HAZARD'S TOLL

The Costs of Inaction at the Salton Sea

Executive Summary

The Salton Sea, a 350 square mile saltwater lake in southeastern California, faces disaster. In the next fifteen years:

- The amount of water flowing into the lake will decrease by about 40%;
- Its surface will drop by twenty feet and its volume will decrease by more than 60%;
- Salinity will triple; and
- The shrinking lake will expose 100 square miles of dust-generating lake bottom to the region's blowing winds, worsening the already poor air quality in the region.

To date, neither the state legislature nor any other agency has taken any action to fund any Salton Sea revitalization plan. In 2003, California accepted responsibility for funding air quality management projects at the Salton Sea, but the legislature has yet to take any action to fund such projects. A local agency is developing plans for air quality management on a portion of the exposed Salton Sea lakebed, but it lacks the funding necessary to implement these plans. With the exception of three relatively modest habitat projects scheduled for construction next year, no projects are currently funded or expected to be constructed at the Salton Sea in the near future. As a result, the lake's habitat value for hundreds of species of resident and migratory birds will rapidly decline, affecting hundreds of thousands of birds and diminishing the lake's appeal.

If current trends continue, by 2045:

- As much as 150 square miles of lakebed will be exposed;
- Exposed lakebed will add as much as 100 tons of fine dust into the air *per day*;
- The total population of the air basin (currently about 650,000) will nearly double;
- The lake will be filled with algae, bacteria, and viruses, providing no value to birds or people.

These deteriorating conditions at the Salton Sea will have adverse impacts on public health, property values, agricultural production, recreational revenue, and the region's habitat value for birds and wildlife generally. These impacts impose costs on people in the area and, to a lesser extent, on Californians generally.

Many people assume that deferring Salton Sea-related decisions and actions will not result in any additional costs, implicitly assigning these impacts a value of zero. Decision-makers have weighed the high costs of Salton Sea revitalization and the lower but still significant costs of mitigation against this assumed zero cost of not taking action, and have yet to approve or fund any major projects at the Salton Sea. This inaction and delay imposes real costs.

Objective

The objective of this report is to estimate the costs of inaction – defined as the absence of any large-scale revitalization or air quality management project – at the Salton Sea, to provide decision-makers and the

Bombay Beach ruin, on the shore of the Salton Sea. Photograph © Andrew Morang / worldofdecay.blogspot.com.

general public with information for deciding on a path forward. Specifically, this report estimates the impacts of the deteriorating Salton Sea on:

- health care costs, due to the adverse impact that increased dust emissions have on human health;
- regional property values, due to real and perceived health threats and declining aesthetic value;
- agricultural productivity, due to dust emissions and loss of the Sea's buffering impacts on temperature and humidity in nearby farmland;
- recreational revenues; and
- ecological values, including impacts to threatened and endangered species.

The Costs of Action

The California Natural Resources Agency estimated the capital cost for its 2007 preferred Salton Sea revitalization alternative at about $10 billion (all costs adjusted to 2013 dollars), plus annual operations & maintenance costs of $150 million once fully constructed, yielding a total present value of $9.6 billion at a 4% discount rate, through the year 2047. These projected revitalization costs are separate and distinct from the costs projected for mitigating (off-setting the impacts of) the Imperial Valley-San Diego water transfer. The present value of the state's conceptual mitigation plan is about $1.7 billion through 2047. These values represent the costs of 'action' at the Salton Sea.

Inaction Costs - Public Health

Many scientific and medical studies document the link between blowing dust and a broad range of public health impacts, including childhood and adult asthma, cardiac disease, lung cancer, and increased mortality rates. Two previous studies suggest methods to estimate the magnitude of these costs at the Salton Sea: based on the estimated per capita cost of exceeding federal air quality standards, or based on a cost per unit of exposed dust. Using the first method, the public health costs of continuing not to meet federal air quality standards – exacerbated by expected Salton Sea dust emissions and a rapidly growing population – generate a present value as high as $21 billion. Using the second method, under a worst case scenario, with high projected dust emissions and very limited air quality management, the present value cost of uncontrolled dust emissions on public health could be $37 billion through 2047. Assuming a much lower rate of emissions and implementation of dust control measures on portions of the exposed Salton Sea lakebed reduces the estimate of public health costs to about $3 billion. Annual public health costs increase as the Salton Sea shrinks, exposing more dust-emitting lakebed; but even in the near term, they could still exceed hundreds of millions of dollars per year.

Inaction Costs - Property Value

Studies on the economic impacts of environmental hazards in other areas, such as landfills, confined animal feeding operations, and refineries, offer methods for estimating potential impacts to property values at the Salton Sea. Regional or state polling data on public perceptions of the Salton Sea would be informative, but no such polls have been conducted in at least a decade. Blowing dust and the stigma associated with a deteriorating lake pose a risk to property values within several miles of the lake, suggesting that property devaluation in the immediate area associated with the deteriorating Salton Sea is likely to be at least $400 million. Dust and noxious odors could also depress property values and revenues in the Coachella Valley more broadly, which includes 124 golf courses as well as numerous resorts and vacation homes, so the total impact on property values could be as much as $7 billion.

