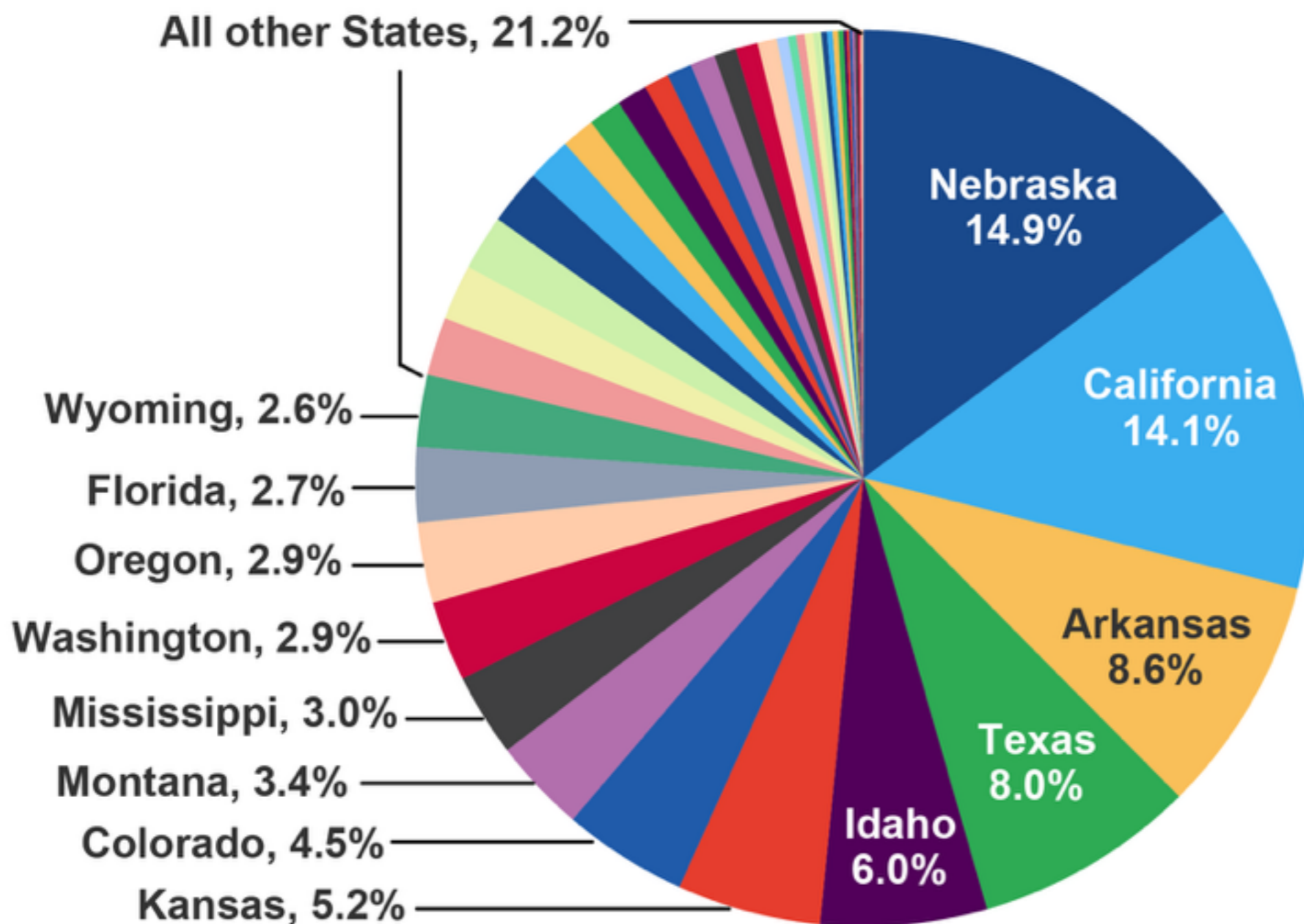


State shares of total U.S. irrigated acres, 2012



Note: The 13 leading States (10 Western, and Arkansas, Mississippi, and Florida) accounted for 78.8 percent of U.S. irrigated acres, including harvested cropland, pasture, and other lands (but excluding horticulture under protection).

Source: USDA, Economic Research Service using USDA, National Agricultural Statistics Service, 2012 Census of Agriculture, State data.

