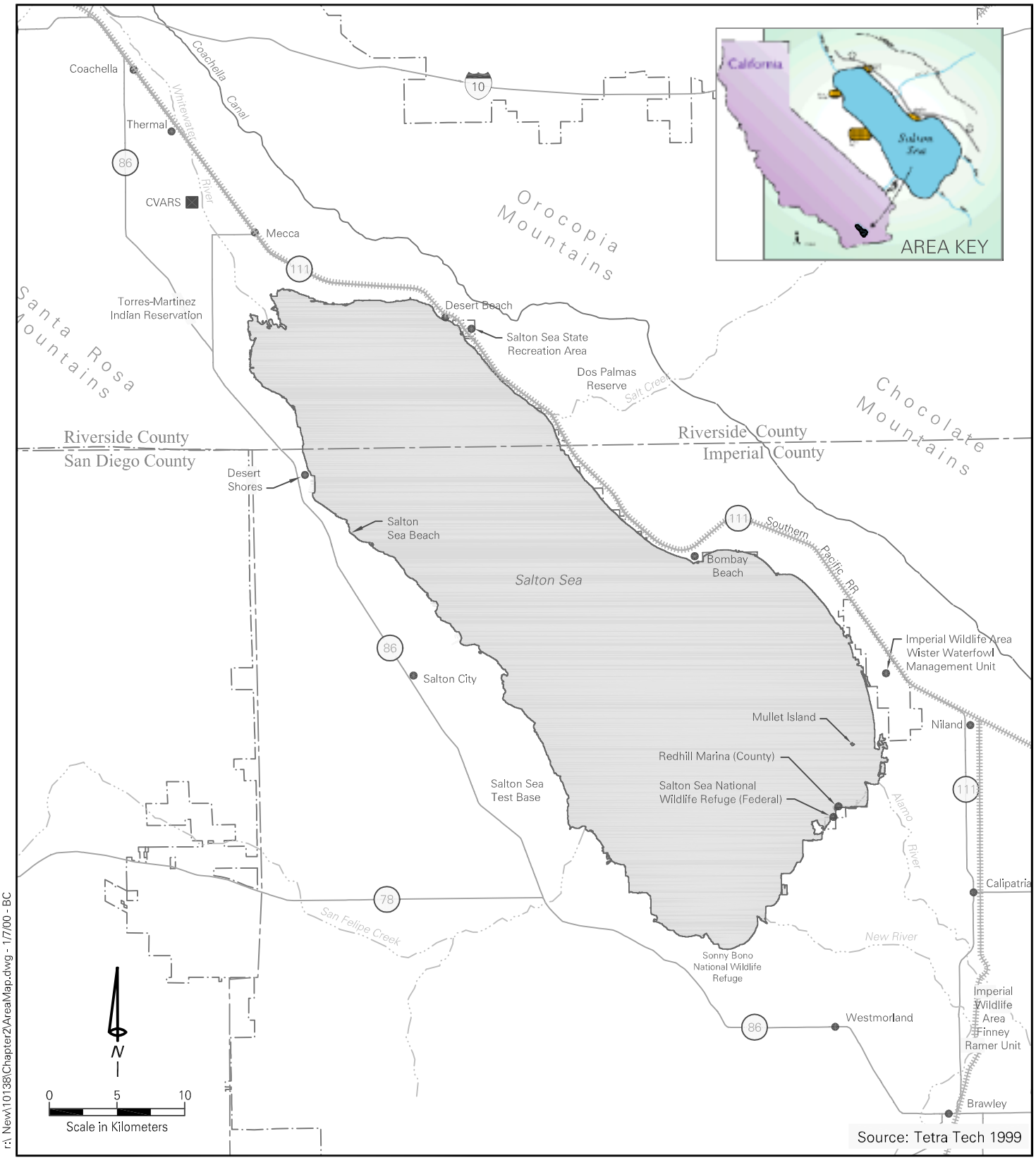
habitat, enhance fisheries, and protect human recreational values . . . in the area of the Salton Sea." The Salton Sea Reclamation Act of 1998 (PL 105-372) was passed to further the restoration process. PL 105-372 directs the Secretary of Interior to "complete all studies, including, but not limited to environmental and other reviews, of the feasibility and benefit-cost of various options that permit the continued use of the Salton Sea as a reservoir for irrigation drainage and: (i) reduce and stabilize the overall salinity of the Salton Sea; (ii) stabilize the surface elevation of the Salton Sea; (iii) reclaim, in the long term, healthy fish and wildlife resources and their habitats; and (iv) enhance the potential for recreational uses and economic developments of the Salton Sea."

Developing the Salton Sea Restoration Project requires compliance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). To satisfy both NEPA and CEQA requirements, the US Department of the Interior Bureau of Reclamation (Reclamation) and the Salton Sea Authority (Authority), as the lead agencies in cooperation with a number of interested agencies, have prepared this joint draft environmental impact statement/environmental impact report (EIS/EIR). Founded in 1993, the Authority is a joint powers authority formed by the Coachella Valley Water District, Imperial County, the Imperial Irrigation District, and Riverside County. This joint EIS/EIR document describes the existing environmental and socioeconomic conditions near the Salton Sea, and the environmental consequences of the project alternatives, including no action.

