

1.1 Evaluation Criteria

Evaluation criteria are standards that can be applied to a range of restoration concepts to determine which concepts would be expected to perform best. The evaluation criteria developed for the Salton Sea Long-Range Plan (LRP) use federal planning process guidance: *Principles and Requirements for Federal Investments in Water Resources*, March 2013. These Principles and Requirements, and the supporting Guidelines, are intended to provide a common framework for analyzing a diverse range of water resources projects, programs, activities, and related actions as identified by the agencies in the context of their missions and authorities.

Following these guidelines, plans, strategies, or actions are to be formulated systematically to ensure that a range of reasonable concepts is evaluated. The final analysis should, at a minimum, support full disclosure and promote transparency in the decision-making process.

The LRP will be formulated to consider the following four criteria categories:

- Effectiveness
- Acceptability
- Completeness
- Efficiency

Each of these categories will include several criteria to evaluate expected performance.

1.1.1 Core Commitments for the Development of Evaluation Criteria

The Salton Sea Management Program (SSMP) developed criteria to align with broader State commitments to equity, tribal partnerships, and economic prosperity. The Criteria are designed to advance and be shaped by three core commitments; (1) advancing justice, equity, diversity, and inclusion; (2) strengthening tribal partnerships; and (3) sustaining economic prosperity. The SSMP follows the Tribal Consultation Policy and Environmental Justice Policy of the California Natural Resources Agency (CNRA) and its overall commitment to embedding equity in all we do.

Implementing CNRA Tribal Consultation Policy requires the State to engage in early, often, and meaningful government-to-government consultation with all California Native American tribes identified on the Native American Heritage Commission contact list for the Salton Sea area.

Implementing CNRA Environmental Justice Policy requires that in our planning, development, and implementation of all CNRA programs, policies, and activities, we seek out input and participation of underserved, underrepresented, and impacted populations. This also includes the extent to which a restoration concept or strategy incorporates feedback, social advancement, health, and wellbeing of regional underrepresented and underserved populations and California Native American tribes.

Embedding equity within our long-range planning efforts means that the criteria will be shaped by the three core commitments, and proposed projects will be evaluated through a lens toward advancing these commitments.

1.1.2 Criteria for the Salton Sea Long-Range Plan

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. 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.
- Restoration of long-term stable aquatic and shoreline habitat for the historic levels and diversity of fish and wildlife that depend on the Salton Sea (Fish and Game Code [F&GC] 2931).

Evaluation criteria are intended to determine which concepts would be expected to best achieve the objectives and overarching goal. The criteria used to evaluate restoration concepts in the LRP were developed with input from the Long-Range Plan Committee and members of the Salton Sea Science Committee. Each of the four criteria categories and the specific criteria within each is described below:

Effectiveness: Effectiveness will measure how well a restoration concept accomplishes an individual objective from the aforementioned suite of Salton Sea LRP objectives. Table 1 describes the specific criteria that are proposed to evaluate the effectiveness of restoration concepts. Climate resiliency is a foundational element in the analysis of each of the effectiveness measures and therefore is not explicitly called out in Table 1. Thus, restoration concepts will be evaluated on their ability to meet the effectiveness measures under a range of future climatic conditions being considered for the State of California planning efforts, including extreme events such as droughts and heat waves.

Acceptability: Acceptability of a restoration concept will be measured by its compatibility with State law and policies applicable to the Salton Sea, such as the ability to protect tribal cultural resources, provide increased access and use of tribally culturally important lands, waters, and natural resources, provide equitable outdoor access to recreational opportunities, sustainably enhance local economies, address environmental justice, and minimize greenhouse gas emissions. Acceptability shall also include how well a proposed restoration project considers and incorporates locally led values and goals, including those of underserved populations experiencing environmental injustice in the region. Table 2 describes the specific criteria that are proposed to evaluate the acceptability of restoration concepts.

Completeness: Completeness will be assessed on whether a restoration concept satisfies all of the aforementioned suite of Salton Sea LRP objectives. Table 3 describes the specific criteria that are proposed to evaluate the completeness of restoration concepts.

Efficiency: Efficiency will be measured by the estimated costs of the restoration concept, the timeline for its implementation, the benefits achieved, and direct and indirect risks. Table 4 describes the specific criteria that are proposed to evaluate the efficiency of restoration concepts.

