August - November 2021 North Ops Highlights

- After a very dry rainy season fuels indices are setting new records for extreme dryness in many areas.

- Live fuel moisture values have dropped below critical values in most areas.

- Low elevation fine fuel crop cured.

- Overall outlook is for drier and warmer than average through November. Below average monsoon activity through the remainder of the summer.

- Significant Fire Potential Above Normal above 3000 ft elevations in August, except along the coast and in eastern areas. Normal elsewhere.

- From Sept-Nov areas W of the Cascade-Sierra crest except the N Coast have Above Normal Potential. Normal Potential E of the crest and N Coast PSA.
Weather Discussion

A few monsoon thunderstorm patterns developed in CA in July and produced mostly light precipitation (Fig 1). A few locations in the east were hit by heavier cells. Since little to no rainfall typically occurs in CA in July a single heavy thunderstorm can produce above average monthly rainfall. The rain year, which began on October 1st, is drier than average statewide (Fig 2). Most of the North Ops region received less than half of the normal precipitation. July was warmer than normal across much of the state (Fig 3). The exceptions were areas influenced by the marine layer and nearby below normal sea surface temperatures.

Drought conditions continue to worsen throughout the state (Fig 4). ENSO-neutral conditions are expected into the fall (Fig 5), followed by a return to a La Niña pattern this winter.

For the majority of August we expect to see more low pressure troughs along the northern CA and Pacific NW coast, which will lead to a deeper marine layer that moves farther inland during afternoons and evenings, more dry windy weather at middle and upper elevations, especially along and east of the crest, closer to normal temperatures, and more nights with fair or better humidity recovery. Monsoon surges are expected to occur less often than in a typical August-September. Impactful moderate or stronger dry N-NE/Offshore wind events are not expected until September, and at this time are expected to occur at near average intervals and strength. The 4-month outlook calls for dry and warm weather.
Fuels Discussion

The dry rainy season has led to widespread drought conditions throughout California. The spring months, April, May, and June, were particularly dry. The Evaporative Demand Drought Index, which quantifies the “thirst of the atmosphere” over a specified period, also shows intensifying drought conditions over the past year (Fig 6), especially in southern and western areas. The dry spring led to normal or below normal fine fuel loading at lower elevations, and these annual grasses and weeds cured several weeks ahead of usual (Fig 7). Brush growth at lower elevations has also been very light, and the outer branches and twigs in some species may end up dying as the plants attempt to hold on to the limited moisture available. This process increases the flammability of the brush crop.

The 1000-hour dead fuel moisture averaged across the North Ops region shows recent record values due to the very dry spring (Fig 8), with values beyond peak season normals several weeks before the typical peak of the fire season. Many stations are well into record territory in multiple indices. Middle and upper elevations are also trending drier, and live fuels in many areas have dried to critical levels.

Fig 6 – Evaporative Demand Drought Index

Fig 7 – Low elevation fine fuel crop May 21st - Sacramento Valley PSA

Fig 8 – 1000-hr Fuel Moisture – North Ops Composite
NORTH OPS OUTLOOK

The Predictive Services 4-month outlook for the North Ops region calls for drier and warmer than average weather through November (Fig 9), with only small exceptions. Monsoon thunderstorm surges are expected to occur less often than usual through the end of the summer because low pressure troughing along the coast will prevail more often than usual, and this pattern largely prevents monsoon surges from reaching the North Ops region. Fuels, both dead and live and of all size classes, are extremely dry and very active fire behavior and spread rates have been noted with wildfires this summer. At elevations below 3000 ft in fine fuels it is possible that the lighter than usual fine fuel crop will allow more successful initial attack efforts when ignitions occur through August. In areas dominated by timber, generally above 3000 ft, fuels are vulnerable to fire spread, and any lightning will pose a threat of new large fires. Significant Fire Potential for the North Ops region is Above Normal above 3000 ft in August, with the exception of areas near the coast (which may benefit from more onshore flow) and in the far east (where drought has led to less continuous fuels). The remainder of the region has Normal Significant Fire Potential during August. Areas west of the Cascade-Sierra crest with the exception of the North Coast PSA have Above Normal Significant Fire Potential from September through November. The North Coast PSA and areas east of the crest have Normal potential from September through November.

Normal Significant Fire Potential in August is defined as near 1 large fire in the Bay Area PSAs and between 2.2 and 5.6 large fires per PSA elsewhere. In September Normal is defined as up to 1 large fire in the Bay Area PSAs and east of the crest and 1-3 large fires elsewhere. Normal is defined as up to 1.2 large fires per PSA in October and less than 1 large fire in all PSAs in November.

Fig 9 – Predictive Services 4-month Temperature and Precipitation Outlook
Select Links Used in this Outlook

**Western Region Climate Center**
- Temperature
- Precipitation Anomalies

**California Daily Snowpack Map**

**Monthly El Niño Southern Oscillation Analysis and Outlook**

**Sea Surface Temperature Anomaly Maps**

**Drought Monitor Product for California**

**Evaporative Demand Drought Index**

**Daily Fuels Indices Charts**

**NOAA/NWS Climate Prediction Center**

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**Webpage:** GACC.NIFC.gov/oncc/predictive/weather/index.htm  **Contact:** redding.fwx@fire.ca.gov  

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**Northern Operations**

**MONTHLY/SEASONAL OUTLOOKS**

**ISSUED AUGUST 2, 2021**  **VALID AUGUST - NOVEMBER 2021**