

What is the San Francisco Bay-Delta Estuary

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San Francisco Bay and the Delta combine to form the West Coast's largest estuary, where fresh water from the Sacramento and San Joaquin rivers and watersheds flows out through the Bay and into the Pacific Ocean. The Estuary came into being about the time humans arrived in North America. Around 12,000 years ago, the glaciers receded, the sea level rose and ocean waters rushed into the bedrock trough that forms San Francisco Bay. Over the next 10,000 years, the waters continued their inland migration. The Delta formed, not in the way that most river deltas build up from sediment deposition but as a sort of complicated lake. A bedrock barrier in the hills at the Carquinez Strait formed a natural levee. As sediments from the two great rivers accumulated behind it, a Byzantine network of 80 atoll-like islands and hundreds of miles of braided channels formed a huge marsh. A notch in the bedrock barrier allowed a stream of water and sediment to escape, forming San Pablo Bay.

In the 1830s, San Francisco Bay covered almost 700 square miles. By that time, it had evolved into a rich ecosystem; almost a million fish passed through, and 69 million acre-feet of water flowed down from mountain headwaters toward the sea. But in 1848 the Gold Rush began, and hydraulic mining plugged the rivers and bays with more than one billion cubic yards of sediments. Over time, farmers and city builders filled up more than 750 square miles of tidal marsh, and engineers built dams to block and store the rush of water from the mountains into the Estuary, as well as massive pumps and canals to convey this water to thirsty cities and farms throughout the state.

Today's Estuary encompasses roughly 1,600 square miles, drains more than 40% of the state (60,000 square miles and 47% of the state's total runoff), provides drinking water to 20 million Californians (two-thirds of the state's population) and irrigates 4.5 million acres of farmland. The Estuary also enables the nation's fourth largest metropolitan region to pursue diverse activities, including

shipping, fishing, recreation and commerce. Finally, the Estuary hosts a rich diversity of flora and fauna. Two-thirds of the state's salmon and nearly half the birds migrating along the Pacific Flyway pass through the Bay and Delta. Many government, business, environmental and community interests now agree that beneficial use of the Estuary's resources cannot be sustained without large-scale environmental restoration.

Source: *State of the Estuary, 1992-1997*, San Francisco Estuary Project, 1997, p. ii.

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