# 2021 Swan Falls Technical Working Group

Presented by Ethan Geisler

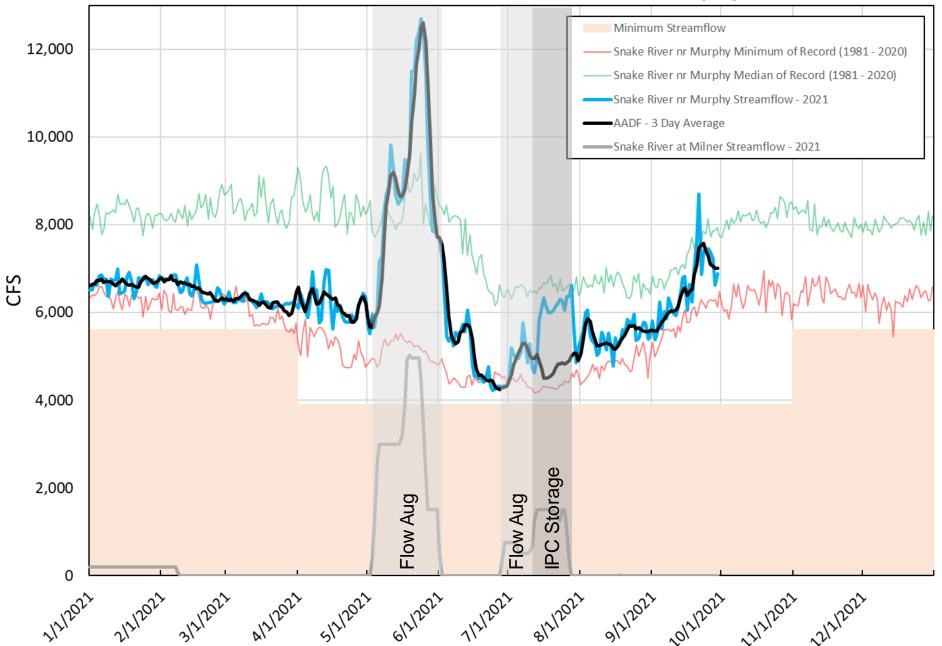
of Parts

October 6, 2021

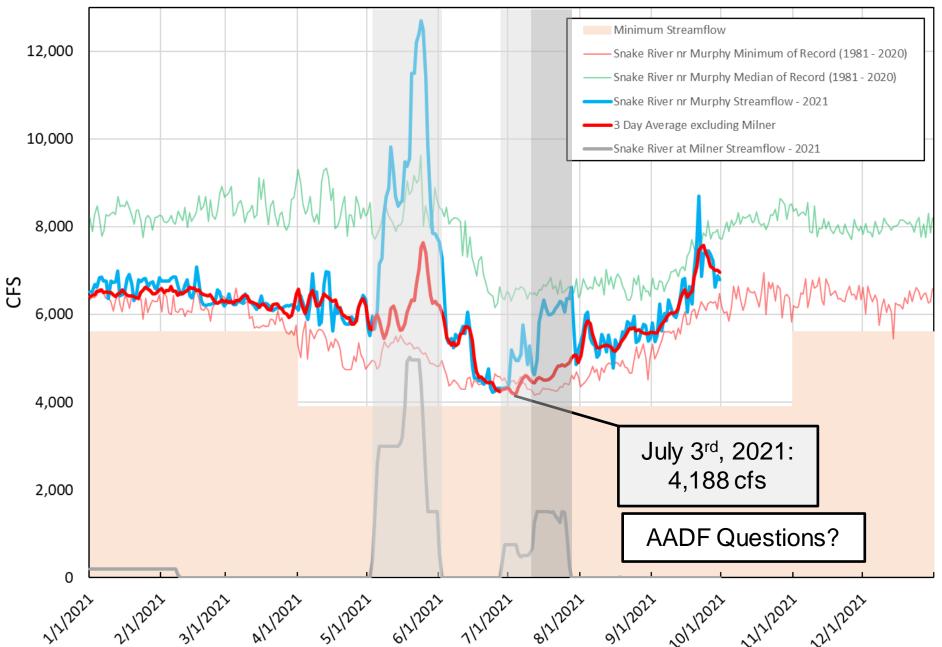


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#### Streamflow at Snake River near Murphy



