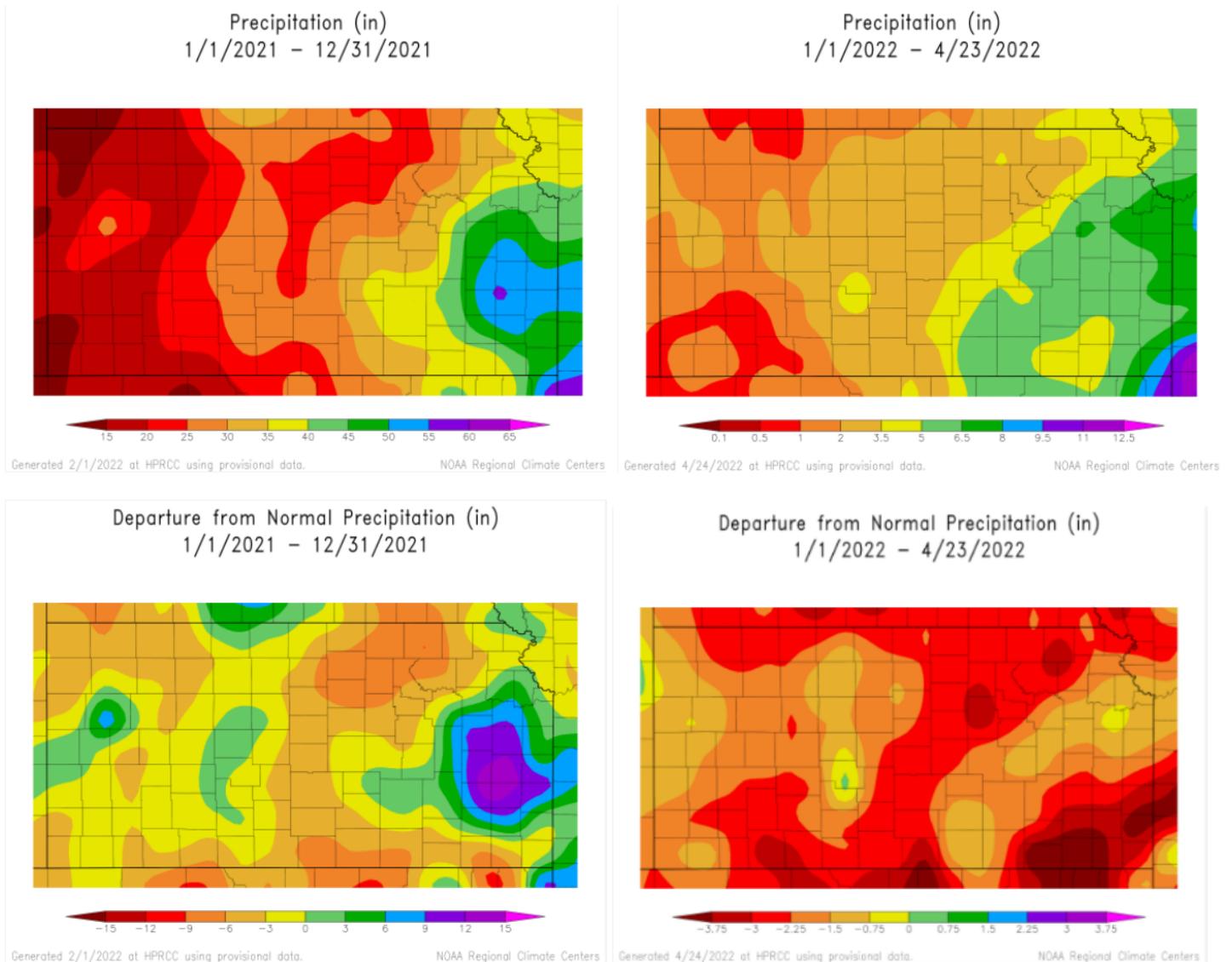


Kansas- Nebraska Big Blue River Compact Meeting May 18, 2022
Report by Kansas Department of Agriculture- Division of Water Resources
Topeka Field Office- Katherine A. Tietsort

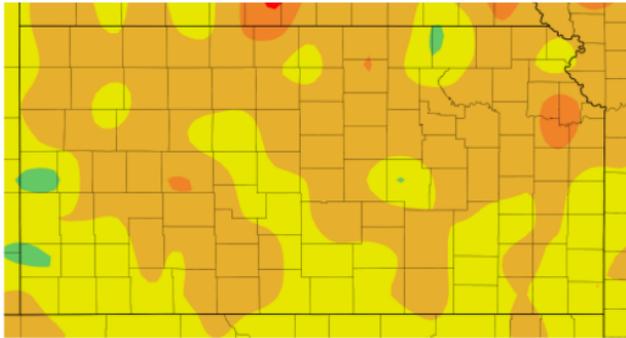
Climatic Conditions- Precipitation & Temperatures

Precipitation has been mostly uniform across the basin during the 2021 calendar year although it reflects a rather low amount compared to normal. The High Plains Regional Climate Center reported between 20 and 30 inches of precipitation in calendar year 2021 across the entire Big and Little Blue River basin area in Kansas, including the tributary basins. This represents 70 to 90% of normal precipitation for the year. Precipitation ranged from about 3 inches below normal to 9 inches below normal, for the year. So far this year, the portion of the basin in Kansas has received 2 to 5 inches of precipitation, which is 2.25 inches below to 3.75 inches below normal precipitation.



