



National Weather Service Customer Satisfaction Survey

Hydrologic Services Program

Final Report 2004

CFI Group
Claes Fornell International



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Introduction



Introduction

This report presents the results from the 2004 National Weather Service Hydrologic Services customer satisfaction survey. The results presented in this report serve as a decision tool for use in conjunction with other customer and management information available to the National Weather Service Hydrologic Services Program.

The “Research Summary” section provides a discussion of the survey process and outlines the major findings from the analysis. The conclusions and recommendations that end the Research Summary give recommendations about how NWS managers may most effectively act on these findings. Following these are sections including further detail on survey results, verbatim customer comments, and the questionnaire in both English and Spanish.

Analysis Methodology

The analytical methodology used to evaluate the survey results is consistent with that used in the American Customer Satisfaction Index (ACSI). The ACSI (www.theACSI.org), established in 1994, is a uniform, cross-industry measure of satisfaction with goods and services available to U.S. consumers, including both the private and public sectors. It is produced by the National Quality Research Center at the University of Michigan Business School under the direction of Dr. Claes Fornell.

CFI Group, a management consulting firm that specializes in the application of the ACSI methodology to individual organizations, uses the ACSI methodology to identify the causes of customer satisfaction and relates satisfaction to organizational performance measures such as the rate of customer complaints and customer confidence in the service they receive. The methodology measures quality, satisfaction, and performance, and links them within a structural equation model using a Partial Least Squares methodology. By using this system, CFI Group’s analysis overcomes customers’ inherent difficulty to precisely report the relative effects of the many factors influencing their satisfaction. Using CFI Group’s results, organizations can identify those factors that will most improve customer satisfaction and other measures of organizational performance.

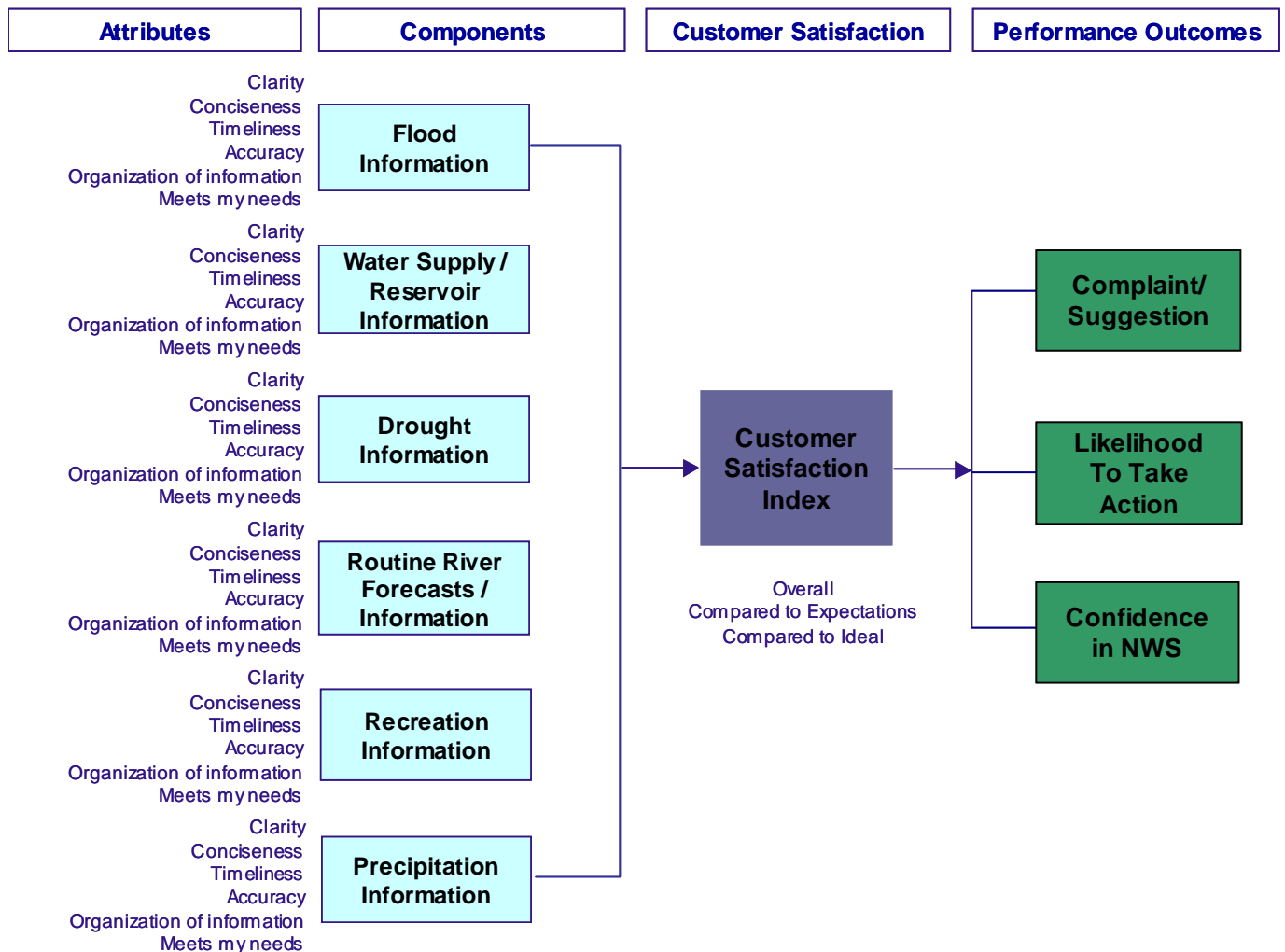
The heart of the CFI Group methodology is the Customer Satisfaction Model, found on the next page. The model flows from left to right in a chain of cause-and-effect. On the far left side are **Attributes** - actual questions about various aspects of the NWS Hydrologic Services Program’s performance from the survey itself. These roll up into **Components** representing general areas of performance that drive **Customer Satisfaction**. The **Customer Satisfaction Index (CSI)** is measured separately by three questions - overall satisfaction, satisfaction compared to expectations, and satisfaction compared to an “ideal.” The CSI is a leading indicator of the organizational **Performance Outcomes**, which include the percentage of respondents saying that



Introduction continued

they have reported a problem or made a suggestion with regard to the NWS hydrologic products and services, respondents' confidence that the NWS will do a good job of providing forecasts, watches and warnings in the future, and their likelihood to take action based on the hydrologic information they receive from the National Weather Service.

The results presented in this report precisely quantify both current levels of performance on all the model elements, and the predicted impacts of quality and satisfaction improvements on performance outcomes. As the NWS Hydrologic Services Program improves its performance on Attributes and Components, the CSI will increase, resulting in improved outcomes. The analysis results help to pinpoint the areas of greatest leverage to drive these desirable outcomes, and thus serve as the springboard for NWS to develop successful and cost-effective strategies to continue to satisfy its customer base.





Introduction continued

Key Words for Understanding this Report

Results from this analysis are presented through various discussions, charts, and tables provided in this report. To understand these clearly, some definitions are in order:

Attribute – Attributes reflect different aspects or qualities of a component experienced by customers, which may contribute to satisfaction. Each attribute is captured by a specific scaled question from the questionnaire.

Attribute Rating – An attribute rating is the average of all responses to each question. Each rating has been converted to a 0-100 scale. In general, it indicates how negatively (low ratings) or positively (high ratings) customers perceive specific issues.

Component – Each component is defined by a set of attributes that are conceptually and empirically related to each other. For example, a component entitled “Flood Information” may include questions regarding “clarity” and “conciseness” of flood information.

Component Score (or simply “score”) – A component score represents that component’s “performance”. In general, they tell how negatively (low scores) or positively (high scores) customers feel about the organization’s performance in general areas. Quantitatively, the score is the weighted average of the attributes that define the component in the CFI Group model. These scores are standardized on a 0-100 scale.

Component Impact (or simply “impact”) – The impact of a component represents its ability to affect the customer’s satisfaction and future behavior. Components with higher impacts have greater leverage on measures of satisfaction and behavior than those with lower impacts. Quantitatively, a component’s impact represents the amount of change in Overall Satisfaction that would occur if that component’s score were to increase by 5 points.



Research Summary



Research Summary

Background

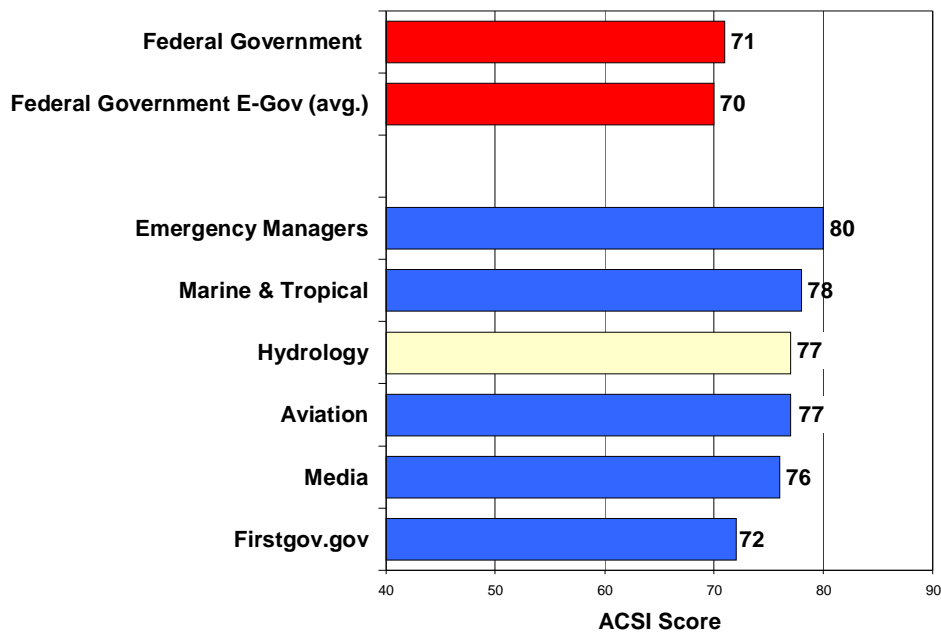
The project began with discussions between CFI Group and members of the NWS Hydrologic Services Program to establish the goals of the survey and the subsequent analysis. The 2004 survey was conducted in order to gain a better understanding of customer satisfaction with respect to the different types of information currently provided by the Hydrologic Services Program, as well as to gauge demand for additional information types and formats.

The survey was conducted via the web, September 13 – October 6, 2004. The NWS provided the survey link to various customers. The survey was also posted on NWS web pages. During the survey period, 2,345 responses were collected for the English version of the survey, and 7 responses were collected for the Spanish version. The majority of the respondents were Personal Users (40%), and Emergency Management (27%).

Research Summary continued

2004 Results

The NWS Hydrologic Services Program overall customer satisfaction score is 77. This is a very strong score, which can be illustrated by the benchmarking provided in the chart below. Hydrology far surpasses the overall CSI score for the Federal Government at 71, and is in line with all of the other studies conducted for the NWS in 2003, including Emergency Managers, Marine % Tropical, Aviation and Media. Firstgov.gov has been provided as a benchmark, given that it is a government website. Hydrology also outscores the ACSI average across all industries, which is 74.





Research Summary continued

The Hydrologic Services Program Customer Satisfaction Model

The Hydrologic Services Program customer satisfaction model appears on the following page. It is constructed of three sections: drivers of satisfaction (also called ‘components’), satisfaction, and performance measures. Performance outcomes represent the desired outcomes of increasing satisfaction. The desired behaviors, again, are a decreased need for customers to report a problem or make a suggestion with regard to the NWS hydrologic products and services, increased confidence that the NWS will do a good job of providing forecasts, watches and warnings in the future, and increased likelihood to take action based on the hydrologic information received from the NWS.

Analysis of empirical data from the satisfaction model gives rise to two types of quantitative results: “scores” and “impacts”. A component, satisfaction, or performance outcome **score** is the weighted average of the individual ratings given by each respondent to the survey questions. A score is a relative measure of performance for a component, as given for a particular set of respondents. Scores can range anywhere between “0” and “100”. In most cases, scores are not measured directly but are empirically derived from a series of underlying questions (“attributes”) in the survey. There is no “unit of measure” associated with scores; it never represents a percentage of respondents. Rather, the score is best thought of as an index, with “0” meaning “poor” and “100” meaning excellent. The scale is relative, such that 72 is higher than 68, which is higher than 62, and so on.

Impacts represent the change in satisfaction and/or ensuing performance measures that would occur given a change in a component or satisfaction score. Mathematically, an impact is equivalent to the predicted change in Customer Satisfaction that would result from a 5-point change in a driver. Similarly, a 5-point change in Satisfaction would move performance outcome measures by the amount of the impact. For example, if the score of 81 for *Flood Information* were to increase by 5 points to 86, Satisfaction would increase by the amount of the impact, or 1.7 points. Likewise, if Satisfaction were to increase by 5 points from 77 to 82, Likelihood to take Action would improve from 87 to 89.4. Impacts are relative to one another and are additive. If NWS were to improve *Flood Information* and *Precipitation Information* each by 5 points, Customer Satisfaction would improve by 2.8 points. Components with higher impacts are generally recommended for improvement first. A low or “zero” impact does not mean a component is unimportant. Rather, it means that a five-point change in that one component is unlikely to result in improvement in the target variable at this time.



Research Summary continued

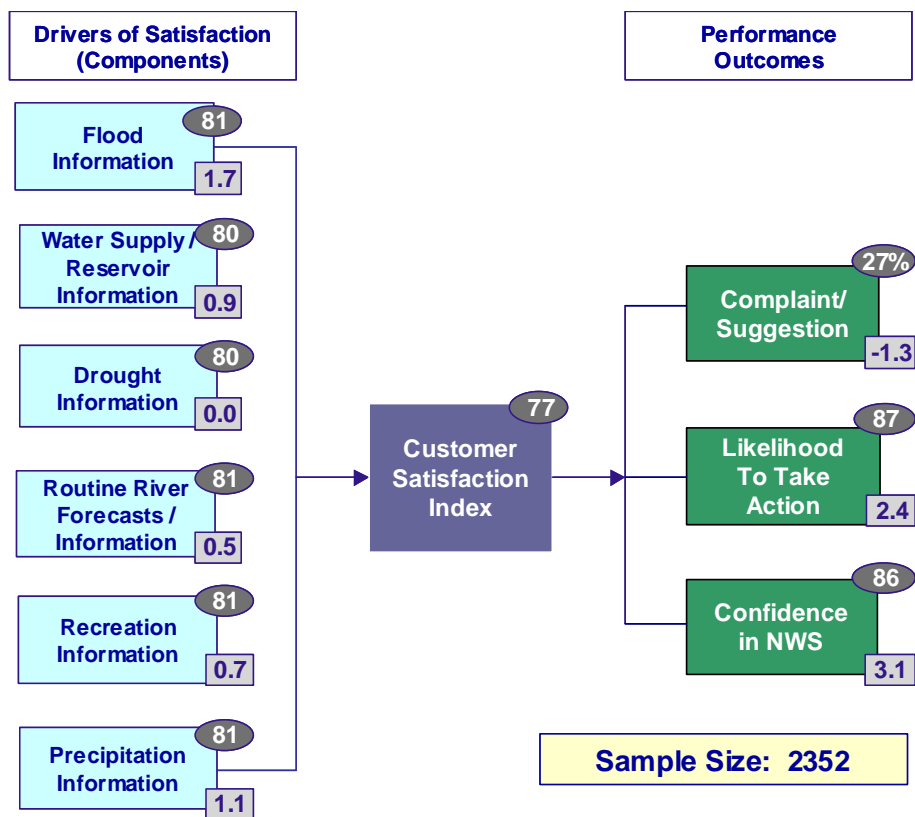
Note that the CSI, at 77, is lower in score than any of its drivers. Again, the Customer Satisfaction Index (CSI) is measured independently of the components with three survey questions (overall satisfaction, satisfaction compared to expectations, and satisfaction compared to an “ideal”); it is not an average of the scores for the model components themselves. By including expectations and ideal in the index measure of Satisfaction, we create a ‘higher standard’ for Satisfaction relative to the components, which measure specific performance items. As a result, we often see the CSI score lower than the individual component scores.

The key point to keep in mind is not how the score levels relate to one another, but rather that improvements in the Satisfaction drivers will lead to increases in Customer Satisfaction, regardless of score levels.



