Executive Summary

Introduction

Creating habitat and protecting air quality at the Salton Sea are key priorities for Governor Gavin Newsom and the California Natural Resources Agency. The Sea's continuing decline in elevation and resulting exposure of lakebed negatively impact surrounding communities and reduce remaining habitat for fish and wildlife. The California Natural Resources Agency, the California Department of Water Resources, and the California Department of Fish and Wildlife (together, the SSMP) are focused on executing the Phase I: 10-Year Plan, while simultaneously developing a path forward for long-term restoration and management of the Sea beyond the first decade.

The Salton Sea Management Program (SSMP) prepared this Long-Range Plan (LRP or Plan) to comply with State Water Board Revised Order WR 2002-0013 (Order). Condition 26 of the Order required the California Natural Resources Agency (CNRA) to issue a long-term plan no later than December 31, 2022. The Plan must be consistent with the requirements of the Order and the Salton Sea Restoration Act (Act) (Fish and Game Code § 2930, *et seq.*), including the statutory restoration objectives set forth in Fish and Game Code Section 2931, subdivision (c). The Draft Plan was released for public comment on December 15, 2022, a virtual community meeting was held on March 1, 2023, and the public comment period closed on March 17, 2023. This Plan is considered final and incorporates changes that came from the draft review as well as new air quality modeling that was developed in response to public comments.

The LRP was developed with support and input from Tribal leadership, community-based organizations, local, state, and federal agencies, and other interested parties. The Plan identifies concepts for long-term restoration of the Sea beyond the scope of the SSMP's Phase 1: 10-Year Plan, which aims to establish at least 14,900 acres of aquatic habitat and up to 14,900 acres of dust suppression projects by the year 2028.

The goal of the LRP is to protect or improve air quality, water quality, and wildlife habitat to prevent or reduce health and environmental consequences anticipated from the long-term recession of the Salton Sea shoreline. To achieve this goal, the following objectives must be met:

- Protect or improve air quality to reduce public health consequences.
- Protect or improve water quality to provide opportunities for beneficial uses and reduce environmental consequences.
- Restore long-term stable aquatic and shoreline habitat to historic levels and diversity of fish and wildlife that depend on the Salton Sea.

Meeting the aforementioned suite of objectives should be accomplished in a way that is acceptable to the region by being consistent with Tribal, local, State, and Federal policy and initiatives. In addition to numerous other factors described throughout the document, any solution should be shaped by Tribal knowledge and expertise, preserve Tribal heritage, enhance the local economy, and achieve environmental justice.

Overview of Restoration Concepts and Strategies

The restoration of the Salton Sea has been under study for more than two decades, and a wide range of concepts have been evaluated. This Plan builds upon these prior efforts while also acknowledging current, rapidly changing conditions in the Sea. The restoration concepts discussed in this Plan include long-range solutions that do and do not involve water importation. The concepts that do not involve water importation expand on current and past Federal, State, and local studies and the restoration plans developed in previous investigations. The concepts have been updated to meet current habitat objectives and to include Phase 1:10-Year Plan projects. In developing the Plan, the SSMP team has also sought the engagement of California Native American Tribes (Tribes) to align with their goals for the restoration of the Sea. In addition, the concepts have been modeled using the latest projections for future water inflows, and earlier cost estimates have been updated to express costs in 2022 dollars. The following documents served as the basis for the first four concepts considered in this LRP:

- CNRA Salton Sea Ecosystem Restoration Program Programmatic Environmental Impact Report (PEIR), Draft (2006) and Final (2007).
- US Bureau of Reclamation (USBR) Final Report: Restoration of the Salton Sea, 2007
- Salton Sea Authority (SSA) Funding and Feasibility Action Plan (FFAP), 2016
- The Salton Sea Management Plan (SSMP) Phase 1: 10-Year Plan Imperial and Riverside Counties, California, Draft Environmental Assessment, 2022.

The initial concepts were presented to the Salton Sea Long-Range Plan Committee (LRPC) and the public in March 2022. The LRPC and the public were given the opportunity to comment on these concepts as well as to submit other concepts. Based on feedback from this process, new concepts were added, and variations of the original concepts were developed to accommodate various strategies.

