Topic Area	Scenario Ideas from November 2018 Advisory Meeting	Research Team Responses (Can we model it in INFEWS?)	Themes
Climate	Extremes of too much or too little water – e.g. effects of five years of drought in a row	Yes	Extremes & Risk
	Increase in weather variability	Yes	Extremes & Risk
	Climate impacts on timing and abundance of water	Yes	Extremes & Risk
	Climate impacts on water quality – harmful algal blooms, reduction in dilution of pollution	Outside project scope	
	Effect of changes in precipitation intensity, e.g. effects on erosion, fate and transport of chemicals.	Outside project scope	
Population	Some comments that current land use system won't change significantly and to include current land use planning laws in scenarios; other comments that increasing population could lead to major changes in land use planning laws	The November 2019 draft of the Business As Usual scenario assumes current land use policies remain in effect through 2070. Alternative scenarios could relax or ignore current land use policies - with advisory group guidance about the underlying assumptions driving land use change.	Extremes
	Interest in exploring small city growth, especially along the I-5 corridor	We are working on identifying smaller UGBs that would fit this idea, and hope to get feedback on this today.	
	End member scenario that represents an extreme - like growth without urban growth boundaries	Yes, this is possible - with guidance about the underlying assumptions driving land use change (i.e. build anywhere? create new cities? expand exisiting cities without regard to policies about UGB expansion?)	Extremes
	Effect of urbanization on agriculture	Will track urban expansion into ag land in scenarios.	Tradeoffs
	Effect on streamflow of cities using more of the water; many cities not currently using all of their rights	Unlikely; urban water demand not a focus in this project	
Forests & snow	Available management strategies mentioned: selective cutting, thinning, and mowing	Yes. We are also interested in various forest treatments and the effect of wildfire and snowpack accumulation/ablation.	Adaptation - Policy
	Vary assumptions based on private timber lands vs. public multi-objective management lands	Yes. Independent scenarios can be developed to investigate this.	Adapation - Policy
	Pressures to increase harvest from federal lands	Yes. Initial results are available on the forest management and snow poster.	Adapation - Policy
	Represent diversity and intensity of wildfire and the role of slope orientation	We are planning to include a wildfire model that produces landcover change and hope to include varying wildfire intensities.	
	"How much storage would it take to replace lost snowpack?"	That's a good question with a complicated answer. It depends on the availability of water from storms and the usage of the water in the reservoirs. If we could accurately predict both of those, then we could develop a theoretical reservoir volume. A significant challenge is using the reservoirs we already have to perform the tasks of storing water, reducing flood risk, and maintaining environmental flows.	
	Interest in exploring links between fire, water quality, and drinking water source areas	No, we are not able to address water quality at this time	Tradeoffs
Agriculture	End member scenario that represents an extreme	TBD, for example could model high adoption or no adoption	Extremes
	New crops or shift timing of planting/growing existing crops	Yes, possibly	Tradeoffs
	Benefits of increasing irrigation efficiency (reduce costs) before adding new technology such as agrivoltaics	Yes, possible	Resource conservation
	Explore factors that influence agrivoltaic placement including esthetics, distance from residential areas, crop choice, potential impact to birds/wildlife/key habitat, overall farm plans, access and maintenance, farm size, transmission lines, benefits of clustering systems, and land use laws	We can model some of these, but not all yet.	Tradeoffs; Policy
	Crops that might be compatible with agrivoltaics – Christmas trees, greenhouses, nursery ornamentals, container crops. Other crops of interest: turnips, radishes, sugar beets, quinoa, hemp, pulses, grapes	Selected crops for "business as usual" scenario are: Grass and seed, Hay, Berries (blueberries), Hazelnuts, Wheat, Hemp, Table veggies (beans, tomatoes, …)	
	Unexpected decisions about land/water use/crop choice; e.g. not driven by financial considerations	Hard to forsee, likely not possible	
