

2014

**IMPROVING COMMUNITY
RESPONSE TO WILDFIRE:
2013 FIRE SEASON FINDINGS
REPORT**

WHISKEY COMPLEX

In 2013, the Fire Chasers Research Team at North Carolina State University developed a series of incident performance measures in collaboration with incident response and land management professionals. The goal of this effort was to provide metrics that can help improve interagency coordination and communication during complex, large scale wildfires. In the summer of 2013, data on these incident response outcomes were collected from 22 Type I and Type II wildland-urban interface fires in Idaho, Montana, Oregon, and Washington. This report summarizes the findings from the Whiskey Complex in the areas of interagency network performance, incident management team performance, use of social media and incident learning and capacity building.

This report was prepared by

North Carolina State University's Fire Chasers Research Team:

Branda Nowell, Ph.D. (Principal Investigator)

Toddi Steelman, Ph.D. (Principal Investigator)

AJ Faas, Ph.D. • Anne-Lise K. Velez, MPA • Joy Davis, BA •

Clare FitzGerald, MPA • Mary Clare Hano, MPH

Whiskey Complex: Incident Report

Study Background

This report summarizes findings on incident response outcomes for the Whiskey Complex that occurred in 2013. The report presents outcomes of the Whiskey Complex compared to twenty-one other Type I and Type II incidents that occurred in Idaho, Montana, Oregon, Washington, and one pilot incident in Colorado, during the 2013 wildfire season. The goal of this report is to provide disaster, fire response, and land management agencies with feedback on the incident. This feedback is designed to help identify areas of strength, as well as prioritize areas for capacity building to improve incident response in the upcoming fire season. This report summarizes findings on the following areas: 1) interagency network performance; 2) incident management team performance; 3) use of social media; and 4) incident learning and capacity building. All findings are based on surveys completed by key personnel associated with the incident management team, host agency, and cooperating disaster response agencies on each incident. County and municipal elected officials in the affected area were also surveyed. Surveys were generally collected from Type 1/Type 2 incident management team members immediately before they transitioned off the incident. Surveys with host agencies and county disaster response agencies were collected in October/ November of 2013. A total of 21 surveys were completed for the Whiskey Complex (54 percent response rate).

How Should I Interpret the Data in This Report?

Incidents differ in their complexity and more complex incidents can create more challenges. The information contained in this report is based solely on the survey data and indicators *do not* account for differences between incidents. This should be kept in mind when interpreting findings from a single incident in relation to the regional incident averages. Findings with lower response rates should also be interpreted with greater caution as there may be key perspectives that are missing. Recommended questions for reflection in interpreting the findings from this report include:

In what areas did we excel during this incident? What strategies and actions did we take that may have contributed to this success? What actions can we take to make sure these practices and lessons are retained for future incidents?

In what areas were our ratings comparatively less positive? How do we make sense of those? Were there missed opportunities either *before* or *during* the incident that might have improved our outcomes in this area? Are there actions we can take *now* to help ensure future success in this area?

Overview: A brief summary of the Whiskey Complex

Mid-afternoon on July 26th, 2013, lightning struck Umpqua National Forest six miles east of Tiller, igniting the Whiskey Complex Fire, which consisted of the Whiskey, Big Brother, Buckeye, and Smith Ridge Fires near Douglas County, Oregon. The Incident Command Post (ICP) was located at Milo Adventist Academy, with a helibase to the West. Ross William's Type II Incident Management Team (IMT) was assigned to the fire for two weeks before rotating off duty and being replaced by Doug Johnson's Type II IMT, which was assigned to the incident until the fire was fully contained. Umpqua National Forest and Rogue River-Siskiyou National Forest both served as hosts on the Whiskey Complex Fire, with 17 representatives present from the Umpqua Supervisor's Office, Rogue River-Siskiyou National Forest Supervisor's Office, Tiller Ranger District, and High Cascades Ranger District. Additional responding and cooperating agencies included Tiller Rural Fire District, Milo Rural Fire Protection District, Douglas County Emergency Management, Douglas County Sheriff's Office, Douglas County Board of Commissioners, Bureau of Land Management Medford District, Oregon Department of Forestry, and the Cow Creek Band, among others. According to the ICS-209 Incident Report from August 2nd, an afternoon meeting with the Cow Creek Tribe in Canyonville and an evening community meeting in Tiller were both well attended and successful.