Table 1. Effectiveness Criteria

Criterion	Description	Metrics
<p><u>Air Quality/Public Health</u> Ability to Reduce Exposed Lakebed with the Intent to Protect and Improve Air Quality</p>	<p>The ability to minimize dust emissions from exposed lakebed and thus protect and improve air quality compared to the baseline 10-Year Plan. Exposed lakebed areas are expected to be a source of wind-blown dust and will be modeled to assess air quality effects at sensitive receptors around the Sea. Because there may be uncertainties associated with modeling, areas of exposed lakebed associated with each concept can be compared and used as an indicator of potential dust generation. Actions and strategies that have the least total exposed emissive lakebed areas would score the highest.</p>	<p>The restoration concept with the smallest emissive lakebed area will be assigned a value of 5 for this criterion. Scores for other concepts will be scaled down proportionally and rounded to the nearest integer.</p>
<p><u>Air Quality/Public Health</u> Ability to Reduce Dust Emissions from Exposed Lakebed with the Intent to Protect and Improve Air Quality</p>	<p>The ability of a restoration concept to reduce the number of days where PM10 levels exceed safe standards in the region caused only by exposed lakebed.</p>	<p>The restoration concept with the least contribution of lakebed PM10 and other contaminants across selected receptor communities around the Salton Sea will be scored a 5. Scores for other concepts will be scaled down proportionally, rounded to the nearest integer.</p>
<p><u>Air Quality/Public Health</u> Ability to Protect or Improve Air Quality</p>	<p>The ability of a restoration concept to reduce the number of days where PM10 levels exceed safe standards in the region based on a regional air quality model.</p>	<p>The restoration concept with the greatest reduction of days when standards for PM10 or other contaminants are exceeded across selected receptor communities around the Salton Sea will be scored a 5. Scores for other concepts will be scaled down proportionally, rounded to the nearest integer.</p>
<p><u>Habitat</u> Shallow Habitat (0-6 inches)</p>	<p>The objective of restoring habitat is to re-establish the historic levels and diversity of fish and wildlife that depend on the Salton Sea. Salinities in the target range of 20 to 40 parts per thousand (PPT) at a variety of water depths are the most able to support the abundance and diversity of fish and wildlife that have depended on the Salton Sea in the past. This metric evaluates the area of shallow habitat that will support a fish and invertebrate population as a food source for wading birds, expected to be the area between the shoreline and the six-inch depth contour.</p>	<p>The restoration concept with the largest shallow habitat area will be assigned a value of 5. Scores for other concepts will be scaled proportionally, rounded to the nearest integer.</p>

	<p>The area may change over time and will be evaluated at different points in the future (10, 25, and 50 years after project initiation).</p>	
<p>Habitat Medium-Depth Habitat (6 inches to 6 feet)</p>	<p>The objective of restoring habitat is to re-establish the historic levels and diversity of fish and wildlife that depend on the Salton Sea. Salinities in the target range of 20 to 40 PPT at a variety of water depths are the most able to support the abundance and diversity of fish and wildlife that have depended on the Salton Sea in the past. This metric evaluates the area of medium-depth habitat that will support a fish population as a food source for birds such as egrets, dabbling ducks, pelicans, and terns that typically feed in medium depth areas between six inches and six feet.</p> <p>The area may change over time and will be evaluated at different points in the future (10, 25, and 50 years after project initiation).</p>	<p>The restoration concept with the largest medium-depth habitat area in the target salinity range will be assigned a value of 5. Scores for other concepts will be scaled proportionally, rounded to the nearest integer.</p>
<p>Habitat Deep-Water Habitat (>6 feet)</p>	<p>The objective of restoring habitat is to re-establish the historic levels and diversity of fish and wildlife that depend on the Salton Sea. Salinities in the target range of 20 to 40 PPT at a variety of water depths are the most able to support the abundance and diversity of fish and wildlife that have depended on the Salton Sea in the past. This metric evaluates the area of deep-water habitat that will support a fish population as a food source for diving birds, expected to feed in areas deeper than six feet.</p> <p>The area may change over time and will be evaluated at different points in the future (10, 25, and 50 years after project initiation).</p>	<p>The restoration concept with the largest deep-water habitat area will be assigned a value of 5. Scores for other concepts will be scaled proportionally, rounded to the nearest integer. Habitat areas outside the target salinity range, i.e., less than 20 PPT or greater than 40 PPT, will be given reduced scores based on the judgment of wildlife biologists on the SSMP team or guidance from the Science Committee.</p>
<p>Habitat Salinity</p>	<p>The objective of restoring habitat is to re-establish the historic levels and diversity of fish and wildlife that depend on the Salton Sea. Salinities in the target range of 20 to 40 PPT at a variety of water depths are the most able to support the abundance and diversity of fish and wildlife that have depended on the Salton Sea in the past. This metric evaluates salinity in the primary habitat area of a concept.</p>	<p>Primary habitat areas in the target salinity range of 20 to 40 PPT, which is expected to support the diversity of fish and wildlife that depend on the Salton Sea, will be scored a 5. Primary habitat areas with salinities in the range of 40 to 50 PPT are expected to support fish populations as a food source for piscivorous birds, but with lowered reproduction and sustainability; these will be scored a 4. Primary areas with salinities between 50 and 60 PPT will be</p>