1.2 SALTON SEA PROJECT STUDY AREA

The Salton Sea is the largest inland body of water in California. It is in the southeastern corner of California and spans Riverside and Imperial counties. The closest cities include Palm Springs, Indio, Brawley and El Centro. The area is largely agricultural, although the Sea offers opportunities for recreation, and a few residential communities dot the shoreline. Geothermal exploration was initiated in 1957, and several active plants operate in Imperial County near Niland. The Salton Sea State Recreational Area occupies the northeast shoreline, the state waterfowl area (Wister Unit) is in the southeast, and the Sonny Bono National Wildlife Refuge, operated by the US Fish and Wildlife Service (USFWS), spans the southern shoreline of the Sea.

The study area is located primarily in the Colorado Desert ecosystem, an area with local mean annual precipitation of less than 3 inches per year (yr) that has been disturbed by human use. Vegetation types include desert scrub, riparian cottonwood/willow, freshwater marsh, and agricultural lands as well as invasive exotics such as salt cedar. Mountains, including the Santa Rosa Range to the west, Orocopia Mountains to the north, and the Chocolate Mountains to the east, surround the closed basin on three sides. The Salton Sea area is shown on Figure 1.2-1.



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Location of Federal, State, County, and University Facilities in the Vicinity of the Salton Sea.

Legend

CVARS, Coachella Valley Agricultural Research Station (University of California- Riverside)

Salton Sea Area

Salton Sea, California

Figure 1.2-1

The Salton Sea is a terminal hypersaline lake. It occupies a below sea level desert basin known as the Salton Sink, which has experienced multiple episodes of flooding and drying due to changes in the course of the Colorado River since prehistoric times. Intermittently, the Salton Sink has contained an ancient lake even more extensive than today's Salton Sea. The evidence for Lake Cahuilla, as it has been named, are its remnant shorelines, visible along the base of the Santa Rosa Mountains. The basin received floodwaters from the Colorado River on multiple occasions, including in 1849, 1862, 1891, and 1900 (Koenig 1971). The frequency with which this basin has been flooded in recent history increases the likelihood of a long history of use by migratory birds. Cultural sites near the present and historic shorelines attest to the use of these temporary lakes by native people. Between episodic fillings evaporation reduced the lake level.

During the early 1900s, water for irrigation was first brought into the area through a series of ditches from the Colorado River. In 1905, excessive flows in the Colorado River breached an irrigation control structure causing virtually the entire river flow to drain into the Salton Sink. The flow was not contained for the next 16 months, leaving behind the current Salton Sea. After the flooding, the level of the sea receded to about -250 ft mean sea level (msl) by 1925. As agricultural efforts increased, and drainage discharged to the Sea, the level has undergone seasonal fluctuations with a long-term rising trend.

The Salton Sea is currently maintained by agricultural runoff, and to a lesser extent by municipal effluent and stormwater that flows into the Sea through rivers and creeks in the Imperial, Coachella, and Mexicali valleys. The northern portion of the study area is drained by the Whitewater River and its tributaries, reaching the northern end of the Salton Sea within the Coachella Valley not far from the town of Mecca. Salt Creek drains the southern slope of the Orocopia Mountains and the northern end of the Chocolate Mountains, entering the northeast portion of the Sea within the state park boundary. The most important western drainage is San Felipe Creek, with headwaters near Julian, about 50 miles west of the Salton Sea. The New and Alamo rivers drain the Imperial Valley and to a lesser extent, the Mexicali Valley to the south; together these two rivers account for most of the flow into the Salton Sea. Annual Sea inflow is approximately 1.36 million-acre-feet per year (maf/yr). (Figure 1.2-1).

Because the Sea has no outlet, and evaporation provides the only discharge, constituents in the inflow become concentrated over time. Accumulation and concentration of salts, nutrients, organic compounds, and other constituents that can be detrimental at higher concentrations have had harmful effects on the ecosystem and recreational use at the Sea.

The Sea is a highly eutrophic ecosystem that includes a productive sport fishery. The Sea and wetlands along its shoreline are a critical part of the Pacific Flyway, providing habitat and seasonal refuge to millions of birds representing hundreds of species. Several endangered species, including the desert pupfish, the brown pelican, and the Yuma clapper rail, inhabit the Salton Sea or adjacent habitats.

The Salton Sea Restoration Project has been divided into two phases. The primary study area for impact analysis of Phase 1 actions includes the Sea itself and a zone extending roughly five miles from the shoreline to include lands identified for project alternatives. The study area also includes the channels of the All American Canal and the Coachella Branch identified as conduits for flood flows and the Colorado River downstream of the All American Canal to the Sea of Cortez. Additional areas that are relevant to specific environmental resources are also included. Phase 2 actions extend the analysis study area to include pipeline corridors north to the San Gorgonio Pass, west to the Pacific Ocean, south into Mexico to the Gulf of California, east to Yuma, Arizona, and northeast to the Palen dry lakebed. However, these areas are analyzed in less detail and on a programmatic basis. The restoration project focus is on the Sea itself.