Temperatures for the calendar year 2021 ranged from 1 degree colder to 2 degrees warmer. So far in 2022, temperatures have ranged from normal to 5 degrees cooler than normal. We are seeing the trend from last year continue, which is reflected in the Standardized Precipitation Index (SPI). SPI takes rainfall data represented by a Gamma distribution, fits it into a bell curve, and then computes the data to show values independent of location and range of values so that different seasons and climate areas are all represented equally. Ranges greater than 1 either direction on the scale mark moderate drought and moderate wet conditions. The SPI showed an area central to the basin where values were beginning to show a trend developing towards drought in 2021. That trend had become more significant in 2022 until the very recent precipitation event occurred.

Departure from Normal Temperature (F)
1/1/2021 – 12/31/2021



Generated 2/1/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

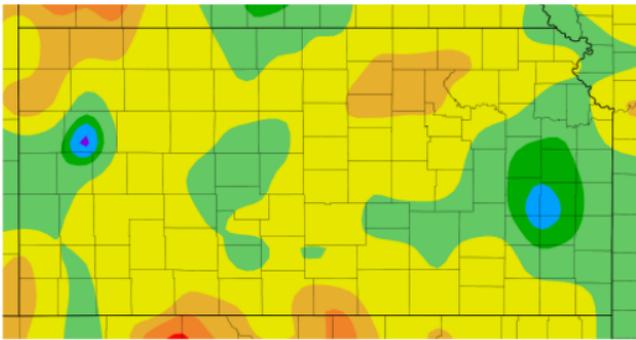
Departure from Normal Temperature (F)
1/1/2022 – 4/23/2022



Generated 4/24/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

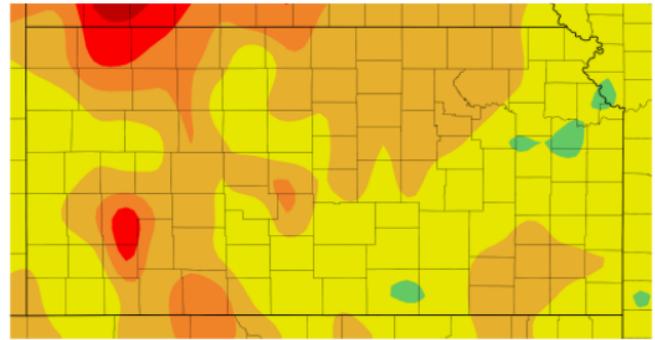
12-Month SPI
1/1/2021 – 12/31/2021



Generated 2/1/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

Year-to-Date SPI
1/1/2022 – 4/24/2022



Generated 4/25/2022 at HPRCC using provisional data.

NOAA Regional Climate Centers

Streamflow and Administration Within the Big Blue Compact Basin

Statistics reflect 37 years of data at Marysville (Big Blue) and 63 years of data at Barnes (Little Blue).