	The salinity may change over time and will be evaluated at different points in the future (10, 25, and 50 years after project initiation).	scored a 3, those with salinities between 60 and 100 PPT will be scored a 2, and those with salinities greater than 100 PPT that primarily support brine fly and other invertebrate habitat will be scored a 1.
Habitat Pupfish Habitat and Connectivity	The extent of pupfish connectivity between drains and inlets with water quality that can support pupfish; restoration concepts that maintain the highest amount of suitable connectivity would score highest.	The restoration concept with the greatest pupfish connectivity will be assigned a value of 5. A concept with limited connectivity or where significant changes will need to be made to ensure connectivity will be scored a value of 1. Concepts with varying levels of connectivity will be scored accordingly.
Water Quality Ability to Meet Selenium Standards	The ability of a restoration concept to create or maintain habitats where selenium concentrations are below levels that cause wildlife risk.	Habitat areas that mirror the Sea’s ability to sequester selenium or that use water resources with extremely low levels of selenium will be assigned a value of 5. Habitat areas that have a managed risk for selenium will be assigned a value of 3, and areas with the potential to have selenium risks to wildlife will be assigned a value of 1.
Water Quality Ability to Improve Water Quality	The extent that a restoration concept improves water quality parameters other than salinity either in the inflowing waters or within the water bodies or habitat areas within the Salton Sea footprint to provide opportunities for beneficial uses (designated in the Regional Water Board Basin Plan) and reduce environmental consequences.	Restoration concepts with the greatest potential to meet water quality objectives outlined in the Basin Plan will be assigned a value of 5. Indicators will include the ability to reduce loads of potentially contaminated sediments and control total phosphorus, total nitrogen, and other contaminants in inflows. Concepts with no or very limited ability to meet water quality objectives outlined in the Basin Plan will be assigned a 1. Scores for other concepts will be assigned an intermediate score based on engineering judgment.

Table 2. Acceptability Criteria

Criterion	Description	Metrics
Tribal Access to Natural and Cultural Resources	The ability for a concept or strategy to increase tribal access and use of ancestral lands, the lake, and natural resources. Evaluation of this criterion will be informed through early, often, and meaningful government-to-government consultation between the California Native American tribes and the State.	Based on consultation, scores will range from 1 to 5, with 5 being the most acceptable.
Protection of Natural and Cultural Resources	The ability for a concept to avoid adverse effects to tribal cultural resources, including but not limited to sacred places, archeological sites, ceremonial and burial grounds, village sites, and cultural sites. Evaluation of this criterion will be informed through early, often, and meaningful government-to-government consultation between the California Native American tribes and the State.	Based on consultation, scores will range from 1 to 5, with 5 being the most acceptable.
Do No Harm	The extent that a restoration concept prevents, reduces, and controls the risk of environmental harm to environmental justice communities. A concept would score highly if it avoided disproportionate pollution, contamination, air and water quality burdens, or existing hazards to environmental justice communities. In addition, projects that include the deterrence, reduction, and elimination of pollution burdens, including air and water quality burdens or existing hazards, could also meet this standard. A concept could demonstrate this by expanding healthy environments for regional populations, and in particular for environmental justice communities.	Scores will range from 1 to 5, with 5 being assigned to concepts that avoid harm.
Incorporation of Tribal Expertise	The ability for a concept to integrate or incorporate traditional ecological knowledge and tribal expertise through partnering with tribe(s) in the implementation of Traditional Ecological Knowledge and tribal expertise.	Based on consultation, scores will range from 1 to 5, with 5 being most acceptable.
Equitable Outdoor Access	The extent to which a restoration concept expands or advances outdoor access to regional environmental justice communities and California Native American tribes. Restoration concepts that would score high under this criterion include those which could expand equitable access by creating or enhancing open space infrastructure in proximity to these communities. Examples of open space infrastructure include parks	Scores will range from 1 to 5, with 5 being assigned to concepts that have the greatest equitable outdoor access.