The Independent Review Panel (IRP) convened by the University of California at Santa Cruz was commissioned by the SSMP to review concepts for water importation to the Salton Sea for its long-term restoration. The IRP reviewed 18 proposals from outside groups. Three of the 18 proposals did not involve water importation and were referred to the SSMP team and are discussed herein. Of the remaining 15 proposals received, the IRP identified three import concepts which met their criteria. Because of similarities across these three external proposals, the IRP created a merged importation concept, pulling features from each. In addition, the IRP proposed a different importation concept, involving an exchange of Colorado River water with desalination in Mexico. In this scenario, the desalinated water is used in Mexico and an equivalent amount of water is left in the Colorado River to augment flows to the Salton Sea. Finally, the IRP developed another concept with no importation, that involved fallowing of land and the resulting conserved Colorado River water would flow to the Sea. These three concepts are further discussed in this document.

From the above-described process, the following concepts emerged for consideration in this Plan:

- **The SSMP Phase 1: 10-Year Plan** serves as a foundation for the concepts that are part of Phase 2. The Phase 1: 10-Year Plan includes four large habitat projects, multiple smaller habitat projects, and several revegetation projects designed to mitigate dust emissions.
- **Restoration Concept 1:** North/South Marine Sea that builds on concepts presented in the Ecosystem Restoration PEIR. The concept includes a north/south trending marine sea (meaning salinity like that of the ocean), maintained at an elevation close to historic levels before reductions of inflows over the past 20 years. Three variations of this concept are considered in this document.

- **Restoration Concept 2:** Divided Lake/Marine Sea South that builds on a concept presented by USBR for a divided lake with no elevation control and a marine sea in the south that would support a fishery. Four variations of this concept are considered in this document.
- **Restoration Concept 3:** Updated Perimeter Lake that builds on the perimeter lake concept published in the SSA Funding and Feasibility Action Plan (SSA, 2016). Two variations of this concept are considered in this document.
- **Restoration Concept 4:** Pump Out Options that would create an artificial outlet for the Salton Sea by pumping Salton Sea water from the Sea and using it for dust control, pumping Salton Sea water to the Sea of Cortez, or a combination of the two. Creating an artificial outlet would ultimately return the Sea to marine salinity. Pump-out options were investigated in the SSA Funding and Feasibility Action Plan. Four variations of this concept are considered in this document (SSA, 2016).
- **Restoration Concept 5:** Water Optimization, proposed by a representative of the Pacific Institute and a member of the LRPC, would capture water in two or more interceptor canals. Water would be distributed via gravity around the historic Salton Sea shoreline, creating shallow habitat cells and dust suppression projects. The cells would have a wide range of salinities, with salinity increasing in downslope cells.
- **Restoration Concept 6:** Southlake Restoration and Enhanced Vegetation, proposed by AGESS, Inc., would involve enhanced vegetation and phytoremediation that could be installed in the New and Alamo rivers and their deltas on floating islands to provide water quality improvements. A dredged gravity fed irrigation ditch would provide water for wetlands and a crescent shaped Southlake.
- **Restoration Concept 7:** Water Recycling, proposed by Sephton Water Technology, would involve construction of five desalination plants using evaporative distillation technology supplemented with groundwater pumping to reduce the salinity in the Sea.
- **Restoration Concept 8:** Reclamation of Native Desert and Agriculture was submitted to the IRP but referred to the SSMP team because it did not involve water importation. This proposal involves using less than 100 acre-feet per year (AFY) of Colorado River water to create small, shallow pools of oases around the exposed lakebed to help provide drinking water for wildlife and help provide a catalyst for the revegetation of the lakebed.
- **Restoration Concept 9:** Floating Solar and Water Generation System was submitted to the IRP but referred to the SSMP team because it did not involve water importation. Many floating solar systems would cover the water surface and slow evaporation, while generating electrical energy used to generate freshwater.
- **Restoration Concept 10:** Save the Coachella Valley Basin plan was submitted to the IRP but referred to the SSMP team because it did not involve water importation. Exposed lakebed areas close to the Salton Sea shore would be developed into mudflats and ponds. The habitat restoration projects would include 20 to 60 fish "rest areas."
- **Restoration Concept 11:** Water Importation was proposed by the IRP (from merging three external proposals received) and would involve importation of desalinated water from the Sea of Cortez, Mexico. Between 860,000 and 1 million AFY of water would be extracted from the Sea of Cortez, desalinated at an ocean water desalination facility on the western shore of the Sea of Cortez near San Felipe, Baja California, Mexico. Roughly half the resulting low-salinity water produced would be transported by pipeline to the Salton Sea. In addition, a remediation desalination facility near the Salton Sea was proposed to remove salts and further decrease the salinity of the Sea.
- **Restoration Concept 12:** Water Exchange proposed by the IRP would involve moving between 90,000 to 112,000 AFY of desalinated water from a desalination plant on the eastern shore of the