Research Summary continued

NWS Hydrologic Services Program Customer Satisfaction Model



Scores The performance of each component on a 0 to 100 scale. Component scores are made up of the weighted average of the corresponding survey questions.

Impacts The change in target variable that results from a five point change in a component score. For example, a 5-point gain in Flood Information would yield a 1.7-point improvement in Satisfaction.



Research Summary continued

Drivers of Satisfaction (Components)

Overall, there is very little score differentiation between the various components, all score very high at either 80 or 81. This indicates that customers view the information they receive from the NWS Hydrologic Services Program with a high degree of satisfaction. Because the scores are so similar, it also suggests that customers many not necessarily differentiate between the various types of information they receive. This begs the question whether the average customer makes a distinction between flood and precipitation information.

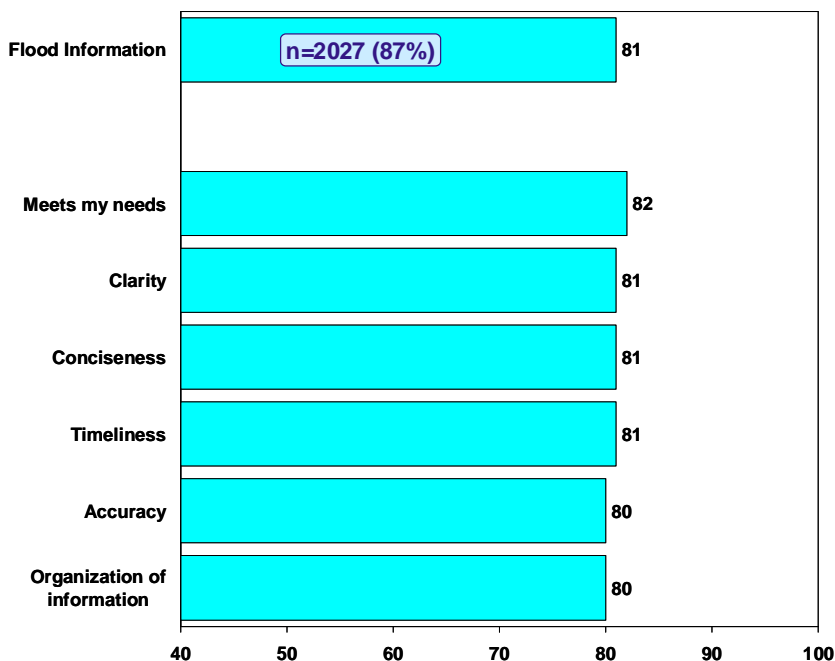
Scores were lower among some segments of the population, most notably 'partners'/consultants who use the NWS data to provide their own custom services, but also Natural Resource Managers and those in the agriculture industry. Additionally, customers with a larger geographic scope of responsibility tend to be less satisfied.



Research Summary continued

Flood Information

Flood Information is among the three highest scoring components at 81, and has the highest impact at 1.7. As can be seen, all attributes score fairly close to one another, with 'meets my needs' scoring the highest at 82. Given that this component is high scoring, it is recommended that the NWS work to maintain present levels of support to ensure that the quality of flood information remains high so that satisfaction scores do not drop.



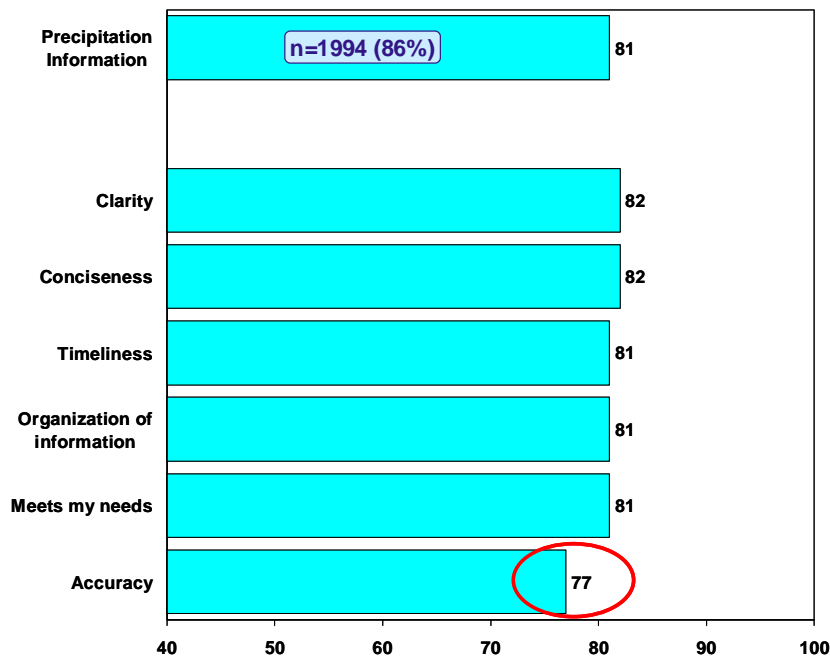
Respondents were also provided descriptions of flood severity categories used by the NWS, including minor, moderate, major flooding. 90% of respondents indicated that they were familiar with the terms, and also rated the usefulness of these flood severity categories in interpreting the impact of river flooding high at an 83.



Research Summary continued

Precipitation Information

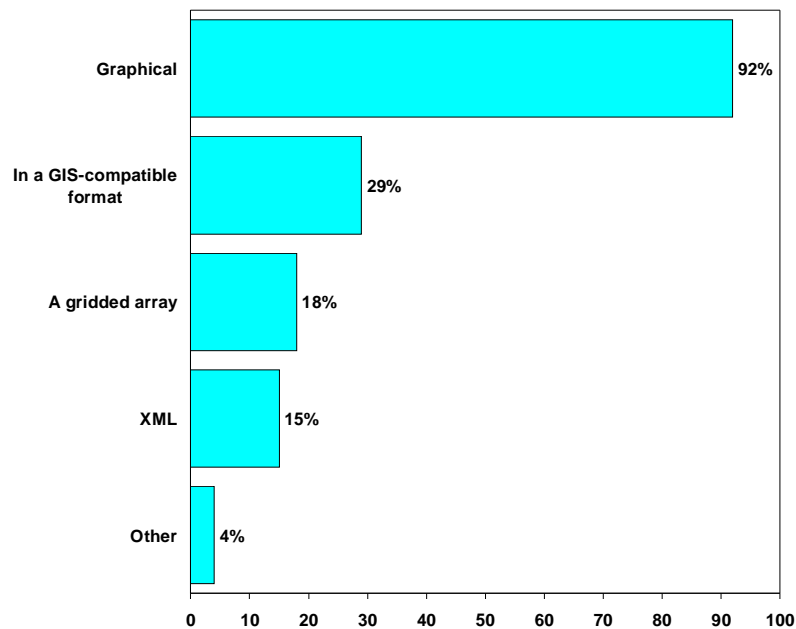
Precipitation also scores an 81 and has the second highest impact (1.1). As will be shown in the segment analysis later on in the report, Flood and Precipitation Information were also the most accessed types of hydrologic information obtained from the NWS. All of the attributes score at an 81 or 82, with the exception of 'accuracy' at a 77, the lowest of all attributes in the model. While there are factors beyond the control of the NWS when reporting weather related information, anything that could be done to improve customers' perceptions of accuracy would be beneficial.





Research Summary continued

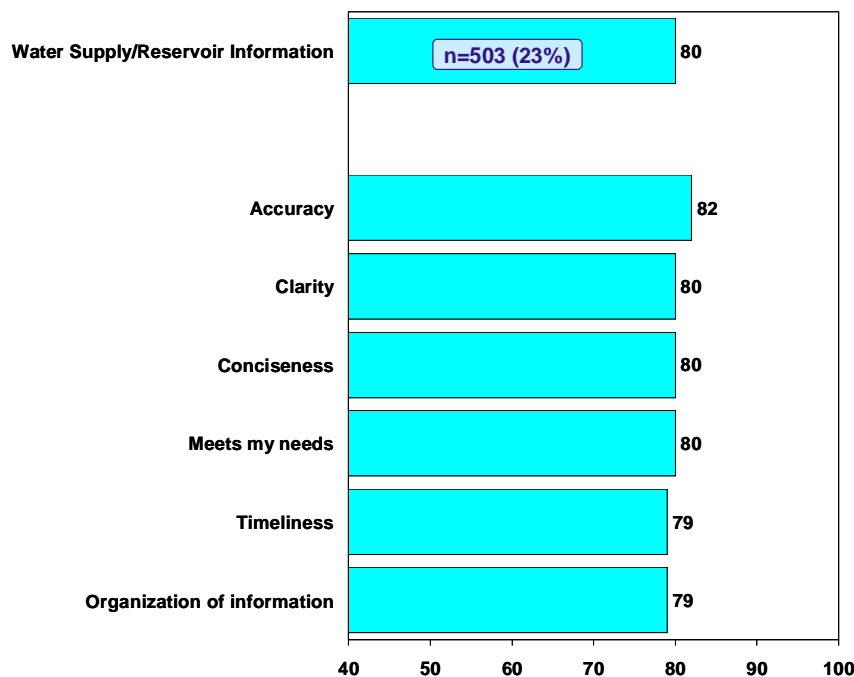
Respondents were asked to select their preferred format(s) for quantitative precipitation information, and were allowed to select all that apply. As the chart below indicates, the vast majority (92%) prefers a graphical format, and 29% prefer it in a GIS-compatible format. Listening to the needs of the customer and presenting precipitation information in these formats will continue to help keep the component score strong.



Research Summary continued

Water Supply/Reservoir Information

This component has the next highest impact at 0.9, still relatively strong, with an overall score of 80. However, far fewer respondents use this type of information relative to Precipitation and Flood data. The scores range a bit more within the attributes, from 79 for 'organization of information' and 'timeliness' to 82 for 'accuracy'. While 79 is a relatively good score, this is a lower impact item affecting fewer customers. But if there are remaining resources to focus on this after addressing higher priority items, 'timeliness' and 'organization of information' are the place to begin improvement.

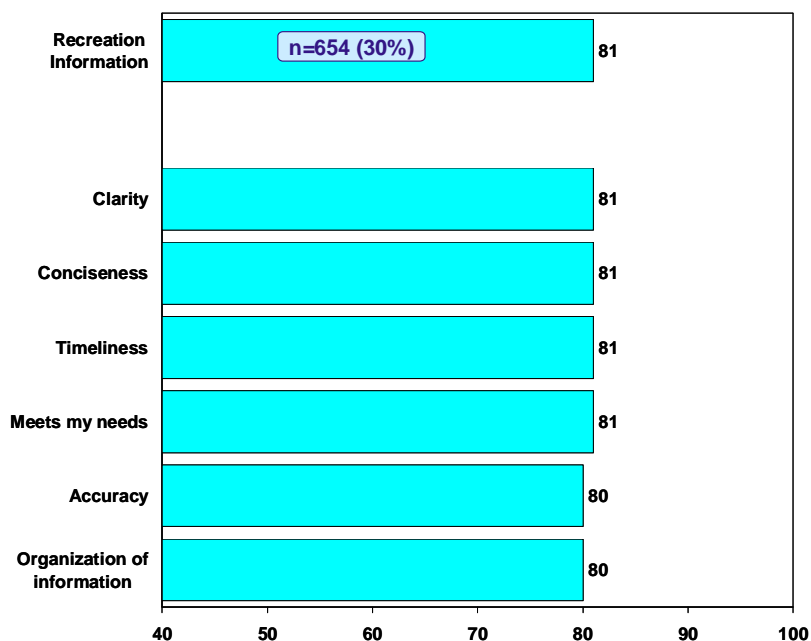




Research Summary continued

Recreation Information

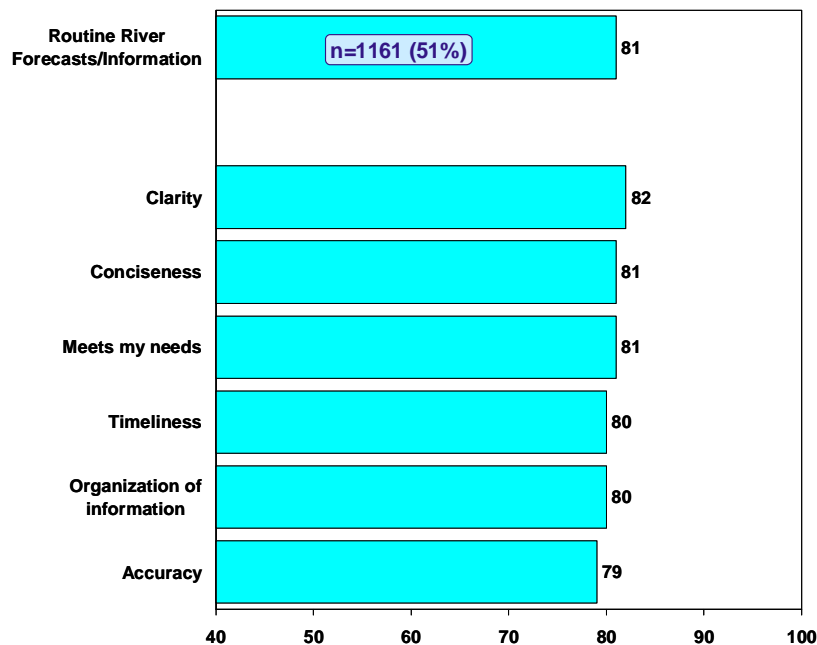
Recreation Information has the lowest impact (0.7) of all components. There should be a general focus on maintaining the existing quality of information provided.



Research Summary continued

Routine River Forecasts/Information

The Routine River Forecasts/Information component also scores an 81, but has a relatively low impact at 0.5. As was the case with Water Supply/Reservoir Information, scores range a bit more for this component, from 79 for 'accuracy' to 82 for 'clarity'. If there is anything that can be done to strengthen the perception of the accuracy of the information provided for routine river forecasts, customer satisfaction would benefit overall. Additionally, to the extent that River Forecasts may influence Flood Information, improving River Forecasts may have an added benefit of improving Flood Information as well.

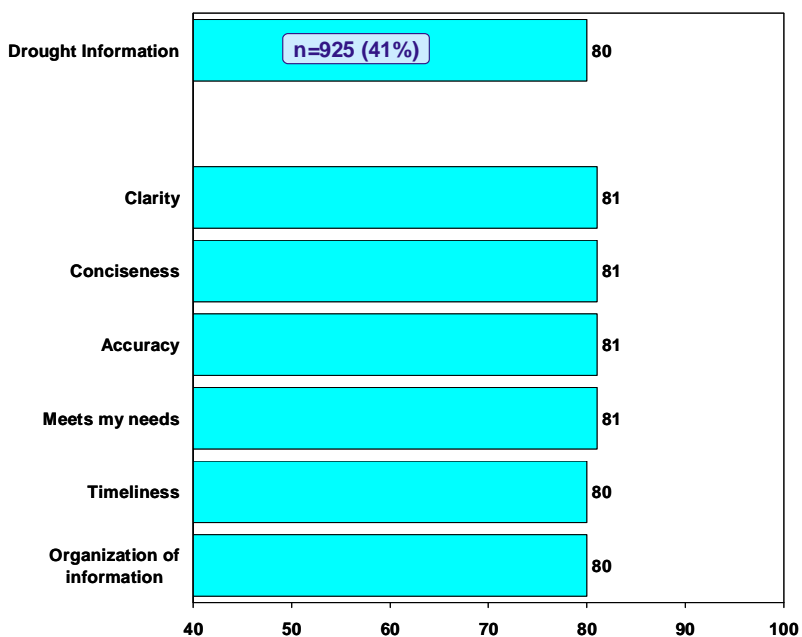




Research Summary continued

Drought Information

Lastly, the Drought Information component scores at an 80 and has a 0.0 impact. A 0.0 impact does not necessarily mean that drought information is not important to some NWS customers. As the table on page 40 shows, it does have an impact for the Western Region of 0.5. However, it is not a critical driver of satisfaction among most of the population.