Ground Rules for PAC Meetings

- Please put yourself on mute if you are not speaking to the group.
- Facilitator will call on people in the order you raise your hands.
 - If on Zoom, there is a hand at the bottom of the screen to click on
- Please make your points as brief and concise as possible
- Please help ensure all members are getting equal discussion time, if you hear yourself talking more than others, help to encourage others to engage.

Ground Rules

- ◆ There is time allotted towards the end of the meeting for announcements or other discussion.
- ◆ Please keep all comments focused on the topic being discussed.
- ◆ I will always be respectful and not rude, but I will cut off topics that stray from main discussion.



PAC Meeting Plan

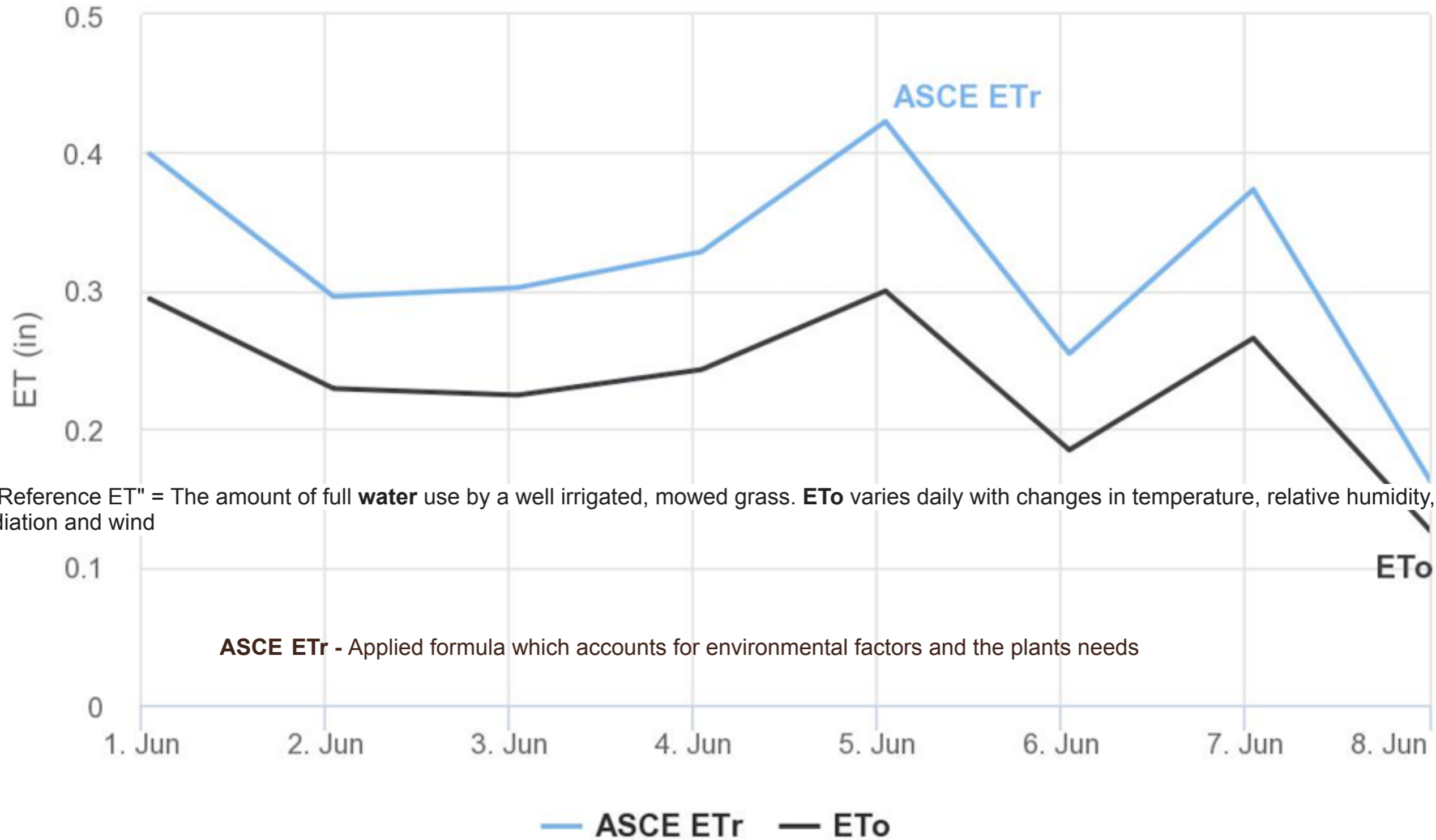
- ◆ My job is to help you define the SOW for Phase III
- ◆ Starting with this meeting, the meetings will be focused on POTENTIAL topics/areas of focus for Phase III.
- ◆ I need your input for future topics of interest you would like more information about.