Sea of Cortez to the Canal Alimentador Central, which delivers water to the reservoir behind Morelos Dam on the Colorado River. Through agreement with Colorado River users, an equivalent amount of water would be delivered via the All-American Canal to the Salton Sea. This concept would also include a remediation desalination facility near the Salton Sea to remove salts and further decrease the salinity of the Sea.

- **Restoration Concept 13:** Colorado River Water Transfer proposed by the IRP would involve voluntary fallowing of land in the Salton Basin using financial incentives provided by the State of California to result in a net additional input of 100,000 AFY to the Salton Sea. Water from voluntary transfers could stabilize the Sea's elevation, and paired with remediation desalination, the Salton Sea salinity levels would be reduced.

Not all the above concepts are considered in detail in this Plan. Table ES-1 provides a summary of the status of the restoration concepts. Concepts 6, 8, 9, and 10 were not considered to be full restoration concepts, and therefore, were not included in the comparison with other full restoration concepts. However, components of these concepts are being retained for future consideration as elements of larger restoration plans during the next phase of environmental and engineering analysis.

Table ES-1. Evaluation Status of Restoration Concepts.

Number	Name	Original Source	Status
1	North/South Marine Sea	CNRA (2006)	Three variations evaluated in this Plan (A, B, and C)
2	Divided Lake/Marine Sea South	USBR (2007)	Four variations evaluated in this Plan (A, B, C, and D)
3	Updated Perimeter Lake	SSA (2016)	Two variations evaluated in this Plan (A and B)
4	Pump Out	SSA (2016)	Four variations evaluated in this Plan (A, B, C, and D)
5	Water Optimization	Salton Sea LRPC	Evaluated in this Plan
6	Southlake Restoration and Enhanced Vegetation	Salton Sea LRPC	Components retained for future consideration
7	Water Recycling	Salton Sea LRPC	Evaluated in this Plan
8	Reclamation of Native Desert and Agriculture	Submission to IRP	Components retained for future consideration
9	Floating Solar and Water Generation System	Submission to IRP	Components retained for future consideration
10	Save the Coachella Valley Basin	Submission to IRP	Components retained for future consideration
11	Water Importation	IRP Proposal	Evaluated in this Plan
12	Water Exchange	IRP Proposal	Evaluated in this Plan
13	Colorado River Water Transfer	IRP Proposal	Evaluated in this Plan

Salton Sea Long-Range Plan Amenities

Over the last decade, community members and organizations have advocated for multi-benefit infrastructure projects to address a range of community health and environmental concerns, and economic needs. Limitations on the use of bond funding, and regulatory, technological, cost, and landownership challenges have posed barriers to integrating these into the project design of SSMP projects. The development and implementation of the LRP presents a unique opportunity to incorporate these critical community amenities into the long-term vision for the Salton Sea.

Preliminary research and review of materials to date, including from State and community-based organization (CBO)-led processes, identified a range of community infrastructure and other needs to support the vision of a healthy and sustainable Salton Sea region. While some of the needs identified may be able to be incorporated into SSMP projects, others may fall outside of the SSMP and within the planning authority and funding of other governmental agencies and programs. CNRA is committed to supporting and advancing these efforts where possible. Needs identified to date include the following:

