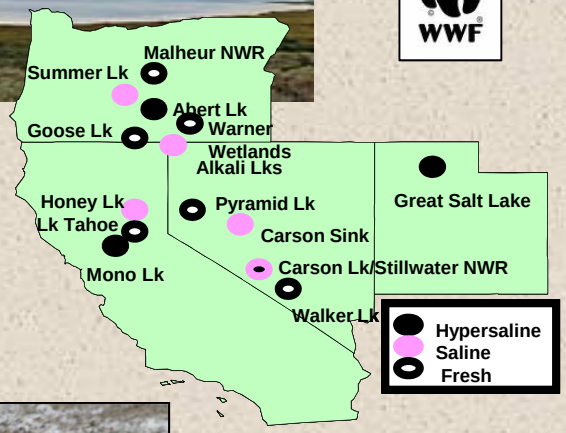
Predicting and Managing Climate Change Impacts on Semi-arid Land Wetlands, Migratory Birds, and Their Prey:

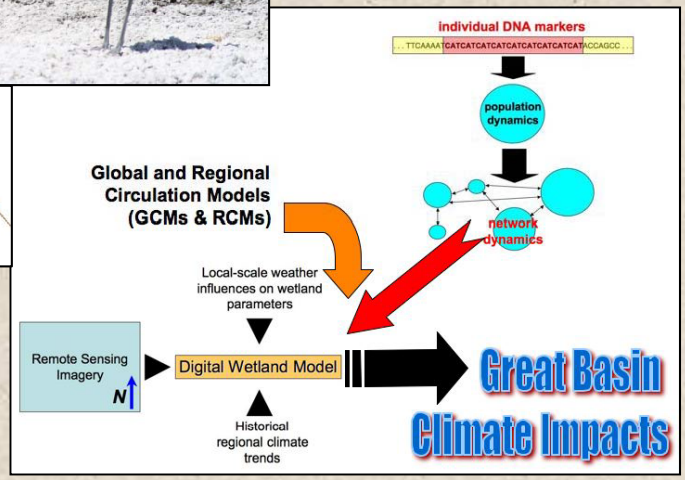
An Integration of Remote Sensing, Molecular Genetics, Hydrology, and Environmental Modeling



Dr. Susan Haig (*USGS FRESC*), **Dr. John Matthews** (*WWF*): Co-PIs

- Predicted GC impact on Great Basin wetlands will alter their #, distribution, quality (e.g., salinity)

How will GC affect migratory bird species (invertebrate prey) dependent on climate-sensitive wetlands in western Great Basin?



1. Determine scope of abiotic impacts:
   DIGITAL WETLANDS MODEL (DWM)
   (Remote sensing, historical climate data, ground-monitoring)
2. Use DNA markers to measure level of aquatic invertebrate species connectivity throughout wetlands network
3. DWM + Climate Projections + Landscape Genetics =
   MODEL future scenarios of (1) wetland patch quality; (2) species connectivity