Consumptive Use Agriculture

- ◆ The portion of the irrigation water that is used by the plant (transpiration) plus soil evaporation = evapotranspiration
- ◆ It is removed from the system and not available for other uses = true water loss
- ◆ Remainder is available for: It assumed to return to the system
 - ◆ Ground water recharge
 - ◆ Wetlands
 - ◆ Return flows

Evapotranspiration for Meeker (MKR01)

Jun 1 - 8, 2020

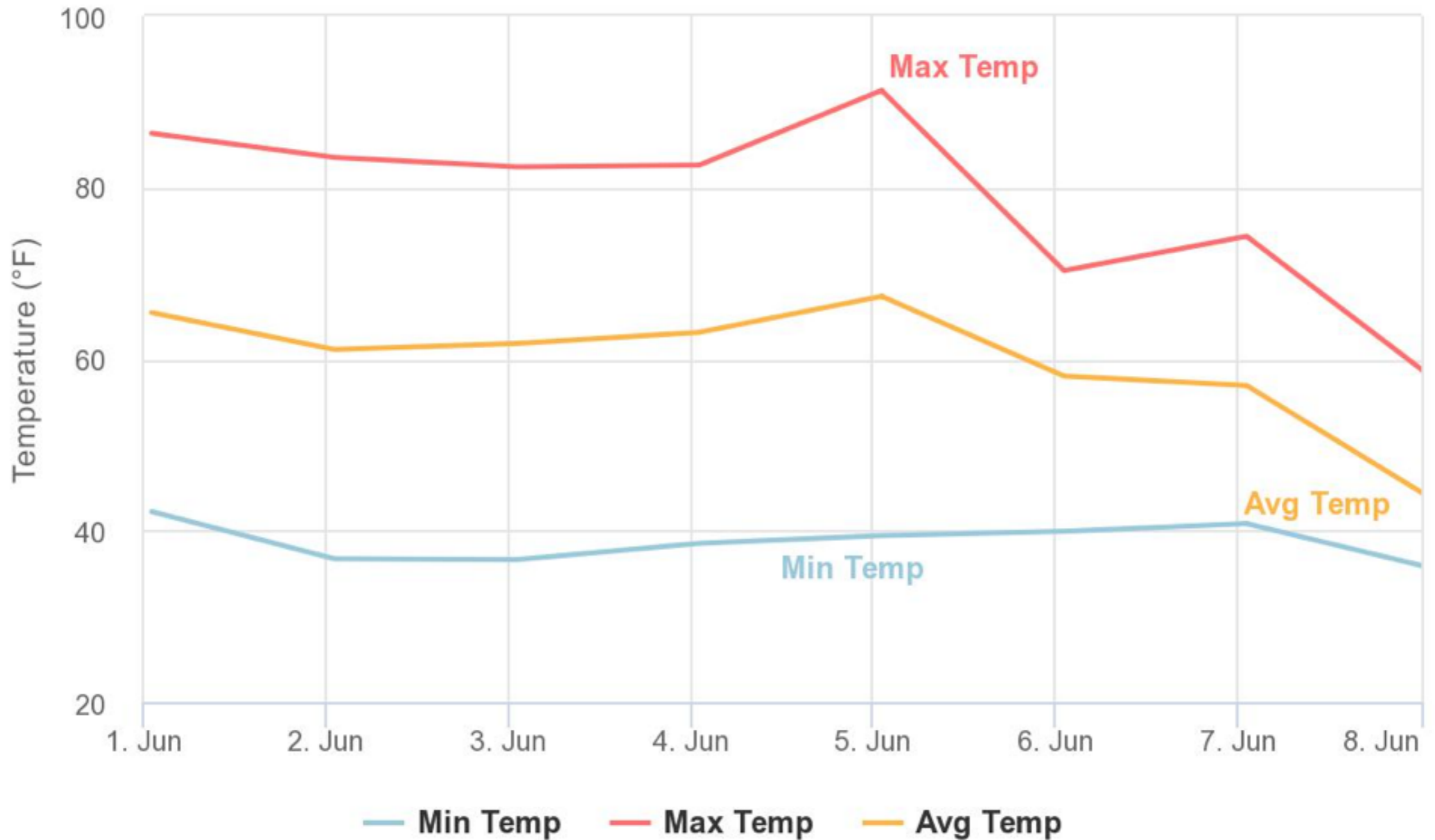


ETo = "Reference ET" = The amount of full **water** use by a well irrigated, mowed grass. **ETo** varies daily with changes in temperature, relative humidity, solar radiation and wind

ASCE ETr - Applied formula which accounts for environmental factors and the plants needs

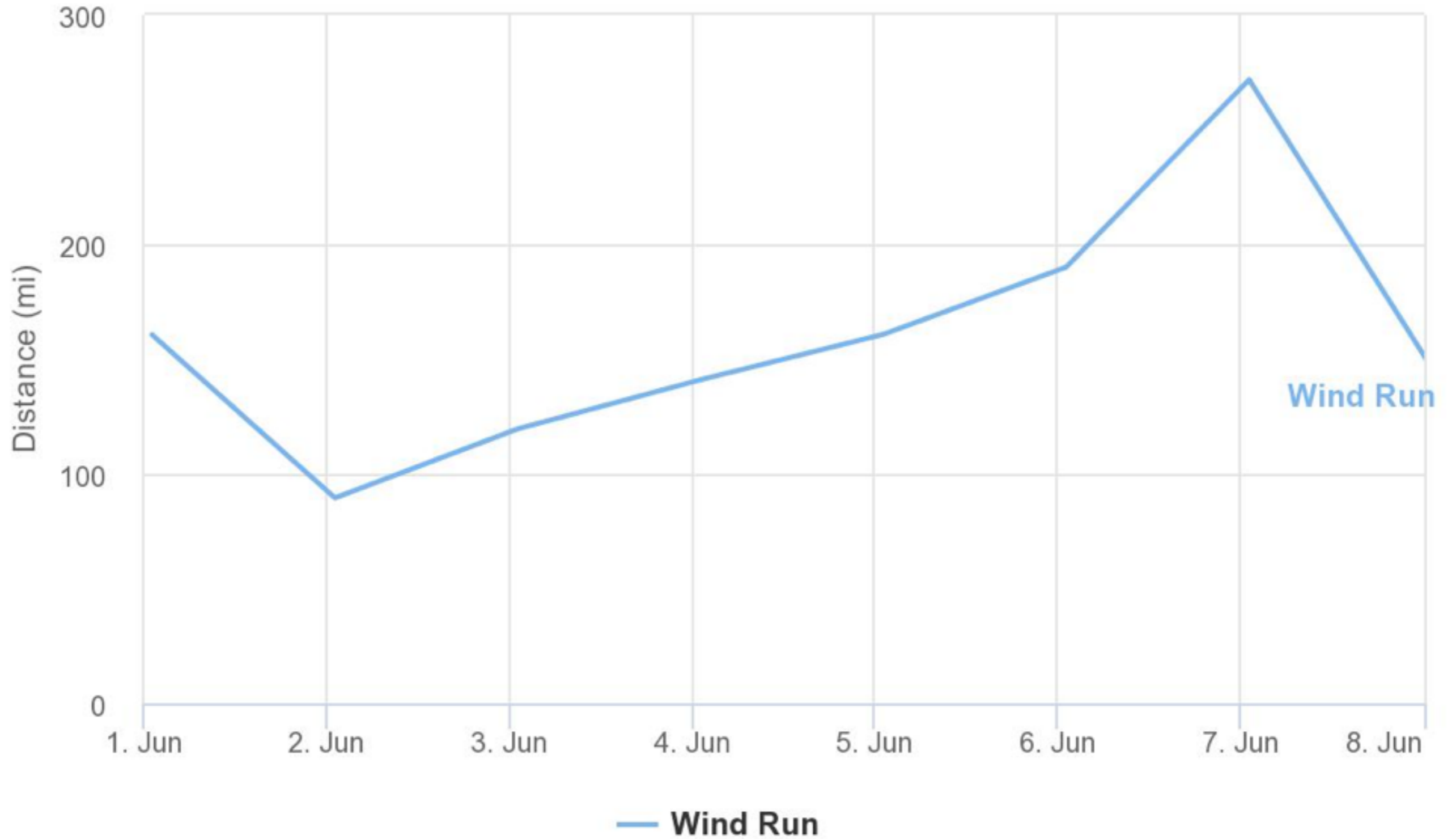
Temperature and Dewpoint for Meeker (MKR01)