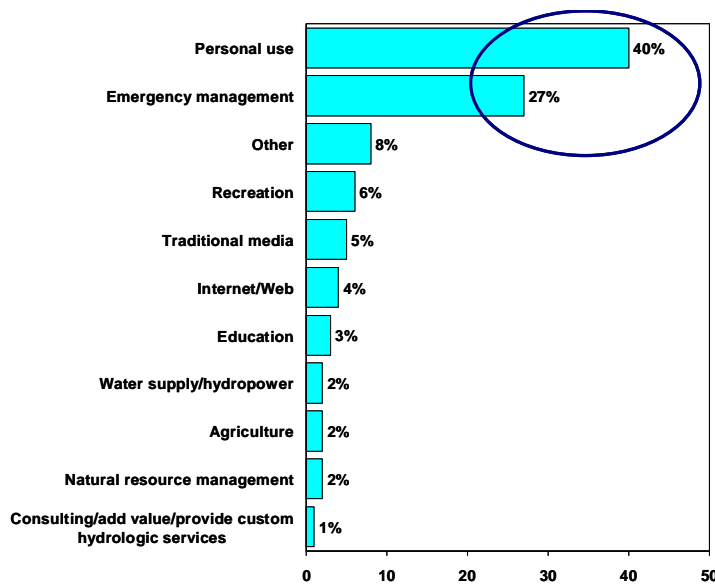




Research Summary continued

Segment Analysis

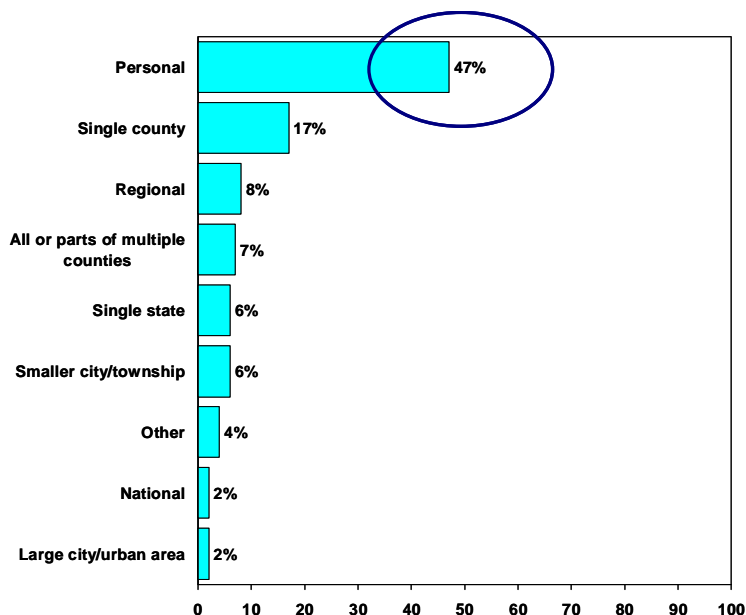
Respondents were asked to indicate their primary use for hydrologic information, or the commercial sector they represent. The majority (40%) indicated that they use the information for 'personal use' and 27% are members of Emergency Management.





Research Summary continued

The majority of the respondents (47%) also indicated that their primary scope of responsibility is 'personal', with the next closest being 'single county' (17%).

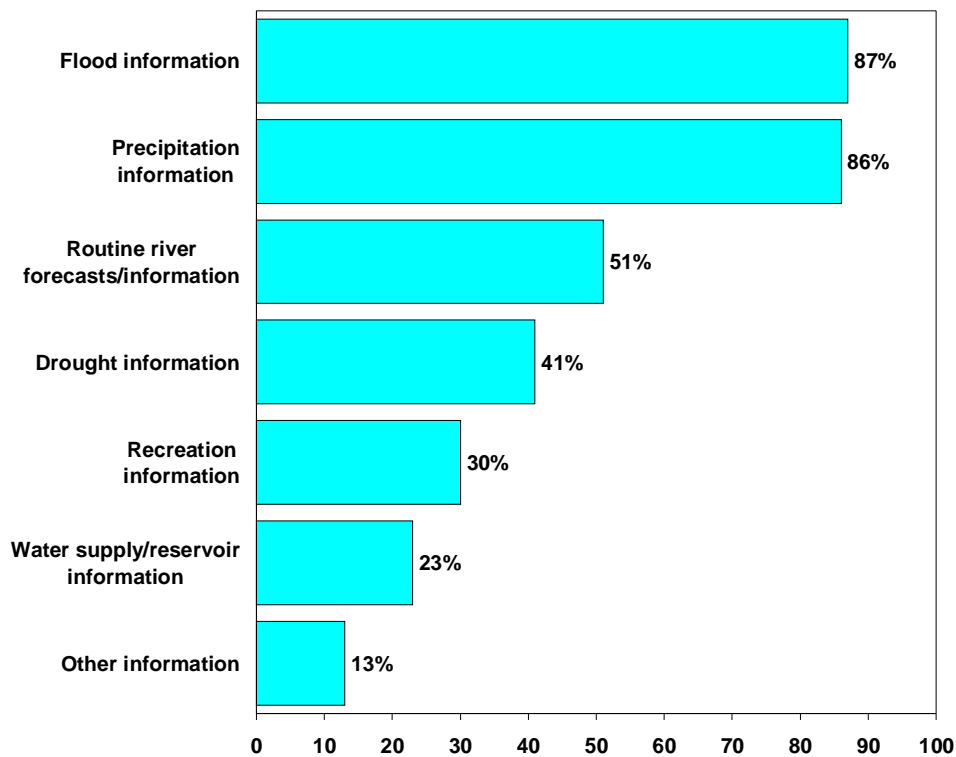


According to the survey respondents, Emergency Management and Personal Users are the large users of hydrologic information. Different population segments have different weather needs, and NWS may wish to provide different 'products' for key segments.



Research Summary continued

Respondents were asked to indicate the types of information obtained from the NWS Hydrologic Services program. Multiple responses were allowed, and as the chart shows below, Flood and Precipitation Information dominate with 87% and 86% respectively. Routine River Forecasts/Information follow (51%), and Drought Information (41%). Recall that these are also the highest impact items. Again, focusing on the quality of this information provided should be the priority for the NWS Hydrologic Services Program.





Research Summary continued

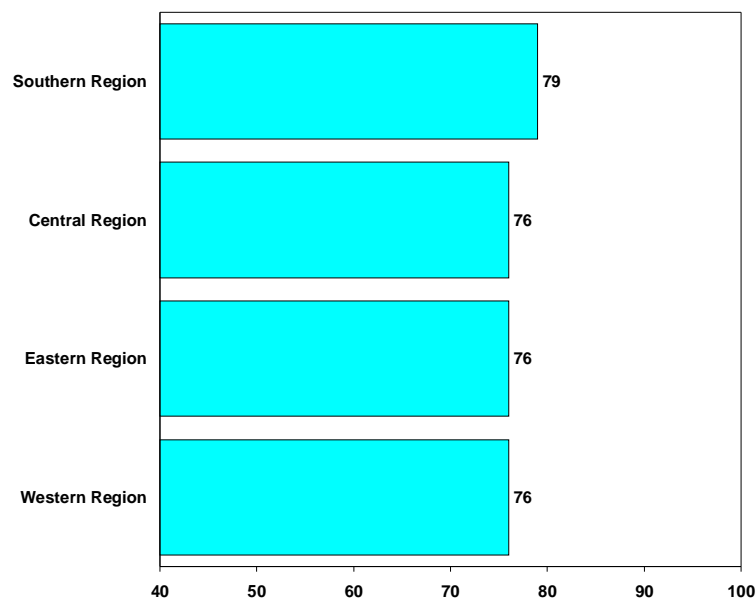
The partial table below (a complete table can be found on page 52) shows the largest respondent base, Emergency Management and Personal Use, and the types of information they obtain. Emergency Management accesses more information than the other groups. Efforts should potentially be made to understand this group’s particular needs, and potentially offer different products and services for them relative to other segments. Additionally, when focusing efforts on making products “user friendly” for the general population, Flood and Precipitation information are the critical areas, with Recreation Information also important to Personal Users.

	Emergency Management	Personal Use	All Others	Total
Sample Size	632	934	754	2352
Flood information	97%	85%	83%	87%
Precipitation information	90%	84%	86%	86%
Routine river forecasts/information	66%	37%	56%	51%
Drought information	52%	31%	46%	41%
Recreation information	13%	40%	32%	30%
Water supply/reservoir information	27%	16%	28%	23%
Other information	10%	15%	14%	13%



Research Summary continued

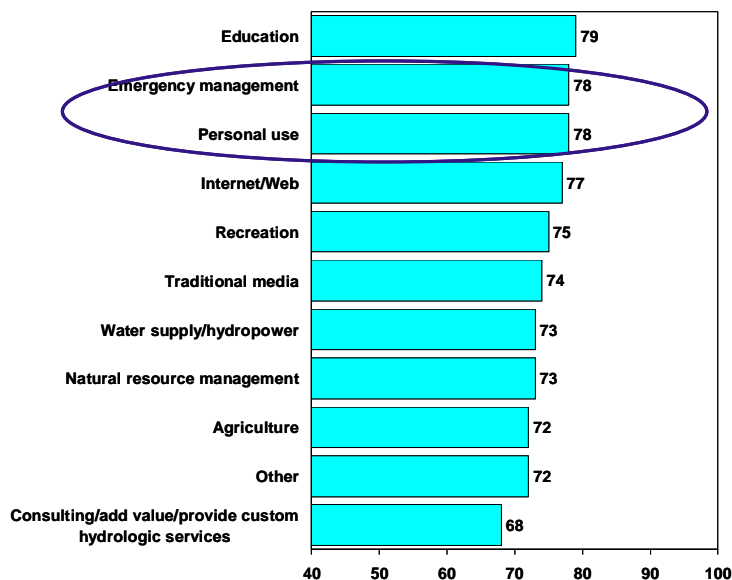
The next table shows customer satisfaction scores by region. The Southern Region is slightly more satisfied (79) than the other three regions. Given that this survey took place during one of the most challenging hurricane seasons in history, this is an indication that the NWS provided information when it mattered the most.





Research Summary continued

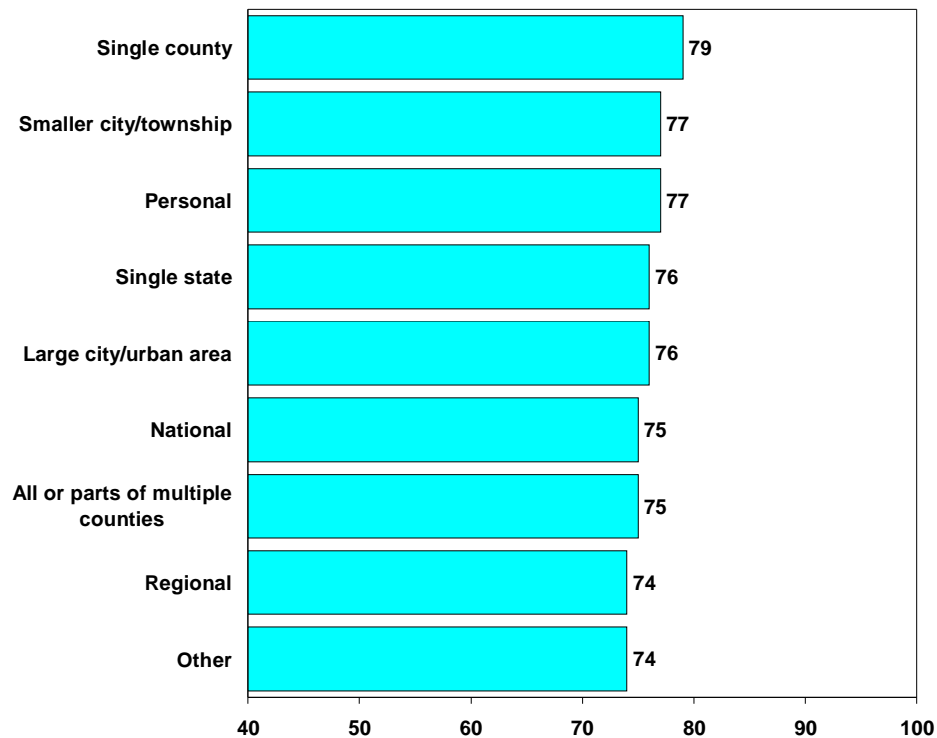
Taking a look at customer satisfaction scores by groups, the NWS is performing well for the most part, the highest users, Emergency Management and Personal Use are at the top (78), but others such as Water Supply/Hydropower (73) and Agriculture (72) are less satisfied. As the table which shows customer satisfaction by Emergency Management, Personal Use, and All Others on page 52 indicates, Emergency Management and Personal Use respondents are most satisfied (78) versus all others (74). Looking at impacts for these groups (again, see table on page 52), the highest impact item for Personal Use is Precipitation Information (1.9), while it is Flood Information (2.9) for Emergency Management, illustrating again that needs differ among groups.





Research Summary continued

Lastly, looking at customer satisfaction by primary scope, those with a larger scope of responsibility are slightly less satisfied, with National (75) versus Single County (79). The same holds true for the largest access group, Emergency Management. Emergency Managers with National responsibility scored a 72 for customer satisfaction while those with smaller city responsibility scored 77. Please note that the sample size for the Emergency Manager National group was only 14, so these scores should be used with caution. A complete table can be found on page 56.





Research Summary continued

Format/Graphics

Respondents were asked a series of questions regarding different data formats and graphics to give Hydrology a better idea of what areas to focus efforts in developing products going forward.

Format

Not surprisingly, customers prefer more information to less information. As the table below indicates, 'a combination of text and graphics' is preferred across the board when receiving information from the NWS, versus NOAA Weather Radio, text only or graphics only.

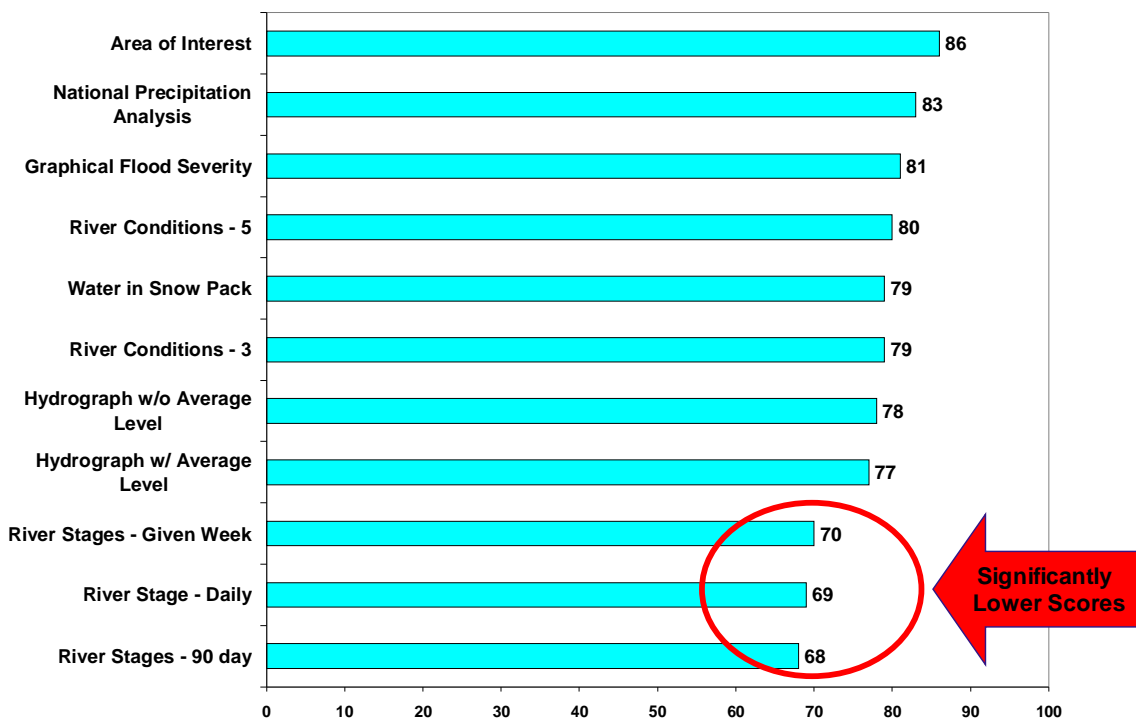
	Flash Flood/ Flood Warnings and Watches	River Forecasts	River/Stream Observations
Text	77	76	75
Graphics	78	77	77
A combination of text and graphics	86	84	83
NOAA Weather Radio	79	75	74

Respondents were also asked about preferences for additional access modes and data formats. In terms of additional access modes, respondents scored 'using a graphical web-based interface (e.g., menu) to select information for download' the highest (85), with 'query a data base' next (80), and with wholesale downloading the least preferred (67). A 'GIS compatible' is the preferred additional data format (81) over XML (75). Additionally, 46% of survey respondents now use or plan to use automated processing of hydrologic information.