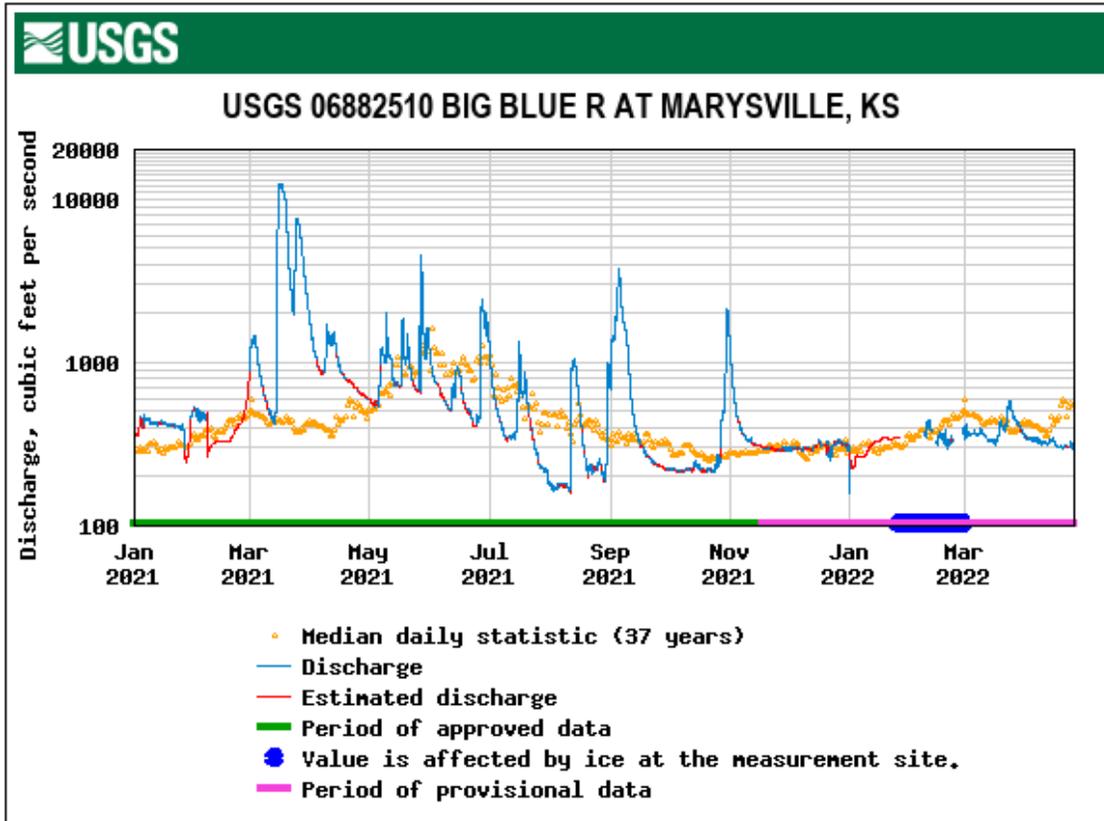
In 2021, streamflow reflected peak runoff periods that occurred in spring then again late summer into fall at both gages. Interestingly, the peak runoff events appear to have occurred later in the summer season in 2021 than the statistical values indicate they normally occur. So far in 2022 flows have been near median value on the Big Blue, while the Little Blue flows have been decreasing and are significantly lower than the median value.

We did not trigger Minimum Desirable Streamflow (MDS) criteria within the Basin and MDS administration of junior rights did not occur in the basin or tributary basins in 2021 nor in 2022 to date.

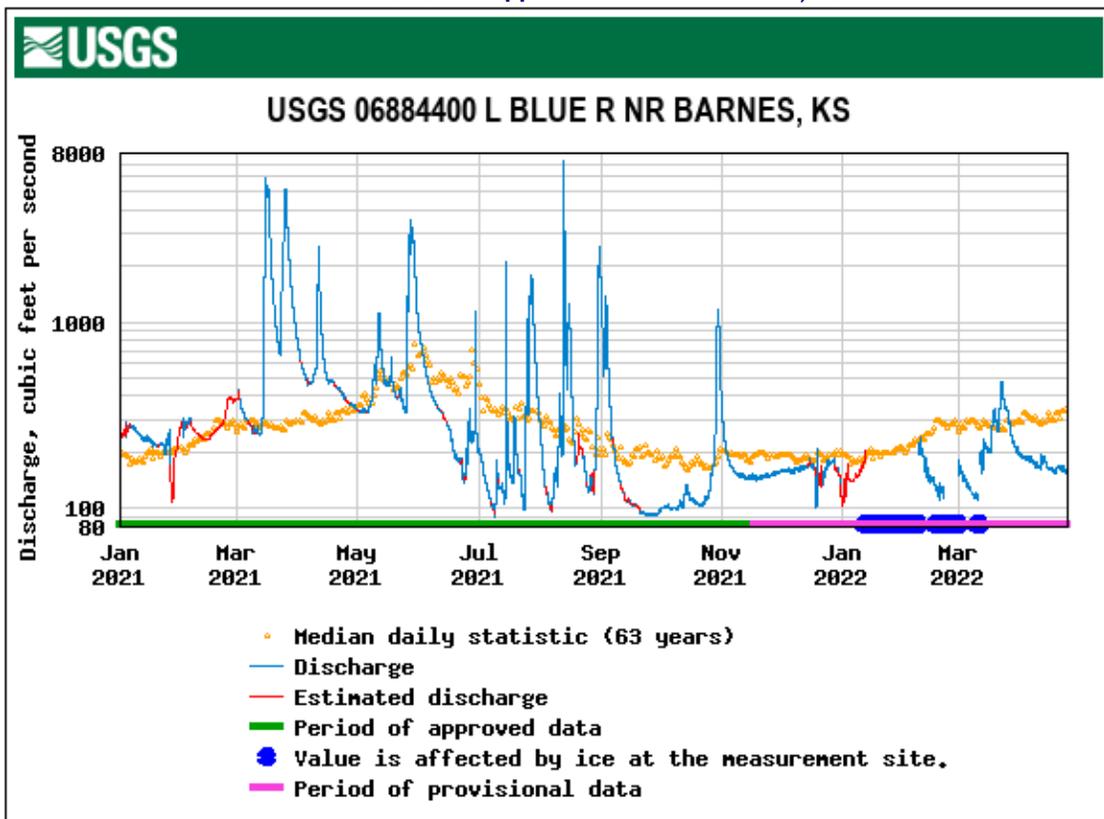
Watercourse	Minimum Desirable Streamflows (cfs)											
	Month											
	J	F	M	A(a)	M(a)	J(a)	J	A	S	O	N	D
Big Blue												
Marysville	100	100	125	150	150(d)	150(d)	80	90	65	80	80	80
Little Blue												
Barnes	100	100	125	150	150(d)	150(d)	75	80	60	80	80	80