Jun 1 - 8, 2020



Wind Run for Meeker (MKR01)

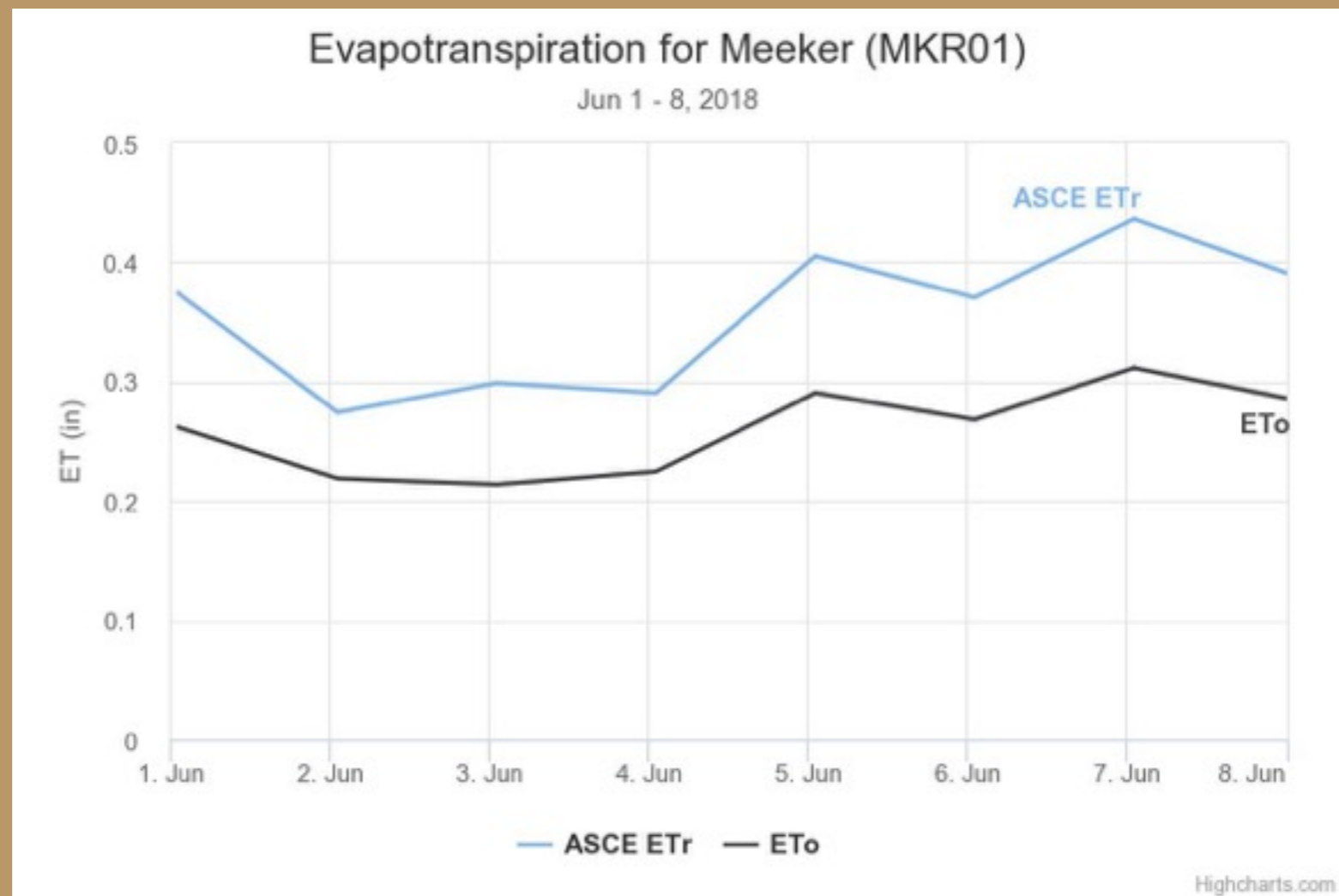
Jun 1 - 8, 2020



Estimated Irrigation Practices and Irrigation Return Flow (IRF), White River

Dr. Timothy Gates, CSU

- Overall irrigation efficiency for surface irrigation estimated as 30% to 50%



Water Planning

What are the options?

