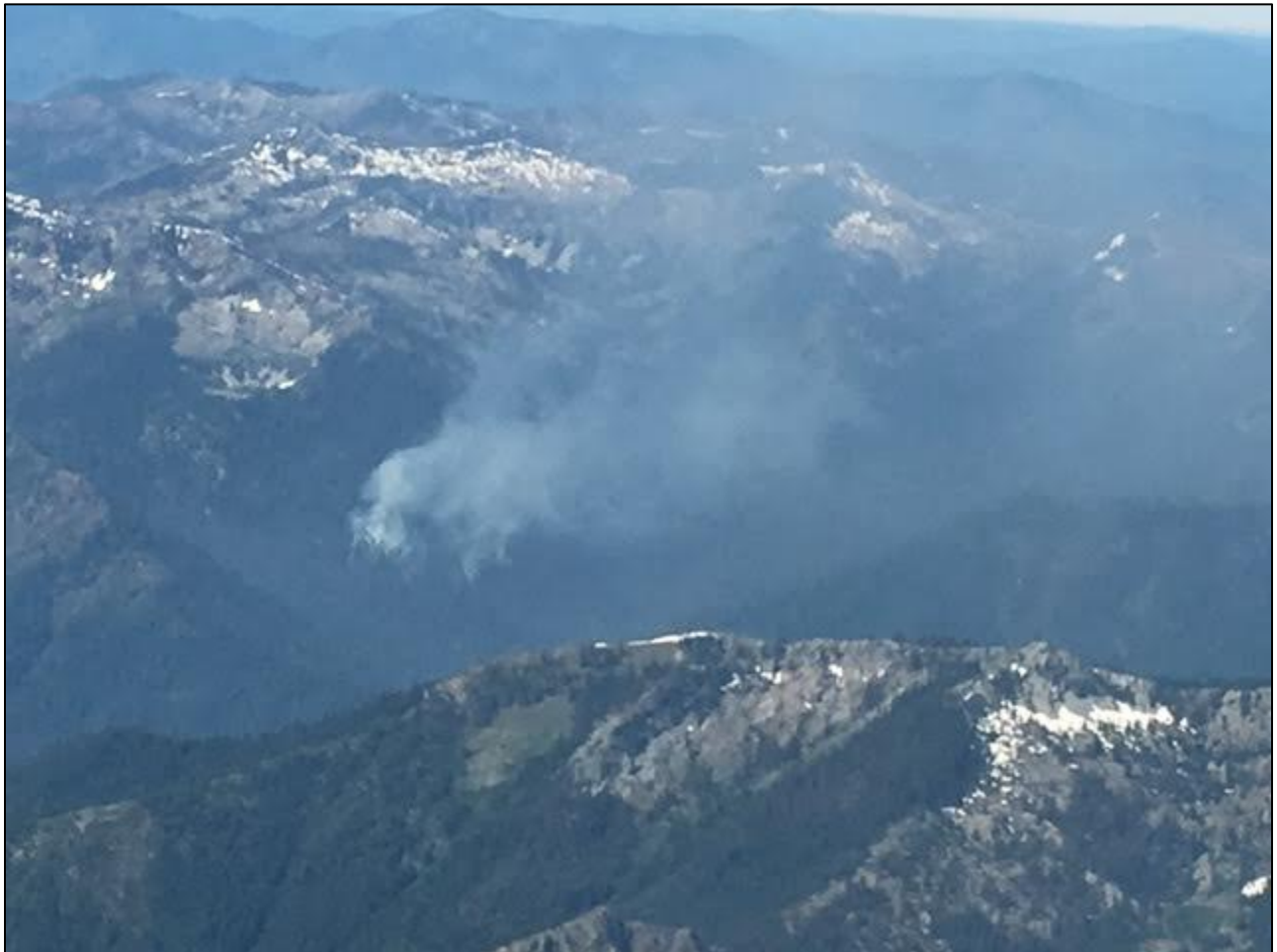


Island Fire Long Term Assessment Klamath National Forest

July 1, 2017

Assessment Version 1.0

Photo Taken at 1100 on June 30, 2017



Long Term Assessment Team

Larry Hood

Clint Isbell

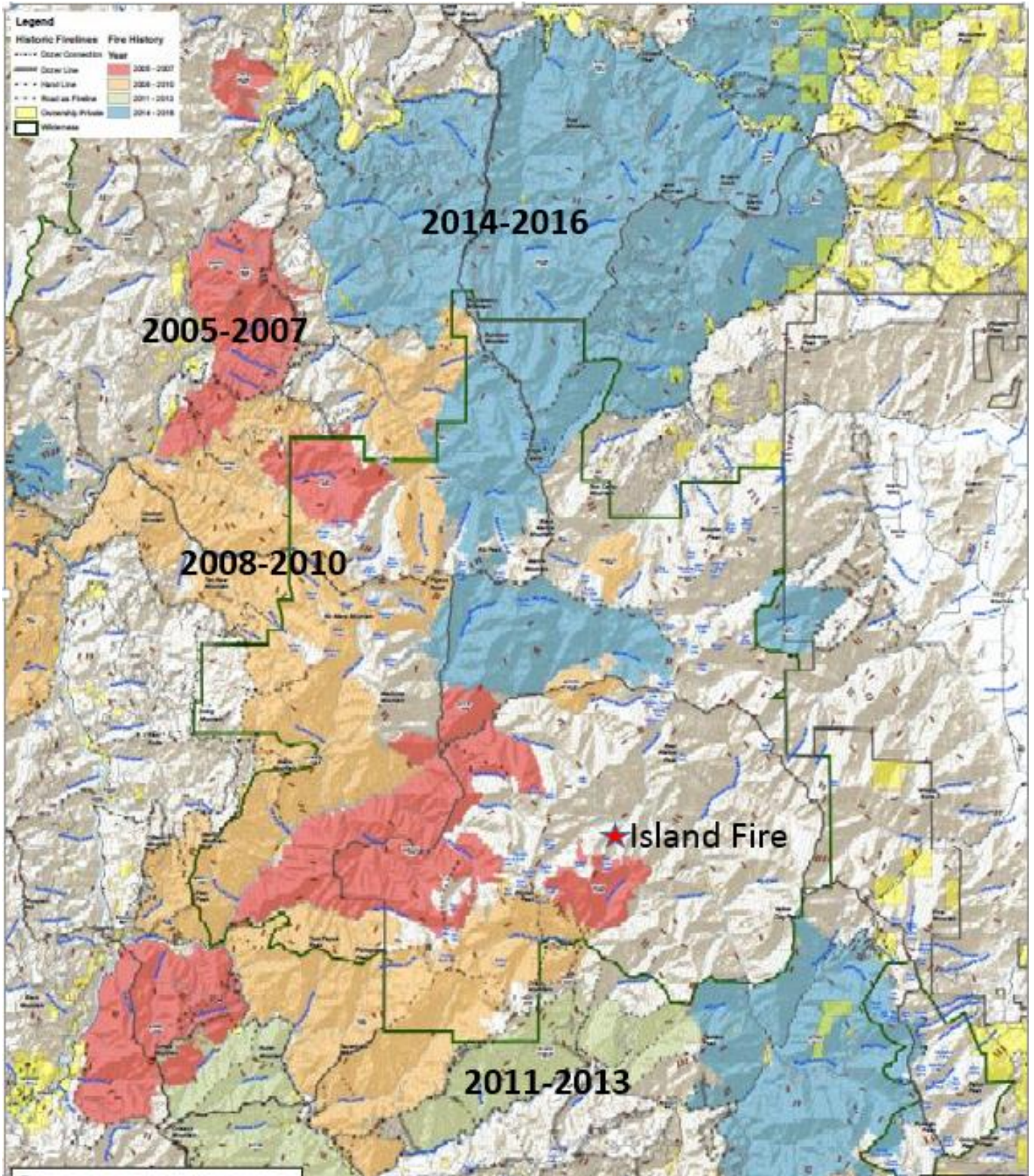
Jennifer Anderson

Billy Gardunio

Danika Carlson

Toby Herold

Leland Tarnay



Large Fire History (2005 to Present). Island Fire marked by red star.

Purpose of this Document

The intent of this document is to assess the course of action over the long-term (21 to 30 days). The long-term assessment will look at potential threats to values relative to the fire's current location and projections for the next three weeks. Some analyses have looked beyond this three-week period to identify future values that could be impacted if mitigation measures are not met. This analysis is based on local knowledge of values and fire behavior projections based on anticipated weather and climate conditions for this season.

To maintain the viability of this analysis, the conditions and products contained in the report must be updated within 21 days, until the fire is controlled or grows significantly. This document will be posted on the NIFC FTP site under the Island Fire folder.

Situation

The Island Fire is located 10 miles north of Sawyers Bar, California and 14 miles west southwest of Etna, California within the Marble Mountain Wilderness on the Klamath National Forest. The Forest received lightning on June 25th, 2017, resulting in 14 fire starts. Moderate rains accompanied the lightning event. The Island Fire was detected on Monday, June 26, 2017 in the interior of the Marble Mountain Wilderness north of Lake of the Island. On Tuesday, June 27, at 1824 hours, aerial reconnaissance reported the fire at approximately 2-3 acres in size. On Wednesday, June 28, at 1125 hours, aerial reconnaissance reported the fire at approximately 5 acres in size with a low rate of spread and no open flame visible; on Thursday morning, June 29, the fire was estimated at 10-15 acres. The fire is backing down into the North Fork drainage and growing slowly upslope along the ridgeline separating the North Fork Salmon River and Lake of the Island Creek.

The Island Fire is currently burning in an area with no recent large fire history and has missed several fire return intervals. The fire area consists of topography that is steep, rugged and remote. Within the planning area are fire scars from 1934, 1994, 2006, 2008, and 2014.