- **Partnerships opportunities with Tribes:** Community members and advocates identified needs to improve the quality of life for members of Tribes, develop tailored restoration projects on Tribal lands, host conservation and education programs led by Tribes, and advance economic development and contract opportunities to support the economic resiliency of Tribes and Tribal communities, as described in Executive Orders (EO) B10-11 and N15-19.
- **Recreational and outdoor access infrastructure at the Sea:** Community members and advocates at and around the Sea surfaced recreational and outdoor access infrastructure opportunities that make the Sea more accessible, welcoming, and usable for communities, such as bathrooms, shaded areas, picnic tables and barbeques, lighting, drinking fountains, benches, gathering spaces like recreational or community centers, multilingual wayfinding and culturally-appropriate signage, parks, pedestrian paths and hiking trails, boardwalks along the shore, biking trails, campgrounds, wildlife viewing platforms, and boat ramps. All should comply with existing regulations for accessibility, be ergonomically suitable, and be operated and maintained in necessary working conditions such as running water, electricity, and cleanliness.
- **Climate resilience infrastructure:** Benefits identified for advancing climate resilience and environmental health include climate resiliency hubs including cooling centers, parks, green spaces, operations and maintenance funding for SSMP projects, electric bus and electric vehicle charging infrastructure, and stable energy and water infrastructure.
- **Access to environmental health protections, and improved public health:** In addition to public health objectives of the SSMP, community members and advocates prioritize access to health benefits, including new health and mobile clinics near communities at the Sea; improved medical services and specialized care; improved pollution exposure research; monitoring and mitigation measures with real-time data and notification features, such as air quality monitors near communities; indoor air filters, reduced pesticide use and runoff diversion; improved air quality; ending unauthorized and hazardous waste dumping; affordable and safe drinking water; improved public and environmental health outreach to communities; improved housing; healthy food access and community gardens; and updated public health assessments and plans.
- **Expanded and enhanced transportation infrastructure:** Unmet transportation needs of the region include frequent and reliable public transportation services, electric buses, safe pedestrian paths and complete sidewalks, bike lanes and paths, safe roads, parking lots, lighting, and replacing high-polluting on and off-road vehicles. People have also requested direct connections to the Sea via public transportation.

- **Broadband access for all communities:** Community members surfaced lack of broadband to be a key constraint for engaging in SSMP or related planning processes. Benefits of broadband that cannot currently be met due to lack of infrastructure include access to virtual health, education, and commerce platforms.
- **Workforce benefits:** Community members and advocates want to see their communities employed for programs and investments at the Salton Sea. Potential opportunities identified here include: commitments to local hiring, and hiring underrepresented communities and Tribes for SSMP and other regional projects; investments in STEM (for science, technology, engineering and math) and green jobs educational programs, services, certification, and training for residents, including for Lithium Valley jobs; youth education and improved higher learning; support for local entrepreneurship; and a career center for the Salton Sea.
- **Education and programming at the Sea:** Community members identified a need for improved education and programming at the Sea, such as cultural education and programming, environmental education and signage, recreational programming, youth education, reduced fee programs, STEM and community science projects, and multilingual education centers and way-finding.

Although recreational and equitable access amenities are the focus of this Plan, the SSMP recognizes that additional needs highlighted by communities are important to incorporate into project design and planning. The acceptability criteria, used to evaluate restoration concepts, reflect the recognition that restoration projects at the Salton Sea must achieve multiple values, including fulfilling the State's commitments to Tribes, equitable outdoor access, and environmental justice. Most of the concepts identified in the LRP are too early in design to be fully analyzed using these acceptability criteria; it is the hope of the SSMP that these criteria will be foundational in the next stage of environmental review and alternative development.

Evaluation of Concepts and Strategies

The evaluation criteria developed for the Salton Sea LRP use federal planning process guidance: *Principles and Requirements for Federal Investments in Water Resources*, March 2013. Following these Principles and Requirements, the criteria for evaluating restoration concepts were formulated in the following four categories:

- Effectiveness
- Acceptability
- Completeness
- Efficiency

These categories were used to evaluate expected performance of 18 Phase 2 restoration concepts, including variations, that were carried forward for analysis at this stage of the planning process. The 18 concepts include 15 concepts that were proposed by the SSMP team, the LRPC, or the public and three concepts that were selected from the process facilitated by the Independent Review Panel (IRP). In addition, the Phase 1: 10-Year Plan was evaluated using the same methodology. The scoring for all concepts followed these general guidelines:

Criteria Category	Scoring Guidelines				
Effectiveness	Highly Effective	Very Effective	Effective	Somewhat Effective	Not Effective
Acceptability	Acceptable	Mostly Acceptable	Somewhat Acceptable	Minimally Acceptable	Not Acceptable
Completeness	Complete				Not Complete
Efficiency	Highly Efficient	Very Efficient	Efficient	Somewhat Efficient	Not Efficient
Scores >>	5	4	3	2	1

Effectiveness: Effectiveness measured how well a concept accomplished the following key objective areas:

