

2014

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

BEAVER CREEK FIRE

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 Beaver Creek Fire in the areas of interagency network performance, incident management team performance, use of social media and incident learning and capacity building.

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Beaver Creek Fire: Incident Report

Study Background

This report summarizes findings on incident response outcomes for the Beaver Creek Fire that occurred in 2013. The report presents outcomes of the Beaver Creek Fire 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 I/Type II 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 37 surveys were completed for the Beaver Creek Fire (46 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 Beaver Creek Fire

On August 7, 2013, lightning ignited the Beaver Creek Fire on the Sawtooth National Forest, several miles outside of Hailey, Idaho. By August 12, Beth Lund's Type I Incident Management Team (IMT) was fully operational and began combating the extreme blaze. There were multiple host units on the Beaver Creek Fire, including Sawtooth National Forest, the Bureau of Land Management (both the Shoshone and Twin Falls Districts), Idaho Department of Lands, Ketchum Fire Department, and Wood River Fire Protection District. The fire was managed in Unified Command with Lund's IMT, Ketchum Fire Department, and Wood River Fire Protection District.

Because of the complexity of the Beaver Creek Fire and the numerous values at risk, there were many cooperating agencies on this incident. Cooperators included Ketchum City Manager's Office, Ketchum Mayor's Office, Ketchum Police, Idaho Bureau of Homeland Security, Blaine County Sheriff's Office, Board of Blaine County Commissioners, Blaine County Roads and Bridges, Wood River Fire Commission, Hailey Police, Hailey Fire Department, Hailey Airport, and Idaho Power. Additionally, St. Luke's Wood River Medical Center, Animal Shelter of the Wood River Valley, Sun Valley Police, Sun Valley Council, Sun Valley Ski Hill, Red Cross, Idaho State Police, Idaho Department of Transportation, Idaho Department of Environmental Quality, and Camas County Sheriff's Office were involved. Complete evacuations of Deer and Greenhorn Creek properties occurred on August 15 with additional complete evacuations of multiple subdivisions on both sides of Highway 75 between Hailey and Ketchum, ID. Additional communities experienced various levels of evacuation until August 24, when all evacuations were lifted by the Blaine County Sheriff. Area roads were closed which impacted traffic, particularly during the Wagon Days Festival occurring in late August throughout Sun Valley.

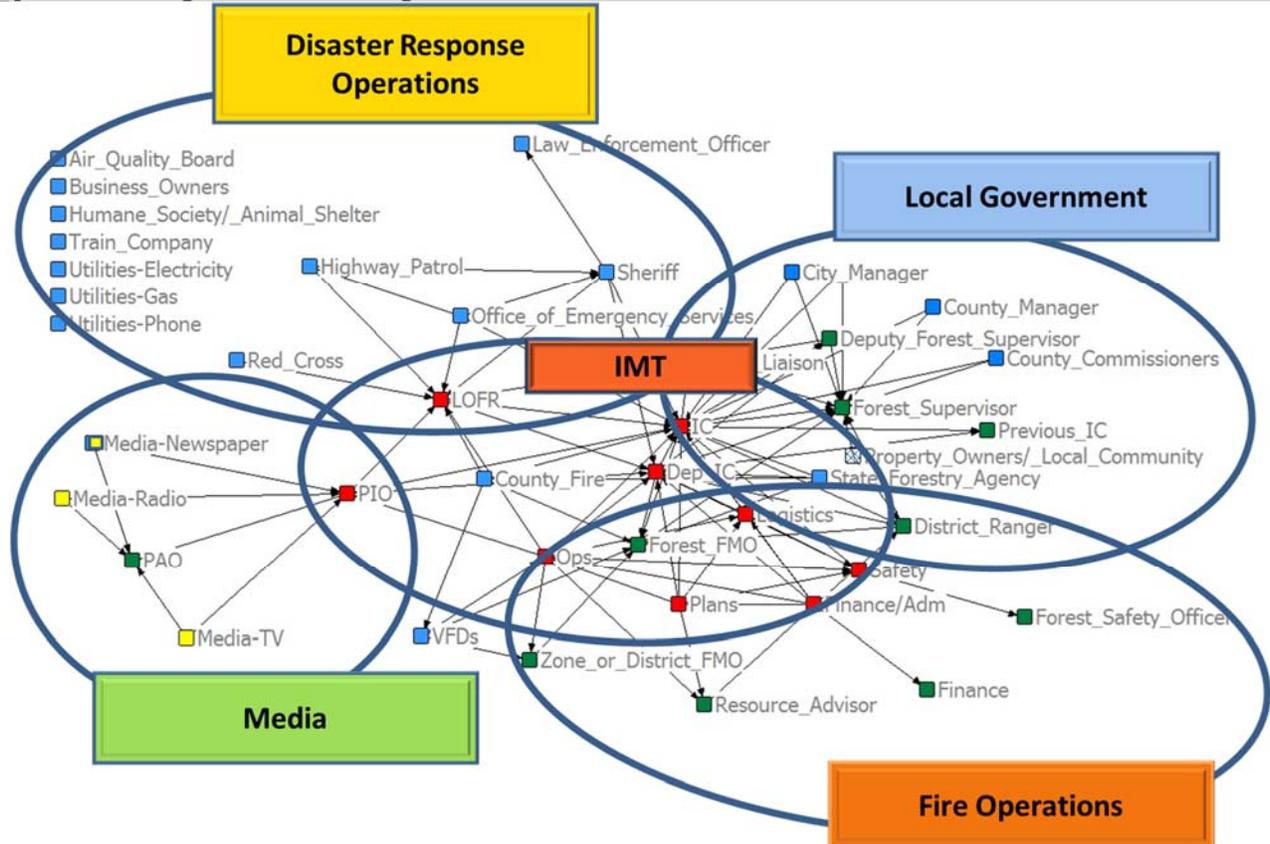
At its peak, the Beaver Creek Fire threatened 5,128 residences, 1,399 commercial buildings, and 3,729 outbuildings as well as greater sage grouse habitat, bull trout in Ditto Flat/Little Smokey Creek, mining structures, Forest Service campground infrastructure, Carriestown historic structures, as well as commercial timber areas. Upon containment, the Beaver Creek had burned approximately 111,500 acres of land.