Current fire behavior is low, predominantly smoldering and creeping. This is primarily due to the current high fuel moistures. This low activity fire behavior is expected to continue for the near future due to moist conditions from a very wet rainy season and abundant snow pack. Drought conditions were mitigated significantly in this area due to the above average rainfall and snow pack that is approximately 183% of normal.

The current course of action includes ongoing assessment and analysis of the situation through reconnaissance and fire modeling in order to determine alternatives that carefully weigh potential management actions in consideration of the values at risk, probability of success, and relative risks. A 10 person fire use module arrived on June 30th and will assist in assessing the situation.

Key Points

- The fire is currently in a remote location within the Marble Mountain Wilderness in an area that has not burned in recent history. Fire scars over the past 11 years exist in the near vicinity to the north, east, and southeast.
- The Island Fire is currently estimated at 60 acres and is burning in steep/rugged terrain.
- The Island Fire currently has favorable conditions to meet land management plan objectives. Per land management direction for wilderness areas, lightning-caused fires should be

permitted to play their ecological role, as nearly as possible.

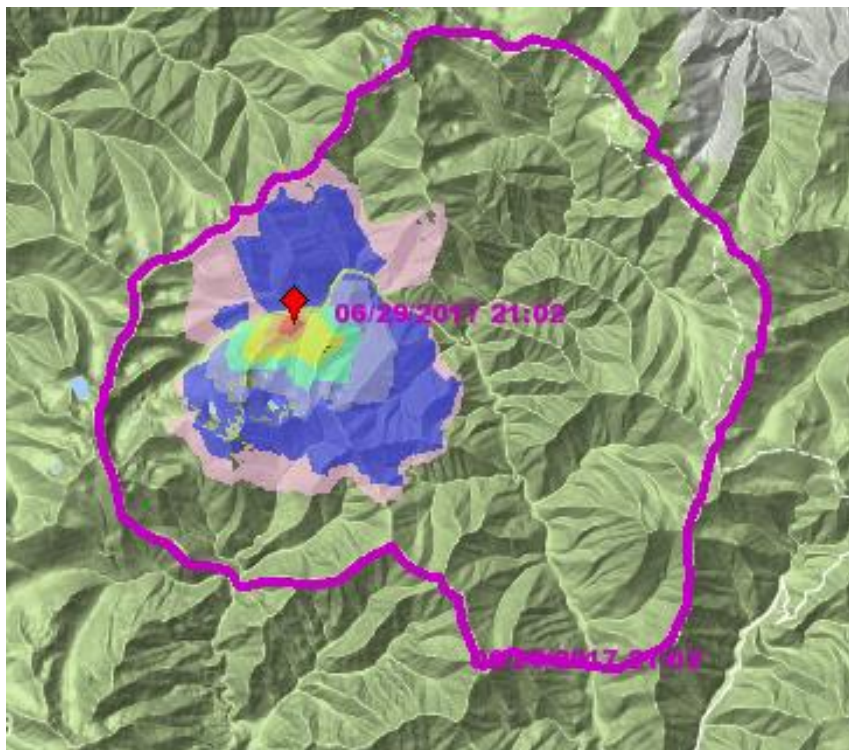
- This opportunity is particularly positive, given the near record setting wet winter that has just past and the existing significant snowpack (180% of normal).
- The ongoing analysis will continue to look at the balance between the desired outcome and the exposure to responders.
 - Currently, the intent is to monitor the fire and implement opportunities to keep the fire south of the North Fork; while continuing to evaluate risk.
- Smoke modeling is occurring to help determine the probability of impacts to the local communities.
- Public outreach and information is critical to the incident and is ongoing.

A Type III IMT assumed command on June 29th and continues to assess the fire. Ongoing efforts include inserting a 10 person Wildland Fire Module to gather information, assess the situation, and clear the North Fork Trail into the Island Fire. In addition, public information and outreach, fire and smoke modeling and analysis, and continued communication efforts will be conducted.

Key Questions

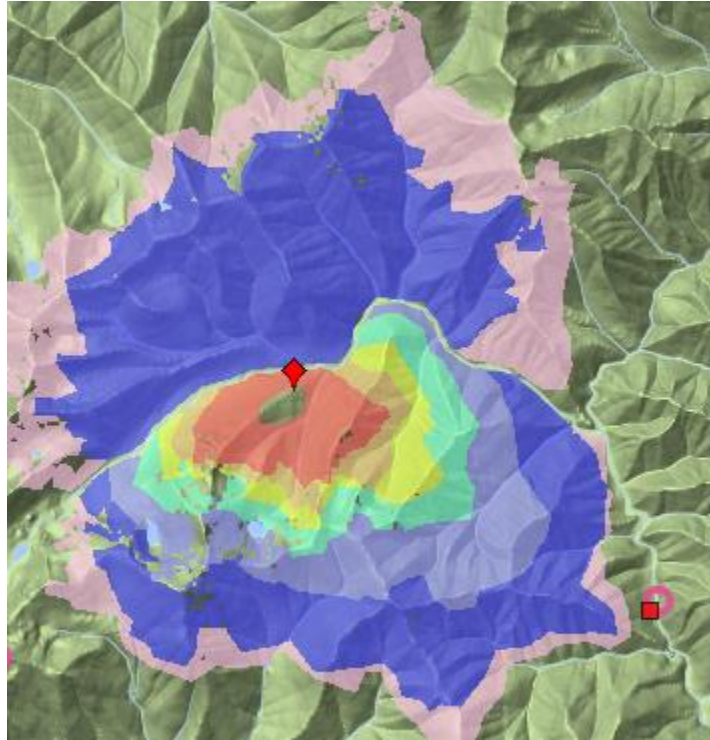
1. **What is the likelihood of the fire reaching the eastern extent of the planning area or getting outside of the Wilderness?**

The Fire Spread Probability analysis projects the probability of the fire reaching the eastern boundary over the next 14 days. The analysis shows that the fire has no probability of reaching the eastern boundary over the next 14 days, and appears to be much longer than that. ***This key question will continue to be analyzed as the fire grows and as analysis are updated.***



2. What is the probability the fire will reach Lower Abbott Cabin area?

The probability the fire will reach Lower Abbott Cabin area is less than 0.2 percent according to the FSPRO analysis. The cabin is identified by the red square with a pink circle around it on the map below. As the fire progresses, this will be re-evaluated. A management action point has been set up for Lower Abbott Cabin.



3. What are projected smoke impacts to communities and other smoke receptors?

Limited smoke production has occurred to date due to the small growth of the fire. Smoke impacts will begin to occur as the fire grows in size. An Air Resource Advisor has been assigned on June 30th, 2017. Smoke will be forecasted and monitored as production of smoke increases. Notifications will be made on a regular basis.

4. What are the fires impacts to recreational opportunities?

Currently, there are limited impacts to recreational opportunities in the area. A small portion of the North Fork Trail is closed. The Pacific Crest Trail may be impacted by smoke at various times as the fire grows. Additional closures may come into effect, and will continue to be evaluated.

Values

The table below is an **example** of how to quantify threats to values. It identifies general categories of values and the potential impact to those values. Threat to values can be quantified by a WFDSS Fire Spread Probability model analysis (FSPRO) within a 7 to 14 day period in the event a slop-over, rollout or spot fire became established.

Value	Description	Current Distance from fire edge	Threat Criteria	Probability	Threat Mitigation Strategy
Firefighter and Aviator Safety	Firefighter and aviator exposure to hazards present in the fire environment	N/A	Person hours per direct suppression strategy or indirect, point protection, monitor strategy)	Low-Moderate	Current chosen strategy is utilizing minimal aircraft to support operation. A pack string is being utilized to support a 10 person module. The 10 person module is monitoring the fire and evaluating opportunities and assessing risk to keep the fire south of the North Fork.
Private Land and Structures	Upper Abbott Cabin – structure in remains and no longer standing. Lower Abbott Cabin and Private inholding.	Upper Abbott is ¼ mile to the south and Lower Abbott is 4 miles to the southeast	Any fire impact upon values to structures on lower Abbott	Low – 0.2 percent on 14 day FSPRO	Point protection and sprinkler system.
Smoke Sensitive Receptors	Identified Smoke Sensitive Areas	Areas within 10 to 20 miles of the fire.	Potential for concentrations of smoke above unhealthy for sensitive groups AQI threshold	Low – due to low smoke production	Monitoring, modeling and messaging to ensure that public can minimize exposure.
Private Timberland and Communities	Private timberlands and communities outside of Wilderness	10 to 15 miles	Any fire impact to value	Low – Currently well outside of 21 day FSPRO projections	Identified Management Action Points with specific actions to reduce the probability of fire impacting such values.
Visitor impacts	Recreation opportunities	General area	Decreased recreational opportunities	Moderate	Limiting the amount of trail closure to smallest area feasible.
Grazing Allotment	Three grazing allotments.	2 to 5 miles	Extreme fire or	Low	Notification to permittee and

	Allotment occur in area of Shelly basin, Little North Fork, and Etna Creek		smoke production near livestock		description of risk.
Natural Resources	Limited Spotted Owl and sensitive plant species.	1 miles from NSO and 3 miles	High severity fire to NSO and ground disturbing activity to the sensitive plants	Low	Limit ground disturbing activities to areas identified for sensitive plant species.