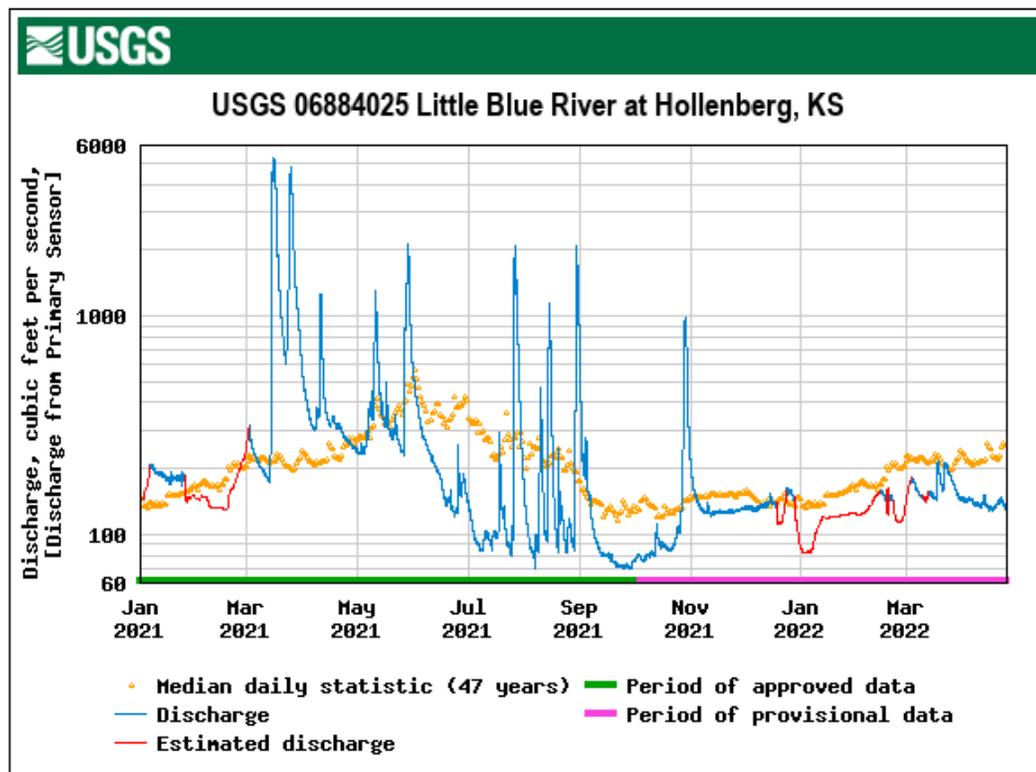
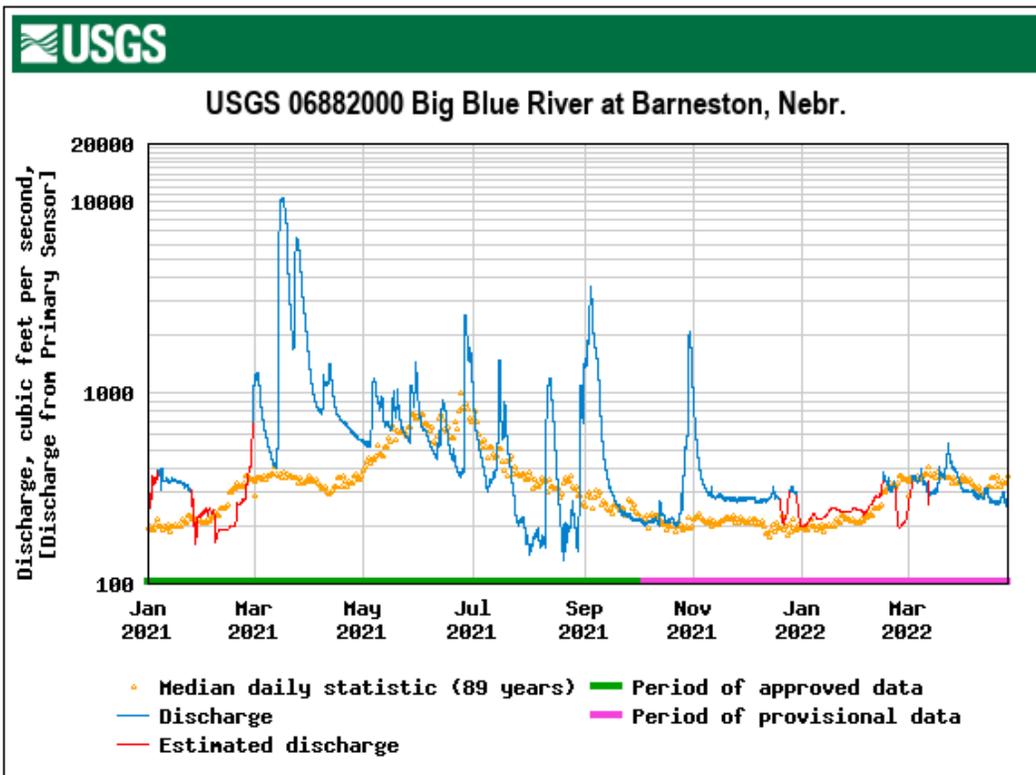
(d) Subject to the stateline flows contained in the Blue River Compact.

