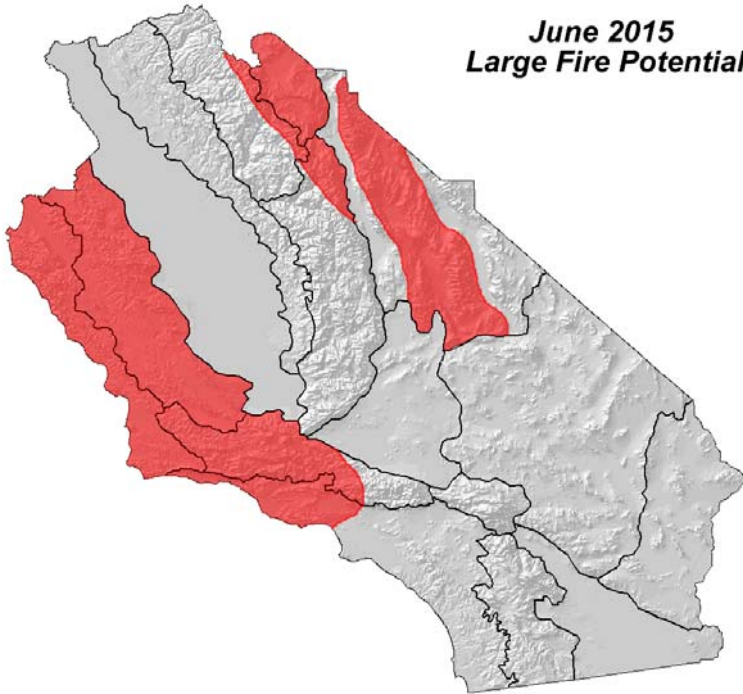


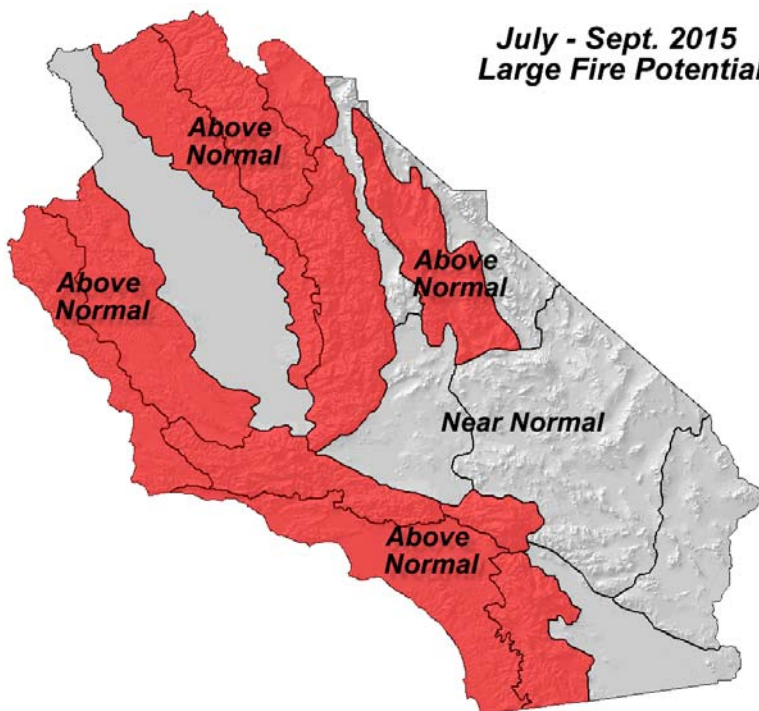
**June 2015  
Large Fire Potential**



## Highlights:

- Above average temperatures likely through September, mainly due to warm nighttime temperatures.
- Below normal summertime “monsoonal” precipitation.
- High amount of bug kill trees and diseased forests will result in high large fire potential in alpine areas.
- Above normal large fire potential in all areas except the deserts and the irrigated areas of the San Joaquin, Coachella and Imperial Valleys by July

**July - Sept. 2015  
Large Fire Potential**



## WEATHER DISCUSSION

An abrupt change to a wetter and cooler pattern occurred in May as the high pressure ridge across the Western U.S. weakened and shifted east. The departure of the ridge allowed a series of deep, late season, troughs to reach the area; dumping wetting rains on nearly the entire area. This unusually wet May followed an extremely hot and dry late winter in a departure from the more climatically appropriate wet winter/dry spring. Some areas of the state saw precipitation of 300% of normal during the past months with the highest amounts occurring over the Sierras and in the far southern part of the state (**Figure 3, next page**).