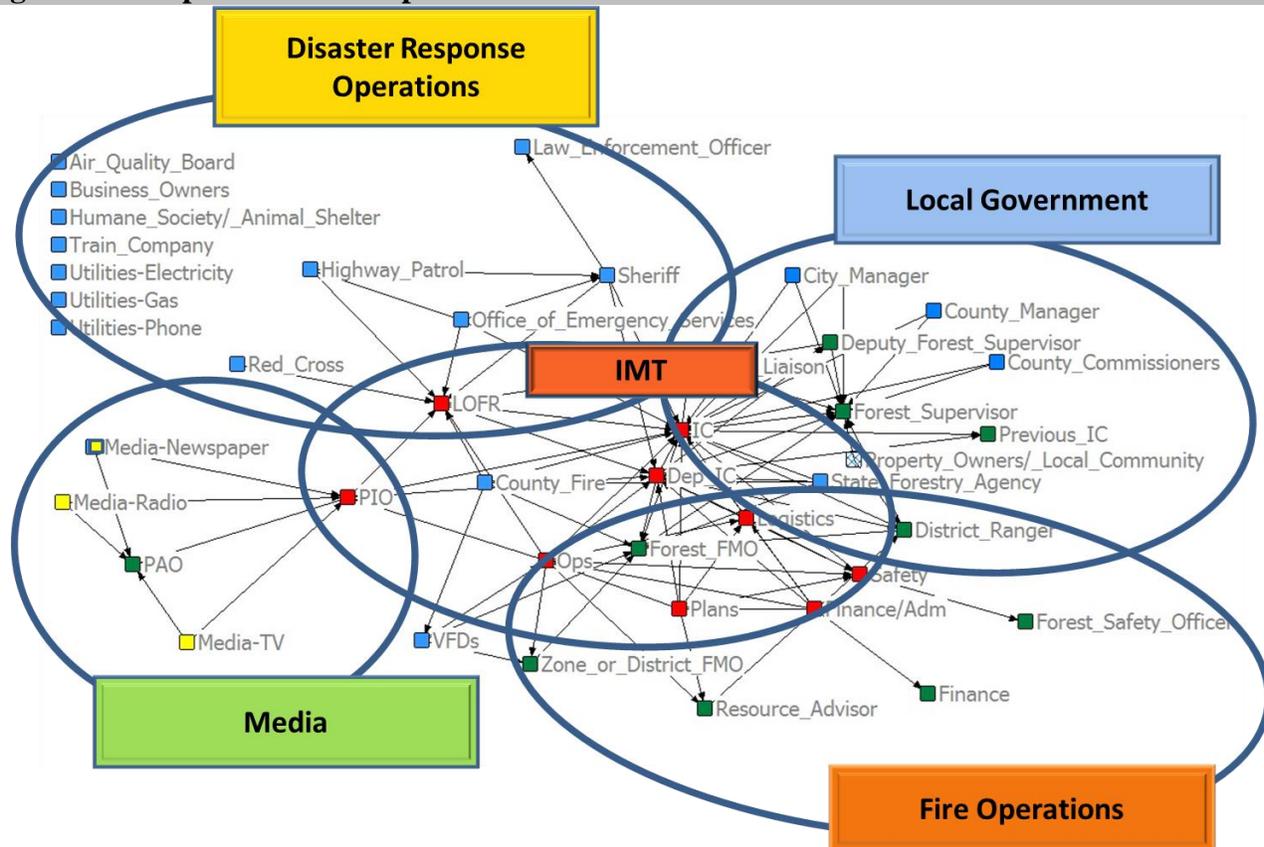
Evacuations in the Ash Valley area and recreation sites around South Umpqua Falls took place for a little over a week after the fire's ignition, with evacuations lifted as of August 5th and evacuation warnings lifted on August 24th. Road and area closures were in effect, but were contained to Forest Service lands. Values endangered by the fires included high-value private timber lands, high-value fishery streams containing threatened and endangered fish species, archaeological sites and cultural resources, historic structures, the tallest sugar pine tree, and recreational areas. Dangers were posed by the difficulty of the rocky terrain in the area as well as poisoned oak and hazard trees. Eight residences and five outbuildings were threatened by the fire at its peak, and one outbuilding was destroyed. According to the ICS-209 Incident Reports, the fire was 100 percent contained as of August 24th, having burned a total of 17,891 acres, and transitioned to John Poet's Type III IMT for mop-up and monitoring.