1.3 PURPOSE AND NEED FOR THE SALTON SEA RESTORATION PROJECT

The purpose and need for the Salton Sea Restoration Project is 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. These requirements are reflected in the directives of PL 105-372. The purpose and need will be met by implementing a project that satisfies the goals and objectives discussed in the next section of this EIS/EIR. The project is intended to have ecological, recreational, and economic benefits.

Increasing salinity in the Sea, which is currently about 44,000 milligrams per liter (mg/L), already may be threatening the reproductive ability of some parts of the biota. If the current trend of increasing salinity continues, sport fish in the Salton Sea will be eliminated over the next few decades. Therefore, controlling salinity is a critical need if the Salton Sea is to support biodiversity similar to what currently exists. In addition, the Sea is located along the Pacific Flyway, the most western of the major migration corridors for waterfowl and other species in the United States. Therefore, the fish populations in the Sea are an important food source to picivorous (fish-eating) birds that use the Pacific Flyway. Other issues include unacceptable levels of bird and fish die-offs, high nutrient loading to irrigation drains leading to the Sea, and perceptions and concerns about pollution from selenium, other chemicals, and microbes. All of these issues also must be addressed to benefit the fish and wildlife resources and habitats of the Salton Sea and to meet the directives of Congress.

Additional benefits that may result from the restoration project include enhanced recreational opportunities and economic development. Long-term shifts in water levels have alternately flooded and stranded such facilities as campgrounds, boat launching ramps, and resorts. Control of water surface elevation within an acceptable range could stimulate future investments in shoreline development, in addition to stimulating biological values from sustaining wildlife habitat. The long-term monitoring and management strategies that are a part of the restoration program will seek to balance the possible conflicts between shoreline development and maintenance of wildlife habitat.

Units of Measure

- Salinity is commonly measured in milligrams per liter (mg/L) or parts per million (ppm). One ppm approximately equals one mg/L
- Measured at Imperial Dam near Yuma, AZ, the Colorado River contains about 2,000 pounds of salt per acre foot or about 725 mg/L of salts
- An acre-foot equals about 326,000 gallons or enough water to cover an acre of land (about one football field) one foot deep
- A typical California household of 4 uses between 1/2 and 1 acre-foot per year for indoor and outdoor use

The biological resources of the Sea and its value to society are linked through the Sea's avian diversity, the productivity of its sport fishery, and its attraction as a recreational destination. With approximately 400 species of birds reported in the area, the Salton Sea area is one of the greatest areas of avian biodiversity in the nation. The sport fishery is the most productive of any California inland waterbody, and the large biomass of fish is the food base for the large number of fish-eating birds at the Sea.

Because of significant losses of interior wetlands, including more than 90 percent of those within California, the Sea serves an important role in the international, regional, and local conservation of migratory birds. Significant proportions of some populations have become dependant on the Sea. For some of these species there may be no alternatives because of bioenergetics (the energy transformation and exchange between living organisms and their environment) associated with food availability (quantity and quality), travel distances between migration stopover points, and body condition relative to breeding success.

Recreational use of the Sea includes waterfowl hunting, boating, fishing, bird watching, and photography. Waterfowl hunting is a long-standing tradition at the Salton Sea and even during the 1920s attracted hunters from Long Beach, Los Angeles, and other areas. The popularity of bird watching at the Sea has increased in response to the diversity of the Sea's avifauna and has resulted in the international bird festival becoming an annual event. An evaluation of the economic impacts associated with bird watching at the Sea disclosed a substantial economic benefit to the local communities and businesses.

The sport fishery of the Sea is focused primarily on orange-mouth corvina (*Cynoscion xanthulus*), tilapia (*Oreochromis mossambicus* and other species and hybrids), bairdiella or Gulf croaker (*Bairdiella icistia*), and sargo (*Anisotremus davidsoni*), All of these are introduced species (see Section 3.6). Tilapia are the dominant component of the fish biomass and are a major food item for pelicans (*Pelicanus* sp.) and other fish-eating birds at the Sea. Declining environmental quality of the Sea and the selenium health advisory, rather than declining fish populations, are believed to be the main reasons for the drop in recreational fishing. Fish populations remain high; however, their future is threatened by increasing salinity.

On February 12, 1955, the Salton Sea State Park (now the Salton Sea Recreation Area) was dedicated, and at the time was the second largest park in the state. Visitor use to the late 1970s reflected the popularity of this area, and exceeded visitation at Yosemite National Park. Salton Sea Recreation Area visitation was 250,000 people during fiscal year 1997-1998. Improvements to the general environmental conditions at the Sea could significantly increase visitor use above the current levels. Factors that will stimulate human visitation, in combination with the scenic beauty of the area and more than 300 days of sunny weather each year, include projected population growth within the Coachella and Imperial valleys, the relative proximity of this waterbody to approximately six percent of the US population, and increased wildlife values of the Sea.