Research Summary continued

Graphics

Survey respondents were asked to rate eleven graphics, scoring each for visual appeal, ease of understanding and whether it tells the respondent what s/he needs to know about the relevant information. An average was taken of the three scores to give benchmarks. The chart below shows how the graphics stack up against one another, with all graphics scoring well with the exception of the probability graphics, which score significantly lower than the others. Probability graphics were rated low even among the more sophisticated users, Emergency Managers.



It is clear through both the scores and customer verbatims that the simpler the graphical representation, the better. Data precision is important to customers, as is usability. As one respondent indicated “because we deal with the public on a daily basis, the information provided must be easily understood at a reading level of 4th grade”. A full list of verbatim comments can be found beginning on page 65.

Listings of all the graphics scores can be found on page 64.



Research Summary continued

Conclusions & Recommendations

Hydrology's customer satisfaction score of 77 is strong, and shows that customers of the hydrologic services program are generally satisfied with the information they receive. Products and services also score high, either at 81 or 80, showing that customers view the information they receive from the NWS Hydrologic Services Program with a high degree of satisfaction.

One customer verbatim illustrates the commitment the NWS has to continuous improvement "I think that NWS is doing a great job of keeping up-to-date with its presentation of data. I think that the data is being presented in an easier to understand format than in the past." The information provided by Hydrology has a far-reaching impact on individuals.

Recommendations

Although scores are high, customers do express some frustration with the complexity of products within the verbatim comments. It is important to note that a "one size fits all" approach may not be best – some customers need more in-depth information than others. NWS needs to understand the needs of its key constituents as it makes improvements in products and services. Emergency Managers, partners and the general public may have very different – and conflicting – needs.

Following are target areas for improvement:

Internal Resource Assessment

Perceptions of the Hydrologic Services Program are mostly driven by Flood Information and Precipitation Information. These are the most accessed and highest impact items. It is recommended that improvement efforts be focused here first.

Targeting User Groups

Different consumer groups have different needs, as can be illustrated with the differing customer satisfaction scores for EMS vs. Personal Users vs. All Others. Hydrology might consider providing products made specifically for Emergency Managers and/or the general public so that information is provided in the most user-friendly manner for each key constituent.

Graphics Simplification

Simplify graphics where possible, particularly those related to uncertainty/probability information. Visual representation is important, as 92% receive text-based products via the web. As the scores indicate, the Uncertainty/Probability graphics are less clear and therefore do not provide information as well as other graphics. It is recommended that these be revised.



Research Summary continued

Spanish Speaking Population

The low response rate to the Spanish version of the survey suggests that the Spanish speaking population may be getting hydrologic information from sources other than the websites where the survey link was posted, or not getting hydrologic information at all. If the NWS wishes to get opinions of this population segment, a different means of reaching them is necessary.



Score Detail & Segmentation



Score & Impact Summary - All Customers

	Scores	Total Impacts
Flood Information n=2027	81	1.7
Clarity	81	
Conciseness	81	
Timeliness	81	
Accuracy	80	
Organization of information	80	
Meets my needs	82	
Water Supply/Reservoir Information n=503	80	0.9
Clarity	80	
Conciseness	80	
Timeliness	79	
Accuracy	82	
Organization of information	79	
Meets my needs	80	
Drought Information n=925	80	0.0
Clarity	81	
Conciseness	81	
Timeliness	80	
Accuracy	81	
Organization of information	80	
Meets my needs	81	
Routine River Forecasts/Information n=1161	81	0.5
Clarity	82	
Conciseness	81	
Timeliness	80	
Accuracy	79	
Organization of information	80	
Meets my needs	81	
Recreation Information n=654	81	0.7
Clarity	81	
Conciseness	81	
Timeliness	81	
Accuracy	80	
Organization of information	80	
Meets my needs	81	
Precipitation Information n=1994	81	1.1
Clarity	82	
Conciseness	82	
Timeliness	81	
Accuracy	77	
Organization of information	81	
Meets my needs	81	
Customer Satisfaction Index n=2311	77	
Overall satisfaction with the NWS Hydrologic Services Program	82	
How well NWS Hydrologic Services Program meets your expectations	74	
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services program	74	
Contact NWS	27%	-1.3
Contacted the National Weather Service to report a problem or make a suggestion	27%	
Contact NWS Responsiveness	78	--
Responsiveness of the NWS personnel to your problem or suggestion	78	
Likelihood to Take Action	87	2.4
Likelihood to take action based on the hydrologic information you receive from the NWS	87	
Confidence in NWS	86	3.1
How confident are you that the NWS Hydrologic Services Program will do a good job of providing you with the information you need?	86	



Score Summaries - by Region

	Central Region	Eastern Region	Southern Region	Western Region	Alaska Region
Sample Size	427	606	508	308	21
Flood Information	80	79	83	80	78
Clarity	80	81	83	81	81
Conciseness	80	80	83	79	79
Timeliness	80	79	83	81	81
Accuracy	80	78	82	78	77
Organization of information	80	78	82	78	77
Meets my needs	82	80	84	81	72
Water Supply/Reservoir Information	79	80	82	80	91
Clarity	80	81	82	80	94
Conciseness	79	80	82	79	89
Timeliness	78	78	80	79	89
Accuracy	82	83	82	80	89
Organization of information	75	80	81	80	89
Meets my needs	79	79	82	81	94
Drought Information	78	81	83	78	82
Clarity	78	82	83	78	78
Conciseness	78	81	83	78	75
Timeliness	79	80	83	77	81
Accuracy	79	81	83	77	81
Organization of information	78	80	83	78	86
Meets my needs	78	81	83	80	94
Routine River Forecasts/Information	82	79	83	80	78
Clarity	82	82	83	81	75
Conciseness	82	81	83	80	80
Timeliness	82	77	82	80	81
Accuracy	80	80	82	82	82
Organization of information	81	79	83	80	78
Meets my needs	83	79	83	81	73
Recreation Information	82	80	82	79	70
Clarity	83	80	82	79	75
Conciseness	82	80	83	79	73
Timeliness	82	81	83	78	81
Accuracy	82	78	81	77	76
Organization of information	80	79	83	80	78
Meets my needs	83	80	82	80	71
Precipitation Information	81	80	84	79	58
Clarity	82	82	86	81	73
Conciseness	81	82	84	80	75
Timeliness	81	80	83	80	80
Accuracy	77	76	81	77	74
Organization of information	81	80	84	79	75
Meets my needs	81	80	84	80	68
Customer Satisfaction Index	76	76	79	76	75
Overall satisfaction with the NWS Hydrologic Services Program	81	80	83	81	80
How well NWS Hydrologic Services Program meets your expectations	74	73	75	73	70
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services prog	73	72	76	73	68
Contact NWS	29	26	25	36	38
Contacted the national Weather Service to report a problem or make a suggestion	29	26	25	36	38
Contact NWS Responsiveness	85	73	77	77	76
Responsiveness of the NWS personnel to your problem or suggestion	85	73	77	77	76
Likelihood to Take Action	85	87	88	87	83
Likelihood to take action based on the hydrologic information you receive from the NWS	85	87	88	87	83
Confidence in NWS	86	85	87	85	86
How confident are you that the NWS Hydrologic Services Program will do a good job of	86	85	87	85	86



Score Summaries - by Region continued

NWS Demographics Valid Percent	Central Region	Eastern Region	Southern Region	Western Region	Alaska Region
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?					
Emergency management	31%	26%	26%	36%	29%
Traditional media	7%	4%	5%	4%	0%
Internet/Web	4%	4%	4%	4%	5%
Water supply/hydropower	2%	1%	2%	3%	0%
Agriculture	2%	1%	2%	2%	0%
Shipping	0%	1%	1%	0%	0%
Natural resource management	1%	2%	2%	5%	14%
Consulting/add value/provide custom hydrologic services	0%	2%	1%	1%	0%
Education	3%	1%	4%	1%	0%
Recreation	5%	7%	5%	6%	29%
Personal use	36%	43%	42%	28%	5%
Other	8%	8%	7%	10%	19%
What is the primary scope of your responsibility?					
National	2%	2%	3%	3%	5%
Regional	9%	8%	7%	7%	5%
Single state	4%	5%	5%	12%	33%
All or parts of multiple counties	7%	6%	10%	9%	5%
Single county	23%	17%	15%	19%	0%
Large city/urban area	2%	1%	2%	5%	0%
Smaller city/township	7%	6%	6%	6%	0%
Personal	43%	50%	48%	34%	38%
Other	3%	5%	4%	5%	14%
Which of the following types of hydrologic information do you obtain from the NWS?					
Flood information	87%	90%	89%	86%	76%
Water supply/reservoir information	15%	22%	24%	34%	10%
Drought information	44%	41%	41%	46%	19%
Routine river forecasts/information	51%	54%	44%	58%	86%
Recreation information	31%	29%	27%	30%	38%
Precipitation information	88%	88%	86%	87%	86%
Other information	11%	14%	16%	14%	24%
By what means do you receive text-based NWS hydrology products (e.g., flood warnings)?					
NWS Web pages	93%	93%	93%	92%	95%
Non-NWS Web pages	22%	29%	21%	20%	24%
Phone	15%	12%	13%	21%	19%
NOAA Weather Radio	63%	51%	55%	49%	48%
NOAA Weather Wire	9%	4%	5%	4%	0%
Family of Services (FOS)	3%	2%	2%	1%	0%
Emergency Managers Weather Information Network (EMWIN)	20%	16%	16%	17%	5%
Local or cable TV	61%	61%	65%	47%	38%
Commercial Radio	43%	35%	33%	34%	29%
Private vendor	17%	8%	7%	6%	0%
Other	9%	8%	10%	16%	10%
Are you familiar with the way these terms (minor, moderate, major flooding) are used by the NWS in their flood warnings?					
Yes	91%	90%	91%	87%	100%
No	9%	10%	9%	13%	0%
Do you now use or do you plan to use automated processing of hydrologic information?					
Yes	48%	44%	48%	49%	48%
No	52%	56%	52%	51%	52%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?					
Yes	60%	55%	65%	53%	30%
No	40%	45%	35%	47%	70%
In what format(s) would you like to receive quantitative precipitation information?					
Graphical	95%	94%	92%	90%	86%
A gridded array	21%	18%	17%	17%	0%
In a GIS-compatible format	30%	28%	28%	35%	38%
XML	14%	16%	16%	16%	10%
Other	2%	5%	4%	6%	5%
Uses national analysis of the amount of water in the snow pack?					
Yes	39%	31%	16%	39%	48%
No	61%	69%	84%	61%	52%
In what format(s) would you like to receive snow water equivalent information?					
Graphical	91%	87%	81%	86%	86%
A gridded array	18%	15%	10%	18%	0%
In a GIS-compatible format	26%	25%	19%	31%	33%
XML	11%	14%	12%	13%	5%
Other	3%	4%	5%	6%	5%



Score Summaries - by Region continued

NWS Scores for Graphics	Central Region	Eastern Region	Southern Region	Western Region	Alaska Region
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS.					
Text	77	76	79	73	71
Graphics	78	78	80	74	71
A combination of text and graphics	85	86	87	84	84
NOAA Weather Radio	81	79	80	73	73
Please rate the following formats of receiving river forecasts from the NWS.					
Text	76	75	78	75	70
Graphics	76	77	78	75	69
A combination of text and graphics	83	83	84	83	79
NOAA Weather Radio	77	76	77	70	70
Please rate the following formats of receiving river/stream observations from the NWS.					
Text	75	74	77	73	69
Graphics	75	75	77	75	73
A combination of text and graphics	81	83	83	82	84
NOAA Weather Radio	75	75	75	68	69
Please rate the usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flood					
Graphical Flood Severity Map	83	83	84	82	82
Visual appeal					
Ease of understanding	79	77	80	78	74
Tells me what I need to know about flood severity	83	82	84	81	76
Additional Access Modes					
Using a graphical Web-based interface (e.g., menu) to select information for download	81	86	85	86	84
Query a data base	78	80	80	81	81
Wholesale downloading of information	66	69	67	66	66
Data Formats					
XML	73	76	77	70	64
In a GIS compatible format	79	82	81	80	73
River Conditions Map(5 categories)					
Visual appeal	79	78	81	79	72
Ease of understanding	81	81	82	81	73
Tells me what I need to know about river conditions	80	80	81	78	71
River Conditions Map(3 categories)					
Visual appeal	78	78	81	78	69
Ease of understanding	81	81	83	81	71
Tells me what I need to know about river conditions	77	77	81	76	64
Area of Interest Map					
Visual appeal	85	85	87	84	81
Ease of understanding	85	86	85	86	80
Tells me what I need to know about river conditions	86	85	87	84	75
Hydrograph without Average Level					
Visual appeal	75	77	78	77	74
Ease of understanding	75	77	77	76	76
Tells me what I need to know about river conditions	78	79	78	80	71
Hydrograph with Average Level					
Visual appeal	74	77	77	75	74
Ease of understanding	75	77	77	74	74
Tells me what I need to know about river conditions	77	78	78	79	69
National Precipitation Analysis Map					
Visual appeal	83	83	87	82	82
Ease of understanding	82	82	86	80	69
Tells me what I need to know about national precipitation	82	82	85	79	68
Water in the Snow Pack Map					
Visual appeal	79	80	81	79	78
Ease of understanding	77	77	79	76	70
Tells me what I need to know about snow pack water amounts	77	78	80	76	71
Uncertainty and Probability					
How useful would it be to have forecasts include uncertainty information	83	84	84	85	80
How useful would it be to have forecasts include probability information	76	76	76	78	73
Usefulness of providing information regarding uncertainty of river forecasts for short-term	82	82	83	82	79
Usefulness of providing information regarding uncertainty of river forecasts for long-term	75	75	78	76	65
River Stages during a 90 day Forecast Period Graph					
Visual appeal	68	68	72	66	75
Ease of understanding	62	64	67	61	68
Tells me what I need to know about river stages	67	68	71	68	68



Score Summaries - by Region continued

NWS Scores for Graphics	Central Region	Eastern Region	Southern Region	Western Region	Alaska Region
River Stage during any Given Week over the next 90 days Graph	71	70	74	69	69
Visual appeal	68	67	72	68	64
Ease of understanding	71	69	73	70	65
Tells me what I need to know about a given river stage	69	68	72	69	73
River Stage on a Daily Basis Graph	67	69	71	71	75
Visual appeal	71	69	73	71	75
Ease of understanding	70	71	73	75	74
Tells me what I need to know about a river stage					
100 Year Water Level					
How useful would it be to include the 100-year water level to characterize flooding in NW					



