**Product Title**: Streamline improvements to data acquisition and post analysis for VELMA influenced decision support

**Primary Output**: TBD – Fits well under SHC 9.3, SSWR 5.2, 10.1, and AE 8.2 given current descriptions. The collaborators of this proposal feel that this work aligns with current research needs/priorities as described in the draft StRAPs. Office Water and Region 7 & 10 have expressly shown interest in this work.

**Brief Description and Research Use**: Increases in wildfire intensity and frequency, promote the urgency in the demand for assessing the fate and transport of environmental and anthropogenic media in short time frames. Due to hardware and software limitations of users, lack of priori knowledge involving environmental fluxes, and acquisition of long-term continuous streamflow and climate data, obtaining conclusive results from VELMA simulations may be difficult for non-scientist inclusive of emergency managers and city planners. To best calibrate the ecosystem characteristics for VELMA and the environmental data, “expert knowledge” is necessary about the area of interest to initialize, calibrate the model, and analyze its outputs. Operational nowcasting for diverse environmental media and unique ecological biodiversity for any area of interest should be readily available to federal, state, tribal and community stakeholders. Therefore, it is necessary to provide a tool or interface with an optimized workflow for data harvesting and post data analysis (e.g. relative regional water quality, long-term time series analysis of variables of interest, multivariate spatial and temporal statistical analysis). Proposed deliverables of products are inclusive of an established automated workflow for user acquisition and transformation of initializers, post spatial and temporal analysis of environmental media fate and transport, regional environmental stress indicators, and use of machine learning is critical to fill data gaps from ground truth observations. An HMS-VELMA workflow user interface can assist in prompt regional effective decision support guidance.