#### 3 Day Average Excluding Milner



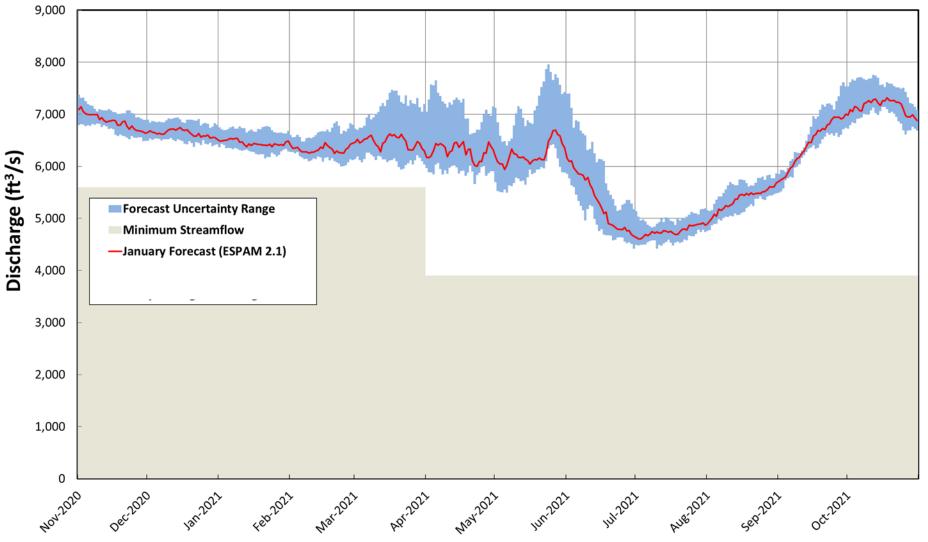


# Swan Falls Forecast Tools Update

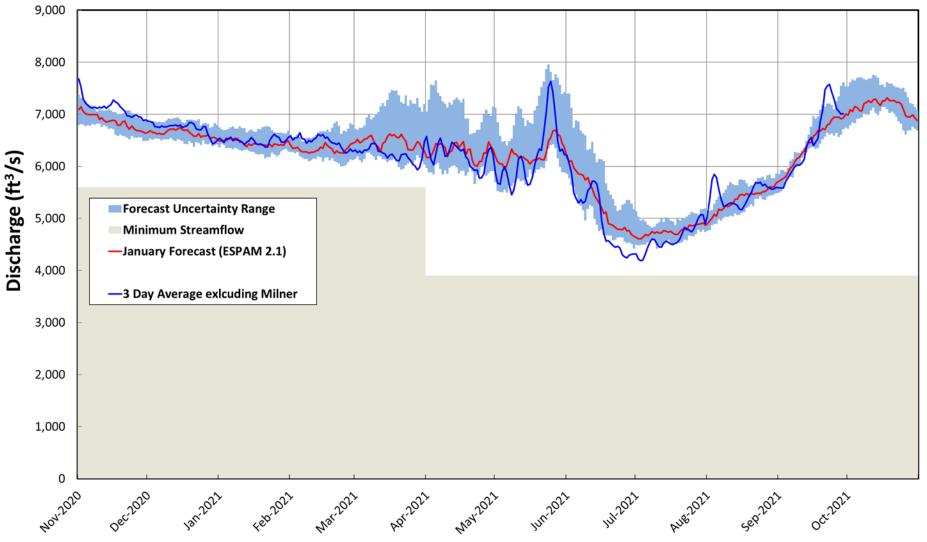
- Updated to ESPAM 2.2
- 18 worksheets were updated in the January and May forecast tool (compiled by Jennifer Sukow)
  - Response Functions
  - Pumping Stresses
  - Canal Seepage
  - On Farm Recharge
  - ET and Precipitation Statistics
- The forecast tools were not recalibrated
- Task was to compare 2021 forecast between ESPAM 2.1 and ESPAM 2.2 response functions

