

FPBGSA Board Meeting - 15 April 21
Item 4F - Draft Sustainable Management Criteria

- SMC Matrix
- Stakeholder Discussion / Input on Draft SMC



SMC	Undesirable Results	Metric	MT	MO	Summary	Comments
GW Elevation	Loss of ability to pump GW	GW elevation	WL declines below the base of well screens in more than 25% of representative wells	GW levels at 2011 high WL		maximizes range between MT and MO
GW Storage Reduction	inadequate GW storage to last through multi-year drought without GW extraction limitations	GW elevation	*WL declines below the base of well screens in more than 25% of representative wells	GW levels at 2011 high WL		maximizes range between MT and MO
SW Depletion	Surface water flow declines due to GSP implementation that interfere with the beneficial use and users	Rising GW rates at the Fillmore-Piru basin boundary (Fish Hatchery) / Depth to GW at the Fillmore-Piru basin boundary	The GSP does not propose projects or management actions that would change the operational regime of the basins. Therefore, implementation of the GSP does not cause significant and unreasonable effects. No beneficial users or uses are materially impacted by implementation of the GSP.			
Land Subsidence	Land subsidence amounts that interfere with infrastructure operations	*Subsidence rates / quantity	*Total inelastic subsidence of 1.2 in/yr (0.1 ft/yr) or 0.6 ft over 5 yrs	Inelastic subsidence rates within +/- 0.05 ft/yr as determined by InSAR		Monitor subsidence amount - InSAR data from DWR; trigger at GW elevation lower than the estimated historical low
Degraded WQ	Water quality degradation that impairs the beneficial use of the resource	WQ values	Water quality parameters established in existing or future regulations	FPBGSA is not a water purveyor and lacks regulatory authority for WQ compliance, but will cooperate with appropriately empowered entities		
Seawater Intrusion	NA	NA	NA	NA		

Surface Water - Groundwater Interaction



- Surface water depletion due to GW extractions on rising GW at basin boundaries
- Impacts of changes in rising GW quantities/rates on **beneficial uses and users**
 - No known surface water diversions for use as DOM, MUNI, IRRIG supplies
 - No REC uses
 - **GDEs exist in area of rising GW**



Surface Water - Groundwater Interaction



- If there are no beneficial DOM, MUNI, IRRIG, or REC uses or users, then MTs cannot be defined to avoid impacts to those uses or users
- GDEs are uses/users of the rising GW
- Generalized, relative sensitivities to rising GW availability:
 - Fish / Amphibians / Birds / Vegetation



Generalized Impacts of Surface Water Depletion on GDEs

Fish - can be stranded if SW flow declines / die off if stranded by lack of SW and **rising GW are not available** / not mobile - cannot move to another location

Amphibians - can be stranded if SW flow declines / possible die off if SW and **rising GW are not available** / somewhat mobile - some likely can move to another location

Birds - possible die off if SW or **rising GW are not available** / mobile - can move to another location

Vegetation - unlikely die off if SW is not available, but rising GW is present within Critical WL depth / die off possible if **shallow GW within Critical WL depth not available** / not mobile - cannot move to another location

