

The Herbst Lab

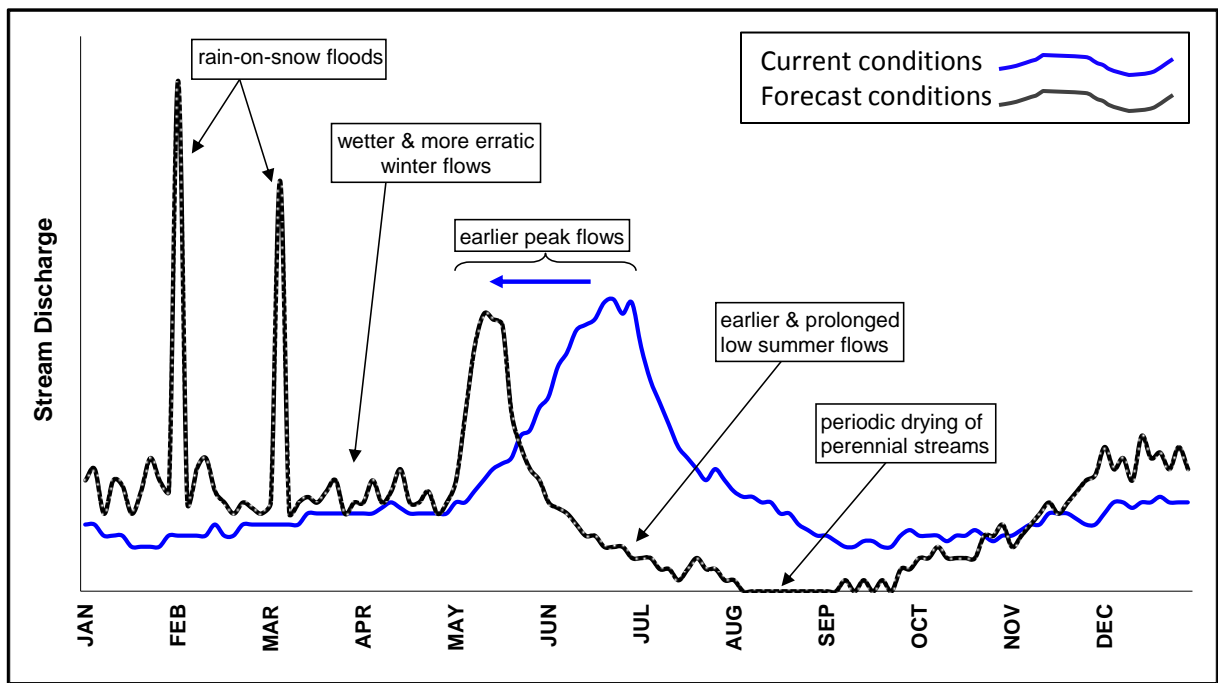
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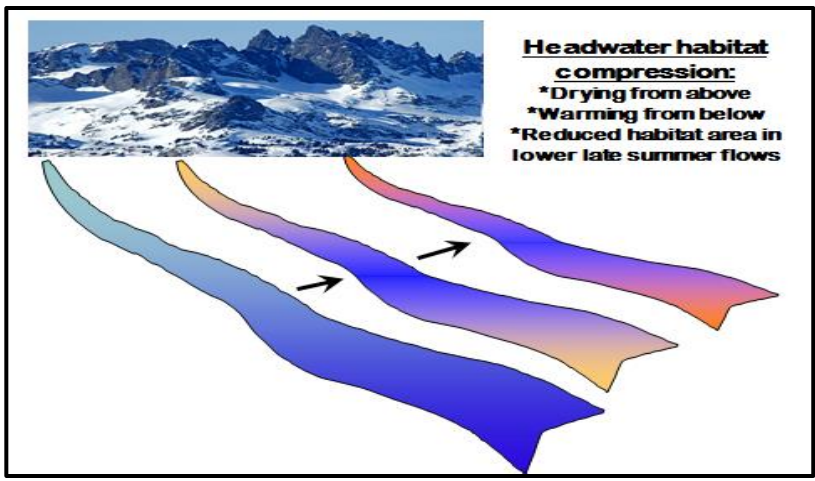
How will a changing climate affect Sierra Nevada stream ecosystems?

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The classic Sierra mountain stream has a snowmelt-dominated hydrograph. With spring warming comes the melt of the snowpack and rapidly rising flow, followed by summer recession as the snowpack becomes depleted and disappears. With rising temperatures of global and regional warming, an increasing amount of precipitation will come as rain rather than snow, causing winter flows to be more erratic and sometimes occur as catastrophic rain on snow floods.



The earlier recession of flows can cause longer periods of low flow with elevated temperatures which many invertebrates find intolerable. In some years, the shift from perennial to intermittent flow changes connected habitats to isolated pools accelerating this warming and eventually causing complete drying of the stream channel.



Contraction of habitat forces species into an ecological vice, trapped between warming and loss of area for survival.