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			Enter Forecast Year	wells in int	od (between	Uncertainty Range Lower Bound (percentile)	Uncertainty Range Upper Bound (percentile)	Bruneau S¥SI	February Big Vood SVSI	Snake (Heise) S¥SI	Upper Snake Reservoir Storage	
_			2021	10		0.25	0.75	[-4 to +4]	(-4 to +4)		(1000s ac-ft)	
								-1.3	-1.6	-0.5	2610.597	
U	Irri	S¥ igation	Milner Gooding Main	Milaer Goodiag -	Milner Gooding -	Northside Main Canal Including	Twin Falls Canal Co Murtaugh	Big Wood Canal Co	Hold for	Hold for	TOTAL MANAGED	
-		strict F/mo	Canal AF/mo	Shoshone AF/mo	Milepost 31 AF/mo	Wilson Lake AF/mo	Canal AF/mo	Richfield AF/mo	Future Site AF/mo	Future Site AF/mo	RECHARGE AF/mo	
17		2399	AFTEO	25376	0	0	4725	7667	0	0	40767	
		2942		18648	1814	0	2521	0	0	0	25925	
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		Date	Calculated ESPA Discharge using 502	Last Year Calculated Daily ESPA Discharge	January Forecast (ESPAM	Uncertainty Range Lower	Uncertainty Range Upper		Modified AADF - 3 Day Average			
			Exceedance (reach gain from model)	(reach gain from model)	2.2)	Bound	Bound		(exicuding Milner)	January Forecas	s Uncertainty Ran	Uncertainty Range L
		11/1/2020	(reach gain	(reach gain		Bound 6786	Bound 7373					Uncertainty Range U 7376
		11/2/2020	(reach gain from model) 6,006 5,337	(reach gain from model) 5,778 5,758	2.2) 7089 7143	6786	7373 7313		Milner)	7091.69648	6789	
		11/2/2020 11/3/2020	(reach gain from model) 6,006 5,397 5,383	(reach gain from model) 5,778 5,758 5,739	2.2) 7089 7143 7051	6786 6808 6738	7373 7313 7315		Milner) 7680.005462 7528.51315 7232.595412	7091.69648 7145.672866 7054.068993	6789 6811 6801	7376 7316 7319
		11/2/2020 11/3/2020 11/4/2020	(reach gain from model) 6,006 5,397 5,389 5,381	(reach gain from model) 5,778 5,758 5,739 5,720	2.2) 7089 7143 7051 7005	6786 6808 6738 6771	7373 7313 7315 7246		Milner) 7680.005462 7528.51315 7292.595412 7215.261239	7091.69648 7145.672866 7054.068993 7008.700646	6789 6811 6801 6774	7376 7316 7319 7250
		11/2/2020 11/3/2020 11/4/2020 11/5/2020	(reach gain from model) 6,006 5,387 5,383 5,381 5,381 5,373	(reach gain from model) 5,778 5,758 5,739 5,720 5,701	2.2) 7089 7143 7051 7005 6393	6786 6808 6738 6771 6731	7373 7313 7315 7315 7246 7192		Milner) 7680.005462 7528.51315 7292.595412 7215.261239 7167.956894	7091.69648 7145.672866 7054.068993 7008.700646 6996.413047	6789 6811 6801 6774 6774	7376 7316 7319 7250 7196
		11/2/2020 11/3/2020 11/4/2020 11/5/2020 11/5/2020	(reach gain from model) 6,006 5,387 5,383 5,381 5,373 5,364	(reach gain from model) 5,778 5,758 5,739 5,720 5,701 5,682	2.2) 7089 7143 7051 7005 6393 6387	6786 6808 6798 6771 6791 6791 6779	7373 7313 7315 7246 7192 7192 7172		Milner) 7680.005462 7528.51315 7232.535412 7215.261233 7167.356834 7135.858433	7031.63648 7145.672866 7054.068333 7008.700646 6336.413047 6330.328425	6789 6811 6801 6774 6734 6732	7376 7316 7319 7250 7196 7176
		11/2/2020 11/3/2020 11/4/2020 11/5/2020 11/6/2020 11/6/2020	(reach gain from model) 6,006 5,387 5,388 5,381 5,381 5,373 5,364 5,356	(reach gain from model) 5,778 5,758 5,739 5,720 5,701 5,682 5,665	2.2) 7089 7143 7051 7005 6393 6393 6397 6395	6786 6608 6798 6771 6771 6731 6731 6719 6812	7373 7315 7315 7246 7192 7192 7192 7192 7192		Milner) 7680.005462 7528.51315 7252.535412 7215.265634 7167.556634 7135.858439 7118.630367	7091.69648 7145.672866 7054.068993 7008.700646 6996.413047 6990.328425 6999.128458	6789 6811 6801 6774 6794 6782 6816	7376 7316 7319 7250 7196 7176 7162
		11/2/2020 11/3/2020 11/4/2020 11/5/2020 11/5/2020 11/6/2020 11/7/2020	(reach gain from model) 6,006 5,387 5,383 5,381 5,381 5,381 5,384 5,386 5,386 5,386	(reach gain from model) 5,778 5,758 5,739 5,720 5,701 5,682 5,665 5,648	2.2) 7089 7143 7051 7005 6393 6393 6395 6395 6395	6786 6608 6738 6771 6731 6731 6733 6812 6733	7373 7313 7315 7246 7192 7172 7172 7175 7158 7100		Milaer) 7680.005462 7528.51315 7232.535412 7215.2561233 7167.356834 7135.858439 7118.630367 7135.38431	7091.69648 7145.672866 7054.068993 7008.700646 6996.413047 6990.928425 6999.128458 6993.839242	6789 6811 6801 6774 6794 6782 6816 6797	7376 7316 7319 7250 7196 7196 7176 7162 7105
		11/2/2020 11/3/2020 11/4/2020 11/5/2020 11/5/2020 11/6/2020 11/7/2020 11/8/2020 11/9/2020	(reach gain from model) 6,006 5,397 5,389 5,381 5,373 5,364 5,356 5,356 5,357 5,353	(reach gain from model) 5,778 5,778 5,739 5,739 5,720 5,701 5,682 5,662 5,662 5,648 5,663	2.2) 7089 7143 7051 7005 6393 6393 6395 6395 6395	6786 6808 6798 6771 6791 6791 6793 6873 6873 6820	7373 7313 7315 7246 7192 7152 7158 7100 7051		Milecr) 7680.005462 7528.51315 7232.535412 7215.261233 7167.356834 7135.858433 7118.630367 7135.384371 7115.528131	7091.69648 7145.672866 7054.068993 7008.700646 6996.413047 6990.928425 6999.128458 6993.839242 6998.377975	6789 6811 6801 6774 6794 6782 6816 6782 6816 6797 6825	7376 7316 7319 7250 7196 7176 7176 7162 7105
		11/2/2020 11/3/2020 11/4/2020 11/5/2020 11/5/2020 11/6/2020 11/7/2020	(reach gain from model) 6,006 5,387 5,383 5,381 5,381 5,381 5,384 5,386 5,386 5,386	(reach gain from model) 5,778 5,758 5,739 5,720 5,701 5,682 5,665 5,648	2.2) 7089 7143 7051 7005 6393 6393 6395 6395 6395	6786 6608 6738 6771 6731 6731 6733 6812 6733	7373 7313 7315 7246 7192 7172 7172 7175 7158 7100		Milaer) 7680.005462 7528.51315 7232.535412 7215.2561233 7167.356834 7135.858439 7118.630367 7135.38431	7091.69648 7145.672866 7054.068993 7008.700646 6996.413047 6990.928425 6999.128458 6993.839242 6998.377975 6901.416828	6789 6811 6801 6774 6734 6784 6782 6816 6797 6825 6815	7376 7316 7319 7250 7196 7196 7176 7162 7105

