COLORADO
WATER SUPPLY CONDITIONS UPDATE

FROM THE OFFICE OF THE STATE ENGINEER: COLORADO DIVISION OF WATER RESOURCES
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April 1, 2021

The Surface Water Supply Index (SWSI) is used as an indicator of water supply conditions in the seven major river basins of the state and in each of the 41 smaller watersheds, or HUCs. The Colorado Water Conservation Board (CWCB) completed a major revision to the Colorado Drought Plan in 2010. At that time, Colorado adopted a revised SWSI analysis based on the components shown below, which vary depending on the time of year. The revised SWSI is based on a ranking of total volume in a HUC or major river basin ranked against similar volumes in historical years. For instance, in January, the total volume in a HUC is based on the forecasted runoff at specific locations plus the volume in storage in specific reservoirs, all within the HUC. That total volume is ranked against similar total volumes that occurred each January between 1980 and 2020.

Time Period	SWSI Components
January 1 – June 1	**Forecasted Runoff + Reservoir Storage**
July 1 – September 1	Previous Month's Streamflow + Reservoir Storage
October 1 – December 1	Reservoir Storage

In 2015, CWCB and the Division of Water Resources (DWR) (both Divisions of the Colorado Department of Natural Resources) completed a software project to implement an automated calculation of the SWSI and to document the underlying hydrologic data. July 1, 2015 was the first month that the automated DNR SWSI was published. The results of each month's analysis are summarized within this report and additional information, maps & data are available at: https://dwr.colorado.gov/services/water-administration/drought-and-swsi. This report also contains updates about current regional conditions and water matters prepared by each DWR Division Office.

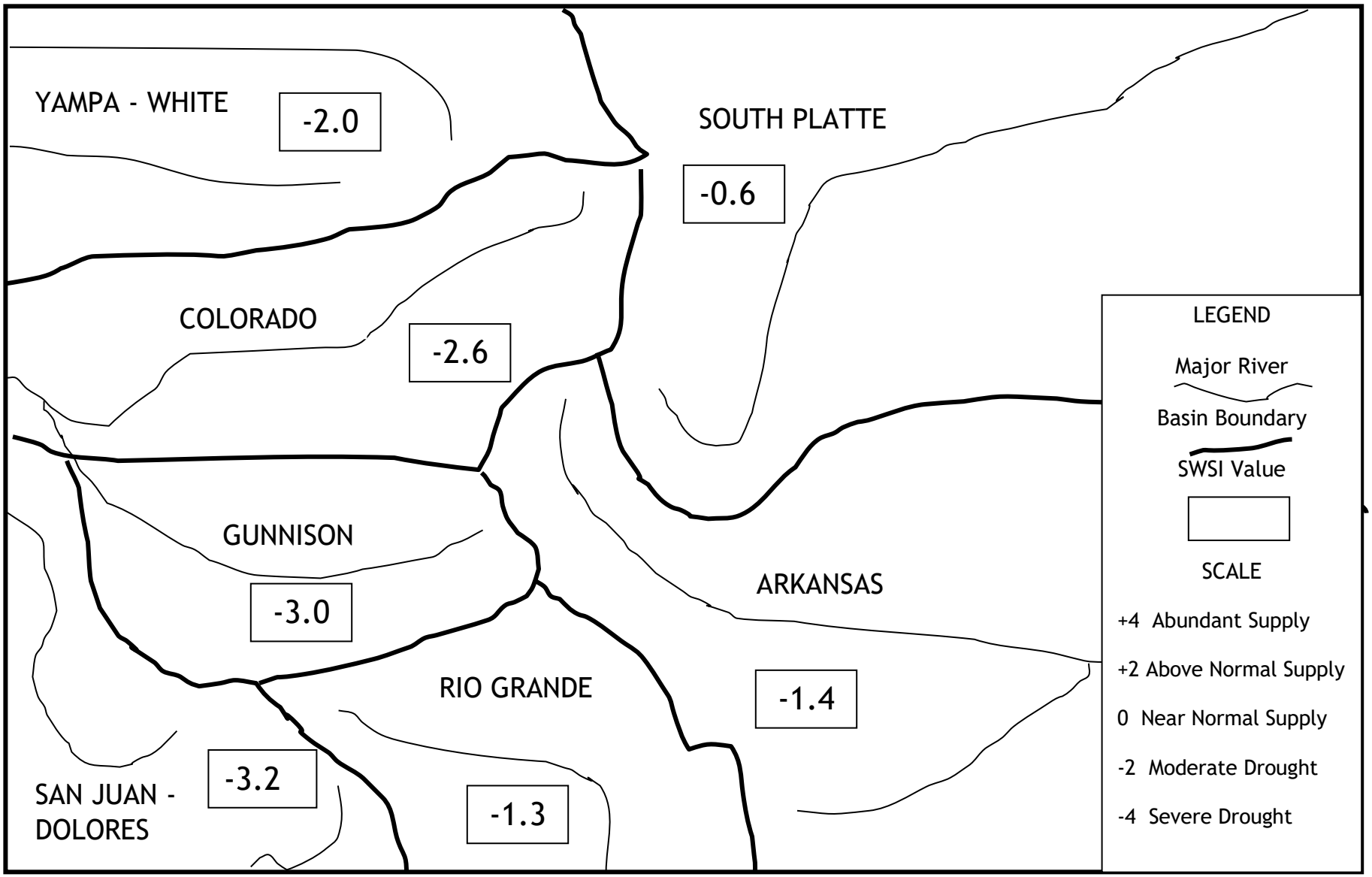
The SWSI calculation for the winter/spring season (January 1 to June 1) is based on reservoir storage at the end of last month, in this case March 31, plus the forecasted streamflow runoff volume for the runoff season (April through September in most basins). The following SWSI values were computed for each of the seven major basins for April 1, 2021. The following SWSI values were computed for each of the seven major basins for April 1, 2021. Water supply conditions, as represented by water in storage and forecasted streamflow runoff, range from below normal in the South Platte Basin to well below normal in the San-Juan and Gunnison River Basins.

Basin	April 1 SWSI	Change from Previous Month	Change from Previous Year
Arkansas	-1.4	0.4	-0.3
Colorado	-2.6	0.1	-0.9
Gunnison	-3.0	0.0	-0.2
Rio Grande	-1.3	0.0	1.5
San Juan-Dolores	-3.2	0.0	-0.4
South Platte	-0.6	0.9	-0.5
Yampa-White	-2.0	-0.4	-1.1

SWSI Scale

-4	-3	-2	-1	0	1	2	3	4
Severe Drought		Moderate Drought		Near Normal Supply		Above Normal Supply		Abundant Supply

SURFACE WATER SUPPLY INDEX FOR COLORADO BY MAJOR RIVER BASIN

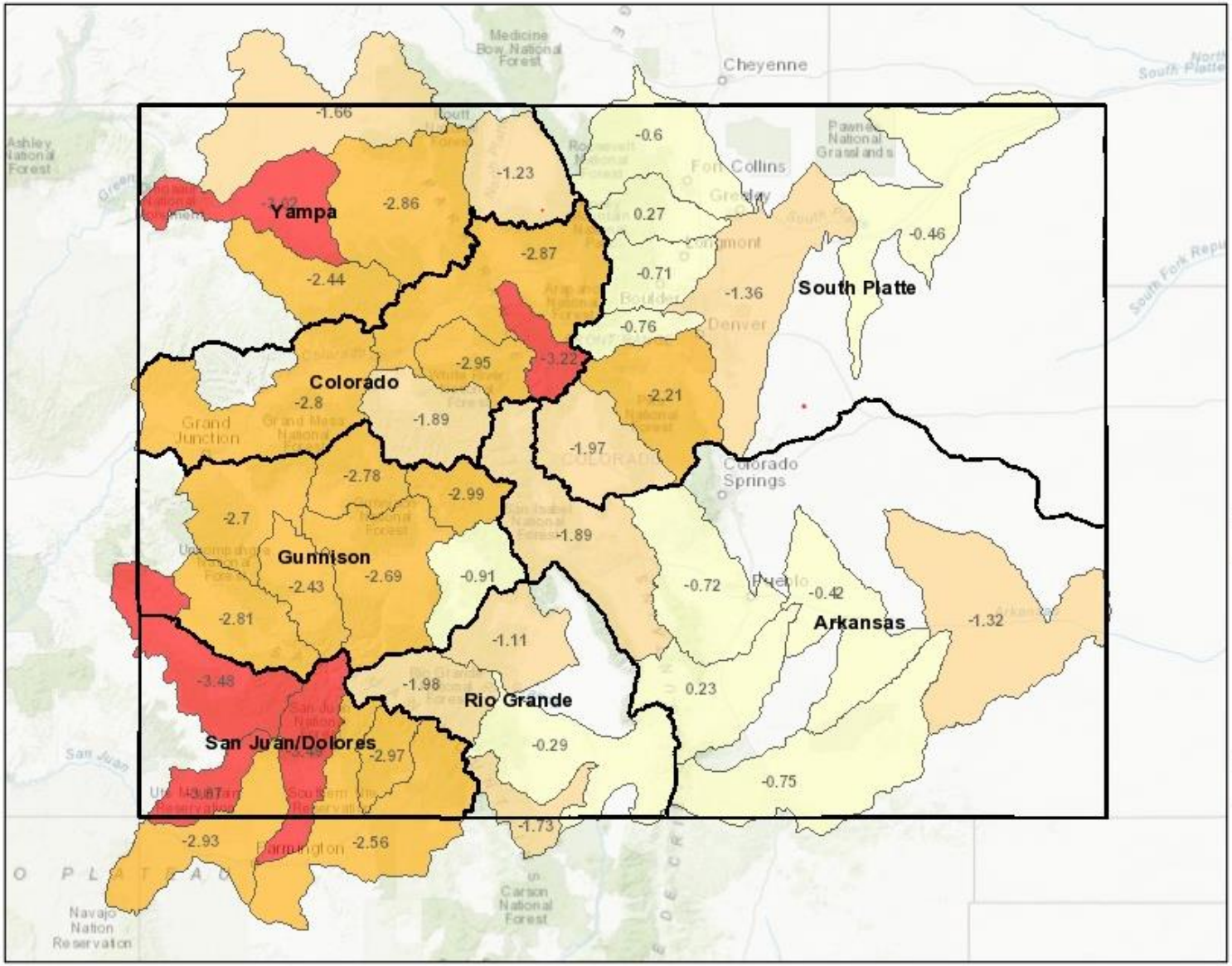


April 1, 2020

SURFACE WATER SUPPLY INDEX FOR COLORADO BY HUC

COLORADO
Division of Water Resources
Department of Natural Resources

SWSI April 1, 2021



Legend

SWSI - Current Report

- SWSI Not Applicable (-99.99)
- Extremely Dry (-3.0 to -4.2)
- Moderately Dry (-2.0 to -2.9)
- Slightly Dry (-1.0 to -1.9)
- Near Average (-0.9 to 0.9)
- Slightly Wet (1.0 to 1.9)
- Moderately Wet (2.0 to 2.9)
- Extremely Wet (3.0 to 4.2)
- Water Division

Location

Notes

113.64 0 56.82 113.64 Miles

1: 3,600,000

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 4/12/2021 8:44:06 AM

April 1, 2021 SWSI Values by HUC and Non Exceedance Probabilities (NEP)

Basin	HUC ID	HUC Name	SWSI	Reservoir Storage NEP	Forecast Flow NEP	Total Vol (AF)
Arkansas	11020006	Huerfano	0.24	15	62	25,300
	11020010	Purgatoire	-0.76	26	55	65,441
	11020001	Arkansas Headwaters	-1.90	26	39	323,706
	11020005	Upper Arkansas-Lake Meredith	-0.42	19	45	354,537
	11020009	Upper Arkansas-John Martin Reservoir	-1.33	21	44	466,266
	11020002	Upper Arkansas	-0.72	41	45	509,093
Colorado	14010003	Eagle	-2.96	N/A	14	220,000
	14010002	Blue	-3.23	51	11	247,158
	14010004	Roaring Fork	-1.90	16	29	538,325
	14010001	Colorado Headwaters	-2.88	64	12	1,032,580
	14010005	Colorado Headwaters-Plateau	-2.80	7	17	1,545,254
Gunnison	14020003	Tomichi	-0.91	54	39	44,487
	14030003	San Miguel	-2.81	N/A	16	71,000
	14020006	Uncompahgre	-2.44	23	19	136,245
	14020004	North Fork Gunnison	-2.78	86	15	155,231
	14020001	East-Taylor	-2.99	31	18	241,089
	14020005	Lower Gunnison	-2.70	N/A	18	755,000
	14020002	Upper Gunnison	-2.69	23	27	1,031,844
Rio Grande	13010004	Saguache	-1.12	N/A	37	25,000
	13010002	Alamosa-Trinchera	-0.29	29	47	123,414
	13010005	Conejos	-1.73	32	34	167,329
	13010001	Rio Grande Headwaters	-1.99	79	25	410,304
San Juan-Dolores	14080105	Middle San Juan	-2.93	90	9	11,388
	14080107	Mancos	-3.88	8	5	14,191
	14080102	Piedra	-2.98	N/A	14	100,000
	14080104	Animas	-3.50	15	8	251,060
	14030002	Upper Dolores	-3.49	16	18	308,986
	14080101	Upper San Juan	-2.57	15	24	394,291
South Platte	10190004	Clear	-0.77	N/A	41	96,000
	10190001	South Platte Headwater	-1.98	28	29	180,300
	10190005	St. Vrain	-0.71	33	45	210,778
	10190007	Cache La Poudre	-0.60	33	46	378,367
	10190002	Upper South Platte	-2.21	11	44	383,365
	10190006	Big Thompson	0.28	52	46	517,480
	10190003	Middle South Platte-Cherry Creek	-1.37	6	38	783,817
	10190012	Middle South Platte-Sterling	-0.46	96	38	944,102
Yampa-White	10180001	North Platte Headwaters	-1.24	N/A	35	167,000
	14050005	Upper White	-2.45	N/A	21	167,000
	14050003	Little Snake	-1.66	N/A	30	210,000
	14050001	Upper Yampa	-2.86	79	13	444,647
	14050002	Lower Yampa	-3.03	N/A	14	510,000

NEP is non exceedance percentage for total reservoir storage and streamflow forecast in HUC. Some HUCs do not have any reservoirs considered in the SWSI and are shown as "N/A". Total Vol is the volume of reservoir storage in the HUC plus the streamflow forecast. NEP is calculated compared to the volume historically occurring this month during the period 1980-2020. The following table lists each component considered in each HUC.

SWSI Color Scale:	-4.0 (Severe Drought)	0.0 (Normal)	4.0 (Abundant Supply)

April 1, 2021 SWSI Component Information - Streamflow Forecast & Reservoir Storage - By HUC

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP by Month
11020001	Arkansas Headwaters	CLEAR CREEK RESERVOIR	6,417	21
		HOMESTAKE RESERVOIR	11,784	15
		TWIN LAKES RESERVOIR	22,333	10
		TURQUOISE LAKE	78,172	74
		ARKANSAS RIVER AT SALIDA	205,000	39
11020006	Huerfano	CUCHARAS RESERVOIR	-	15
		HUERFANO RIVER NEAR REDWING	12,000	46
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,300	69
11020010	Purgatoire	TRINIDAD LAKE	18,441	26
		PURGATOIRE RIVER AT TRINIDAD	47,000	55
11020002	Upper Arkansas	PUEBLO RESERVOIR	209,093	41
		PUEBLO RESERVOIR INFLOW	300,000	45
11020009	Upper Arkansas-John Martin Reservoir	HUERFANO RIVER NEAR REDWING	12,000	46
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,300	69
		ADOBE CREEK RESERVOIR	30,890	20
		PURGATOIRE RIVER AT TRINIDAD	47,000	55
		JOHN MARTIN RESERVOIR	63,076	21
		PUEBLO RESERVOIR INFLOW	300,000	45
11020005	Upper Arkansas-Lake Meredith	LAKE HENRY	7,333	44
		HUERFANO RIVER NEAR REDWING	12,000	46
		CUCHARAS RIVER AT BOYD RANCH NR LA VETA	13,300	69
		MEREDITH RESERVOIR	21,904	18
		PUEBLO RESERVOIR INFLOW	300,000	45
14010002	Blue	GREEN MOUNTAIN RESERVOIR	60,158	51
		BLUE RIVER INFLOW TO GREEN MOUNTAIN RES	187,000	11
14010001	Colorado Headwaters	WOLFORD MOUNTAIN RESERVOIR	52,880	87
		WILLIAMS FORK RESERVOIR	64,700	42
		COLORADO RIVER NEAR DOTSERO	915,000	12
14010005	Colorado Headwaters-Plateau	VEGA RESERVOIR	5,254	7
		COLORADO RIVER NEAR CAMEO	1,540,000	17
14010003	Eagle	EAGLE RIVER BELOW GYPSUM	220,000	14
14010004	Roaring Fork	RUEDI RESERVOIR	58,325	16
		ROARING FORK AT GLENWOOD SPRINGS	480,000	29
14020001	East-Taylor	TAYLOR PARK RESERVOIR	62,089	31
		TAYLOR R INF TO TAYLOR PARK RESERVOIR	64,000	16
		EAST RIVER AT ALMONT	115,000	18
14020005	Lower Gunnison	GUNNISON RIVER NR GRAND JUNCTION	755,000	18
14020004	North Fork Gunnison	PAONIA RESERVOIR	5,231	86
		NORTH FORK GUNNISON R NR SOMERSET	150,000	15
14030003	San Miguel	SAN MIGUEL RIVER NEAR PLACERVILLE	71,000	16
14020003	Tomichi	VOUGA RESERVOIR NEAR DOYLEVILLE	487	54
		TOMICHI CREEK AT GUNNISON, CO	44,000	39

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP by Month
14020006	Uncompahgre	RIDGEWAY RESERVOIR	55,245	23
		UNCOMPAHGRE RIVER AT COLONA	81,000	19
14020002	Upper Gunnison	SILVER JACK RESERVOIR	565	1
		FRUITLAND RESERVOIR	585	5
		CRAWFORD RESERVOIR	3,227	4
		LAKE FORK AT GATEVIEW, CO	89,000	19
		MORROW POINT RESERVOIR	104,481	3
		BLUE MESA RESERVOIR	398,986	26
		GUNNISON R INF TO BLUE MESA RESERVOIR	435,000	25
13010002	Alamosa-Trinchera	MOUNTAIN HOME	2,587	34
		TERRACE RESERVOIR	6,627	28
		TRINCHERA CK	12,400	61
		UTE CREEK	13,000	63
		SANGRE DE CRISTO	15,800	60
		CULEBRA CREEK AT SAN LUIS	22,000	57
		ALAMOSA CREEK ABOVE TERRACE RESERVOIR	51,000	29
13010005	Conejos	PLATORO RESERVOIR	14,329	32
		CONEJOS RIVER NEAR MOGOTE	153,000	34
13010001	Rio Grande Headwaters	CONTINENTAL RESERVOIR	9,979	78
		SANTA MARIA RESERVOIR	14,185	69
		RIO GRANDE RESERVOIR	21,140	56
		RIO GRANDE NEAR DEL NORTE	365,000	25
13010004	Saguache	SAGUACHE CREEK NEAR SAGUACHE, CO	25,000	37
14080104	Animas	LEMON RESERVOIR	11,060	15
		FLORIDA RIVER INFLOW TO LEMON RESERVOIR	25,000	8
		ANIMAS RIVER AT DURANGO	215,000	8
14080107	Mancos	JACKSON GULCH RESERVOIR	2,891	8
		MANCOS RIVER NEAR MANCOS	11,300	5
14080105	Middle San Juan	LONG HOLLOW RESERVOIR	1,388	90
		LA PLATA RIVER AT HESPERUS	10,000	9
14080102	Piedra	PIEDRA RIVER NEAR ARBOLES	100,000	14
14030002	Upper Dolores	GROUNDHOG RESERVOIR	4,600	10
		DOLORES RIVER BELOW MCPHEE RESERVOIR	135,000	18
		MCPHEE RESERVOIR	169,386	15
14080101	Upper San Juan	VALLECITO RESERVOIR	44,291	15
		LOS PINOS RIVER NEAR BAYFIELD	105,000	9
		SAN JUAN RIVER NEAR CARRACAS	245,000	27
10190006	Big Thompson	LAKE LOVELAND RESERVOIR	1,500	11
		MARIANO RESERVOIR	2,300	18
		LONE TREE RESERVOIR	4,500	2
		WILLOW CREEK RESERVOIR	6,242	27
		BOYD LAKE	29,700	43
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	85,000	46
		CARTER LAKE	106,369	82
		LAKE GRANBY	281,869	57

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP by Month
10190007	Cache La Poudre	BLACK HOLLOW RESERVOIR	2,300	19
		CHAMBERS LAKE	4,100	62
		HALLIGAN RESERVOIR	6,000	76
		WINDSOR RESERVOIR	7,000	6
		CACHE LA POUDRE	8,200	37
		FOSSIL CREEK RESERVOIR	9,400	60
		COBB LAKE	15,500	53
		HORSETOOTH RESERVOIR	110,867	34
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	46
10190004	Clear Creek	CLEAR CREEK AT GOLDEN	96,000	41
10190003	Middle South Platte-Cherry Creek	HORSECREEK RESERVOIR	5,600	5
		MILTON RESERVOIR	19,991	45
		BARR LAKE	23,226	9
		STANDLEY RESERVOIR	31,000	17
		SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	36,000	45
		BOULDER CREEK NEAR ORODELL	51,000	45
		SAINT VRAIN CREEK AT LYONS	82,000	43
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	85,000	46
		CLEAR CREEK AT GOLDEN	96,000	41
		SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	44
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	46
10190012	Middle South Platte-Sterling	JULESBURG RESERVOIR	22,376	93
		PREWITT RESERVOIR	24,600	91
		JACKSON LAKE RESERVOIR	27,256	78
		EMPIRE RESERVOIR	33,818	72
		SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	36,000	45
		BOULDER CREEK NEAR ORODELL	51,000	45
		RIVERSIDE RESERVOIR	62,052	99
		POINT OF ROCKS RESERVOIR	70,000	78
		SAINT VRAIN CREEK AT LYONS	82,000	43
		BIG THOMPSON R AT MOUTH, NR DRAKE, CO	85,000	46
		CLEAR CREEK AT GOLDEN	96,000	41
		SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	44
		CACHE LA POUDRE R AT CANYON MOUTH	215,000	46
10190001	South Platte Headwater	ANTERO RESERVOIR	19,900	58
		SPINNEY MOUNTAIN RESERVOIR	23,800	26
		ELEVENMILE CANYON RESV INFLOW	42,000	29
		ELEVENMILE CANYON RESERVOIR	94,600	8
10190005	St. Vrain	MARSHALL RESERVOIR	5,800	24
		TERRY RESERVOIR	6,200	89
		UNION RESERVOIR	6,837	9
		GROSS RESERVOIR	7,700	30
		BUTTONROCK (RALPH PRICE) RESERVOIR	15,241	97
		SOUTH BOULDER CK NR ELDORADO SPRINGS, CO	36,000	45
		BOULDER CREEK NEAR ORODELL	51,000	45
		SAINT VRAIN CREEK AT LYONS	82,000	43

HUC ID	HUC Name	Component Name	Component Volume (AF)	Component NEP by Month
10190002	Upper South Platte	CHEESMAN LAKE	49,965	6
		SOUTH PLATTE RIVER AT SOUTH PLATTE	139,000	44
		DILLON RESERVOIR	194,400	19
14050003	Little Snake	LITTLE SNAKE RIVER NEAR LILY	210,000	30
14050002	Lower Yampa	YAMPA RIVER NEAR MAYBELL	510,000	14
10180001	North Platte Headwaters	NORTH PLATTE R NR NORTHGATE	167,000	35
14050005	Upper White	WHITE RIVER NEAR MEEKER	167,000	21
14050001	Upper Yampa	YAMCOLO RESERVOIR	5,247	11
		STAGECOACH RESERVOIR NR OAK CREEK	32,400	84
		ELKHEAD CREEK ABOVE LONG GULCH	37,000	21
		YAMPA RIVER AT STEAMBOAT SPRINGS	140,000	6
		ELK RIVER NEAR MILNER, CO	230,000	19

NEP is non exceedance percentage (percentile) for volume of the component compared to this month during the historical period 1980-2020.

*No longer exists

Water Volume NEP Color Scale: 0 (Well Below Normal) | 50 (Normal) | 100 (Well Above Normal)

3

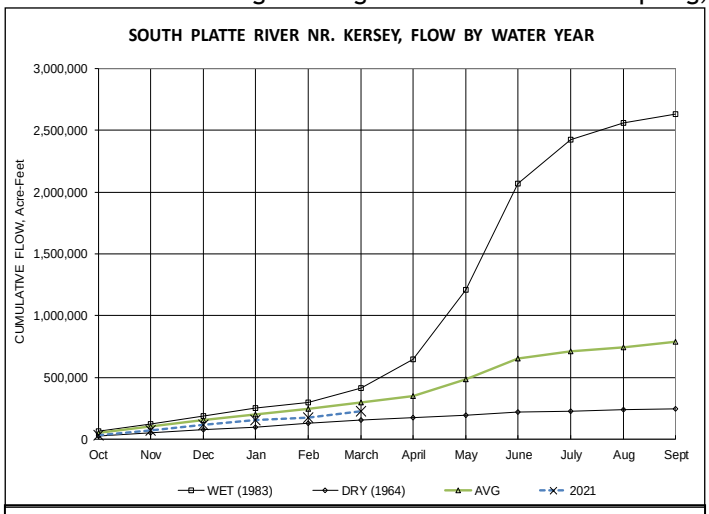
Basinwide Conditions Assessment

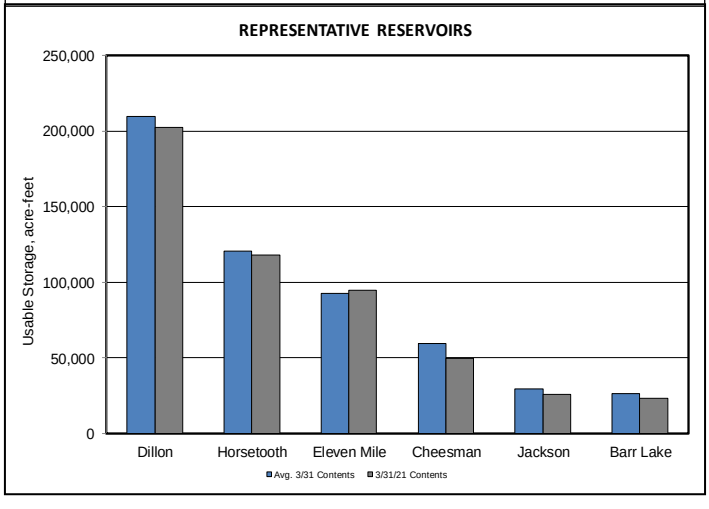
The SWSI value for the month was -0.6.

The South Platte River basin in northeastern Colorado enjoyed the trend from February through March of above average precipitation throughout the basin, with 125% of average monthly March precipitation. Accumulating snowpack in the mountainous areas during February through March improved the South Platte River basin conditions, as reported by the USDA South Platte Basin High/Low Snowpack Summary, from near 80% of average on February 1, to near 90% on March 1, increasing to at or near 100% of average on April 1. Temperatures during the month of March were near average to slightly below in the mountains, foothills, and central plains, and slightly above average temperatures of approximately 1-2 degrees Fahrenheit in the far eastern plains. The USDA NRCS Colorado Streamflow Forecasts Summary for March 1, 2021 improved during the month of March in mountain tributaries north of Clear Creek from a February 1 projection of 70-89% to 90-109% of Average. The southerly portion of the South Platte River basin maintained a projection in the range of 70-89%.

Above average precipitation throughout much of the basin during February and March helped to improve drought conditions throughout much of the South Platte and Republican River basins. Late February into early March the basin was split from between the north and south portions of the basin from the plains to the Continental Divide, with a a USDA Drought Monitor rating of D3 (Extreme drought) throughout the southerly portion of the basin, from Arapahoe County south, and a rating of D2 (Severe Drought) throughout the northern portion of the basin. The basin improved throughout the month ending the month of March with a rating of D2 in Counties south of Clear Creek, Arapahoe, and Morgan Counties. Counties located to the south of these counties ended the month of March with a rating of D1 (moderate drought), with portions of Larimer, Boulder, Weld, Morgan and Kit Carson Counties with a rating of D0 (abnormally dry).

The above average precipitation and cooler than average temperatures resulted in above average flows at the Kersey stream gage downstream of the City of Greeley, for the month of March with average daily flows of approximately 806 cfs, 115% of the historic mean value of 699 cfs. The continued high demand for diversion to storage in reservoirs and continued dry stream conditions in the lower portion of the basin resulted in average daily flows at the Julesburg gage for the month of March of 124 cfs, only 25% of the historic mean value of 506 cfs. The demand for filling of depleted reservoirs throughout Division 1, and warmer April temperatures resulting in demand from direct flow irrigation water rights, flows of native water in the rivers will continue the trend of below average throughout the Winter into Spring, especially at the Julesburg gage near the state line.