Values Inventory

Category	Value	Data Source	Currency	Coverage
Building Clusters: Siskiyou, CA	1	US Counties / FGDC Cadastral Subcomm.		Available counties
CAKNF - Cultural Resources / Shasta Territory	16,091 acres	CAKNF		Unit
CAKNF - Forest Infrastructure / Cabins Shelters etc	4	CAKNF		Unit
Class 1 Airsheds	42,265 acres	NPS Air Resources Division	Various	National
County: Siskiyou, CA	42,307 acres	HSIP 2011, US Census Bureau TIGER data	07/01/2010	National
Est Ground Evac Time: 1-2 Hrs	1,693 acres	National Park Service NIFC	11/01/2012	CONUS
Est Ground Evac Time: 2-4 Hrs	22,537 acres	National Park Service NIFC	11/01/2012	CONUS
Est Ground Evac Time: 4-6 Hrs	15,135 acres	National Park Service NIFC	11/01/2012	CONUS
Est Ground Evac Time: 6+ Hrs	2,901 acres	National Park Service NIFC	11/01/2012	CONUS
Estimated Population	1	LandScan USA / Oak Ridge Laboratory	04/08/2015	National
IRA: Snoozer IRA	1 acres	Various		National
Jurisdictional Agency: USFS	42,267 acres	Various	05/29/2015	National
Natl Scenic Trails	10.8 miles	NPS, USFWS, USFS	05/04/2012	National
Responsible Agency: USFS	42,307 acres	Various	July 2015	AK, CA, ID, MT, NM, MN
USFS Buildings	2	USFS-FMIS	03/23/2016	National
Wilderness: Marble Mountain Wilderness	42,307 acres	Wilderness.net	1/22/2016	National

The above is the values inventory for the WFDSS Planning area. The Planning area is used to evaluate values in which the fire may impact into the future.

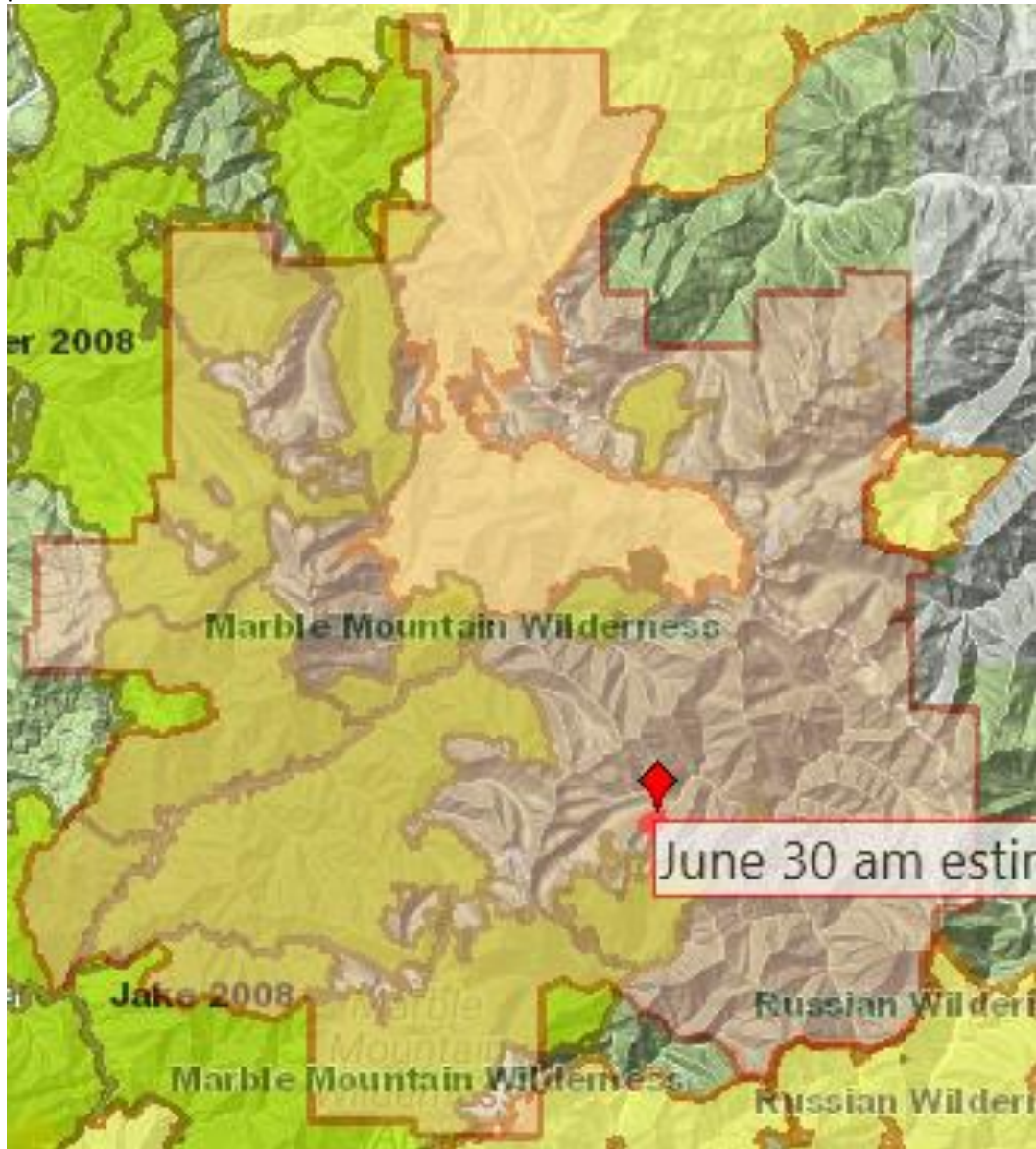
Structures and Infrastructure

The map below shows the fire perimeter (June 30, 2017) and the structures and infrastructure identified by the red square and pink circles. Management Action Points have been identified for private land and structures.



Recent Fire History in the Marble Mountain Wilderness

The map below shows fire history in the Marble Mountain Wilderness by years. The Marble Mountain Wilderness is outlined in red/orange. The fire perimeter is shown for the estimated June 30th, 2017 perimeter.



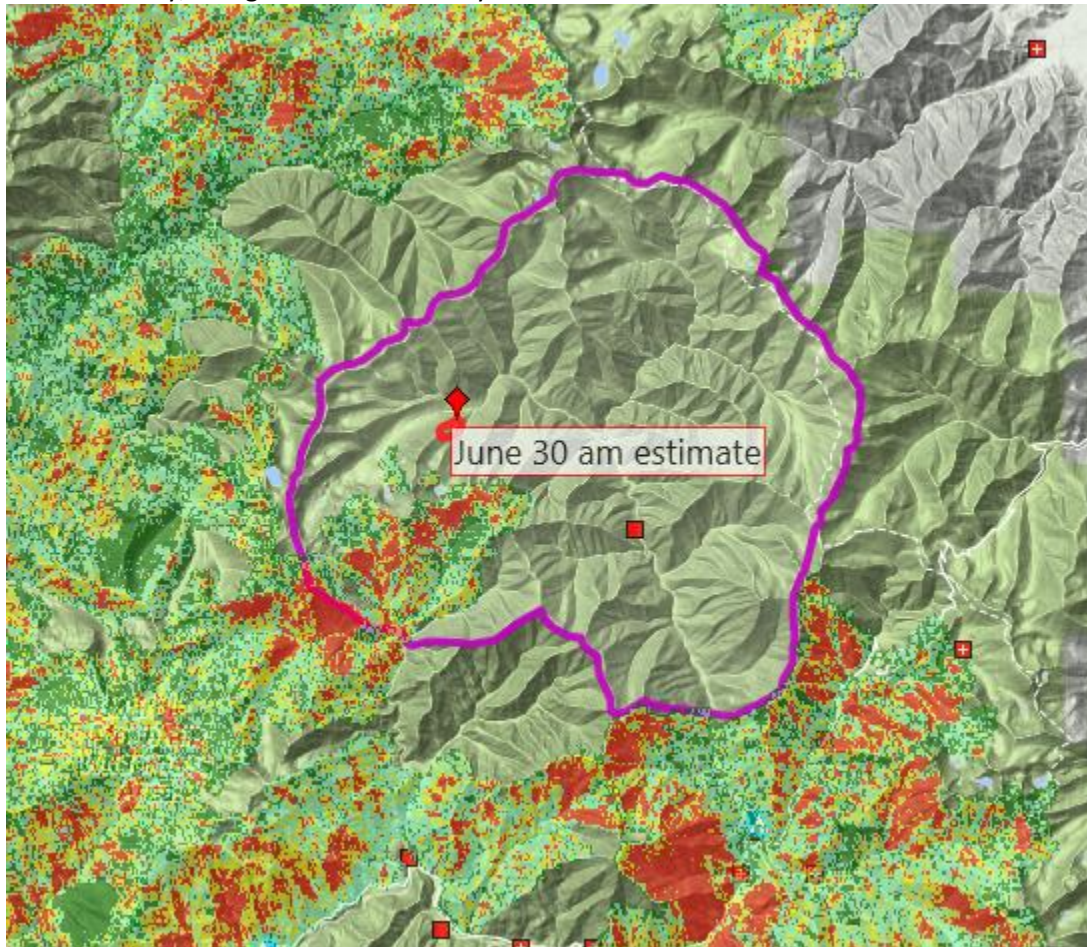
Fire History in the fire planning area.

The map below shows the fire history by year near the planning area.



Fire severity in the planning area

The map below shows the fire severity of the historical fires shown above. Red is high severity, yellow is mixed severity, and green is low severity.



Topography

The fire is burning on rugged and steep ground that is difficult to access without use of pack trains or a lengthy hikes. Steep slopes are a key feature of the fire terrain. There is a variety of aspects in or near the fire perimeter

that create changes in fuel moisture and vegetation density. Some shoots may be present.

Elevation	Aspect	Slope
4400-5000 Feet	All	0 - 160%

The fire is flanked on three sides by two streams and a river.