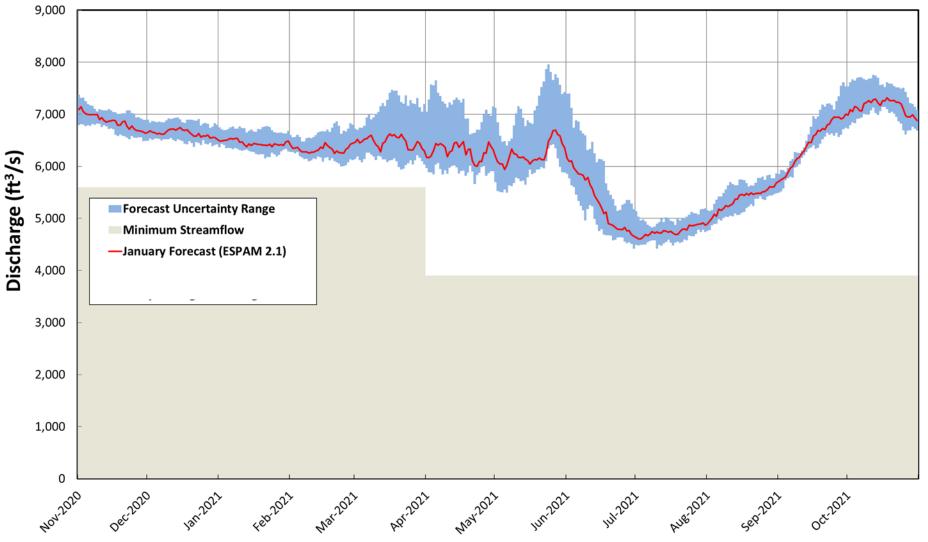




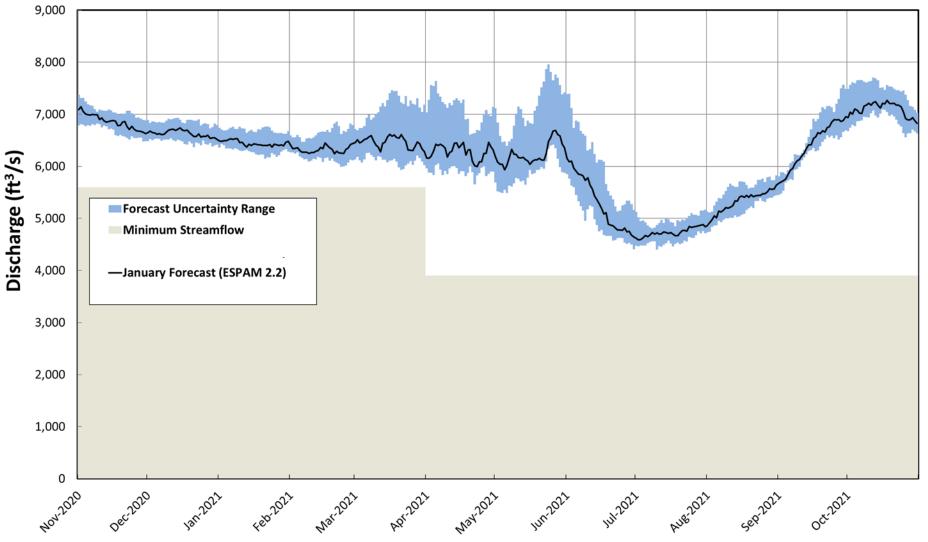




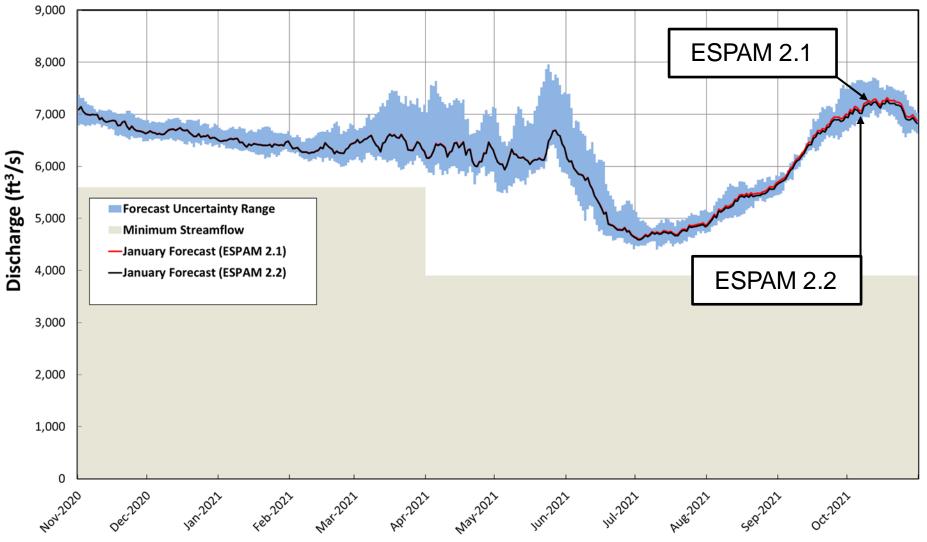




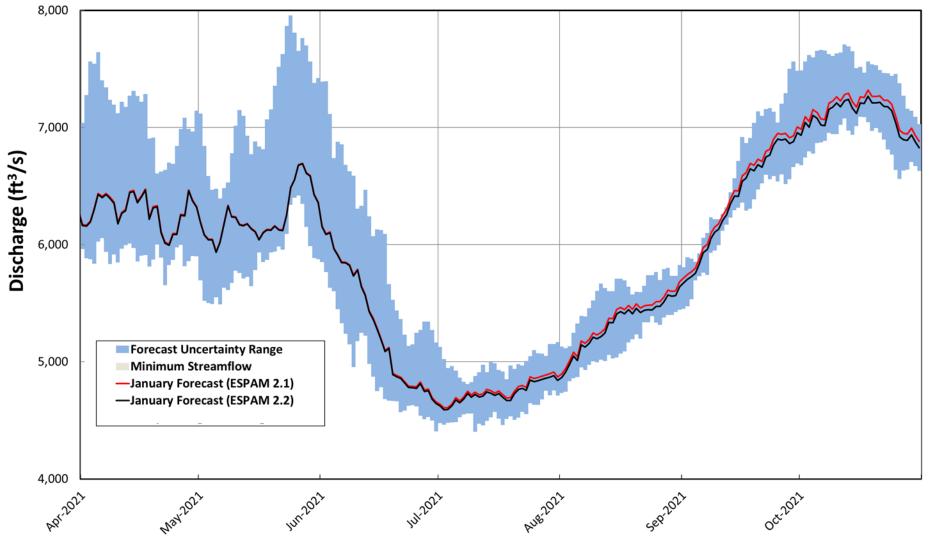