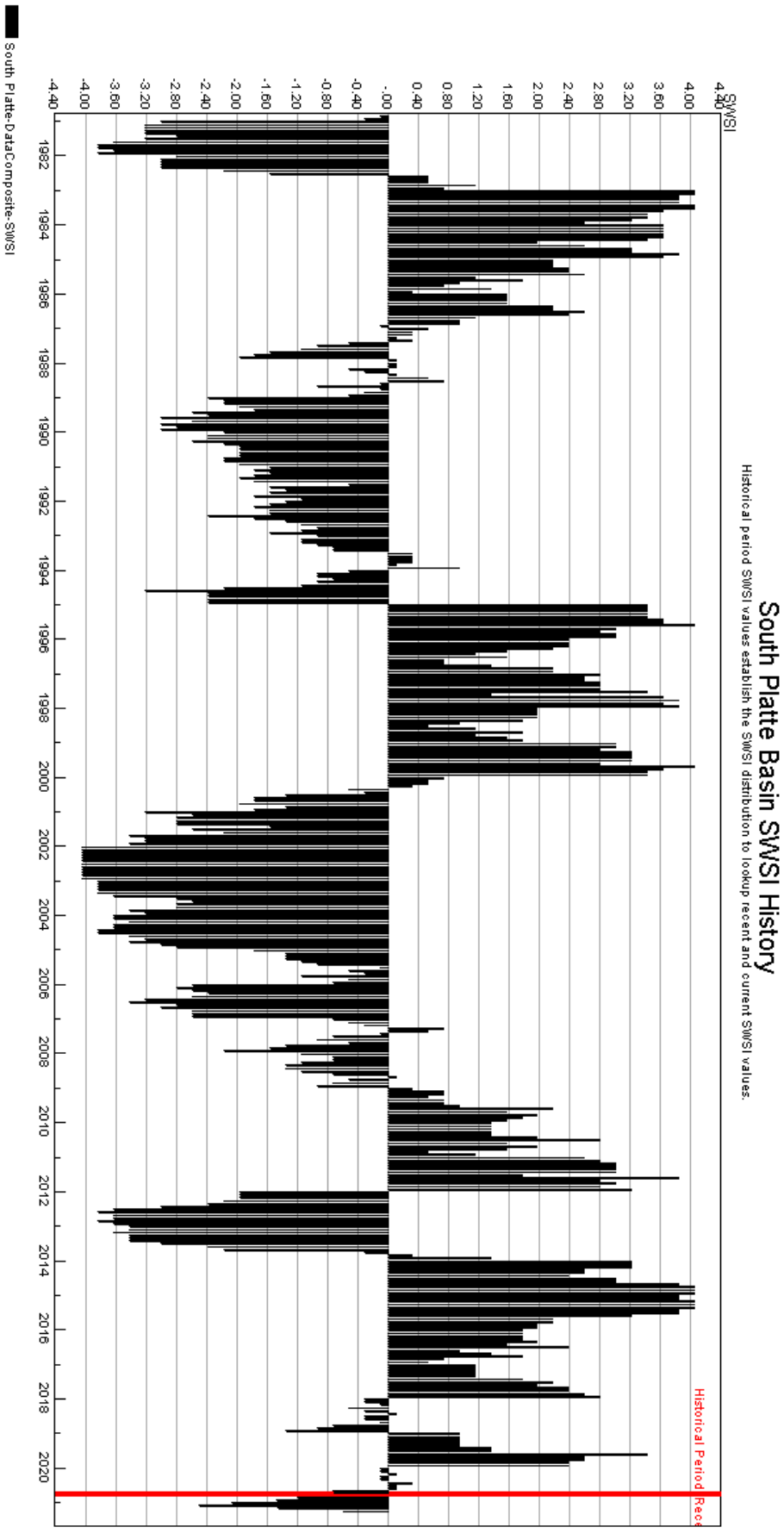


With the continued trend of below average streamflows, many reservoirs on the eastern plains continue to slowly fill in priority, resulting in senior calling water rights on the mainstem of the South Platte River and tributaries by reservoirs. Throughout much of the month of March, the controlling calls on the South Platte River mainstem on the upper end of basin were controlled by the Burlington Canal 1910 diversion located just below Denver for the filling of Barr Lake, and a Burlington Canal 1910 bypass to the Western Canal from March 10th through the end of the month. The middle portion of the South Platte River mainstem was controlled for the early portion of the month by junior reservoir refill rights or recharge water rights circa 1995 at the South Platte Ditch diversion located between the Town's of Brush and Sterling. The lower South Platte Compact Call was on March 5th through March 7, requiring all water rights in water district 64 (from the west Washington County Line to the state line) junior to June 14, 1897 to be curtailed (not divert). During the portions of March prior to March 5th and after March 7th, a more junior bypass call was placed at the stateline curtailing District 64 water rights junior to the dates ranging from 2003 in early March to 1980 in the later portions of March. These bypass junior calls were necessary to allow adequate flows at the state line after March 1 in accordance to the South Platte River Compact that requires flow of 120 cfs at the state line or curtailment of all diversions in water district 64 junior to June 14, 1897. Many tributaries have internal calls senior to those on the South Platte River controlling diversions within their individual sub-basins. It is anticipated with the

projected lower than average streamflows, below average snowpack, and dry soil conditions that senior calls will continue on the South Platte River basin during much of the Spring through the Summer without continued above average precipitation during that time.

Reservoir storage levels throughout the South Platte River mainstem ended the month of February slightly below the historical average at the 6 SWSI Representative Reservoirs (Dillon, Horsetooth, Eleven Mile, Cheeseman, Jackson, and Barr Lake) at 514,458 acre-feet volume, which is 96% of the long term average (1961-current). Additionally, 32 indexed reservoirs throughout Division 1 basin ended the month of March at 101% of the long term average with a storage volume of 886,993 acre-feet representing 78% of total full capacity for the reservoirs. This is slightly below the long term average of 77% of total full capacity for the end of March storage in the 32 indexed reservoirs throughout Division 1. With above average temperatures in early April, the demand for direct flow irrigation water rights is ramping up. This coupled with existing and projected below average native streamflows and below average snowpack will impact reservoir storage fill season which is typically November 1 through April 1, annually. Fortunately above average precipitation during the months of February and March allowed reservoirs on a basin wide basis to reach near average levels. However, several tributary drainage basins, such as the Big Thompson and St. Vrain Creek basins are at well below average reservoir storage levels and most likely will remain below average heading into the irrigation season.

The temperature and precipitation outlook into April, May, and June prepared by the National Weather Service, in northeastern Colorado indicates an 50-60% probability of above average temperatures and a 40-50% probability of below precipitation throughout the South Platte River Basin and Republican River Basin.

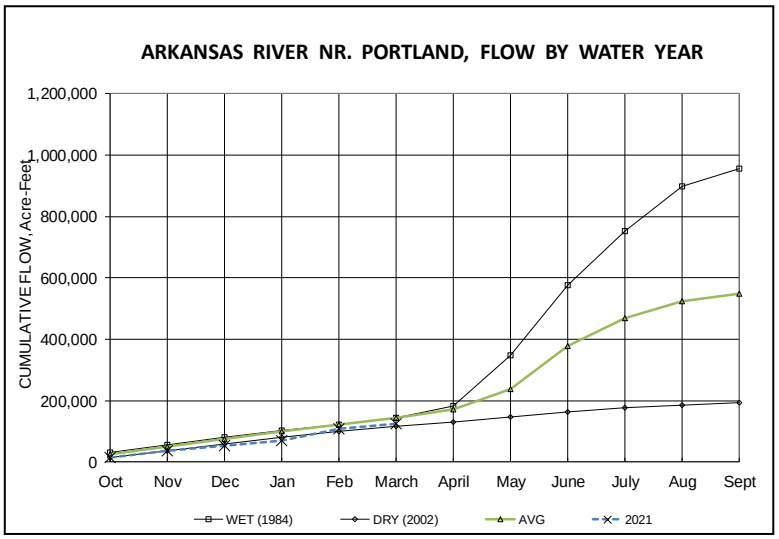


Basinwide Conditions Assessment

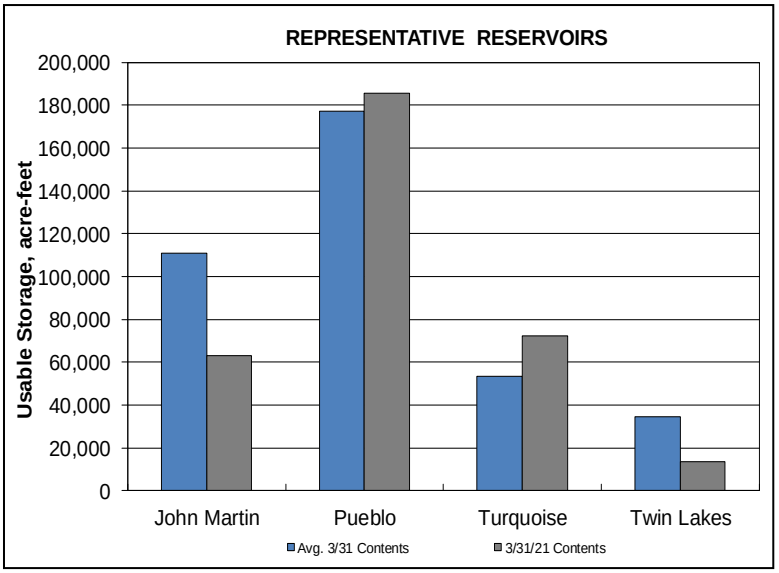
The SWSI value for the month was -1.4.

Outlook

Total distributed reservoir storage following the Pueblo Winter Water Program was 83,668 acre-feet, including 30,218 acre-feet in Pueblo Reservoir, 41,689 acre-feet in diversions to off-channel reservoirs, and 11,254 acre-feet in John Martin Reservoir (after distribution to accounts). Conservation Storage in John Martin Reservoir through March 14, 2020 totaled 13,525 acre-feet. Storage values were considerably below the 20-year average of 129,450 ac-ft for the Pueblo Winter Water Program and lower than the 1950-1975 pre-Winter Water Storage average of 23,024 ac-ft for Conservation Storage in John Martin Reservoir.



Snowpack in the basin increased to 110% of average by the end of March, thanks to heavy spring storms in the upper basin. This is up nearly 20% from the previous month and is higher than last year. Snowpack is significantly lower this year at 89% in the Upper Colorado River basin than last year at 110%. This snowpack makes up much of the Trans-basin imports into the Arkansas River Basin. Depending on Western Slope needs, this could potentially strain the supply and unless April rains in the basin alleviates the storage situation, runoff will likely end early.



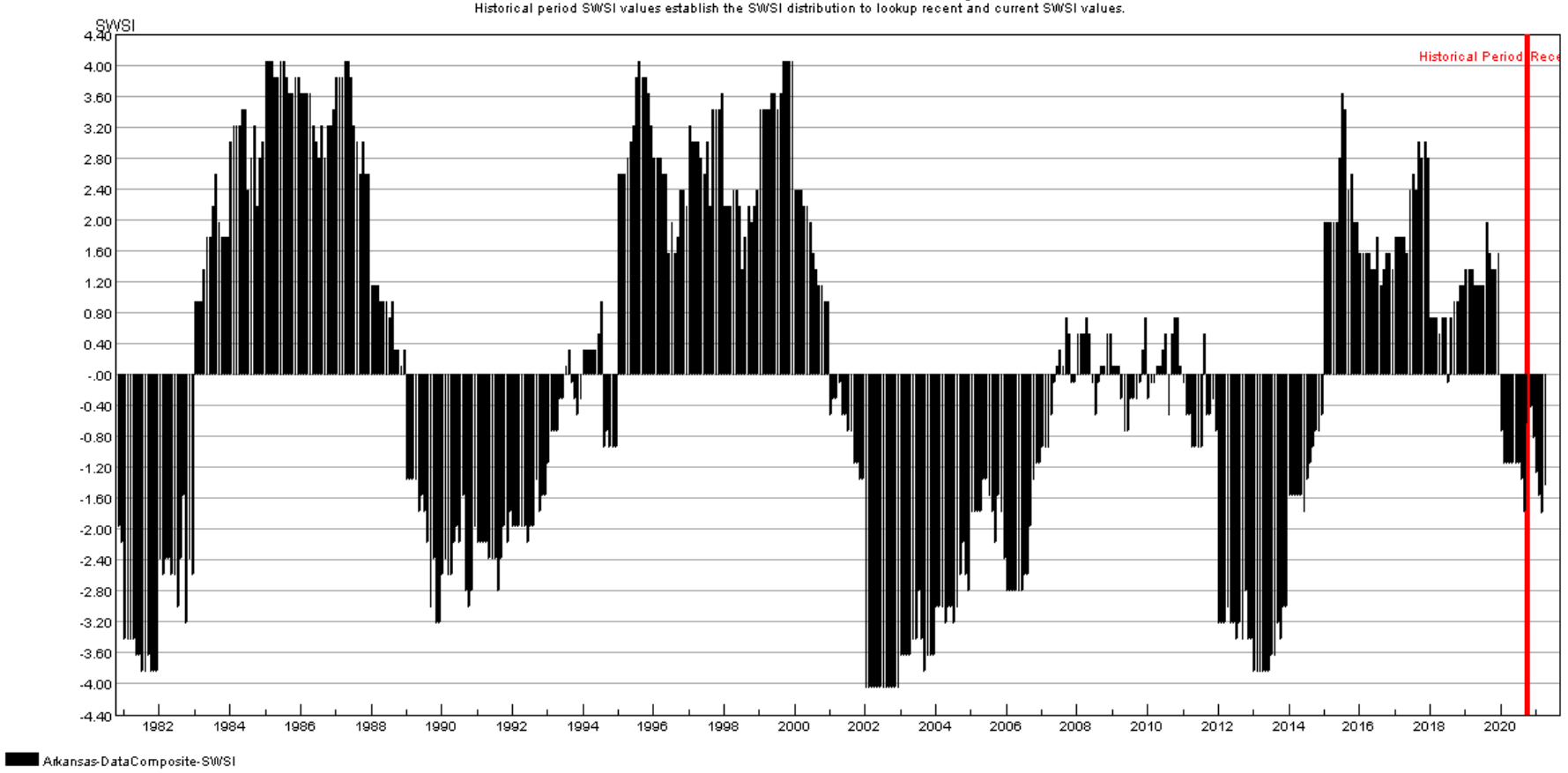
Administrative Concerns

The Bureau of Reclamation is forecasting imports from the Western Slope of approximately 52,000 ac-ft during the irrigation season, which is lower than last year and below average.

Rule 14 Plan review was completed, well pumping projections overall were reduced due to anticipated shortfalls in available augmentation supply yields for 2021. This is indicative of the dry forecast for all surface diversions for 2021.

Arkansas Basin SWSI History

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



Basinwide Conditions Assessment

The SWSI value for the month was -1.3.

Flow at the gaging station Rio Grande near Del Norte averaged 215 cfs (78% of normal). The Conejos River near Mogote had a mean flow of 70 cfs (79% of normal). Streamflow in the upper Rio Grande basin was generally below average during March as low-elevation snowpack was not plentiful for melt out.

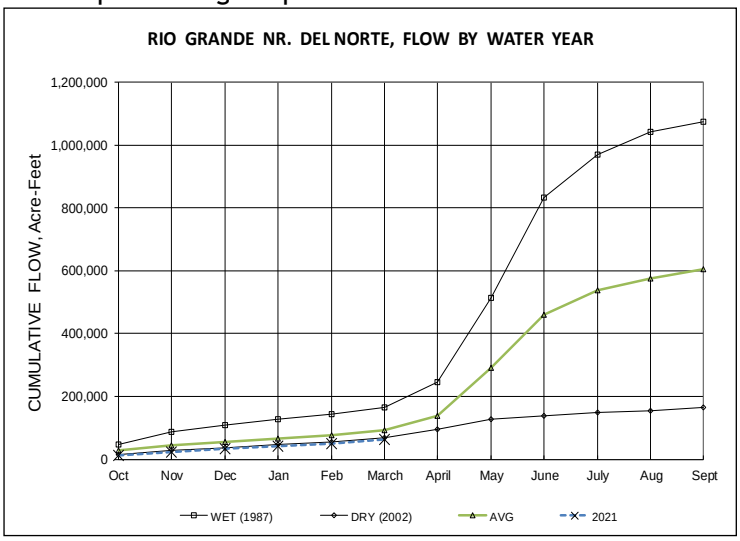
Temperatures in the San Luis Valley have been slightly warmer than the long-term average during the first three months of this year. The warmth is enjoyable for residents, but the dry conditions have water supply managers concerned about the 2021 runoff.

Fresh snowfall in the San Luis Valley and the surrounding mountains was good during March. The basinwide snowpack stayed above average until the first week of April when it stopped snowing in the upper Rio Grande basin. The area snowpack will almost certainly stay below the average the remainder of the year. It looks like 2021 will follow the same path as 2020, no significant spring snow to keep the early runoff on hold.

Outlook

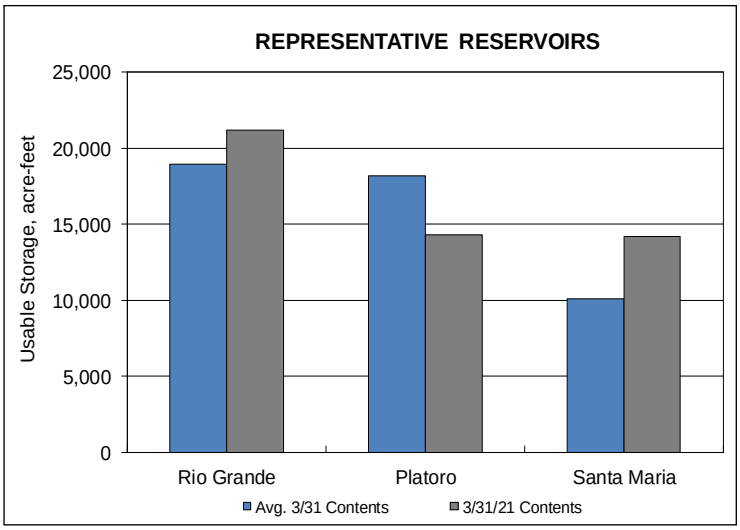
NOAA weather forecasts for the next three months call for below normal precipitation and well above normal temperatures. Relief from the dry conditions may not come until late summer this year.

The recent coordinated forecast by the NRCS and NWS predicts below average runoff conditions throughout the upper Rio Grande basin. The best forecast within the basin for April through September runoff is Costilla Creek at 117% of average. The Rio Grande at Del Norte is slated for 71%, the Conejos near Mogote at 79%, the Alamosa River at 75% and Culebra Creek at 96%. Low on the totem pole for 2021 is the Rio San Antonio at only 42% of average.



Administrative/Management Concerns

GROUNDWATER USE RULES are now in full effect for all of Water Division 3 with the exception of the Costilla Plain area as of March 15, 2021. As provided in the Case No. 2015CW3024 decree, the two year phase-in period has ended. Non-exempt well users are now required to have augmentation in place through an individual plan for augmentation, a blanket augmentation plan, or participation with a groundwater management subdistrict of the Rio Grande Water Conservation District. More information regarding these Rules can be obtained through the Division of Water Resources website at dwr.colorad.gov or calling the Division office at (719) 589-6683.

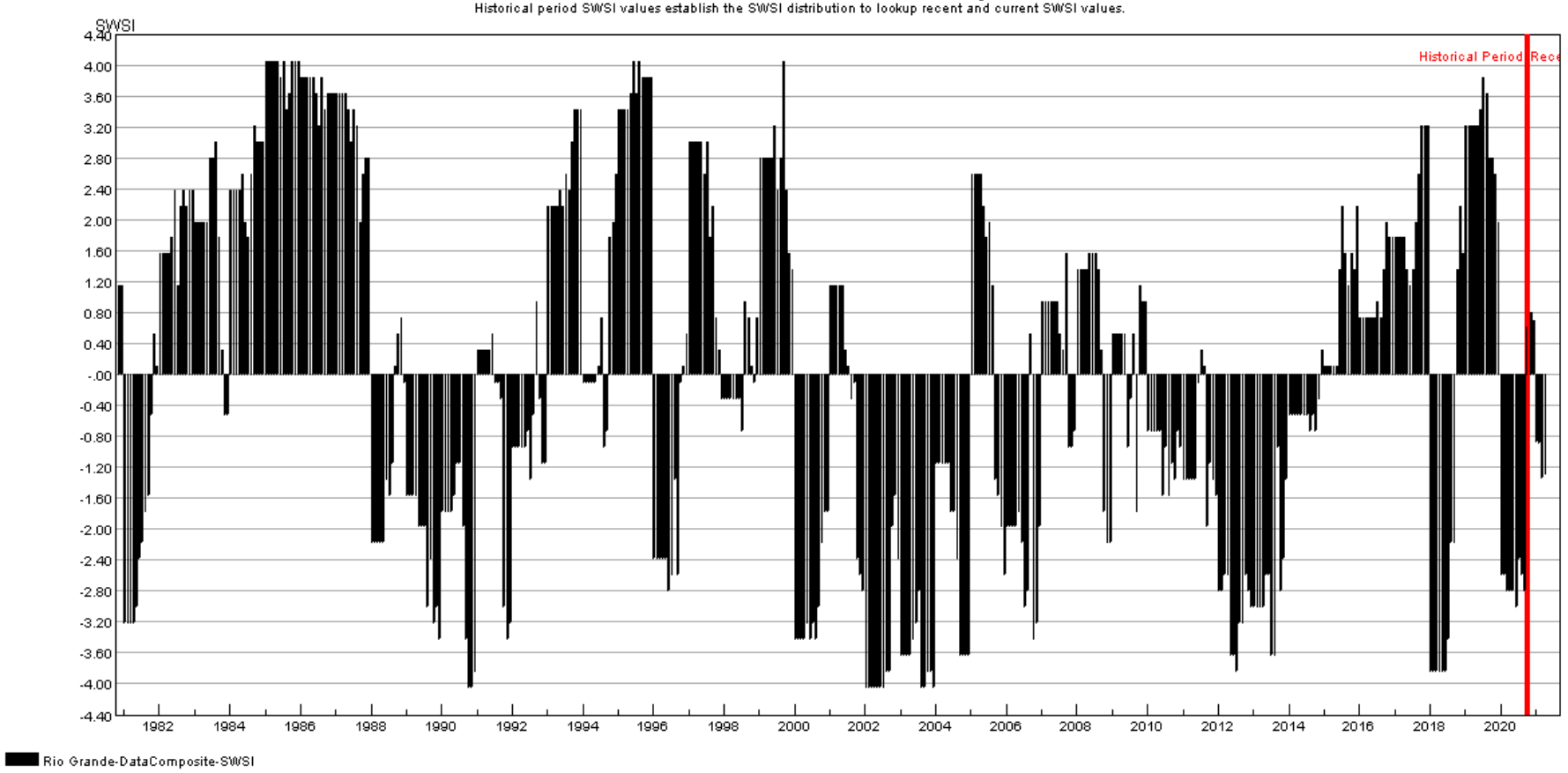


Public Use Impacts

Due to the warm and dry conditions, LaJara Creek opened irrigation season mid-March. All other drainages in Water Division No. 3 (the upper Rio Grande basin and its tributaries) began irrigation season diversions on April 1 with the exception of the Alamosa River that started on April 5.

Rio Grande Basin SWSI History

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



Basinwide Conditions Assessment
The SWSI value for the month was -3.0.

Basin Wide Conditions Outlook

The west and southwest portions of the Gunnison basin, including the Uncompahgre Plateau and San Juans, received just over 100 percent of average precipitation during March. However, for the water year, the basin has only measured 77 percent of average precipitation. The southern San Juans received the most precipitation and the resulting snowpack level rose to 97 percent of average. Even though snow conditions improved basinwide, the Grand Mesa and Upper Muddy Creeks continue to experience much drier than normal conditions, as measured by snow water equivalent (SWE) at the Snotel stations in those areas.

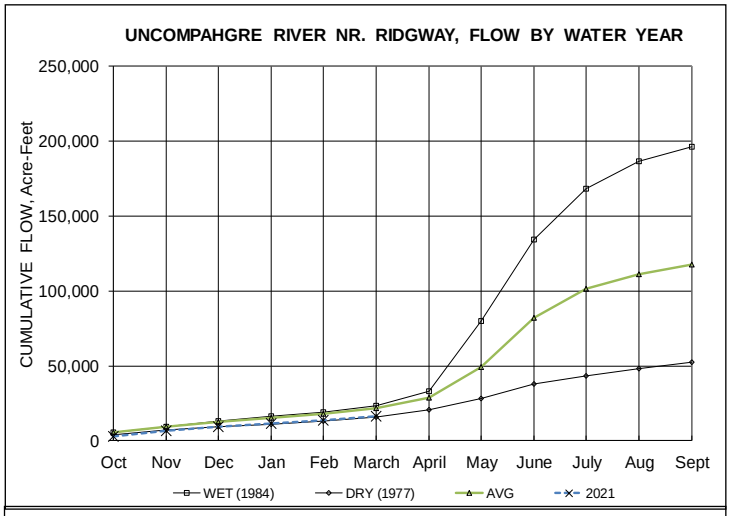
Outlook

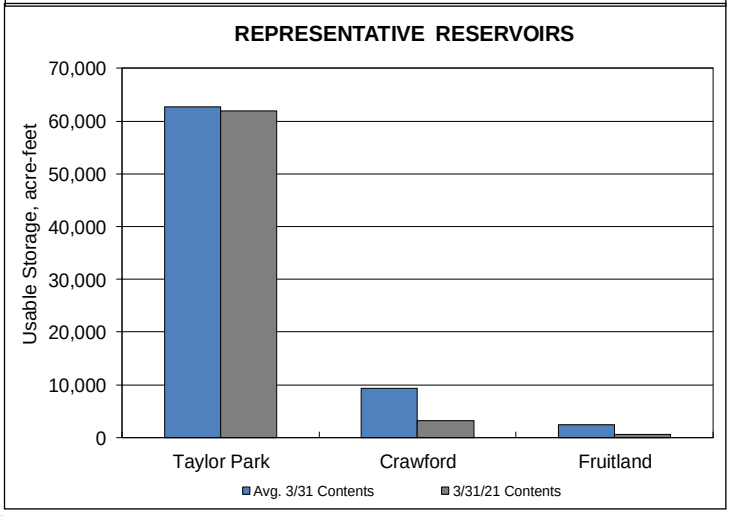
According to National Climate Prediction Center forecasts, the Gunnison basin remains between expected greater than average precipitation to the east and below average to the northwest. Streamflow forecasts prepared by the Colorado Basin River Forecast Center (CBRFC) on April 15th have declined and predict April to July runoff into Blue Mesa Reservoir to be 65 percent of the average. Forecasts for the Uncompahgre River into Ridgway Reservoir and the North Fork Gunnison into Paonia Reservoir are expected to be 62 and 58 percent of the median, respectively. These values remain below the SWE percentages because of expected infiltration into soils dried out by the hot and dry fall weather.

Administrative/Management Concerns

Dry conditions, which resulted in early demand from onion and winter wheat farmers, caused the Uncompahgre Valley Water Users Association (UVWUA) to turn 400 cfs into the Gunnison Tunnel on March 18th. On April 1st, they increased diversions to over 600 cfs, allowing the South Canal hydropower facilities to operate. The UVWUA reached full diversion of over 1,000 cfs April 16th.

The CBRFC April 15th forecast for April to July runoff into Blue Mesa Reservoir was 440,000 acre-feet, or 77 percent of median. If that level of snowpack holds until May 1st, it would place the basin in the "moderately dry" category as defined in the Aspinall Unit Operations EIS Record of Decision and would result in a 4.990 cfs single day target peak flow at the Gunnison River near Grand Junction gage. There is no required duration for the peak flow in a moderately dry year. Base flow target values would be 1,050 cfs for June and July and drop to 890 cfs in August and September, which is enough to keep the Redlands Power Canal running and provide the flows necessary to operate the fish ladder and fish screen at their diversion dam.





Growers in the Cedaredge area will face severe water shortages this season as the carry over storage was the worst record in the reservoir for at least 100 years. The early record freeze in October 2020 damaged many of the fruit trees and killed any newly planted orchards. Even if temperature conditions are favorable this spring, most of the apple and cherry orchards do not have viable buds for producing fruit this season.