Generalized Impacts of Surface Water Depletion on GDEs

Fish - passage

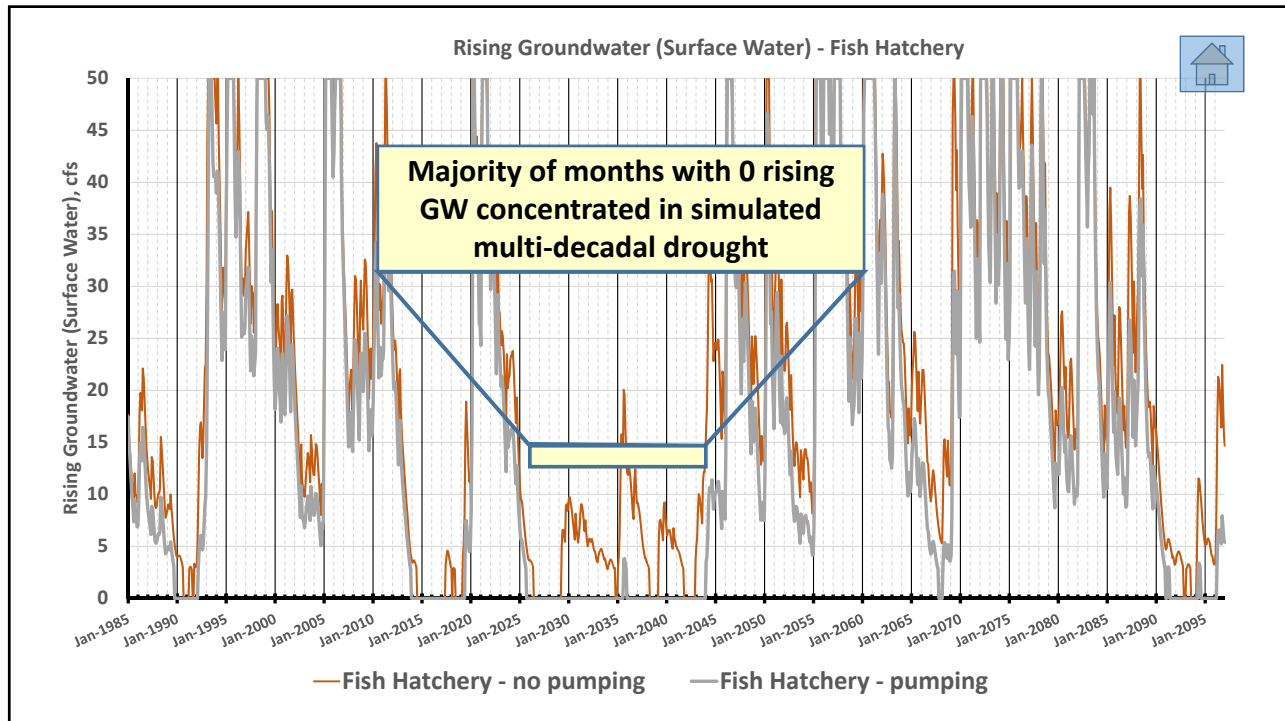
- passage flows provided by natural runoff or artificial water releases from Lake Piru
- during passage periods, rising GW (or lack thereof) has no substantial impact - flows provided by natural runoff and/or artificial water releases