Mission Statement:

Community-based initiative to identify actions promoting a healthy river that ensures a vibrant agricultural community and maintains healthy fisheries while protecting water rights, quantity, and quality with respect for the local customs, cultures, and property rights.

Overall River Goals for Current and Future Generations

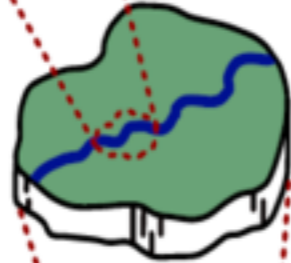
1. Protect and preserve existing water rights and other beneficial water uses
2. Protect and enhance water quantity and quality through promoting best management practices for:
 - a. Forest health
 - b. Riparian health
 - c. Rangeland health
 - d. Favorable conditions of streamflow
3. Identify opportunities for creation or improvement of infrastructure to support efficient consumptive and non-consumptive uses.
4. Support the development and maintenance of efficient and necessary long-term storage solutions that will improve, enhance and ensure irrigation, river health, water quantity, water quality, and native and recreational fisheries.

Questions

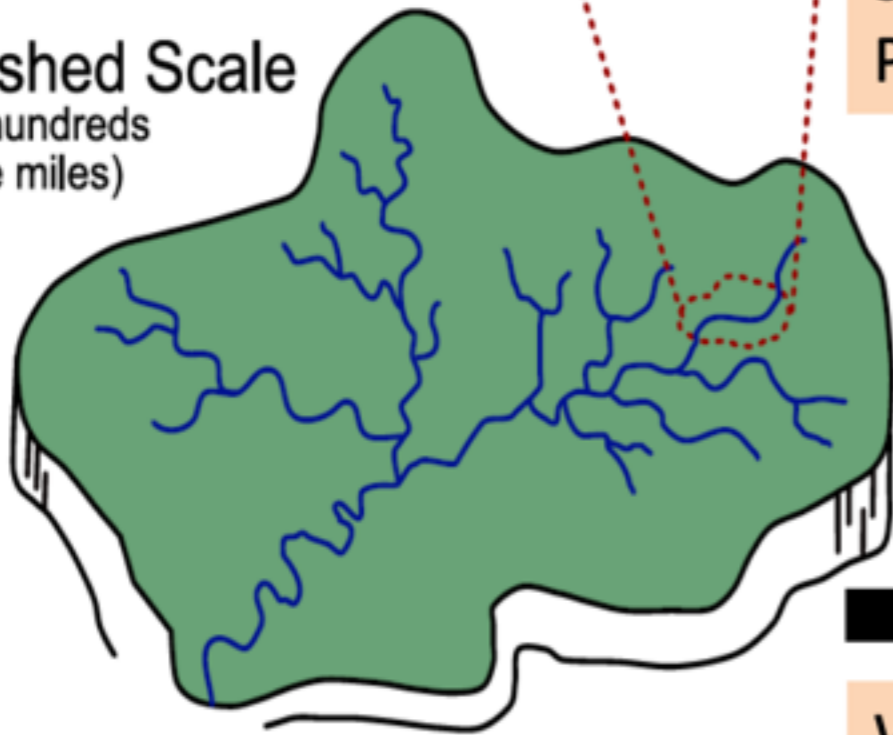
Channel Scale
(tens to hundreds
of feet)



Reach Scale
(hundreds of yards)



Watershed Scale
(tens to hundreds
of square miles)