- The North Fork of the Salomon River is due north of the current fire perimeter, creating terrain features that are conducive for funneling wind conditions.
- The Lake of the Island Creek drainage on the east side of the fire currently holds some water that create a barrier to fire spread.
- To the west of the fire is a creek that flows from Abbott Lake which has some water.

Steep draws and canyons not only funnel winds, but also preheat fuels on adjacent slopes. This may result in higher rates of spread when crossing chutes and drainages. **The potential for rolling material will remain a possibility within the fire area until a season ending event.** The area is generally sheltered from east and west wind on the lower slopes, though exposure to those winds will increase at higher elevations.

A considerable effect on fire behavior in the steep and complex terrain of the Klamath Mountains is temperature inversions, which reduce lift of the smoke plume, trapping smoke near the surface, producing lower surface temperatures and higher relative humidity, thereby substantially suppressing fire activity. Once these temperature inversions lift, fire behavior and effects typically increase. Predicting inversions will be conducted to assist in predicted fire growth and effects.

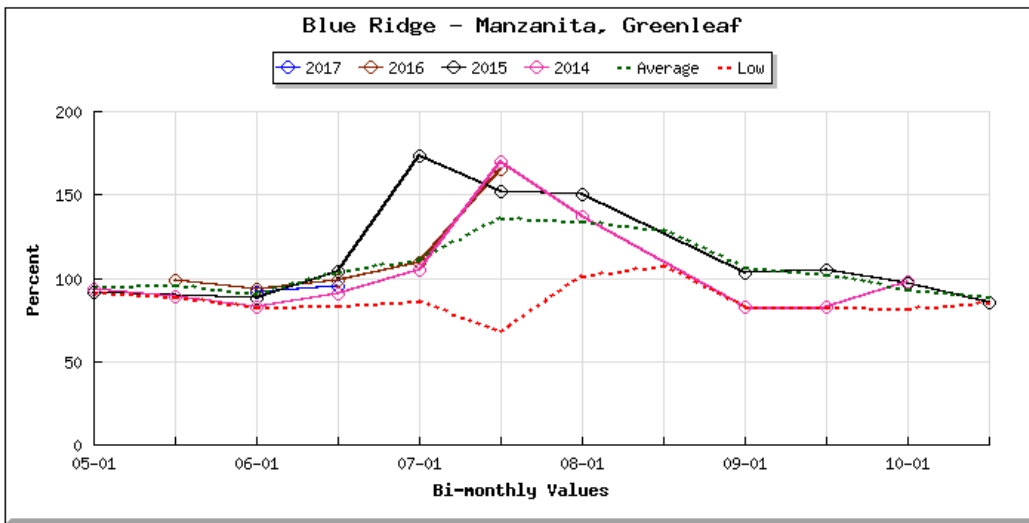
Fuels

The vegetation consists of primarily red fir with pockets of other mixed conifers. The understory consists of huckleberry oak, snowbrush, alder, and other brush species. A significant snowbrush component exists in recently burned fire scars that experience high severity fire in the past. Heavy dead and downed logs with standing snags also exist in these locations.

The current fire area has not burned in over a hundred years and is a late seral closed canopy stand. Heavy amounts of dead and downed large fuels exist. This exists throughout the near vicinity of the fire. The upper most elevations can be characterized by rock and low growing shrubs and grasses. There are many standing snags in the fire area that are good ember producers and receptors. These snags could lead to the fire more readily crossing natural barriers and streams.



Currently, the fire is not carrying that well due to increasingly high live fuel moistures in the brush. The fuel moisture trend historically goes up until the middle of July and then gradually drops throughout the remainder of the summer. The trend this year is anticipated to be similar to the previous years, and may not dip until later in the season due to the snowpack and record setting precipitation this year.



NORTH OPS - PREDICTIVE SERVICES

1325 PDT Saturday July 1, 2017

Weather Patterns and Long Range Outlook for the Island Fire

The Predictive Services weather outlook for the 2017 fire season is for warmer and drier than normal conditions. In the near-term, through mid-July, a general S-SW flow pattern will prevail, and it will occasionally bring subtropical moisture northward into NW California and produce isolated mountain thunderstorms. This year, however, with well above normal precipitation during the recent rainy season, fuels and soils are slow to dry out at mid and upper elevations, and live fuel moisture above 6000 ft. or so may not drop to critical levels this fire season.

For longer-term planning, cooler than normal water along the California and Pacific NW coast will likely contribute to more low pressure troughing along the west coast, shorter and/or fewer heat waves, and less lightning than usual. During times with a low pressure trough light to moderate SW-NW winds will prevail at the Island Fire during the peak burning hours, and light downslope winds will prevail during nights.

The most critical NW California fire weather patterns are related to wind. When a cold front or trough approaches the region, winds increase from the S, SW, or W. Conditions become less stable, providing better smoke ventilation and more wind to aid combustion. Outside the times when frontal systems pass, onshore flow is common below 2000 ft with cool, moist marine air pulled inland. Above the marine layer, however, winds are often out of the SW to NW with much lower humidity, especially for mid and upper slope areas like at the Island Fire. After a front or trough passes by winds turn NW, then N and NE and finally E, which can take from 1-5 days. N to E winds are generally dry and accompanied with stable atmospheric conditions. Occasionally a NE to E wind pattern persists several days, and both afternoon minimum and nighttime maximum RH drops to rather low values, increasing the potential for active fire behavior. During such events, nighttime inversions with higher RH are common in the canyons, but fire behavior can be active around-the-clock above the inversion where it stays drier.

Mid-August through September usually sees stronger frontal system winds impact the region more often, perhaps as much as once per week. Occasionally a dry frontal system will move through followed by hot, dry weather and offshore winds. Since fuel dryness usually reaches the most extreme values of the season at the same time of year, this is the most favorable time for critical fire weather conditions, especially during times when there has been no recent rainfall. There are two weather patterns that typically produce thunderstorms over the western Klamath NF. The first one is when a frontal system moves onshore and inland from off the ocean after a period of hot, dry weather. This usually produces thunderstorms with limited moisture. This pattern usually happens only 2-5 times a fire season and is more common during the early and latter portions but not so much mid-season. The second thunderstorm weather pattern is when monsoon moisture moves into the region from the S or especially the SE. The first storms that occur in this pattern may be somewhat dry, but they will usually produce more rainfall within a day or so of the pattern onset. Such monsoon intrusions usually occur 3-6 times per year, mainly in July through mid-August.

Climatology and Weather Outlooks

By the end of February and continuing through May, the North Ops region was no longer in designated drought conditions, a significant change from conditions since early October 2016. During the final few days of April a weather pattern shift ushered in the first stretch of very warm and dry weather, with periods of N-NE/ Offshore winds also enhancing these conditions and lowering humidity into the 15-25% range. The warm and dry weather continued through May, and the snowpack is now rapidly melting off.

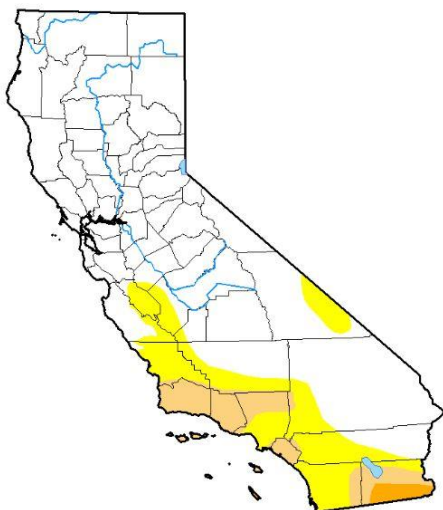
Home > State Drought Monitor

Login

U.S. Drought Monitor California

June 27, 2017
(Released Thursday June 29, 2017)
Valid 8 a.m. EDT

Statistics type: Traditional Percent Area Export table: PNG CSV XLS



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current 2017-06-27	76.47	23.53	8.24	1.06	0.00	0.00
Last Week 2017-06-20	76.47	23.53	8.24	1.06	0.00	0.00
3 Months Ago 2017-03-28	76.54	23.46	8.24	1.06	0.00	0.00
Start of Calendar Year 2016-12-27	17.47	82.53	68.87	57.79	40.60	18.31
Start of Water Year 2016-09-27	0.00	100.00	83.59	62.27	42.80	21.04
One Year Ago 2016-06-28	0.00	100.00	83.59	59.02	42.80	21.04

Estimated Population in Drought Areas: 10,293,092 View More Statistics

Intensity:

- D0 (Abnormally Dry)
- D2 (Severe Drought)
- D4 (Exceptional Drought)
- D1 (Moderate Drought)
- D3 (Extreme Drought)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying [text summary](#) for forecast statements.

Author(s):
Jessica Blunden, NOAA/NCEI

Download: PNG PDF JPG

View drought planning resources

US drought monitor <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>

How Does This Year Compare to the Average Year?

Northern California Spring Precipitation

May was drier than normal over all but the southeast corner of the North Ops region (Fig 1). May is typically a fairly dry month. Even so, a large portion of the region received less than 25% of the normal May precipitation, although a few hours of steady rain over half of the region helped the situation a bit in the final two days of May. The entire 2016-17 rainy season precipitation totals are still well above normal (Fig 2). The total rainy season precipitation is at 150% or more over about half of the region. The average temperature in May was above normal in most areas (Fig 3), with a few areas in the middle and south at 3-5 degrees F above warmer than normal. Since January 1 average temperatures have been within 2 degrees F of normal (Fig 4), with northern and eastern areas on the cool side and western and southern areas generally above normal. The cool nature of the winter and spring storms allowed a robust snow pack to develop (Fig 5). Also due to the rather wet winter, drought conditions were mitigated significantly across all of California (Fig 6). By the end of February and continuing through May, the North Ops region was no longer in designated drought conditions, a significant change from conditions since early October 2016 (Fig 7). During the final few days of April a weather pattern shift ushered in the first stretch of very warm and dry weather, with periods of N-NE/ Offshore winds also enhancing these conditions and lowering humidity into the 15-25% range. The warm and dry weather continued through May, and the snowpack is now rapidly melting off.