Incident Response Network Performance: Beaver Creek Fire

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 Beaver Creek Fire?

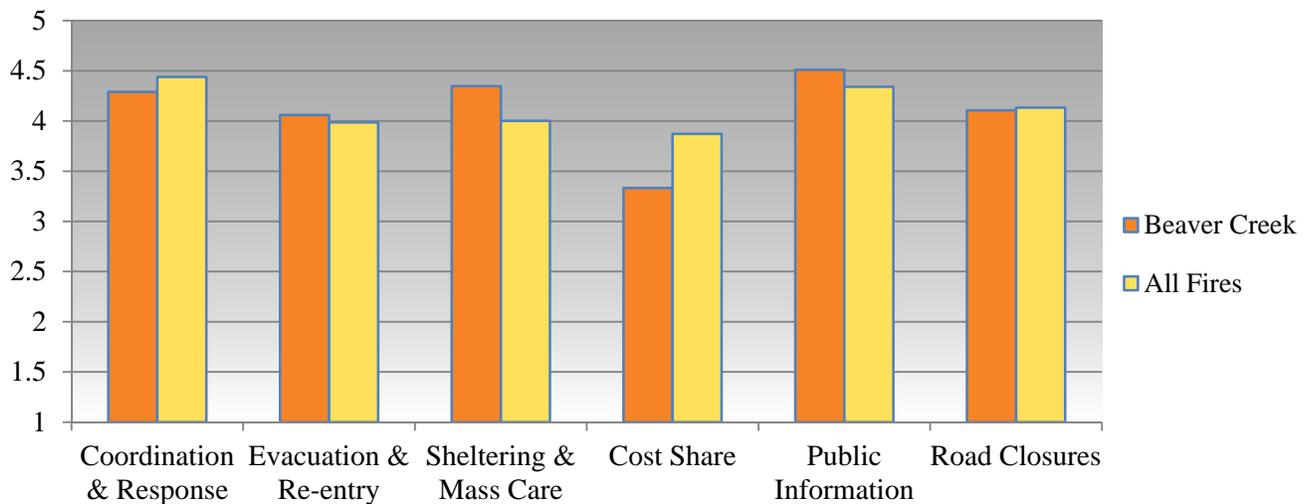
Figure 1 shows network performance ratings for the Beaver Creek Fire in comparison with the average across all twenty-two fires in our sample. Overall, Beaver Creek network performance was relatively consistent with the averages across all fires. Beaver Creek network performance was higher than average in the areas of evacuation and re-entry, sheltering and mass care, and public information. Notably, those surveyed provided positive feedback about performance in the area of public information, specifically effectively leveraging to provide timely public updates about fire status. Network performance for the Beaver Creek Fire was approximately average for road closures.