Project
Plans

Stream Mgt
Plans

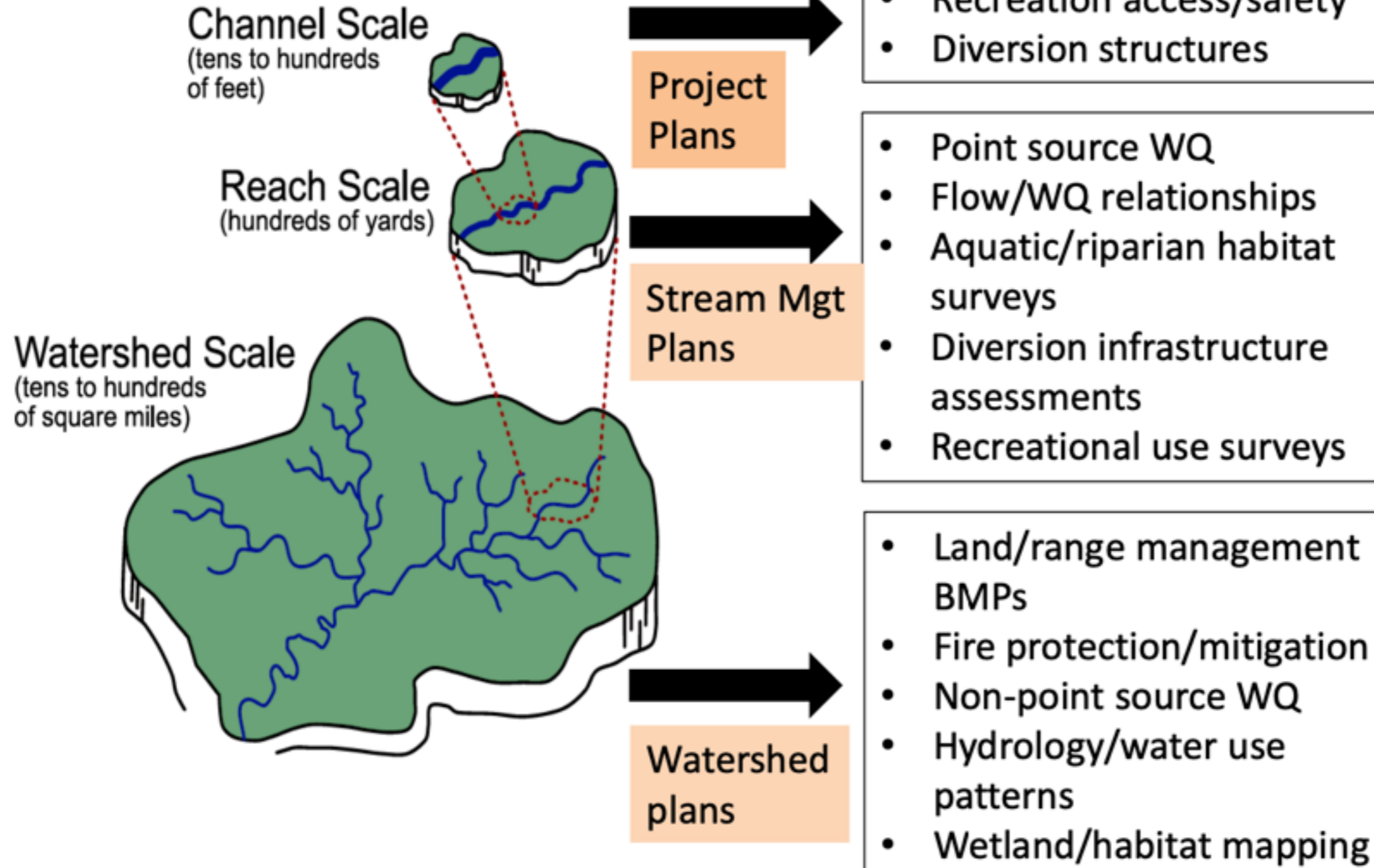
Watershed
plans

- How do I improve fish habitat at this site?
- How can I improve this diversion structure to better deliver water and allow fish passage?

- Where is there important aquatic habitat to protect?
- Which diversion structures pose fish passage barriers?

- Assess the fish species distribution in the basin
- Describe the hydrology/water use patterns in the basin

Variables



Different Options

- ◆ Stream Management Planning
- ◆ Integrated Watershed Management Planning
- ◆ Watershed Planning
- ◆ Non-point source water planning
- ◆ Point source water planning

Stream Management Plans (SMP)

- ◆ Assess the environmental and recreational assets in the watershed.
- ◆ Evaluate the work of the stream - moving water and material from the headwaters to the point of confluence with another waterway.
- ◆ Does NOT include agricultural, municipal, or industrial uses.