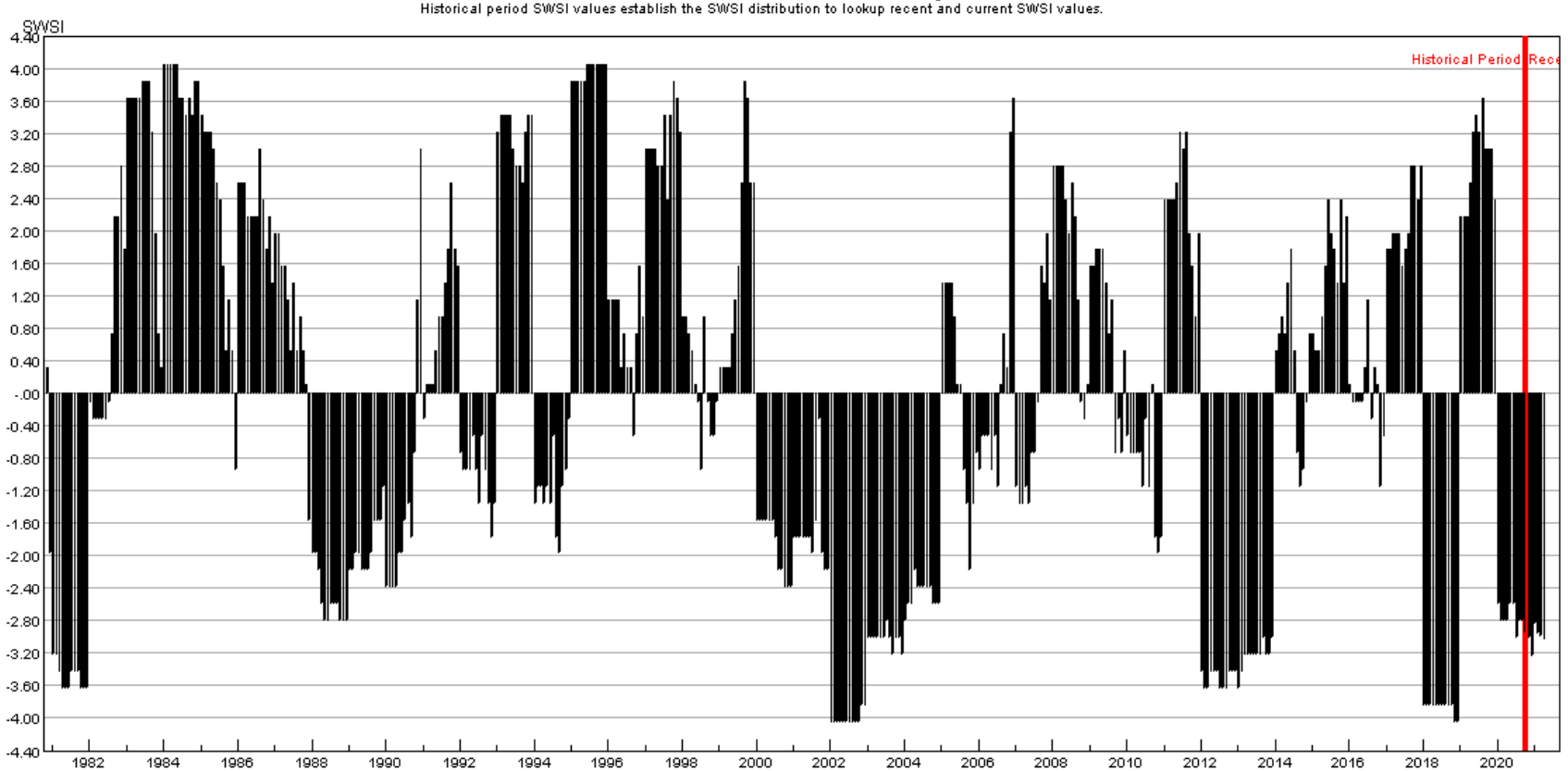
While COVID-19 has resulted in impacts to many areas of the Gunnison basin economy, the Division of Water Resources Water Commissioners have begun another irrigation season doing what they do best, helping agriculture maximize the beneficial use of water to produce food. Division 4 water commissioners have continued performing their essential jobs that can't be done virtually, but have easily been modified to comply with social distancing practices by limiting in-person contact with water users.

Public Use Impacts

The East Portal access to the Black Canyon of the Gunnison will remain closed this season due to a road construction project designed to improve safety and stabilize cliff faces where falling rocks are causing road damage. In addition, road construction on a four mile section of Highway 50 in the Blue Creek canyon area will close the highway intermittently for the next two years. For more information go to www.us50info.com.

Gunnison Basin SWSI History

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



Basinwide Conditions Assessment

The SWSI value for the month was -2.6.

Outlook

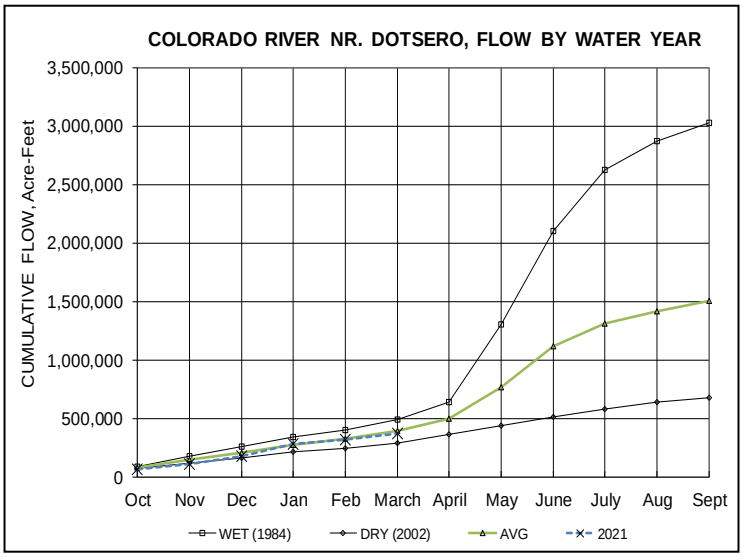
Colorado River flows are currently running below average and forecast to run below average through April with tributary flows also running below average throughout April. As of April 16th, the Upper Colorado River Basin snowpack was 68 percent of median snow water equivalent and 74 percent of average precipitation. Above average to average temperatures and below average precipitation are forecast for April.

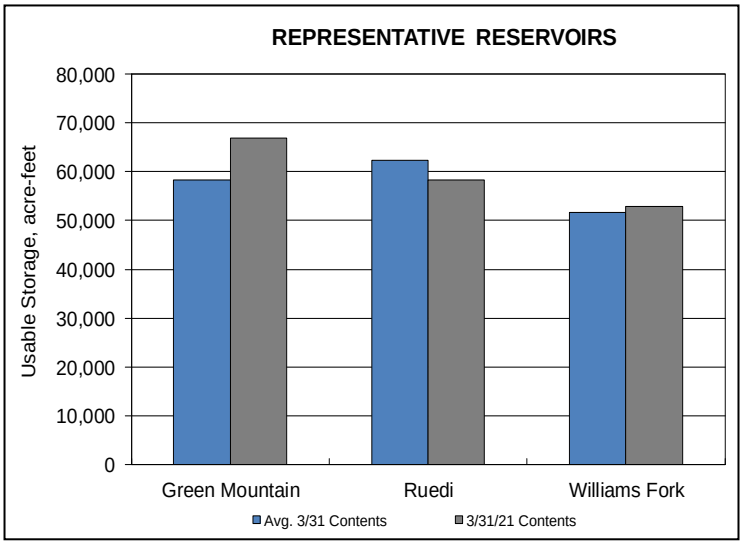
Administrative/Management Concerns

The call on the Colorado River main stem is the Cameo Grand Valley Canal. Accordingly, Green Mountain Reservoir is releasing to pass inflows, provide contract and HUP obligations and make C-BT replacements. Grand Valley Irrigation diversions (Government Highline/Orchard Mesa Irrigation, Grand Valley Irrigation canals) are now running and are at or near full capacity.

Public Use Impacts

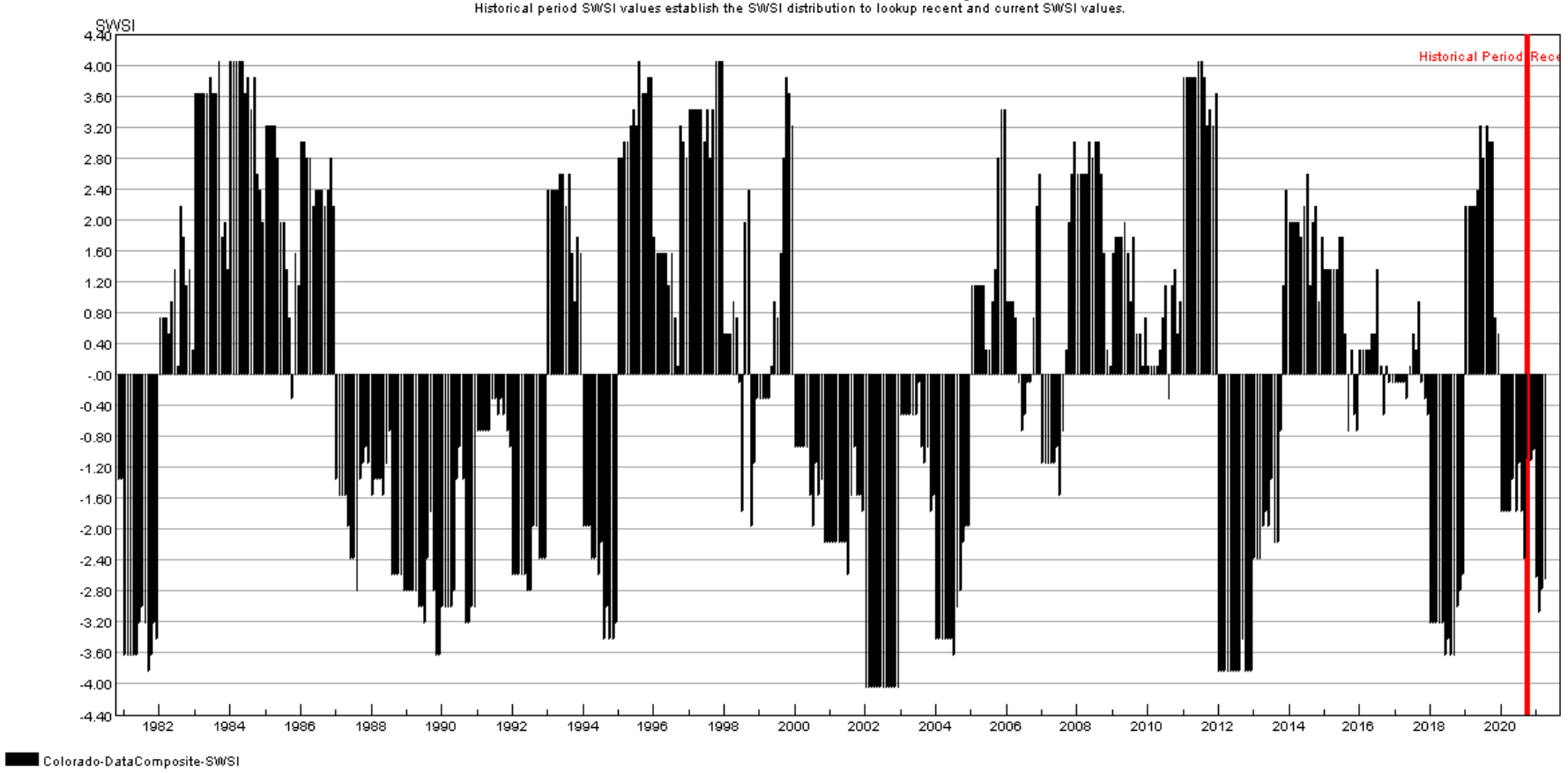
The Roaring Fork River may gain an additional 100 acre-feet of water with the approval of the first reading of the intergovernmental agreement and memorandum of understanding between Pitkin County and the city of Aurora as part of a settlement from a 2018 water court case. This agreement allows Aurora to divert more water out of the Frying Pan River basin through the Busk-Ivanhoe system and leave more water in the Roaring Fork River. This agreement could also mean less releases from Ruedi Reservoir which is better for anglers on the gold medal waters of the Frying Pan River.





Colorado Basin SWSI History

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



Basinwide Conditions Assessment

The SWSI value for the month was -2.0.

Snowpack *(25 sites)* – Yampa and White River basins were 84% of the monthly median for SWE. This is down from last year's SWE median of 107%. The North Platte River basin was 93% of the monthly median for SWE and is down from last year's SWE median of 114%. For the entire Yampa, White and North Platte River basins the lowest percent of median was at the Rabbit Ears SNOTEL site at 65%. The highest percent of median was at the McIntyre SC station at 132%.
**Averages are from 1981-2010 records*

Precipitation (24 sites) – Yampa and White River basins were 76% of the monthly average, putting the basin at 76% of average for the water year to date. This is down from last year's monthly average of 85%, and down from last year's water year to date of 100%. North Platte River basin was 78% of the monthly average, putting the basin at 88% for the water year to date. This is down from last year's monthly average of 88%, and down from last year's water year to date of 110%. For the entire Yampa, White and North Platte River basins the lowest percent of average, at 40%, was the Tower SNOTEL station. The highest, at 144%, was the Roach SNOTEL station, with 5.2 inches.
**Averages are from 1981-2010 records*

Temperatures – The average monthly temperature for NOAA Colorado Climate Division 2: Colorado River Drainage was 33.0° F. This is +2.2°F from the average of 30.8°F. This temperature ranks 86 for the lowest of the previous 127 years of data. For the NOAA Colorado Climate Division 4: Platte Drainage, the average temperature was 34.8°F, +1.6°F from the average of 33.2°F, ranking 74.
**Averages are from 1901-2000 records*

Reservoir Outlook

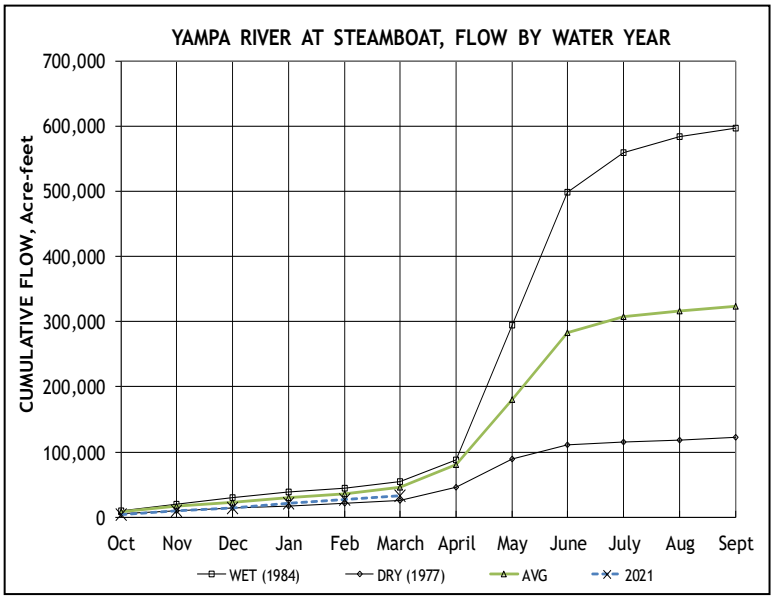
Elkhead Reservoir – February 28, 2021 capacity level was 16,002 AF of 25,550 AF – 62.6% capacity.

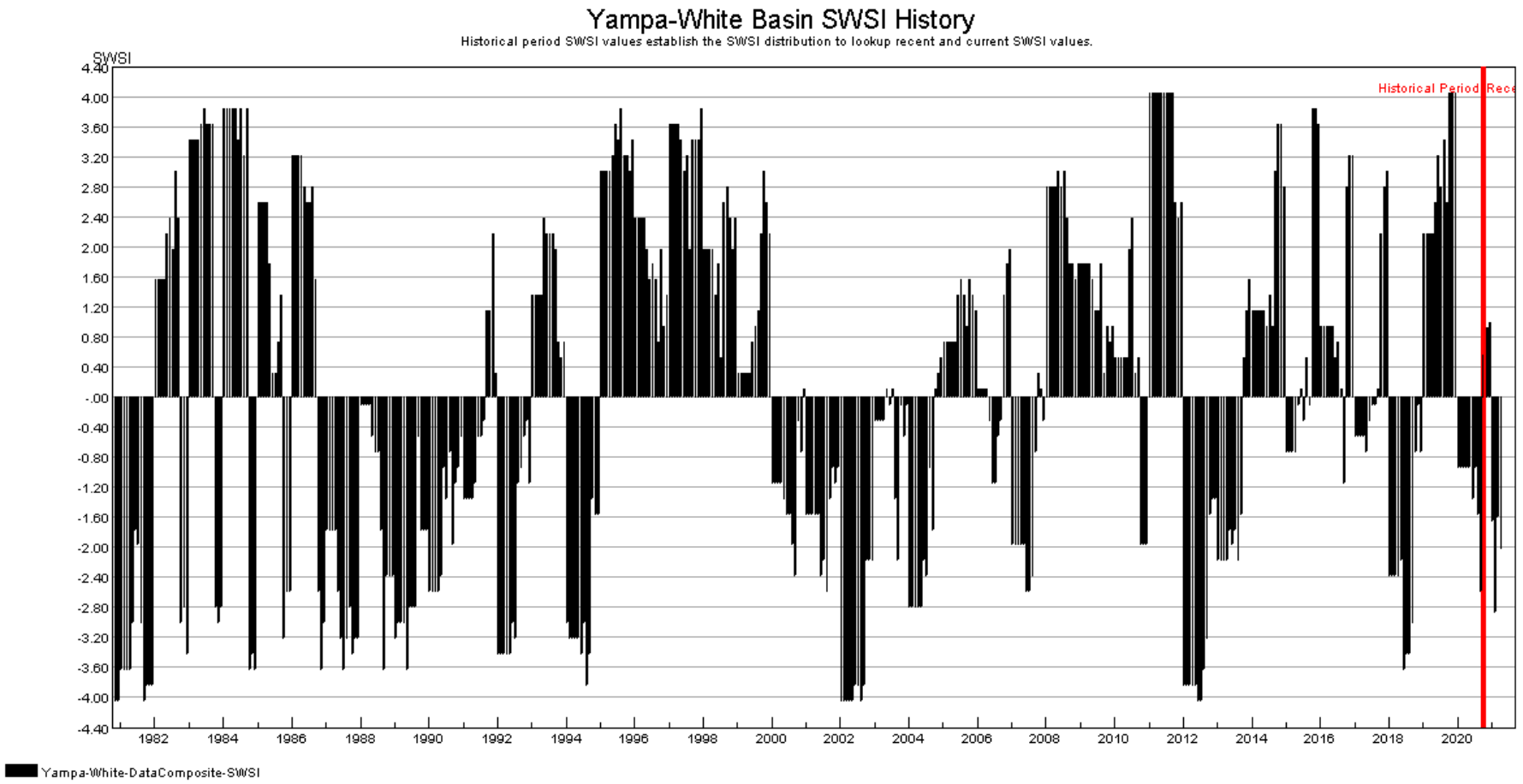
Fish Creek Reservoir – March 31, 2021 elevation was 9863.1' at 1,610 AF of 4,160 AF – 38.6% capacity.

Stagecoach Reservoir – March 31, 2021 capacity level was 32,400 AF of 36,500 AF – 89% of capacity, 119% of average, 95% of last year.

Yamcolo Reservoir – March 31, 2021 capacity level was at 5,200 AF of 8,700 AF – 60% of capacity, 80% of average, 64% of last year.

**Averages are from 1901-2000 records*




Yampa-White Basin SWSI History
Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.
SWSI
4.40
4.00
3.60
3.20
2.80
2.40
2.00
1.60
1.20
0.80
0.40
-.00
-0.40
-0.80
-1.20
-1.60
-2.00
-2.40
-2.80
-3.20
-3.60
-4.00
-4.40
Historical Period
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
Yampa-White-DataComposite-SWSI

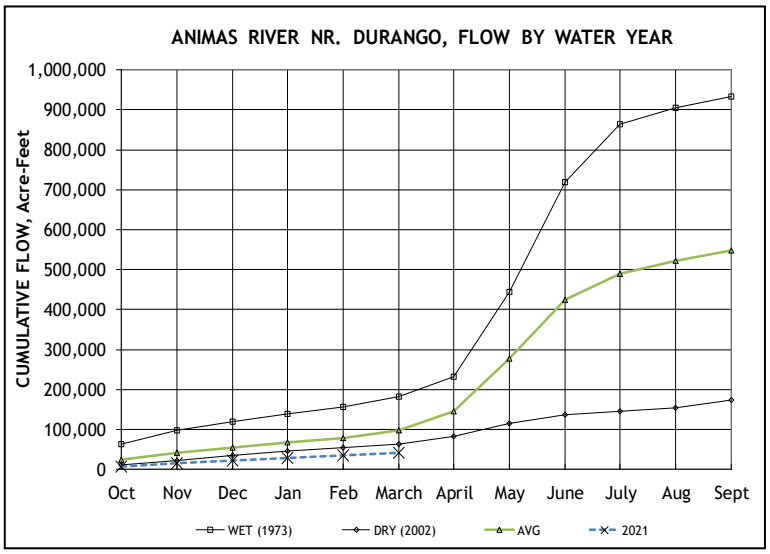
Basinwide Conditions Assessment

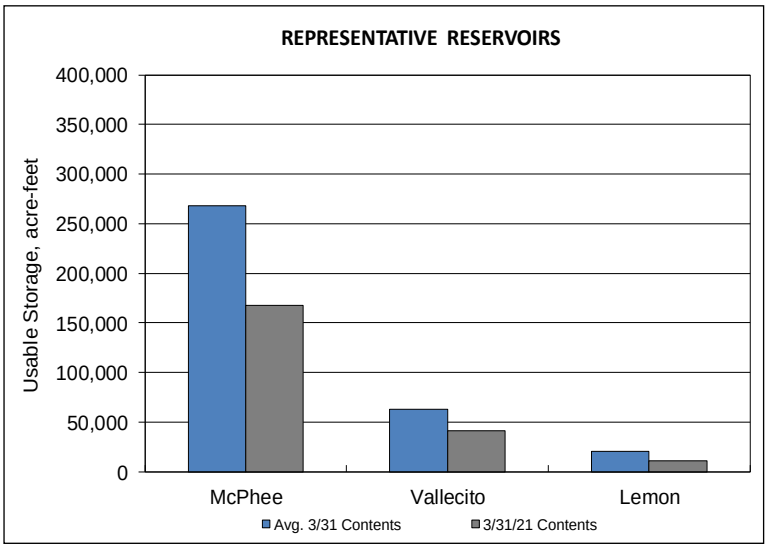
The SWSI value for the month was -3.2.

Flow at the Animas River at Durango averaged 108 cfs (35% of average). The flow at the Dolores River at Dolores was estimated to average 45 cfs (33% of average). The La Plata River at Hesperus was estimated to average 4.8 cfs (29% of average). Precipitation in Durango was 1.02 inches for the month, 78% of the 30-year average of 1.31 inches. Precipitation to date in Durango, for the water year is 5.41 inches, 55% of the 30-year average of 9.89 inches. The average high and low temperatures for the month of March in Durango were 54º and 25º. In comparison, the 30-year average high and low for the month is 55º and 26º. At the end of the month Vallecito Reservoir contained 45,185 acre-feet compared to its average content of 58,571 acre-feet (77% of average). McPhee Reservoir was up to 169,363 acre-feet compared to its average content of 271,554 (62% of average), while Lemon Reservoir was up to 11,410 acre-feet as compared to its average content of 20,330 acre-feet (56% of average).

Outlook

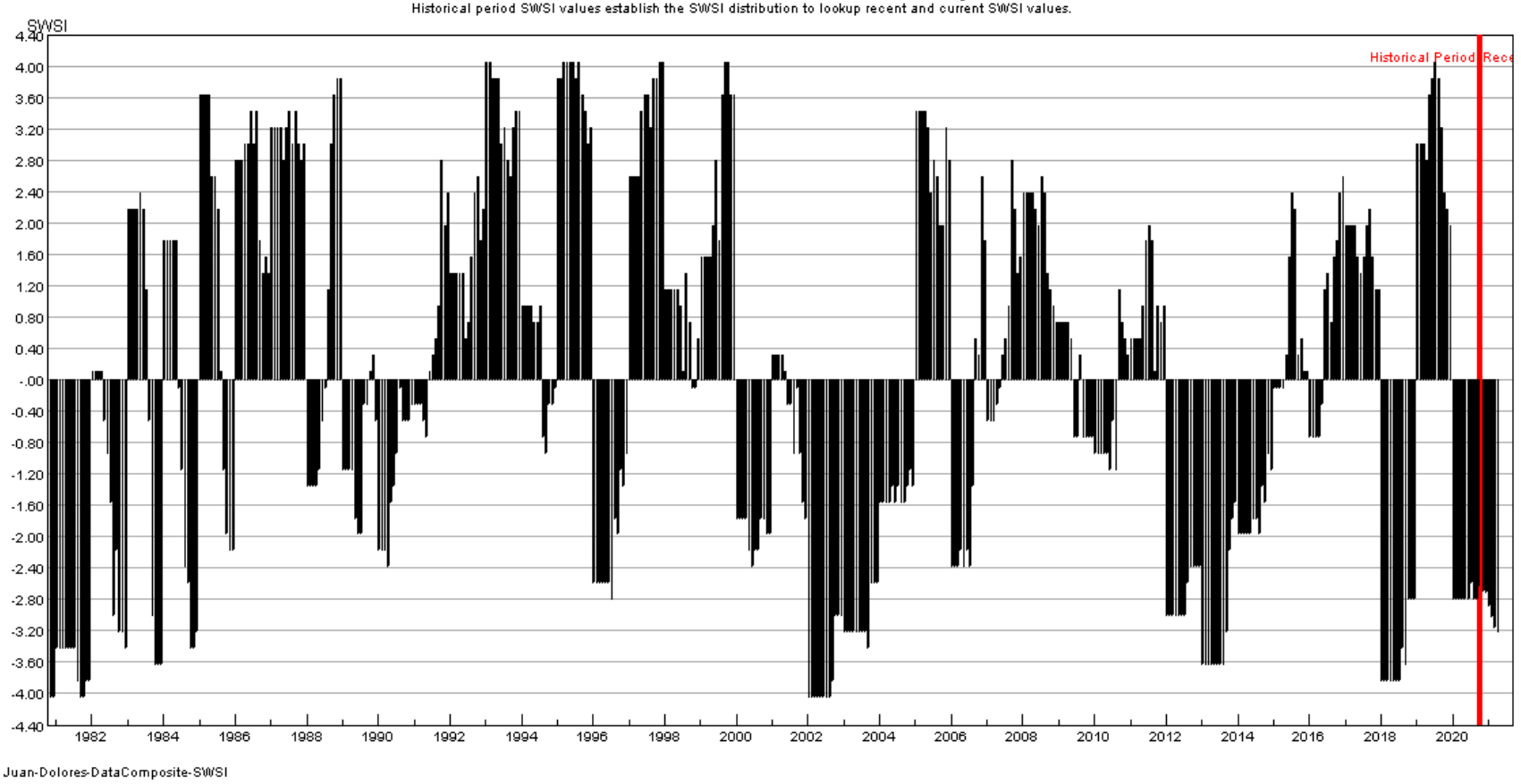
Precipitation (1.02 inches) was below average for March in Durango. There were 76 years out of 126 years of record where there was more precipitation than this year. With the lack of moisture in the area, the flows in the rivers remain well below average for the month. This is the worst period of record on the Animas River at Durango stream gauge out of 111 years of record. There were 106 out of 110 years of record where the total flow past the Dolores stream gauge was more than this year. There were 101 out of 104 years of record where the total flow past the La Plata River at Hesperus gauge was more than this year. All of the reservoirs within the basin are well below average for this time of year. On March 31, the NRCS SNOTEL sites reported an average snow-water-equivalent within the basin at 85%. Last month the average snow-water-equivalent at the end of the month was 80%.





