

Chapter 3. Summary of Major Conclusions

MAJOR CONCLUSIONS BY TOPIC AREA

Effects on Fisheries

The California Court of Appeals directed SWRCB to amend the City of Los Angeles' water right licenses to require the city to release sufficient water into the diverted tributary streams from its dams to reestablish and maintain the fisheries that existed in them prior to its diversion of water.

None of the alternatives can restore and maintain pre-1941 fishery conditions within less than 50 years and these conditions may never be fully restored. Major geomorphic alterations are simply too great to allow restoration of the complex habitat functions present in lower Rush and Lee Vining Creeks in the pre-1941 period. Successful restoration efforts now will require proper instream flows while channel, riparian, and instream habitat conditions are stabilized and restored. The most extensive information on the amount of fishery habitat available at different levels of flow is presented in the California Department of Fish and Game Stream Evaluation Reports. The information in those reports and other evidence presented at the water right hearing provide sufficient basis for establishing instream flows for restoration and maintenance of fisheries similar to that which existed in 1940.

Other Major Conclusions

Other major conclusions can be summarized as follows.

Water Quality

- # None of the alternatives would cause a significant reduction in the quality of water delivered to the Los Angeles Aqueduct.
- # None of the alternatives would result in a significant increase in nutrient levels in the Upper Owens River or in Lake Crowley reservoir.

- # Mono Lake qualifies for designation as an Outstanding National Resource Water by SWRCB or the Lahontan Regional Water Quality Control Board, pursuant to the federal Clean Water Act. Designation of Mono Lake as an Outstanding National Resource Water would require maintenance of lake levels of approximately 6,379 feet.

Tributary Riparian Vegetation

- # Geomorphic changes resulting from past streamflow diversions by the City of Los Angeles have caused an irreversible loss of riparian habitat.
- # The 6,383- and 6,390-Ft Alternatives would result in no further significant adverse impacts.
- # Lower lake-level alternatives would involve significantly reduced potential for the high seasonal streamflows needed for vegetation recovery, and the 6,372-Ft and lower lake-level alternatives would likely cause significant channel erosion from channel incision during spills.
- # The 6,410-Ft and higher lake-level alternatives would also cause channel erosion and would inhibit recovery of the degraded aquatic/riparian habitats because of the frequent high snowmelt flows.
- # Throughout the range of most of the alternatives, the vegetation growth effects of higher water tables from higher streamflows under the higher lake-level alternatives would be offset by the acreage inundated by the rising lake.
- # None of the alternatives would fully restore the riparian vegetation that existed during the prediversion period. Riparian restoration efforts can restore a major portion of the losses.

Lake-Fringing Vegetation and Aquatic Habitats

- # The acreage of existing vegetated wetlands that have developed on the relicited lands would be significantly reduced under the 6,383-Ft and higher lake-level alternatives, particularly under the 6,410-Ft and higher lake-level alternatives. Nonetheless, only under the No-Restriction Alternative would wetland acreage be less than existed in the prediversion period.
- # Freshwater and brackish water lagoons around the lake, now a small fraction of their prediversion amount, would begin to increase in number and acreage with the 6,383-Ft Alternative and would increase to the prediversion amount at lake levels of about 6,400 feet, or above those of the 6,390-Ft Alternative.

- # The conversion of more than 5,000 acres of productive aquatic habitat (see "Aquatic Productivity") to exposed alkali lakebed during the diversion period can be reversed by 90% under the 6,383-Ft Alternative and almost completely under the higher lake-level alternatives. (Under the highest levels, the complete loss of alkali lakebeds might have an adverse affect on snowy plover nesting; see "Wildlife".)

Upper Owens River Vegetation

- # The relative instability of the Upper Owens River channel would significantly worsen only under the No-Restriction Alternative; restoration of prediversion stability could be accomplished under the 6,410-Ft or higher lake-level alternatives or under other alternatives if a better flow-change ramping schedule were adopted.
- # The extent of marsh and meadow would diminish significantly only under the No-Diversion Alternative.
- # Both flow augmentation and livestock grazing have probably reduced the extent of woody riparian habitat (willows); the reduction would be maintained under all alternatives except the 6,410-Ft and higher lake levels, but could be eliminated by habitat restoration and control of livestock access.
- # Willow growth rates would be slightly suppressed under alternatives with either large exports or no exports, but that effect is not biologically significant.