- Air Quality/Public Health:
  - Ability to reduce dust emissions from exposed lakebed with the intent to protect or improve air quality
  - Ability to protect or improve air quality
- Habitat:
  - Area of shallow habitat (0-6 inches)
  - Area of medium-depth habitat (6 inches to 6 feet)
  - Deep-water habitat (greater than 6 feet)
  - Salinity
  - Pupfish habitat and connectivity
- Water Quality:
  - Ability to meet selenium standards
  - Ability to improve water quality

Acceptability: Acceptability was measured across the following ten criteria:

- Tribal Access to Natural Resources, Cultural Resources, and Tribal Cultural Resources
- Protection of Natural Resources, Cultural Resources, and Tribal Cultural Resources (Based on overall area)
- Protection of Natural Resources, Cultural Resources, and Tribal Cultural Resources (Based on location)
- Incorporation of Tribal Expertise
- Environmental Justice and Equity
- Do No Harm
- Equitable Outdoor Access
- Minimize GHG Emissions
- Workforce Development
- Sustainable Economic Development

Completeness: Completeness was assessed on whether a restoration concept satisfies all three of the Salton Sea LRP objectives.

Efficiency: Efficiency measured a concept's benefits and risks across the following 10 criteria:

- Timeframe for Complete Solution
- Capital Cost

- Operation, Maintenance, Energy, and Replacement (OMER) Cost
- Incremental Benefits with Incremental Funding
- Proven Technology/Reduced Risk
- Water Supply Risk
- Earthquake Risk
- Climate Change Related to Extreme Weather
- Regulatory Compliance
- Local, State, and Federal Water Rights and Agreements

All restoration concepts were evaluated for a range of three inflow scenarios to the Salton Sea. The scenarios were developed through an evaluation of flows on the Colorado River with consideration of the ongoing long-term drought in the west, the possible effect of climate change on evapotranspiration in the Imperial Valley, possible reductions of flows from Mexico, and several other factors. The three inflow scenarios are illustrated in Figure ES-1.

Summary of Findings

Based on the evaluations completed as part of this Plan, the most reasonably foreseeable average annual future inflow, barring any significant future policy changes, is estimated at 889,000 AFY, shown as the High Probability Inflow Scenario in Figure ES-1. This estimate is approximately 201,000 AFY less than the current 7-year average (1,090,000). SSMP measured the performance of concepts across all metrics using this inflow. However, as discussed in Chapter 4, Areas of Key Uncertainty, future Salton Sea Inflow is difficult to predict because of unknown future potential water policy changes on the Colorado River. To address this uncertainty for this Plan, we also measured the performance of concepts with inflows representing drier than expected future conditions and major water policy changes. These future inflows are 684,000 AFY and 444,000 AFY.