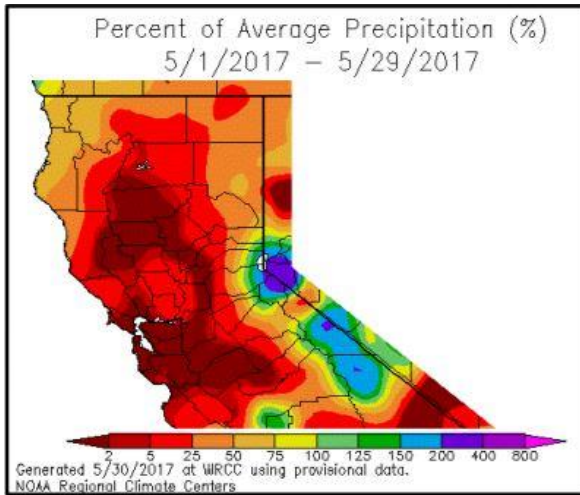


Fig 1: May Precipitation - % of Average

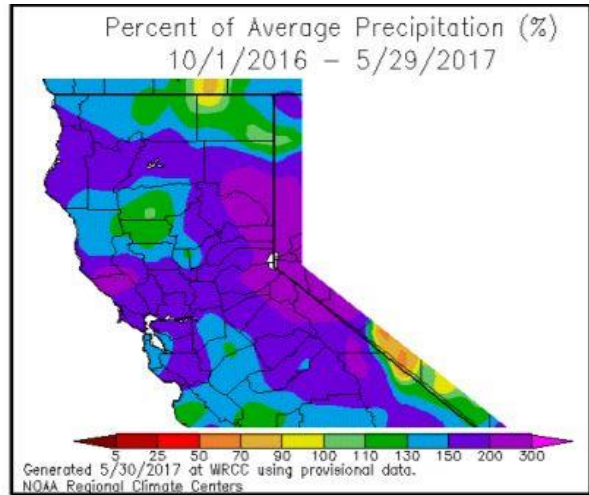


Fig 2: Precipitation since Oct 1 - % of Average

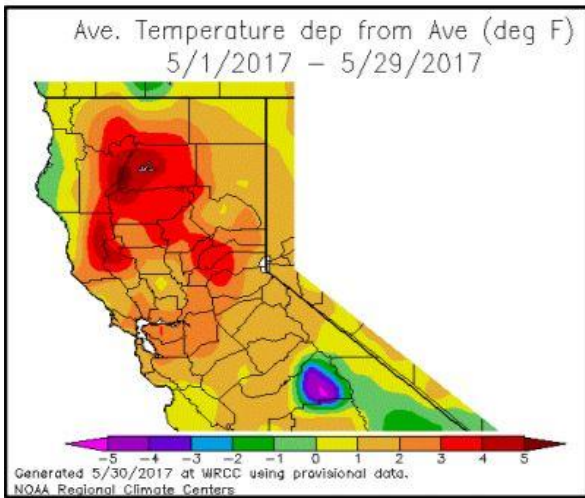


Fig 3: May Temps - Dept from Average

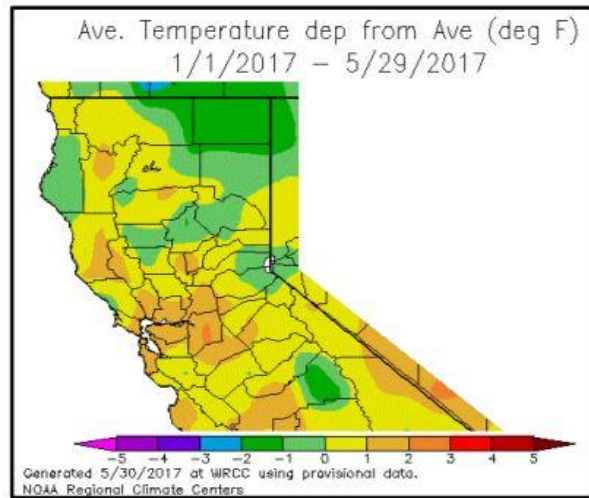
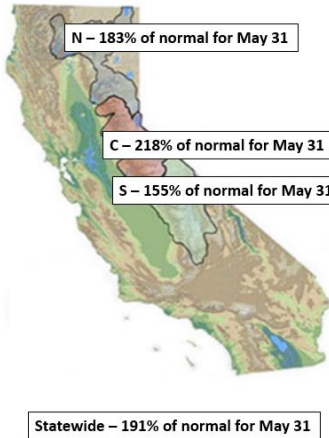


Fig 4: Temps Since Jan 1 - Dept from Average

Current Regional Snowpack from Automated Snow Sensors

% of April 1 Average / % of Normal for This Date



NORTH	
Data as of May 31, 2017	
Number of Stations Reporting	23
Average snow water equivalent (inches)	12.0
Percent of April 1 Average (%)	42
Percent of normal for this date (%)	183

CENTRAL	
Data as of May 31, 2017	
Number of Stations Reporting	39
Average snow water equivalent (inches)	21.7
Percent of April 1 Average (%)	74
Percent of normal for this date (%)	218

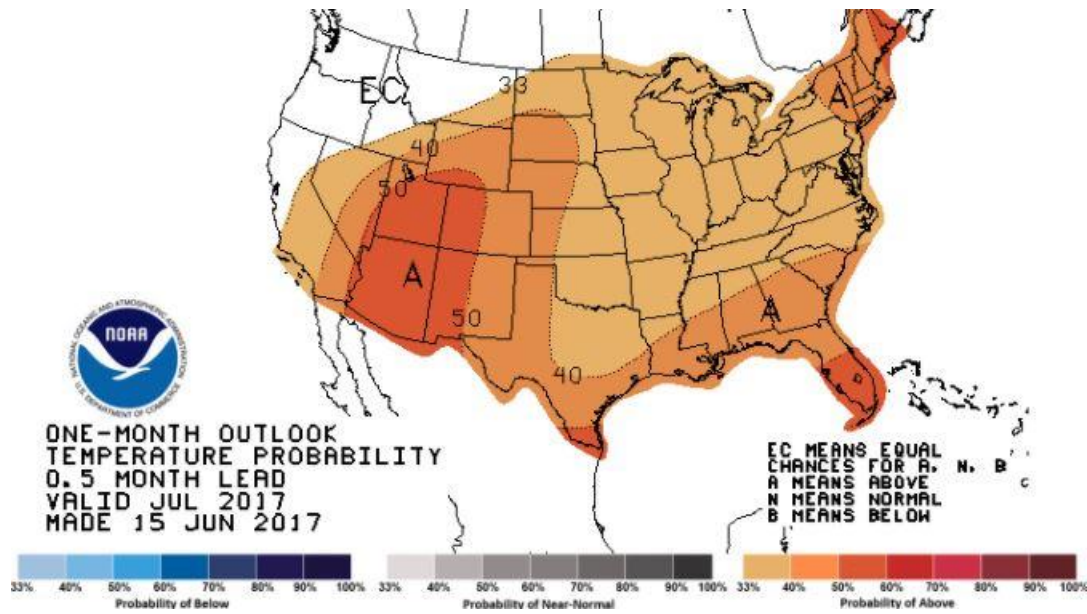
SOUTH	
Data as of May 31, 2017	
Number of Stations Reporting	24
Average snow water equivalent (inches)	15.6
Percent of April 1 Average (%)	59
Percent of normal for this date (%)	155

STATE	
Data as of May 31, 2017	
Number of Stations Reporting	86
Average snow water equivalent (inches)	17.4
Percent of April 1 Average (%)	61
Percent of normal for this date (%)	191

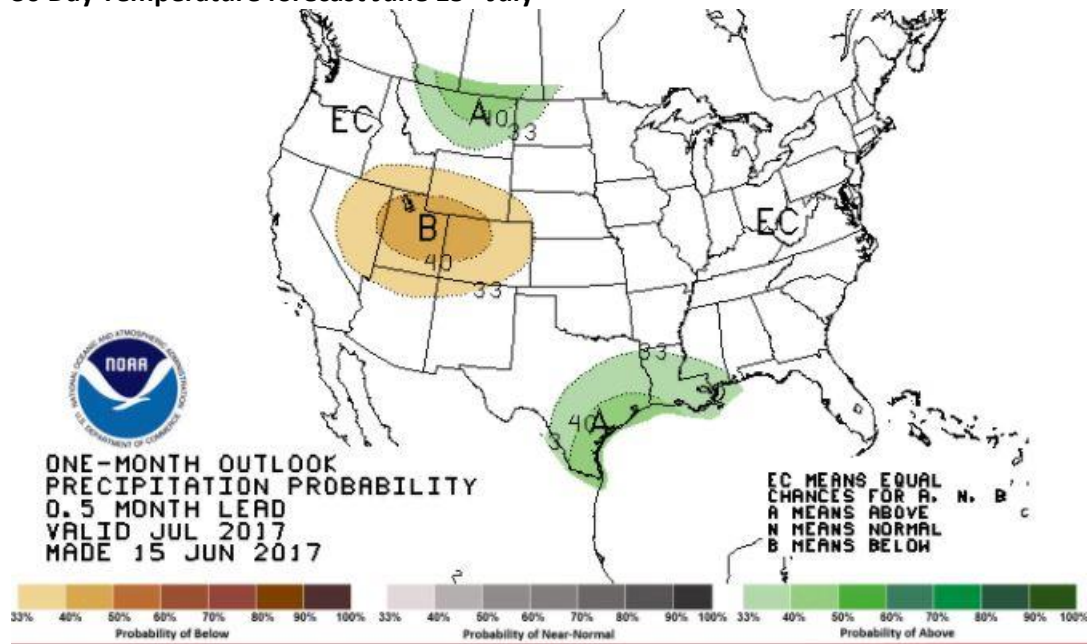
Figure 5. May 31 Snow Pack – North 183% of normal May 31 Snowpack.