	and trails, beaches, fishing piers, new community gathering spaces, recreational or educational facilities, as well as those which would expand ADA and public access and safety, through features such as lighting, transportation access, safety elements, and facilities.	
Minimize Greenhouse Gas (GHG) Emissions	<p>Concepts should be evaluated for their contributions to GHG emissions. This evaluation will focus on direct impacts from construction, operations, maintenance, and landscape changes. For this evaluation, “landscape changes” refers to the shift from an inundated area to a non-inundated area, or vice-versa. This evaluation will compare direct system-wide differences from baseline conditions. For this evaluation, “system-wide” refers to reservoirs, water bodies, or landscapes directly linked to the Salton Sea. Examples include Lake Mead and Lake Powell.</p> <p>To the extent feasible, concepts should incorporate measures to minimize GHG emissions. Beyond this, concepts should identify the extent of carbon offsetting through nature-based solutions, carbon sequestration, and renewable energies.</p>	<p>Concepts where all GHG emissions could be offset onsite through nature-based solutions to a level below the baseline condition would receive a score of 5; this score incorporates a qualitative intrinsic value for having a nature-based onsite solution to a global problem. A concept that can be offset through offsite carbon sequestration or renewable energies would be given a score of 4 through 2 based on a relative comparison of emissions. Finally, concepts that would produce GHG emissions that were so high that they could not be feasibly offset would receive a score of 1.</p>
Workforce Development	<p>The extent to which a restoration concept increases the likelihood that a local workforce will be used on the project, encourages the employment of a local workforce, and ensures that a local workforce has the opportunity to participate. A restoration concept that increases the likelihood a local workforce will be used for construction and ongoing maintenance or will provide for local production of materials and technology to create and maintain restoration infrastructure, as well as those that provide training or educational opportunities for local residents, including youth, would score well under this criterion.</p>	<p>Scores will range from 1 to 5, with 5 being assigned to concepts that have the greatest potential to support local workforce development.</p>
Sustainable Economic Development	<p>The extent to which a restoration concept directly or indirectly provides or allows for sustainable economic development benefits. Restoration concepts that utilize local materials and technologies to create and maintain restoration infrastructure would score well under this criterion.</p>	<p>Scores will range from 1 to 5, with 5 being assigned to concepts that have the greatest potential to support sustainable economic development.</p>

<p>Environmental Justice and Equity</p>	<p>The extent to which a restoration concept directly or indirectly includes locally led initiatives, reflects local values, has already undertaken significant local outreach or furthers the needs, input, and values of underrepresented regional populations in and around the Salton Sea. It could similarly demonstrate this by establishing the extent to which a proposed restoration scenario or strategy provides equitable access to state or federal funding for regionally identified and supported restoration or remediation projects, or the extent to which a proposed strategy or scenario promotes regionally led management and shared decision-making opportunity for underrepresented populations.</p>	<p>Scores will range from 1 to 5. Among other factors, a concept will score well if it incorporates local values or provides equitable access to state or federal funding.</p>
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Table 3. Completeness Criteria

Criterion	Description	Metrics
<p>Completeness: Meets all individual objectives</p>	<p>A concept that achieves all of the following objectives would receive a “complete” score: Restoration of long-term stable aquatic and shoreline habitat for the historic levels and diversity of fish and wildlife that depend on the Salton Sea (F&GC 2931); Protection or improvement of air quality to reduce public health consequences; and protection or improvement of water quality to provide opportunities for beneficial uses and reduce environmental consequences.</p>	<p>Concepts that satisfy the three basic objectives (air quality, water quality, and habitat) will be considered complete and assigned a score of 5. Concepts that do not satisfy all three objectives will be deemed not complete and assigned a score of 1.</p>