	Factors that influence capital investments, timelines, risk	No capacity yet	Risk reduction
	Role of crop choice in wet/dry year and ag/energy offsets - not all crops benefit from wet years or suffer from dry years	Maybe in related UNC research, but not in INFEWS model at this time	Risk reduction
	Factors that influence crop choice such as new technology, value added processing	Outside of project scope	Adapation - Technology
	Role of water storage poinds associated with agrivoltaics - effects on groundwater recharge	Outside of project scope	
Energy	Energy prices – e.g. influence of low gas prices	Yes, could consider low/high natural gas prices, low/high renewable capacity	Tradeoffs; Extremes
	Effect of wildfire (CA/local) on electric grid and power market	Outside of project scope; part of UNC related projects	
	effect of smoke on solar production	Outside of project scope	
	Smart grids	Outside of project scope	Adaptation - Technology
	Explore "energy imbalance opportunities, integrated device potential, and demand side management"	Outside of project scope	
	Alternative energy storage mechanisms (water heaters, storage pumping, urban ice/heat buildings)	Outside of project scope	Adaptation - Technology
Reservoirs	Represent recommendations from the Willamette Basin Review; explore questions raised by the recent USACE/OWRD process to reallocate stored water in federal reservoirs, e.g. alternative rule curves	The model is capable of modeling alternative rule curves as well as shortfall scenarios. Would need to ID specific rule curves or shortfalls for scenarios.	Adaptation - Policy
	"Reallocation is based on 1.6 MAF of storage – what if shortfalls occur repeatedly? Is storage assumption unrealistic?"	Possible to run scenario with repeat dry years	Extremes
	"What amount of additional storage (be it natural [like forests/beavers] or infrastructural) would be needed given changing climate to (1) Serve instream flows at current levels, (2) Increase flows to meet or come closer to meeting ISWRs [Instream Water Rights]?"	"Futurecast" runs of the model would indicate the levels of additonal storage needed to meet instream flows under projected climate change scenarios. Future projections generated by the model will indicate shortfalls in fulfilling instream (and out-of-stream) rights; modeling of alternative scenarios (e.g., alternative reservoir rule curves) can explore means of addressing these shortfalls.	Tradeoffs; Adaptation - Policy
	Identify priorities for water infrastructure (for example increase water storage)	Outside of project scope	
Water Law	Interest in representing instream flow rights in scenarios, including this comment, "What would the impacts be of modeling a circumstance where all existing instream flows would receive a priority (be "met" or close to this)? What uses would be curtailed and to what degree to serve this "build-out" of instream rights?"	Yes, the model is capable of model elevating the priority dates of instream flows if this is of interest.	Habitat; Adaptation - Policy
	Request to model conservation scenarios – for example where "1) municipalities continue to get more efficient; 2) irrigation at 1 ac-ft per acre vs. 2.5 ac-ft per acre".	It should be possible to model increased municipal and agricultural efficiency, though the particulars would be key, so muncipal efficiency would need to be particularly characterized (along the lines of the acre-foot efficiency specified for irrigation here).	Resource Conservation; Adaptation - Technology, Policy
	Scenarios with increased minimum flows via mechanisms such as water markets	The model is capable of looking a different mechanisms for increasing minimum flows (e.g., alternative rule curves), though some mechanisms such as water markets fall outside the scope of the model	Habitat; Adaptation - Policy
	Tribal rights and unadjudicated water rights, "Uncertainty exists around volume for tribal water rights. Can that be added as an interaction?"	Tribal and unadjudicated rights are too uncertain to be accurately modeled, though the model can determine reduced flows at a given location given assumptions about reductions in upstream flows, or that more senior rights downstream of that point take priority; the key to such modeling would be determining the amounts and locations of the surrogate tribal and/or unadjudicated rights to model.	Policy
	Water market trade options or similar to incentivize wise/sustainable use	Unfortunately, outside of project scope	
	"One water" approaches that incentivize conservation/healthy floodplains	Outside of project scope	