Shortage on the Colorado River – What it Means to You

presented by Jeff Lee, Water Conservation Specialist with the Town of Gilbert 9/15/21

- A Tier 1 Shortage on the Colorado River has been confirmed for 2022
- What this means for the landscaping industry in 2022 and beyond
- How to proactively plan for a drier future

The background: Lake Mead (created by Hoover Dam) is a huge storage reservoir that has protected us from drought restrictions through 20 years of drought

  - Via the Central Arizona Project (CAP), Lake Mead provides water to the lower basin states of Arizona, California, Nevada, and New Mexico as well as Mexico – AZ is junior member and will feel the effects first
  - Primarily snowpack in the CO river watershed feeds the large reservoirs so they are not as impacted by monsoons as may be expected
  - Both reservoirs are currently very low with Lake Mead at 35% and Lake Powell at 31% capacity as of 9/13/21
  - Both reservoirs are at a structural deficit - we are taking out more than we add
    - Original allocations were based on wet years

Meanwhile there is increased demand – more people, more agriculture and other increased pressures/effects:

  - Climate – trending hotter & drier which adds pressure on our water supply
  - Winter rain and snow pack have been below historical averages
  - Marginal plant species failing

The Drought Contingency Plan (DCP) outlines how the seven basins states that receive water from the Colorado River will deal with water shortages, through a series of planned Tier reductions tied to the changing levels in Lake Mead:

- We have been in Tier zero – a voluntary cut-back from the lower basin states to keep water in Lake Mead created by the DCP
- This gave more time to plan for dealing with the future shortages
- Bureau of Reclamation declared a Tier 1 Water Shortage for 2022 based on water outlook for the year – this will affect Non-Indian Agriculture water rights
- Tier 2 is predicted in the near future & will affect municipal water supplies from the Colorado River but not necessarily what they can deliver
- Most urban water suppliers have multiple sources of water that can mitigate shortage from just the Colorado River
- The less pressure we put on those alternate supplies will give more time for better snowpack years on the Colorado watershed

What can you do?

Get Irrigation Systems in Shape

- Landscapers and clients need to work together to phase in and spread-out expenses
- Inefficient systems are covered up by increasing run time – we can't afford to do this anymore
  - Find and fix leaks
    - Check for leaks in drip systems. Leaks in sprinklers are obvious, but leaks in drip systems can be hidden and significant over time
    - Ensure proper emitter placement at the drip line of trees where there are absorbing roots
    - Replace old, inefficient flag emitters with PC (pressure compensating) emitters
      - On larger landscapes, this can be a large expense due to labor – finding the emitters and digging them up
      - Consider accomplishing this in phases to spread out the cost

        - Evaluate the system during winter months after overseeding, when less critical things are going on in the landscapes
    - Sprinkler systems
        - Ensure that all sprinkler heads match
        - Check for the proper nozzles
        - Check for proper head-to-head spacing
        - Check for proper pressure management - misting shows water waste
        - Improve distribution uniformity (DU)
- Manage the water
    - Apply water based on evapotranspiration (ET) rates
    - Use a soil probe to check watering depths - water as deep as root zone, but not past it
    - Use cycle and soak techniques, if needed, to get the necessary water in the soil without run-off
    - Use smart controllers that adjust the frequency, not just the run time
        - Be sure to adjust by frequency - adjusting only by run time can mean shallow watering in the lower water needs months and is not good for plant roots
- Get better grades – keep rainwater on the site
    - Consider rainwater harvesting
    - Evaluate opportunities for Low Impact Designs (LID)
    - Check with the local municipality about potential opportunities for curb cuts
- Plant choices
    - Use plants that work in the desert
    - Know that what worked 20 years ago doesn't necessarily work now or in the hotter, drier future
    - Get rid of non-functional and problem turf areas
        - Medians, strips, turf in unused areas, slopes
    - Replace marginal species - these plants will suffer most during water cut-backs
        - *Elderica* pines
        - Ash trees

Deficit irrigation not yet required – but irrigate better now for landscape resiliency

- Aim for deeper, less frequent watering (depends on soil type), don't overwater
- Encourage strong and expansive root systems so trees don't fall over
- In the future, if we need to go into deficit irrigation, plants will be better able to tolerate it

Water Demand Reduction Plans

- These are often called "Drought Response Plans" and are mandated by the Arizona Department of Water Resources (ADWR)
- Water providers are updating them now
- Responses are in Tiers or Stages
- Tiers are triggered by reductions in water supplies
- Some of the challenges to updating these Plans, include:
    - Every city in the valley has a different water portfolio
    - Every city can have different stages/tiers
    - Every city can have different responses and requirements
    - Landscaping companies and crews should be aware of these Plans