Incident Response Network Performance: Whiskey Complex

What Is an Incident Response Network?

Effective incident response to a complex wildfire event involves the coordination of multiple organizations and agencies with formal response responsibilities during the incident. This group of organizations and agencies can be referred to as the *incident response network*. This network typically includes the incident management team, fire management operations, disaster management operations, county and municipal government, and the media. Diagram 1 shows what this network might look like.

Diagram 1. Sample Incident Response Network



What is network performance?

When working as part of an inter-connected network like the one shown in Diagram 1, the actions of any one agency within the network can affect others in the network. Consequently, incident outcomes are often the result of the *combined* management actions of the entire network, and the level of communication and coordination within it. Not all agencies are involved in all areas of incident response. However, problems in one area of the network can lead to problems in other areas. As a result, effective incident response is not about the performance of any single organization or agency, but is related to the performance of the *network as a whole* in the following areas:

- ❖ Interagency coordination & fire response
- ❖ Public information
- ❖ Road closures
- ❖ Evacuation and re-entry
- ❖ Sheltering & mass care
- ❖ Cost share

To learn more about network performance, we asked all agency and organizational leaders in the incident response network to rate how things went in each of these six areas. Respondents were asked their level of agreement with a set of statements. Options ranged from (1) “strongly disagree” to (5) “strongly agree.” Overall, network performance scores were high. Some areas are also worthy of additional attention prior to fire season 2014. For the twenty-two fires in our sample, overall network performance was the highest for interagency coordination and fire response (average = 4.44) and public information (4.34). On average, lower performance ratings were provided for cost share (3.87), evacuation (3.99), and sheltering/mass care (4.0). See Appendix A for specific questions asked in each category and average level of agreement for each.

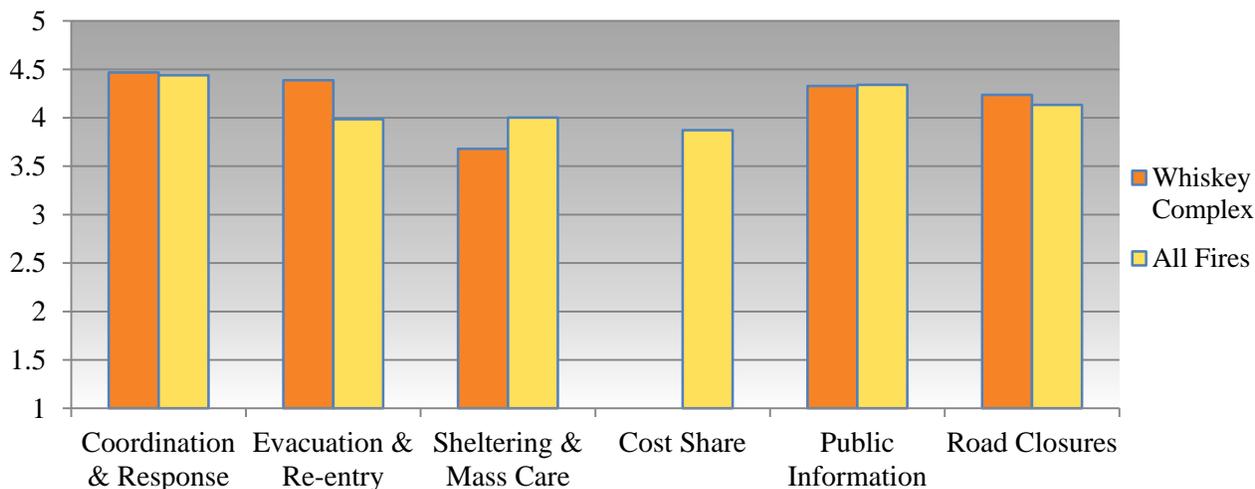
Network Performance: How did things go on the Whiskey Complex?