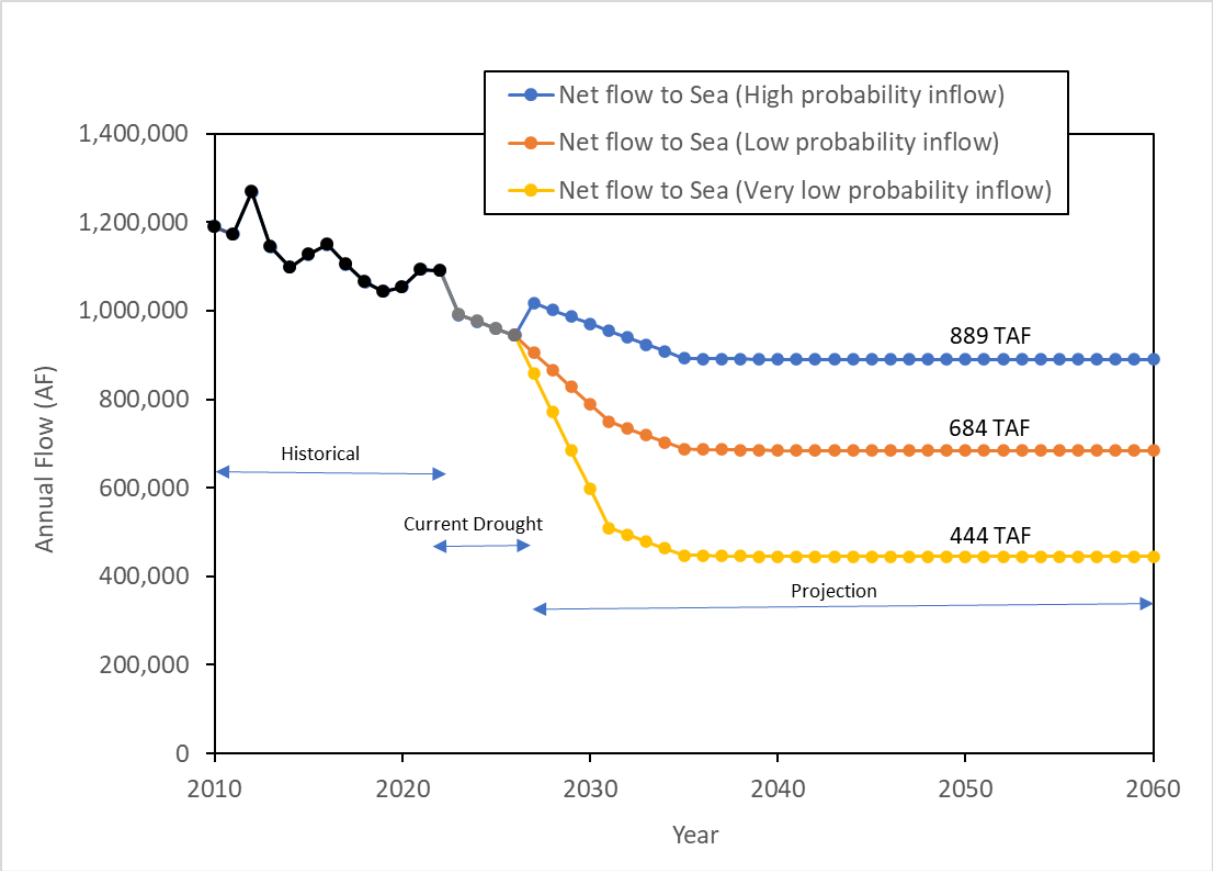

Figure ES-1. Inflow Scenarios Developed as Part of the Long-Range Plan (TAF = thousand acre-feet per year).

Fifteen of the 18 Phase 2 concepts have been deemed "Complete," which means they meet a minimum standard of "Effective" for Air Quality, Habitat, and Water Quality metrics. Concepts 3A, 3B, and 5 have been deemed "Incomplete" because of their inability to provide sufficient deep-water habitat. However, our scoring rubric for deep-water habitat is based on a linear relationship as compared to historical conditions, which doesn't account for density dependent effects of habitat on species. SSMP recommends using a population-based model for future evaluations to better understand the value of deep-water habitat.

Concept 11 scored the best for "Effectiveness" primarily because it offers more deep-water area habitat and covers the most amount of exposed lakebed when compared to other concepts. Other concepts that scored high for Effectiveness include concepts 2A, 2B, 2C, 2D, 4A, 4B, 4C, 4D, and 7. These concepts were "Very Effective" in providing deep-water habitat, which set them apart from the remaining concepts.

Concepts that scored the highest for the "Acceptability" include concepts 2A, 2B, 2C, 2D, and 3B. These concepts all scored well for their potential to develop local workforce and deliver sustainable economic development. Additionally, they offer the highest potential for equitable outdoor access. Finally, these concepts all scored well for minimizing GHG emissions.

Concepts that scored the highest for "Efficiency" include Concepts 2A, 2B, 2C, 2D, 3A, 3B and 5. These concepts established themselves as more efficient than other concepts for scoring well under the criteria for capital costs, operational costs, and proven technology.

The concepts that performed best across all four categories for the High Probability Inflow are Concepts 2A, 2B, 2C, and 2D, all variations of the Divided Sea Concept. Specific metrics where 2A, 2B, 2C, and 2D, did not score well include water supply risk. A low score in this category indicates that air quality, habitat, or water quality scores drop when the hydrologic regime changes from High Probability Inflow to Low Probability Inflow. Despite this drop in habitat scores, Concepts 2B, 2C, and 2D still register as "Very Effective" for their overall scores for the Low Probability Inflow scenario.

Concepts 3A, 3B, and 5 scored well across nearly all categories except for deep-water habitat. This result underscores the importance of a more detailed scoring metric for aquatic habitat based on population dynamics and ecological outcomes rather than a linear relationship.

Discussions of findings associated with the other inflow scenarios can be found in Chapter 8 of this Plan.