USGS 06882510 BIG BLUE R AT MARYSVILLE, KS



USGS 06884400 L BLUE R NR BARNES, KS





The compact gages at Barneston and Hollenberg reflected more normal conditions throughout 2021 as well. For the period of 1/1/2022 through today, flows remained sufficient to avoid any MDS administration in the Compact Basin. There has been no water rights administration within the Big Blue River, Little Blue River, Mill Creek, or the Black Vermillion River.

Administration Activities

No water right files were administered for Minimum Desirable Streamflows (MDS) in 2021 in either the Topeka Field Office area or the Compact area. 9 surface water right files above the Alta Mills gage on the Little Arkansas River in south-central Kansas remained under MDS administration, which had begun in September 2020. Those MDS administration orders were rescinded in February 2021. On November 29, 2021, MDS administration orders were once again issued for the Little Arkansas River basin above the Alta Mills gage, this time for 25 surface water rights. That administration remains in effect as of May 12, 2022.

On April 15, 2022, MDS administration orders were issued for the Republican River basin, which remain in effect as of May 12, 2022. In the basin above the Concordia gage to the Nebraska state line, 34 groundwater and 44 surface water rights (78 total) are under administration. In the basin between the Clay Center and Concordia gages, 74 groundwater and 89 surface water rights (163 total) are under administration.

Streamflows as of May 9, 2022			
Gaging Station	Current Flow	May MDS	Comment
Republican River at Concordia	198	150	Admin began April 15, 2022; 78 files; Estimated 60-day moving average discharge to MDS ratio is 1.21
Republican River at Clay Center	357	250	Admin began April 15, 2022; 163 files; 60-day moving average discharge to MDS ratio is 1.12
Little Arkansas River at Alta Mills	31	8	Admin began November 29, 2021; 25 files

Pursuant to K.S.A. 82a-706b, KDA-DWR protects water released from storage in Federal Reservoirs. Protection Orders were in effect in Neosho River basin between Council Grove Reservoir and the City of Emporia for 10 surface water rights between September 8, 2020 and April 30, 2021. On August 27, 2021, the same group of 10 water rights were administered in Kansas for Protection between as follows:

Stream	Administration Began	Administration Ceased	Files Administered
Neosho River	August 27, 2021	January 14, 2022	10

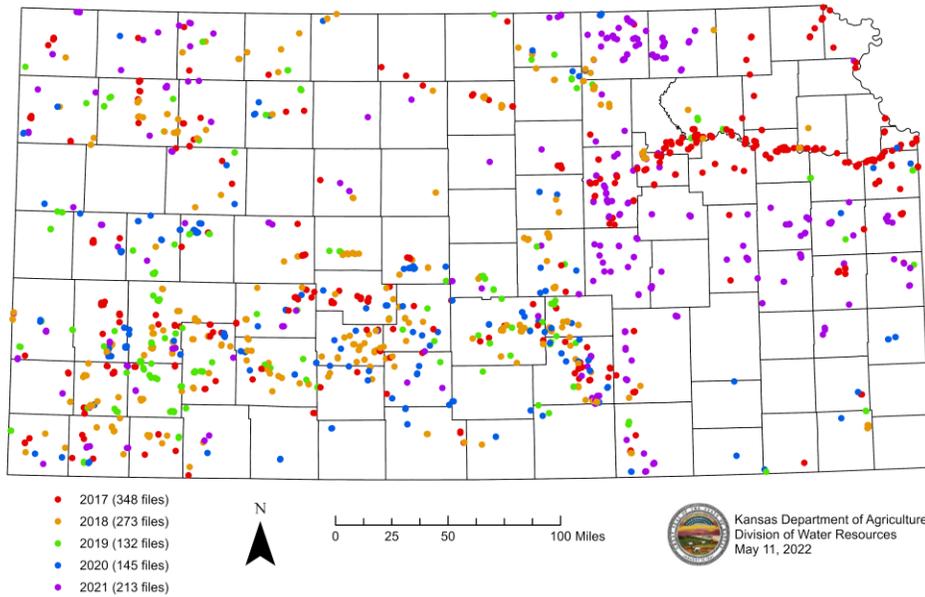
While no administration occurred in the Compact Basin, the southern half of the Topeka Field Office territory continued to struggle with flows on and off in 2021, which is continuing in 2022.