Figure 1 shows network performance ratings for the Whiskey Complex in comparison with the average across all twenty-two fires in our sample. Overall, Whiskey Complex network performance was relatively consistent with the averages across all fires. Whiskey Complex network performance was slightly higher than average in the areas of evacuation and re-entry and road closures. Notably, all those surveyed provided positive feedback about performance in the area of evacuation and re-entry. Network performance for the Whiskey Complex was approximately average for public information and coordination and fire response. Whiskey Complex network performance showed the most room for improvement in the area of sheltering and mass care, with performance slightly lower than the all-incident average. In particular, respondents saw room for improvement in clearly communicating sheltering options to evacuees and adequately providing for auxiliary care needs of evacuees (like food, water, spiritual or mental health care). According to respondents, there were no cost share agreements on the Whiskey Complex, so we do not have data on this network performance factor for this incident.

KEY FINDINGS

- Coordination and fire response as well as evacuation and re-entry were identified as areas of particular success on the Whiskey Complex
- Clearly communicating sheltering options to evacuees and adequately providing for their auxiliary care needs were identified as areas for improvement in managing sheltering and mass care on the Whiskey Complex

Figure 1. Average Network Performance by Activity: Whiskey Complex



Incident Management Team Performance: Perspectives from host agencies and local cooperators

On each incident, we asked representatives of local cooperating agencies, the Forest Service, and other host agencies to reflect on how well the incident management team communicated and coordinated with local host agencies and cooperators. Incident management teams (IMTs) were assessed across 19 areas outlined in Table 1 on the following page. The response options ranged from “No room for improvement” to “A lot of room for improvement”, and included “Don’t know” and “Not applicable” choices.

Across all twenty-two incidents, incident management teams were reported to perform the best in: 1) being accessible; 2) acknowledging cooperation; 3) sharing credit; and 4) serving as positive ambassadors in interactions with the local community. On average, scores were quite positive across all areas. However, host communities reported the greatest room for improvement for IMTs in the areas of: 1) obtaining local context information to inform fire operations; 2) incorporating information about local values at risk into fire management plans; and 3) engaging affected jurisdictions in planning and decision making from the beginning. The first column of Table 1 lists the average room for improvement for incident management teams across all fires. The second column displays average room for improvement for the Whiskey Complex incident management team. For each item in Table 1, **lower numbers indicate less room for improvement**. The scale includes (0), indicating “no” room for improvement, (1) “a little,” (2) “some,” (3) “quite a bit,” and (4) “a lot.”

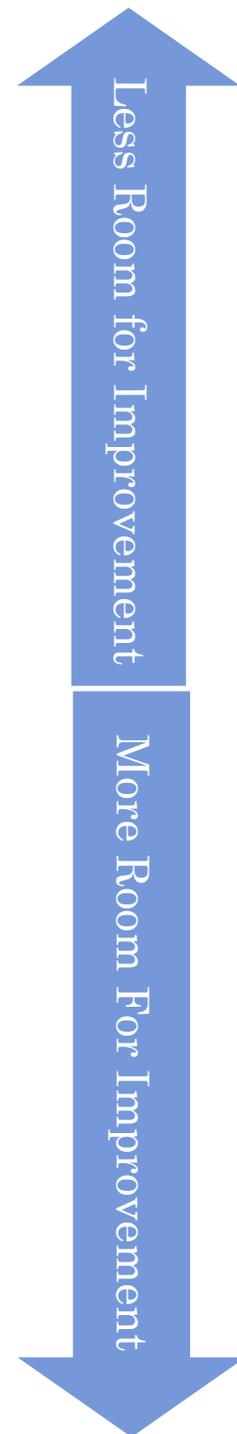
Average responses for William’s Type II IMT on the Whiskey Complex ranged from 1.1 to 1.9, indicating a range from “a little” to “some” room for improvement. The team was rated less positively than the regional average in 18 of 19 areas during the Whiskey Complex. On average, William’s Type II IMT was rated most positively in terms of sharing credit with other agencies. William’s Type II IMT was on par with the region in incorporating information about local values at risk into the management of the fire. Greatest strengths and areas for improvement for the incident management team on the Whiskey Complex are highlighted in the IMT Key Findings box above.