Table 4. Efficiency Criteria

Criterion	Description	Metrics
Timeframe for Complete Solution	The timeframe for a restoration concept to be completed and commissioned; a shorter timeframe would score higher.	The concept with the shortest timeframe to achieve full project objectives will receive a 5. One point will be deducted for each additional five years to achieve full project objectives, down to a minimum of 1.
Capital Cost	The estimated total capital construction costs in 2022 dollars for a restoration concept.	The concept with the lowest estimated capital cost divided by the total habitat created will receive a 5. Scores for other concepts will be scaled down proportionally, rounded to the nearest integer.
Operation, Maintenance, Energy, and Replacement (OMER) Cost	The estimated total annual OMER costs in 2022 dollars for a restoration concept (i.e., the amount needed now to pay for OMER over a 75-year planning horizon), accounting for possible revenues generated from a concept.	The concept with the lowest estimated OMER cost divided by the total habitat created will receive a 5. Scores for other concepts will be scaled down proportionally, rounded to the nearest integer.
Provides Incremental Benefits with Incremental Funding	The extent to which incremental funding for a restoration concept can result in incremental benefits. A concept that delivers significant benefits the earliest would score the highest, whereas a concept that delivers significant benefits the latest would score the lowest.	Scores will be assigned from 1 to 5 considering funding requirements for each component, time to achieve habitat objectives, and the habitat area achieved with construction of each component. The concept with the greatest number of incremental benefits will be assigned a score of 5.
Proven Technology/Reduced Risk	Whether a restoration concept uses untested technologies or technologies that have a high measure of construction and operational risk; a proven, widely used technology would score higher.	Concepts that employ standard technologies, with proven low-risk performance, will be given the highest score of 5. Concepts that have technologies that have been used elsewhere but not necessarily in highly seismic areas such as that of the Salton Basin or on such a large scale as at the Salton Sea will be given an intermediate score of 3. Concepts that have technologies that have not been widely used elsewhere and not used on any large scale like that needed at the Salton Sea will be given the lowest score of 1. Concepts that employ a mix of technologies with varying maturity may be assigned intermediate scores.

<p>Water Supply Risk</p>	<p>The extent to which a restoration concept can provide benefits under a wide range of future inflows, including under variable conditions due to climate change and drought. Restoration concepts that can perform as planned under a wider range of future inflow conditions would score higher than those that have a narrower range with a higher minimum water requirement.</p>	<p>The score for water supply risk will be based on modeling. The concept that provides the greatest habitat and dust control benefits over the widest range of future inflow assumptions will be given a score of 5. Others will be scaled down accordingly.</p>
<p>Earthquake Risk</p>	<p>The potential for concepts to be damaged by earthquakes. This measure will evaluate how susceptible individual concept elements, such as berms, gates, and pipelines, are to potential earthquakes. Time and cost to restore functionality after a potential failure will be considered for this criterion, as will limited functionality if parts of the concept can still function.</p>	<p>All concepts would be designed to withstand a design earthquake event based on seismic conditions in the area. However, some seismic risk will remain. For concepts with earth embankments, the concept with the lowest combination of embankment structure height/head differential and water retention volume will receive a score of 5. The concept with the highest combination of embankment structure height/head differential and water retention will receive a score of 1. Others will be scored proportionally between these extremes. Scores will be adjusted to account for other components such as pumps and pipelines that could be damaged and cause flooding and property damage.</p>
<p>Climate Change Related to Extreme Weather</p>	<p>The ability for concepts to remain effective during conditions of extreme weather resulting from climate change, such as extreme heat, wind pattern changes, and monsoonal changes. Note that climate change will be part of the inflow hydrology scenarios and the effects of changing inflows will be evaluated as part of the efficiency criteria (under Water Supply Risk).</p>	<p>Because of the long north-south fetch of the Sea, high wave activity can be expected at the Sea without climate change. Such conditions may be more frequent with climate change. Concepts that can be designed to withstand these conditions will be assigned a score of 5. Concepts with components that are likely to be damaged or fail under such conditions will be given lower scores based on engineering judgment.</p>