Aquatic Resources of the Tributary Streams

- # All the alternatives except the No-Restriction Alternative would increase fish habitat over the point-of-reference conditions, but none of the alternatives would approach the prediversion conditions without stream and riparian habitat restoration efforts. Predicted increases in brown trout habitat from the point of reference are of similar size but increase with lake levels ranging from the 6,372-Ft Alternative to the No-Diversion Alternative.
- # Benefits of increasing physical habitat because of higher average streamflows would be countered by impact on the fishery caused by peak streamflows, which could recur up to 10% of the years under the 6,410-Ft and No-Diversion Alternatives.

Aquatic Resources of the Upper Owens River

- # The 6,377-Ft and higher lake-level alternatives would result in increasingly significant losses of trout habitat because of the reduced Mono Basin exports.
- # Because of reduced flow augmentation, the 6,383-Ft and higher lake-level alternatives would also entail significantly higher stream temperatures and greater effects from water quality degradation below Hot Creek.
- # Effects on aquatic resources are partially or substantially mitigable depending on Grant Lake reservoir operations and ramping rate criteria.

Aquatic Resources of Grant Lake and Lake Crowley Reservoirs and Middle Owens River

- # No significant impacts or benefits would occur to fisheries in these water bodies under any alternative (except for Grant Lake reservoir under the No-Diversion Alternative, where the fishery would be enhanced if the reservoir were always kept full).

Mono Lake Aquatic Productivity

- # Total brine shrimp production is primarily a function of salinity and lake surface area, both dependent on lake level. A significant reduction in brine shrimp production from the point-of-reference would occur under only the 6,372-Ft and lower lake-level alternatives. Brine shrimp production under prediversion conditions was not estimated, but, under the 6,377-Ft and 6,383-Ft Alternatives, production would be significantly lower than production under the 6,390-Ft Alternative and would probably also be lower than production during the prediversion period.
- # Total alkali fly production depends primarily on salinity and on the amount of hard substrate for pupae attachment in the lake's littoral zone. Production is at a maximum for lake levels between 6,385 feet and 6,391 feet. A significant reduction in alkali fly production from the point-of-reference would occur only under the No-Restriction Alternative.
- # Alkali fly production under prediversion conditions is uncertain, and therefore effects of the highest lake-level alternatives (6,410-Ft and higher) cannot be reliably predicted (and the relationship of predicted conditions under all alternatives to the prediversion condition cannot be described with certainty).

Wildlife

- # Gull nesting capacity at Mono Lake's islands, which is dependent on physical conditions, biological requirements, and the effects of predation during land-bridging, diminished an estimated 60% during the diversion period. Under the 6,372-Ft and lower lake-level alternatives, capacity would decrease significantly. Under the 6,377-Ft Alternative, capacity would generally be well above the prediversion level, except that significant predation would continue to occur at Negit Island and possibly the Negit Islets during drought periods. Under the 6,383-Ft and 6,390-Ft Alternatives, capacity would also be substantially higher than under the prediversion level, and, for even higher alternatives, capacity would be similar to the prediversion conditions.
- # A significant reduction in invertebrate food for water birds using Mono Lake, reflected in a restricted phalarope foraging area, would probably occur under the 6,372-Ft and lower lake-level alternatives. Under the 6,377-Ft Alternative, reductions might occur only during drought periods.
- # Migratory duck populations decreased substantially during the diversion period but would decrease further only under the No-Restriction Alternative. Duck habitat would increase under the 6,383-Ft Alternative and would gradually increase further under higher lake-level alternatives, essentially reaching prediversion levels under the 6,410-Ft and higher lake-level alternatives (see "Lake-Fringing Vegetation and Aquatic Habitats", "Lagoons", above).
- # Potential habitat for the snowy plover, a candidate for listing as an endangered species, may have been relatively low during the prediversion period, but its historical status is unknown. The species now nests at Mono Lake, and habitat acreage is presently large because the plover utilizes exposed alkali lakebeds and a variety of other barren habitats. Habitat losses would constrain the present population significantly under the No-Restriction Alternative and also under the highest lake-level alternatives (6,410-Ft and higher); surplus habitat is available under the intermediate lake-level alternatives.
- # Wildlife values of Mono Lake shoreline habitats would significantly diminish under both the No-Restriction Alternative and lake levels corresponding to the 6,390-Ft and higher lake-level alternatives due to inundation of vegetated wetlands (see "Lake-Fringing Vegetation and Aquatic Habitats", "Vegetated Wetlands"). However, this loss would probably be compensated by the creation of new freshwater, high-value habitats around the lakeshore as lake level rose.
- # None of the alternatives would fully restore the wildlife habitat value along the tributary streams compared to the prediversion period, although a portion of the riparian habitat could be restored in conjunction with stream restoration habitat for fisheries (see "Tributary Riparian Vegetation" above).