KEY FINDINGS

- On average, William’s Type II IMT was rated most positively in terms of sharing credit with other agencies during the Whiskey Complex
- IMT strengths on this incident include:
 - sharing credit with local agencies
 - incorporating information about local values at risk into fire management
- Key areas that respondents felt the IMT had some room for improvement included:
 - valuing local knowledge and input from local agencies
 - obtaining local context information to inform operations
 - not over-stepping the delegation of authority

TABLE 1. Whiskey Complex Incident Management Team Room for Improvement

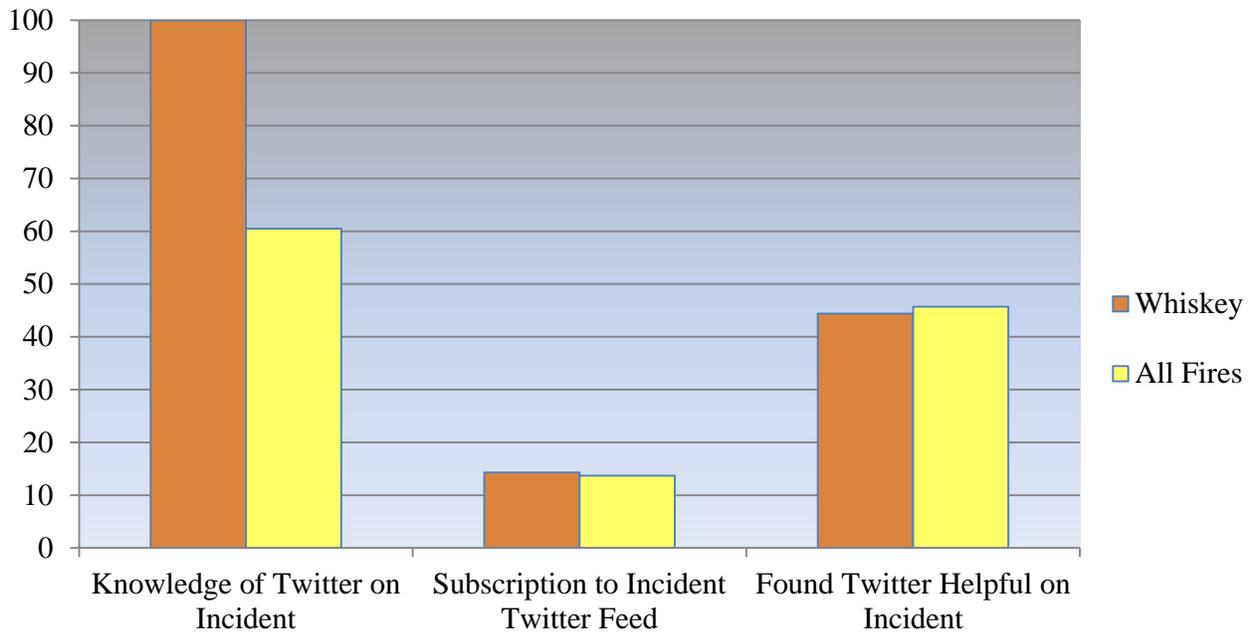
Area for improvement in working with Host Unit(s) and local cooperators	22 Incident Average Room for Improvement (0-4)	Whiskey Complex Average Room for Improvement (0-4)
Sharing credit with your agency	1	1.1
Incorporating information about local values at risk (e.g., biological, archeological, cultural, recreational) into the management of the fire	1.3	1.3
Being helpful to cooperating agencies	1.1	1.3
Serving as a positive ambassador in interactions with the local community	1	1.4
Acknowledging cooperation	1	1.4
Being sensitive to local community culture and political climate	1.25	1.5
Being accessible to you	1	1.5
Clarifying roles and responsibilities	1.2	1.5
Engaging affected jurisdictions in planning and decision making from the beginning	1.3	1.5
Being flexible in adapting their fire management strategy to account for local preferences	1.2	1.5
Rapidly identifying key local players they needed to be communicating with during the incident	1.2	1.6
Seeking to understand organizational culture, values, and capacities of your agency	1.2	1.6
Getting your agency information you needed to be effective	1.2	1.6
Using the incident as a training opportunity to build local capacity	1.2	1.6
Including your agency in the dissemination of vital information during the incident	1.2	1.7
Staying in their lane and not over-stepping their delegation of authority	1	1.7
Valuing local knowledge and local input	1.2	1.7
Obtaining local context (e.g., burn scars, trail systems, local weather patterns) to inform their operations	1.3	1.9
Valuing your agency's input	1.2	1.9