Recommendations

Concepts Recommended for Further Evaluation: The following concepts are recommended for further evaluation and for a subsequent feasibility study and environmental review process:

- Concepts 2B, 2C, and 2D performed best across all categories for both the High Probability Inflow and Low Probability Inflow scenarios. These and other variations of Divided Sea concepts should receive further consideration with a focus on improving resilience in the event hydrology performs worse than anticipated.
- Concepts 3A and 3B score well but are limited in their ability to provide deep-water habitat. Because they utilize less water than other concepts, they provide low risk in terms of future water supply concerns. Variations of Concepts 3A and 3B should receive further consideration with a focus on maximizing deep-water habitat.
- Concepts 4A and 4D score well for "Effectiveness" and only reasonably well for "Acceptability." While they are deemed incomplete by this analysis due to insufficient deep-water habitat, this metric will be replaced with a more appropriate biologically based measure in a subsequent review phase. Variations of these concepts should move forward for further consideration with a focus on improving acceptability measures.
- Concept 5 generally performs well except for lacking sufficient deep-water habitat, and for lesser recreational opportunities. A variation of Concept 5 should receive further consideration with a focus on adding recreational opportunities.
- Concept 6 was not fully analyzed in this document. However, components of the concept, including phytoremediation for improving water quality of inflowing river water, are recommended for future consideration as components of other concepts during the next phase of environmental review.
- Concept 7 generally scores well for "Effectiveness" criteria, reasonably well for "Acceptability" criteria, but relatively poorly for "Efficiency" criteria. A variation of Concept 7 should receive further consideration either 1) as a stand-alone concept with a focus on reducing cost and accelerating the timeframe to a complete solution, or 2) combined with other concepts with a focus on delivering greater overall value.
- Concept 10 was not fully analyzed because it primarily focuses on new processes. It involves lakebed shore cleanup, waste removal, and beautification. Community outreach would include social media and public meetings and the formation of a "Save the Salton Sea Clean Up Committee" as a short-term initiative. The long-term goal would be to work directly with the community to make improvements around the Sea. The plan does not involve control of salinity or lake surface.

However, community involvement would be beneficial to restoration efforts. The community could be directly involved in all phases of the project to design educational and habitat restoration opportunities. Variations of concept 10 that allow for greater community involvement is recommended for further consideration.

- Concept 11 was the most effective concept for all hydrologic scenarios and was the only concept to meet completeness for the Very Low Probability Inflow. This concept is also the most expensive and requires the longest time to implement. This concept should move forward for future consideration with a focus on identifying cost-saving measures and delivering greater value. While this concept has already received significant review and conceptual iteration from the IRP, it is possible that variations of this concept can be combined with other concepts to deliver greater value.
- Concepts 12 and 13 are too expensive for the benefits provided as currently configured, when compared to in-basin concepts. However, smaller variations of these concepts should be considered for their potential to be combined with other concepts in the event hydrology is worse than expected.

Concepts Not Recommended for Further Evaluation: The following concepts are not recommended for further evaluation:

- Concepts 1A, 1B, and 1C carry significant costs and risk without adding significant benefits. Constructability and potential catastrophic damage from earthquakes are risks that preclude us from recommending these concepts for further consideration.
- Concepts 4B and 4C provide similar benefits to Concepts 4A and 4D, but with added unnecessary costs and risks. We recommend that 4B and 4C be removed from further consideration as standalone concepts.
- Concept 8 uses 100 AFY of Colorado River water to develop vegetated habitat. It was not fully evaluated because it does not involve control of salinity or creation of habitat. Similar strategies already exist like revegetation projects being implemented on exposed lakebed to control dust. These projects are expected to continue and be incorporated with all other restoration concepts. Due to its similarity, there is no need for Concept 8 to receive further consideration.
- Concept 9 would involve solar modules on racking supported by floats with an industrial atmospheric water generation unit as illustrated in Figure 5-32. The floating solar system would cover the water surface and slow evaporation, while generating electrical energy. The concept would reduce salinity from decreased evaporation by covering parts of the Salton Sea and adding freshwater. Several technical issues existed that made this concept impractical. 6,000,000 or more of these units would be required to have only a 10 percent benefit in reducing evaporation. Other floating systems have been tested in the Sea and with the high salinity, large temperature extremes, and high wave activity, they are generally not practical. The operating life expectancy of individual units would be on the order of one to three years. Furthermore, having 6,000,000 of these units would be an impediment to recreational boating. This concept is not recommended for further consideration due to the technical challenges.

Changes Made between the Draft and Final Long-Range Plan

The SSMP program received 173 comments on the Draft LRP that was released for review on December 15, 2022 (supplemented by an air quality appendix, Appendix E, on February 15, 2023). All comments and responses are provided in Appendix I to this document.