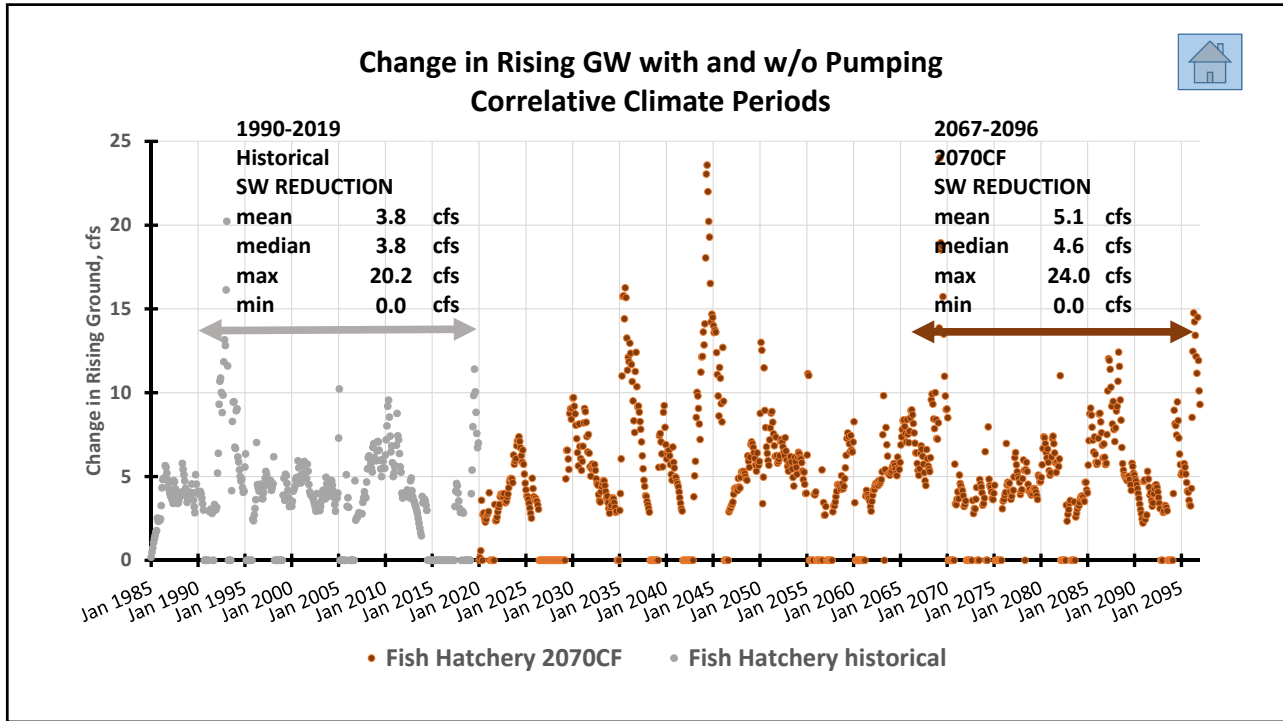
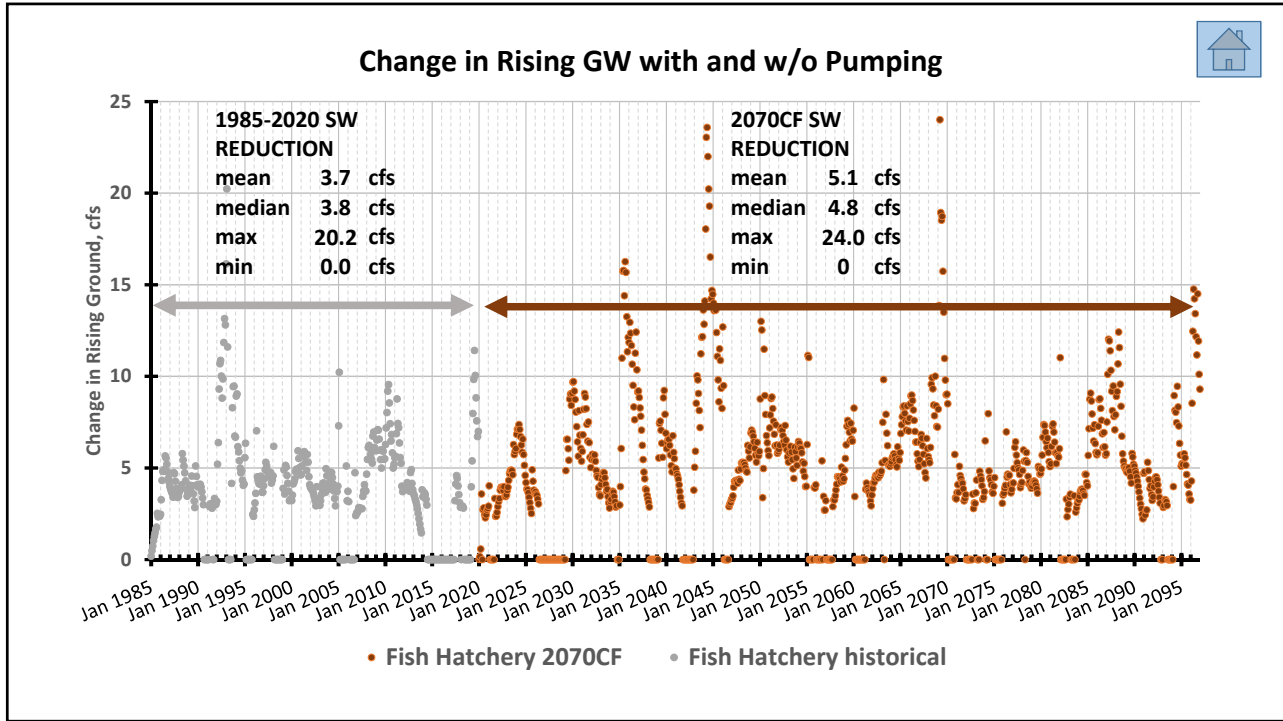
Generalized Impacts of Surface Water Depletion on GDEs

Fish / Amphibians / Bird - stranding

- termination of artificial releases is gradual to minimize chance of stranding
- termination of storm runoff is dictated by natural processes
- isolation of the GDE areas is normal - losing stream reaches upstream and downstream
- GW pumping in non-drought periods does not eliminate rising GW
- GW pumping during drought periods does impact rising GW amounts

So how extensive is the impact?