Land Use

- # Grazing on LADWP lands in Mono Basin was reduced by about 50% during the diversion period and may be further reduced with new limitations on water diversion.
- # Reductions in grazing under all but the No-Restriction Alternative would potentially result in some disposal of land by LADWP; under the No-Diversion Alternative, land disposal would be certain and development by some purchasers could be extensive.

Air Quality

- # Extensive salt deposits have formed on portions of the lakebed exposed by lake-level lowering during the diversion period; these salt deposits are prone to episodes of significant wind erosion, resulting in periodic dust storms that cause significant violations of state and federal standards for suspended particulate matter (PM10).
- # Measured PM10 concentrations have exceeded the federal standard by more than a factor of three and have exceeded the state standard by a factor of nearly 10. Most violations of the state and federal PM10 standards have been recorded in the sparsely populated areas north and east of Mono Lake.
- # Using an appropriate air quality model with data and assumptions developed for Mono Basin, one can predict that federal PM10 standards would be met at all major public use areas and monitoring stations at average lake levels of the 6,390-Ft or higher lake-level alternatives once dynamic equilibrium was reached. The more stringent state PM10 standards would be met most of the time, but a few limited violations might still occur (1-2 events per average year).
- # Under the 6,383-Ft Alternative, the severity and extent of dust storms would decrease significantly from the point of reference, and the frequency of such events would decrease modestly. Modeling procedures indicate that PM10 concentrations exceeding the federal threshold would be expected to occur more often than once per year (the federal standard). Occasional violations of the more stringent state PM10 threshold would be expected (more than 1-2, but fewer than 10, events per average year).
- # Under the 6,377-Ft and lower lake-level alternatives, 10-15 or more dust storms per average year would occur with PM10 concentrations exceeding state and federal standards over extensive areas.

Visual Resources

- # Restoring the lake levels to the 6,383-Ft or higher lake-level alternatives would diminish the tufa resource at Mono Lake. Under the 6,383-Ft and higher lake-level alternatives, sand tufa formations (less well-known than the other tufa formations) would be destroyed (Stine pers. comm.) (applicability to the 6,383-Ft Alternative was erroneously omitted from the draft EIR). At lake levels corresponding to or above the 6,390-Ft Alternative, significant toppling of tufa towers from wave action and significant inundation of other tufa formations would occur, increasing in magnitude with lake level.
- # Under the 6,372-Ft and lower lake-level alternatives, the number of gulls nesting at the lake would be diminished and foraging phalaropes would be largely restricted to the remote east side of the lake where most visitors would not be able to view them.
- # Under the 6,383-Ft and higher lake-level alternatives, seasonal reservoir drawdown at Lake Crowley reservoir during wet years would substantially increase (from 4 feet to 7-9 feet), exposing a larger barren zone around the shoreline.

