Water Supply Availability Committee/Drought Readiness Council Meeting – July 19, 2023

Phone Conference – Meeting Notes

Attendees

Ryan Andrews – OWRD (Chair)
Curtis Peetz – OEM
Larry O'Neill – OCCRI/OSU
Jonna Papaefthimiou – GOV
Steve Parrett – DEQ
Jim Johnson – ODA
Matt Warbritton – NRCS
Andy Bryant – NWS
Cameron Greenwood – OWRD
Spencer Sawaske – ODFW
Marc Stewart – USGS
Tom Elliott – ODOE
Henry Pai – NWRFC
Andy Martin - USACE

Presentations – update on water supply conditions

Matt Warbritton

- Many sites along Cascades experiencing lowest or second lowest precipitation last 71 days since May 8
    - Some sites in NE OR as well
- Precipitation since April 1 measuring below average along Cascades and in Blue and Wallowas
    - Above average in Ochocos and Aldrich Mountains, Steens and some sites in Klamath
- Soil moisture
    - Billie Creek Divide soil moisture was above normal through spring but since dropped recently to near to below average
    - Quartz Mountain above average through winter and summer
    - Silvies above average
    - Clackamas Lake below average
    - Snow Mountain soil moisture dropped off from above average in May, now below average
    - Bourne sustained above average due to wet spring in terms of precipitation
    - Mt Howard trending below average
    - High Ridge below average
    - GRACE root zone generally agrees with soil moisture indicators, somewhat lacking agreement in Blue Mountains

Andy Bryant

- Water year precipitation near to above normal in SE OR
    - NW generally below normal
    - Western slopes of Cascades and Coast much below average
- Precipitation over past 90 days well below average west of Cascades and worse in some coastal areas
    - Precipitation deficits along coast are not negligible
    - Wind also playing a role in drought conditions
- Temperatures near to slightly above normal since spring and for June

- Mid-June outlook shows little to no precipitation expected
    - Temperature outlook also leaning above average
- ENSO status and prediction
    - Onset of ENSO conditions
    - Projections show moderate to borderline strong El Nino for fall and winter
- Seasonal outlook for July through September
    - Above average temperatures with negligible precipitation (typically expected anyways)
    - Similar conditions expected for August through October

Henry Pai

- Many sites in western OR below to well below average
    - Eastern Oregon showing near to well above average
- April through September forecasts
    - Forced by 10-day deterministic precip and temp forecasts
        - Beyond those add historical climatological information
    - Cold temperatures influencing above average forecasts for western OR, meaning snow was expected to stick around longer than it did
    - Columbia R forecasts below average due to conditions in Canada - Columbia R headwaters
- Forecasts
    - Attempt to account for human interactions; communicate with USACE and USBR to account for reservoir operations
    - Willamette R being impacted by low soil moisture conditions - well below average
        - Not much change in forecasts over recent months
    - Rogue R Oct through March below average, but improved in early spring due to snowmelt
    - Umatilla R not much runoff til April and May
        - Much drier than average recently
        - Underforecasted in April due to uncertain soil moisture conditions
    - Owyhee forecast improved almost twice over due to atmospheric rivers and snowmelt
    - Alsea R nr Tidewater (Lincoln County)
        - Forecast above average but observed runoff over water year below average

Larry O'Neill

- Southern Oscillation Index
    - Sea level pressure difference across tropical Pacific
        - Used as measure of atmospheric response to ENSO sea surface temperature anomalies
    - Even with warm ocean temperatures, atmospheric response is weak compared to previous strong El Nino events in past
    - Large negative values indicate difference between east and west Pacific
    - Atmosphere not responding to sea surface temperature dipole