What did we learn re: stranding? Fish / Amphibians / Birds

- ✓ Select stream reaches are naturally subject to isolation (i.e., losing reaches upstream and downstream)
- ✓ Surface water flows are not naturally maintained along all stream reaches
- ✓ A primary water source for GDE areas near the basin boundaries is rising GW
- ✓ Droughts are a primary driver for rising GW reductions

What did we learn re: stranding? Fish / Amphibians / Birds

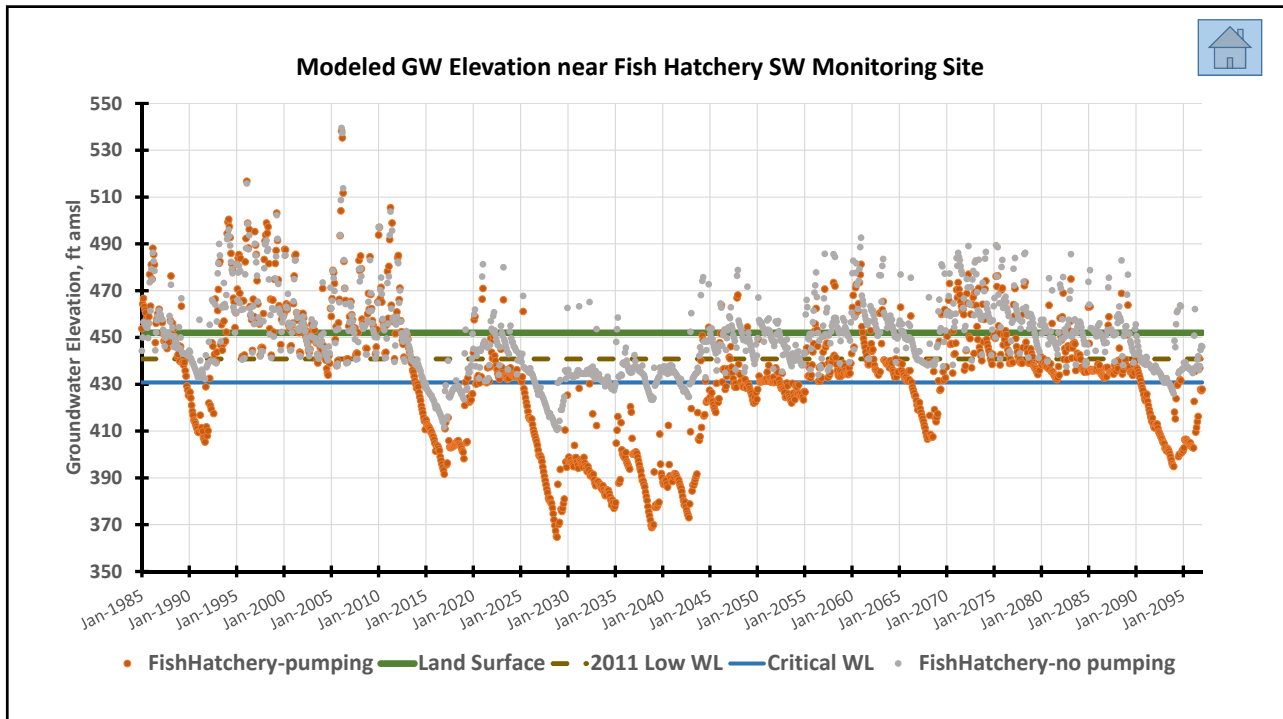
- ✓ Future climate change impacts rising GW rates, although the average change is only about 1.3 cfs
- ✓ Rising GW rates are totally depleted (zero) during severe droughts even when GW extractions are dramatically reduced (~50%)
- ✓ GW extractions:
 - ✓ Do not eliminate rising GW during normal or wet periods
 - ✓ Do reduce rising GW rates during severe drought periods