Weather Outlooks

The **30 day** forecasts show a chance of normal temperatures and normal precipitation.

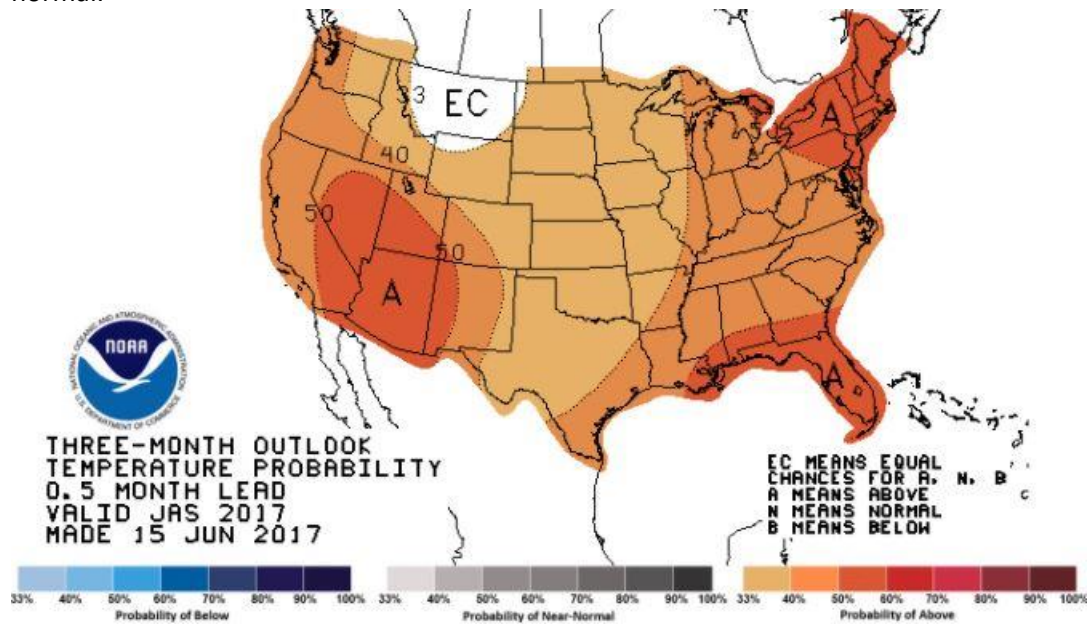


30 Day Temperature forecast June 15 - July

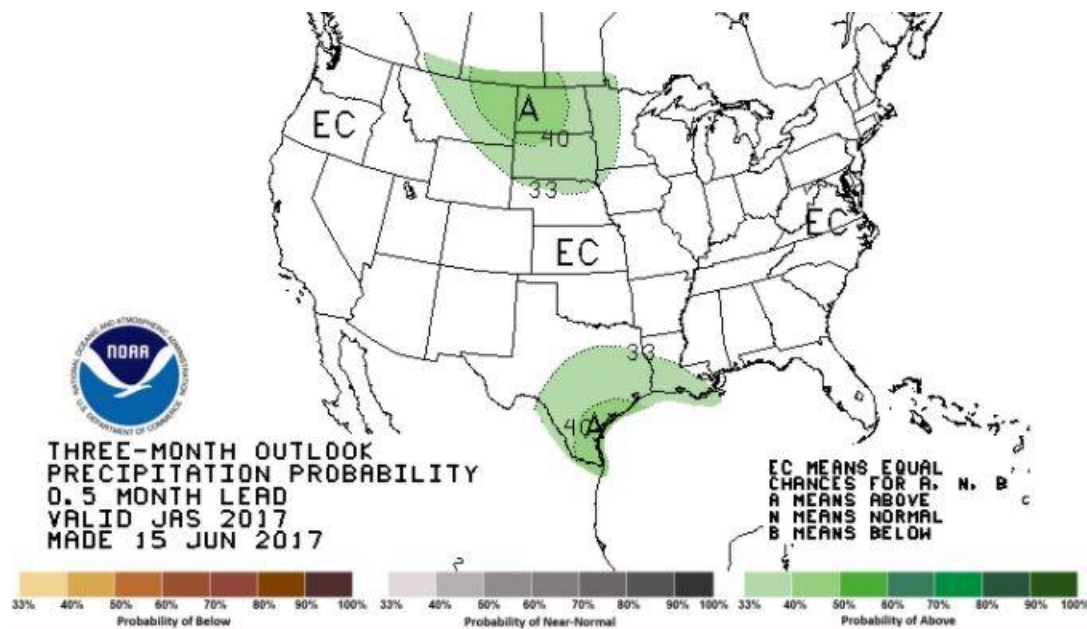


30 Day Precipitation forecast June 15 - July

Three month weather outlooks for temperature and precipitation are shown below. Temperatures are forecasted to be above normal from July through August. Precipitation is equal chances or below normal.



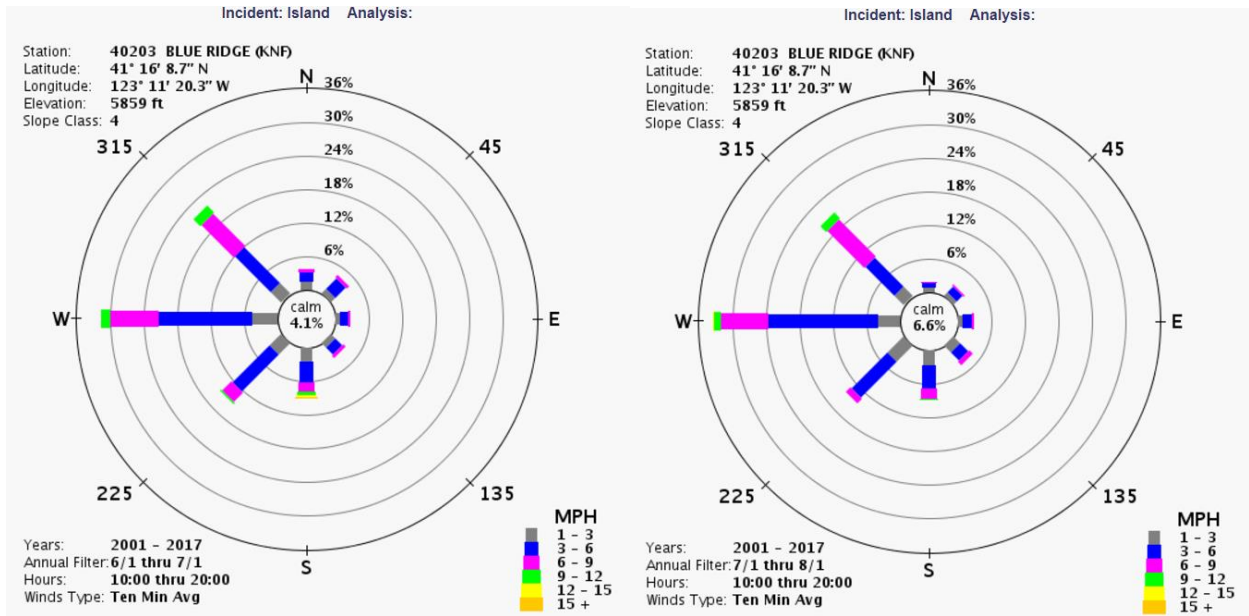
Three Month Temperature forecast June, July, and August



Three Month Precipitation forecast June, July, and August

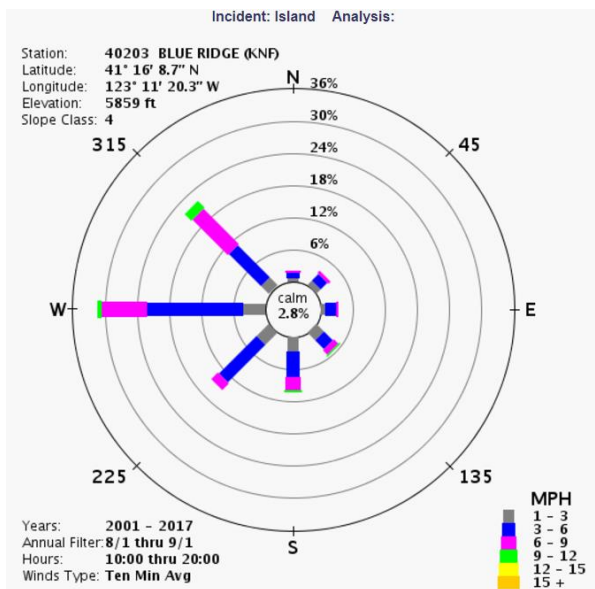
Wind Rose Analysis

Over the next 90 days seasonal changes will vary the average wind speed and direction. The Blue Ridge RAWs was used to assess differing wind speed and direction over the next 90 days. Only subtle differences can be seen from Blue Ridge. There are a few days in July that have winds over 15 MPH over the period and are out of the south. August and September have historically shown that winds do not typically sustain over 12 MPH.