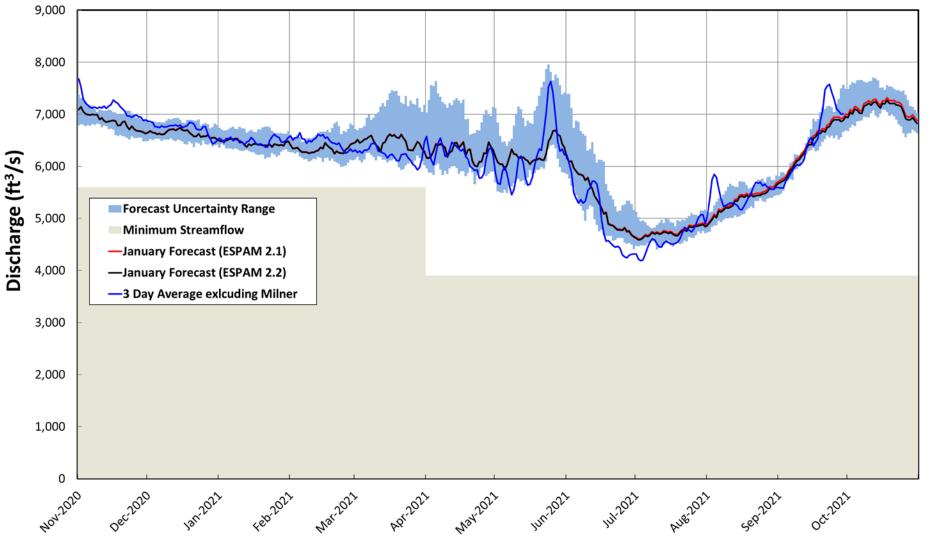












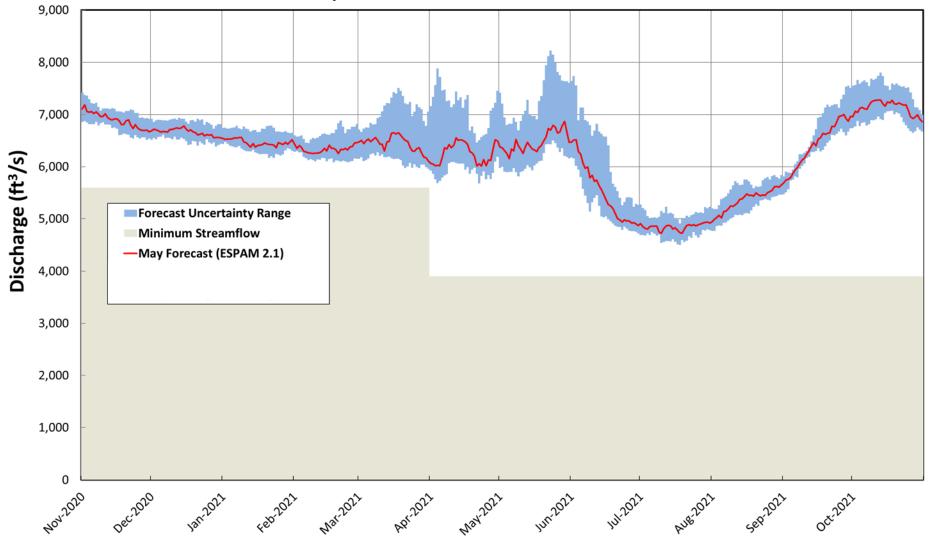
# Swan Falls May Forecast

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