

Key Points from *The State of Bay-Delta Science, 2008*

- The Delta of tomorrow will be very different than it is today. Intensifying forces of change, such as land subsidence, rising sea level, species invasions, earthquakes and regional population growth, virtually guarantee that current land and water use in the Delta cannot be sustained. (Chapter 1)
- The largest estuary in western North America, the Bay-Delta is a system of extremes. Discharge from tributary rivers varies more from year to year than other large western rivers, such as the Columbia or Colorado. (Chapter 2)
- Many toxic chemicals are a concern in the Delta. Organisms can often be affected by very low concentrations of contaminants. Effects can be magnified through concentration up the food chain or synergistic effects of mixtures. (Chapter 3)
- Since 2001, both public and scientific attention has focused on the unexpected decline of several open-water fishes (delta smelt, longfin smelt, juvenile striped bass, and threadfin shad). It is clear that export pumping is only one of several factors contributing to the decline. Other factors include changes in food supply, loss of habitat and toxic chemicals. (Chapter 4)
- When levees were first constructed, Delta islands were close to sea level. Farming, water extraction, burning and wind erosion have lowered the island interiors. Additionally, recent subsidence modeling suggests that by 2200, the Central Delta will be 30 to 40 feet below sea level. (Chapter 5)
- With climate change, California will become warmer, more precipitation will fall as rain and less as snow, the snowpack will be much reduced, and there will be less groundwater recharge. These changes will challenge the capacity of California's water management system to provide reliable, high quality water to satisfy human and environmental needs. (Chapter 6)
- As science has developed a better understanding of Delta water supply, water quality, levees and ecosystem, it has become clear that many problems are tightly interlinked and cannot be solved independently. Greater study of the cross-cutting linkages among problems will be needed for effective solutions to be found. (Chapter 7)
- Delta problems involve multiple variables, are large in scale, are socially and economically significant, and transcend the established institutional approach to problem-solving. Social scientists call such problems “wicked problems.” The problems are characterized by an evolving set of interlocking issues and there is no definitive formulation of “the” problem or “the” solution. (Chapter 8)