June 1 – July 1 Blue Ridge RAWS

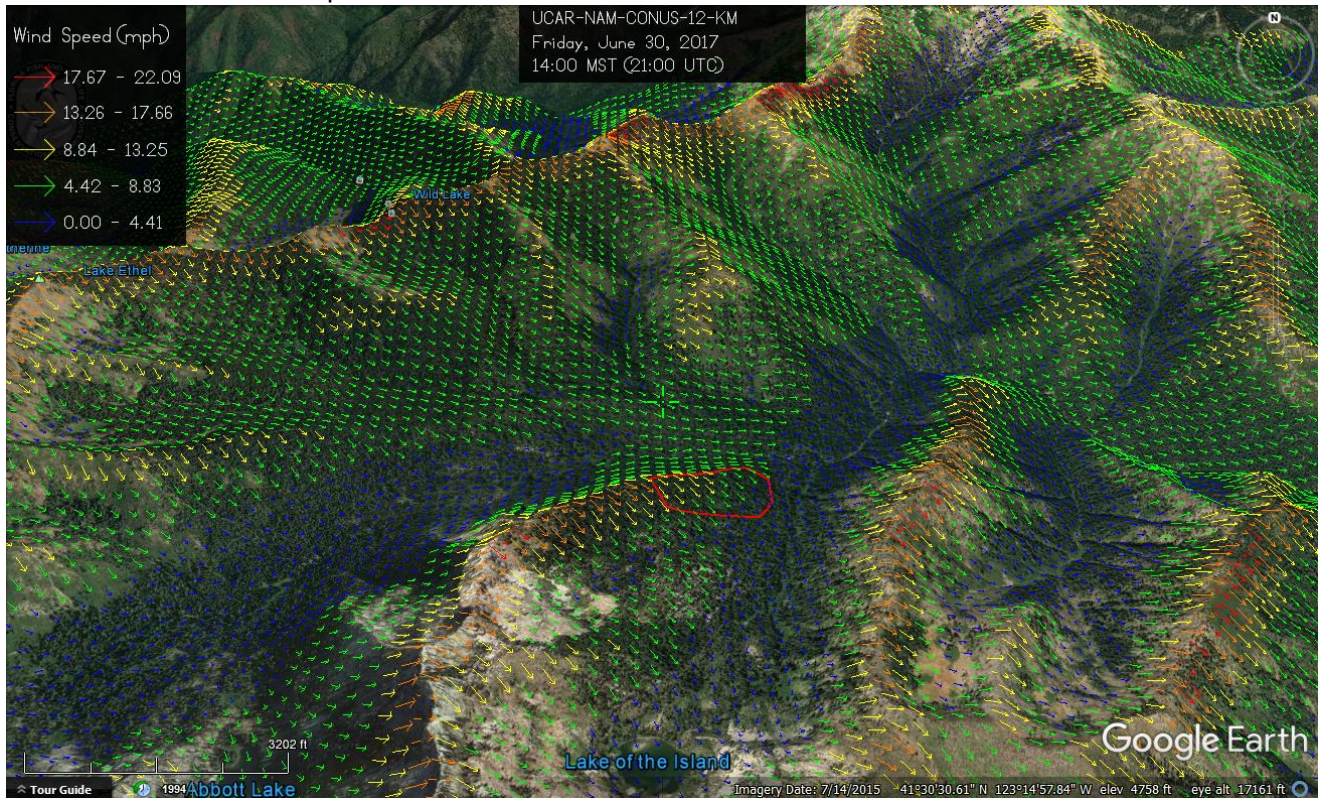
July 1 – August 1 Blue Ridge RAWS



August 1 - September 1 Blue Ridge RAWS

Topographic effects on wind

Drainages are steep and run in various directions in this part of the Klamath National Forest. Because of this, a detailed wind analysis can provide useful when determining where a fire may do something unexpected. The different confluences and bends in the North Fork may provide opportunities for the fire to spot. Wind Ninja was used to determine the interaction between wind and topographic features for the fire area. Continued analysis will be conducted on forecasted winds to determine wind dynamics across the fire area and its potential influences on fire behavior and effects.



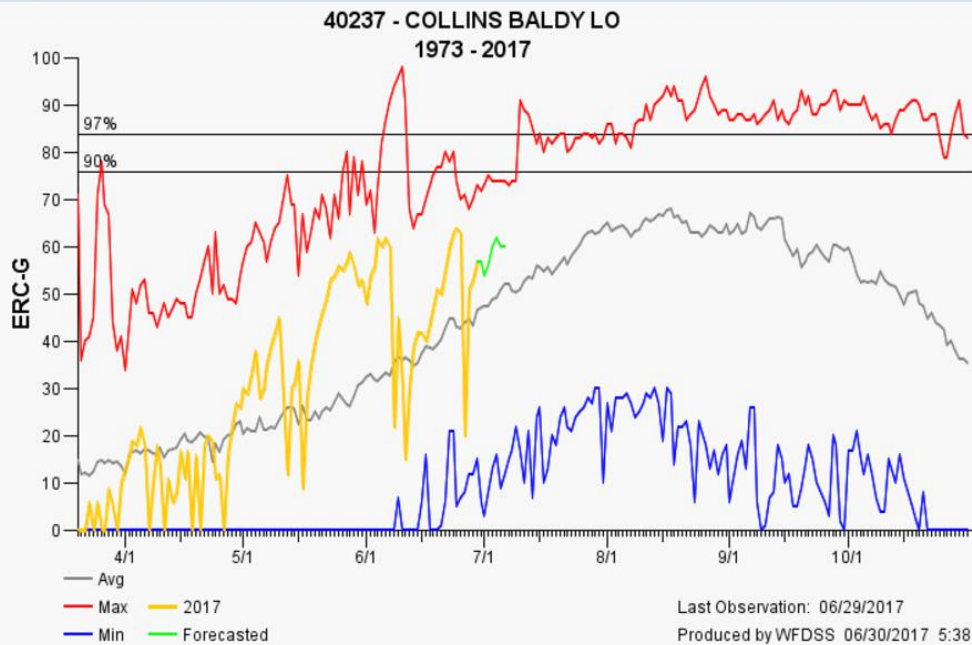
Terrain influence on the wind based off forecasted weather. Model uses a 6 hour temporal resolution.

Fire Danger, Fire Behavior and Growth

Fire Danger

Fire Danger for Collins Baldy RAWS is above average for this time of year and is forecasted to stay below 90th percentile conditions for some time. Collins Baldy was utilized as the most representative weather station. Typically Blue Ridge RAWS would be the most representative station for this fire location, however; was missing data for ERC trend analysis. Therefore, Collins Baldy was utilized.

ERC-G Fire Danger Rating Graph



Observed Fire Behavior to Date

Current fire behavior is low, spreading in the surface fuels (smoldering, creeping) with low flame lengths and rates of spread. This is primarily due to the current high fuel moistures. This low activity fire behavior is expected to continue for the near future due to moist conditions from a very wet rainy season and abundant snow pack. Drought conditions were mitigated significantly in this area due to the above average rainfall and snow pack that is approximately 183% of normal.

The pictures below represent observed fire behavior to date. The pictures show surface fire in timber litter with flame lengths less than 1 foot. Some existing snags and downed logs are partially consuming.



Predicted Fire Growth

Near-term scenario discussion

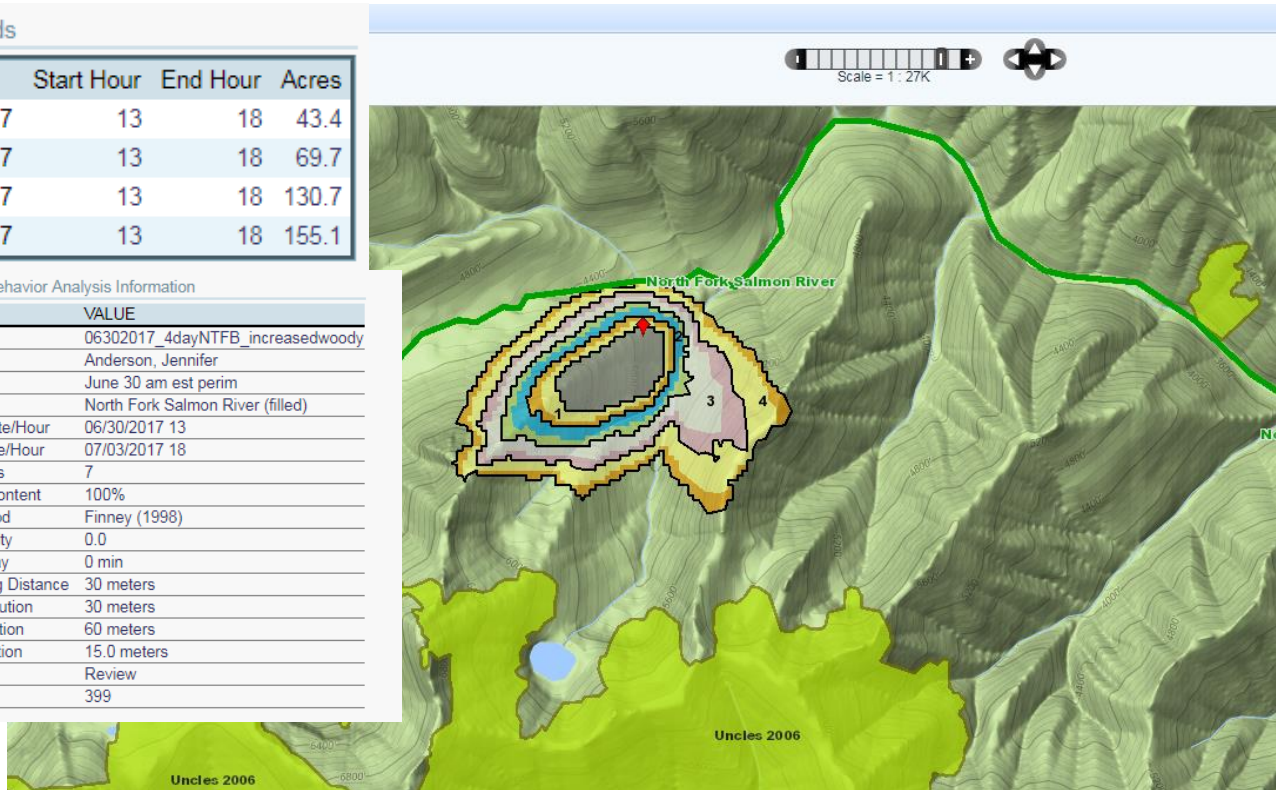
5 day Near Term using 06/30 VIIRs drawn perimeter as an ignition source. Blue Ridge RAWS was chosen for weather inputs and a burn period from 1300-1800 was used. Woody fuel moisture values were increased to 150 (fully green). A barrier was used north along the North Fork Salmon River. Results assume no suppression activity.