Score Summaries - by Primary Use

Sample Size	Emergency management	Traditional media	Internet/Web	Water supply/hydropower	Agriculture	Natural resource management	Consulting/add value/provide custom hydrologic	Education	Recreation	Personal use	Other
632	82	117	82	42	39	51	21	59	149	934	192
Read Information	81	80	81	89	86	79	71	89	80	81	87
Timeliness	81	80	80	86	86	81	74	86	80	81	84
Consistency	81	80	80	82	83	82	74	86	80	81	80
Accuracy	80	79	80	82	84	82	75	86	79	82	79
Organization of information	80	80	80	76	84	79	72	87	80	81	76
Clarity	81	80	80	83	83	80	77	86	80	80	78
Water Supply/Reservoir Information	82	81	85	77	73	80	81	78	73	80	77
Consistency	82	85	81	76	69	83	83	81	74	80	79
Timeliness	81	83	85	78	70	83	78	82	76	80	78
Consistency	81	79	81	79	77	77	80	79	71	80	73
Timeliness	82	81	85	78	71	80	76	72	73	80	77
Organization of information	82	79	85	76	71	80	76	72	73	79	77
Meets my needs	82	79	88	76	77	81	83	76	73	81	77
Drought Information	82	77	83	75	70	76	72	87	81	81	77
Clarity	82	77	81	76	70	77	79	86	84	81	79
Timeliness	82	78	83	76	70	75	74	87	80	81	78
Consistency	82	78	83	76	70	75	74	87	80	81	78
Accuracy	82	78	83	76	70	75	74	87	80	81	78
Organization of information	82	78	83	76	70	75	74	87	80	81	78
Meets my needs	83	75	83	74	70	77	71	85	78	80	79
Consistency	83	75	83	74	70	77	71	85	78	80	79
Accuracy	83	75	83	74	70	77	71	85	78	80	79
Organization of information	83	75	83	74	70	77	71	85	78	80	79
Coastal River Forecast/Information	81	82	82	82	82	82	82	80	84	82	81
Clarity	81	82	82	82	82	82	82	80	84	82	81
Timeliness	81	82	82	82	82	82	82	80	84	82	81
Consistency	81	82	82	82	82	82	82	80	84	82	81
Accuracy	80	81	79	78	83	77	81	90	77	81	80
Timeliness	80	80	83	79	77	75	79	89	77	80	79
Consistency	81	80	83	79	77	75	79	89	77	80	79
Accuracy	81	80	83	79	77	75	79	89	77	80	79
Organization of information	81	80	83	79	77	75	79	89	77	80	79
Recreation Information	80	80	84	57	86	81	69	85	78	82	76
Clarity	80	84	84	56	84	80	72	86	80	82	75
Timeliness	79	83	83	56	87	80	70	84	80	82	75
Consistency	82	81	82	67	87	82	79	82	80	82	77
Accuracy	81	80	84	67	86	81	78	82	78	81	79
Organization of information	81	80	84	67	86	81	78	82	78	81	79
Meets my needs	81	79	86	46	87	84	62	86	76	81	74
Consistency	81	79	86	46	87	84	62	86	76	81	74
Accuracy	81	79	86	46	87	84	62	86	76	81	74
Organization of information	81	79	86	46	87	84	62	86	76	81	74
Precipitation Information	81	78	82	80	74	76	72	86	81	82	76
Clarity	83	81	83	80	74	79	79	88	81	83	83
Timeliness	83	81	83	80	74	79	79	88	81	83	83
Consistency	83	81	83	80	74	79	79	88	81	83	83
Accuracy	83	81	83	80	74	79	79	88	81	83	83
Organization of information	83	81	83	80	74	79	79	88	81	83	83
Meets my needs	82	78	83	77	69	82	74	86	81	81	76
Consistency	82	78	83	77	69	82	74	86	81	81	76
Accuracy	82	78	83	77	69	82	74	86	81	81	76
Organization of information	82	78	83	77	69	82	74	86	81	81	76
Meets my needs	80	77	82	72	72	73	68	82	75	75	75
Consistency	80	77	82	72	72	73	68	82	75	75	75
Accuracy	80	77	82	72	72	73	68	82	75	75	75
Organization of information	80	77	82	72	72	73	68	82	75	75	75
Customer Satisfaction Index	78	74	77	73	72	73	68	79	75	72	72
How well NWS Hydrologic Services Program meets your expectations	75	72	75	68	71	67	61	74	70	76	71
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services	75	70	74	70	70	70	62	75	73	75	68
Contact NWS	45	35	21	64	18	58	43	31	13	11	32
How likely are you to contact NWS Hydrologic Services to report a problem or make a suggestion	43	28	21	64	18	58	43	31	13	11	32
Contact NWS Responsiveness	83	78	71	81	63	75	72	80	77	67	78
Responsiveness of NWS Hydrologic Services Program	83	78	71	81	63	75	72	80	77	67	78
Responsiveness of NWS Hydrologic Services Program meets your expectations	83	78	71	81	63	75	72	80	77	67	78
Likelihood to Take Action	88	88	86	83	81	84	83	88	87	87	87
Likelihood to take action based on the hydrologic information you receive from the NWS	88	88	86	83	81	84	83	88	87	87	87
Confidence in NWS	88	88	84	89	82	83	79	88	85	87	83
How confident are you that the NWS Hydrologic Services Program will do a good job	88	88	84	89	82	83	79	88	85	87	83



Score Summaries - by Primary Use continued

NWS Demographics	Emergency management	Traditional media	Internet/Web	Water supply /hydropower	Agriculture	Natural resource management	Consulting/field value/provide custom hydrologic	Education	Recreation	Personal use	Other
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?	Emergency management	Traditional media	Internet/Web	Water supply /hydropower	Agriculture	Natural resource management	Consulting/field value/provide custom hydrologic	Education	Recreation	Personal use	Other
Emergency management	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Traditional media	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internet/Web	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
Water supply/hydropower	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%
Agriculture	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%
Natural resource management	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
Consulting/field value/provide custom hydrologic services	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
Education	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%
Recreation	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Personal use	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
What is the primary scope of your responsibility?											
National	2%	3%	3%	5%	5%	4%	2%	7%	3%	1%	4%
Regional	4%	28%	15%	31%	8%	2%	2%	12%	9%	2%	19%
Local	8%	37%	9%	14%	8%	12%	10%	3%	1%	2%	13%
All states of multiple countries	8%	37%	9%	14%	8%	12%	10%	3%	1%	2%	13%
Single county	50%	5%	1%	2%	13%	10%	5%	2%	1%	2%	1%
Large urban area	6%	3%	1%	12%	0%	0%	5%	2%	1%	0%	1%
Smaller city/township	15%	4%	0%	3%	0%	4%	5%	1%	1%	1%	5%
Personal	3%	15%	3%	5%	3%	2%	3%	1%	7%	3%	13%
Other	3%	2%	3%	5%	3%	4%	0%	12%	3%	1%	21%
Which of the following types of hydrologic information do you obtain from the NWS?											
Flood information	97%	97%	87%	86%	82%	92%	86%	80%	68%	85%	85%
Water supply/reservoir information	27%	30%	28%	60%	29%	41%	38%	24%	16%	16%	21%
Drought information	52%	67%	48%	74%	69%	65%	67%	55%	23%	31%	35%
Water resources information	15%	32%	28%	14%	18%	12%	33%	24%	13%	40%	19%
Recreation information	90%	89%	85%	83%	92%	86%	100%	97%	77%	84%	85%
Other information	10%	8%	17%	10%	13%	10%	5%	17%	9%	15%	28%
By what means do you receive text-based NWS hydrology products (e.g. flood warnings)?											
Phone	25%	14%	7%	2%	14%	4%	0%	12%	11%	12%	4%
Non-NWS Web pages	29%	17%	7%	2%	18%	4%	0%	12%	11%	13%	4%
NWS Web pages	25%	21%	33%	18%	3%	31%	8%	9%	18%	14%	25%
Phone	33%	12%	7%	2%	3%	16%	2%	2%	5%	2%	16%
NWS Weather Radio	67%	45%	60%	26%	46%	39%	57%	51%	44%	50%	53%
NWS Weather Web	9%	31%	6%	0%	3%	4%	19%	5%	1%	3%	3%
NWS Emergency Alerting System (EAS)	40%	12%	21%	2%	5%	6%	10%	8%	5%	6%	12%
Emergency Manager's Weather Information Network (EMWIN)	40%	12%	21%	2%	5%	6%	10%	8%	5%	6%	12%
Local or cable TV	63%	30%	57%	36%	59%	57%	48%	59%	51%	65%	55%
Local or cable TV	39%	22%	40%	19%	30%	41%	29%	34%	24%	38%	33%
Commercial Radio	16%	29%	7%	10%	3%	8%	5%	5%	3%	3%	5%
Private Vender	16%	29%	7%	10%	3%	8%	5%	5%	3%	3%	5%
Are you familiar with the way these terms (minor, moderate, major flooding) are used by the NWS in their flood warnings?											
Yes	95%	88%	5%	24%	82%	96%	100%	88%	89%	87%	84%
No	5%	14%	7%	2%	18%	4%	0%	12%	11%	13%	16%
Do you now use or do you plan to use automated processing of hydrologic information?											
Yes	55%	54%	48%	74%	36%	74%	71%	53%	37%	34%	52%
No	45%	46%	51%	26%	64%	26%	29%	47%	63%	66%	48%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?											
Yes	64%	39%	58%	66%	54%	82%	65%	69%	54%	65%	61%
No	36%	61%	42%	34%	46%	18%	35%	31%	46%	35%	39%
In what format(s) would you like to receive quantitative precipitation information?											
As a grid	93%	93%	91%	95%	93%	90%	95%	95%	93%	93%	88%
As a grid with a 1/2 degree resolution	17%	25%	20%	21%	21%	20%	20%	18%	16%	15%	20%
In a GIS-compatible format	51%	18%	27%	43%	8%	65%	38%	51%	21%	19%	34%
XML	15%	14%	14%	14%	18%	18%	14%	14%	14%	14%	18%
Other	2%	7%	7%	7%	3%	8%	14%	8%	4%	3%	8%
Does national analysis of the amount of water in the snow pack?											
Yes	32%	24%	40%	45%	47%	37%	20%	38%	25%	28%	31%
No	68%	76%	60%	55%	53%	63%	80%	62%	75%	71%	69%
In what format(s) would you like to receive snow water equivalent information?											
Graphical	86%	92%	88%	85%	85%	85%	90%	86%	81%	87%	75%
As a grid	4%	4%	5%	14%	14%	14%	10%	14%	15%	14%	24%
In a GIS-compatible format	12%	13%	20%	31%	5%	51%	53%	41%	15%	15%	24%
XML	12%	13%	20%	2%	0%	18%	19%	12%	11%	19%	14%
Other	3%	1%	7%	2%	3%	12%	10%	10%	3%	6%	7%



Score Summaries - by Primary Use continued

	Emergency management	Traditional media	Internet/Web	Water supply/hydropower	Agriculture	Natural resource management	Consulting/add value/provide custom hydrologic	Education	Recreation	Personal Use	Other
NWS Scores for Graphics											
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS:											
Graphics	79	80	79	70	70	71	74	73	72	77	74
A combination of text and graphics	78	76	81	76	69	75	71	81	76	80	76
NOAA Weather Radio	86	84	88	81	81	87	85	88	84	87	83
Please rate the following formats of receiving river forecasts from the NWS:											
Graphics	77	79	79	74	70	73	77	76	73	78	74
A combination of text and graphics	84	78	83	80	80	83	85	88	85	85	82
NOAA Weather Radio	77	67	77	66	78	72	65	76	73	77	75
Please rate the following formats of receiving river/stream observations from the NWS:											
Graphics	76	77	76	73	73	72	74	76	73	75	74
A combination of text and graphics	83	76	82	80	81	83	78	85	84	84	81
NOAA Weather Radio	74	67	75	75	75	69	80	74	71	76	73
Please rate the usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flooding:											
Minor flooding	84	83	80	83	83	81	79	87	83	84	82
Moderate flooding	82	71	82	74	74	82	71	78	76	77	78
Major flooding	83	72	83	82	79	85	74	85	81	81	80
Tells me what I need to know about flood severity	83	76	86	76	76	86	77	85	83	80	80
Additional Access Modes											
On a data base	88	81	84	82	70	88	82	88	80	85	82
Increased interfaces (e.g., email) to select information for download	88	76	88	81	84	88	82	88	80	85	82
Whole-sale downloading of information	71	68	74	71	62	61	73	74	57	65	64
Data Formats											
XML	73	80	89	78	57	69	71	75	70	77	72
PDF	86	74	78	85	63	86	81	88	70	77	81
River Conditions Map's categories											
Visual appeal	79	76	81	79	72	79	76	86	77	79	77
Ease of understanding	80	77	85	84	75	82	77	88	79	81	78
Tells me what I need to know about river conditions	79	79	83	79	72	79	74	87	78	81	76
River Conditions Map's categories											
Ease of understanding	81	78	79	80	69	79	77	84	76	79	77
Tells me what I need to know about river conditions	79	79	79	80	69	76	87	84	75	82	78
Area of Interest Map											
Visual appeal	88	83	89	81	85	81	82	86	84	85	85
Ease of understanding	85	74	87	84	85	82	79	86	83	87	84
Tells me what I need to know about river conditions	85	83	87	84	85	82	79	86	83	87	84
Hydrograph without Average Level											
Visual appeal	79	74	79	82	68	84	80	80	79	75	77
Ease of understanding	79	73	82	85	72	85	83	82	81	75	79
Tells me what I need to know about river conditions	79	78	83	81	73	88	81	85	81	77	78
Hydrograph with Average Level											
Visual appeal	77	74	77	77	70	84	79	80	79	74	77
Ease of understanding	77	73	80	80	72	85	77	81	80	75	78
Tells me what I need to know about river conditions	78	76	81	82	74	84	76	84	82	77	79
National Precipitation Analysis Map											
Visual appeal	83	79	87	81	84	83	76	87	85	85	84
Ease of understanding	82	80	83	82	85	81	79	87	82	84	82
Tells me what I need to know about national precipitation	81	81	84	81	85	79	76	88	84	84	80
Writer in the Snow Pack Map											
Visual appeal	89	75	81	78	78	81	77	85	80	80	78
Ease of understanding	77	73	81	78	78	77	78	85	79	78	75
Tells me what I need to know about snow pack water amounts	77	73	81	78	78	77	78	85	79	78	75
Uncertainty and Probability											
How useful would it be to have forecasts include uncertainty information	85	80	85	82	83	83	84	88	85	84	84
How useful would it be to have forecasts include probability information	78	65	77	77	77	77	73	78	78	77	75
Usefulness of providing information regarding uncertainty of river forecasts for flood	77	71	79	78	70	79	68	83	76	75	74
River Stages during a 30 day Forecast Period Graph											
Visual appeal	71	83	72	71	60	71	64	74	66	68	68
Ease of understanding	67	59	65	66	55	66	59	67	62	65	63
Tells me what I need to know about river stages	69	64	68	61	61	71	64	75	68	69	67



Score Summaries - by Primary Use continued

NWS Scores for Graphics	Emergency management	Traditional media	Internet/Web	Water supply/hydropower	Agriculture	Natural resource management	Consulting/add value/provide custom hydrologic	Education	Recreation	Personal use	Other
River Stage during any Given Week over the next 90 days Graph	73	66	75	70	65	72	68	76	67	72	70
Easy to understand	70	81	72	69	66	69	63	74	68	70	66
Tells me what I need to know about a given river stage	71	64	73	70	66	72	66	78	70	72	69
River Stage on a Daily Basis Graph	71	63	71	73	67	72	67	76	69	68	70
Visual appeal	70	65	72	72	68	71	68	76	70	70	70
Tells me what I need to know about a river stage	71	65	72	71	68	74	72	79	73	71	70
100 Year Water Level	74	70	76	81	72	85	80	79	70	69	73
How useful would it be to include the 100-year water level to characterize flooding?											