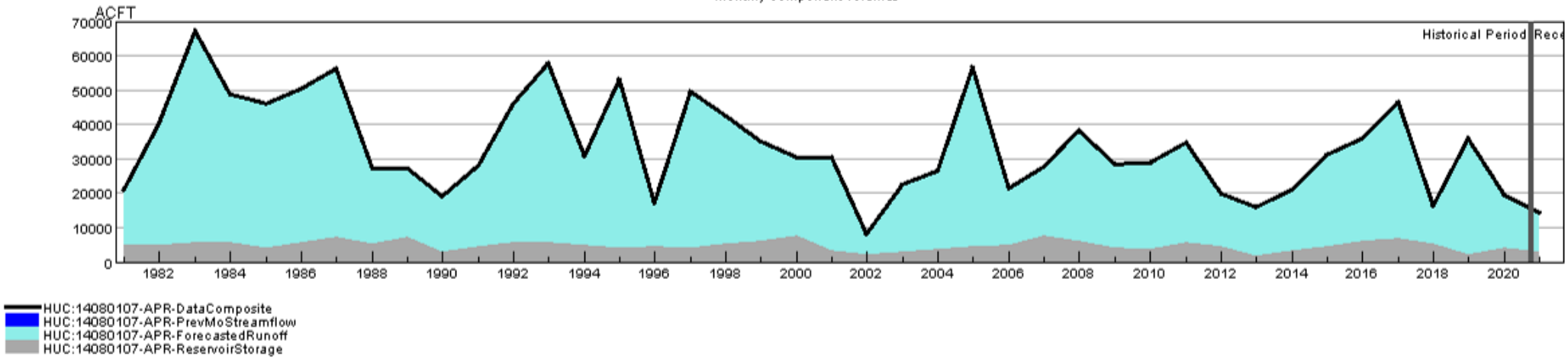
San Juan-Dolores Basin SWSI History

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



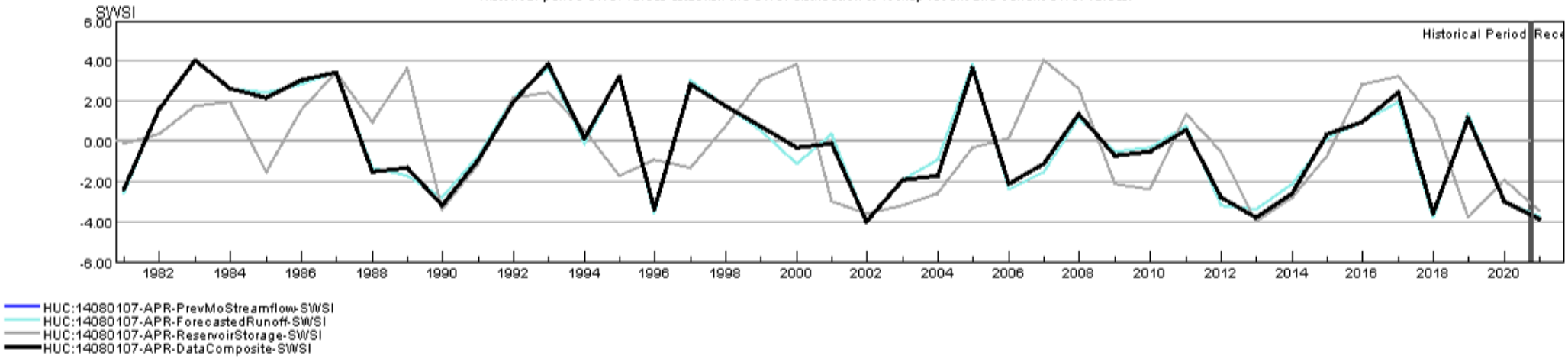
HUC 14080107 (Mancos) Surface Water Supply - APR

Monthly component volumes



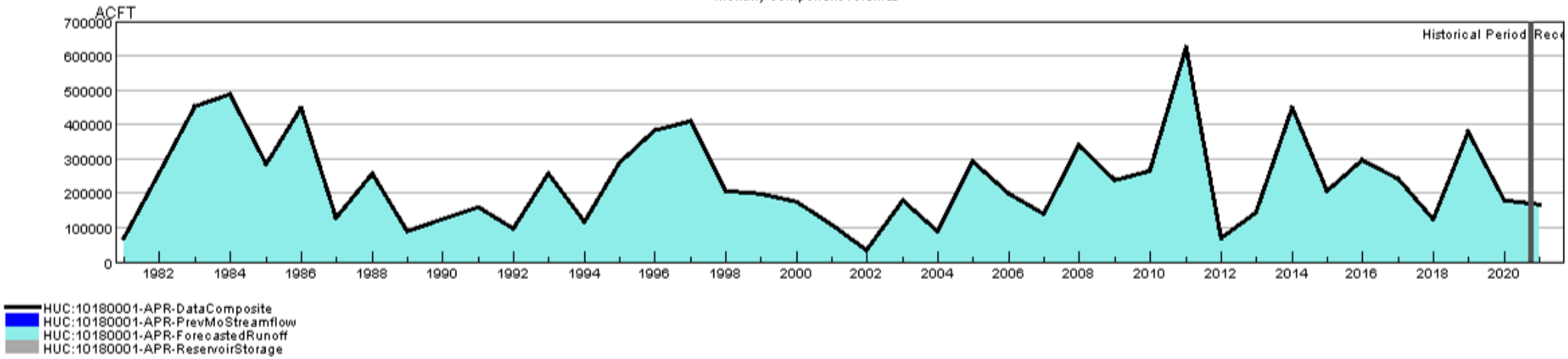
HUC 14080107 (Mancos) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



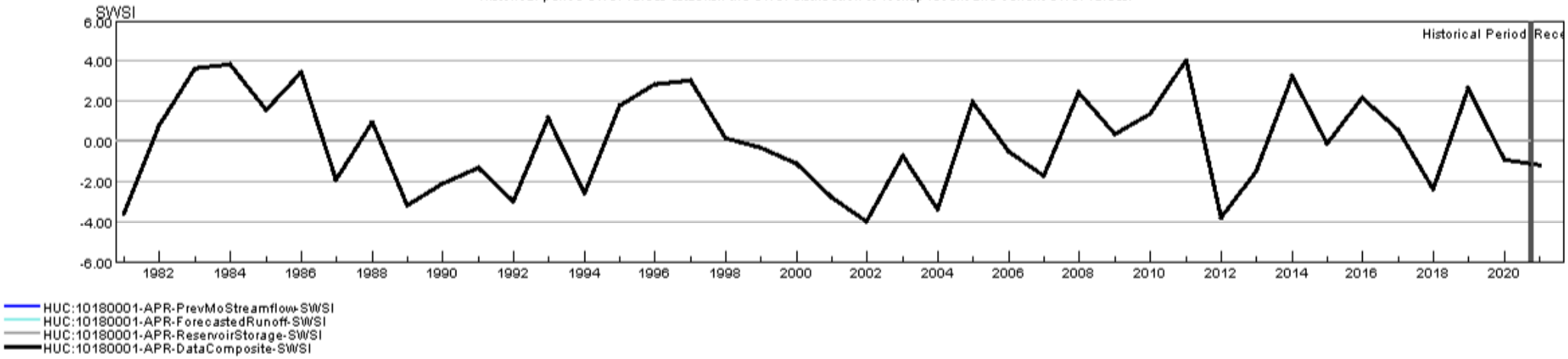
HUC 10180001 (North Platte Headwaters) Surface Water Supply - APR

Monthly component volumes



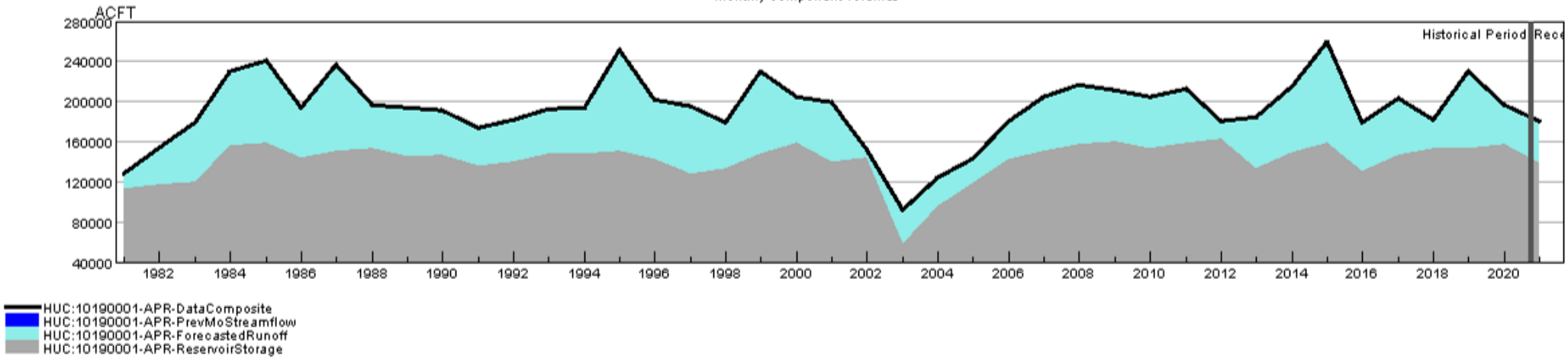
HUC 10180001 (North Platte Headwaters) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



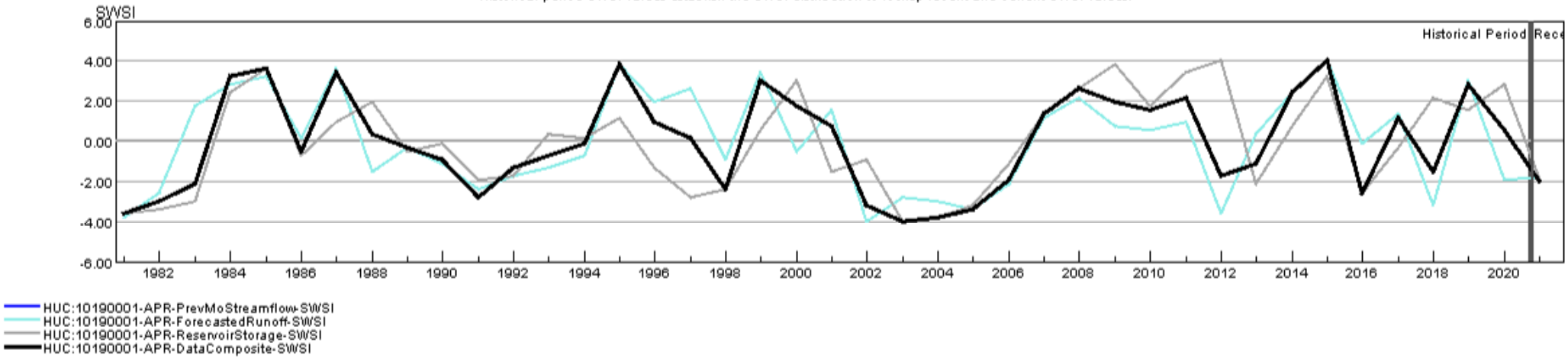
HUC 10190001 (South Platte Headwater) Surface Water Supply - APR

Monthly component volumes



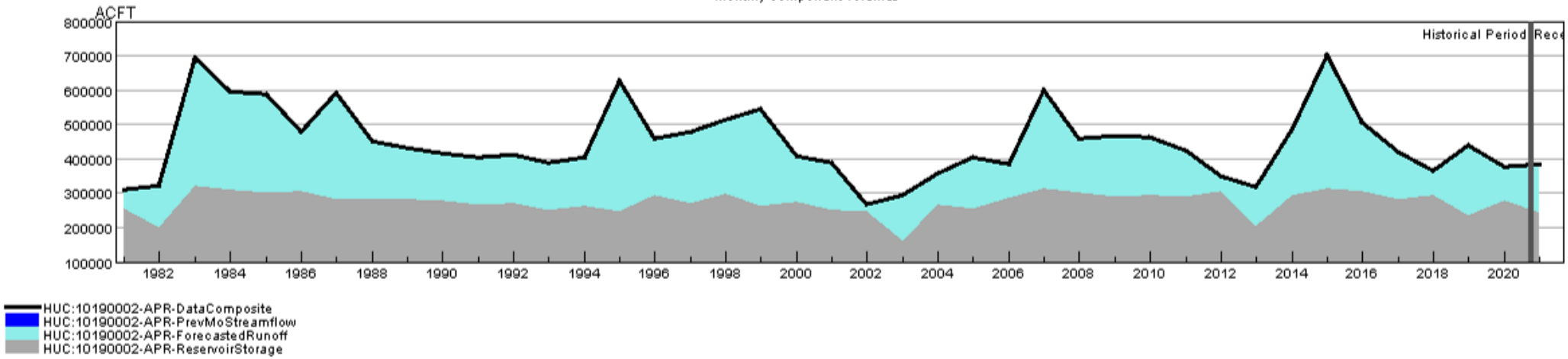
HUC 10190001 (South Platte Headwater) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



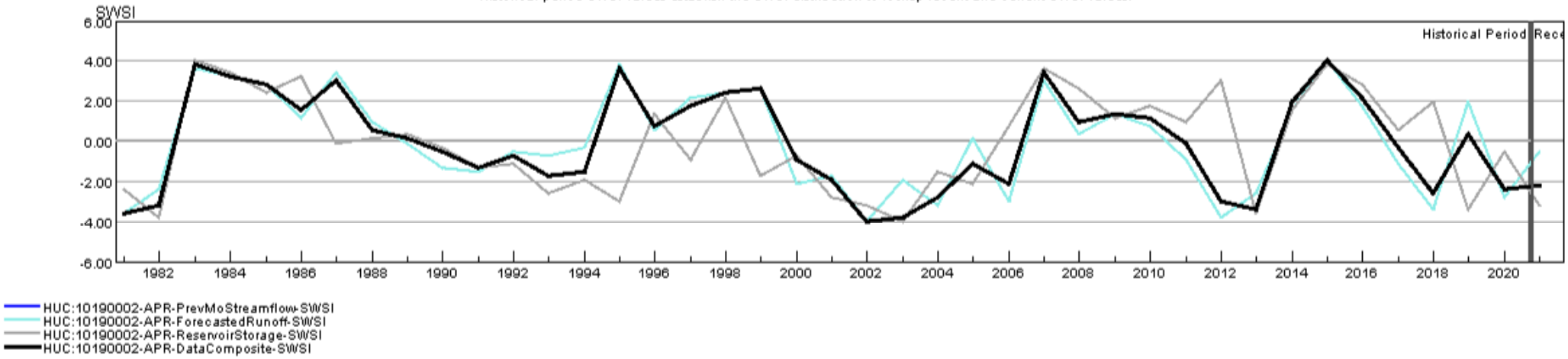
HUC 10190002 (Upper South Platte) Surface Water Supply - APR

Monthly component volumes



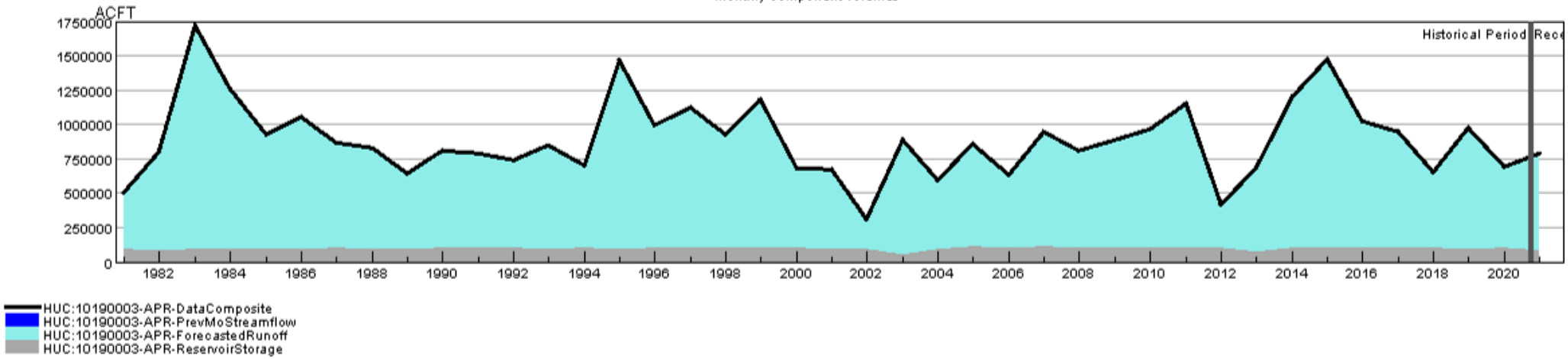
HUC 10190002 (Upper South Platte) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



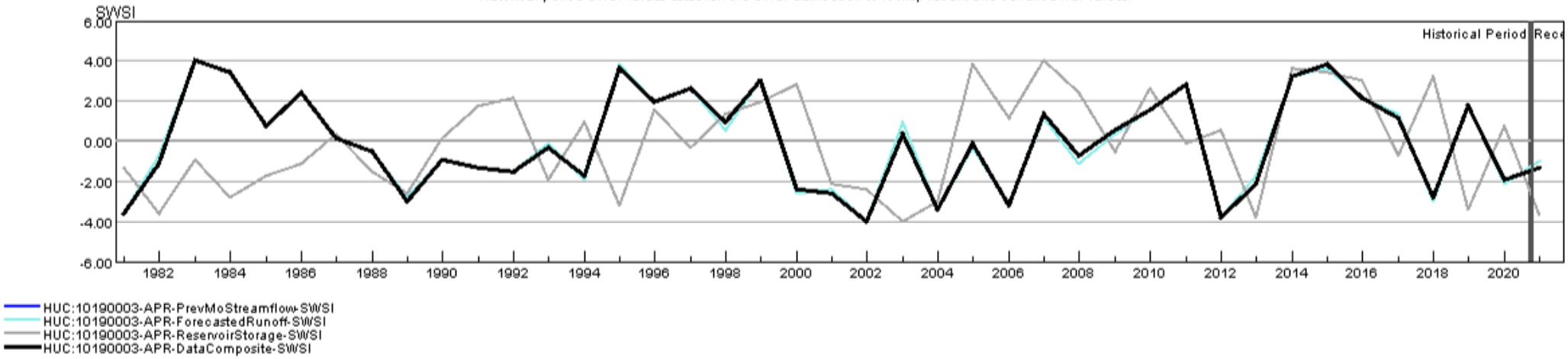
HUC 10190003 (Middle South Platte-Cherry Creek) Surface Water Supply - APR

Monthly component volumes



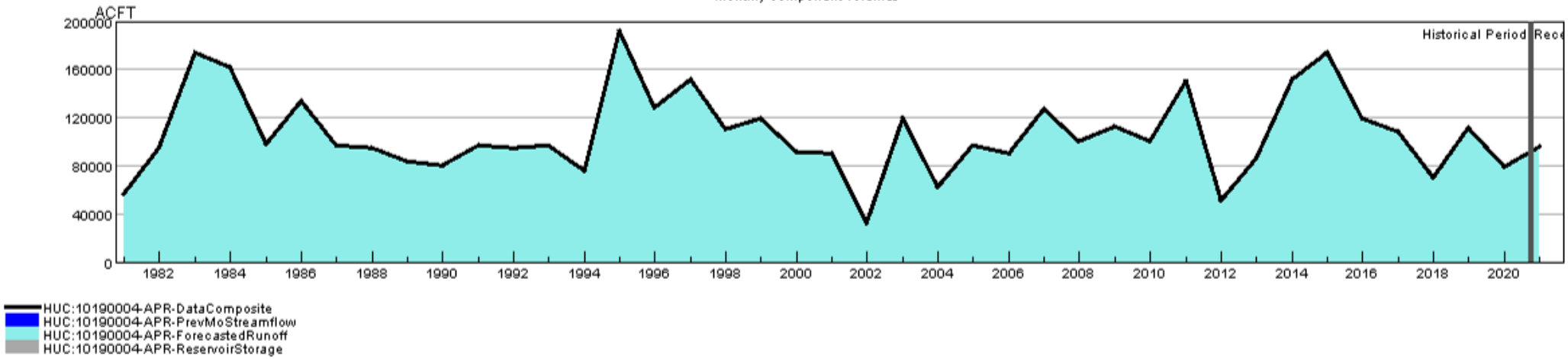
HUC 10190003 (Middle South Platte-Cherry Creek) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



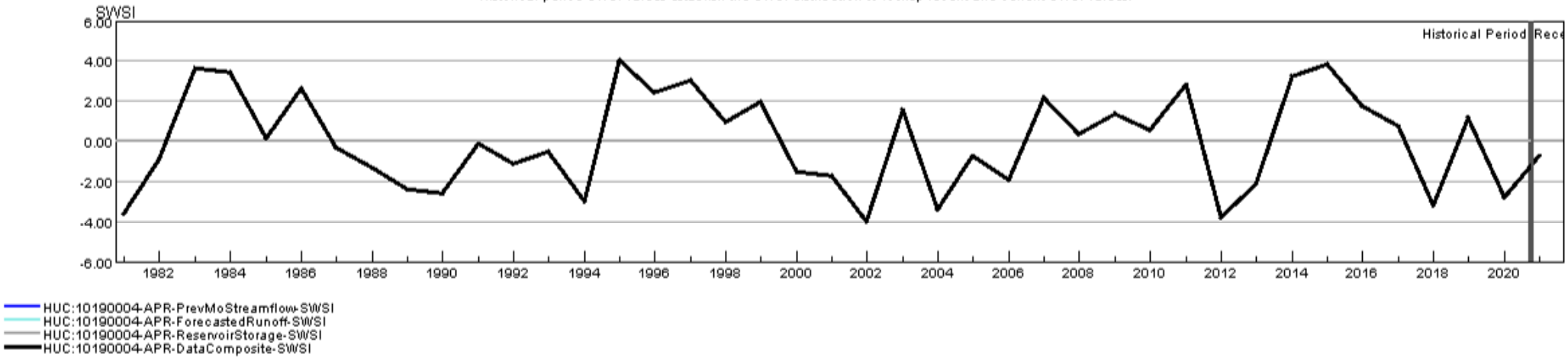
HUC 10190004 (Clear) Surface Water Supply - APR

Monthly component volumes



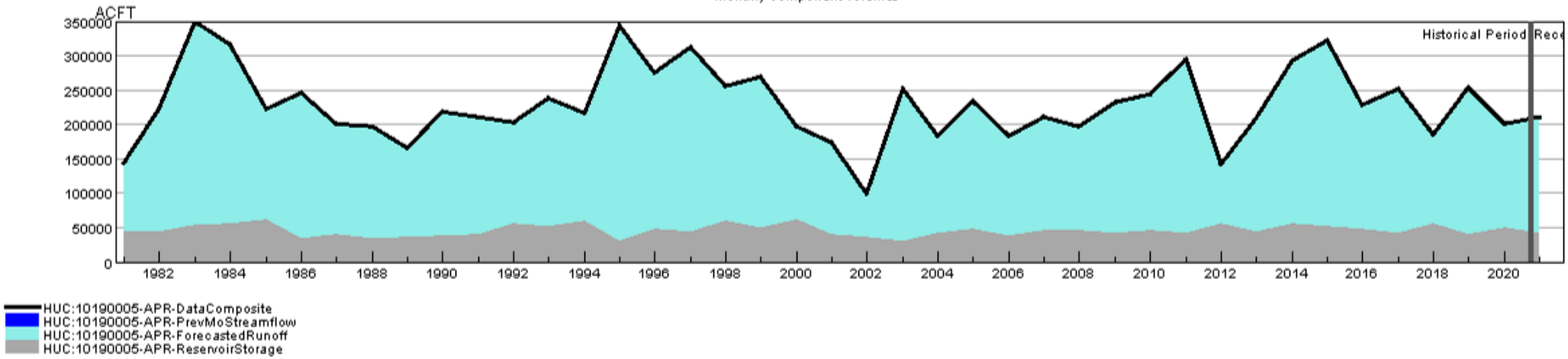
HUC 10190004 (Clear) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



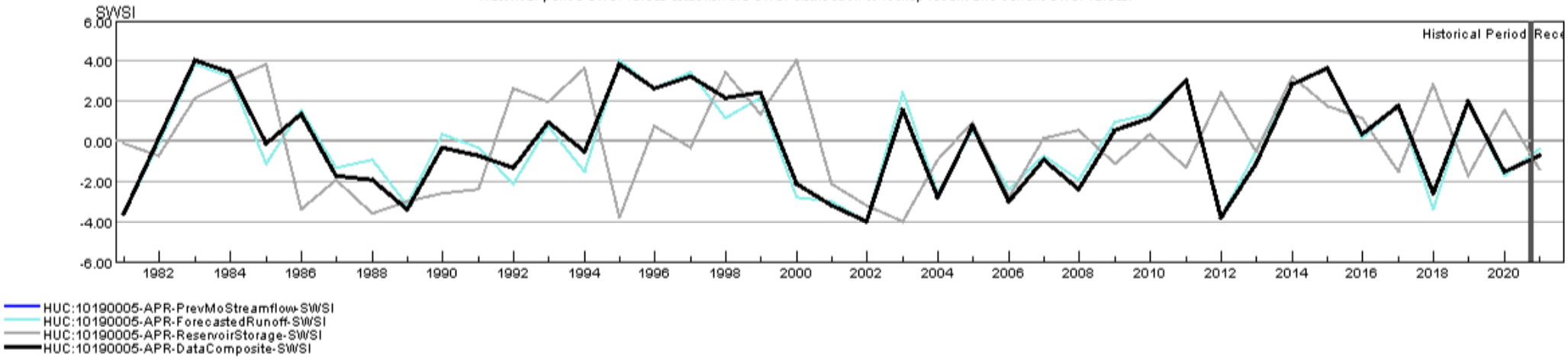
HUC 10190005 (St. Vrain) Surface Water Supply - APR

Monthly component volumes



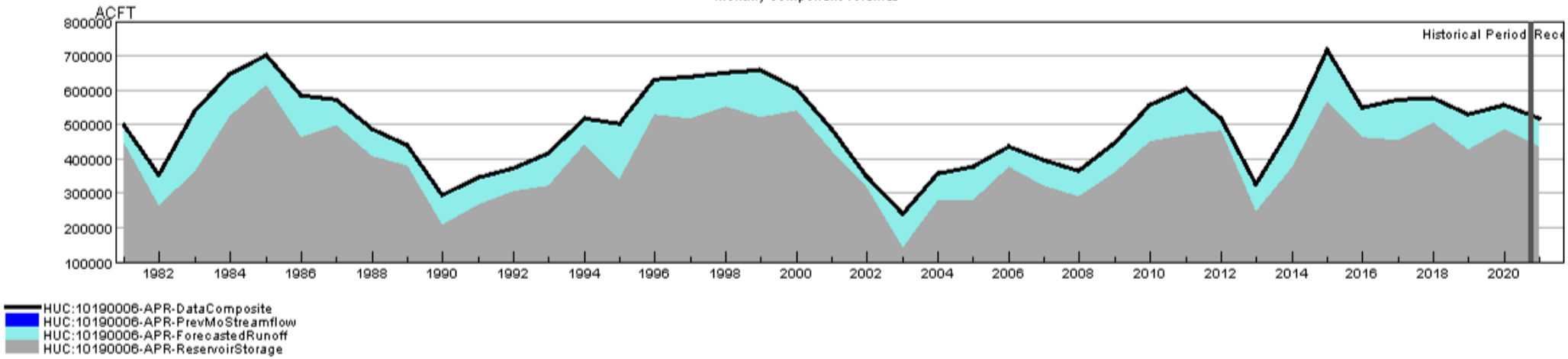
HUC 10190005 (St. Vrain) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



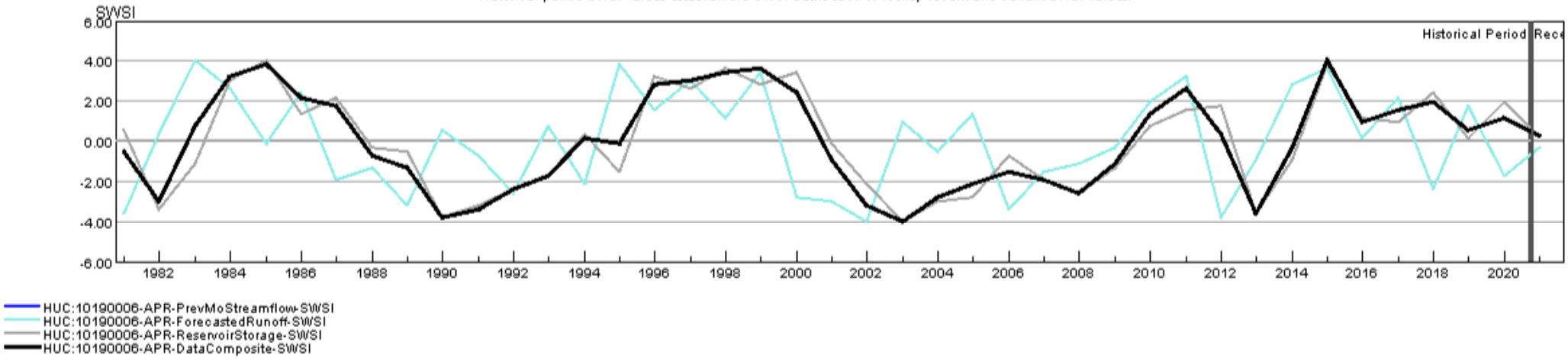
HUC 10190006 (Big Thompson) Surface Water Supply - APR

Monthly component volumes



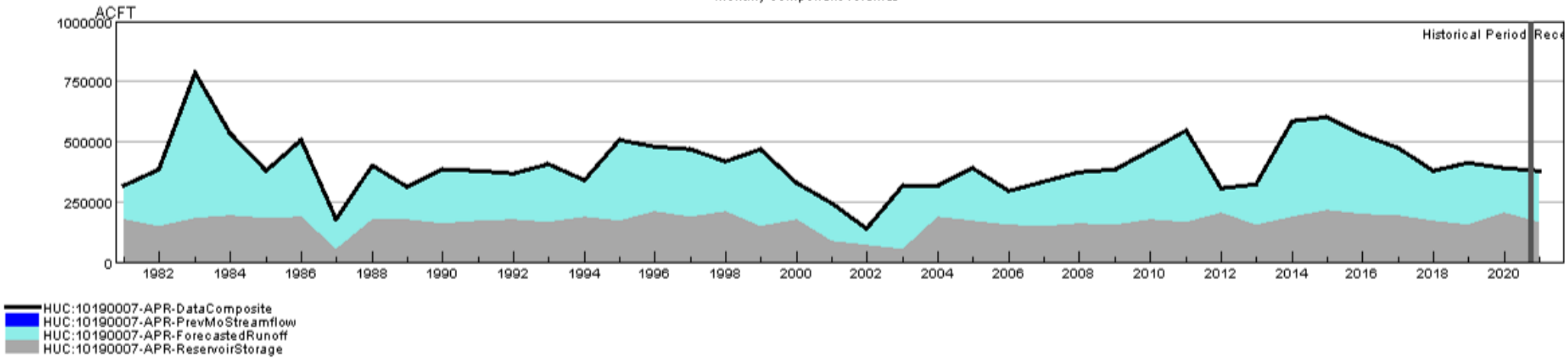
HUC 10190006 (Big Thompson) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