Such an unusual and dramatic change to cooler and wetter weather may be due to the rapid emergence of a strong positive ENSO signal. The waters in the Niño 1+2 Region off the coast of South America have warmed greatly during the past few weeks and are now well above average. Recall this area being cooler than average [may have played a role in the extremely dry winter that just occurred](#). With the rapid warming of sea-surface temperatures (SST's) in this area, Niño Region 1+2 joins the rest of the Niño regions across the equator in experiencing above normal SST's. This marks the first time since the strong El Niño of 1997-1998 where all four Niño Regions have above normal SST's at the same time. The El Niño of 1997-1998 was one of the strongest on record, producing extremely heavy rain across California during the winter.

# PREDICTIVE SERVICES

## MONTHLY/SEASONAL OUTLOOK



JUNE THROUGH SEPTEMBER 2015

Warm water now extends in a nearly unbroken area from the Gulf of Alaska and across the offshore waters of the West Coast to the equator (**Figure 1, below**). Due to the extensive areal coverage and the magnitude of the above normal SST's [it is very unlikely that the developing El Niño will dissipate over the summer.](#)

The correlation between well above normal SST's and above normal wintertime precipitation in California has been well established. But the development of a strongly positive ENSO during the summer defies a neat and tidy causal relationship. There have been studies which link strong El Niño's to the current deadly heatwave in India, for example, but a definite link between warm summer SST's and the resultant weather in California has not been established.

But, in general terms, during an El Niño, trade winds across the equator may become light, or reverse, and high pressure usually found over the Eastern Pacific is usually weaker. This, in turn, often allows weak troughs to form offshore. The presence of these troughs can lead to long periods of southwesterly flow across the area.

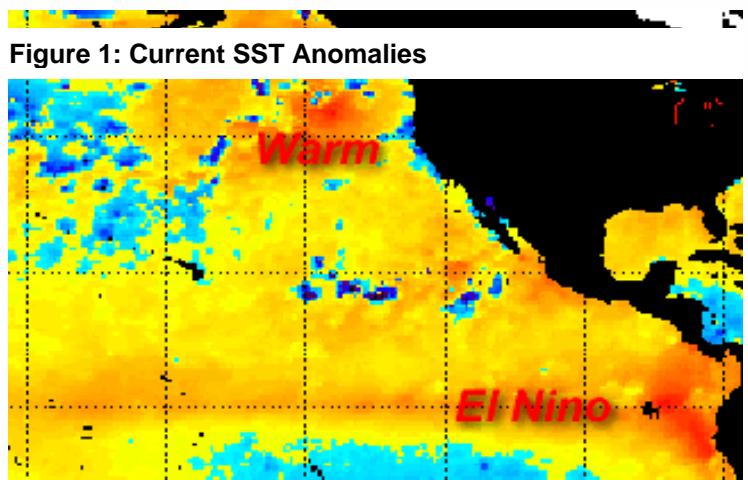


Figure 1: Current SST Anomalies

The presence of southwest flow may keep much of the moisture associated with the "Southwestern Monsoon" confined to areas east of the district in a pattern similar to the summers of 2010 and 2011. Summertime thunderstorm development may be significantly less than last year when there were many days of thunderstorms across the Sierras and the far southern part of the state.

Although there may be a fewer number of thunderstorms this year, there may be a greater chance of dry lightning from the storms that do occur. Southwesterly flow can trigger weak shortwaves which can quickly move through the region with substantial lightning. But overall, expect fewer days of thunderstorms this year compared to the past two years.

Temperatures will likely be above normal this summer, mainly due to warm overnight temperatures caused by above normal water temperatures. High temperatures should be cooler this summer than last year.

Nearly all of the long range models keep at least a moderate El Niño in place through the fall (**Figure 2, below**). This may signify a wetter fall and winter this year. Some models even go as far as suggesting a strong El Niño may occur, which would possibly lead to the earlier onset of the rainy season this year. It's a bit early to make that assumption, but in all likelihood, the warm SST's will lead to a greater number of tropical cyclones in the Pacific which could produce some precipitation in our area this fall.