Score Summaries - by Primary Scope of Responsibility

	National	Regional	Single state	All or parts of multiple counties	Single county	Large city/urban area	Smaller city/township	Personal	Other
Sample Size	52	190	145	173	387	35	138	1094	93
Flood Information	78	79	81	81	82	81	80	81	79
Clarity	77	80	81	81	83	83	81	81	81
Conciseness	76	79	81	82	82	83	79	81	80
Timeliness	78	78	83	80	81	83	79	82	78
Accuracy	80	81	81	81	81	80	80	80	78
Organization of Information	77	76	77	79	83	82	80	79	78
Meets my needs	79	80	82	81	82	79	80	82	79
Water Supply/Reservoir Information	79	80	82	79	84	82	75	78	77
Clarity	78	81	81	78	84	85	77	79	77
Conciseness	77	81	81	79	83	87	73	79	78
Timeliness	75	79	81	77	83	74	72	79	76
Accuracy	79	80	83	81	85	78	76	82	77
Organization of Information	75	80	81	78	83	84	73	78	76
Meets my needs	79	79	81	80	83	86	75	80	77
Drought Information	79	76	81	78	83	80	84	80	82
Clarity	76	79	82	79	82	84	82	80	83
Conciseness	81	77	81	80	82	84	84	80	80
Timeliness	78	76	81	78	83	78	83	80	84
Accuracy	78	76	80	79	83	83	84	81	83
Organization of Information	76	76	82	79	83	86	83	79	81
Meets my needs	79	76	81	78	84	83	84	81	82
Routine River Forecasts/Information	80	78	81	83	82	81	79	80	78
Clarity	79	81	80	84	84	83	81	81	79
Conciseness	77	82	81	84	83	83	78	81	80
Timeliness	78	75	82	83	81	76	77	80	76
Accuracy	82	76	81	83	81	82	80	80	77
Organization of Information	73	77	81	82	84	81	80	80	77
Meets my needs	81	79	81	82	82	81	79	81	76
Recreation Information	76	76	83	78	82	78	83	81	81
Clarity	74	79	82	79	82	79	83	81	79
Conciseness	71	78	81	80	81	82	82	81	79
Timeliness	75	76	84	78	84	70	84	82	84
Accuracy	68	76	85	80	80	71	81	80	83
Organization of Information	79	75	83	79	82	83	85	80	81
Meets my needs	76	75	81	77	82	83	82	83	81
Precipitation Information	79	77	80	77	82	83	82	81	79
Clarity	81	80	82	81	84	86	81	83	81
Conciseness	82	79	81	79	82	86	84	83	81
Timeliness	80	75	81	79	82	86	82	83	80
Accuracy	78	75	81	76	82	83	81	82	78
Organization of Information	77	77	79	78	77	77	76	78	77
Meets my needs	77	76	78	77	83	86	82	81	79
Customer Satisfaction Index	75	74	76	75	79	76	80	83	79
Overall satisfaction with the NWS Hydrologic Services Program	80	79	81	81	83	83	81	82	78
How well NWS Hydrologic Services Program meets your expectations	72	70	72	72	77	72	74	74	72
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services program	70	71	72	72	77	75	74	74	71
Contact NWS	37	44	52	39	47	42	22	11	27
Contacted the national Weather Service to report a problem or make a suggestion	37	44	52	39	47	42	22	11	27
Contact NWS Responsiveness	72	81	79	73	86	83	72	65	75
Responsiveness of the NWS personnel to your problem or suggestion	72	81	79	73	86	83	72	65	75
Likelihood to Take Action	87	86	88	87	89	83	87	87	89
Likelihood to take action based on the hydrologic information you receive from the NWS	87	86	88	87	89	83	87	87	89
Confidence in NWS	86	83	86	85	87	82	84	86	85
How confident are you that the NWS Hydrologic Services Program will do a good job of providing you with the information you need?	86	83	86	85	87	82	84	86	85



Detail Report - by Primary Scope of Responsibility continued

NWS Demographics	National	Regional	Single state	All or parts of multiple counties	Single county	Large city/urban area	Smaller city/township	Personal	Other
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?									
Emergency management	27%	13%	38%	30%	82%	65%	71%	2%	22%
Traditional media	18%	18%	3%	25%	2%	5%	3%	2%	2%
Internet/web	6%	6%	3%	6%	1%	2%	2%	4%	2%
Water supply/hydropower	0%	7%	9%	5%	0%	9%	0%	0%	2%
Agriculture	4%	2%	2%	2%	1%	0%	0%	2%	0%
Shipping	2%	4%	0%	0%	0%	0%	0%	0%	0%
Natural resource management	2%	6%	15%	4%	1%	0%	1%	0%	2%
Consulting/acad value/provide custom hydrologic services	12%	3%	2%	1%	2%	2%	1%	0%	0%
Education	8%	4%	6%	1%	1%	2%	4%	2%	8%
Recreation	0%	7%	3%	3%	1%	4%	1%	10%	5%
Personal use	21%	11%	6%	12%	4%	7%	9%	76%	13%
Other	13%	19%	13%	13%	6%	4%	7%	2%	42%
What is the primary scope of your responsibility?									
National	100%	0%	0%	0%	0%	0%	0%	0%	0%
Regional	0%	100%	0%	0%	0%	0%	0%	0%	0%
Single state	0%	0%	100%	0%	0%	0%	0%	0%	0%
All or parts of multiple counties	0%	0%	0%	100%	0%	0%	0%	0%	0%
Single county	0%	0%	0%	0%	100%	0%	0%	0%	0%
Large city/urban area	0%	0%	0%	0%	0%	100%	0%	0%	0%
Smaller city/township	0%	0%	0%	0%	0%	0%	100%	0%	0%
Personal	0%	0%	0%	0%	0%	0%	0%	100%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	100%
Which of the following types of hydrologic information do you obtain from the NWS?									
Flood information	92%	90%	88%	94%	95%	95%	96%	83%	80%
Water supply/reservoir information	33%	32%	44%	33%	24%	24%	20%	16%	26%
Drought information	42%	58%	56%	54%	52%	47%	44%	32%	33%
Routine river forecasts/information	42%	72%	66%	60%	63%	50%	50%	40%	56%
Recreation information	17%	21%	29%	13%	13%	19%	19%	41%	29%
Precipitation information	90%	89%	91%	90%	91%	91%	88%	83%	84%
Other information	23%	12%	17%	8%	12%	13%	4%	14%	31%
By what means do you receive text-based NWS hydrology products (e.g.) flood warnings?									
NWS Web pages	92%	93%	94%	94%	87%	89%	92%	94%	91%
Non-NWS Web pages	31%	30%	26%	26%	21%	31%	26%	20%	28%
Phone	13%	21%	19%	18%	37%	27%	15%	3%	12%
NDA Weather Radio	46%	43%	44%	60%	70%	55%	67%	49%	54%
NDA Weather Wire	12%	14%	10%	11%	10%	11%	9%	1%	3%
Family of Services (FOS)	4%	7%	6%	5%	2%	2%	1%	0%	0%
Emergency Managers Weather Information Network (EMWIN)	27%	13%	19%	23%	39%	36%	30%	5%	16%
Local or cable TV	62%	47%	57%	52%	64%	56%	59%	62%	55%
Commercial Radio	37%	26%	37%	36%	38%	33%	33%	37%	39%
Private Vendor	6%	16%	9%	16%	18%	13%	12%	2%	9%
Other	12%	10%	17%	13%	17%	27%	13%	4%	13%
Are you familiar with the way these terms (minor, moderate, major flooding) are used by the NWS in their flood warnings?									
Yes	96%	90%	94%	92%	95%	89%	92%	87%	89%
No	4%	10%	6%	8%	5%	11%	8%	13%	11%
Do you now use or do you plan to use automated processing of hydrologic information?									
Yes	56%	66%	62%	56%	57%	64%	51%	32%	43%
No	44%	34%	38%	44%	43%	36%	49%	68%	57%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?									
Yes	62%	65%	61%	53%	66%	54%	60%	54%	57%
No	38%	35%	39%	47%	34%	46%	40%	46%	43%
In what format(s) would you like to receive quantitative precipitation information?									
Graphical	90%	93%	92%	95%	92%	96%	95%	93%	89%
A gridded array	23%	32%	17%	20%	20%	20%	20%	15%	18%
In a GIS-compatible format	48%	35%	50%	33%	51%	55%	40%	13%	32%
XML	27%	21%	12%	16%	16%	27%	15%	14%	14%
Other	8%	4%	5%	3%	2%	5%	3%	3%	10%
Uses national analysis of the amount of water in the snow pack?									
Yes	36%	46%	33%	27%	35%	22%	33%	28%	27%
No	64%	54%	67%	73%	65%	78%	67%	72%	73%
In what format(s) would you like to receive snow water equivalent information?									
Graphical	87%	85%	83%	88%	86%	76%	90%	86%	76%
A gridded array	23%	23%	14%	17%	15%	20%	16%	12%	13%
In a GIS-compatible format	50%	29%	38%	27%	44%	29%	29%	44%	23%
XML	27%	17%	8%	14%	13%	16%	14%	11%	14%
Other	8%	3%	5%	3%	4%	5%	3%	4%	9%



Score Summaries - by Primary Scope of Responsibility continued

	National	Regional	Single state	All or parts of multiple counties	Single county	Large city/urban area	Smaller city/township	Personal	Other
NWS Scores for Graphics									
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS.									
Text	74	75	76	78	80	78	79	76	72
Graphics	77	74	77	79	80	77	79	79	78
A combination of text and graphics	80	82	85	84	86	80	81	86	84
NOAA Weather Radio	73	71	77	77	81	77	82	79	77
Please rate the following formats of receiving river forecasts from the NWS.									
Text	75	76	77	78	78	78	78	75	73
Graphics	75	73	80	77	77	78	78	77	78
A combination of text and graphics	79	82	84	83	83	86	84	84	86
NOAA Weather Radio	73	68	73	72	78	74	79	76	73
Please rate the following formats of receiving river/stream observations from the NWS.									
Text	75	75	72	77	78	76	78	74	73
Graphics	75	74	78	76	78	74	78	74	74
A combination of text and graphics	77	80	82	81	82	83	84	84	80
NOAA Weather Radio	71	69	70	70	76	73	76	75	71
Please rate the usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flooding.									
Visual appeal	82	80	84	84	85	81	84	84	80
Ease of understanding	78	77	80	77	82	80	82	77	79
Tells me what I need to know about flood severity	82	76	82	80	84	79	83	80	82
Additional Access Modes									
Using a graphical Web-based interface (e.g., menu) to select information for download	73	84	87	86	85	86	83	86	85
Overlay a data base	73	79	81	77	81	79	79	82	79
Without downloading information	74	66	72	67	73	65	64	65	59
Mail Formats									
Mail	71	79	75	72	74	70	75	77	67
In a GIS compatible format									
Visual appeal	79	81	86	79	87	83	80	75	76
River Conditions Map(s) categories									
Visual appeal	80	81	79	76	80	79	82	78	77
Ease of understanding	83	83	82	82	81	82	82	81	80
Tells me what I need to know about river conditions	82	81	79	79	79	75	81	80	75
River Conditions Map(s) categories									
Visual appeal	78	81	78	78	81	79	79	78	79
Ease of understanding	80	83	82	82	82	82	82	81	80
Tells me what I need to know about river conditions	75	78	77	78	79	79	78	78	76
Area of Interest Map									
Visual appeal	86	85	83	85	86	84	86	86	85
Ease of understanding	87	87	86	85	86	84	85	86	85
Tells me what I need to know about river conditions	87	85	82	85	85	83	88	88	84
Hydrograph without Average Level									
Visual appeal	75	79	81	76	80	77	76	75	77
Ease of understanding	78	81	81	76	78	78	76	76	78
Tells me what I need to know about river conditions	80	82	82	79	79	77	77	78	80
Hydrograph with Average Level									
Visual appeal	74	79	79	74	79	75	75	74	78
Ease of understanding	79	80	75	81	78	77	78	76	81
Tells me what I need to know about river conditions	80	80	78	78	78	77	78	77	80
National Precipitation Analysis Map									
Visual appeal	84	82	83	84	85	82	83	85	84
Ease of understanding	85	82	80	84	83	85	82	83	83
Tells me what I need to know about national precipitation	85	81	78	83	83	77	82	84	83
Water in the Snow Pack Map									
Visual appeal	84	79	81	80	82	78	79	80	76
Ease of understanding	80	78	78	77	79	75	77	78	74
Tells me what I need to know about snow pack water amounts	79	77	76	76	79	75	76	79	75
Uncertainty and Probability									
How useful would it be to have forecasts include uncertainty information	86	85	83	84	85	87	84	84	83
How useful would it be to have forecasts include probability information	83	76	75	72	80	74	77	76	71
Usefulness of providing information regarding uncertainty of river forecasts for short-term wait	84	80	81	81	83	82	82	83	80
Usefulness of providing information regarding uncertainty of river forecasts for long-term wait	80	77	77	75	77	74	76	75	76
River Stages during a 30 day Forecast Period Graph									
Visual appeal	68	68	71	68	72	65	70	68	66
Ease of understanding	67	63	66	64	69	58	65	64	62
Tells me what I need to know about river stages	72	68	68	67	71	63	68	69	67



Detail Report - by Primary Scope of Responsibility continued

NWS Scores for Graphics	National	Regional	Single state	All or parts of multiple counties	Single county	Large city/urban area	Smaller city/township	Personal	Other
River Stage during any Given Week over the next 90 days Graph	75	69	73	69	75	69	71	70	72
Visual appeal	71	65	68	64	72	65	70	70	68
Ease of understanding	74	69	69	66	73	67	71	72	70
Tells me what I need to know about a given river stage									
River Stage on a Daily Basis Graph	67	69	73	69	72	64	70	68	71
Visual appeal	70	70	71	68	69	62	67	68	69
Ease of understanding	70	70	73	71	72	62	70	71	71
Tells me what I need to know about a river stage									
100 Year Water Level	75	75	78	73	75	73	76	69	73
How useful would it be to include the 100-year water level to characterize flooding in NWS.pl									



Score Summaries - Emergency Managers vs. Personal Use vs. All Others

	Emergency management	Total Impact	Personal use	Total Impact	All Others	Total Impact
Sample Size	632		934		754	
Flood Information	81	2.9	81	1.2	80	1.1
Clarity	82		81		81	
Conciseness	81		81		81	
Timeliness	80		81		80	
Accuracy	80		81		79	
Organization of information	81		79		79	
Meets my needs	81		83		81	
Water Supply/Reservoir Information	82	1.3	80	1.0	78	0.8
Clarity	82		80		79	
Conciseness	81		80		79	
Timeliness	81		80		76	
Accuracy	84		83		79	
Organization of information	82		79		77	
Meets my needs	82		81		78	
Drought Information	82	0.0	81	0.0	78	0.0
Clarity	82		81		79	
Conciseness	82		82		79	
Timeliness	82		81		78	
Accuracy	82		81		78	
Organization of information	82		80		78	
Meets my needs	83		80		78	
Routine River Forecasts/Information	81	0.0	81	0.5	80	1.2
Clarity	82		82		82	
Conciseness	81		81		82	
Timeliness	80		81		79	
Accuracy	80		80		78	
Organization of information	81		80		80	
Meets my needs	80		82		80	
Recreation Information	80	0.9	82	0.0	79	0.8
Clarity	80		82		80	
Conciseness	79		82		80	
Timeliness	82		82		79	
Accuracy	82		81		79	
Organization of information	81		81		78	
Meets my needs	81		83		78	
Precipitation Information	81	0.0	82	1.9	79	1.0
Clarity	83		83		81	
Conciseness	81		83		81	
Timeliness	82		82		78	
Accuracy	77		78		76	
Organization of information	82		81		79	
Meets my needs	80		83		78	
Customer Satisfaction Index	78	--	78	--	74	--
Overall satisfaction with the NWS Hydrologic Services Program	83		82		79	
How well NWS Hydrologic Services Program meets your expectations	79		75		71	
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services program you just imagined	75		75		71	
Contact NWS	45	-1.0	11	-0.8	31	-2.0
Contacted the national Weather Service to report a problem or make a suggestion	45		11		31	
Contact NWS Responsiveness	83	--	67	--	76	--
Responsiveness of the NWS personnel to your problem or suggestion	83		67		76	
Likelihood to Take Action	88	2.1	87	2.4	86	2.5
Likelihood to take action based on the hydrologic information you receive from the NWS	88		87		86	
Confidence in NWS	86	3.0	87	3.2	84	3.2
How confident are you that the NWS Hydrologic Services Program will do a good job of providing forecasts	86		87		84	