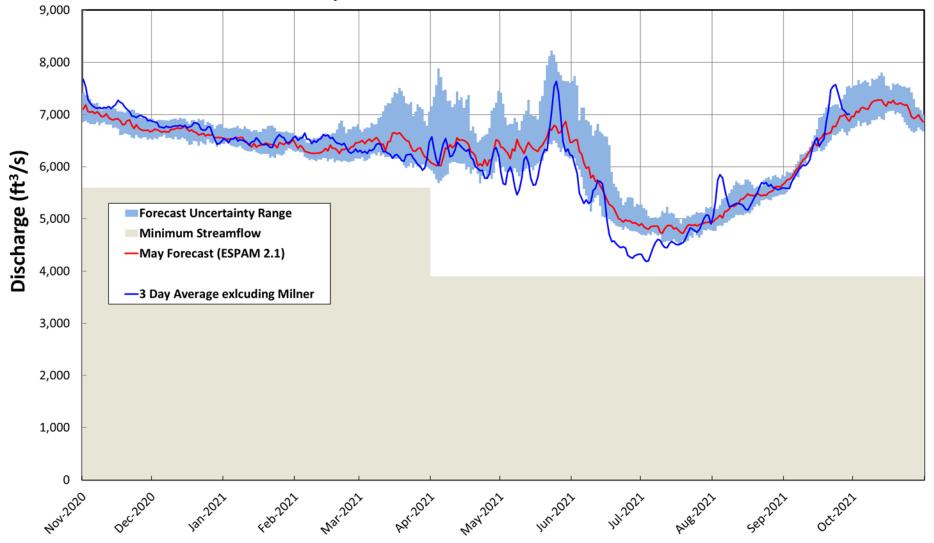
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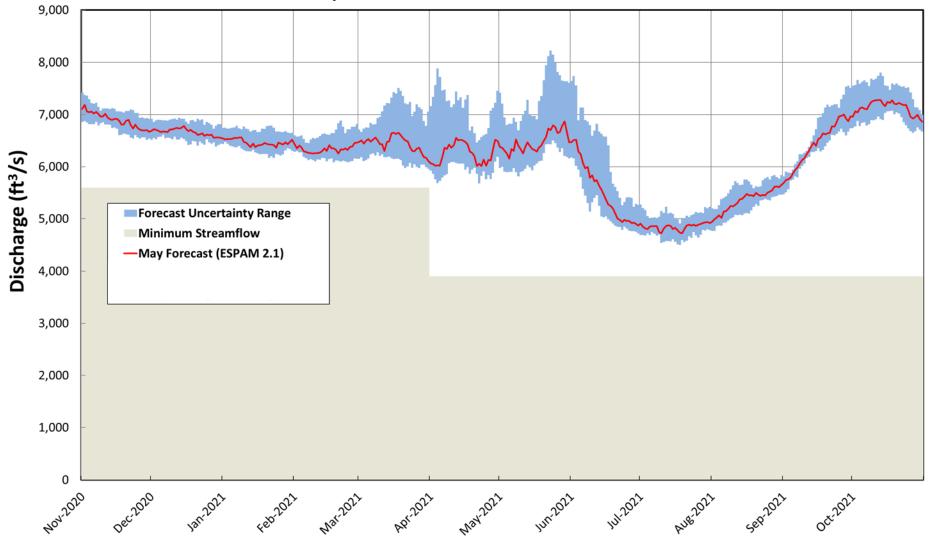