We have reported a number of times on the Lower Republican River Stakeholder group (LRAD) that has worked to establish a Special Irrigation District. Although bylaws were instituted and the Board was put in place, additional progress has not occurred. The necessary legislation to authorize the District was not introduced again during this session. The main challenge for this group is obtaining permanent storage space. To obtain this storage space in Harlan reservoir, the USACE would need to do a reallocation study or it would otherwise need to be addressed.

Compliance & Enforcement Activities

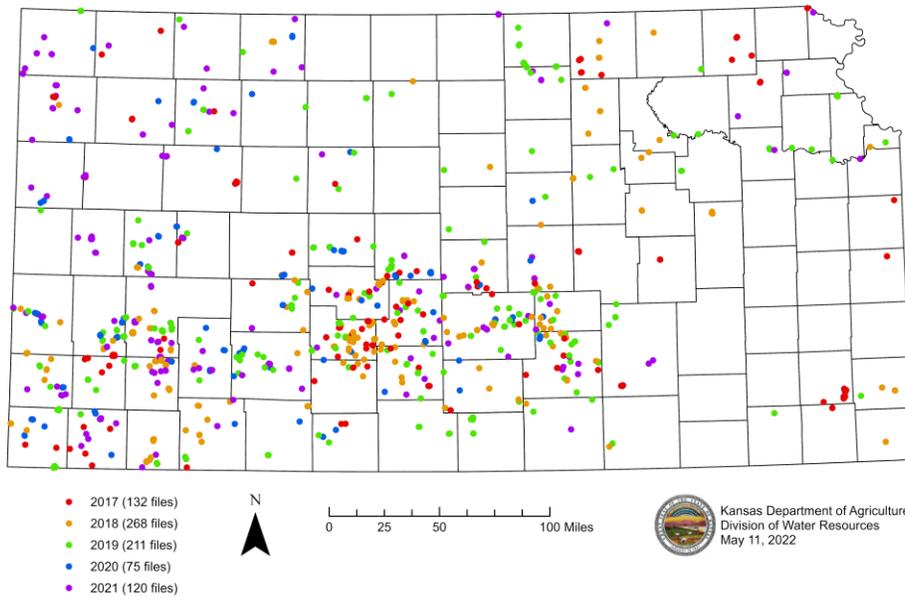
In 2021, KDA-DWR issued Notices of Non-Compliance (NONC), Notices of Non-Compliance Cease Diversions (NONC-CD), or Formal Cease and Desist (CD) Orders on 121 files in the Topeka Field Office area (eastern Kansas) and 213 files statewide. 34 CDs in total were issued in the Compact area in 2021. Most of these were due to a recent initiative. The Topeka Field Office issued basin-wide meter orders generally between 2007 and 2016 to complete the statewide metering initiative that was ongoing at that time. During this effort, TFO identified several water right owners who were not currently using their water rights for various reasons who did not wish to spend the money necessary to install the required water flowmeter meeting all the requirements of the metering regulations. For these folks, TFO provided a Notice of Non-Compliance Cease Diversion option. These Notices are a form of agreement between the owner and KDA-DWR that the owner agrees not to use the water right until the required metering is installed and it is field checked for compliance. Because Notices are not subject to the Kansas Judicial Review Act (KJRA), they are essentially non-binding. Now that several years have passed since these started getting issued, a problem has developed. A few of the owners have sold, transferred, auctioned off or otherwise transferred these water right files. When due diligence is done, realtors, property auctioneers, and new owners typically request all Orders issued under a water right to determine what the water right authorizes and what legal sanctions or other issues exist under the right. Since the NONC-CDs are not orders, they aren't included, which causes compliance problems. Because of this, the TFO has initiated a campaign to work county by county as we complete field work and issue Formal Cease and Desist Orders of the Chief Engineer to the current owners of these files. This does not represent a large, new compliance issue. This is why the number of Cease and Desist Orders is increased so significantly from previous years. This effort is anticipated to be completed in 2022.

**Notices of Non-Compliance and Cease and Desist Notices Issued
2017 to 2021**



As part of the Overpumping Program, the Topeka Field Office issued 8 penalty orders in 2021: 7 for water users who exceeded their authorized quantity in the 2020 calendar year (4 municipal, 2 stockwatering, and 1 contamination remediation), and 1 to a stockwatering user for failure to maintain a compliant water flow meter. Of those, the 2 overpumping penalties for stockwatering rights were within the Compact area. Statewide, DWR issued penalties on 120 water right files in 2021. Thus far in 2022, 5 CDs total have been issued in the Compact area; a total of 64 CD orders have been issued by the Topeka Field Office in 2022. Thus far in 2022, no penalty orders have been issued by the Topeka Field Office, either within or outside the Compact area.