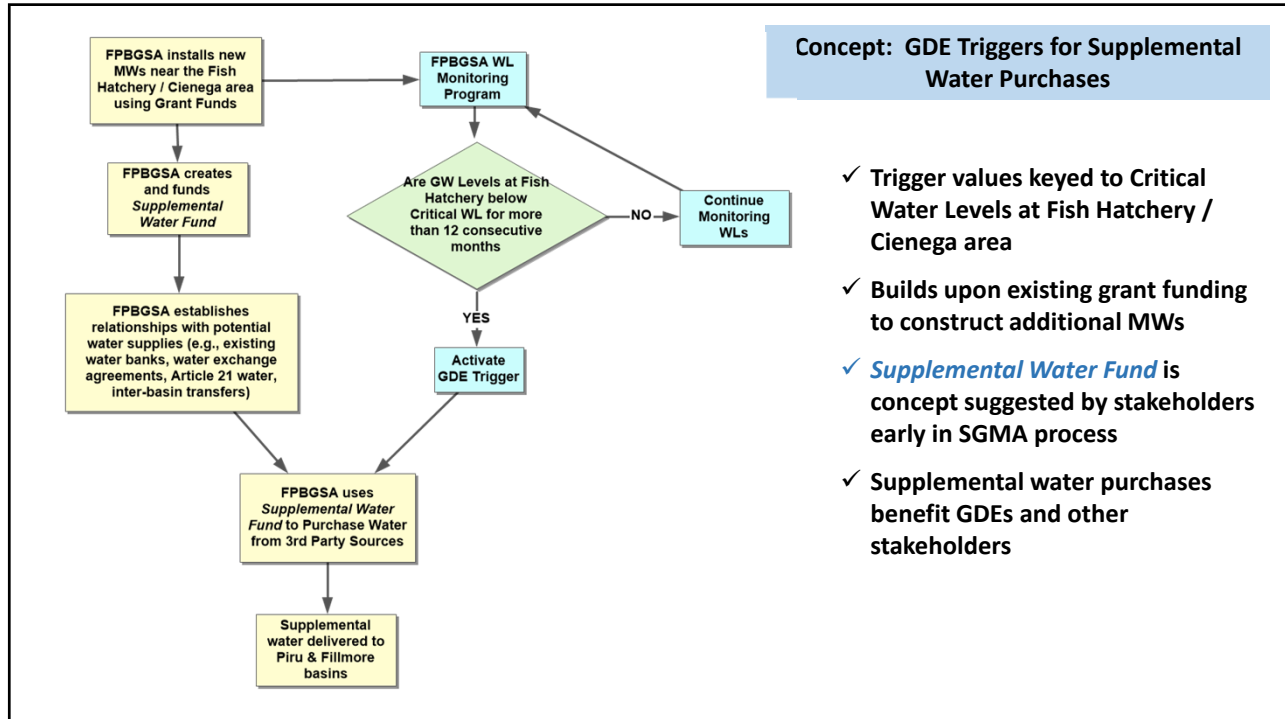
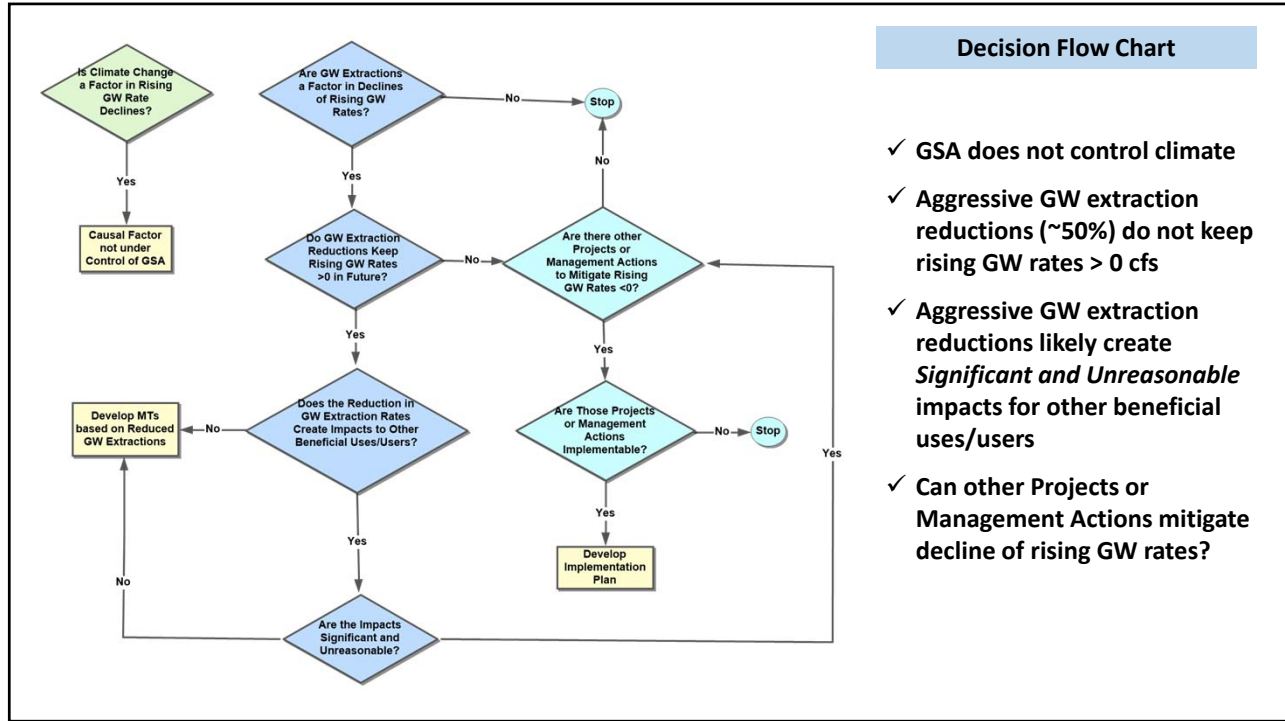
Generalized Impacts of Rising GW Depletion on GDEs