Twitter Use

Social networking sites, such as Twitter, have become important tools for sharing information during various emergencies. Researchers are only beginning to study the implications of social media for risk communication and practitioners are often interested in best practices for using social media. As part of our survey, we asked local cooperators and Forest Service personnel whether they knew of an “official” Twitter feed associated with the wildfire incident, whether they subscribed to this feed, and whether or not they found the information on Twitter helpful. Figure 2 shows percentage of Twitter use for Whiskey Complex compared to the average rate across twenty-one fires in our sample that reported on social media.

Figure 2. Percent Social Media Use and Utility on the Whiskey Complex



Inciweb, personnel from the Umpqua National Forest, and engaged but unofficial fire watchers all tweeted information about the Whiskey Complex. A substantial portion of Twitter activity surrounding the incident was comprised of Inciweb retweets. When compared to the 21 incident average, respondents from the Whiskey Complex had much more knowledge of Twitter, a slightly higher percentage of subscribers to Twitter, and were slightly less likely to find Twitter helpful.

KEY FINDINGS

- Whiskey Complex respondents were more aware of Twitter information resources than respondents across other incidents
- Whiskey Complex respondents subscribed to Twitter information feeds with slightly greater frequency than respondents across other incidents
- Whiskey Complex respondents did not find Twitter information sources as helpful as did respondents across other incidents

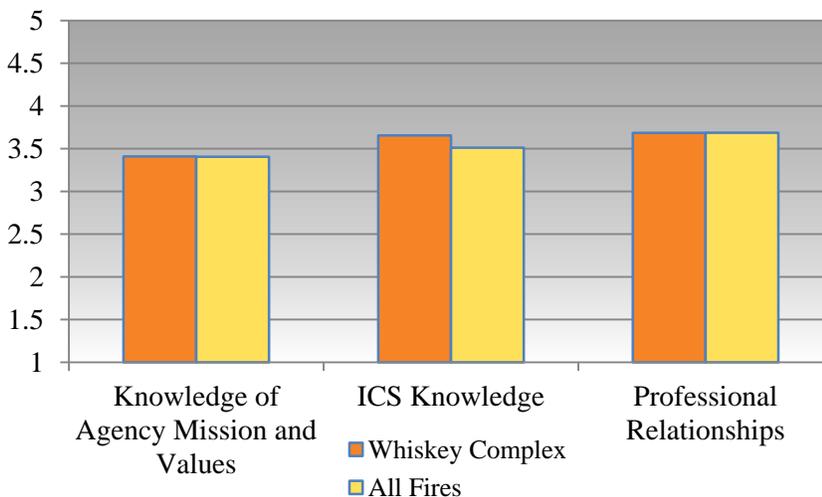
Moving Forward: Incident learning and capacity building

The field of incident response prioritizes using every incident as an opportunity for learning and relationship building to improve capacity for responding to future events. To assess incident learning and capacity building, respondents were asked to report how personal outcomes were influenced by the incident in the areas of: 1) increased knowledge of other agencies' missions and values; 2) enhanced knowledge of the Incident Command System (ICS); and 3) increased familiarity and strengthened professional relationships within the local network. Respondents were asked to rate how each factor was affected by the incident, on a scale ranging from (1) "much worse" to (5) "much better", with (3) indicating "no change." See Appendix B for specific questions asked in each category and average level of agreement for each.

