Ryan Carle Presentation Summary

Wilson's and red-necked phalaropes (*Phalaropus tricolor* and *P. lobatus*, respectively) are shorebirds that breed in mid- to northerly latitudes of North America. Hundreds of thousands of individuals of both species congregate annually on hyper-saline lakes in western North America during fall migration (a process termed "staging"). These large, perennial saline lakes provide reliable, abundant invertebrate food resources, allowing Wilson's phalaropes to rapidly molt feathers and double their body weight in preparation for a 3,000–4,000-mile-long migration to South America. Forty to sixty percent of the Wilson's phalarope world population, and up to 90% of the adults in the world, often occur simultaneously at only three sites each year: Mono Lake, Lake Abert, and Great Salt Lake.

Multiple data sources indicate that global Wilson's phalarope populations have declined globally by perhaps a third since the 1980s, with greater local declines at some sites. In coordinated surveys at major North American staging sites, populations of both phalarope species were stable regionally and at Mono Lake from 2019–2025. During those years, local abundances of phalaropes were responsive to major site-specific changes to saline lake habitats, such as a recent multi-year desiccation of Lake Abert. Long-term trends at Mono Lake are uncertain. However, peak annual numbers of Wilson's phalaropes at Mono Lake in the 1980s and 1990s were regularly >30,000 birds, and flocks of this magnitude were observed in only one year from 2019–2025. Recent red-necked phalarope peak numbers at Mono Lake were similar to historical totals. Great Salt Lake stands out for annual peak abundances of both phalarope species in the hundreds of thousands, historically and contemporarily. Across historical and contemporary surveys, Mono Lake and Lake Abert often had >10,000 of each species, whereas other sites usually had <10,000 birds in surveys from 2019–2025.

Phalaropes are specially adapted to exploit the abundant invertebrates at large saline lakes. Alkali flies are key prey items for phalaropes at Mono and other saline lakes. Thus, for phalaropes, the most important factor in relation to Mono Lake's water level is how it affects alkali fly production. At the 6,392-foot water level for Mono Lake, reduced salinities and increased amounts of submerged rocky substrates are expected to result in greater fly productivity compared to current lake levels. At the 6,392-foot management level, Mono Lake should therefore provide greater food resources for phalaropes than at current lake levels. Phalaropes are uniquely vulnerable to habitat loss and degradation at saline lakes because large proportions of the world population depend on them at a critical time in their annual cycle. Great Salt Lake and Lake Abert are currently threatened with ecosystem collapse from shrinking lake levels.

While the global population of Wilson’s phalarope is estimated to be 1 million individuals, the loss of a single large site like Great Salt Lake or Lake Abert could cause abrupt decline. Due to the imminent threat of habitat loss, Wilson’s phalaropes are being considered for listing as Threatened under the federal Endangered Species Act. If Great Salt Lake and/or Lake Abert collapses, phalaropes would likely concentrate in greater numbers at Mono Lake, even though it its surface area is only about 4-5% of the size of Great Salt Lake. Thus, habitat at Mono Lake has always been critical, but is increasingly important for the survival of Wilson’s phalarope as a species. Reaching the management level as soon as possible would ensure that Mono Lake provides the highest possible abundance of alkali fly prey for phalaropes, as they face the loss of other key habitats essential for their survival.