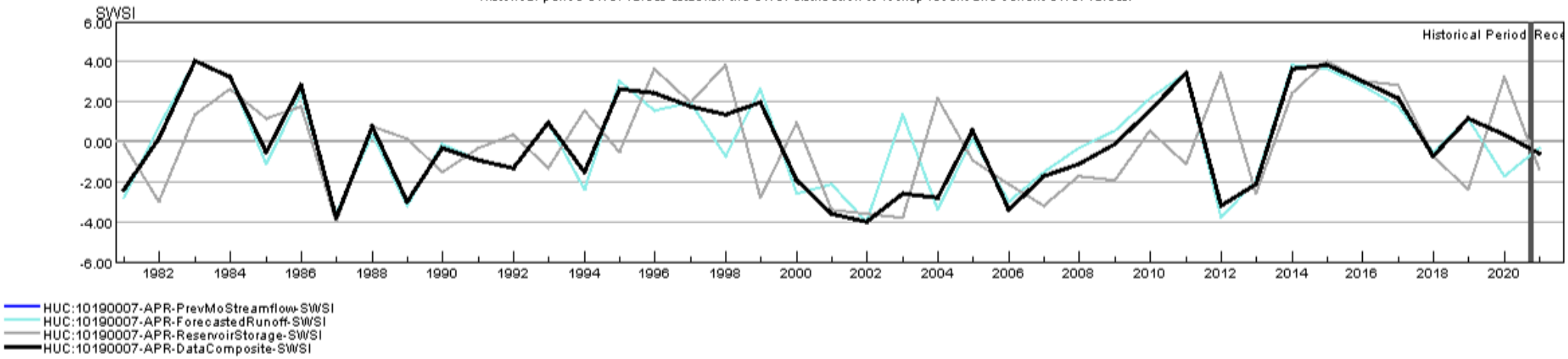
HUC 10190007 (Cache La Poudre) Surface Water Supply - APR

Monthly component volumes



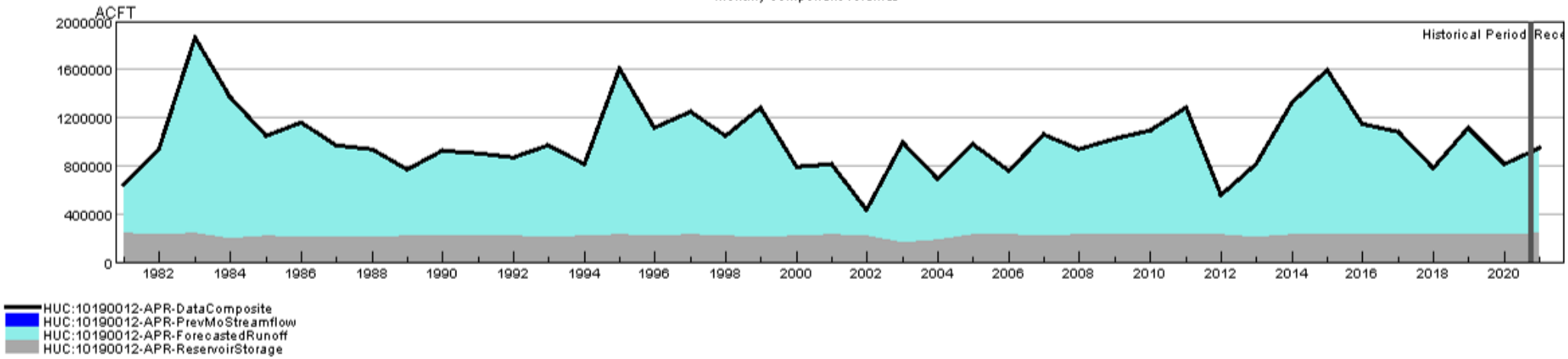
HUC 10190007 (Cache La Poudre) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



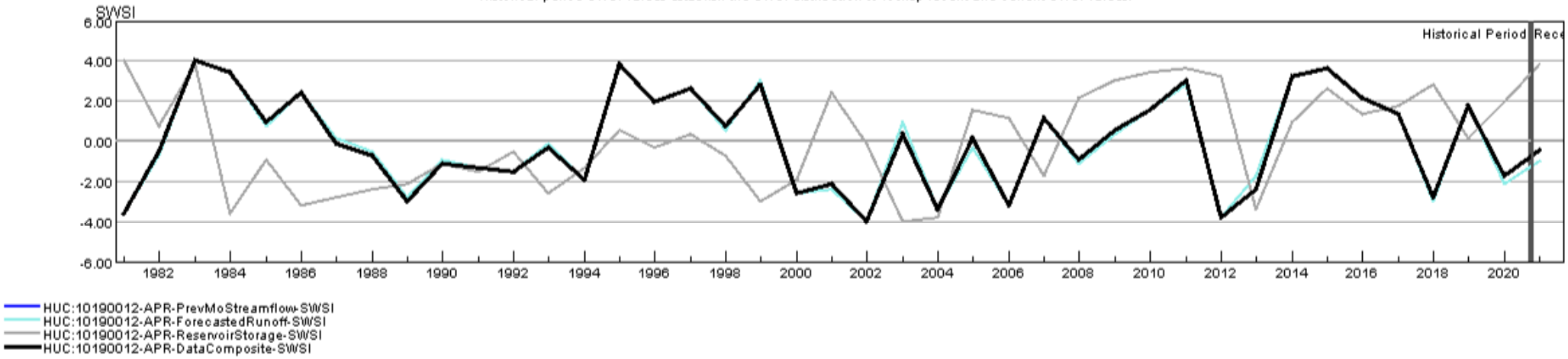
HUC 10190012 (Middle South Platte-Sterling) Surface Water Supply - APR

Monthly component volumes



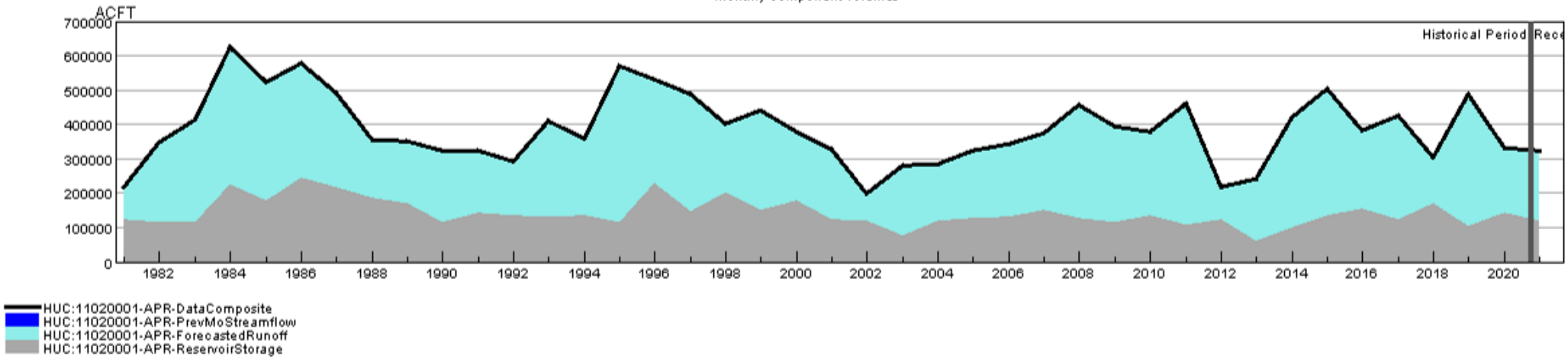
HUC 10190012 (Middle South Platte-Sterling) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



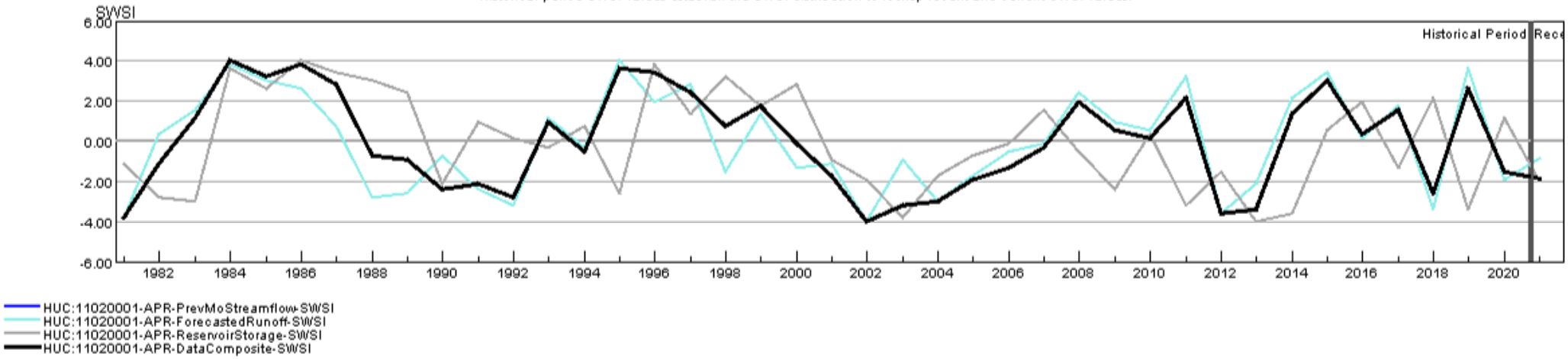
HUC 11020001 (Arkansas Headwaters) Surface Water Supply - APR

Monthly component volumes



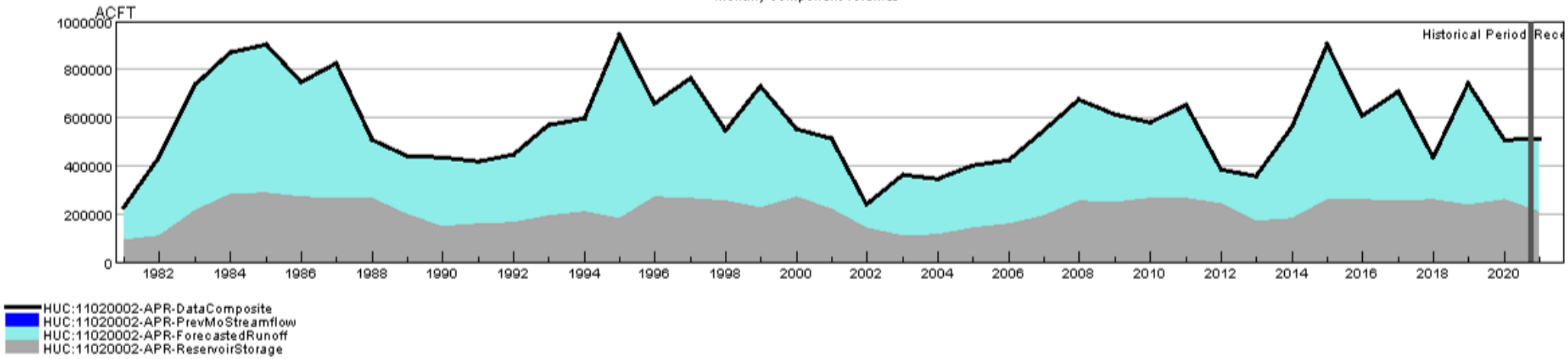
HUC 11020001 (Arkansas Headwaters) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



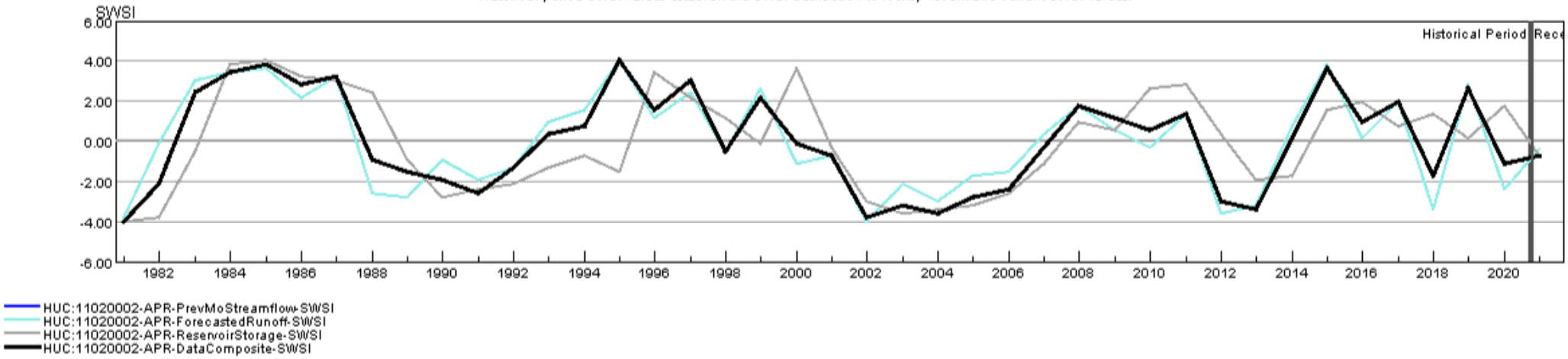
HUC 11020002 (Upper Arkansas) Surface Water Supply - APR

Monthly component volumes



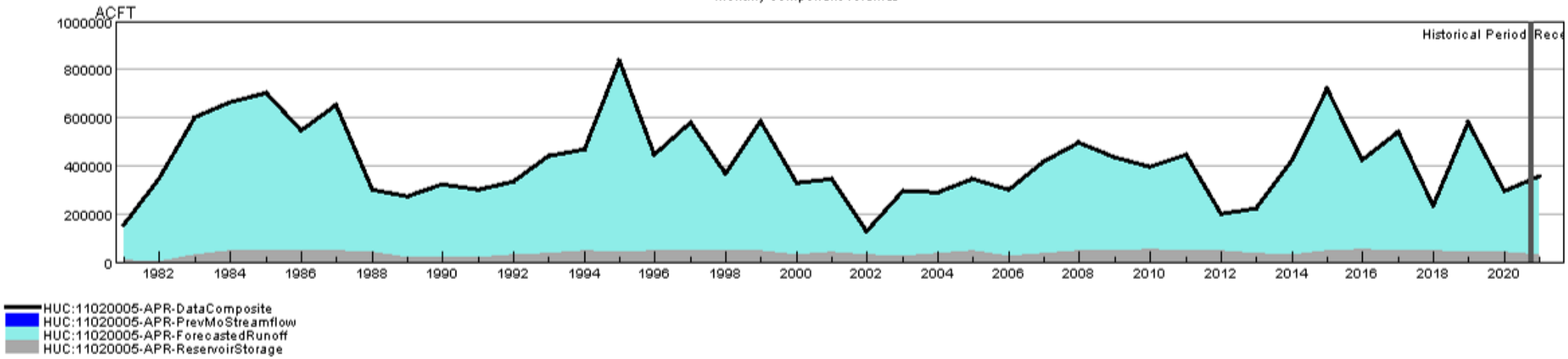
HUC 11020002 (Upper Arkansas) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



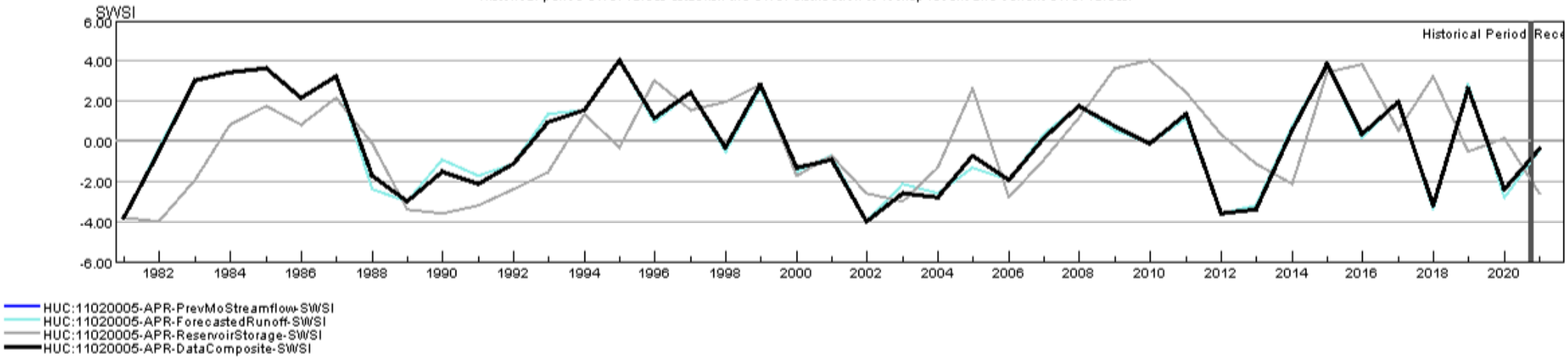
HUC 11020005 (Upper Arkansas-Lake Meredith) Surface Water Supply - APR

Monthly component volumes



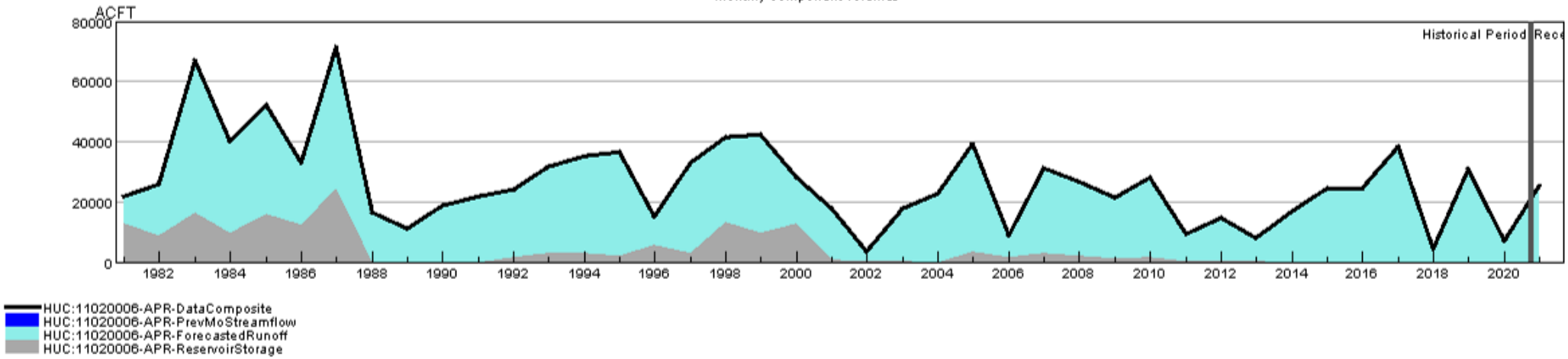
HUC 11020005 (Upper Arkansas-Lake Meredith) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



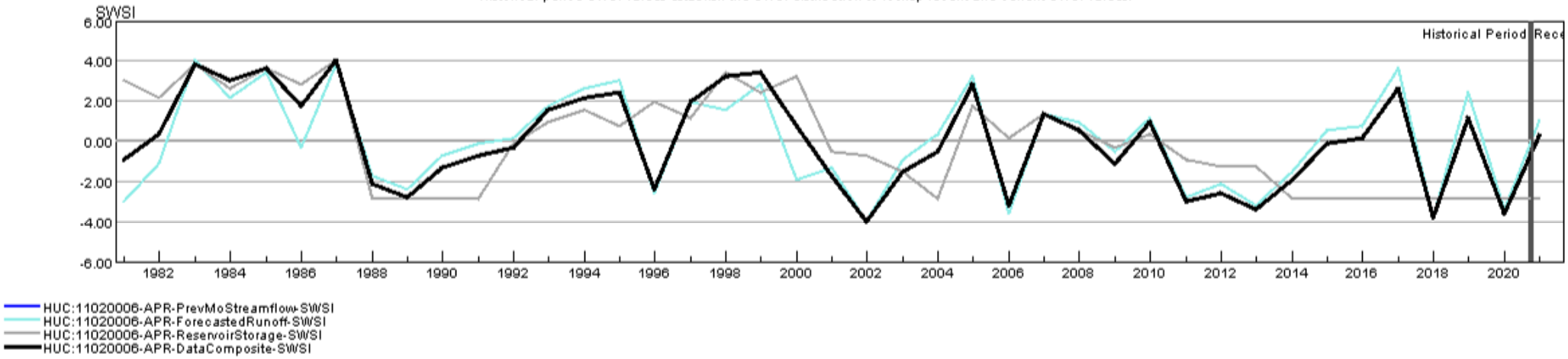
HUC 11020006 (Huerfano) Surface Water Supply - APR

Monthly component volumes



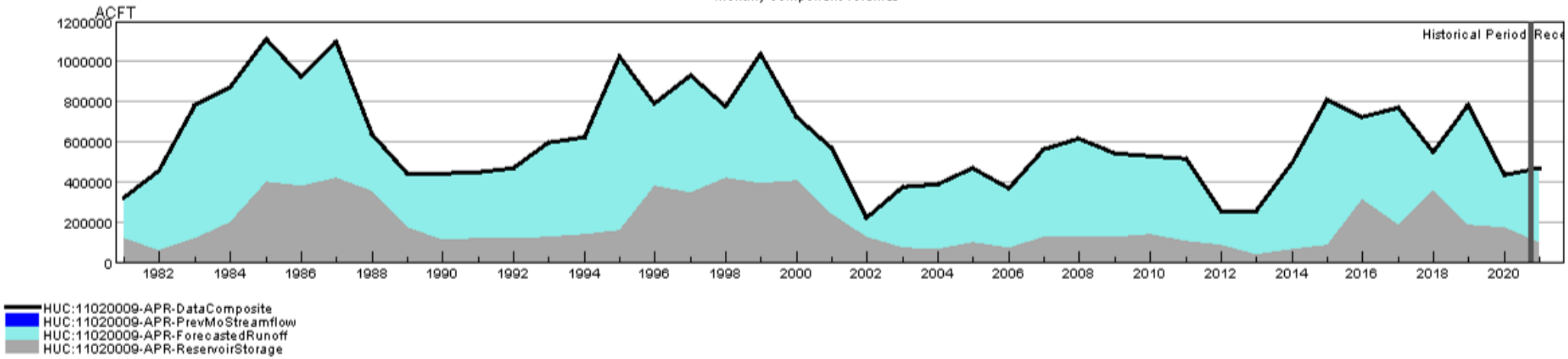
HUC 11020006 (Huerfano) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC 11020009 (Upper Arkansas-John Martin Reservoir) Surface Water Supply - APR

Monthly component volumes

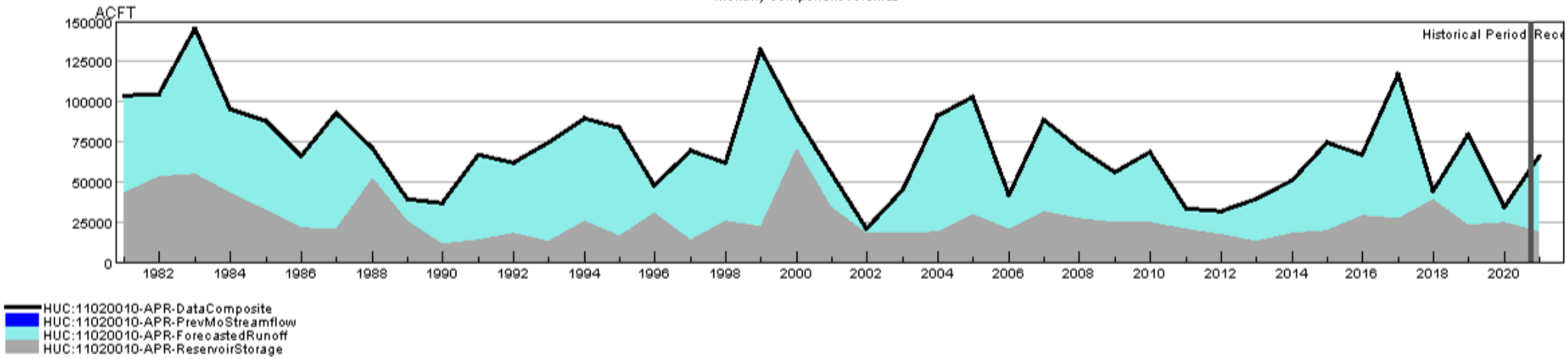


HUC 11020009 (Upper Arkansas-John Martin Reservoir) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.

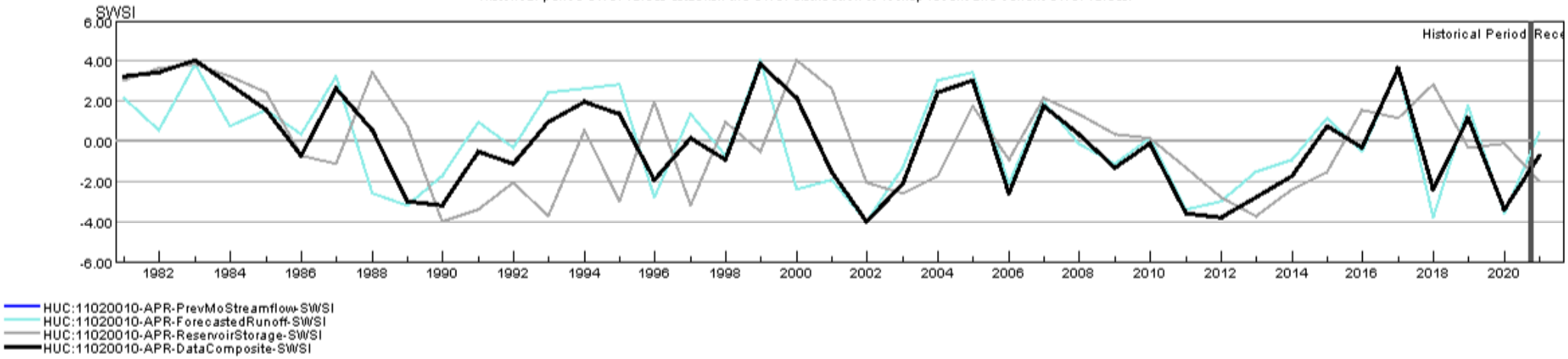
HUC 11020010 (Purgatoire) Surface Water Supply - APR

Monthly component volumes



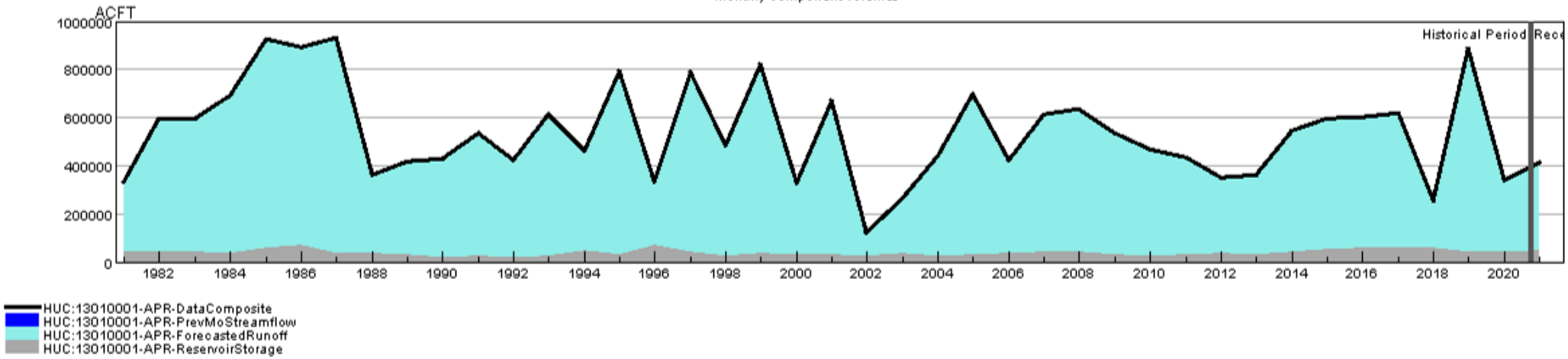
HUC 11020010 (Purgatoire) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



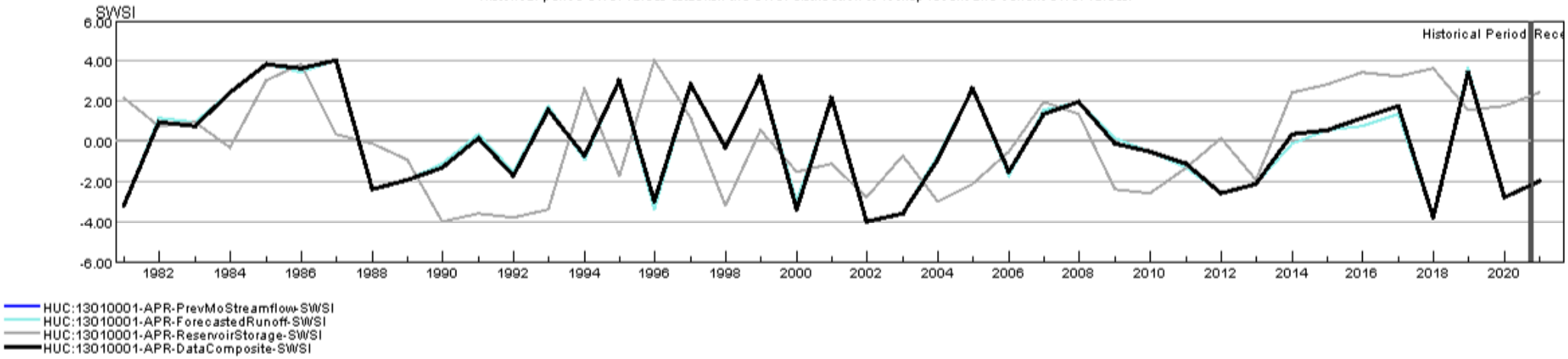
HUC 13010001 (Rio Grande Headwaters) Surface Water Supply - APR

