

[REDACTED]

## WILSON'S PHALAROPE (*Phalaropus tricolor*): At an all-you-can-eat buffet



**Phalaropes at Mono Lake ...** For Wilson's Phalaropes, Mono Lake's alkali flies (*Ephydra hians*) and brine shrimp (*Artemia monica*) are a major migration food source! The phalaropes breed in marshy habitat adjacent to open water from the central United States (including Mono Lake!) north into central Canada. Migrating females come first to Mono Lake starting in mid-June, while males are still raising chicks on the breeding grounds. The males and young trickle in throughout late June and July, raising the total number of phalaropes on the lake to between 80,000 and 125,000. Over their four to six week stay at Mono Lake the phalaropes molt into a new set of feathers and double their weight in preparation for their continued migration. From here, it's 3,000 miles nonstop to Ecuador—an epic journey fueled almost entirely by Mono Lake's Alkali flies and Brine Shrimp.

**A buffet of flies and shrimp ...** By the middle of the summer millions of Alkali Flies blanket the lakeshore. These water-loving flies spend much of their lives under water—resting on the lake-bottom as eggs, and clinging to submerged tufa as larvae and pupae. And as adults, they use a bubble of air to scuba dive, feeding on the algae that coat underwater tufa. Also feeding on algae, thumbnail-sized brine shrimp fill Mono Lake by the trillions during the summer. But to reach the algal populations, shrimp and flies must contend with Mono's saline water, expending a lot of energy pumping salt out of their bodies.



**Mono Lake: a critical migration resource ...** Because of Mono Lake's importance to migrating shorebirds—from Wilson's Phalaropes to Western and Least Sandpipers—it has been designated part of the Western Hemisphere Shorebird Reserve Network, a collection of critical migratory bird habitats throughout North and South America. These birds depend on the predictable plentitude of Mono's shrimp and flies to fuel their southward migrations. With important shorebird habitats fast disappearing on a global scale, it is all the more important that we protect Mono Lake and ensure the future of this amazing resource.

**Threats to the health of Mono's aquatic ecosystem ...** In 1941, the City of Los Angeles began diverting the water from four of Mono Lake's five tributary streams. By 1982 the lake had dropped 45 vertical feet, halving the lake's volume, and doubling its salinity. At this peak salinity of 99.4 grams of salt per liter of water, the flies and shrimp struggled to remove the salt from their bodies—or osmoregulate—leading to reduced populations of both animals. The lower lake level also meant less submerged tufa, and consequently, less habitat and food for the flies. Fewer flies and shrimp at Mono Lake means less food for phalaropes and other migrating shorebirds—another fading link in the chain of migratory habitats which support the yearly movements of hundreds of millions of birds.

**Where things are today ...** Thankfully, due to a 1994 decision by the California State Water Resources Control Board mandating that Los Angeles raise Mono's water level, the lake has begun to recover. But with the lake almost twice as salty as it was before diversions began, it is quite likely that Mono Lake still supports fewer flies and shrimp than it historically did. In the future, the rising lake should see a substantial increase in productivity, securing and enhancing its role as an important strand in North America's web of migratory shorebird habitat.

