

The National Predictive Services User Needs Assessment: Final Report

Patricia L. Winter, Ph.D.
Heidi Bigler-Cole, Ph.D.

July 12, 2007

Patricia L. Winter is a research social scientist at the Pacific Southwest Research Station, Riverside Fire Lab, 4955 Canyon Crest Drive, Riverside, CA, 92507; and **Heidi Bigler-Cole** is a social scientist, Pacific Northwest Research Station, Forestry and Range Sciences Laboratory, 1401 Gekeler Lane, La Grande, OR 97850.

Executive Summary

This report presents findings from a user needs assessment commissioned by the National Predictive Services Group (NPSG). Following a needs assessment approach to program evaluation, we relied on the users and potential users of Predictive Services (PS) as our experts. Through use of an online survey, we had these experts tell us their opinions on current and potential products and services. Users and potential users were defined as employees in the federal and non-federal sectors with a defined membership in the fire management community. The report is organized so that the findings for the federal and non-federal sectors are presented, and then a number of appendices follow. Of particular interest to some readers will be Appendix F, which presents findings by job functions within the federal sector, and Appendix G, which presents findings for the non-federal sector by job function. This format allows readers to navigate to topics of key interest within the main body, and then to specific groups in which they have greater interest.

Federal sector respondents ($n=1,078$) were employed primarily in the Forest Service (FS), NOAA and National Weather Service (NWS), the Bureau of Land Management (BLM), and the National Park Service (NPS). Non-federal sector respondents ($n=305$) worked mostly in state and county agencies. The two sectors are reported on separately because we used different surveys for each.

Here are some key findings from the **federal respondents**:

Level of Expertise with PS

- A majority access Predictive Services (PS) information either daily or weekly during fire season. Outside of fire season access is more likely to be weekly or monthly. The two groups reporting the most frequent access were the multi-agency coordinators and non-NWS meteorologists. They were also the most familiar with products on the web, briefings and emails.
- A majority of PAO/information officers and support services respondents were not familiar with Predictive Services.

Opinions on Products and Services

- A majority or near-majority agreed that Predictive Services information was easy to understand, complete, accurate, timely, relevant, and accessible. Strongest agreement with these attributes was found among the multi-agency coordinators, FMOs¹/assistants, FBANs/LTANs/analysts, and fuels specialists.
- The one-fifth who had contacted Predictive Services to report a problem with a product or service, and the one-tenth who had made contact to suggest a new product or service, tended to rate Predictive Services as responsive to their concerns and suggestions.

¹ Fire management officers/assistants (FMOs/assistants); Fire behavior analysts/long term analysts/fire danger analysts

- Products and services provided by Predictive Services on a national scale that were used by a majority and also rated as useful by a majority included Incident Management Situation Reports, weekly fire weather/danger outlook, 10-day fire weather/danger outlook, live fuel moisture, dead fuel moisture, 7-day large fire potential, ERC and fuels charts, links to other services/websites, and the Interagency RAWWS program.
- Some products were not used by a majority, although groups who did use them often assigned high usefulness ratings.
- The vast majority expressed some, to a great deal of trust and confidence in PS information. Respondents who were most familiar with Predictive Services, and within some job groups, were most likely to indicate high levels of trust and confidence.

Reliance on and Taking Action Based on PS Information

- About one-fourth of all respondents rely on PS in making important decisions related to their job duties and functions; about one-third were likely to take action based on the information. Reliance and taking action based on PS was more likely among those who had trust and confidence in the information, and those most familiar with the products and services.

Barriers and Implications of Gathering, Reporting, and Use of Information

- More than half felt there was at least some overlap in the type of information that can be obtained from Predictive Services and other sources; this was not always viewed negatively.
- Among the subset of respondents with data gathering and reporting duties that are linked to PS, about one-third indicated they were likely to gather and report the data.
 - A majority or near majority agreed that failure to gather and report data could affect their unit's ability to make sound decisions, as well as having adverse impacts on firefighter safety.
 - About one-third felt they had the resources to gather field data necessary for reporting.
 - Almost half felt that their consistent upward reporting helped improved the quality of Predictive Services products and services, as well as the quality of products and services generated by others that use the data.
- Respondents were somewhat in agreement that they could access and apply PS information as part of their job duties. They were somewhat less in agreement with PS helping them to perform their jobs with greater precision.
- Potential inaccuracy of PS information was believed to decrease the ability to predict fire behavior by one-third of respondents. The same proportion felt inaccurate information would adversely impact firefighter safety.