**Penalty Orders Issued
2017 to 2021**

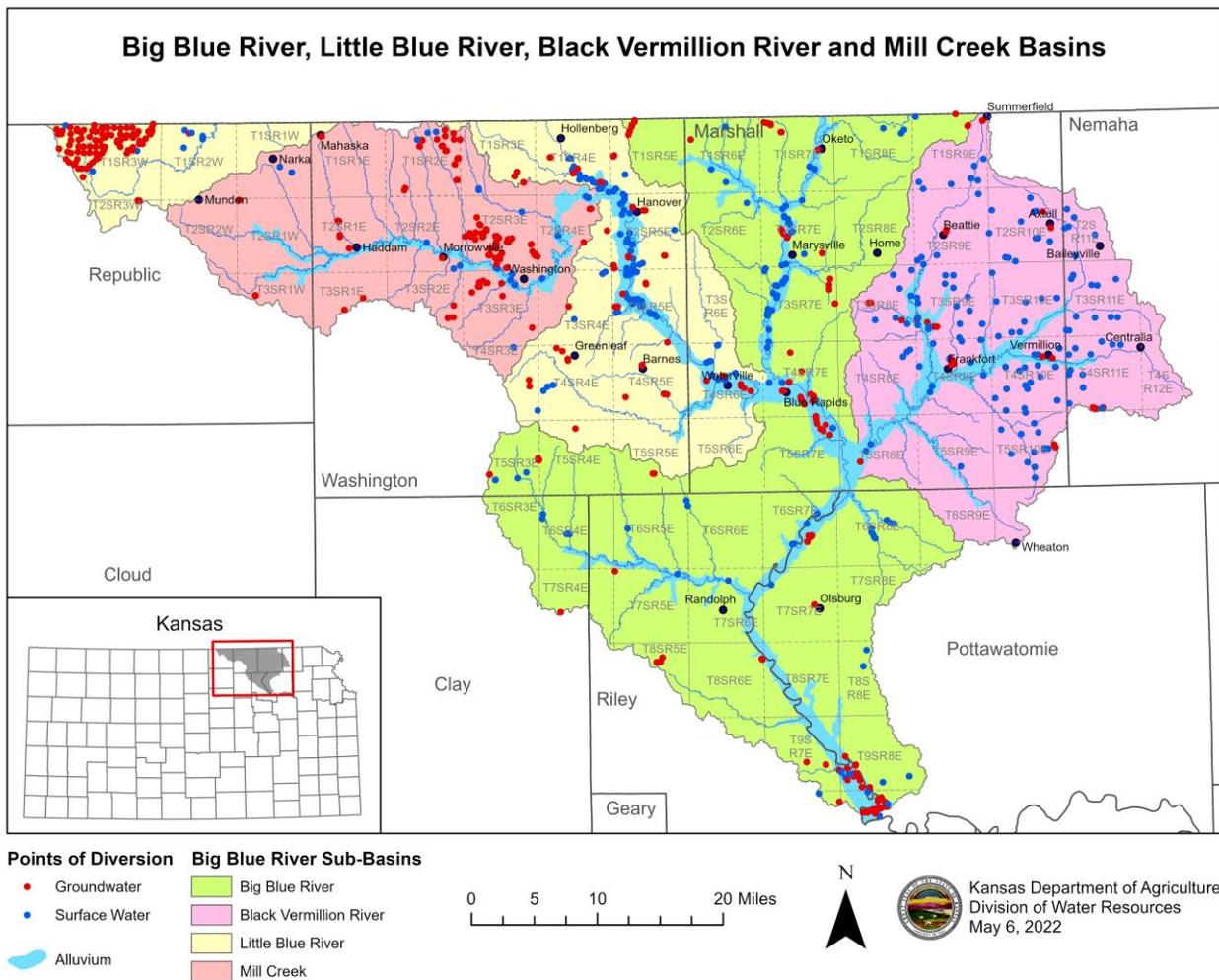


New Development

In 2021, KDA-DWR received 21 new applications (12 for appropriated water rights, 8 for temporary permits, and 1 for a term permit) within the Compact area. This is an increase from the 8 applications received in 2020 (5 for appropriated water rights, 2 for temporary permits, and 1 for a term permit) within the Compact area. In 2022 so far, KDA-DWR has received 6 new applications (4 for appropriated water rights and 2 for temporary permits) within the Compact area.

In 2021, KDA-DWR approved 14 applications (5 for appropriated water rights, 8 for temporary permits, and 1 for a term permit) within the Compact area. In 2020, KDA-DWR approved 6 applications (2 for appropriated water rights, 2 for temporary permits, and 2 for term permits) within the Compact area. In 2022 so far, KDA-DWR has approved 4 applications (2 for appropriated water rights and 2 for temporary permits) within the Compact area.