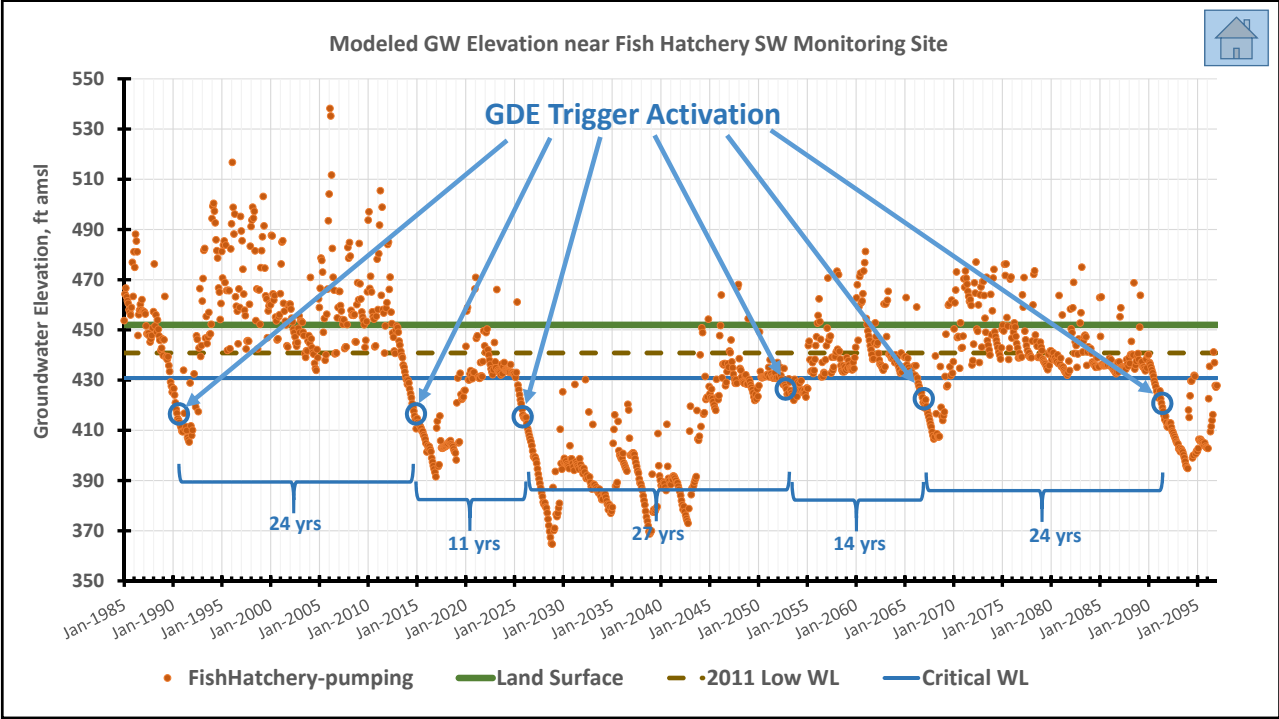
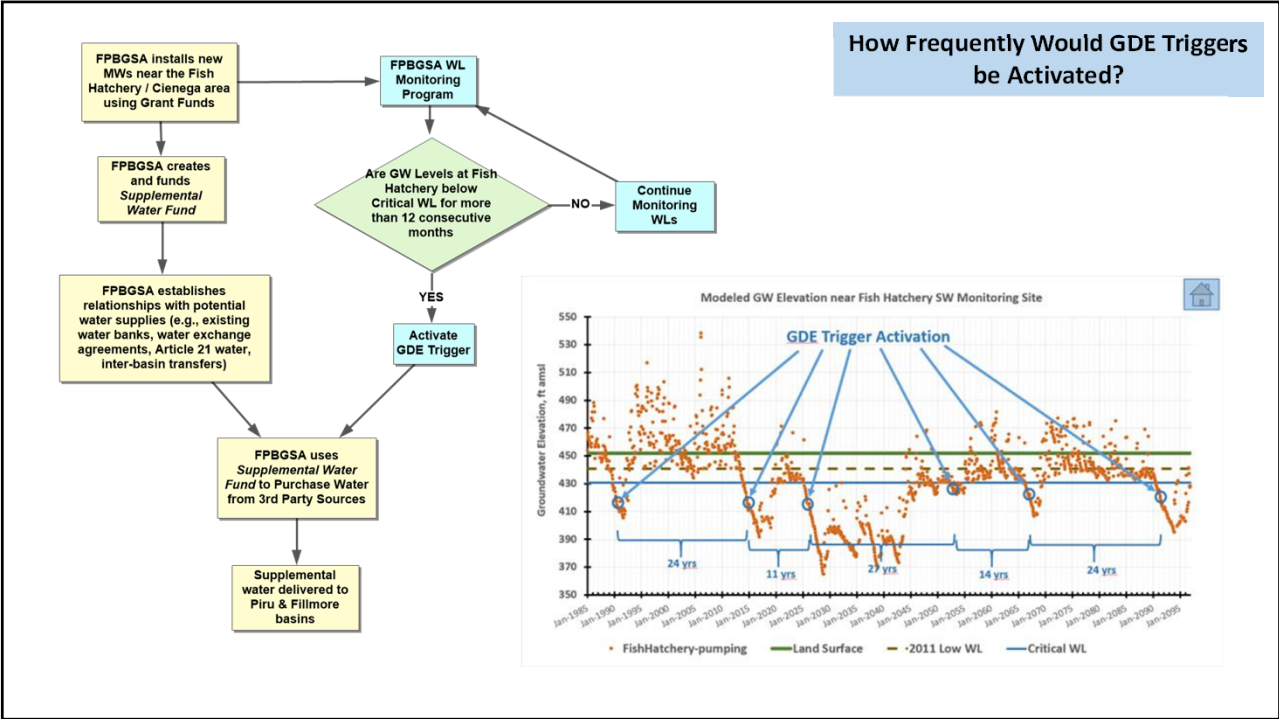
Vegetation - shallow GW within Critical WL depth