- Primary barriers to not using the products and services included current management practices not requiring the types of information provided, not knowing how to use the products, needing information that is site specific, and not having thought about it. Not knowing how to use the products was mentioned more often by dispatchers and incident management team members. Those most likely to choose the need for site specific information as a barrier were FMOs/assistants and incident management team members.
- Technology related issues were mentioned more often as barriers to use of the products by fire use team members, crew supervisors/other suppression personnel, and dispatchers.
- When asked to choose between Type I and Type II errors respondents tended to lean towards 'better safe than sorry' over 'don't cry wolf'. This indicated that an early response was preferred, even if it meant that it proved later to be a 'false alarm'.

New and Improved Products

- When asked preferred formats for information, respondents indicated a pattern of preference for maps over other format types. However, interest in specific formats varied greatly by job function.
- Only about one-tenth indicated that additional products or services should be added to what PS provides; a number of suggestions were offered and are provided verbatim in *Appendix F*.

Here are some key findings from the **non-federal respondents**:

Level of Expertise with PS

- More than half of the respondents access PS information during fire season and during a fire incident. FBANs/LTANs and dispatchers reported the most frequent access overall.
- Groups most familiar with the web products, briefings and emails were the FMOs/chiefs², fire environment analysts, dispatchers and FBANs/LTANs.

Opinions on Products and Services

- A majority agreed that PS information was easy to understand, complete, accurate, timely, relevant, and accessible.
- Some differences in ratings of PS attributes were found by job function and by familiarity. As with the federal sample, those most familiar with the products and services were more likely to rate the information positively.

² Fire management officers/fire chiefs (FMOs/chiefs); Fire behavior analysts/long term analysts (FBANs/LTANs)

- More than one-tenth who had contacted PS to report a problem with a product or service, and tended to rate PS as responsive to their concerns and suggestions.
- Average ratings suggest that PS had met most expectations, and respondents were somewhat satisfied. Administrators and supervisors, suppression personnel, and incident management team members were more likely than other groups to report being very satisfied with the products and services.
- The vast majority expressed some, to a great deal of trust and confidence in PS information. Respondents who were most familiar with PS, and in particular job groups, were most likely to indicate high levels of trust and confidence.

Reliance on and Taking Action Based on PS Information

- About one-third of all respondents rely on PS in making important decisions related to their job duties and functions; the same proportion were likely to take action based on the information. Reliance and taking action based on PS was more likely among who had trust and confidence in the information, and those most familiar with the products and services.

Barriers to Use of Information

- More than half felt there was at least some overlap in the type of information that can be obtained from PS and other sources. Those who indicated there was overlap mentioned the National Weather Service most often when asked to state other sources.
- Primary barriers to not using the products and services included not having thought about it, needing information that is site specific, not being mandated to use the products, and current management practices not requiring the types of information provided.
- About half of the FBANs/LTANs/analysts need information that is site specific. FBANs/LTANs/analysts were almost twice as likely as any other group to cite a shortage of time among barriers preventing them from using PS.
- Technology-related issues were mentioned by about a tenth of FMOs/chiefs and incident management team members.

Key Implications

- Communication is needed to increase awareness of products and services. Some of this needs to be tailored to specific user groups.
- Training is needed to increase the understanding of how products can be applied to various fire management roles and responsibilities.
- A majority of respondents rated PS information positively, however strongly disagreed with timeliness as an attribute. Open ended comments suggest specific concerns about this and add insight into the perceptions that led to lower

ratings. An improvement to timeliness of postings and updates of data is suggested from this finding.

- A majority rated PS information as accurate, although some strongly disagreed with this as an attribute. Again, open ended comments suggest specific concerns contributed to these lower ratings.
- Most respondents rated Predictive Services as accessible, however some did not. In particular, accessibility in the field seemed to be problematic. Solutions to the lack of access or difficulty in access may be particularly helpful to those on the ground.
- Overall the preferred format for data appears to be in maps. However, variation by job function suggests consideration. Some user groups were quite interested in particular types of data. A similar finding was revealed for the products and services offered. For both of these issues, it is important to identify the core audience/market for Predictive Services and then refine the products to meet needs indicated.
- A majority of respondents did not support adding new products and services. However others suggested innovativeness is a core responsibility of the program. Careful attention to suggestions for products and services offered in the appendices is warranted. Additional sensing with particular user groups, through listening sessions, may be needed.
- A number of respondents thanked us for doing this survey and for listening to users. In order to complete the loop however, actions derived from these survey results should be reported back to current and potential users.
- Trust and confidence showed some to a great deal of importance among the majority of respondents in both samples. In addition, trust issues were not revealed as significant barriers to use of products and services. Specific actions to build trust and confidence might include:
 - increase communication efforts so that people increase their awareness and familiarity with PS products and services;
 - target communication efforts so that messages address reflect the needs and interest of the products and services to particular user groups;
 - practice transparency in presentation of data including assumptions behind products, levels of accuracy and reliability, confidence, sources of error, and other salient data-related concerns;
 - report back to current users and prospective users how findings from this survey were applied.