Score Summaries - Emergency Managers vs. Personal Use vs. All Others continued

NWS Demographics	Emergency management	Personal use	All Others
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?			
Emergency management	100%	0%	0%
Traditional media	0%	0%	16%
Internet/web	0%	0%	11%
Water supply/hydropower	0%	0%	6%
Agriculture	0%	0%	5%
Shipping	0%	0%	2%
Natural resource management	0%	0%	7%
Consulting/add value/provide custom hydrologic services	0%	0%	3%
Education	0%	0%	8%
Recreation	0%	0%	20%
Personal use	0%	100%	0%
Other	0%	0%	24%
What is the primary scope of your responsibility?			
National	2%	1%	4%
Regional	4%	2%	19%
Single state	9%	1%	11%
All or parts of multiple counties	8%	2%	13%
Single county	50%	2%	7%
Large city/urban area	6%	0%	2%
Smaller city/township	15%	1%	4%
Personal	3%	89%	33%
Other	3%	1%	8%
Which of the following types of hydrologic information do you obtain from the NWS?			
Flood information	97%	85%	83%
Water supply/reservoir information	27%	16%	28%
Drought information	52%	31%	46%
Routine river forecasts/information	66%	37%	56%
Recreation information	13%	40%	32%
Precipitation information	90%	84%	86%
Other information	10%	15%	14%
By what means do you receive text-based NWS hydrology products (e.g. flood warnings)?			
NWS Web pages	90%	94%	92%
Non-NWS Web pages	25%	21%	24%
Phone	33%	2%	12%
NOAA Weather Radio	67%	50%	47%
NOAA Weather Wire	9%	1%	8%
Family of Services (FOS)	1%	0%	4%
Emergency Managers Weather Information Network (EMWIN)	40%	6%	10%
Local or cable TV	63%	65%	50%
Commercial Radio	39%	38%	30%
Private Vendor	16%	3%	9%
Other	16%	4%	11%
Are you familiar with the way these terms (minor, moderate, major flooding) are used by the NWS in their flood warnings?			
Yes	95%	87%	90%
No	5%	13%	10%
Do you now use or do you plan to use automated processing of hydrologic information?			
Yes	55%	34%	52%
No	45%	66%	48%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?			
Yes	64%	55%	56%
No	36%	45%	44%
In what format(s) would you like to receive quantitative precipitation information?			
Graphical	93%	93%	92%
A gridded array	17%	15%	23%
In a GIS-compatible format	51%	13%	31%
XML	15%	14%	18%
Other	2%	3%	6%
Uses national analysis of the amount of water in the snow pack?			
Yes	32%	29%	32%
No	68%	71%	68%
In what format(s) would you like to receive snow water equivalent information?			
Graphical	86%	87%	83%
A gridded array	13%	13%	17%
In a GIS-compatible format	43%	11%	24%
XML	12%	13%	14%
Other	3%	4%	5%



Score Summaries - Emergency Managers vs. Personal Use vs. All Others

NWS Scores for Graphics	Emergency management	Personal use	All Others
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS.			
Text	79	77	74
Graphics	79	80	76
A combination of text and graphics	86	84	84
NOAA Weather Radio	80	80	76
Please rate the following formats of receiving river forecasts from the NWS.			
Text	77	76	75
Graphics	77	78	75
A combination of text and graphics	84	85	82
NOAA Weather Radio	77	77	72
Please rate the following formats of receiving river/stream observations from the NWS.			
Text	76	75	74
Graphics	77	78	75
A combination of text and graphics	83	84	81
NOAA Weather Radio	74	76	70
Please rate the usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flooding.			
Graphical Flood Severity Map	84	84	82
Visual appeal			
Ease of understanding	82	77	77
Tells me what I need to know about flood severity	83	81	80
Tells me what I need to know about river conditions	83	84	81
Additional Access Modes			
Using a graphical Web-based interface (e.g., menu) to select information for download	86	85	84
Query a data base	80	82	79
Windows downloading of information	71	65	66
Data Formats			
XML	73	77	75
In a GIS compatible format	86	75	79
River Conditions Map(5 categories)			
Visual appeal	79	79	78
Ease of understanding	80	81	80
Tells me what I need to know about river conditions	79	81	79
River Conditions Map(3 categories)			
Visual appeal	80	79	78
Ease of understanding	81	82	80
Tells me what I need to know about river conditions	79	79	76
Area of Interest Map			
Visual appeal	86	86	84
Ease of understanding	86	87	85
Tells me what I need to know about river conditions	85	87	84
Hydrograph without Average Level			
Visual appeal	79	75	78
Ease of understanding	78	75	79
Tells me what I need to know about river conditions	79	77	80
Hydrograph with Average Level			
Visual appeal	77	74	77
Ease of understanding	77	75	78
Tells me what I need to know about river conditions	78	77	79
National Precipitation Analysis Map			
Visual appeal	83	85	84
Ease of understanding	82	84	83
Tells me what I need to know about national precipitation	81	84	82
Water in the Snow Pack Map			
Visual appeal	80	80	79
Ease of understanding	77	79	78
Tells me what I need to know about snow pack water amounts	77	79	77
Uncertainty and Probability			
How useful would it be to have forecasts include uncertainty information	85	84	84
How useful would it be to have forecasts include probability information	78	75	75
Usefulness of providing information regarding uncertainty of river forecasts for short-term flooding	82	83	81
Usefulness of providing information regarding uncertainty of river forecasts for long-term water supply	77	75	75
River Stages during a 90 day Forecast Period Graph			
Visual appeal	71	68	68
Ease of understanding	67	65	63
Tells me what I need to know about river stages	69	69	67



Score Summaries - Emergency Managers vs. Personal Use vs. All Others continued

NWS Scores for Graphics	Emergency management	Personal use	All Others
River Stage during any Given Week over the next 90 days Graph			
Visual appeal	73	72	70
Ease of understanding	70	70	67
Tells me what I need to know about a given river stage	71	72	69
River Stage on a Daily Basis Graph			
Visual appeal	71	68	69
Ease of understanding	69	68	69
Tells me what I need to know about a river stage	71	71	71
100 Year Water Level			
How useful would it be to include the 100-year water level to characterize flooding in NWS products	74	69	74



Score Summaries - by Emergency Managers by Primary Scope of Responsibility

	Emergency Manager National	Emergency Manager Regional	Emergency Manager Single State	Emergency Manager Multiple Counties	Emergency Manager Single County	Emergency Manager Large City	Emergency Manager Smaller city	Emergency Manager Personal	Emergency Manager Other
Sample Size	14	25	54	51	316	36	97	17	20
Flood Information	76	81	77	85	82	80	79	74	81
Clarity	77	83	76	86	83	83	81	73	81
Conciseness	77	83	76	85	81	76	78	77	81
Timeliness	69	81	80	83	80	82	79	68	82
Accuracy	86	77	78	84	80	76	78	75	82
Organization of information	74	80	74	85	83	81	80	78	77
Meets my needs	74	82	77	85	82	77	79	81	81
Water Supply/Reservoir Information	83	82	84	83	83	86	74	91	76
Clarity	87	81	81	80	83	84	78	89	73
Conciseness	84	84	81	80	82	84	78	89	73
Timeliness	80	85	82	82	82	86	71	89	76
Accuracy	91	87	87	85	84	87	74	89	78
Organization of information	73	83	84	83	84	86	77	89	78
Meets my needs	82	81	84	82	82	86	76	100	79
Drought Information	83	79	81	83	82	82	83	83	82
Clarity	84	80	82	83	81	84	83	89	83
Conciseness	82	79	76	82	84	84	83	89	83
Timeliness	78	79	80	80	82	84	82	89	81
Accuracy	91	87	80	84	82	87	83	89	84
Organization of information	76	76	81	85	82	87	82	78	83
Meets my needs	81	84	81	81	83	83	83	78	86
Routine River Forecasts/Information	76	75	79	86	82	82	77	61	81
Clarity	81	76	78	86	83	84	79	64	81
Conciseness	70	80	79	86	82	84	80	67	82
Timeliness	71	83	78	86	81	86	76	54	86
Accuracy	86	70	81	86	80	78	76	81	86
Organization of information	78	73	78	85	84	82	75	65	75
Meets my needs	79	77	79	84	82	81	78	54	82
Recreation Information	0	83	78	83	79	77	80	78	89
Clarity	0	83	79	83	79	80	80	78	86
Conciseness	0	83	75	87	78	80	80	78	83
Timeliness	0	83	83	81	81	76	84	89	86
Accuracy	0	83	78	83	77	74	78	72	89
Organization of information	0	83	76	84	79	78	83	72	94
Meets my needs	0	83	79	83	80	76	78	69	97
Precipitation Information	73	76	78	83	82	83	81	78	80
Clarity	72	78	78	85	84	86	83	74	81
Conciseness	74	78	77	84	82	87	80	76	83
Timeliness	73	78	80	84	82	84	81	81	82
Accuracy	77	73	75	80	78	80	76	77	76
Organization of information	69	72	78	83	83	85	82	82	77
Meets my needs	72	76	76	82	82	82	80	81	81
Customer Satisfaction Index	72	80	75	80	79	76	77	73	81
Overall satisfaction with the NWS Hydrologic Services Program	78	86	81	84	83	82	81	77	86
How well NWS Hydrologic Services Program meets your expectations	70	75	71	76	76	73	74	68	76
How NWS Hydrologic Services Program compares to an 'ideal' hydrologic services program	68	78	72	76	76	76	74	70	78
Contact NWS	43	36	61	43	52	50	24	18	35
Contacted the national Weather Service to report a problem or make a suggestion	61	36	24	43	52	50	24	18	35
Contact NWS Responsiveness	69	73	77	83	87	81	73	56	76
Responsiveness of the NWS personnel to your problem or suggestion	69	73	77	83	87	81	73	56	76
Likelihood to Take Action	91	88	90	92	89	87	86	80	89
Likelihood to take action based on the hydrologic information you receive from the NWS	91	88	90	92	89	87	86	80	89
Confidence in NWS	87	85	85	87	87	84	84	81	86
How confident are you that the NWS Hydrologic Services Program will do a good job of providing you with the information you need?	87	85	85	87	87	84	84	81	86



Score Summaries - by Emergency Managers by Primary Scope of Responsibility continued

	Emergency Manager National	Emergency Manager Regional	Emergency Manager Single State	Emergency Manager Multiple Counties	Emergency Manager Single County	Emergency Manager Large City	Emergency Manager Smaller city	Emergency Manager Personal	Emergency Manager Other
NWS Demographics									
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?	100%	100%	100%	100%	100%	100%	100%	100%	100%
Emergency management	0%	0%	0%	0%	0%	0%	0%	0%	0%
Traditional media	0%	0%	0%	0%	0%	0%	0%	0%	0%
Internet/Web	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water supply/hydropower	0%	0%	0%	0%	0%	0%	0%	0%	0%
Agriculture	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shipping	0%	0%	0%	0%	0%	0%	0%	0%	0%
Natural resource management	0%	0%	0%	0%	0%	0%	0%	0%	0%
Consulting/advise/provide custom hydrologic services	0%	0%	0%	0%	0%	0%	0%	0%	0%
Education	0%	0%	0%	0%	0%	0%	0%	0%	0%
Recreation	0%	0%	0%	0%	0%	0%	0%	0%	0%
Personal use	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%
What is the primary scope of your responsibility?									
National	100%	0%	0%	0%	0%	0%	0%	0%	0%
Regional	0%	100%	0%	0%	0%	0%	0%	0%	0%
Single state	0%	0%	100%	0%	0%	0%	0%	0%	0%
All or parts of multiple counties	0%	0%	0%	100%	0%	0%	0%	0%	0%
Single county	0%	0%	0%	0%	100%	0%	0%	0%	0%
Large city/urban area	0%	0%	0%	0%	0%	100%	0%	0%	0%
Smaller city/township	0%	0%	0%	0%	0%	0%	100%	0%	0%
Personal	0%	0%	0%	0%	0%	0%	0%	100%	0%
Other	0%	0%	0%	0%	0%	0%	0%	0%	100%
Which of the following types of hydrologic information do you obtain from the NWS?									
Flood information	93%	96%	100%	100%	98%	97%	97%	76%	90%
Water supply/reservoir information	36%	28%	50%	31%	26%	22%	20%	6%	35%
Drought information	36%	44%	56%	57%	57%	53%	48%	6%	35%
Routine river forecasts/information	50%	76%	78%	76%	68%	58%	53%	47%	65%
Recreation information	0%	8%	17%	18%	12%	12%	12%	20%	20%
Precipitation information	94%	80%	98%	94%	91%	94%	87%	85%	85%
Other information	21%	16%	13%	4%	1%	14%	3%	18%	20%
By what means do you receive text-based NWS hydrology products (e.g.) flood warnings?									
NWS Web pages	86%	88%	96%	94%	86%	92%	94%	100%	85%
Non-NWS Web pages	21%	44%	35%	18%	23%	42%	25%	12%	25%
Phone	14%	32%	31%	35%	42%	31%	16%	6%	25%
NOAA Weather Radio	36%	44%	48%	76%	73%	61%	70%	6%	65%
NOAA Weather Wire	0%	0%	19%	0%	1%	8%	9%	0%	5%
Family of Services (FOS)	0%	4%	7%	0%	1%	0%	0%	0%	0%
Emergency Managers Weather Information Network (EMWIN)	57%	20%	37%	35%	45%	50%	36%	0%	35%
Local or cable TV	50%	56%	58%	65%	65%	64%	61%	53%	65%
Commercial Radio	29%	36%	39%	45%	41%	36%	33%	29%	40%
Private Vendor	7%	16%	13%	14%	20%	14%	13%	0%	15%
Other	21%	0%	19%	18%	17%	36%	12%	0%	15%
Are you familiar with the way these terms (minor, moderate, major flooding) are used by the NWS in their flood warnings?									
Yes	100%	83%	92%	90%	97%	92%	96%	94%	100%
No	0%	17%	8%	10%	3%	8%	4%	6%	0%
Do you now use or do you plan to use automated processing of hydrologic information?									
Yes	57%	56%	59%	51%	59%	67%	48%	18%	40%
No	43%	44%	41%	49%	41%	33%	52%	82%	60%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?									
Yes	54%	60%	57%	57%	70%	54%	60%	65%	55%
No	46%	40%	43%	43%	30%	46%	40%	35%	45%
In what format(s) would you like to receive quantitative precipitation information?									
Graphical	86%	88%	94%	98%	91%	97%	93%	100%	95%
A gridded array	7%	32%	15%	24%	17%	19%	15%	10%	6%
In a GIS-compatible format	57%	26%	54%	46%	56%	75%	44%	8%	30%
XIUL	14%	12%	11%	16%	15%	33%	9%	18%	10%
Other	7%	4%	4%	2%	1%	6%	3%	0%	0%
Uses national analysis of the amount of water in the snow pack?									
Yes	23%	43%	36%	23%	34%	26%	30%	35%	25%
No	77%	57%	64%	77%	66%	74%	70%	65%	75%
In what format(s) would you like to receive snow water equivalent information?									
Graphical	86%	84%	87%	88%	87%	79%	88%	88%	85%
A gridded array	7%	24%	7%	16%	15%	12%	7%	5%	0%
In a GIS-compatible format	64%	32%	43%	37%	48%	61%	33%	0%	25%
XIUL	14%	12%	9%	14%	17%	17%	9%	12%	10%
Other	7%	0%	4%	4%	3%	6%	4%	6%	0%