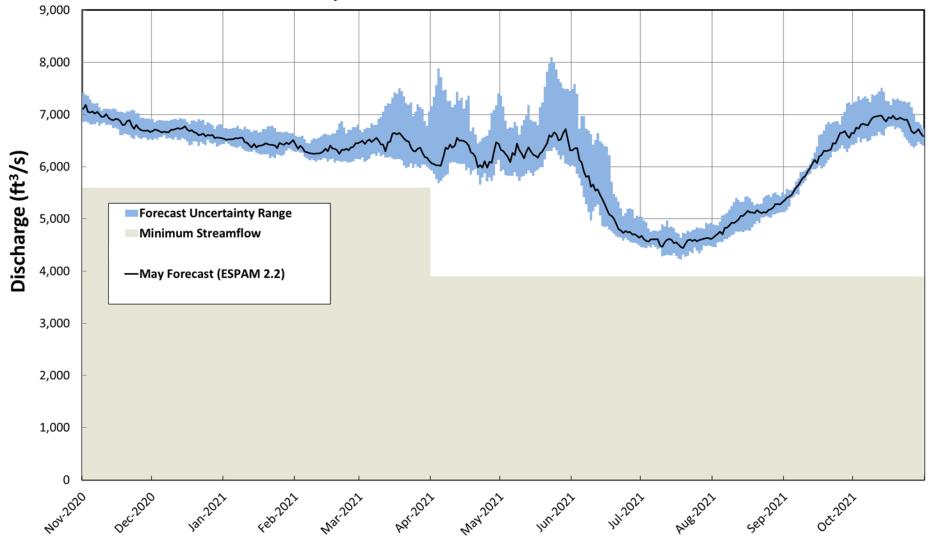




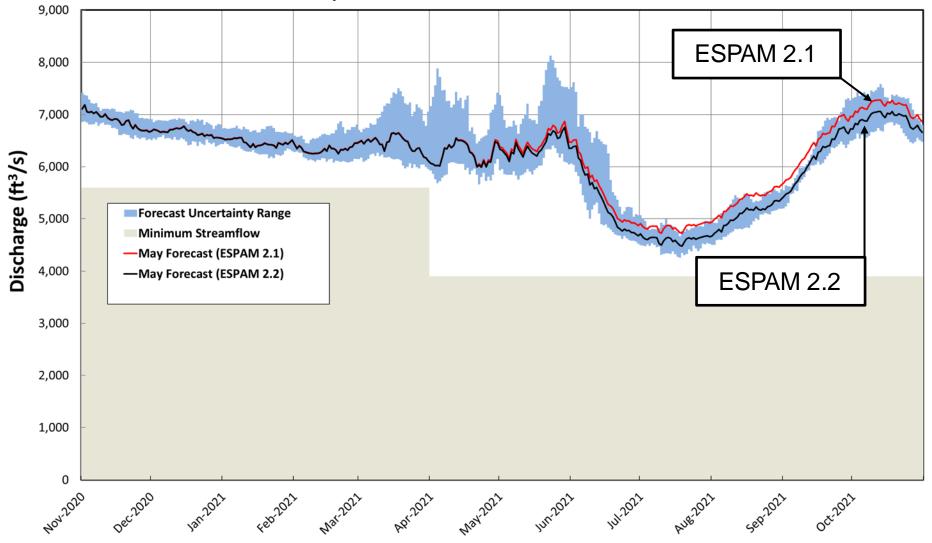




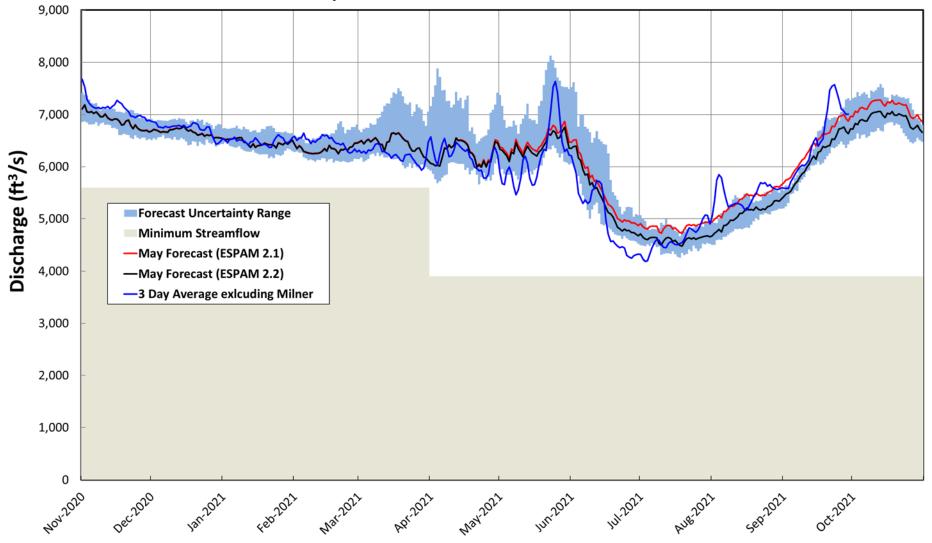


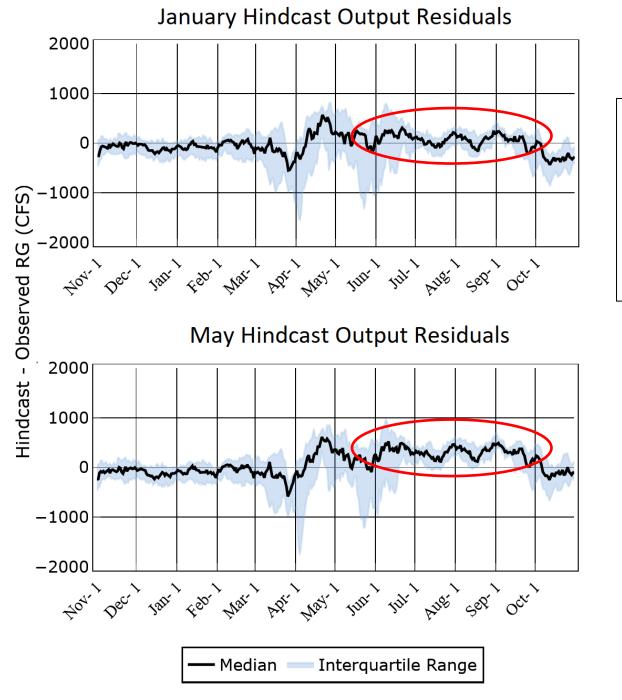






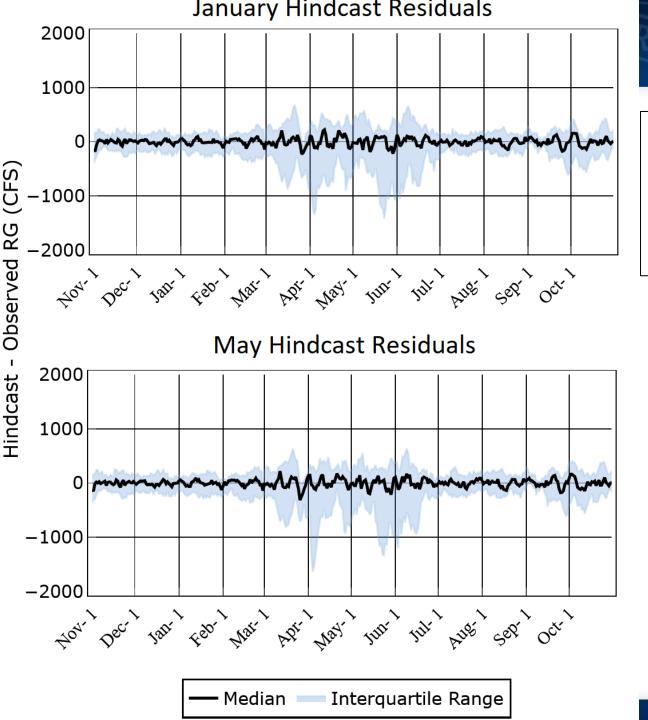








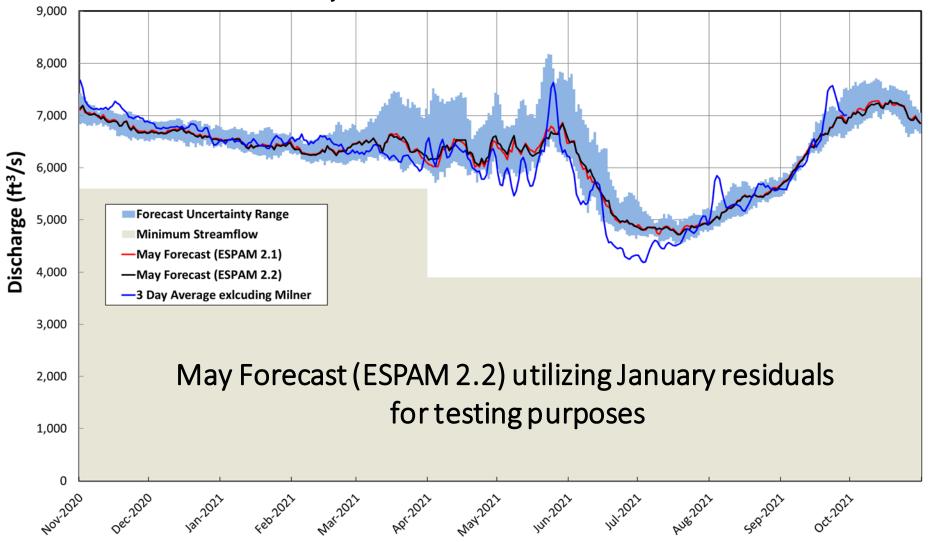