KEY FINDINGS

- Over all wildfire incidents we studied, evidence suggests that knowledge of agency missions and values, ICS knowledge, and professional relationships were perceived to have improved
- On average, Whiskey Complex respondents reported some improvement in ICS knowledge and professional relationships

Figure 3. Incident Learning and Capacity Building from the Whiskey Complex



Across all the wildfire incidents we studied, evidence suggests that knowledge of other agency missions and values, ICS knowledge, and professional relationships were perceived to have improved. Across all incidents, local cooperators and host agencies reported the greatest improvements in the area of professional relationships, which included respondents reporting strengthened professional relationships with leaders of cooperating agencies, stronger

relationships within counties, and better knowledge of the capacities and constraints of cooperating agencies. The least improvement was shown in local cooperator and host agency knowledge of agency missions and values, which included knowledge of the mission and values of state land management agencies and the National Forest. In the middle range is knowledge of the Incident Command System, which includes familiarity with ICS, opportunities to gain additional training in an area of incident response, and understanding how to work with an IMT, including what the IMT can and cannot do to assist your county during an incident.

On the Whiskey Complex, all responses varied between "no change" and "somewhat better" for knowledge of agency missions and values, ICS knowledge, and professional relationships. ICS knowledge improved slightly more on the Whiskey Complex than across other fires. Improvements in knowledge of agency mission and values and in professional relationships were equal to the all-incident average. While the least amount of improvement was seen in understanding of mission and values of federal land management agencies in the area, it is worth noting that respondents did not report any negative impacts.

APPENDIX A. Network Performance: Whiskey Complex

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Whiskey Complex Average Level of Agreement (1-5)
Coordination & Fire Response		
A coordinated set of fire management objectives were agreed upon among all affected jurisdictions	4.29	4.31
All concerned jurisdictions prioritized maintaining good communication across agencies	4.21	4.31
Credit for success and effort was shared among agencies during public meetings and media events	4.37	4.54
There was a general willingness across agencies to offer assistance to other agencies or jurisdictions	4.48	4.56
“Borrowed resources” were released in a timely fashion to minimize burden on the lending agency	4.38	4.36
Community values at risk from wildfire were readily identified	4.64	4.71
Efforts to protect community values were appropriate given available resources and risks to firefighter safety	4.59	4.72
The overall strategy taken in managing this fire was appropriate	4.40	3.88
Local resources were incorporated into the incident management operations	4.50	4.53
Evacuation Performance		
Cooperating agencies were able to use existing evacuation plans to quickly establish a coordinated evacuation strategy	3.82	4.08
Residents received timely notification of evacuation status using clear, pre-established language to distinguish between an evacuation warning and an evacuation notice	4.03	4.36
Evacuations were executed in a timely and orderly fashion	4.15	4.46
Cooperating agencies had a prepared plan for how re-entry into evacuated areas would be coordinated	4.05	4.50
Trigger points for when evacuated areas would be opened for re-entry were clearly communicated to the public	3.88	4.36
Re-entry was carried out in an organized and orderly fashion	4.15	4.40
Sheltering & Mass Care		
Adequate sheltering options were prepared to house evacuees	4.16	3.78
Sheltering options were clearly communicated to evacuees	4.01	3.50
Donations for evacuees were well-coordinated	3.74	NA
Auxiliary care needs of evacuees (e.g., food, water, clothing, transportation, spiritual or mental health assistance) were adequately provided for	4.05	3.60
Adequate sheltering options were made available to evacuate pets and livestock	3.88	3.67
Cost Share Performance		
We used pre-agreed frameworks/principles to expedite cost share agreements	3.80	NA
The process through which cost share was decided upon was fair	3.86	NA
The resulting cost share agreement was fair	3.96	NA