Despite the attributes described above for the Salton Sea, environmental degradation is challenging the ability of the Sea to sustain the biological components that society values. The signs of environmental degradation are manifest by frequent large-scale fish and bird die-offs. The magnitude of large-scale fish die-offs is in the hundreds of thousands to millions of tilapia and occasionally bairdiella per occurrence. The large-scale bird die-offs are killing substantial segments of some of the migratory bird populations at the Sea. Examples include the 1992 loss of approximately 150,000 eared grebes. This was about 3.5 to 4 percent of the North American population of this species. The cause of that event remains essentially unknown. During 1996 an unprecedented outbreak of type C avian botulism in fish-eating birds killed more than 15,000 birds. Approximately 10 to 20 percent of the western population of white pelicans died during this event. More than 1,000 California brown pelicans also were affected, making this the largest single loss from disease of an endangered species. These events were followed by the first occurrence of Newcastle disease in wild birds west of the Rocky Mountains. Virtually the entire production of double-crested cormorants hatched on Mullet Island died from Newcastle disease during 1997. A similar outbreak assumed to be Newcastle disease occurred in 1998.

These and other diseases diagnosed as causes of bird mortality at the Sea present an unusual array of recurring die-offs for a single location. Multiple causes of mortality have also been diagnosed for fish dying at the Sea. Disease is an outcome rather than a cause, and environmental factors are often the major reason for diseases. A logical conclusion from the variety, frequency, and magnitude of wildlife losses at the Salton Sea is that the Sea is exhibiting severe environmental stress. Fundamental needs for reducing that stress are identifying the causes, selecting remedial actions, and evaluating those actions to assess probable outcomes prior to implementation.

1.4 SALTON SEA RESTORATION PROJECT GOALS AND OBJECTIVES

Prior to implementing the NEPA/CEQA process, the Salton Sea Authority and the Bureau of Reclamation, working jointly with stakeholders and members of the public, developed five goal statements. The goal statements are consistent with the direction contained in PL 105-372, address the underlying purpose and need for the project, and provide guidance for developing project alternatives. The five goals of the Salton Sea Restoration Project are as follows:

1. Maintain the Sea as a repository of agricultural drainage;
2. Provide a safe, productive environment at the Sea for resident and migratory birds and endangered species;
3. Restore recreational uses at the Sea;
4. Maintain a viable sport fishery at the Sea; and
5. Enhance the Sea to provide economic development opportunities.

In order to measure the effectiveness of any actions designed and implemented to achieve the five project goals, objectives were developed in cooperation with

stakeholders to further define each goal. In many cases, objectives overlap and result in mutual benefits. The goals and objectives have been used to guide the development of alternatives analyzed in this EIS/EIR. These same objectives ultimately will be used to guide efforts to monitor and evaluate the effectiveness of any restoration actions that are implemented. The objectives could also be adjusted through an adaptive management process, which will be part of the long-term management strategy discussed in chapter 2.

1.4.1 Goal 1—Maintain the Sea as a Repository of Agricultural Drainage

Agriculture constitutes the major economic base in Imperial County and a significant part of the economy in eastern Riverside County. The Imperial and Coachella valleys provide an important source of vegetables and other produce to the nation, particularly in the winter. Because of the importance of drainage to maintaining the agricultural economy and the lack of an alternative disposal site, the Sea serves as the repository for agricultural drainage. In 1924 and again in 1928, President Coolidge issued Executive Orders setting aside federal land within the basin below –220 mean Sea level as a public water reserve for irrigation drainage. In 1968, the state of California declared by statute that the primary use of the Sea is for collecting agricultural drainwater, seepage, leaching, and control waters. Agriculture in its present form relies on the ability to discharge drainage into the Sea. Thus, the continued use of the Salton Sea as a repository for agricultural drainage is a fundamental component of the Salton Sea Restoration Project. It is both a goal defined by the joint lead agencies for the NEPA/CEQA effort and a basic assumption contained within PL 105-372. The Salton Sea will not exist as a major waterbody without agricultural drainage; therefore, the availability of the Sea as a drainage repository is essential for achieving all other project goals. Specific objectives that will be used to ensure that agricultural uses are maintained are as follows:

Objectives

- Stabilize water surface elevation within a range allowing for climate and drainage-induced annual fluctuations (preferably +/- –230 msl); and
- Maintain agricultural drainage accessibility to the Sea.

1.4.2 Goal 2—Provide a Safe, Productive Environment at the Sea for Resident and Migratory Birds and Endangered Species

A number of avian species and fish species are highly dependent on a healthy Salton Sea ecosystem. These species include threatened and endangered species (including both avian and fish species), federal species of management concern, and trust species of migratory birds. Additionally, various shorebirds, marsh birds, gulls, terns, and passerines contribute to the biodiversity at the Sea and within the watershed. Specific objectives that will be used to ensure that this environmental goal is attained are as follows:

Objectives	Typical Species Affected

• Enhance aquatic marsh habitat	Yuma clapper rail
• Maintain open-water habitat and a foodbase for fish-eating birds	California brown pelican, American white pelican, great blue heron
• Protect/provide appropriate habitat for roosting and nesting	double-crested cormorant, great blue heron
• Maintain a broad array of avian foraging habitat	black-necked stilt, ruddy duck, eared grebe
• Enhance stability of shoreline pools and creeks	desert pupfish, western snowy plover
• Sustain water levels suitable for desert pupfish	desert pupfish
• Reduce losses from disease	pelicans, eared grebe