Forecast Tool Manual: Section 6.2 discusses "Residual Analysis and Uncertainty Quantification"





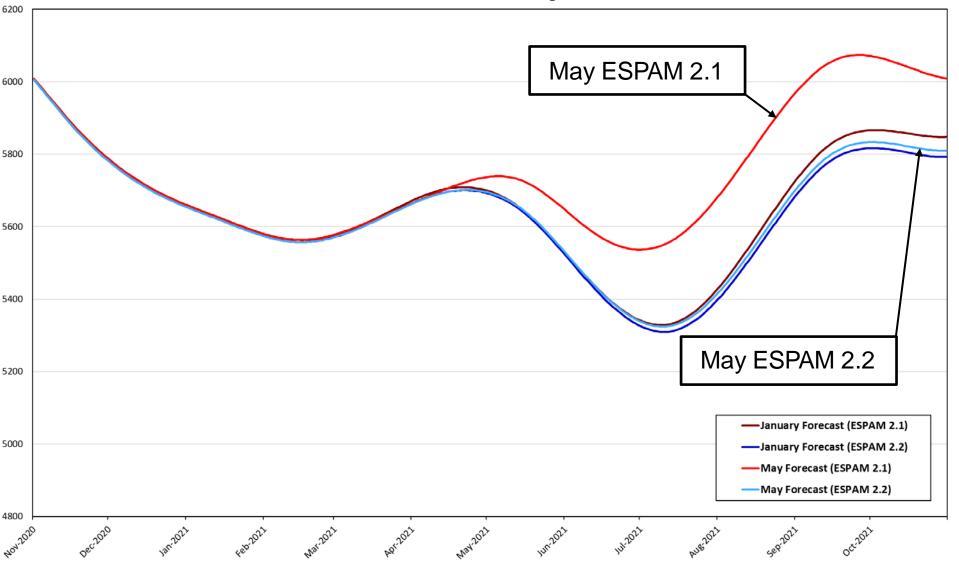
Forecast Tool Manual: Section 6.3 "Residual Analysis Fit to SFFT Prediction"







**Calculated ESPA Discharge** 



# Questions?