- shallow GW conditions are not materially different under future climate conditions than historical period
- GW pumping in non-drought periods does not result in GW levels < Critical WL
- GW pumping during drought periods does result in GW levels < Critical WL

So how extensive is the impact?

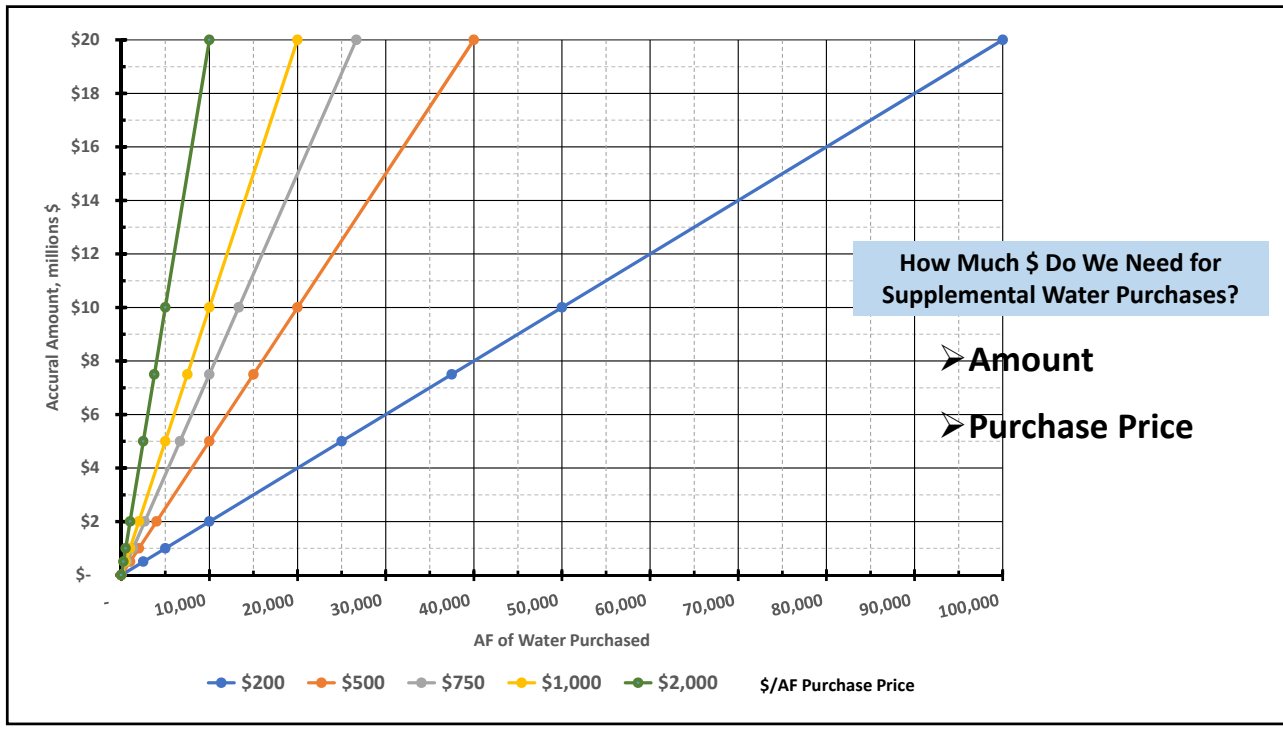
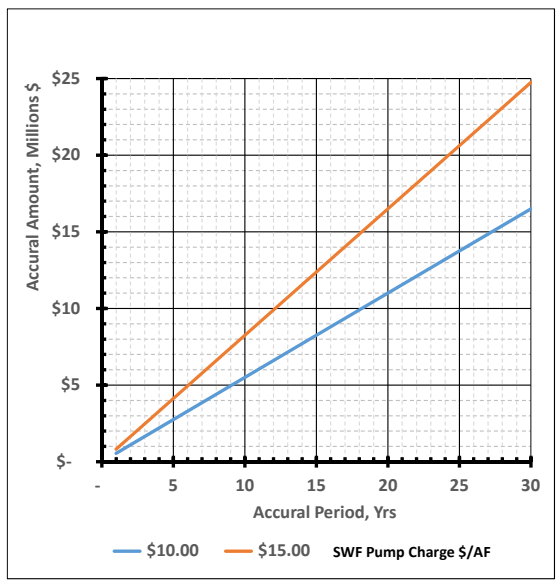






How Much \$ Can We Accrue for Supplemental Water Purchases?

	units	Amt	Amt
<i>Supplemental Water Fund</i>			
Pump Charge	\$/AF	\$ 10.00	\$ 15.00
Average GW Extractions (total for F+P basins)	AF/Yr	55,000	55,000
Supplemental Water Fund Accrual Rate	\$/Yr	\$ 550,000	\$ 825,000
Accrual Period	Yrs	11	11
Accrual Amount		\$ 6,050,000	\$ 9,075,000
Accrual Period	Yrs	14	14
Accrual Amount		\$ 7,700,000	\$ 11,550,000
Accrual Period	Yrs	24	24
Accrual Amount		\$13,200,000	\$ 19,800,000
Accrual Period	Yrs	27	27
Accrual Amount		\$14,850,000	\$ 22,275,000



Subsidence
Groundwater Decline
Surface Water Depletion
Sea Water Intrusion
Groundwater Storage Decline
Groundwater Decline
Surface Water Depletion
Sea Water Intrusion
Groundwater Decline

Questions