Inaction Costs - Agricultural Productivity

Insufficient information exists to estimate the potential costs associated with either the impacts of blowing dust and salt on crop productivity near the Salton Sea or the diminished micro-climate benefits that will occur as the lake shrinks. Both of these impacts will be felt within a few miles of the Salton

Sea, so their overall cost may be small relative to the magnitude of Imperial and Coachella valley agriculture generally, but these impacts could be significant at the scale of the individual farm.

Inaction Costs - Recreational Revenues

The future Salton Sea will continue to experience declines in visitation to the lake and in direct recreation-related expenditures. Recent declines have caused a loss of $6 million per year in direct spending at the Salton Sea State Recreation Area relative to estimated historic rates, suggesting the loss of $110 - $150 million in present value through 2047. Given the absence of records or surveys of current and historic expenditures for Salton Sea recreation as a whole, this rough estimate should be considered very conservative.

Inaction Costs - Ecological Values

The Salton Sea currently provides tens of thousands of acres of shoreline and near-shore habitats to hundreds of thousands of birds. More than 400 species of birds use the Salton Sea, including a large number of special status species. As the lake deteriorates, the size and quality of its habitats will diminish, reducing its value to the resident and migratory birds that depend upon it. Through contingent valuation surveys and other methods, people have expressed a willingness to pay to preserve similar values at other locations. Previous studies have indicated that Californians as a whole have valued wetland habitats at about $60,000 per acre, suggesting that the Salton Sea provided some $2.6 billion annually in shoreline habitat value as recently as the year 2000. Transferring the benefits Californians have reported for Mono Lake suggests a potential non-use valuation of the Salton Sea on the order of $1.9 billion annually. Depending on the discount rate, these annual values translate into present values ranging from $10 billion to $26 billion through 2047.

Caspian tern at the Salton Sea.
Photograph © Jenny E. Ross / www.jennyross.com.

Conclusion

The high costs of the California Natural Resources Agency's proposed 'preferred alternative' have inhibited deliberation and deterred any meaningful investment in the revitalization of the Salton Sea. The assumption seems to be that delaying action at the Salton Sea will result in business as usual, with no additional costs. This is clearly not the case. Because the Salton Sea has changed over the past decade and will soon enter a period of very rapid deterioration, the costs of inaction are escalating rapidly. *When* a project is implemented dramatically affects the inaction costs estimated above. Postponing decisions and actions for the Salton Sea imposes significant costs on the people and property owners in the region, and lesser costs on Californians generally.

Figure ES-1 compares the project costs of the state's proposed revitalization alternative and of its conceptual mitigation plan with the estimated inaction costs for public health and non-use benefits, and with the one-time estimated devaluation of property in the region, through the year 2047. In the figure, the higher estimated inaction costs appear in red, while the lower estimates appear in orange. These estimated costs provide an initial basis for comparison with the estimated project costs of revitalization or mitigation, shown in black, to demonstrate that the costs of inaction are not zero. Even at the low estimate, the long-term social and economic costs of a deteriorating Salton Sea could approach $29 billion, well in excess of the project cost of the state's revitalization plan. A more robust comparison would require additional information about the total economic costs and benefits of the revitalization and mitigation projects.

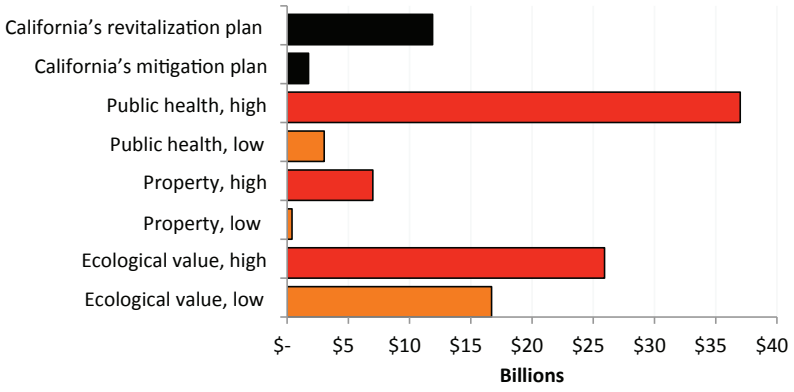

Figure ES-1. Present values of estimated costs of Salton Sea action and inaction, through 2047.

Figure ES-1 indicates that the costs of inaction greatly exceed the costs of action at the Salton Sea, strongly suggesting that action at the Salton Sea should be funded and implemented quickly. However, not all 'actions' would avoid the 'inaction' costs: a mitigation plan designed only to control dust emissions would not improve recreation in the region, nor would it improve property values or promote economic development; such a plan would do little to improve declining ecological values. A project that both controls dust and creates habitat could limit or avoid public health costs, reduce or eliminate impacts to property values, and maintain or even enhance ecological values. A more comprehensive revitalization plan should also be evaluated within this broader context of created benefits and avoided costs. In all cases, delaying action imposes real costs.

The consequences of continued inaction at the Salton Sea will be felt most directly by the 650,000 people who live in harm's way of the Salton Sea's dust, as well as by the birds and other life that depend on the lake. These consequences generate real costs. These considerable costs, estimated for the first time by this report, demonstrate the urgent need for action at the Salton Sea.

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