Monthly component volumes



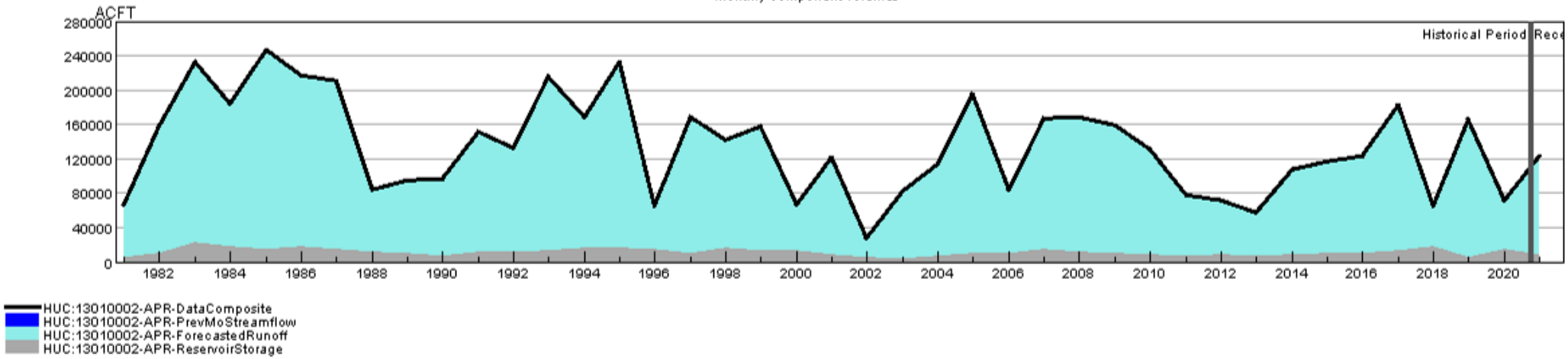
HUC 13010001 (Rio Grande Headwaters) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



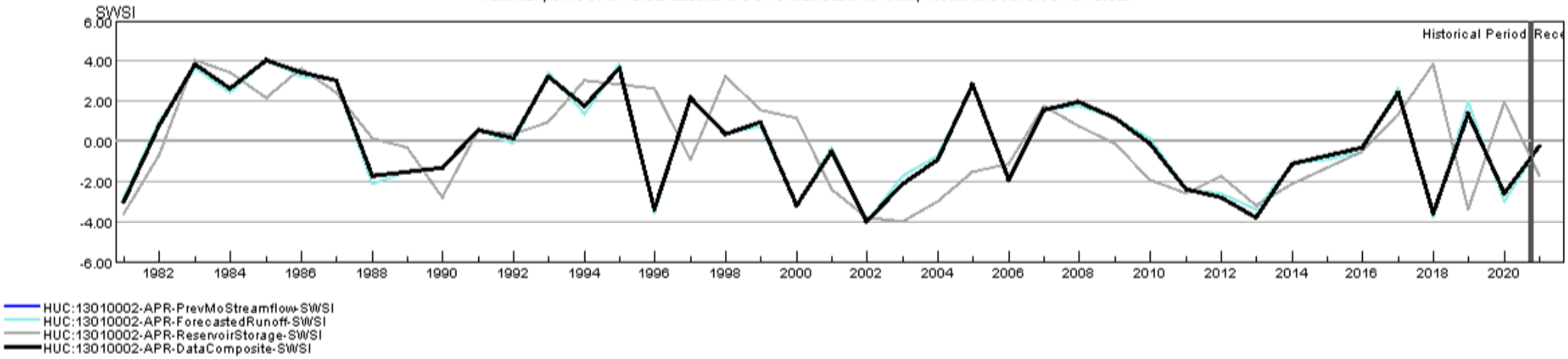
HUC 13010002 (Alamosa-Trinchera) Surface Water Supply - APR

Monthly component volumes



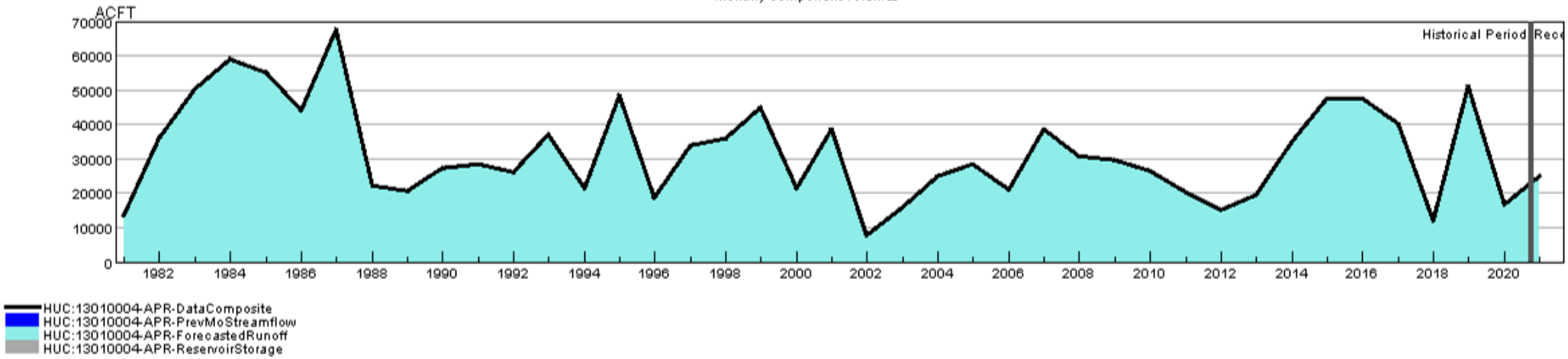
HUC 13010002 (Alamosa-Trinchera) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



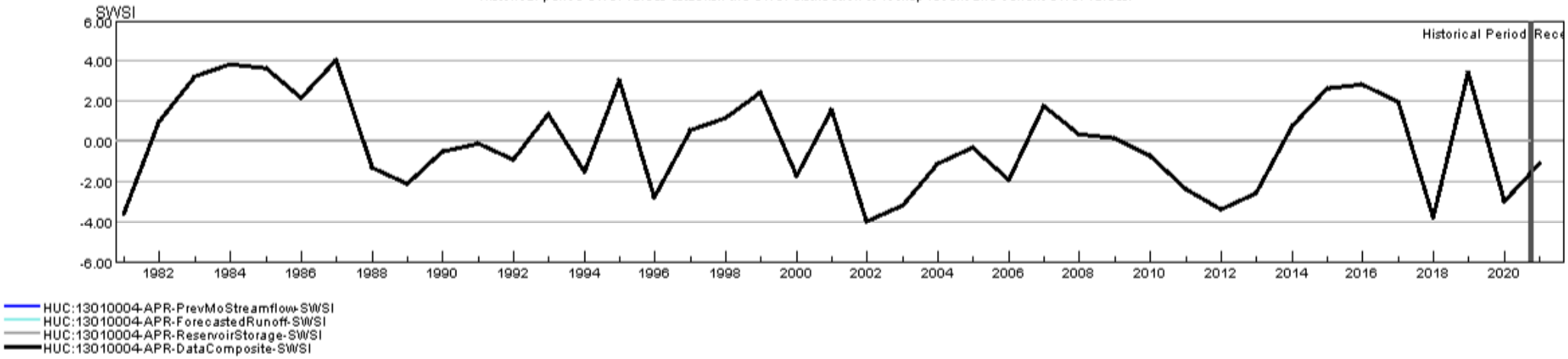
HUC 13010004 (Saguache) Surface Water Supply - APR

Monthly component volumes



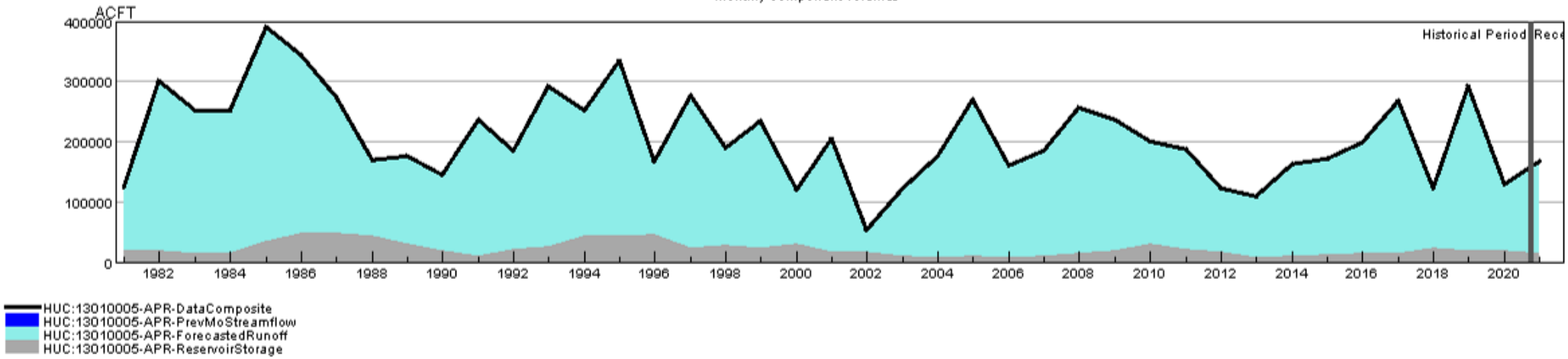
HUC 13010004 (Saguache) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



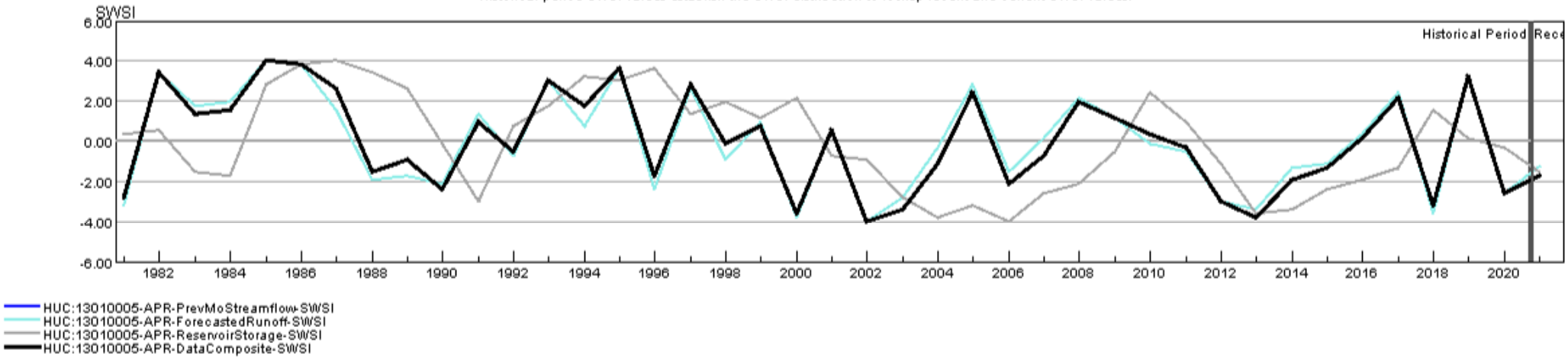
HUC 13010005 (Conejos) Surface Water Supply - APR

Monthly component volumes



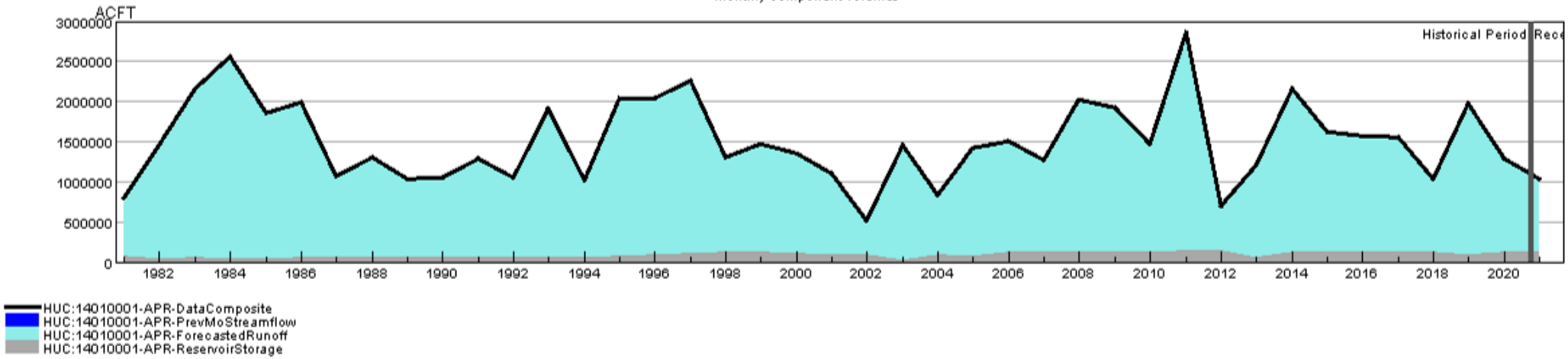
HUC 13010005 (Conejos) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



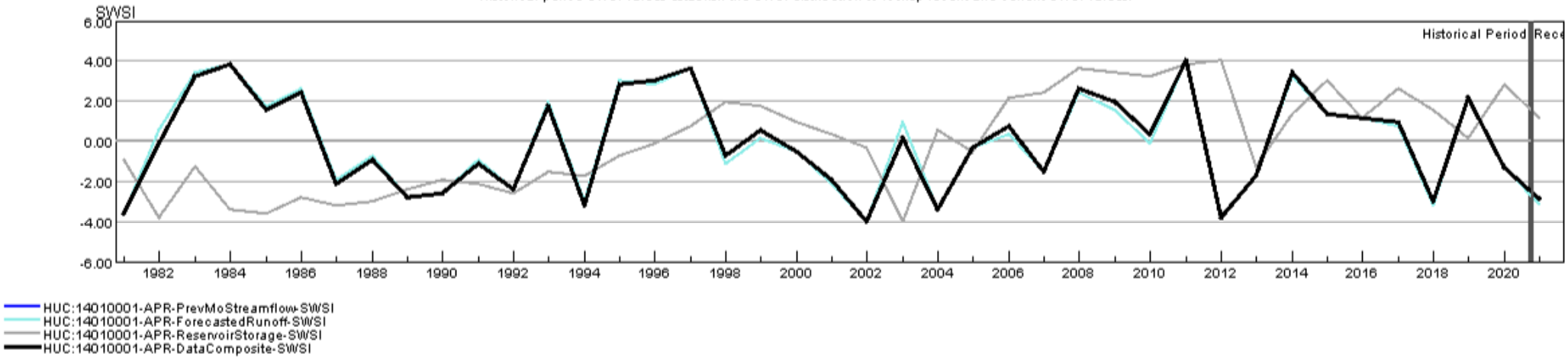
HUC 14010001 (Colorado Headwaters) Surface Water Supply - APR

Monthly component volumes



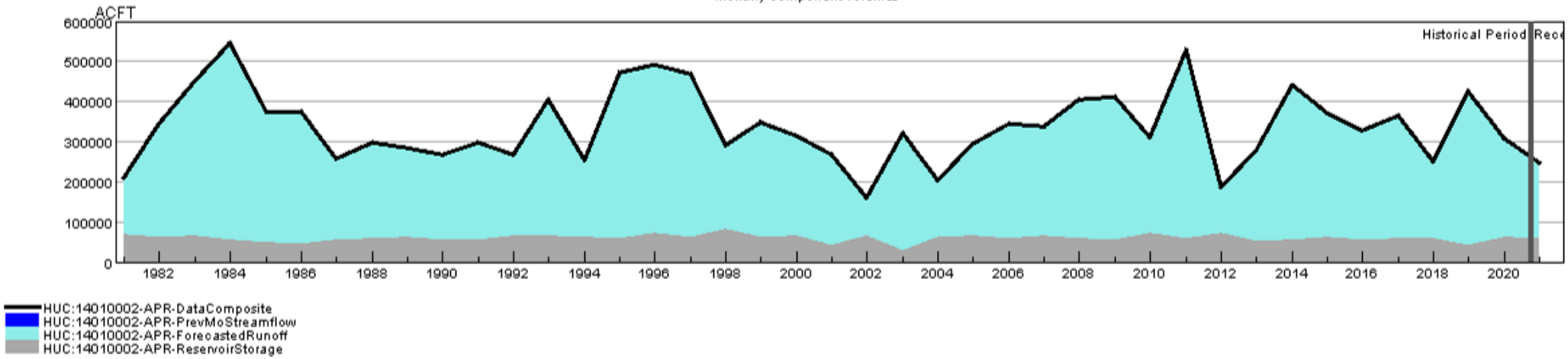
HUC 14010001 (Colorado Headwaters) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



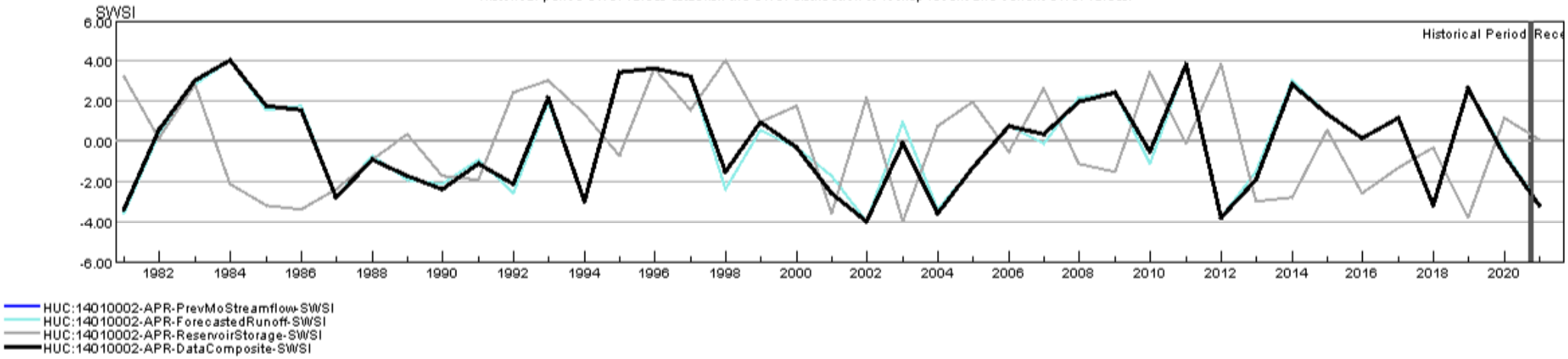
HUC 14010002 (Blue) Surface Water Supply - APR

Monthly component volumes



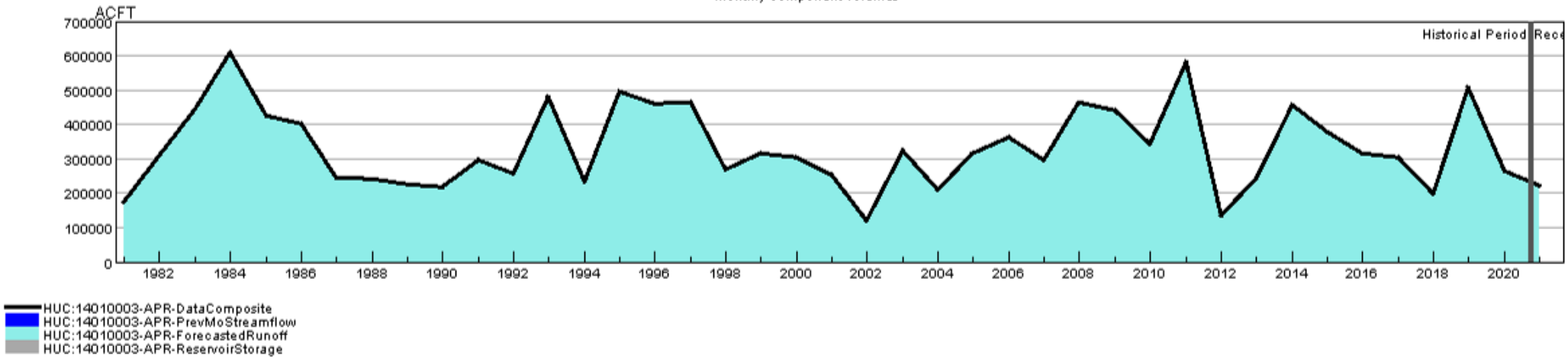
HUC 14010002 (Blue) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



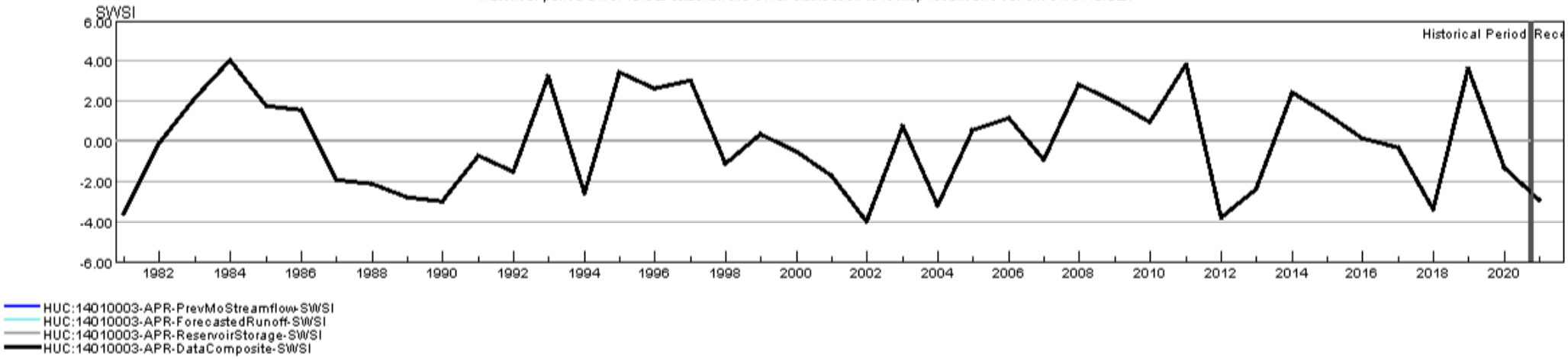
HUC 14010003 (Eagle) Surface Water Supply - APR

Monthly component volumes



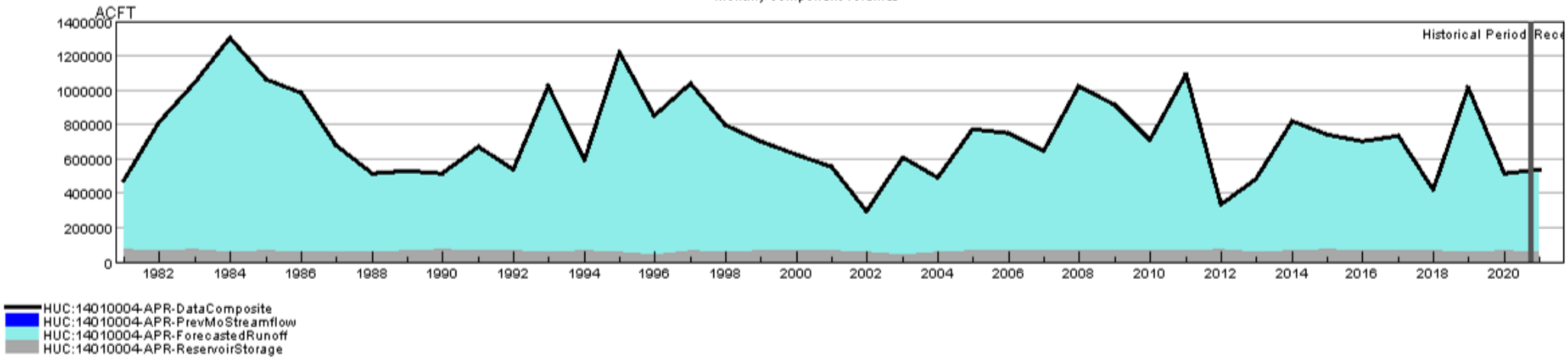
HUC 14010003 (Eagle) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



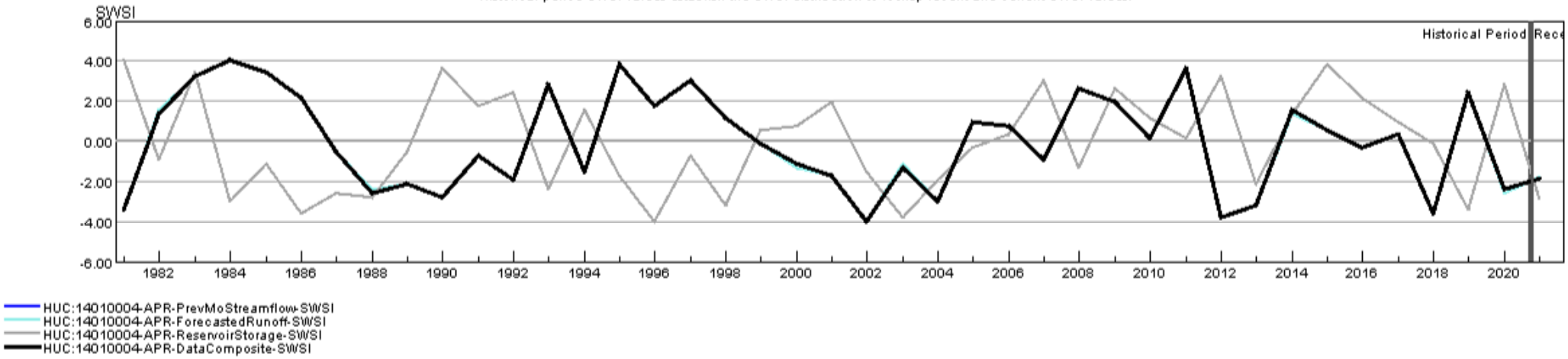
HUC 14010004 (Roaring Fork) Surface Water Supply - APR

Monthly component volumes



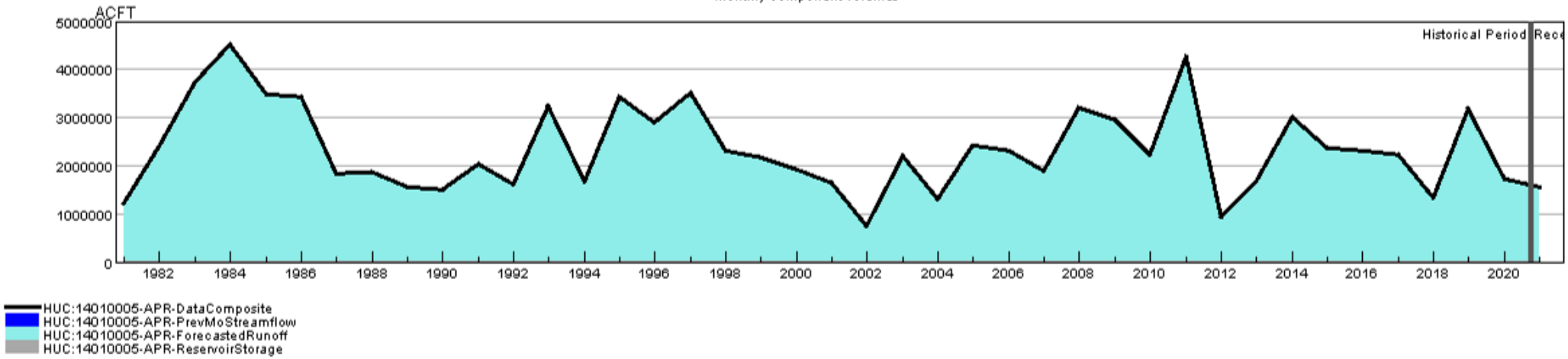
HUC 14010004 (Roaring Fork) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