5 BIOLOGY »
Biodiversity and the life histories of aquatic and riparian life

4 PHYSICOCHEMICAL »
Temperature and oxygen regulation; processing of organic matter and nutrients

3 GEOMORPHOLOGY »
Transport of wood and sediment to create diverse bed forms and dynamic equilibrium

2 HYDRAULIC »
Transport of water in the channel, on the floodplain, and through sediments

1 HYDROLOGY »
Transport of water from the watershed to the channel

Integrated Watershed Management Plans (IWMP)

- ◆ SMP plus Consumptive Use of water
 - ◆ Drinking water
 - ◆ Irrigation - what a plant uses
 - ◆ Energy production
- ◆ Includes water right holders and riparian landowners

Factors affecting consumptive use Agriculture

- ◆ Temperature
- ◆ Evaporation from soil
- ◆ Wind Velocity
- ◆ Precipitation
- ◆ Relatively humidity of the air
- ◆ Soil type
- ◆ Intensity of the sun
- ◆ Length of daylight hours
- ◆ Type of crop
- ◆ Method of irrigation

Consumptive Use Municipal

- ◆ Water that is lost from the system
 - ◆ NOT showers, flushing toilet
- ◆ Lawn/plant/garden watering
- ◆ Human consumption

Consumptive Use Industrial

- ◆ Varies by industry and method of disposal
- ◆ Injection well, evaporation ponds, transport to UT all are near 100% loss to system.

Watershed Plans

- ◆ Evaluates watershed health and water quality
- ◆ Focuses on:
 - ◆ Mitigating risks to water users from fires or floods.
 - ◆ How land and water are used and how water quality is affected by those uses

Non-Point Source Water Plan

- ◆ LEADING CAUSE OF WATER QUALITY PROBLEMS
- ◆ Evaluates pollution from runoff, precipitation, seepage, atmospheric deposition, or hydrologic modification.
- ◆ Looks at pollution from different sources
 - ◆ Fertilizers, herbicides, fish food
 - ◆ Runoff from energy production
 - ◆ Sediment from eroding banks

Non-Point focus cont.,

- ◆ Salt - excess agricultural runoff or abandoned mines
- ◆ Bacteria from:
 - ◆ Livestock or pet waste
 - ◆ Faulty septic systems

Point Source Water Plans

- ◆ A point source is a defined, discrete source of a contaminant. Does not include agricultural storm water discharge or return flows from irrigated agriculture.
- ◆ Examples: Watercraft, confined animal feeding operation, ditch, tunnel, pipeline, pond

White River Integrated Water Initiative (WRIWI)

- ◆ Includes elements of SMP, IWMP, Watershed Plans.
 - ◆ Diversion and Riparian Assessments
 - ◆ Incorporating recreational interests and impacts
 - ◆ Overall goals include water quality, rangeland health, forest health, irrigation, riparian, and fishery health
- ◆ Also excludes elements of SMP, IWMP, WP
 - ◆ Water quality measurements and evaluation
 - ◆ Not quantifying consumptive use
 - ◆ Focus is not on municipal or industrial needs



Where are we now?

- ◆ Phase II
 - ◆ 20 Diversion Assessments
 - ◆ 20 Riparian Assessments
- ◆ What will we know?
 - ◆ Condition of those structures/areas assessed.
 - ◆ Are they representative of the river system? How do we know?
 - ◆ Did the assessments identify areas of concern or find all is good?

Information available to WRIWI

- ◆ Algae Studies
 - ◆ Looks at nutrient loads in stream
 - ◆ Impact of flow rate on stream itself
- ◆ Basin Implementation Plan for YWG Roundtable
- ◆ Lower White River Management Plan
- ◆ Lighthawk Flight
- ◆ Forest Service studies on the impact of aridification

What will Phase III incorporate?

- ◆ Continue Diversion and Riparian Assessments
- ◆ Focus on consumptive use quantification and impact of return flows
- ◆ Public education on agricultural practices
- ◆ Infrastructure Upgrades
- ◆ Water shortages - Drought Contingency Planning
- ◆ Storage
- ◆ Watershed Health
- ◆ ??????????????????

Variables