            - Surface wind anomalies not yet typical for developing El Nino, suggesting Bjerknes feedback is not reinforcing El Nino development
- One-month change in USDM since June 6
    - Drought improvement in SE OR
    - Deterioration in windward side of Cascades, in response to low streamflows in Bull Run and throughout Willamette Valley
        - Water year precipitation quite poor and elsewhere in Cascades foothills
        - Also D1 along Coast due to poor soil moisture
- Evaporative Demand Drought Index (EDDI)
    - Over past two months most of western OR in two worst categories (D3-D4)
    - One contributing factor is May through June not much cloudiness
        - Cloudiness Ranking from ERA5 (since 1940) shows fewest clouds for much of NW and north central OR
        - Contributes to more solar radiation
    - May and June precipitation ranking shows driest on record (129 years) for Lincoln County and other nearby counties
        - Gilliam County 21st driest
        - Some much wetter counties in SE OR
        - Water year to date state ranks 38th driest (-2.74")
    - County temperature ranking showing most all counties showing mostly top 5 or worse on record
- SPEI showing dry signal along coast and throughout Willamette Valley and north central OR
    - Gilliam County shows long-term dry signal

Marc Stewart

- Umatilla R ab Meacham Cr trending below average
- John Day R at McDonald Ferry showing average
- Nehalem R nr Foss showing well below average
- Nestucca R nr Beaver at record low
- Alsea R nr Tidewater well below average
- Chetco R at record low
- Big Butte Cr nr Mcleod at record low
- Upper Klamath Lake doing better than previous years
- Sprage R nr Chiloquin trending below average
- Klamath R at Keno trending average
- Donner Und Blitzen R nr Frenchglen average
- Owyhee R average
- State 7-day hydrograph trending just below average

Ryan Andrews

- Nine counties with Executive Orders under ORS 536 for state drought declarations
    - Gilliam County requesting
- June streamflow below average for much of western, central, and northern OR
    - Conditions in southern and eastern OR average to above average
- Streamflow over water year to date below average for much of western and northern OR

    - Deschutes Basin also below average
    - Conditions in eastern and SE OR above average
- Streamflow percentiles show degradation between 28-day and 7-day statewide
    - Several record low flows along coast and in Willamette Valley
- Siletz R at record low flow since early July
- S Fk Necanicum at record low flow since mid-June
- John Day R at McDonald Ferry average
- S Umpqua at Tiller at record low
- Metolius R trending below average and similar to 2020, 2021
- Meacham Cr at Gibbon at record high due, sustained due to above average soil moisture

Peter Cooper (email update)

- Facilities releasing to meet irrigation demands
- Many facilities in or near the historical interquartile normal range
    - Exceptions in Deschutes, Rogue, Tualatin which are below normal

Andy Martin

- Typically would have filled conservation storage and would have been releasing to meet water supply obligations
    - Occurs July through September
- About 54% of normal storage, low for this time of year
    - Likely lower than typical for July
- Trying to use storage wisely to supplement mainstem flow targets on Willamette
- 864 KAF/1.6 MAF system-wide
- Emphasizing maintenance of fisheries flow on mainstem
- Injunction measures reduced flexibility to capture April and May runoff
    - Climate provided runoff during these months
- Deep drawdowns will additionally reduce available storage in August and September
    - Green Peter and Lookout Point
- Delayed refills
    - Fall Creek (same as 2022) held minimum conservation until beginning of May
        - Doesn't have catchment that has lot of snow and lack of spring rain prevented fill
    - Cougar (same as 2022)
        - Has more snow in catchment so were able to capture more storage but still short compared to last year
        - Some requirements in storage for summer preventing reliance on storage to meet demands
    - Green Peter (new in 2023)
        - Drawing pools below power pool nearly to river bed
        - Using to supplement mainstem flows during much of June and early part of July
        - Sticking to injunction measure curve
            - By time of August and September will be near minimum conservation storage, lot less volume to supplement low flows in mainstem and S Santiam

    - Lookout Point (new in 2023)
        - Drawdown nearly to riverbed by sometime in December
        - Typically workhorse reservoir for storage augmentation of mainstem Willamette
            - Limited ability to do so in late summer
- Summer Operations Forecasts (GPR and LOP)
    - LOP impacts Albany and Salem
        - Augmentation expected near normal
        - Will potentially be below ESA flow targets from early July to mid-September because not augmenting more than usual
    - GPR impacts Salem
        - More augmentation than normal
        - Will potentially be just near ESA target because getting rid of storage earlier than usual
- Rogue (Applegate and Lost Creek) doing considerably better than previous years

Discussion

- Next meeting proposed August 16