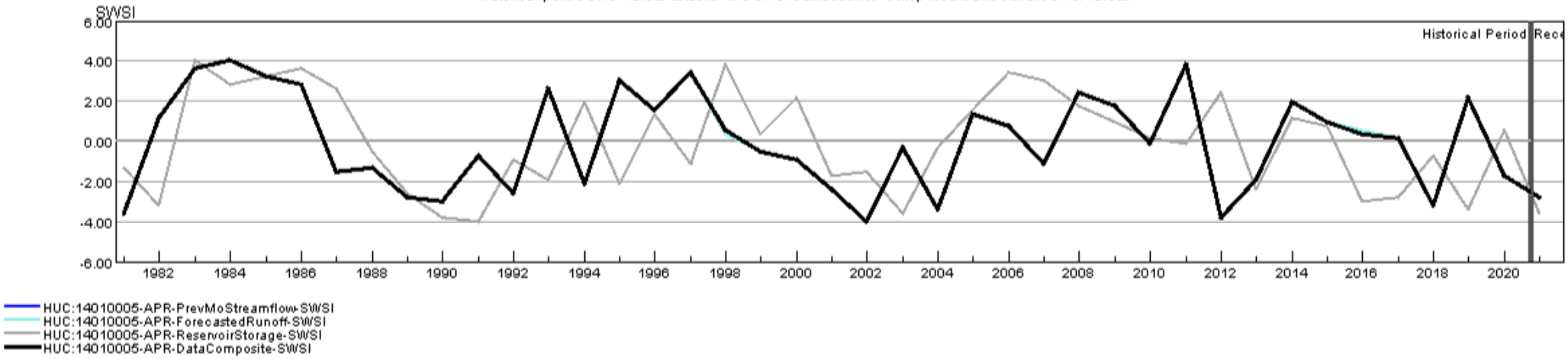
HUC 14010005 (Colorado Headwaters-Plateau) Surface Water Supply - APR

Monthly component volumes



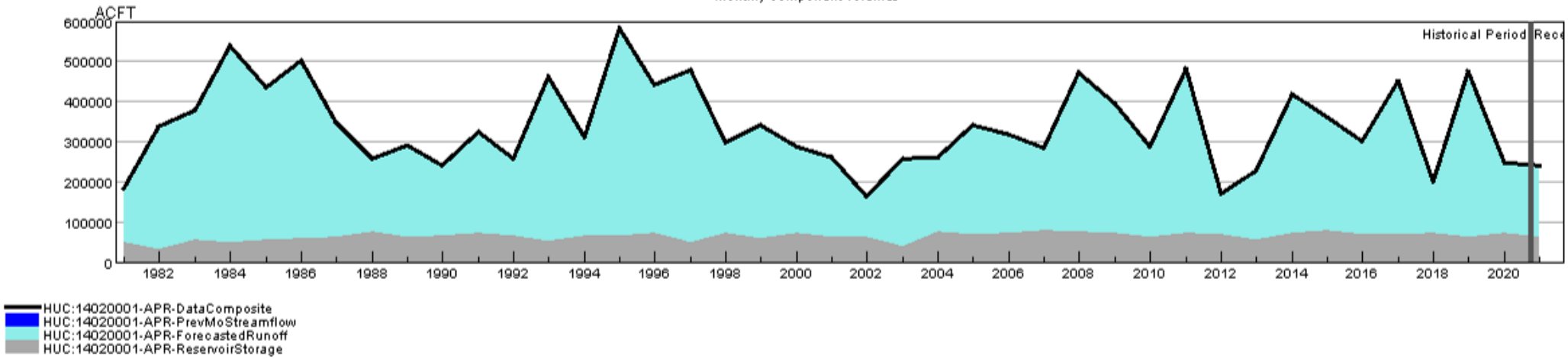
HUC 14010005 (Colorado Headwaters-Plateau) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



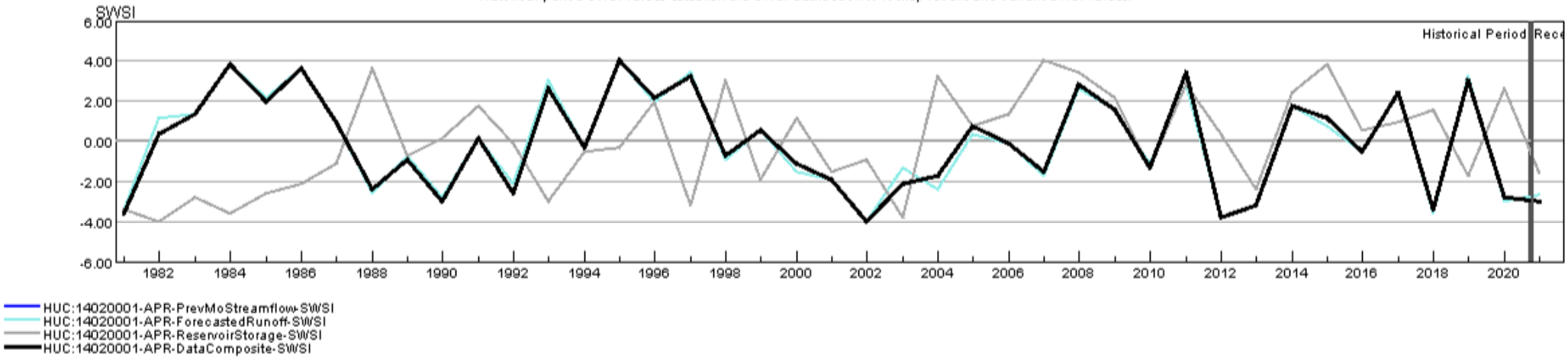
HUC 14020001 (East-Taylor) Surface Water Supply - APR

Monthly component volumes



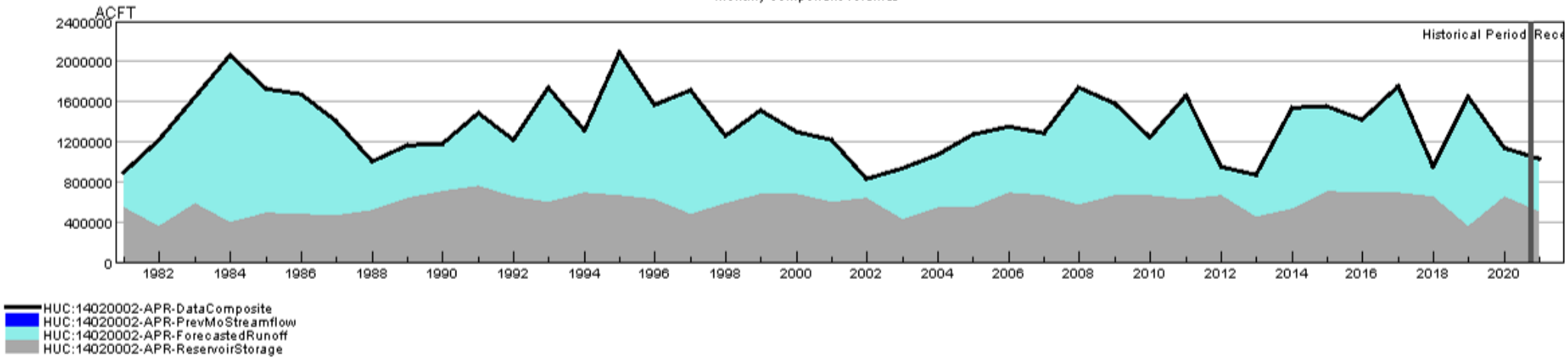
HUC 14020001 (East-Taylor) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



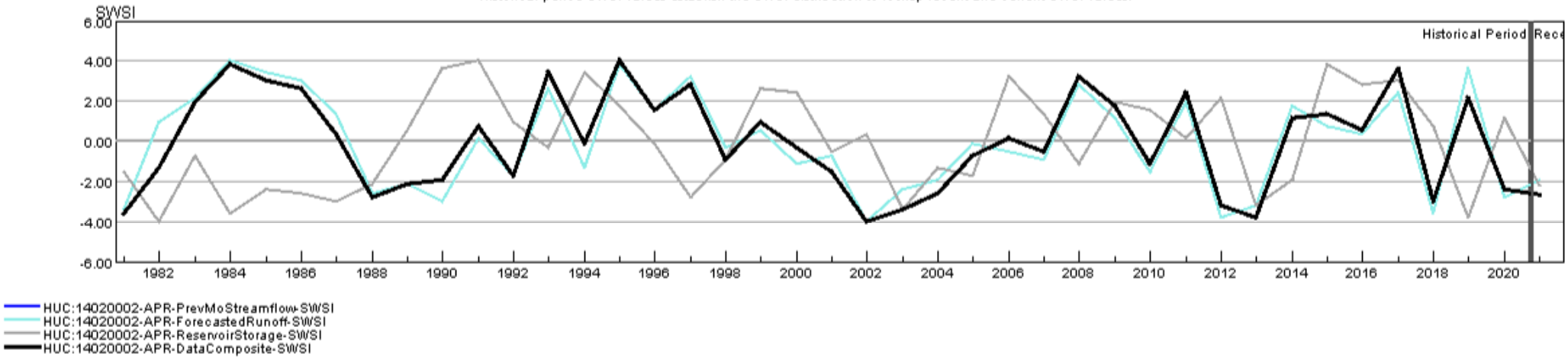
HUC 14020002 (Upper Gunnison) Surface Water Supply - APR

Monthly component volumes



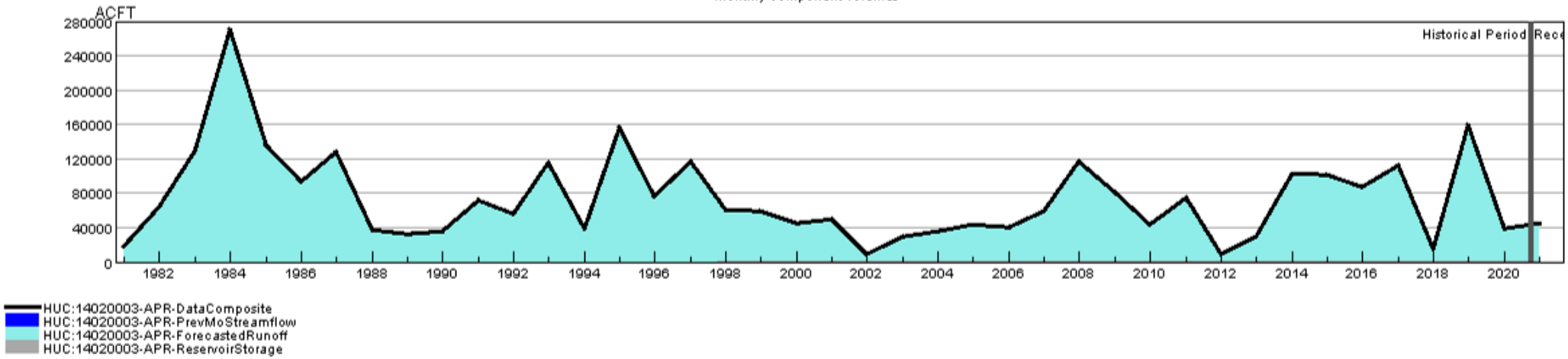
HUC 14020002 (Upper Gunnison) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



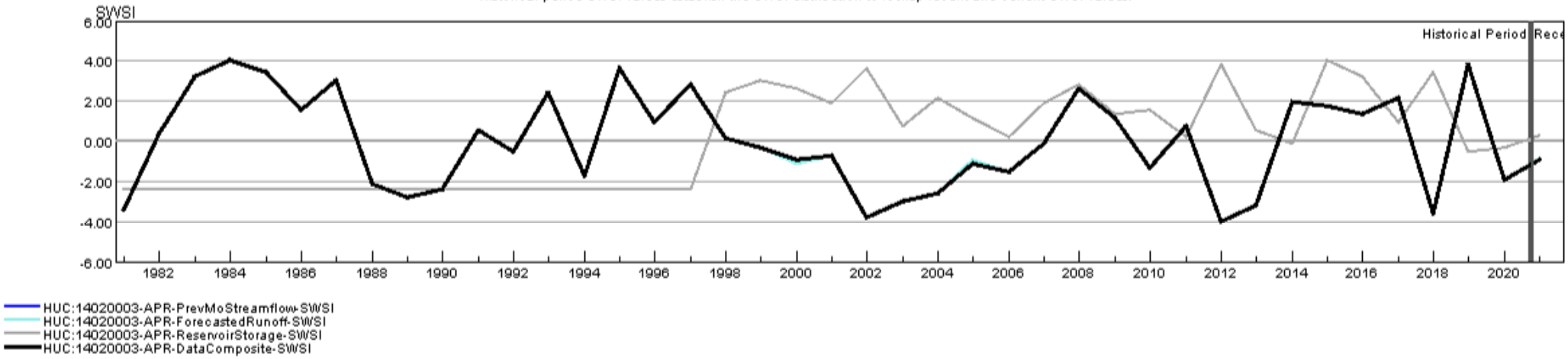
HUC 14020003 (Tomichi) Surface Water Supply - APR

Monthly component volumes



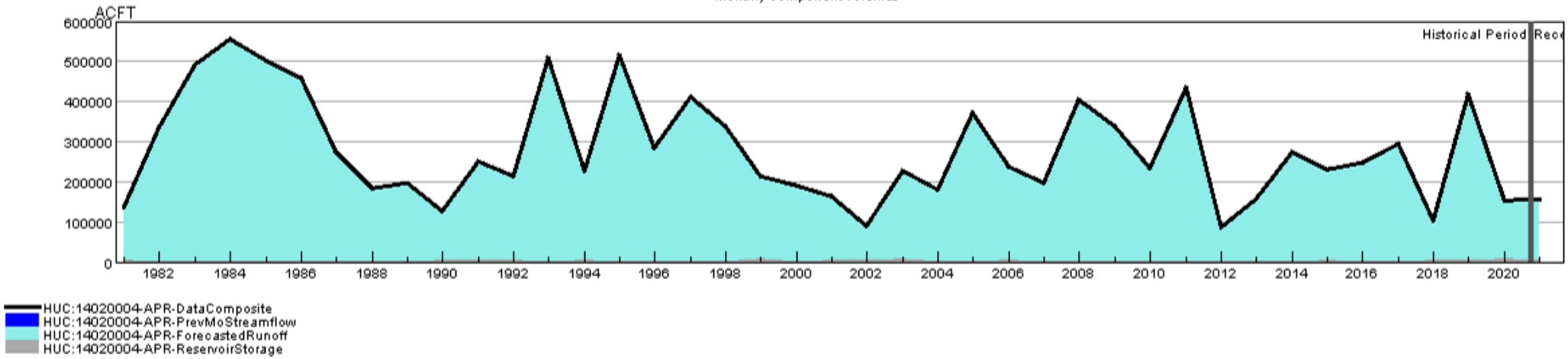
HUC 14020003 (Tomichi) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



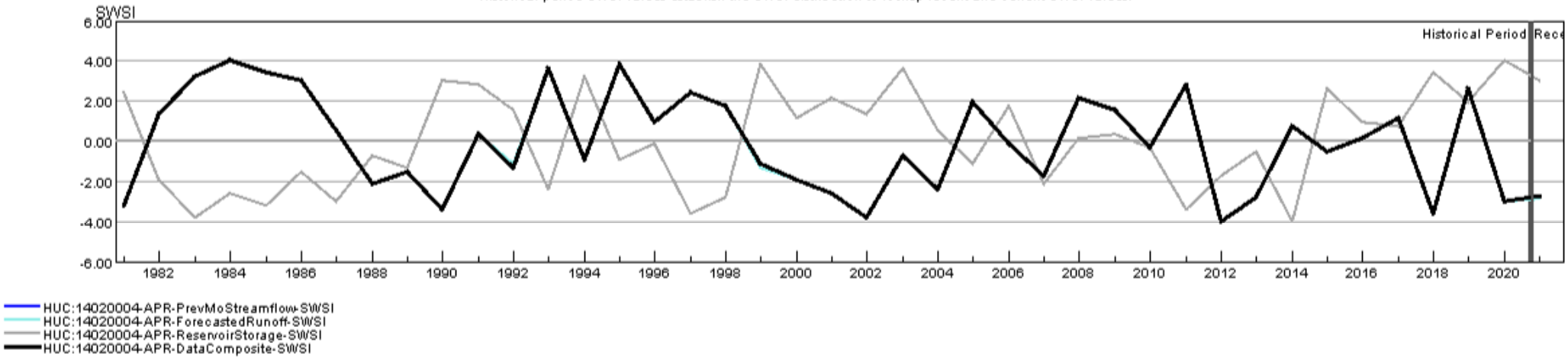
HUC 14020004 (North Fork Gunnison) Surface Water Supply - APR

Monthly component volumes



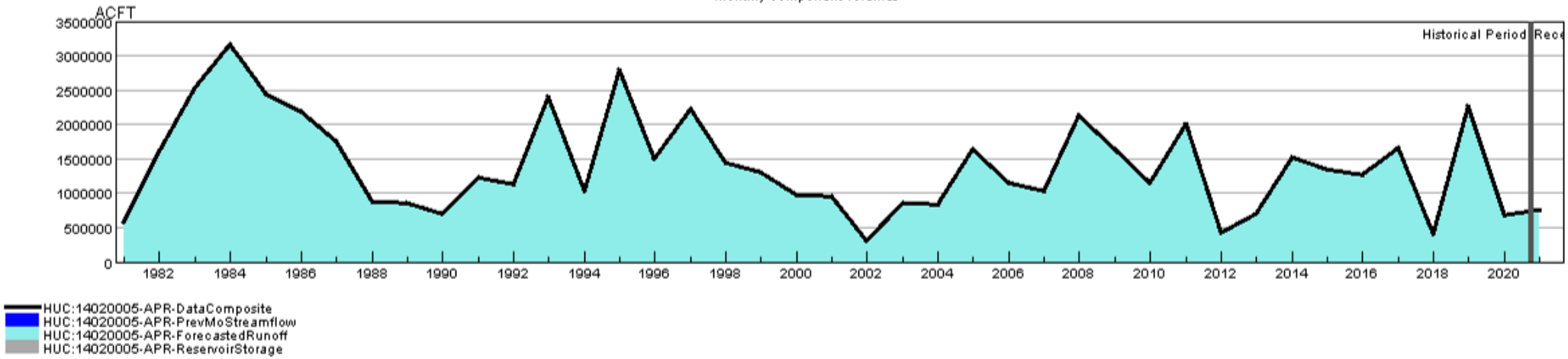
HUC 14020004 (North Fork Gunnison) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



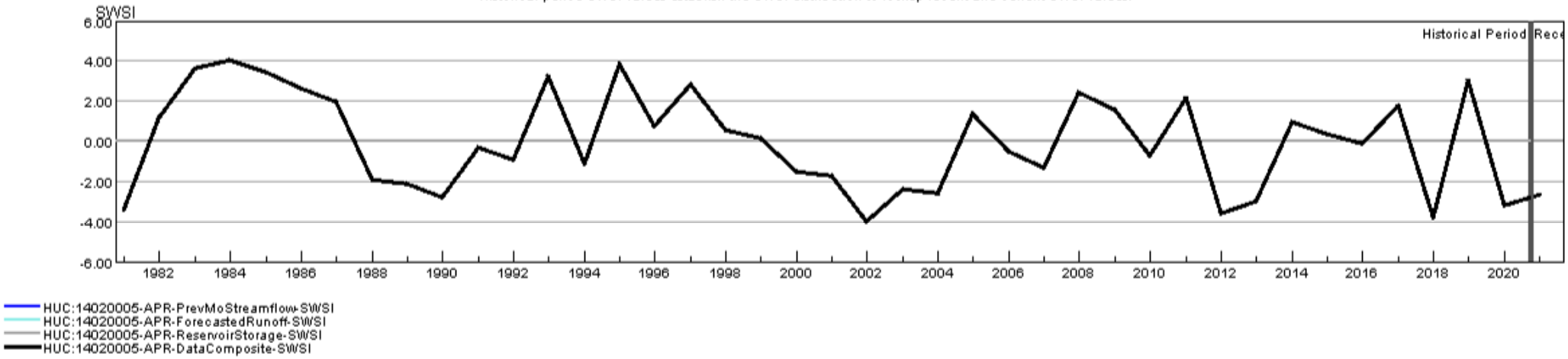
HUC 14020005 (Lower Gunnison) Surface Water Supply - APR

Monthly component volumes



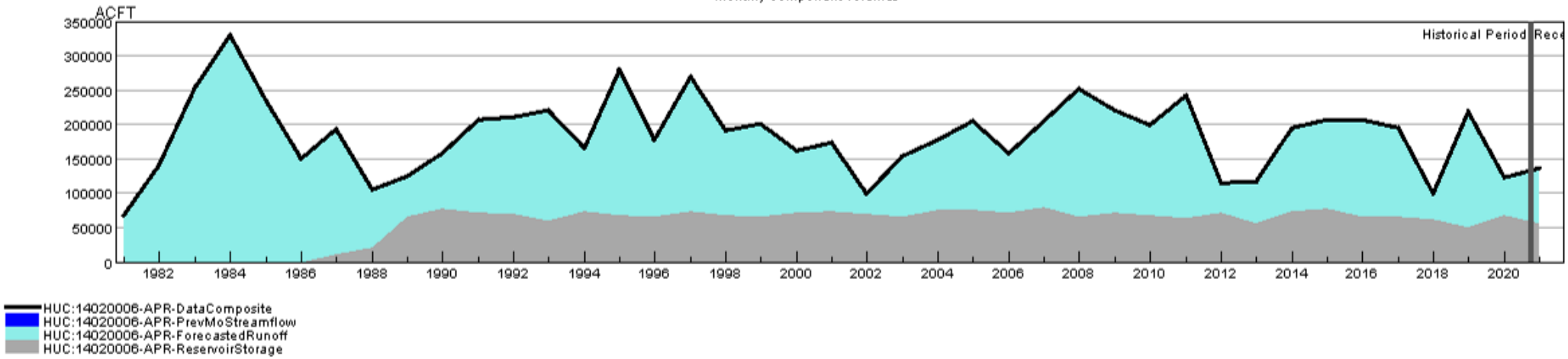
HUC 14020005 (Lower Gunnison) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



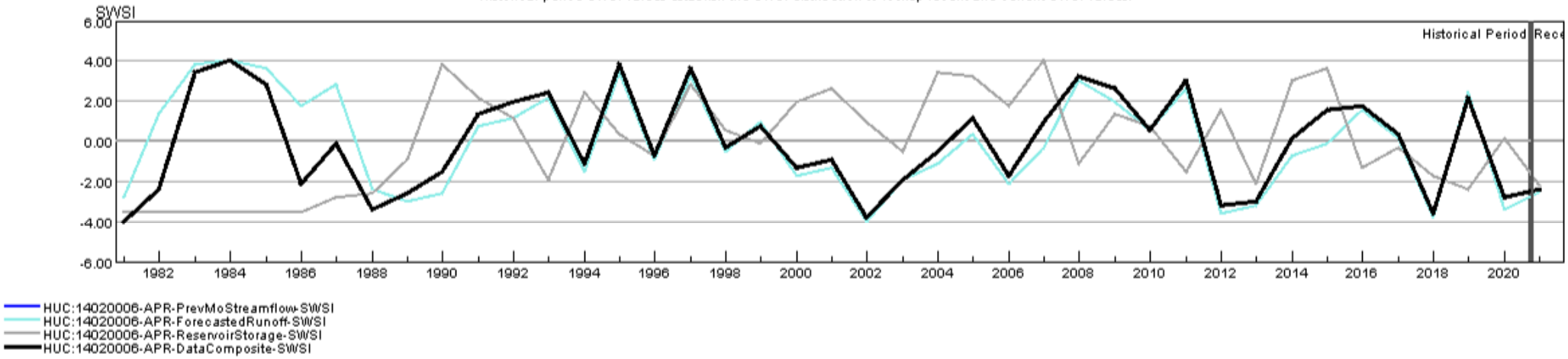
HUC 14020006 (Uncompahgre) Surface Water Supply - APR

Monthly component volumes



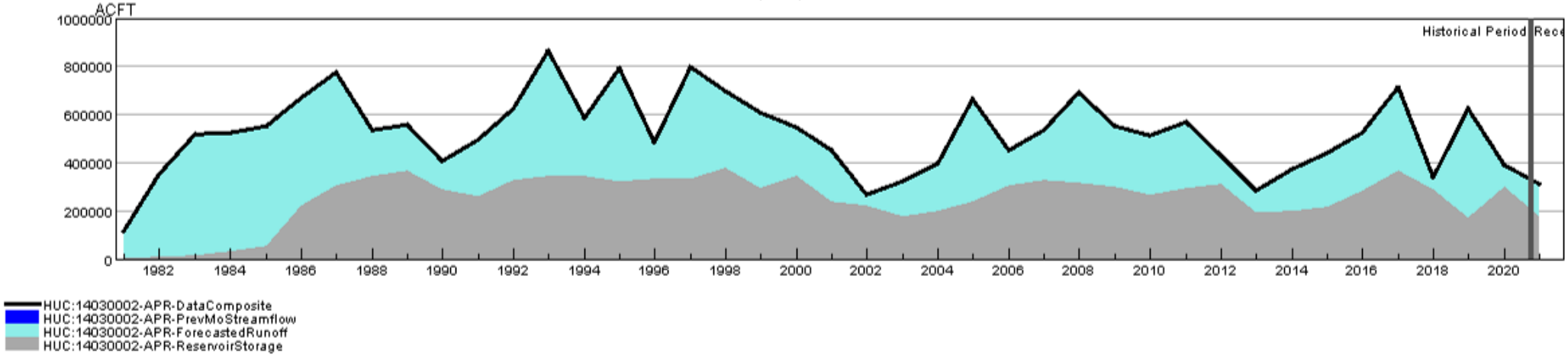
HUC 14020006 (Uncompahgre) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



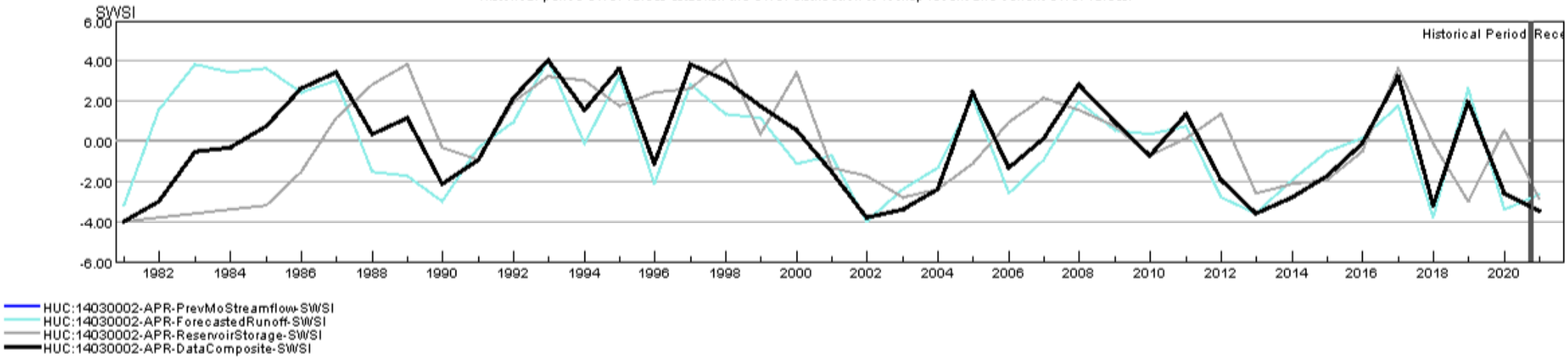
HUC 14030002 (Upper Dolores) Surface Water Supply - APR

Monthly component volumes



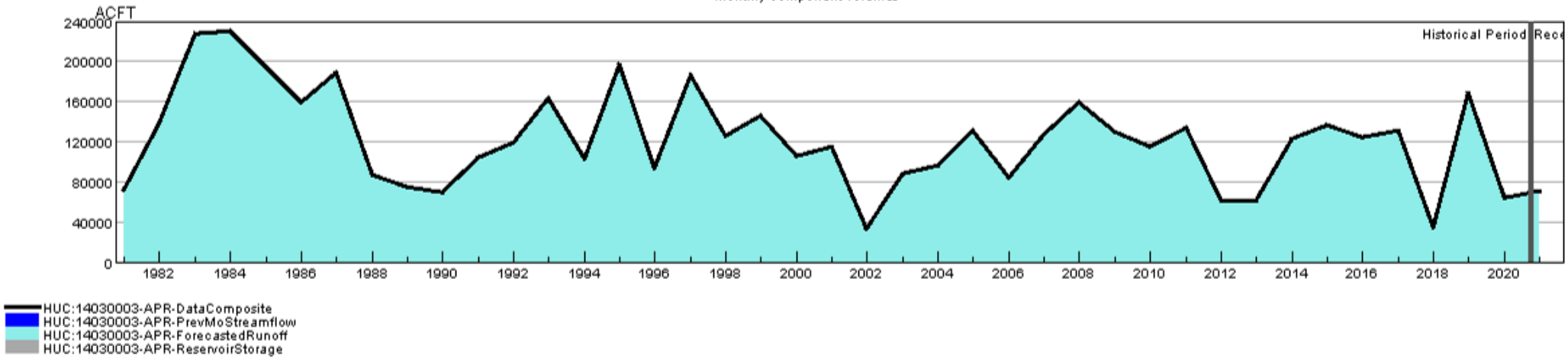
HUC 14030002 (Upper Dolores) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