1.4.3 Goal 3—Restore Recreational Uses at the Sea

The Salton Sea is rated as Class I recreational water. Class I waters are considered to be suitable for recreational uses that include body contact. While recreation continues to draw visitors to the Salton Sea, recreational use in the past was higher and more varied, with visitors camping, picnicking, and participating in numerous water sports, such as boat racing, water skiing, and swimming. The availability of these different recreational opportunities at the Sea attracted visitors to the region. Over the years, increasing surface water elevations flooded recreational facilities along the shoreline. In addition, decreasing water quality and the increasing public perceptions of potential health risks at the Sea led to visitor decline. A fish consumption health advisory, reports of pathogens being transported to the Sea via the New River, algal blooms and the attendant odors resulting from their decay, and large-scale fish and bird die-offs may have led to a decrease in visitation and particularly water/body contact recreational uses. Today, the Sea remains extremely popular for bird watching, but, while opportunities are plentiful for camping and fishing, use has markedly declined since the early 1980s. Specific objectives that will be used to restore recreational uses are as follows:

Objectives

- Stabilize water surface elevation within a range, allowing for climate and drainage-induced annual fluctuations (preferably +/- –230 msl);
- Improve access to the Sea and recreational quality of shoreline;
- Address selenium health advisories on eating fish;
- Reduce objectionable odors;
- Reduce occurrence of algal blooms; and
- Maintain State Class I recreational quality status.

1.4.4 Goal 4—Maintain a Viable Sport Fishery at the Sea

The Salton Sea became widely known for its sport fishery following the successful introduction by the California Department of Fish and Game (CDFG) of several species from the Gulf of California. The orange-mouth corvina, a fish that can weigh in excess of 30 pounds, is the most prized of the Sea's sport fish. Tilapia, an exotic species of much smaller size, also has become established as the most dominant and overly abundant and the most easily caught species at the Sea. A highly valued fish for human consumption, tilapia is most often associated with massive fish die-offs at the Sea. In addition, bairdiella, sargo and several other species historically added to sport fishing opportunities. Specific objectives that will be pursued to ensure that the sport fishery goal is attained are as follows:

Objectives

- Maintain a healthy habitat for orange-mouth corvina, tilapia, bairdiella, and sargo;
- Reduce and maintain salinity at 40,000 mg/L or lower;
- Reduce the occurrence of large-scale fish die-offs.

1.4.5 Goal 5—Enhance the Sea to Provide Economic Development Opportunities

A healthy Salton Sea ecosystem with its associated bird life, sport fishing, and the surrounding natural beauty of the area are fundamental attractions for people to visit and settle at the Sea. This human use provides a foundation for economic development that extends beyond the productive agriculture of the area. In addition, stabilizing the Sea's surface elevation is important for shoreline development. Water elevation and salinity control will play a significant role in increasing opportunities for economic development around the Sea. Specific objectives for enhancing economic development opportunities are as follows:

Objectives

- Reduce objectionable odors;
- Implement objectives for sport fisheries;
- Implement objectives for fish and wildlife; and
- Implement and maintain a clean shoreline.

1.5 SCIENTIFIC FOUNDATION OF THE SALTON SEA RESTORATION PROJECT

Overwhelming mortality of wildlife, including endangered species, has focussed national attention on the Salton Sea and the need for aggressive actions to improve the environmental quality of this important waterbody. The Secretary of Interior, in collaboration with other agency stakeholders in the Salton Sea, established a supplementary Salton Sea Science Subcommittee (SSC), whose role is to augment scientific information available for evaluations associated with the Salton Sea Restoration Project (Project) EIS/EIR. The reason for establishing the Science

Subcommittee is founded in the natural resources importance and the many uncertainties associated with the existing and future conditions.

This interagency, interdisciplinary SSC is administratively responsible to the Research Management Committee (RMC), high level representatives from primary stakeholder agencies. All scientific evaluations are done at the SSC level. The RMC acts on SSC recommendations for funding science needs identified by the SSC and for awarding science projects evaluated by the SSC. The RMC forwards recommended projects to the Salton Sea Authority for funding. These projects are submitted by the scientific community in response to solicitations issued by the SSC. The charter for the RMC and SSC is provided on Reclamation's website at www.lc.usbr.gov. The compositions for the RMC and SSC are shown in sections 8.5 and 8.6 of this EIS/EIR.

The primary purpose for this science component is to provide a sound scientific foundation on which to base management judgments on various alternatives to achieve project goals. To arrive at this point, the following tasks were accomplished:

- Gathering, synthesizing, and evaluating existing scientific information relative to the Salton Sea ecosystem;
- Identifying priority data gaps and facilitating investigations for obtaining that data;
- Completing focused scientific evaluations of potential environmental impacts from proposed project alternatives and management actions; and
- Developing a strategic science plan to guide the long-term integration of science within the project.

It is recognized that restoration of the Salton Sea requires a long-term effort, that science needs for the immediate NEPA/CEQA evaluations differ somewhat from the long-term needs, and that a phased approach is needed for the science effort. A Strategic Science Plan (SSP) to guide the long-term integration of science within the project is described as a common action in Section 2.5.6 and is discussed further in a companion document to this NEPA/CEQA evaluation. The SSP builds upon the foundation provided by the SSC process and provides a blueprint for the science process, functions, and administrative structure, which are needed to sustain a long-term science component of the adaptive management approach.

