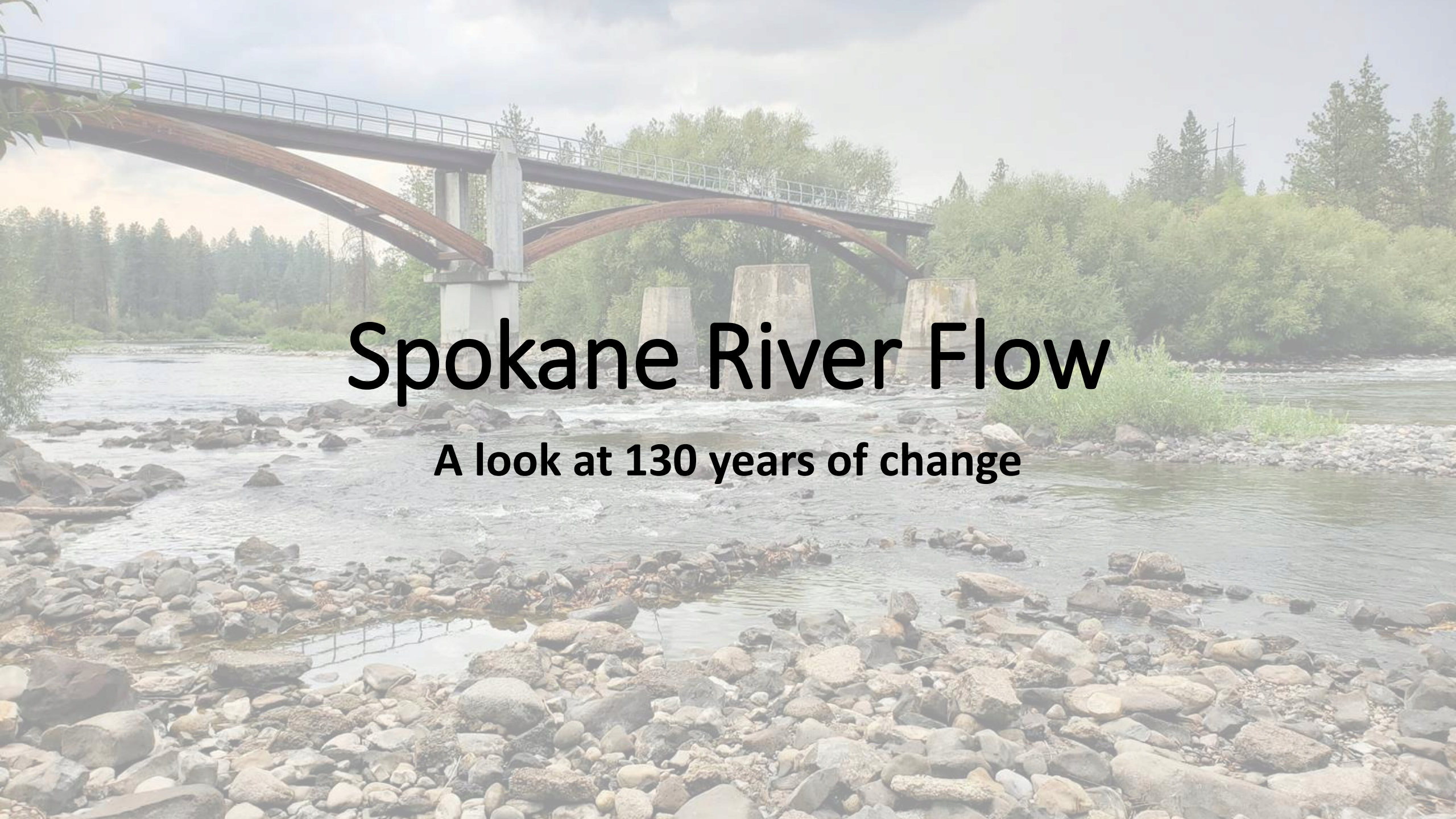


# Spokane River Flow

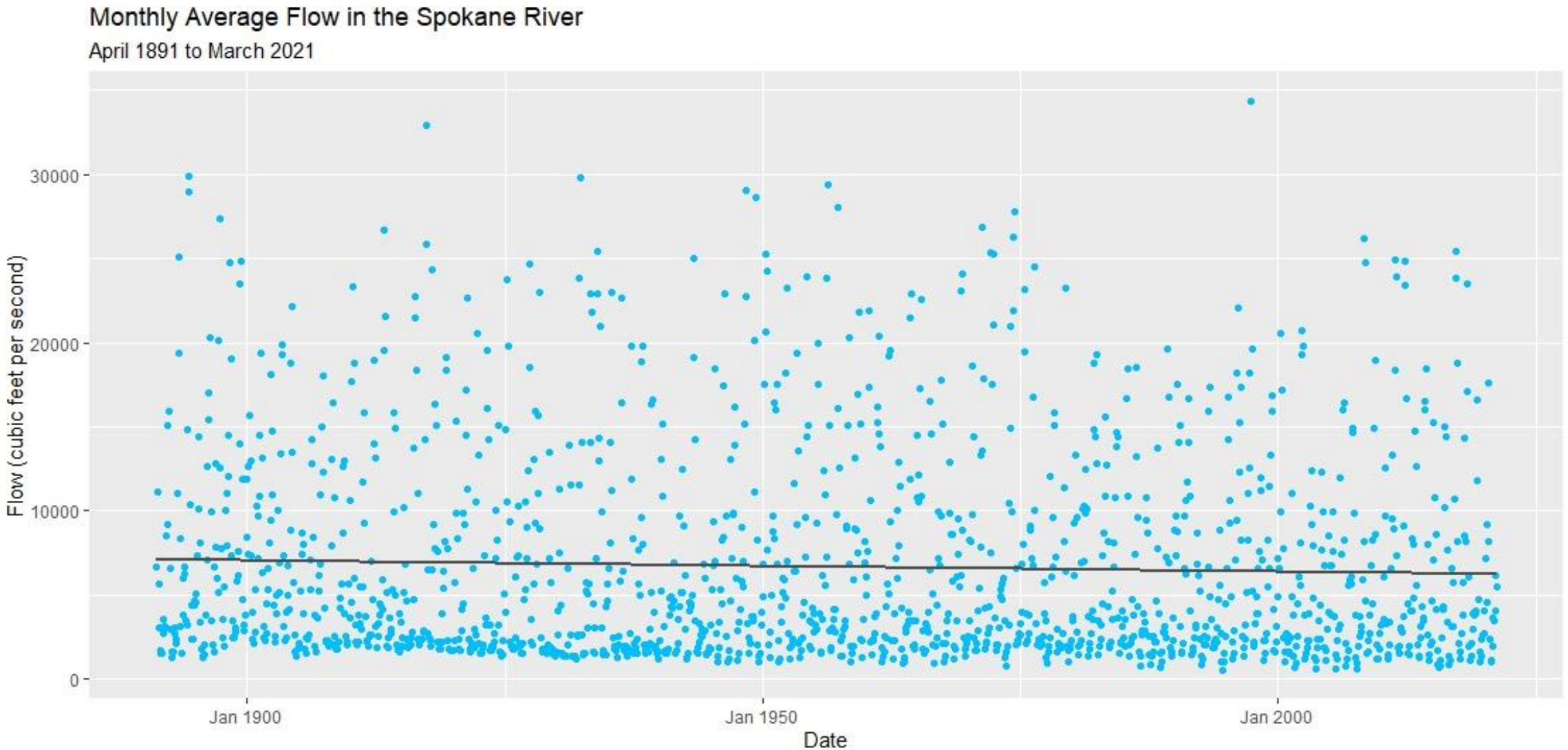
## A look at 130 years of change

# Overview

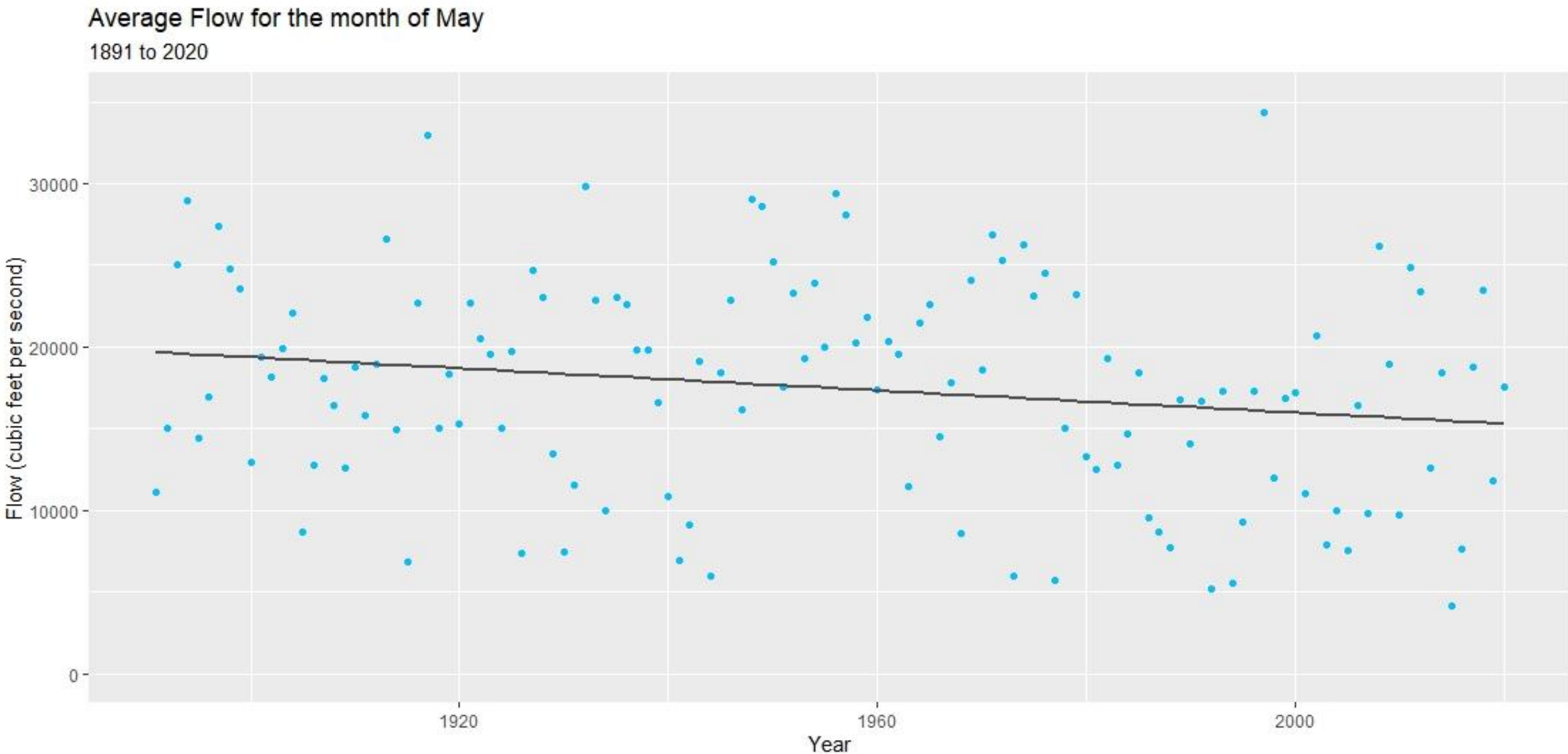
For the last 130 years, overall flow rates in the Spokane River have been diminishing. Most of the decline is occurring in the late spring and early summer months. A warming climate is reducing the amount of snowpack in the mountains. This leaves less water storage to replenish the river in the summer.

During recent years of drought, flow rates were exceptionally low July through September. A shrinking habitat for native coldwater fish like the redband trout is further impacted by pumping from the aquifer. Sections of the river that receive cold aquifer water are negatively impacted by high water usage in the summer to irrigate lawns and gardens. If we are to sustain flows in the river needed to support fish and other aquatic life, then as a community we need to reduce our outdoor water usage especially during drought periods, while increasing other water sustainability practices wherever possible.