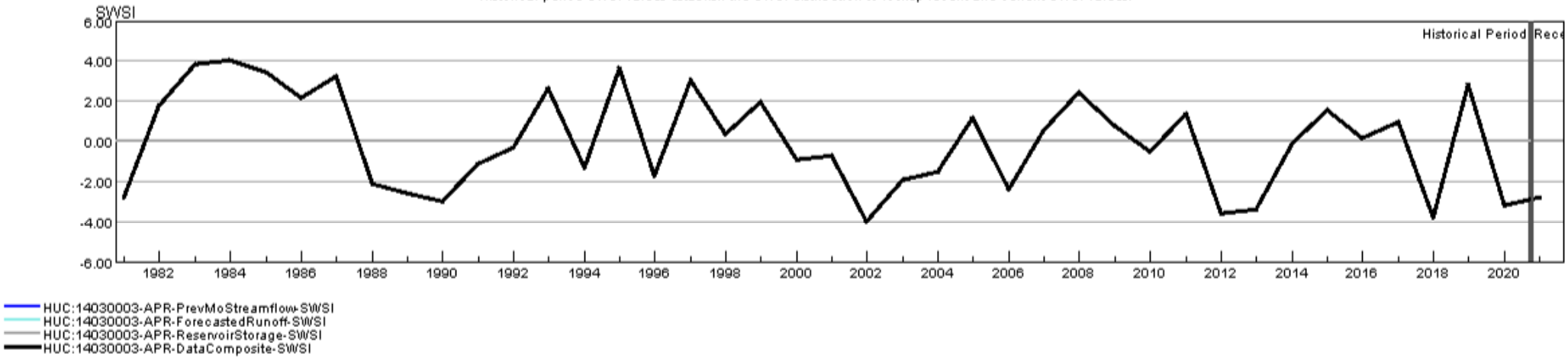
HUC 14030003 (San Miguel) Surface Water Supply - APR

Monthly component volumes



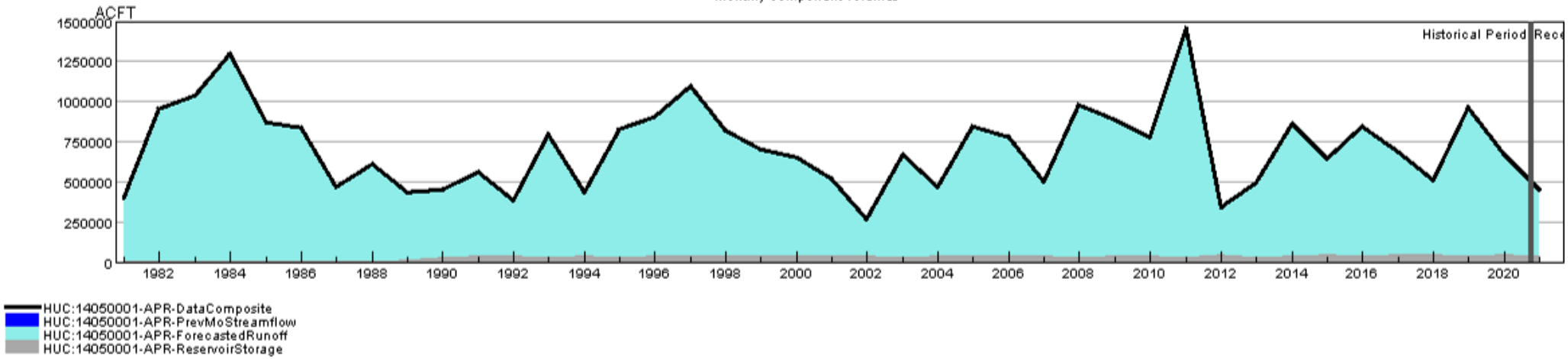
HUC 14030003 (San Miguel) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



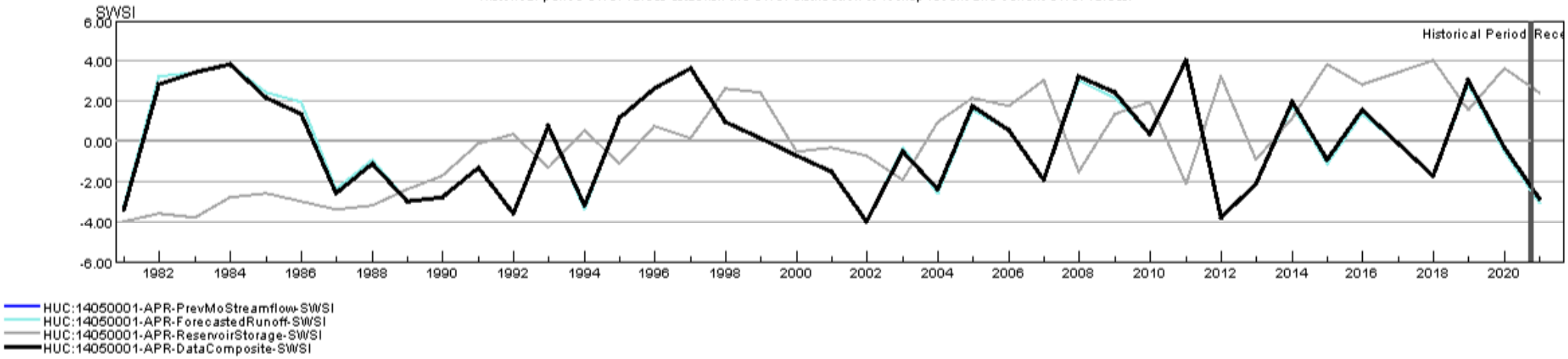
HUC 14050001 (Upper Yampa) Surface Water Supply - APR

Monthly component volumes



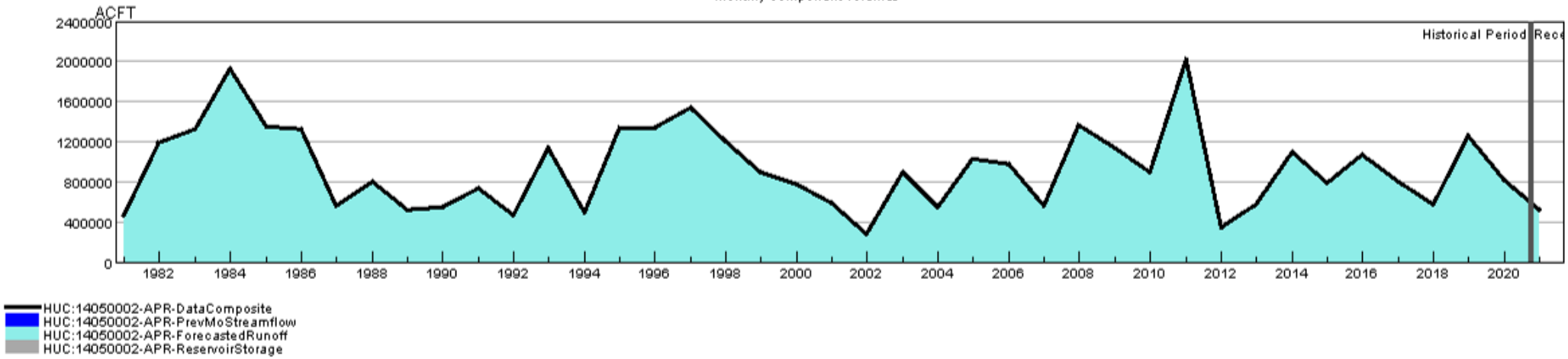
HUC 14050001 (Upper Yampa) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



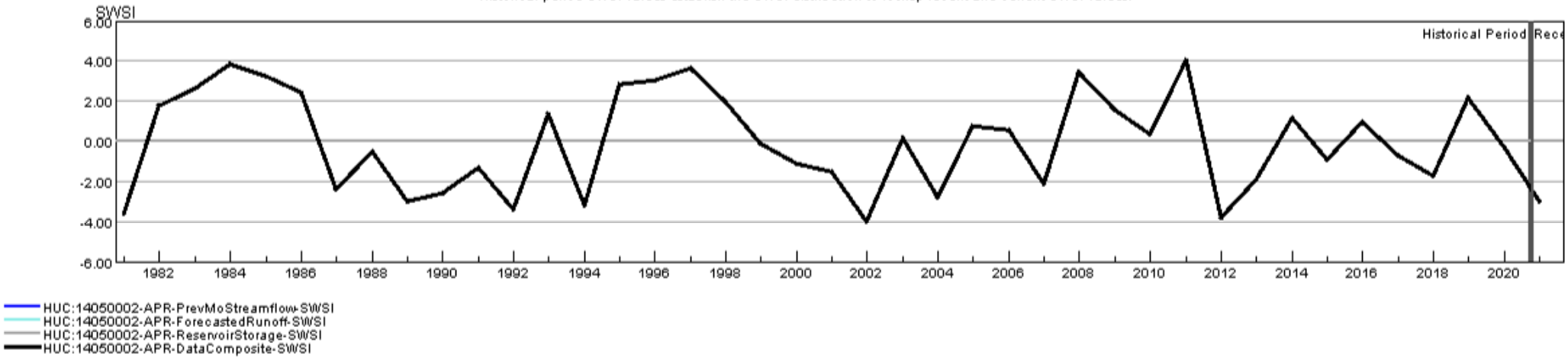
HUC 14050002 (Lower Yampa) Surface Water Supply - APR

Monthly component volumes



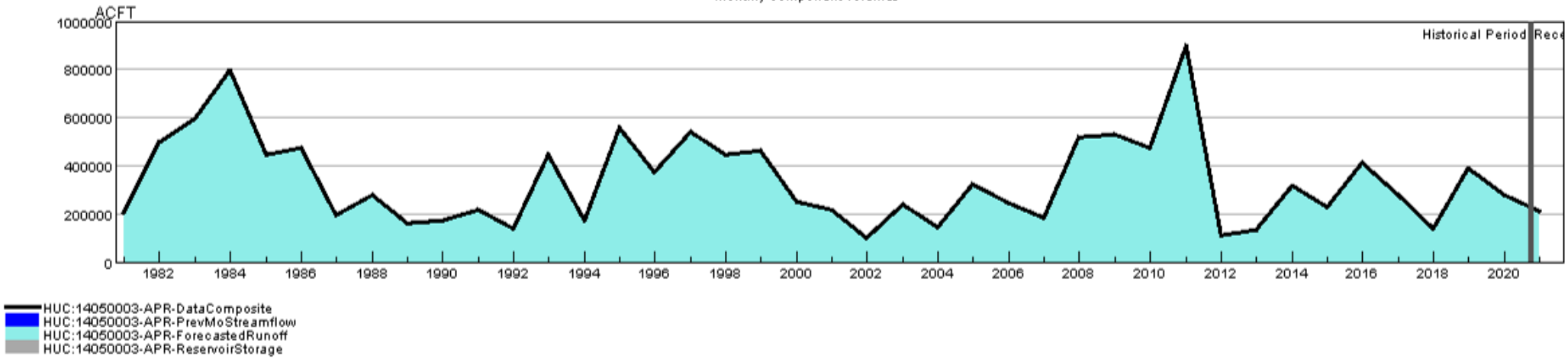
HUC 14050002 (Lower Yampa) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



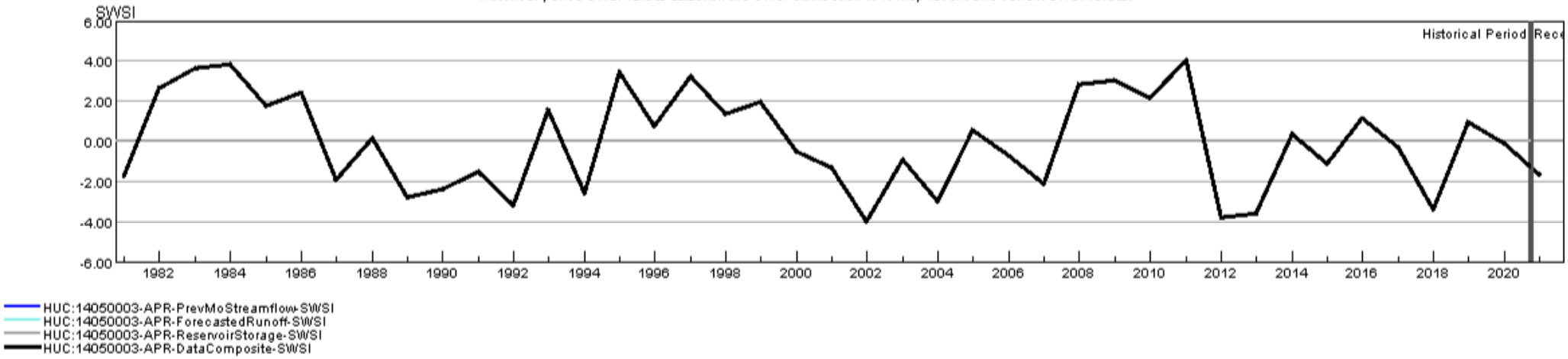
HUC 14050003 (Little Snake) Surface Water Supply - APR

Monthly component volumes



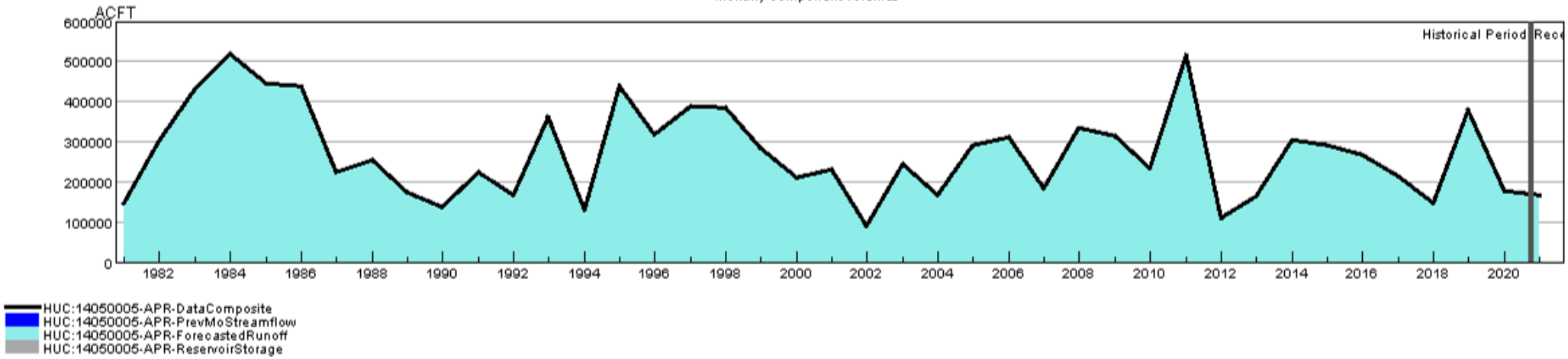
HUC 14050003 (Little Snake) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



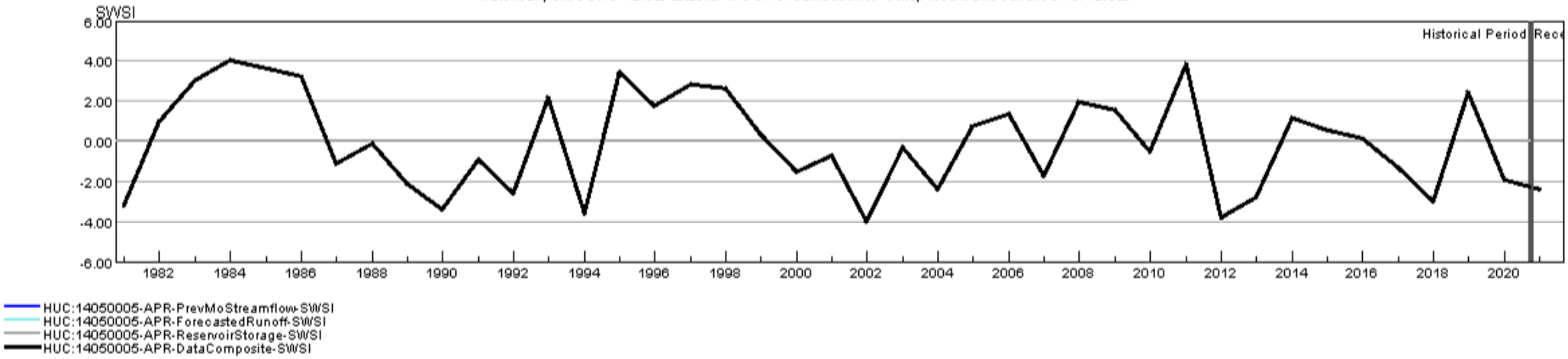
HUC 14050005 (Upper White) Surface Water Supply - APR

Monthly component volumes



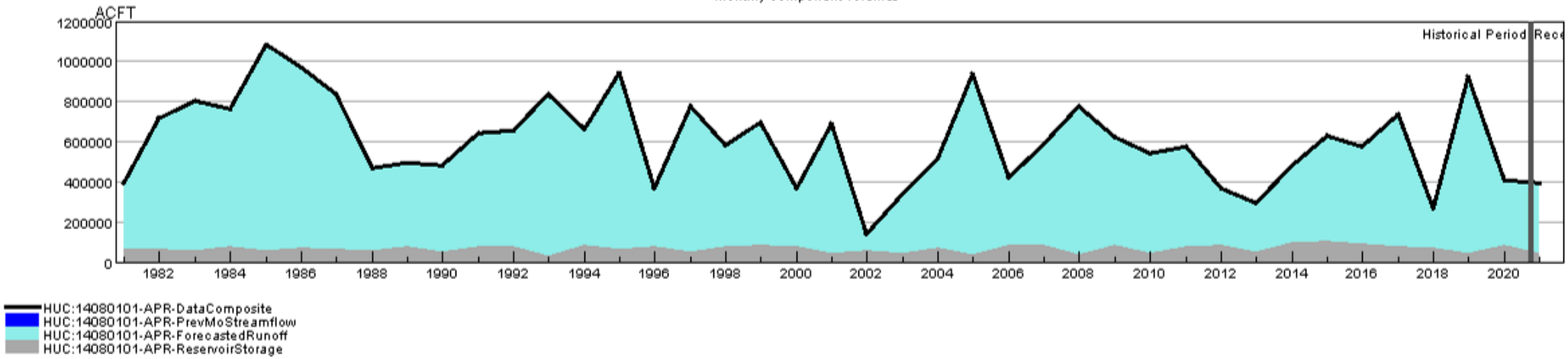
HUC 14050005 (Upper White) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



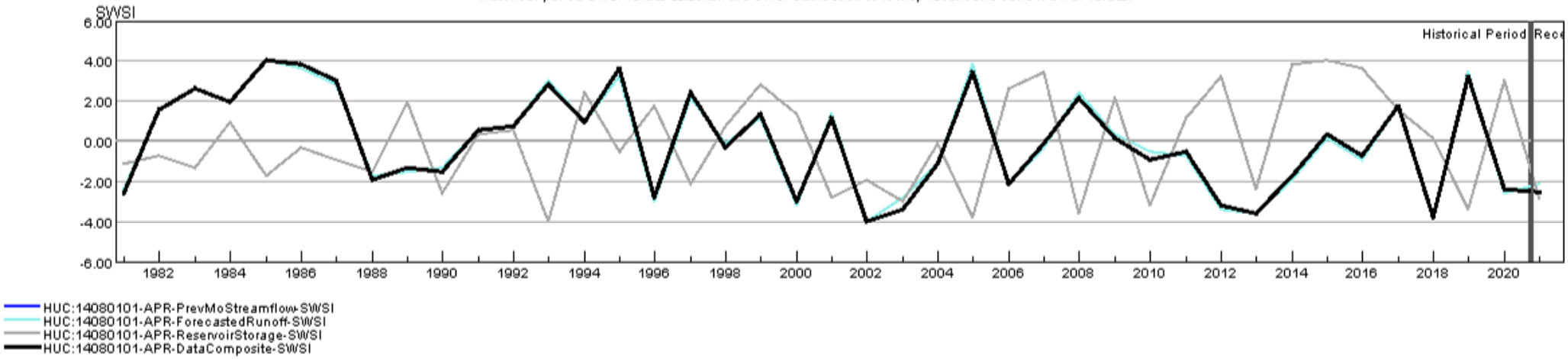
HUC 14080101 (Upper San Juan) Surface Water Supply - APR

Monthly component volumes



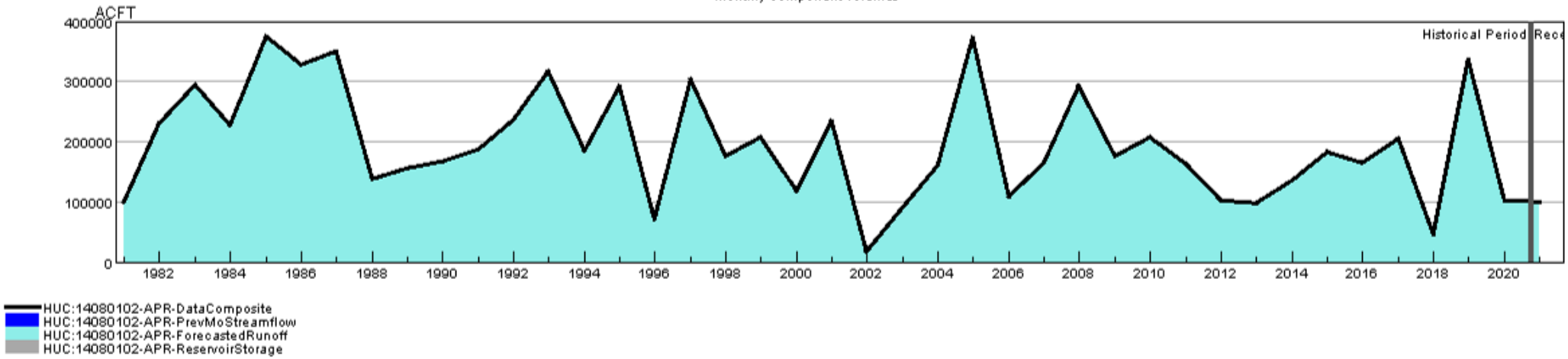
HUC 14080101 (Upper San Juan) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



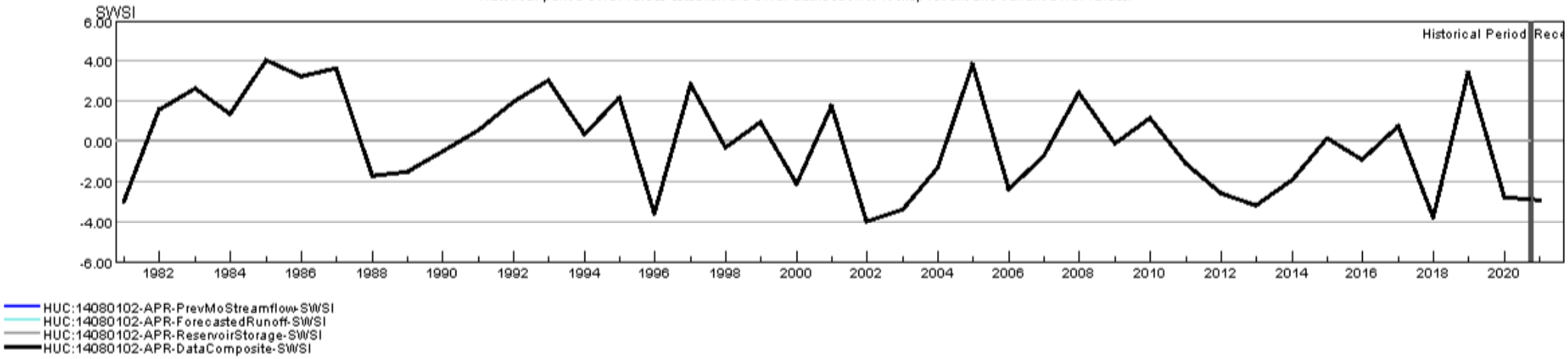
HUC 14080102 (Piedra) Surface Water Supply - APR

Monthly component volumes



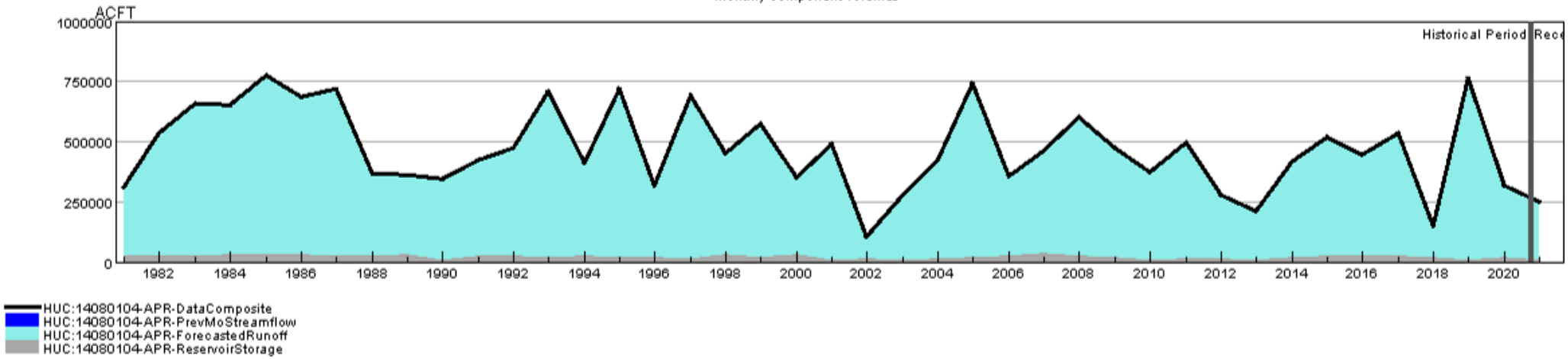
HUC 14080102 (Piedra) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



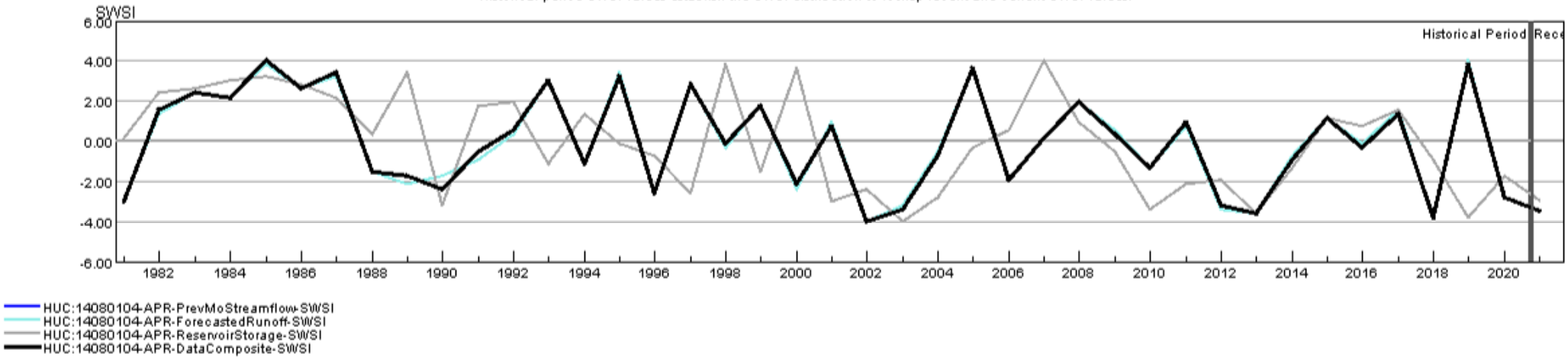
HUC 14080104 (Animas) Surface Water Supply - APR

Monthly component volumes



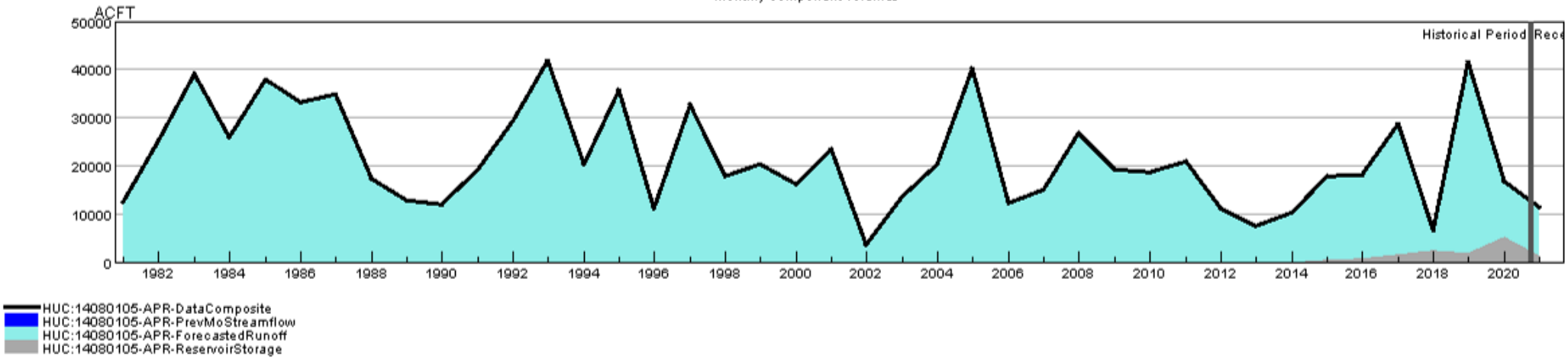
HUC 14080104 (Animas) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.



HUC 14080105 (Middle San Juan) Surface Water Supply - APR

Monthly component volumes



HUC 14080105 (Middle San Juan) SWSI Values - APR

Historical period SWSI values establish the SWSI distribution to lookup recent and current SWSI values.