KEY FINDINGS

- Network performance was above average in the areas of sheltering and mass care, public information, and evacuation and re-entry
- Relatively greater room for improvement was identified in prioritizing the maintenance of good communication across agencies and having a fair process to decide upon cost share

Beaver Creek network performance was slightly lower than the all incident average for the areas of coordination and fire response and cost share. When reporting on coordination and fire response, respondents saw more room for improvement in maintaining good communication across agencies. The area with the most room for improvement in cost share was in having a fair decision process (see Appendix A for details).

Figure 1. Average Network Performance by Activity: Beaver Creek Fire



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 Beaver Creek Fire 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.”

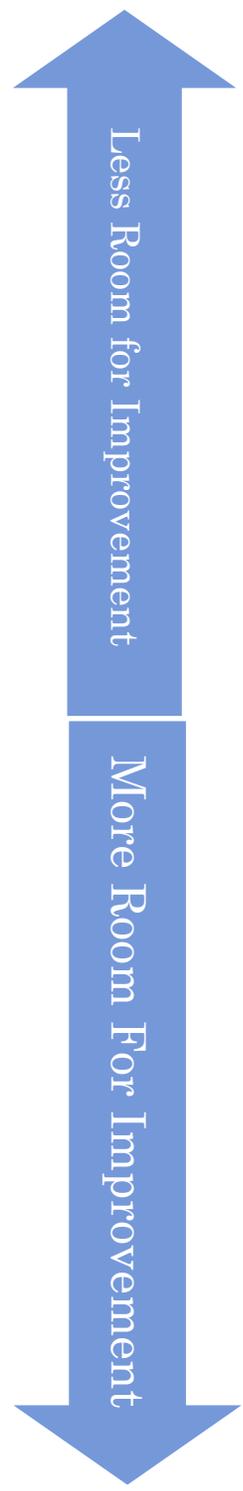
Average responses for Lund’s Type I IMT on the Beaver Creek Fire ranged from 0.7 to 1.3, indicating “a little” room for improvement. The team was rated more positively than the regional average in 17 of 19 areas during the Beaver Creek Fire and on par with the region in the remaining two areas. Lund’s team was rated most positively in terms of being flexible in adapting their fire management strategy to account for local preferences. Lund’s team showed room for improvement equal to the regional average in incorporating local values at risk information into fire management strategies and engaging affected jurisdictions in planning and decision making (See Appendix A). Greatest strengths and areas for improvement for the incident management team on the Beaver Creek Fire are highlighted in the IMT Key Findings box above.

KEY FINDINGS

- On average, Lund’s Type I IMT was rated more positively than the regional average in 17 out of 19 areas during the Beaver Creek Fire
- IMT greatest areas of strength on the Beaver Creek Fire:
 - being flexible in adapting their fire management strategy to account for local preferences
 - being accessible
 - identifying key local players
 - helping cooperating agencies
 - sharing credit with other agencies
 - acknowledging cooperation
 - building local capacity through training
- Areas the IMT may want to continue to focus on for improvement include:
 - incorporating local values at risk information into fire management
 - engaging affected jurisdictions in planning
 - seeking understanding of local agency culture
 - sensitivity to local culture and politics