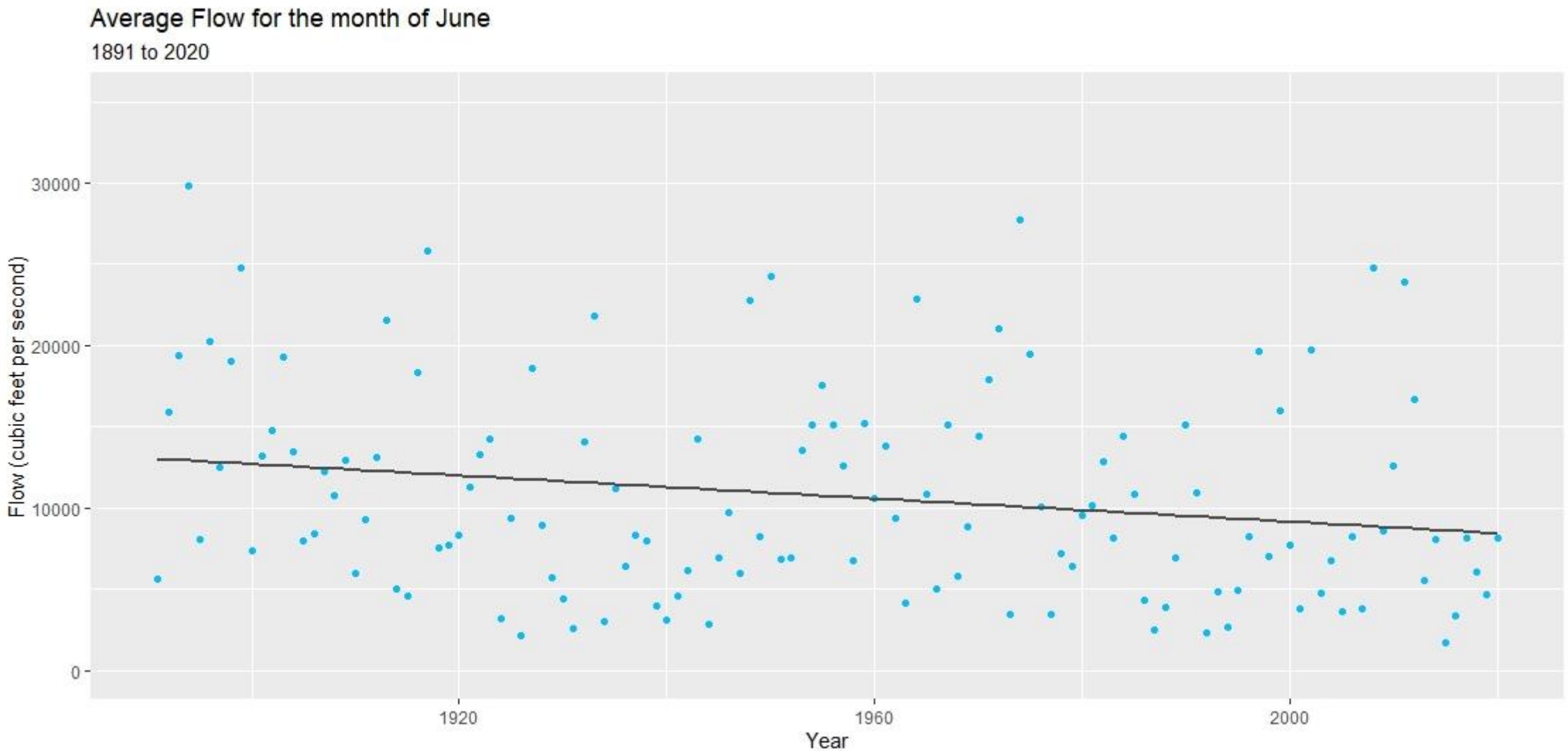
In the next several slides, we will look at how flow in the river has decreased over the last 130 years, focusing on the changes observed in late spring and summer.