Burn Periods

Date	Start Hour	End Hour	Acres
06/30/2017	13	18	43.4
07/01/2017	13	18	69.7
07/02/2017	13	18	130.7
07/03/2017	13	18	155.1

Near Term Fire Behavior Analysis Information

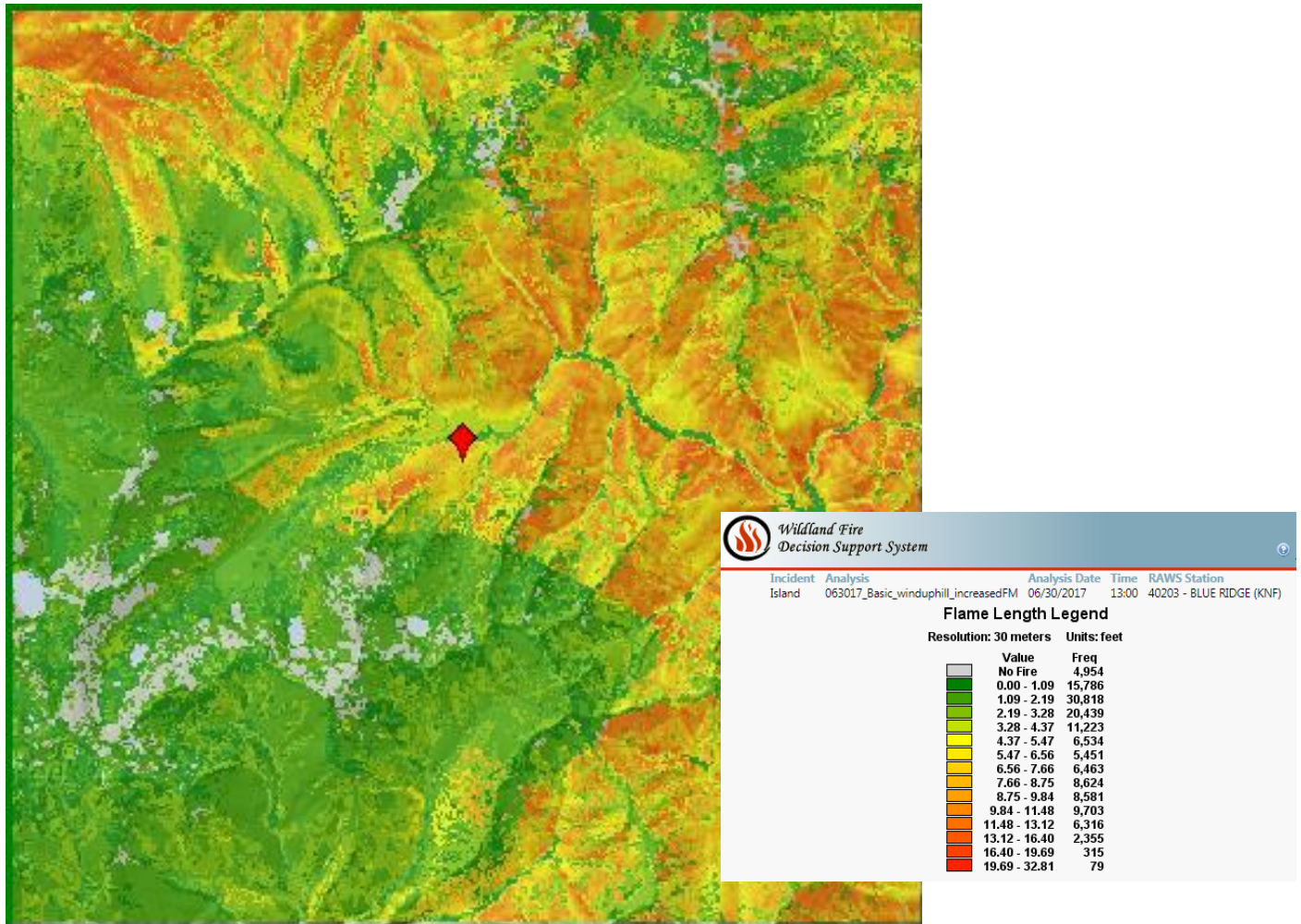
NAME	VALUE
Analysis Name	06302017_4dayNTFB_increasedwoody
Analyst Name	Anderson, Jennifer
Ignition	June 30 am est perim
Barrier	North Fork Salmon River (filled)
Analysis Start Date/Hour	06/30/2017 13
Analysis End Date/Hour	07/03/2017 18
Conditioning Days	7
Foliar Moisture Content	100%
Crown Fire Method	Finney (1998)
Spotting Probability	0.0
Spot Ignition Delay	0 min
Minimum Spotting Distance	30 meters
Landscape Resolution	30 meters
Perimeter Resolution	60 meters
Spot Grid Resolution	15.0 meters
Status	Review
Total acres	399



Basic Fire Behavior

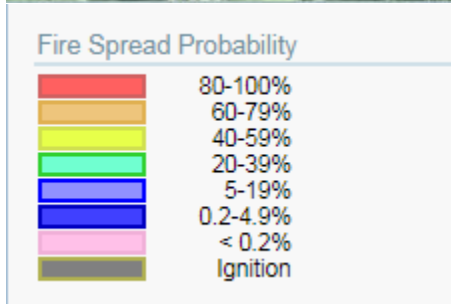
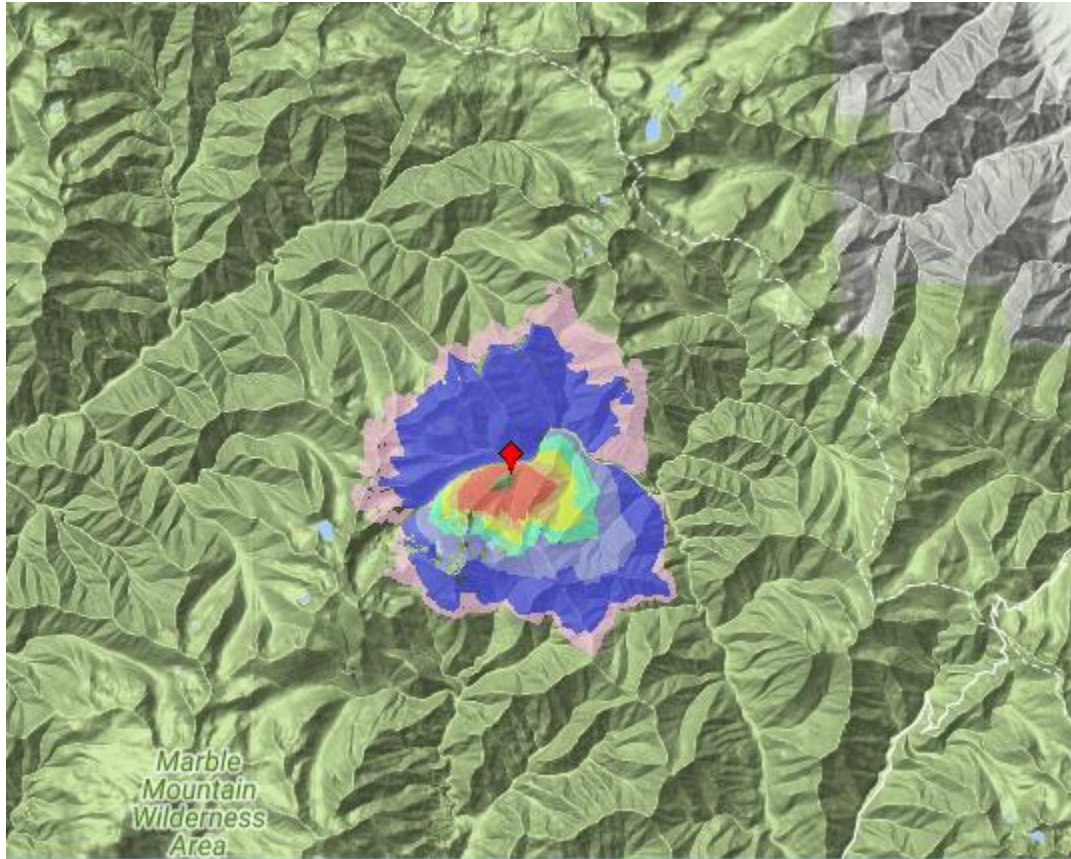
Basic fire behavior scenario discussion

Basic fire behavior using Blue Ridge RAWS was chosen for weather inputs. Winds blowing uphill at 7mph were chosen to mimic current weather trends. Live herbaceous fuel moistures were increased to 90 and woody to 150% to represent current fuel moistures at the fires location. The Screenshot includes flame lengths with units in feet. The red dot indicates the fires current location.



FSPro

Updated 6/30/2017 14 day FSPro analysis. Uses estimated 48 acre perimeter as ignition file. Model assumes no suppression efforts. Barrier file used on North Fork Salmon River to assess spotting potential across the River and trail.



Management Action Points

Management Action Points are currently included in the latest WFDSS Decision.