Recreation Opportunity and Use

- # Recreation opportunity at Mono Lake itself would decline significantly under the 6,410-Ft and higher lake-level alternatives because of the loss of visible tufa. A significant reduction in recreation use of Mono Lake and the tributary streams would occur under the No-Diversion Alternative. Use would increase the most for the 6,383-Ft Alternative: an estimated 6% for Mono Lake and 60% for the tributary streams.
- # The shoreline of Mono Lake would significantly recede from developed access points under the 6,372-Ft and lower lake-level alternatives, but accessibility could be regained by extending access roads and developing new parking and sanitary facilities.
- # For lake levels corresponding to the 6,377-Ft Alternative and higher lake-level alternatives, the upper Grant Lake reservoir, Grant Lake boat ramp, and the Lake Crowley reservoir waterski course would become inaccessible or unusable significantly more frequently (for the latter, the effect would also occur under the 6,372-Ft Alternative), but these effects could be mitigated through facilities reconstruction or adopting specific lake operation rules.
- # Use of Grant Lake and Lake Crowley reservoirs would be somewhat reduced under most alternatives, but a significant reduction (12%) in use would occur only at Lake Crowley reservoir under the 6,410-Ft and higher lake-level alternatives.

- # Because of reduced habitat and higher stream temperatures attributable to reduced flow augmentation, fishing opportunities along the Upper Owens River between Hot Creek and Lake Crowley reservoir would decline significantly under the 6,383-Ft and higher lake-level alternatives. Impacts could be lessened by scheduling exports from Mono Basin to increase uniformity of flows in the Upper Owens River.

Cultural Resources

- # The highest lake-level alternatives (6,410-Ft or higher) would inundate at least two known cultural resource sites, and unknown sites around the lake above the prediversion lake level could be periodically inundated under the No-Diversion Alternative. Information of value from these sites could be recovered prior to inundation, however, if surveys are undertaken.
- # Native American activity sites are thought to be widespread along the diverted tributary streams, and some of them are likely to be disturbed under any alternative through recreation activity, stream restoration activity, or channel erosion. A cultural resources treatment plan could be developed to avoid or minimize such impacts under all alternatives.

Los Angeles Water Supply

- # Under all alternatives except the No-Restriction Alternative, water supply for the City of Los Angeles would decrease; this decrease would be significant for the 6,383-Ft and higher lake-level alternatives because of the estimated replacement cost (15-25% increase in the cost of its total water supply). The city would also have a supply shortfall of about 4% in an average of 1 additional year over a 20-year period.
- # Potential cost increases could be mitigated if the city develops additional water reclamation projects using Assembly Bill (AB) 444 funds, pursues water transfers from agricultural users as provided by House of Representatives (HR) Bill 429, develops reclaimed water with Congressional funding under HR 429 or other funding sources, participates fully in Metropolitan Water District (MWD) rebate programs, continues to develop demand-side reductions, pursues recycling and reclamation programs, and increases conservation of local runoff.

Los Angeles Power Supply

- # Most of the alternatives would result in a slight decrease in power generated by the City of Los Angeles' aqueduct hydroelectric power plants, resulting in higher fuel costs for replacement

power. The maximum estimated cost increase (for the No-Diversion Alternative) is 1.2% annually, which is considered less than significant.

Economic Cost/Benefit

- # An assessment of economic costs and benefits, considering the replacement cost of water supply and power generation and the public's estimated willingness to pay for recreation opportunities and preservation of the Mono Lake ecosystem, indicates positive net economic benefits compared to the point of reference for the mid-lake-level alternatives (6,377-Ft, 6,383-Ft, and 6,390-Ft Alternatives), with the higher lake-level alternatives within this range having the larger benefits.
- # Higher lake-level alternatives (6,410-Ft and higher) would have negative net economic benefits because the estimated recreation and Mono Lake preservation benefits are substantially outweighed by the water supply and power generation replacement costs.
- # The public's willingness to pay for improving the Mono Lake ecosystem is highest for the 6,390-Ft Alternative, more than twice the estimated cost for replacing lost water and power supplies for the City of Los Angeles.
- # A substantial public value is associated with avoiding lake-level declines below the point-of-reference, as indicated by expressions of willingness to pay.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Identification of the environmentally superior alternative is required by CEQA. This identification does not entail a balancing of the public trust values with water needs for other purposes; it only distinguishes which alternative would be superior in terms of impacts on the physical environment. The physical environment includes "land, water, atmospheric conditions, aquatic ecosystems, plant and wildlife communities, and objects of historical and aesthetic significance".