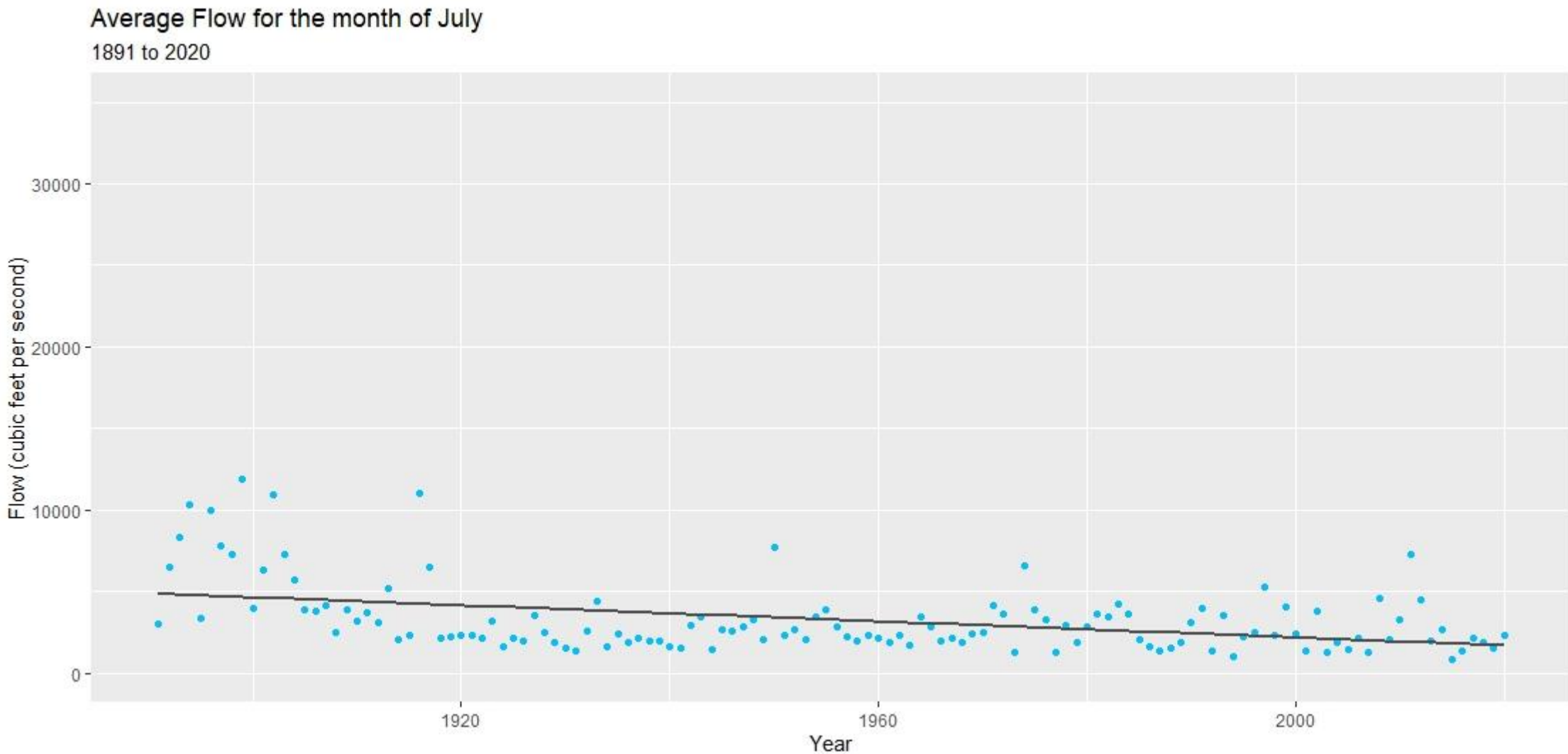

On average, flow rates in the Spokane River have been decreasing by 6.7 cubic feet per second each month between April 1891 to March 2021 (Based on data from the USGS gauge at river mile 72.9, below Maple Street Bridge in Spokane, WA).