1.6 LEVEL OF DETAIL AND TIERING OF INFORMATION UNDER NEPA AND CEQA

NEPA regulations provide for tiering documents to allow environmental analyses to proceed at appropriate phases when developing alternatives. Section 1508.28 (b) of the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (CEQ 1979) provides guidance that tiering is appropriate when the sequence of statements or analyses is " . . . from an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues

which are ripe for decision and exclude from consideration issues already decided or not yet ripe."

Similar guidance is provided in the State Guidelines and the Salton Sea Authority's Local Guidelines (Authority 1999) for Implementing CEQA, which provide for both tiered and staged EIRs. In CEQA terms, staging would be similar to tiering, as discussed above. Section 8.06 of the CEQA guidelines states that "A staged EIR should evaluate a proposal in light of current and contemplated plans and produce an informed estimate of the environmental consequences of the entire project."

Salton Sea restoration alternatives have been conceived in two separate but dependent phases. Phase 1 alternatives will begin to stabilize and reverse current trends of degradation of the Sea. These alternatives have been developed and analyzed in sufficient detail to support implementation decisions, following completion and certification of the final EIS/EIR and all required permits. These actions, designed to begin the restoration process, have a design life of approximately 30 years and could have a long-term utility with or without the implementation of Phase 2 alternatives. The actions were designed to function at current and reduced inflows, as directed by PL 105-372. The lead agencies assumed that potential reductions through various means could equal 300,000 acre-feet per year by year 30 and, as directed by the law, considered options for actions that "augmented flows of water into the Salton Sea." Implementing Phase 2 actions will extend efforts initiated by Phase 1 actions and the useful life of the project to at least 100 years. In particular, the focus of Phase 2 alternatives includes long-term disposition of salts removed from the Sea, as well as importation of water to compensate for potential long-term reductions of average inflows to the Sea. Phase 2 alternatives also will extend the Phase 1 efforts to address disease management, nutrient loading, habitat enhancement, and recreation and to function as a continuum of the long-term restoration process. Phase 2 alternatives have been developed and analyzed generically due to the distant time frame for implementation and the uncertainties inherent in evaluating actions not scheduled to occur for many years. In accordance with the guidance discussed above, the analysis is intended to evaluate Phase 2 alternatives to "produce an informed estimate of the environmental consequences of the entire project." Subsequent NEPA/CEQA documentation will be required before final decisions could be made on Phase 2 alternatives.

The restoration project will include a long-term management strategy, as discussed in Chapter 2 of this EIS/EIR, to ensure that Phase 1 actions will be appropriately linked to any possible or necessary Phase 2 actions. This strategy will include monitoring to identify and enable corrective actions to be implemented if conditions change or if it appears that project objectives will not be achieved or maintained. It is possible to attain a higher level of assurance that the objectives will be achieved and maintained if the corrective actions are allowed to flexibly adapt to changing, sometimes unforeseeable, future conditions. This objective-oriented management method is

sometimes referred to as adaptive management. The long-term management strategy will be developed through coordination with the various agencies charged with regulating the implementation of the alternatives and monitoring the restoration of the Salton Sea.

1.7 CONTENTS AND ORGANIZATION OF THIS EIS/EIR

1.7.1 Issue Identification Through the Public Scoping Process

The identification of issues to be addressed in the EIS/EIR included internal agency review and analysis and the public scoping process. The purpose of scoping is to encourage the public and government agencies to help identify issues and topics that an EIS/EIR should address. Requests for comments and notices of public scoping meetings were published as a Notice of Intent in the Federal Register and filed as a Notice of Preparation with the State of California Clearinghouse on June 26, 1998. Reclamation and the Authority held public scoping meetings on July 15, 16, and 17, 1998, at Desert Shores, La Quinta, and El Centro, respectively. Information on the proposed Salton Sea Restoration Project was presented, and the public was invited to raise issues and questions to be considered in the draft EIS/EIR. Additional public workshops were held October 7, 8, and 9, 1998, in Desert Shores, El Centro, and San Diego for the public to comment, to pose questions, and to discuss the alternative screening process. Additional workshops were held during the refining stages of the alternative development process. Further discussion of the public involvement process is included in Chapter 8 of this document. In general, the concerns raised included the following:

- Water quality and quantity;
- Salinity increase;
- Contaminants and public health;
- Aesthetics, particularly odors and visual impacts;
- Long-term management goals;
- Wildlife;
- Agriculture;
- Economic development;
- Recreation;
- Elevation stabilization;
- International boundary issues;
- Cultural and Native American issues;
- Alternative development;
- Timeframe for initiating solutions; and
- Project financing;

All of these issues were considered in developing the content of this EIS/EIR and, where appropriate, are addressed within the individual resource sections of the document.

1.7.2 Main EIS/EIR Document

The organization of this EIS/EIR is consistent with federal and California guidelines for implementing NEPA and CEQA, respectively. This introductory chapter provides an overview of the project and its goals and objectives, along with a discussion of the purpose and need for the project. Chapter 2 describes the study region, alternative development process, the public scoping process, the alternatives retained for evaluation, the No Action Alternative, the alternative refinement process, and projects included in the cumulative impact analysis. Chapter 2 also provides a summary of the operational assumptions and regulatory framework of the EIS/EIR and includes a summary table comparing the environmental consequences of the project alternatives.