Figure 2: Mid-May Plume of Model ENSO Predictions

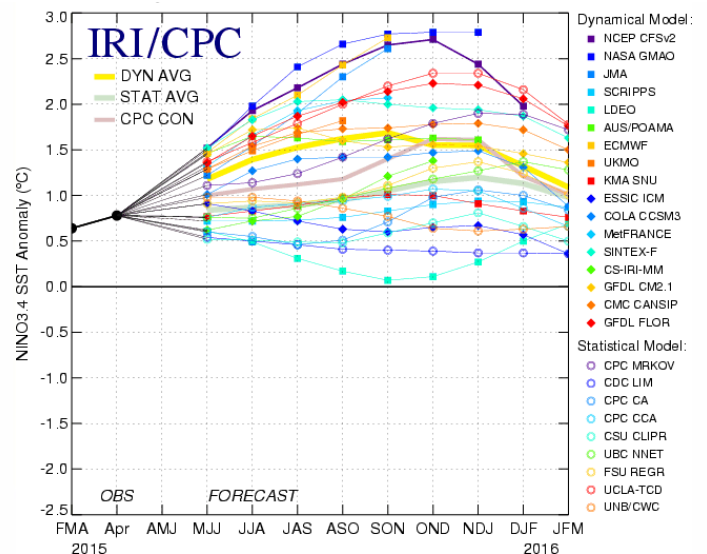
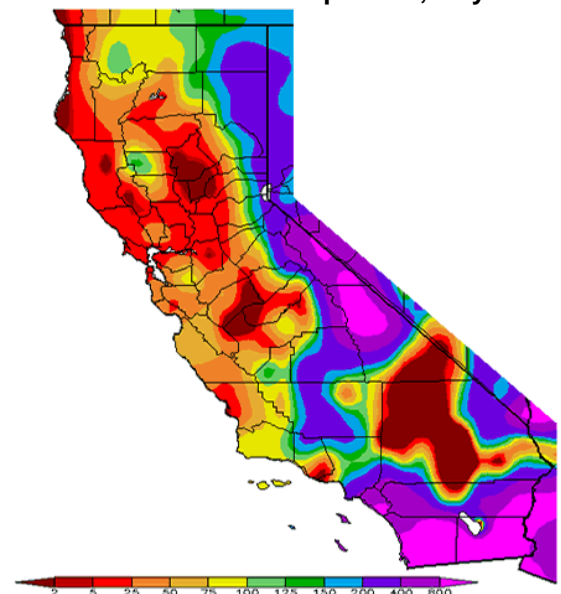


Figure 3: Percent of Normal Precipitation, May 2015



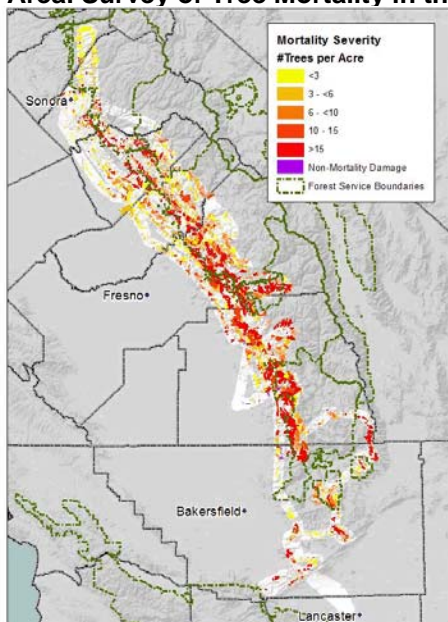
# PREDICTIVE SERVICES

## MONTHLY/SEASONAL OUTLOOK



JUNE THROUGH SEPTEMBER 2015

Figure 4: Areal Survey of Tree Mortality in the Sierra Foothills



### FUELS AND DROUGHT OUTLOOK:

Cooler and wetter weather finally afforded a chance for native vegetation to take on moisture. Most areas saw this rain arrive in time to allow for new growth in chaparral, chamise and other brush before dormancy set in. The moisture last month was sufficient for many areas to see 100 and 1,000 live fuels to remain above critical levels through late June.

Conversely, dead fuel moisture will drop quickly in early June in areas away from the marine layer due to warmer daytime temperatures and long daylight hours. Dead fuel moisture readings are above normal at the current time over most areas, but these readings should fall back to the 10 percentile level by the middle of the month. Fine dead fuels such as grass remains cured over most areas. The rainfall has allowed for some shaded or protected areas to see a second grass crop. But the short growing time of the second grass crop should keep it from having a significant influence on fuel loading.

Dead fuels will be the primary concern for ignition of new fires and rapid spread of ongoing fires. The 4 year drought has directly and indirectly led to a significant die-off of timber in the foothills and high country of the Sierras. Hot and dry weather has weakened trees and the drying of sap has allowed for the Bark Beetle to ravage large areas of the state. By some estimates, 13,000,000 trees are affected and will die this year. This massive die off covers much of the state, but is most ubiquitous across the Sierra Front (Figure 4, left). These trees will be available for burning by the end of the month and throughout the summer.

Large fire potential is expected to remain above normal over much of the central coast, the Inyo N.F. and the highest elevations of the Sierras in June as these areas did not see as much rainfall in May. These areas will be joined by the rest of the non-irrigated, non-desert areas of the district by July. Any new start will find widespread dead and drought-stressed vegetation for consumption and fires will spread rapidly, even in the absence of wind.

A decrease in the number of thunderstorms may lead to the assumption of fewer starts this summer. But during the past two years, nearly all of the storms over the area were wet and did not generate many ignitions despite the presence of highly receptive fuels. Given the weather pattern in place, the number of days with widespread thunderstorms may only be a handful. But these storms may produce more dry strikes than during the previous 2 years. Therefore, the summer fire season of 2015 may hinge upon the successful prediction these season days and planning for an aggressive response.

Figure 5: 100 Fuel Moistures