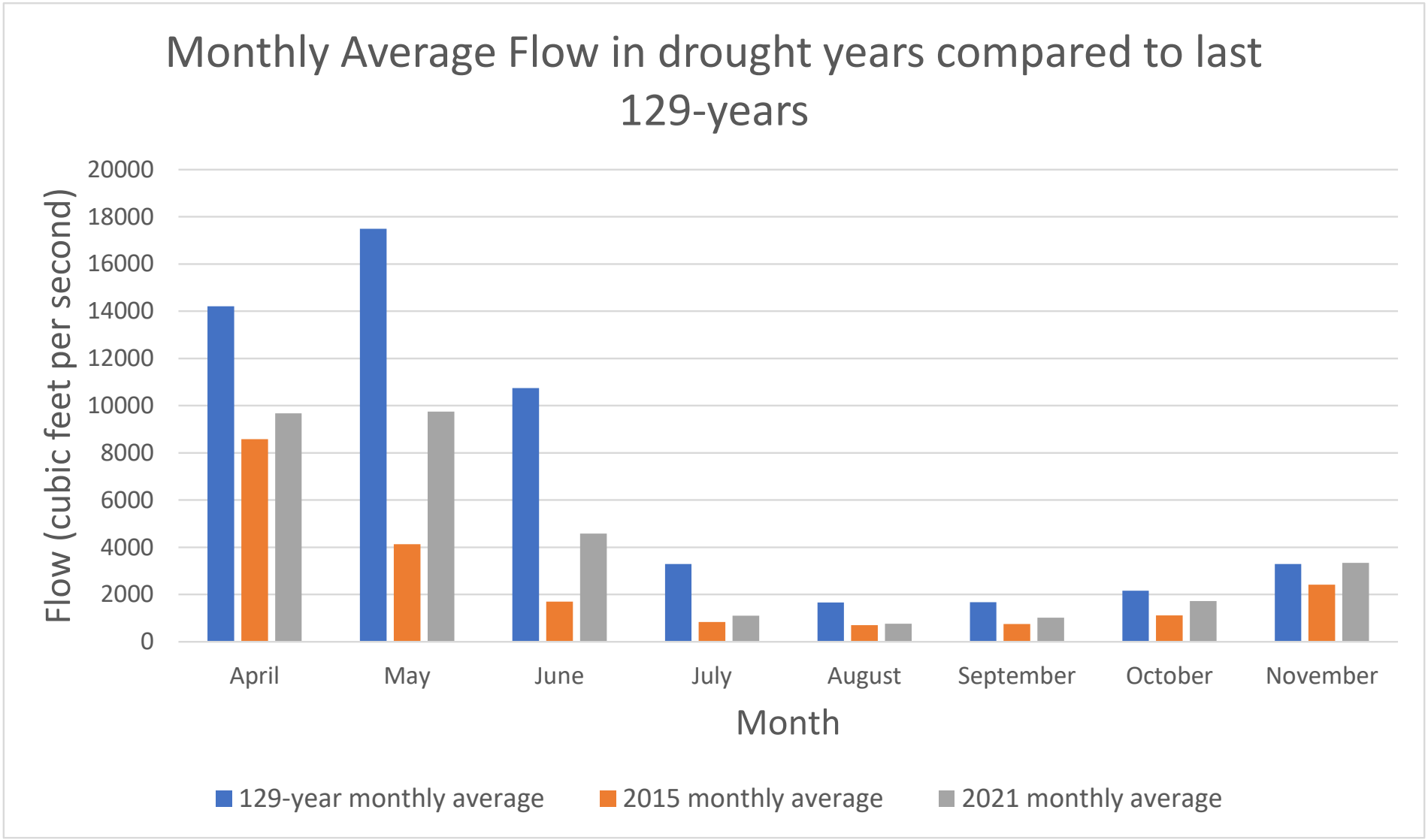

Average flow rates in the month of May are declining by 34 cubic feet per second every year from 1891 to 2020.




Average flow rates in the month of June are declining by 36 cubic feet per second every year from 1891 to 2020.




Average flow rates in the month of July are declining by 25 cubic feet per second every year from 1891 to 2020.




We also see how average monthly flow during drought years 2015 (in orange) and 2021 (in gray) compare to the last 129-year average (in blue). The 2015 drought was much more severe, with flow rates in June reaching only 16% of the average.

| Month | Monthly average change each year (cubic feet per second) |
|---|---|
| January | +0.74 |
| **February** | **+20** |
| **March** | **+17** |
| April | +0.27 |
| **May** | **-34** |
| **June** | **-36** |
| **July** | **-25** |
| August | -13 |
| September | -5 |
| October | +1.2 |
| November | -1.3 |
| December | -0.65 |

February and March show significant increases in flow over the last 130 years, most likely due to earlier melting of snowpack or precipitation falling as rain instead of snow.

The greatest reduction in flows have occurred in spring and early summer when young trout are most vulnerable.

Overall, the losses of flow are much greater than the gains. Most of this reduced flow occurs in the spring and early summer when young trout are most vulnerable.

All data in the preceding graphs were obtained from the following sources:

National Water and Climate Center. (n.d.). *Monthly snow data*. United States Department of Agriculture Natural Resources Conservation Service. Retrieved on January 1, 2022, from https://wcc.sc.egov.usda.gov/nwcc/rgrpt?report=snowmonth_hist&state=ID & https://wcc.sc.egov.usda.gov/nwcc/rgrpt?report=snowmonth_hist&state=WA

National Water Information System. (n.d.). *Surface water data for USA: USGS surface-water monthly statistics*. U.S. Department of the Interior U.S. Geological Survey. Retrieved on December 30, 2021, from https://waterdata.usgs.gov/nwis/monthly/?search_site_no=12422500&agency_cd=USGS&referred_module=sw&format=sites_selection_links

National Water Information System. (n.d.). *USGS surface-water daily data for the nation*. U.S. Department of the Interior U.S. Geological Survey. Retrieved on December 30, 2021, from https://waterdata.usgs.gov/nwis/dv/?site_no=12422500&agency_cd=USGS&referred_module=sw