TABLE 1. Beaver Creek Incident Management Team Room for Improvement

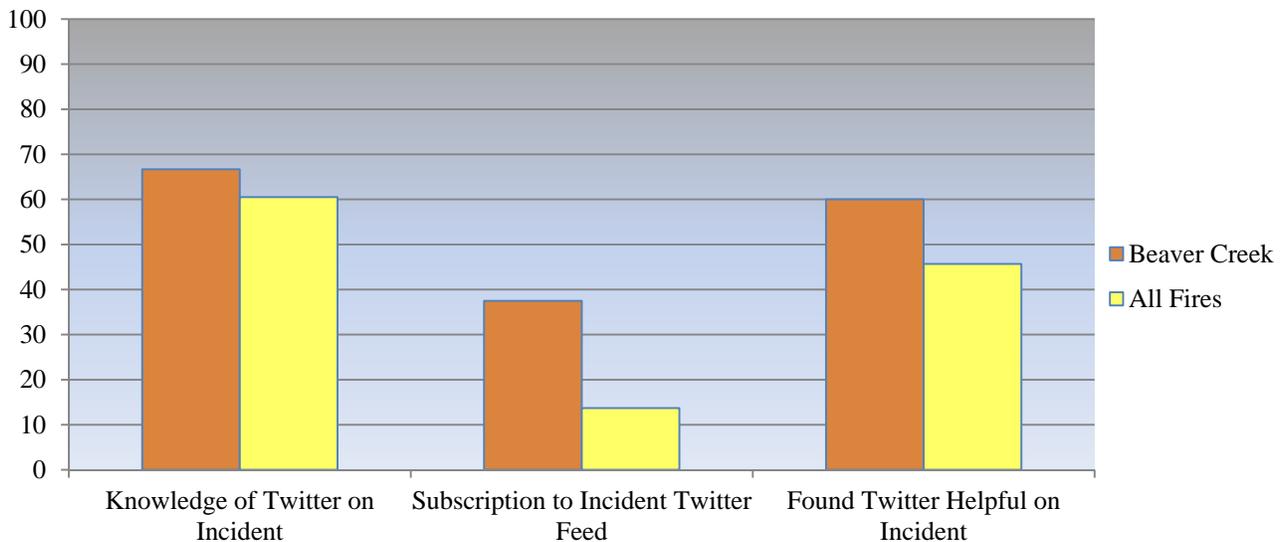
Area for improvement in working with Host Unit(s) and local cooperators	22 Incident Average Room for Improvement (0-4)	Beaver Creek Average Room for Improvement (0-4)
Being flexible in adapting their fire management strategy to account for local preferences	1.2	0.7
Being accessible to you	1	0.8
Rapidly identifying key local players they needed to be communicating with during the incident	1.2	0.8
Being helpful to cooperating agencies	1.1	0.8
Sharing credit with your agency	1	0.8
Acknowledging cooperation	1	0.8
Using the incident as a training opportunity to build local capacity	1.2	0.8
Including your agency in the dissemination of vital information during the incident	1.2	0.9
Valuing your agency’s input	1.2	0.9
Serving as a positive ambassador in interactions with the local community	1	0.9
Staying in their lane and not over-stepping their delegation of authority	1	0.9
Valuing local knowledge and local input	1.2	0.9
Obtaining local context (e.g., burn scars, trail systems, local weather patterns) to inform their operations	1.3	1
Clarifying roles and responsibilities	1.2	1
Getting your agency information you needed to be effective	1.2	1
Being sensitive to local community culture and political climate	1.25	1.1
Seeking to understand organizational culture, values, and capacities of your agency	1.2	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
Engaging affected jurisdictions in planning and decision making from the beginning	1.3	1.3



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 Beaver Creek Fire 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 Beaver Creek Fire



Inciweb, Blaine County, the National Weather Service, and several engaged but unofficial fire watchers tweeted information on the Beaver Creek Fire. Much of the Twitter content about the fire stemmed from retweets of Inciweb updates.

When compared to the 21 incident average, respondents from the Beaver Creek Fire had more knowledge of Twitter, a much higher percentage of subscribers to Twitter, and were more likely to find Twitter helpful.

KEY FINDINGS

- Beaver Creek Fire respondents were more aware of Twitter information resources than respondents across other incidents
- Beaver Creek Fire respondents subscribed to Twitter information feeds with greater frequency than respondents across other incidents
- Beaver Creek Fire respondents found Twitter information sources more helpful than respondents across other incidents

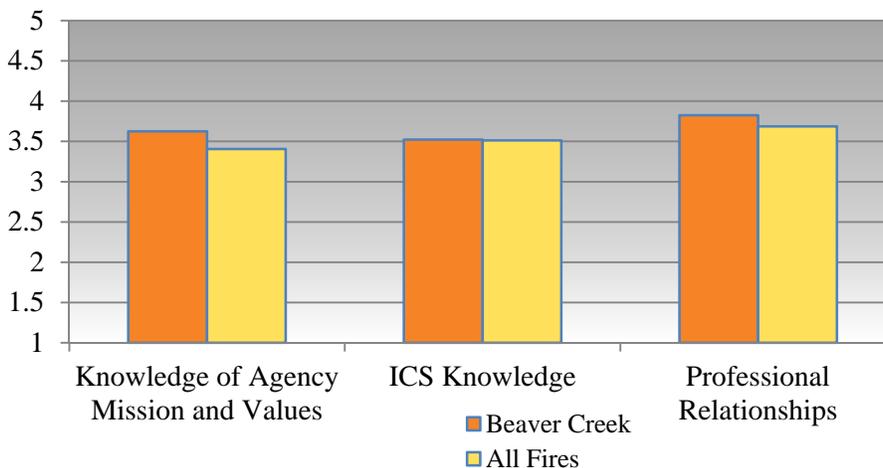
Moving Forward: Incident learning and capacity building

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
- Beaver Creek Fire respondents reported slightly higher scores than regional averages
- For the Beaver Creek Fire, the greatest impact was in professional relationships, specifically the working relationships in counties

Figure 3. Incident Learning and Capacity Building from the Beaver Creek Fire



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 Beaver Creek Fire, all responses varied between "no change" and "somewhat better" for knowledge of agency missions and values, ICS knowledge, and professional relationships. The greatest improvement was reported in professional relationships, specifically in the strength of working relationships within the counties involved in response.