The main body of the EIS/EIR is in chapters 3 through 6, which contain descriptions of the affected environment and environmental consequences. Chapters 3 through 6 are organized as follows:

- **Chapter 3. Affected Environment/Existing Conditions**—Provides a general description of the physical environment and socioeconomic factors around the Sea that may be affected by the restoration project. More emphasis is placed on environmental factors that could be most affected by the project. The region of study is primarily limited to areas that would be affected by Phase 1 alternatives because the specific locations of most Phase 2 actions have not yet been determined.
- **Chapter 4. Environmental Consequences of Phase 1 Alternatives**—This chapter includes a discussion of the No Action Alternative and the direct and indirect effects of Phase 1 project actions. The primary focus of this chapter is the features of each Phase 1 actions that are different from one another as compared to common features that are addressed in the next chapter. This chapter includes descriptions of the criteria by which the significance of impacts of the alternatives have been assessed. For impacts judged to be potentially significant, reasonable mitigation measures or strategies are presented. Potentially significant unavoidable impacts also are identified.
- **Chapter 5. Environmental Consequences of Phase 1 Common Actions**—This chapter provides a description of the effects of Phase 1 common actions. The information contained in this chapter has been separated from Chapter 4 to avoid repetition in the discussion of the environmental consequences of actions that are essentially the same for all alternatives.
- **Chapter 6. Environmental Consequences of Phase 2 Actions**—Provides a description of the direct and indirect effects of Phase 2 actions. A discussion is included of the effects of no additional action in Phase 2 both without Phase 1 actions in-place and with Phase 1 actions. Where Phase 2 actions could have

effects outside the affected environment area discussed in Chapter 3, a brief discussion of the potentially affected environment is included. As discussed above, the potential environmental consequences of Phase 2 actions are discussed only in limited detail. These discussions, along with the more detailed information provided for Phase 1, are intended to assist in producing "an informed estimate of the environmental consequences of the entire project."

Chapters 3 through 6 include discussions of nineteen main resource topics where potentially significant effects may occur. Within each main resource topic, multiple subtopics also are addressed. Resource topics were selected based on internal and external public scoping and on formal Federal, State and local guidance for implementing NEPA and CEQA.

The remainder of the EIS/EIR consists of chapters 7 through 13. Chapter 7 describes other required NEPA/CEQA elements, such as growth-inducing impacts, short-term uses versus long-term productivity, and irreversible and irretrievable commitments of resources. Chapter 8 describes the public and agency involvement process. Chapter 9 provides an overview of compliance with applicable laws, policies, and plans. Chapters 10, 11, and 12 provide such supporting information as the list of preparers, the bibliography, and the index, respectively.

This EIS/EIR uses charts to represent numerical sets of data that have been generated and used to analyze how various actions, or lack of actions may affect the Salton Sea. A chart is a graphical representation of one or more sets of data that is usually easier to interpret and understand than tables of numbers. Computer software, used to graph information, plots data points and then draws a line to connect the points, forming a line. Some of the charts used in this EIS/EIR allow comparisons to be made between different actions occurring during the same time period. These charts are often used to describe water quality parameters of the Salton Sea, such as salinity and elevation, over a period of time. Figure 1.7-1 is a sample chart provided to assist the reader in understanding and interpreting the charts that will be found throughout this document.

A companion map document containing 11 by 17 full color figures is provided as a separately bound volume with this EIS/EIR. Figures within this companion document are referenced in the EIS/EIR text. These figures are also electronically available for viewing at the University of Redlands Salton Sea Database Program website, http://cem.uor.edu/salton/eis/index.cfm.

1.7.3 Supporting Studies

Two categories of supporting studies are relevant to the current analysis. The first category consists of technical investigations conducted under the direction of the Science Subcommittee and others and of earlier studies. Specific studies in this category are identified in chapter 8 and discussed where relevant within resource sections of chapters 3 through 6. The second category of studies includes the following recent NEPA/CEQA documents prepared within the Salton Sea study area:

- Final Environmental Impact Statement/Environmental Impact Report, All American Canal Lining, Imperial County, California, prepared by the Bureau of Reclamation and Imperial Irrigation District, 1994;
- Environmental Appendix for Final EIS/EIR, All American Canal Lining, Imperial County, California, prepared by the Bureau of Reclamation and Imperial Irrigation District, 1994;
- Draft Environmental Impact Statement/Environmental Impact Report for the Coachella Canal Lining Project prepared by Reclamation, 1993;
- Final Community Environmental Response Facilitation Act Environmental Baseline Survey at Salton Sea Test Base, Imperial County, California, prepared by Bechtel National, Inc., 1993; and
- Draft Environmental Impact Report and Environmental Assessment, Coachella Valley-Niland-El Centro 230 kV Transmission Project, prepared by Imperial Irrigation District and BLM, 1987.

These documents provide recent environmental information in several areas adjacent to the Sea that could be affected by restoration alternatives. Supporting documents are available for review through the University of Redlands Salton Sea Database Program website (http://cem.uor.edu/).