Environmentally Superior Alternative Relative to the Point of Reference

The draft EIR identified the 6,383-Ft Alternative as the environmentally superior alternative with respect to avoiding adverse changes in the physical environment present under point-of-reference conditions. However, additional information available following completion of the draft EIR established

that the adverse impacts on sand tufa that were identified for the 6,390-Ft Alternative would also occur at the upper end of lake levels under the 6,383-Ft Alternative. The draft EIR also assumed that the DFG flow recommendations would be satisfied at the 6,383-Ft Alternative, but additional evidence presented at the water right hearing established that this is not the case. Finally, since the preparation of the draft EIR, the U.S. Environmental Protection Agency designated Mono Basin as a moderate nonattainment area for the federal PM10 air quality standard. Compliance with the federal air quality standard would require an average lake level of approximately 6,391.6 feet.

The Water Quality Control Plan for the South Lahontan Basin (which includes Mono Lake) was adopted by the California Regional Water Quality Control Board, Lahontan Region, and approved by the SWRCB in 1975. The water quality objective for salinity set by the 1975 plan is 76 g/l. The beneficial use designations and water quality objectives set by the 1975 plan have been approved by the U.S. Environmental Protection Agency as water quality standards for Mono Lake. The water quality objective of 76 g/l is considerably below the present salinity of Mono Lake and would correspond to a lake level of approximately 6,386 feet.

Therefore, of the alternatives evaluated in the draft EIR, the 6,390-Ft Alternative is now considered to be the environmentally superior alternative relative to the point of reference.

Environmentally Superior Alternative Relative to Prediversion Conditions

Considering the potential to restore public trust uses by evaluating alternatives relative to prediversion conditions, the 6,390-Ft Alternative also appears to be environmentally superior. It would offer substantially less lake-fringing aquatic habitats to migrating ducks than the higher 6,410-Ft Alternative, although habitat restoration could compensate for a portion of the lost waterfowl habitat. Additionally, the 6,410-Ft Alternative would nearly eliminate the public use of South Tufa Grove, which has the highest public use of all the lakeshore visitor sites.

Of the lower lake level alternatives, the 6,383-Ft Alternative would entail continued occurrence of dust storms that violate federal air quality standards and a reduction in brine shrimp productivity. The losses of lake-fringing aquatic habitats would be greater than for the 6,390-Ft Alternative. Under even lower lake levels, these effects would be more intense and additional impacts would occur.

The 6,390-Ft Alternative would result in flows closer to DFG's recommendations. Adoption of the 6,390-Ft Alternative would be consistent with the Mono Basin management regime recommended by the U.S. Forest Service, the Department of Parks and Recreation, and the State Lands Commission at the water right hearing. Additionally, the Great Basin Unified Air Pollution Control District also recommended at the water right hearing that the 6,390-Ft Alternative would provide reasonable assurance for compliance

with federal air quality standards for PM10. Adoption of the 6,390-Ft Alternative would better restore and maintain public trust resources and be more consistent with applicable air and water quality standards.

MITIGATION MEASURES

Most of the significant impacts identified in Table 3-1 are not significant adverse changes in the existing physical environment that would result from adopting the 6,390-Ft Alternative. The impacts, which are discussed in the draft EIR as cumulative impacts, represent changes relative to prediversion conditions that the SWRCB will consider in determining what requirements should be adopted to restore and maintain public trust uses. For the significant impacts that are identified for the 6,390-Ft Alternative, potential mitigation measures are identified in Table 3-1.

Because SWRCB is considering adoption of a modified 6,390-Ft Alternative, impacts applicable to the 6,390-Ft Alternative are indicated in the table by asterisks. SWRCB will develop a specific mitigation plan for its selected alternative based on this information and information in Chapter 5, "Modified 6,390-Ft Alternative".

List of Acros

- suspended particulate matter (PM10) 6
- Assembly Bill (AB) 8
- House of Representatives (HR) 8
- Metropolitan Water District (MWD) 8

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- Stine pers. comm. 7

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