The requests for new appropriation permits and requests for applications for changes to existing permits continues to trend upward. In 2021, the TFO provided 181 application packages to customers- representing 108 new and 73 change requests. So far in 2022, TFO has assisted with 54 requests. This trend follows what we are seeing statewide and is creating a new application backlog.



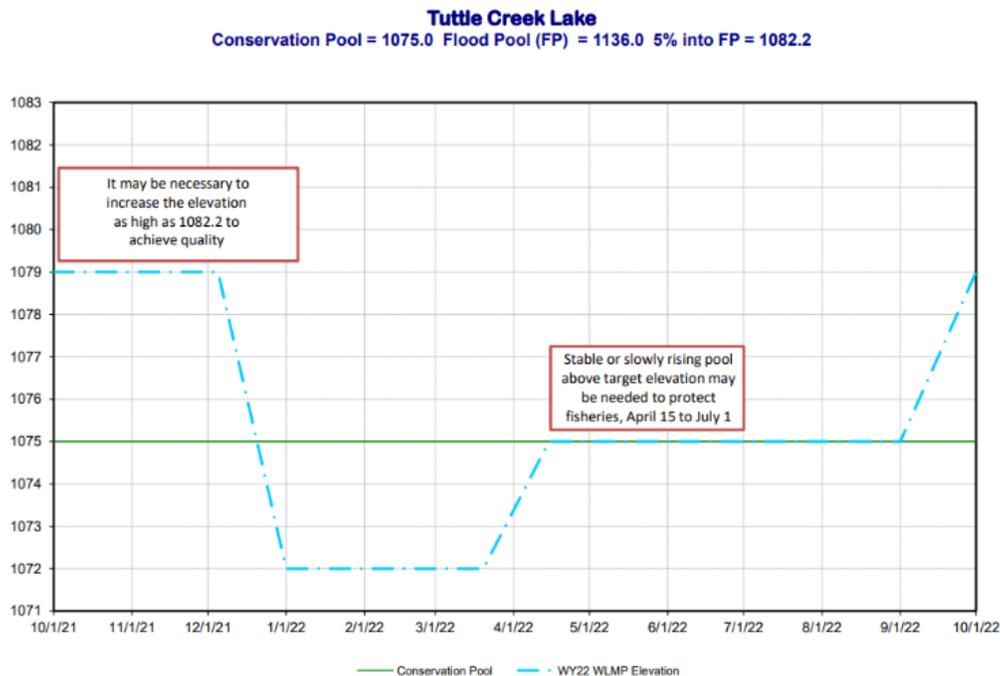
TFO Activities

The Topeka Field Office continues focusing on core mission inspections. In 2021, we completed 48 full field inspections, which includes rate tests, and 472 compliance investigations. We continue to decrease the backlog that had accumulated and continue working in the last areas that haven't yet been caught up.

The project to fully go electronic in the Topeka Field Office by scanning and converting all water right hard files to DocuWare images was recently completed. This was a 3-year project that involved preparing the file for imaging, imaging the file, storing it in the state archival system, reviewing the images page-by-page against the originals for quality control, and then disposing of the hard file by returning it to the owner. The nearly 5,000 active files within the TFO territory are all available within the DocuWare system now. There remains about 120 boxes of files to be reviewed for quality control. We continue to return files to owners as we perform field work and arrange other opportunities. This has resulted in the TFO being a completely paperless office and the KDA-DWR is working on the final piece of this conversion, making our application process electronic. We have found that working electronically, particularly through email and texting, has been a significant convenience for our customers and has enhanced our customer service. Nearly all paperwork is now handled electronically, except for applications.

Tuttle Creek Reservoir

Lake Level Management plans were approved in fall of 2021, again as per the previous version approved. The main focus is support of spawning fish and wildlife habitat.



TUTTLE CREEK LAKE	Time	Elevation	Comment
	Oct 1 – Dec 5	1079-1082.2	Attract migrating waterfowl, achieve quality habitat
	Dec 5- Mar 20	1072	Reduce ice damage potential and provide water storage, then hold through Mar 20
	Mar 20 – Apr 15	1075	Rise to reach top of conservation pool and enhance boating then hold through Sep 1
	Apr 15 – July 1	1082.2 max	Evacuate flood water to enhance crappie population. Protect tern and plover nests on the Kansas River
	July 1 – Sep 1	1075	Maintain conservation pool to re-vegetate shoreline. Consideration for navigation.
Sep 1 – Sep 30	1079	Rise to inundate wetland habitat and attract migrating waterfowl	

Kansas River Basin Study

Monitoring and data collection remains ongoing for the Kansas River Reservoirs Flood and Sediment Study. The study includes the compact area. The study goal is to determine what actions are needed in the basin to extend the life of the reservoirs and to establish steps to reduce flood risk and increase infrastructure benefits, improve sediment management, mitigate drought, improve water supply availability, restore essential ecosystem, and enhance water quality and recreation. The Final Watershed Study Report is expected in Fall of 2023.