APPENDIX A. Network Performance: Whiskey Complex (continued)

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Whiskey Complex Average Level of Agreement (1-5)
Public Information Performance		
Public information was coordinated among cooperating agencies to ensure continuity of the message	4.35	4.47
Local resources were leveraged to ensure timely dissemination of public information	4.32	4.24
Social media was used effectively to provide timely public updates concerning the status of the fire	4.16	4.06
A system for communication with the media was put in place to ensure timely dissemination of public information	4.42	4.38
Road Closure Performance		
All cooperating and fire management agencies maintained a timely awareness of the status of road closures	4.25	4.33
Trigger points for making decisions about road closures were proactively communicated to the local community	4.05	3.94
A consistent message was provided to the public about the status of road closures	4.11	4.37

APPENDIX B. Incident Learning and Capacity Building: Whiskey Complex

Areas of Incident Learning and Capacity Building	22 Incident Average Reported Impact (1-5)	Whiskey Complex Reported Impact (1-5)
Knowledge of Agency Mission & Values		
Your understanding of the mission and values of state land management agencies (e.g., Oregon State Forestry, DNR/DNRC, Idaho Department of Lands, Fire/Timber Protective Associations, etc.) in your area	3.43	3.46
Your understanding of the mission and values of federal land management agencies (e.g., BLM, National Park Service, USFS, etc.) in your area	3.38	3.36
Knowledge of ICS		
Your understanding of what an incident management team can and cannot do to assist your county during an incident	3.44	3.44
Your familiarity with Incident Command Systems	3.48	3.50
Your knowledge of how to work effectively with an incident management team	3.67	3.88
Opportunities for you to gain additional training in an area of incident response	3.45	3.81
Professional Relationships and Networks		
The strength of working relationships within your county	3.76	3.60
The strength of working relationships between your county the local National Forest District	3.60	3.56
The strength of working relationships with National Forest Headquarters	3.42	3.64
Your knowledge of the capabilities and constraints of cooperating agencies in your area	3.73	3.79
Your knowledge of the capabilities and constraints of the local National Forest	3.58	3.40
Your professional networks with leaders of cooperating agencies in your area	3.89	3.93
Your knowledge of your local community	3.72	3.81

Correct citation for this report: Nowell, Branda, Toddi Steelman, A. J. Faas, Anne-Lise Knox Velez, Joy Davis, Clare FitzGerald, and Mary Clare Hano. 2014. Improving Community Response to Wildfire: 2013 Fire Season Findings Report for Whiskey Complex. <http://goo.gl/GBFQ1u>. 12 pp.

Copyright 2014 North Carolina State University

Fire Chasers: Improving Community Response to Wildfire Project

firechasers.ncsu.edu

20 Enterprise St., Suite 6

Raleigh, NC 27607

Phone: (919) 576-0843

info@ncsufirechasers.com

This research is part of a larger initiative funded by the National Science Foundation, Joint Fire Science Program and the USFS Northern Research Station. All views and conclusions in this document are those of the authors and should not be interpreted as representing the opinions or politics of the US Government. Mention of trade names or commercial products does not constitute their endorsement by the US Government.

Acknowledgements: The Fire Chasers would like to acknowledge and thank all the emergency and fire management personnel who contributed to this report. This research would not have been possible without the combined efforts of other members of our research team: Deena Bayoumi, Candice Bodkin, Jason Briefel, Jillian Cain, John Diaz, Casey Fleming, Annie Izod, Emily McCartha, Veronica Quintanilla, Holli Starr, Corinne Wilder, and Zheng Yang. Thanks to James Moody for consulting on methodology and to Brian Miedlar for web design, survey administration, and database design. We would also like to thank our research partner Sarah McCaffrey and the USFS Northern Research Station for their support of this project.

Research Funding Provided By:



**THE NATIONAL SCIENCE
FOUNDATION**



**THE JOINT FIRE SCIENCE
PROGRAM**



**USDA FOREST SERVICE:
NORTHERN RESEARCH STATION**