Several changes have been incorporated into the Final LRP as a result of comments received on the Draft LRP. Additionally, the Final LRP incorporates new analyses that were started at the time of the Draft LRP but were not complete at the time of the draft publication. Updates to the Draft LRP that are included in the Final LRP include:

- Updates to the Methods of Analysis Sections *3.4 Air Quality Evaluation* and *3.5.1 Landscape Processes* (which is a subsection of *3.5 Greenhouse Gas Analysis*).
- Updates to the Areas of Uncertainty Sections *4.1.1 Uncertainty in Future Inflow*, *4.1.2 Uncertainty in Air Quality Analysis as it Relates to Public Health*, and *4.2.1 Uncertainty in Water Quality*.
- Updates to the introduction to Section *5.2 Phase 1: 10-Year Plan*.
- Added discussion regarding revenue from salt under Section *5.9 Restoration Concept 7: Water Recycling (Desalination)* within Subsection *5.9.2 Performance, Expected Benefits, and Recreational Opportunities*.
- Updates to the description of the criteria for evaluation of the "Ability to Protect or Improve Air Quality" within Section *7.1.1 Air Quality/Public Health*.
- New Section *7.5 Evaluation Summary*. This section provides summary tables for each of the inflow scenarios, showing the complete set of scores for all restoration concepts under each inflow scenario.
- New Subsection *8.2.3 Consideration of Air Quality in Scoring Restoration Concepts* within Section *8.2 Recommendations*.
- Added discussion in Section *5.2.2.1 Using Coupled Model Intercomparison Project (CMIP3) Projections for future climate and Resampled 2000–2018 Hydrology as Colorado River Simulation System (CRSS) Input* and added Section *6.2 Water Use for Lithium Production* in Appendix B: Hydrology and Climate Change.
- Completed *Appendix E: Air Quality Evaluation*, which was first released on February 15, 2023, with model output for different restoration concepts.
- Updates to *Appendix F: Greenhouse Gas Emissions* throughout the document in response to public comments provided.
- New *Appendix H: Independent Review Panel Water Import Feasibility Analysis (released September 2022)* which provides an overview of Independent Review Panel activities and links to their documents.
- New *Appendix I: Public Comments and Responses*, as discussed above.
- Multiple minor editorial corrections in the main document and appendices.

Next Steps

In 2023, the SSMP invested significant time and effort to advance work with the US Army Corps of Engineers (USACE) and SSA on the Imperial Streams and Salton Sea Ecosystem Restoration Feasibility Study (Feasibility Study). This Feasibility Study is a continuation of SSMP's effort on the Long-Range Plan. The restoration strategies and concepts described in the Long-Range Plan are necessarily ambitious. Any combination of concepts within the Plan will require significant federal and local support to deliver. The SSMP views our partnership with USACE and SSA as essential for identifying and implementing a preferred alternative for the long-term restoration of the Salton Sea.

In December 2022, the California Department of Water Resources, SSA, and USACE Los Angeles District entered into a Feasibility Cost Share Agreement, effectively kicking off the Feasibility Study. Acknowledging the extensive work completed by the SSMP and other agencies and organizations to develop the Draft LRP, USACE adopted the restoration concepts set forth in the Long-Range Plan to evaluate in the Feasibility Study. The USACE study team plans to refine and build upon the LRP concepts to align with USACE policy and procedures and then apply their standard planning process as required by federal regulation.

During 2023, the three agencies worked together to develop a shared understanding of the scope of challenges and opportunities surrounding the Salton Sea. This scope was heavily informed by the Draft Long-Range Plan document, process, and public comments. Through this scoping effort, in August 2023, USACE affirmed the LRP restoration concepts that were recommended for further evaluation as alternatives in the Feasibility Study. USACE also developed a proposed scope, schedule, and budget to complete the Feasibility Study. The scope and schedule incorporate preferred hydrologic, hydraulic, and ecological models, data collection needs, public involvement plans, and review plans to complete the study. Under this preferred scope, the study is anticipated to cost between $12-16 million.

Currently, USACE and the State of California have secured funding to cover $3 million of the Study's scope. This Cost Share Agreement allows the USACE and its partners to split the cost of the study and work collaboratively on possible solutions. Work is underway to secure the additional funds needed to complete the Feasibility Study.