APPENDIX A. Network Performance: Beaver Creek Fire

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Beaver Creek Fire 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	4.00
All concerned jurisdictions prioritized maintaining good communication across agencies	4.21	3.96
Credit for success and effort was shared among agencies during public meetings and media events	4.37	4.29
There was a general willingness across agencies to offer assistance to other agencies or jurisdictions	4.48	4.64
“Borrowed resources” were released in a timely fashion to minimize burden on the lending agency	4.38	4.10
Community values at risk from wildfire were readily identified	4.64	4.50
Efforts to protect community values were appropriate given available resources and risks to firefighter safety	4.59	4.56
The overall strategy taken in managing this fire was appropriate	4.40	4.28
Local resources were incorporated into the incident management operations	4.50	4.55
Evacuation Performance		
Cooperating agencies were able to use existing evacuation plans to quickly establish a coordinated evacuation strategy	3.82	4.09
Residents received timely notification of evacuation status using clear, pre-established language to distinguish between an evacuation warning and an evacuation notice	4.03	4.30
Evacuations were executed in a timely and orderly fashion	4.15	3.91
Cooperating agencies had a prepared plan for how re-entry into evacuated areas would be coordinated	4.05	4.13
Trigger points for when evacuated areas would be opened for re-entry were clearly communicated to the public	3.88	3.87
Re-entry was carried out in an organized and orderly fashion	4.15	4.25
Sheltering & Mass Care		
Adequate sheltering options were prepared to house evacuees	4.16	4.45
Sheltering options were clearly communicated to evacuees	4.01	4.35
Donations for evacuees were well-coordinated	3.74	4.18
Auxiliary care needs of evacuees (e.g., food, water, clothing, transportation, spiritual or mental health assistance) were adequately provided for	4.05	4.33
Adequate sheltering options were made available to evacuate pets and livestock	3.88	4.06
Cost Share Performance		
We used pre-agreed frameworks/principles to expedite cost share agreements	3.80	3.44
The process through which cost share was decided upon was fair	3.86	3.25
The resulting cost share agreement was fair	3.96	3.31

APPENDIX A. Network Performance: Beaver Creek Fire (continued)

Areas of Network Performance	22 Incident Average Level of Agreement (1-5)	Beaver Creek Fire Average Level of Agreement (1-5)
Public Information Performance		
Public information was coordinated among cooperating agencies to ensure continuity of the message	4.35	4.40
Local resources were leveraged to ensure timely dissemination of public information	4.32	4.38
Social media was used effectively to provide timely public updates concerning the status of the fire	4.16	4.68
A system for communication with the media was put in place to ensure timely dissemination of public information	4.42	4.55
Road Closure Performance		
All cooperating and fire management agencies maintained a timely awareness of the status of road closures	4.25	4.25
Trigger points for making decisions about road closures were proactively communicated to the local community	4.05	3.92
A consistent message was provided to the public about the status of road closures	4.11	4.16

APPENDIX B. Incident Learning and Capacity Building: Beaver Creek Fire

Areas of Incident Learning and Capacity Building	22 Incident Average Reported Impact (1-5)	Beaver Creek Fire 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	3.63
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	3.50
Knowledge of ICS		
Your understanding of what an incident management team can and cannot do to assist your county during an incident	3.44	3.60
Your familiarity with Incident Command Systems	3.48	3.55
Your knowledge of how to work effectively with an incident management team	3.67	3.64
Opportunities for you to gain additional training in an area of incident response	3.45	3.33
Professional Relationships and Networks		
The strength of working relationships within your county	3.76	4.10
The strength of working relationships between your county the local National Forest District	3.60	3.80
The strength of working relationships with National Forest Headquarters	3.42	3.83
Your knowledge of the capabilities and constraints of cooperating agencies in your area	3.73	3.80
Your knowledge of the capabilities and constraints of the local National Forest	3.58	3.78
Your professional networks with leaders of cooperating agencies in your area	3.89	3.90
Your knowledge of your local community	3.72	3.80

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