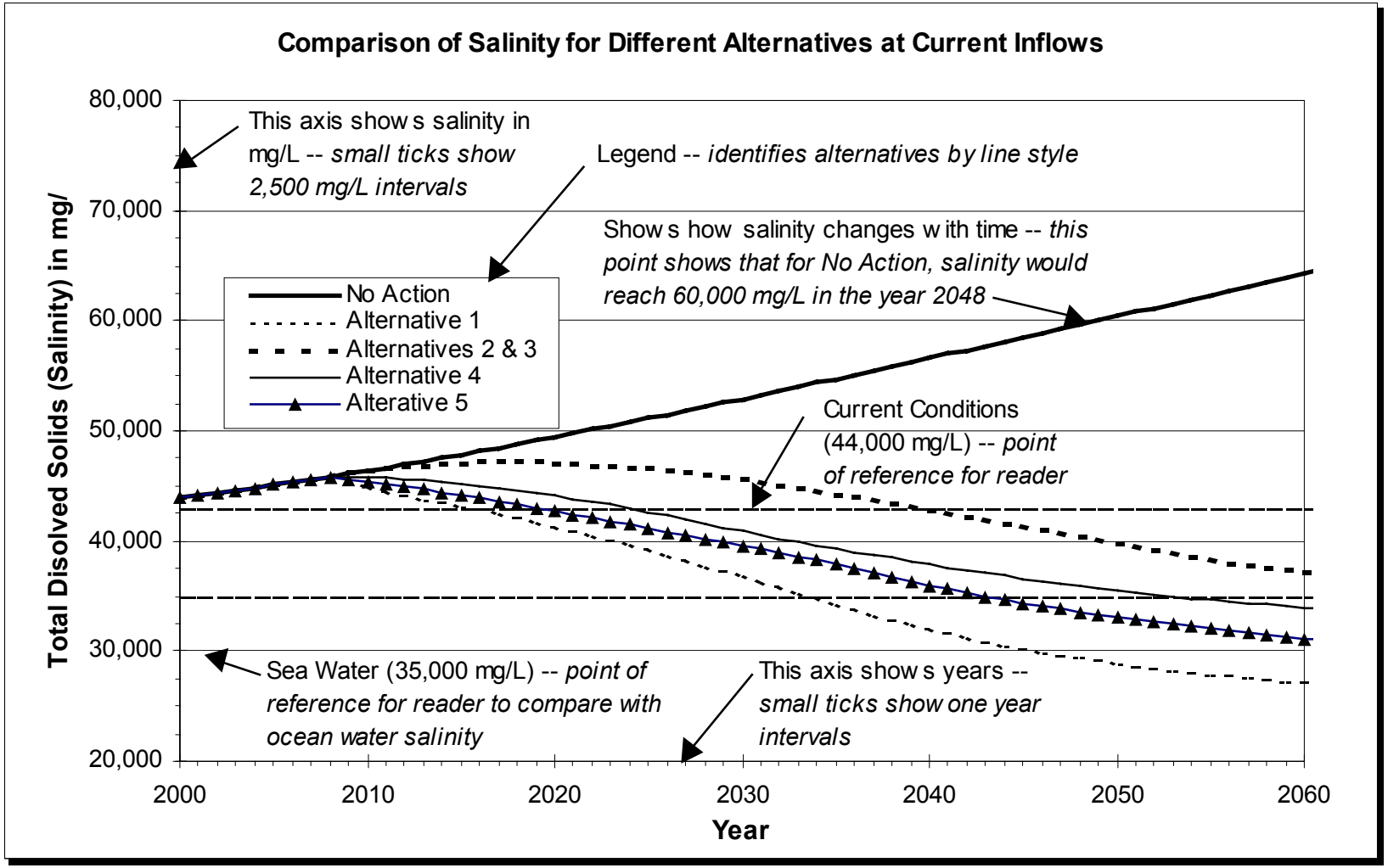

Figure 1.7-1 Sample chart used to plot salinity, similar charts are used to plot elevation

1.8 ACTIONS THAT WILL BE TAKEN BASED ON THIS EIS/EIR

Following public review and comment on this draft EIS/EIR, the joint lead agencies will analyze the public comments and will prepare a final EIS/EIR. The final EIS/EIR will include a listing of the public comments and agency responses. As the lead federal agency, Reclamation then will prepare and file a record of decision (ROD) no sooner than 30 days following the US Environmental Protection Agency's (EPA) publication of the notice of availability (NOA) of the final EIR/EIS. The Authority will consider the final EIR/EIS and certify it with findings and preparation of the Mitigation Monitoring and Reporting Plan. EIR certification under CEQA would occur through a resolution, including findings. Within five working days of project approval, the Authority will prepare and file a notice of determination (NOD), in compliance with CEQA requirements.

The NEPA ROD and CEQA findings will identify the specific actions the lead agencies intend to take as a result of the environmental review and other supporting engineering and scientific investigations and design efforts. Under NEPA, a preferred alternative must be identified in the Final EIS, although the lead agency may choose to select another alternative in the ROD. The ROD will include definitions of the mitigation and monitoring plans, adaptive management, and the long-term management plan.

Additionally, the EIS/EIR is intended to provide information to the Secretary of the Interior and to Congress on the environmental consequences of attempting to meet the project purposes. At Secretarial and Congressional discretion, this EIS/EIR may be used to inform and support their future authorization of actions at the Salton Sea.