Hydrology Part II

Federal Climate Change Study Recap

Summary

River Management Joint Operating Committee (RMJOC) II Results

- Model agreement on increase in water supply volumes.
- Natural flow hydrograph shifted earlier and with more variability.
- No change to baseflow of natural flow hydrograph.
- Regulation upstream of Idaho Power significantly dampens and smooths changes to natural flow.

For Integrated Resource Plan (IRP) modeling, Idaho Power continues to evaluate the projected change to water supply in climate change modeling.

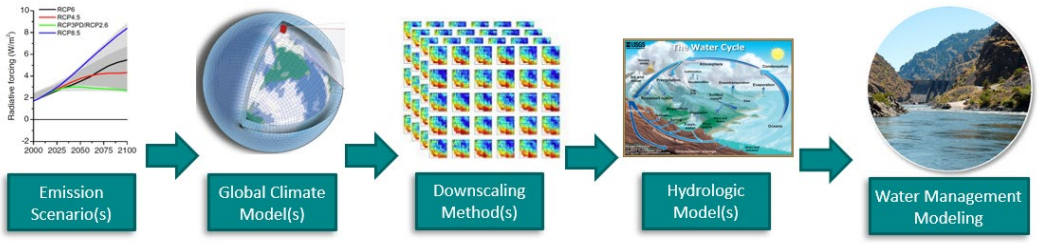
- Over the 20-year planning horizon of the IRP, other factors, such as managed aquifer recharge and weather modification, influence future water supply distributions.

Long-Term Climate Change Planning Studies

- RMJOC-I was the first of the major long-term planning studies for the Pacific Northwest region. This effort consisted of a 4-part study that looked at the impacts of climate change on the Columbia River Basin and its tributaries. A second iterationof the study (RMJOC-II) was completed in 2018 using more recently available climate data and updated modeling techniques.
- Columbia River Forecast Group (CRFG) was assigned as the main technical body to review the progress of the 6-year RMJOC-II study. Idaho Power regularly attends CRFG and participated in the review of the RMJOC-II study.

To view the full study, visit: www.bpa.gov/energy-and-services/power/climate-change-fcrps

Climate Change Hydro Modeling Workflow



- A good resource for climate change data and documentation can be found here: https://climatetoolbox.org

Snake Basin Projected Changes Over the IRP Planning Period

- Strong model agreement on increasing temperatures (in the range of 1 to 5 degrees Fahrenheit [°F])
- On an annual basis, there is general agreement in the model for increased precipitation (in the range of -2 to 12%).
- The average snowpack in the basins is expected to decrease, particularly in the low elevations.
    - In the upper elevations of the Snake River Basin, little-to-no change in snowpack is expected.
- Winter and spring make up two thirds of the normal precipitation in the Snake River Basin.
    - The models agree that precipitation increases are expected during these two seasons.
- The models have some disagreements related to the driest seasons (summer and fall).
    - Some models project an increase whereas others see a less-favorable precipitation volume over these seasons.
- Strong model agreement on increasing natural streamflow volumes annually.