Score Summaries - by Emergency Managers by Primary Scope of Responsibility

	Emergency Manager National	Emergency Manager Regional	Emergency Manager Single State	Emergency Manager Multiple Counties	Emergency Manager Single County	Emergency Manager Large City	Emergency Manager Smaller city	Emergency Manager Personal	Emergency Manager Other
NWS Scores for Graphics									
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS.									
Text	63	76	73	78	81	79	80	80	74
Graphics	63	71	79	79	78	81	79	80	74
Combination of text and graphics	70	83	84	82	86	80	87	83	86
NWS Weather Radio	76	73	72	82	81	80	84	84	79
Please rate the following formats of receiving river forecasts from the NWS.									
Text	74	76	76	77	78	79	77	69	73
Graphics	74	84	80	78	78	79	77	71	73
Combination of text and graphics	73	85	83	83	83	87	85	78	89
NWS Weather Radio	79	70	79	73	77	77	79	73	77
Please rate the following formats of receiving river/stream observations from the NWS.									
Text	72	74	72	74	78	80	78	67	74
Graphics	74	72	84	78	77	74	78	92	78
Combination of text and graphics	74	82	81	83	82	84	84	78	87
NWS Weather Radio	70	68	65	71	77	73	76	92	79
Please rate the usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flooding.									
Graphical Flood Severity Map	78	76	82	80	86	79	85	83	84
Visual appeal	70	84	78	84	83	81	82	70	81
Ease of understanding	81	86	78	88	83	79	82	70	85
Tells me what I need to know about flood severity	80	80	79	88	84	77	85	84	87
Additional Action Modes									
Using a graphical Web-based interface (e.g., menu) to select information for download	73	81	86	89	86	85	83	83	90
On-site base	66	66	76	85	76	76	78	81	68
Website downloading of information	79	73	71	73	73	69	64	78	51
Print Formats									
XML	63	79	71	77	73	66	74	83	81
In a GIS compatible format	79	88	86	86	87	91	82	78	81
River Conditions Map(5 categories)									
Visual appeal	83	70	75	80	80	77	80	78	77
Ease of understanding	87	80	82	83	82	75	82	81	82
Tells me what I need to know about river conditions	80	75	75	84	79	74	80	82	80
River Conditions Map(3 categories)									
Visual appeal	83	83	75	83	81	76	80	81	79
Ease of understanding	80	81	81	84	82	78	81	81	82
Tells me what I need to know about river conditions	77	75	75	82	79	75	79	81	82
Area of Interest Map									
Visual appeal	90	85	83	88	87	83	85	85	85
Ease of understanding	92	86	82	88	86	83	86	86	87
Tells me what I need to know about river conditions	91	84	80	87	85	83	87	86	86
Hydrograph without Average Level									
Visual appeal	74	82	78	82	79	77	75	79	79
Ease of understanding	83	85	77	81	78	77	78	83	83
Tells me what I need to know about river conditions	88	85	79	84	79	77	74	77	82
Hydrograph with Average Level									
Visual appeal	70	80	75	80	78	75	74	74	77
Ease of understanding	85	85	74	80	77	75	74	75	81
Tells me what I need to know about river conditions	79	85	74	84	78	75	74	77	78
National Precipitation Analysis Map									
Visual appeal	86	81	81	87	84	82	80	83	82
Ease of understanding	85	83	75	85	83	80	80	86	81
Tells me what I need to know about national precipitation	80	79	76	85	82	77	79	87	83
Water in the Snow Pack Map									
Visual appeal	86	78	78	85	81	77	78	84	75
Ease of understanding	77	78	74	81	78	73	75	75	71
Tells me what I need to know about snow pack water amounts	77	79	72	81	77	74	74	83	76
Uncertainty and Probability									
How useful would it be to have forecasts include uncertainty information	91	87	83	88	85	85	82	80	88
How useful would it be to have forecasts include probability information	83	79	81	78	73	73	75	76	75
Usefulness of providing information regarding uncertainty of river forecasts for short-term flow	85	82	79	81	83	80	81	87	84
Usefulness of providing information regarding uncertainty of river forecasts for long-term flow	83	78	74	81	77	73	75	83	80
River Stages during a 90 day Forecast Period Graph									
Visual appeal	75	69	64	70	73	66	70	77	69
Ease of understanding	80	82	58	71	69	57	73	73	68
Tells me what I need to know about river stages	79	68	60	71	71	63	67	76	62



Score Summaries - by Emergency Managers by Primary Scope of Responsibility continued

	Emergency Manager National	Emergency Manager Regional	Emergency Manager Single State	Emergency Manager Multiple Counties	Emergency Manager Single County	Emergency Manager Large City	Emergency Manager Smaller city	Emergency Manager Personal	Emergency Manager Other
NWS Scores for Graphics									
River Stage during any Given Week over the next 90 days Graph	74	69	70	70	75	70	70	78	72
Visual appeal	72	90	63	68	73	64	67	73	76
Ease of understanding	73	72	63	69	73	64	67	73	68
Ease of what I need to know about a given river stage									
River Stage on a Daily Basis Graph									
Visual appeal	64	69	68	72	72	65	69	69	71
Ease of understanding	69	70	65	72	70	61	66	67	69
Ease of what I need to know about a river stage	67	71	70	73	72	60	66	69	70
100 Year Water Level									
How useful would it be to include the 100-year water level to characterize flooding in NWS pl	69	81	72	75	75	74	73	72	80



Demographic Detail / Scores for Graphics



Demographics

	%
Sample Size	2352
What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent?	
Emergency management	27%
Traditional media	5%
Internet/Web	4%
Water supply/hydropower	2%
Agriculture	2%
Shipping	1%
Natural resource management	2%
Consulting/add value/provide custom hydrologic services	1%
Education	3%
Recreation	6%
Personal use	40%
Other	8%
What is the primary scope of your responsibility?	
National	2%
Regional	8%
Single state	6%
All or parts of multiple counties	7%
Single county	17%
Large city/urban area	2%
Smaller city/township	6%
Personal	47%
Other	4%
Which of the following types of hydrologic information do you obtain from the NWS?	
Flood information	87%
Water supply/reservoir information	23%
Drought information	41%
Routine river forecasts/information	51%
Recreation information	30%
Precipitation information	86%
Other information	13%
By what means do you receive text-based NWS hydrology products (e.g.) flood warnings?	
NWS Web pages	92%
Non-NWS Web pages	23%
Phone	14%
NOAA Weather Radio	53%
NOAA Weather Wire	6%
Family of Services (FOS)	2%
Emergency Managers Weather Information Network (EMWIN)	16%
Local or cable TV	59%
Commercial Radio	36%
Private Vendor	8%
Other	10%
Are you familiar with the way these terms(minor, moderate, major flooding) are used by the NWS in their flood warnings?	
Yes	90%
No	10%
Do you now use or do you plan to use automated processing of hydrologic information?	
Yes	46%
No	54%
Currently use the combined NWS rain gauge and radar data within the national precipitation analysis?	
Yes	58%
No	42%
In what format(s) would you like to receive quantitative precipitation information?	
Graphical	92%
A gridded array	18%
In a GIS-compatible format	29%
XML	15%
Other	4%
Uses national analysis of the amount of water in the snow pack?	
Yes	31%
No	69%
In what format(s) would you like to receive snow water equivalent information?	
Graphical	85%
A gridded array	14%
In a GIS-compatible format	24%
XML	13%
Other	4%



Graphics/Format

	Scores (0-100 Scale)
Please rate the following formats of receiving flash flood/flood warnings and watches from the NWS.	
Text	77
Graphics	78
A combination of text and graphics	86
NOAA Weather Radio	79
Please rate the following formats of receiving river forecasts from the NWS.	
Text	76
Graphics	77
A combination of text and graphics	84
NOAA Weather Radio	75
Please rate the following formats of receiving river/stream observations from the NWS.	
Text	75
Graphics	77
A combination of text and graphics	83
NOAA Weather Radio	74
The usefulness of these flood severity categories (minor, moderate, major flooding) in interpreting the impact of river flooding.	
The usefulness of these flood severity categories in interpreting the impact of river flooding.	83
Graphical Flood Severity Graphic	
Visual appeal <i>n=2252</i>	78
Ease of understanding <i>n=2255</i>	81
Tells me what I need to know about flood severity <i>n=2249</i>	83
Additional Access Modes	
Using a graphical Web-based interface (e.g., menu) to select information for download	85
Query a data base	80
Wholesale downloading of information	67
Data Formats	
XML	75
In a GIS compatible format	81
River Conditions Graphic (5 categories)	
Visual appeal <i>n=2288</i>	79
Ease of understanding <i>n=2283</i>	81
Tells me what I need to know about river conditions <i>n=2266</i>	80
River Conditions Graphic (3 categories)	
Visual appeal <i>n=2260</i>	79
Ease of understanding <i>n=2256</i>	81
Tells me what I need to know about river conditions <i>n=2244</i>	78
Area of Interest Graphic	
Visual appeal <i>n=2295</i>	86
Ease of understanding <i>n=2291</i>	86
Tells me what I need to know about river conditions <i>n=2292</i>	86
Hydrograph without Average Level Graphic	
Visual appeal <i>n=2274</i>	77
Ease of understanding <i>n=2271</i>	77
Tells me what I need to know about river conditions <i>n=2248</i>	79
Hydrograph with Average Level Graphic	
Visual appeal <i>n=2252</i>	76
Ease of understanding <i>n=2263</i>	77
Tells me what I need to know about river conditions <i>n=2242</i>	78
National Precipitation Analysis Graphic	
Visual appeal <i>n=2247</i>	84
Ease of understanding <i>n=2234</i>	83
Tells me what I need to know about national precipitation <i>n=2211</i>	83
Water in the Snow Pack Graphic	
Visual appeal <i>n=2030</i>	80
Ease of understanding <i>n=2019</i>	78
Tells me what I need to know about snow pack water amounts <i>n=1933</i>	78
Uncertainty and Probability	
How useful would it be to have forecasts include uncertainty information <i>n=2168</i>	84
How useful would it be to have forecasts include probability information <i>n=2186</i>	77
Usefulness of providing information regarding uncertainty of river forecasts for short-term flooding <i>n=2156</i>	82
Usefulness of providing information regarding uncertainty of river forecasts for long-term water supply <i>n=2077</i>	76
River Stages during a 90 day Forecast Period Graphic	
Visual appeal <i>n=2105</i>	69
Ease of understanding <i>n=2102</i>	65
Tells me what I need to know about river stages <i>n=2047</i>	69
River Stage during any Given Week over the next 90 days Graphic	
Visual appeal <i>n=2118</i>	71
Ease of understanding <i>n=2111</i>	69
Tells me what I need to know about a given river stage <i>n=2081</i>	71
River Stage on a Daily Basis Graph	
Visual appeal <i>n=2125</i>	69
Ease of understanding <i>n=2122</i>	68
Tells me what I need to know about a river stage <i>n=2081</i>	71
100 Year Water Level	
How useful would it be to include the 100-year water level to characterize flooding in NWS products <i>n=2129</i>	72



Questionnaire



Questionnaire – English

NWS Hydrologic Services Program Survey

Note: All questions are optional and each page will have the following footer, “Questions or problems with the survey? Email NWSsurvey@mail.cfigroup.com”

The National Weather Service (NWS) issues hazardous weather and flood watches, warnings, and advisories for the protection of life and property. It is also charged with providing information to enhance the national economy. The NWS Hydrologic Services Program focuses on providing forecasts, watches and warnings for river and flash flooding.

This survey is part of an ongoing effort to assess the overall satisfaction of NWS users and to garner feedback necessary to improve services. This survey focuses specifically on the NWS Hydrologic Services Program.

Your answers are voluntary, but your opinions are very important to us. Your responses will be held completely confidential, and you will never be identified by name. CFI Group, a third party research and consulting firm, is administering this survey via a secure server. This interview will take about 15 minutes, and is authorized by Office of Management and Budget Control No. 1505-0191.

Please click on the "Next" button below to begin the survey. You may click the "Back" button at any time to view a prior page.

I. Demographic Questions

The following questions are intended to help us better understand your responses by allowing us to classify responses by geographic area and by type of users. As with the entire survey, your responses are completely voluntary and confidential.

- 1) What is your postal zip code?
- 2) What is your primary use of hydrologic information provided by the NWS or what commercial sector do you represent? (please select only one)
 - a. Emergency management
 - b. “Traditional” media (radio, TV, print)
 - c. Internet/Web
 - d. Water supply/hydropower
 - e. Agriculture
 - f. Shipping (e.g., barge)
 - g. Natural resource management
 - h. Consulting/add value/provide custom hydrologic services
 - i. Education
 - j. Recreation
 - k. Personal use
 - l. Other (please specify)
- 3) What is the primary scope of your responsibility? (select one)
 - a. National
 - b. Regional (all or parts of multiple states)
 - c. Single state
 - d. All or parts of multiple counties
 - e. Single county
 - f. Large city/urban area (population greater than 100,000)
 - g. Smaller city/township (population less than 100,000)
 - h. Personal
 - i. Other (please specify)



Questionnaire – English continued

II. Current Hydrology Products

- 1) Which of the following types of hydrologic information do you obtain from the NWS?
(select all that apply)
- Flood information (watches, warnings and statements)
 - Water supply/reservoir information
 - Drought information
 - Routine river forecasts/information
 - Recreation information
 - Precipitation information (rain, snow)
 - Other information (please specify)

If 4=a:

- 5) Think about the **flood information** provided by the NWS (i.e., warnings, watches, outlooks and statements), on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of flood information on the following:
- Clarity
 - Conciseness
 - Timeliness
 - Accuracy
 - Organization of information
 - Meets my needs

If 4=b

- 6) Think about the **water supply/reservoir information** provided by the NWS, on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of the water supply/reservoir information on the following:
- Clarity
 - Conciseness
 - Timeliness
 - Accuracy
 - Organization of information
 - Meets my needs

If 4=c

- 7) Think about the **drought information** provided by the NWS, on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of the drought information on the following:
- Clarity
 - Conciseness
 - Timeliness
 - Accuracy
 - Organization of information
 - Meets my needs

If 4=d

- 8) Think about the **routine river forecasts/information** provided by the NWS, on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of the river forecasts/information on the following:
- Clarity
 - Conciseness
 - Timeliness
 - Accuracy
 - Organization of information
 - Meets my needs



Questionnaire – English continued

If 4=e

9) Think about the **recreation information** provided by the NWS, on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of the recreation information on the following:

- a. Clarity
- b. Conciseness
- c. Timeliness
- d. Accuracy
- e. Organization of information
- f. Meets my needs

If 4=f

10) Think about the **precipitation (rain, snow) information** provided by the NWS, on a 10 point scale, where 1 means poor and 10 means excellent, please rate the quality of the recreation information on the following:

- a. Clarity
- b. Conciseness
- c. Timeliness
- d. Accuracy
- e. Organization of information
- f. Meets my needs



Questionnaire – English continued

III. Customer Satisfaction Index

Now, please think about your overall satisfaction with the NWS Hydrologic Services Program.

11) First, please consider all of your experiences with the NWS Hydrologic Services Program. Using a 10 point scale on which 1 means very dissatisfied and 10 means very satisfied, how satisfied are you with the NWS Hydrologic Services Program?

12) Considering all of the expectations that we have discussed, to what extent has the NWS Hydrologic Services Program fallen short of, or exceeded your expectations? Using a 10 point scale on which 1 now means falls short of your expectations and 10 means exceeds your expectations, to what extent has the NWS Hydrologic Services Program fallen short of, or exceeded your expectations?

13) Forget the NWS Hydrologic Services Program for a moment. Now, imagine an ideal hydrologic services program. How well do you think the NWS Hydrologic Services Program compares with that ideal hydrologic services program you just imagined? Please use a 10 point scale on which 1 means not very close to the ideal, and 10 means very close to the ideal.



Questionnaire – English continued

IV. Desired Outcomes

14) Have you ever formally contacted the National Weather Service to report a problem or make a suggestion with regard to its hydrologic products and services?

- a. Yes
- b. No (**skip to Q16**)

15) On a 10 point scale where 1 means poor and 10 means excellent, please rate the responsiveness of the NWS personnel to your problem or suggestion.

16) Using a 10 point scale where 1 means not at all likely and 10 means very likely, how likely would you be to take action based on the hydrologic information you receive from the National Weather Service?

Using a 10 point scale, on which 1 means not at all confident and 10 means very confident, how confident are you that the NWS Hydrologic Services Program will do a good job of providing forecasts, watches and warnings in the future?



Questionnaire – English continued

V. Current Products Continued

18) By what means do you receive text-based NWS hydrology products (e.g. flood warnings)?
(Select all that apply)

- a. NWS Web pages
- b. Non-NWS Web pages
- c. Phone
- d. NOAA Weather Radio
- e. NOAA Weather Wire
- f. Family of Services (FOS)
- g. Emergency Managers Weather Information Network (EMWIN)
- h. Local or cable TV
- i. Commercial Radio
- j. Private Vendor
- k. Other (please specify)

The NWS is increasingly providing information in different formats. The following questions ask about how we can most effectively provide information in various categories.

19) Please rate the following formats of receiving **flash flood/flood warnings and watches** from the NWS, using a 10 point scale, where 1 is not very close to the ideal and 10 is very close to the ideal.

- a. Text
- b. Graphics
- c. A combination of text and graphics
- d. NOAA Weather Radio

20) Please rate the following formats of receiving **river forecasts** from the NWS, using a 10 point scale, where 1 is not very close to the ideal and 10 is very close to the ideal.

- a. Text
- b. Graphics
- c. A combination of text and graphics
- d. NOAA Weather Radio

21) Please rate the following formats of receiving **river/stream observations** from the NWS, using a 10 point scale, where 1 is not very close to the ideal and 10 is very close to the ideal.

- a. Text
- b. Graphics
- c. A combination of text and graphics
- d. NOAA Weather Radio



Questionnaire – English continued

VI. Flood Risk

The NWS characterizes flood severity to more effectively communicate the impact of flooding. It uses the following categories:

Minor Flooding - minimal or no property damage, but possibly some public threat or inconvenience.

Moderate Flooding - some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations are necessary.

Major Flooding - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

22) Are you familiar with the way these terms are used by the NWS in their flood warnings?

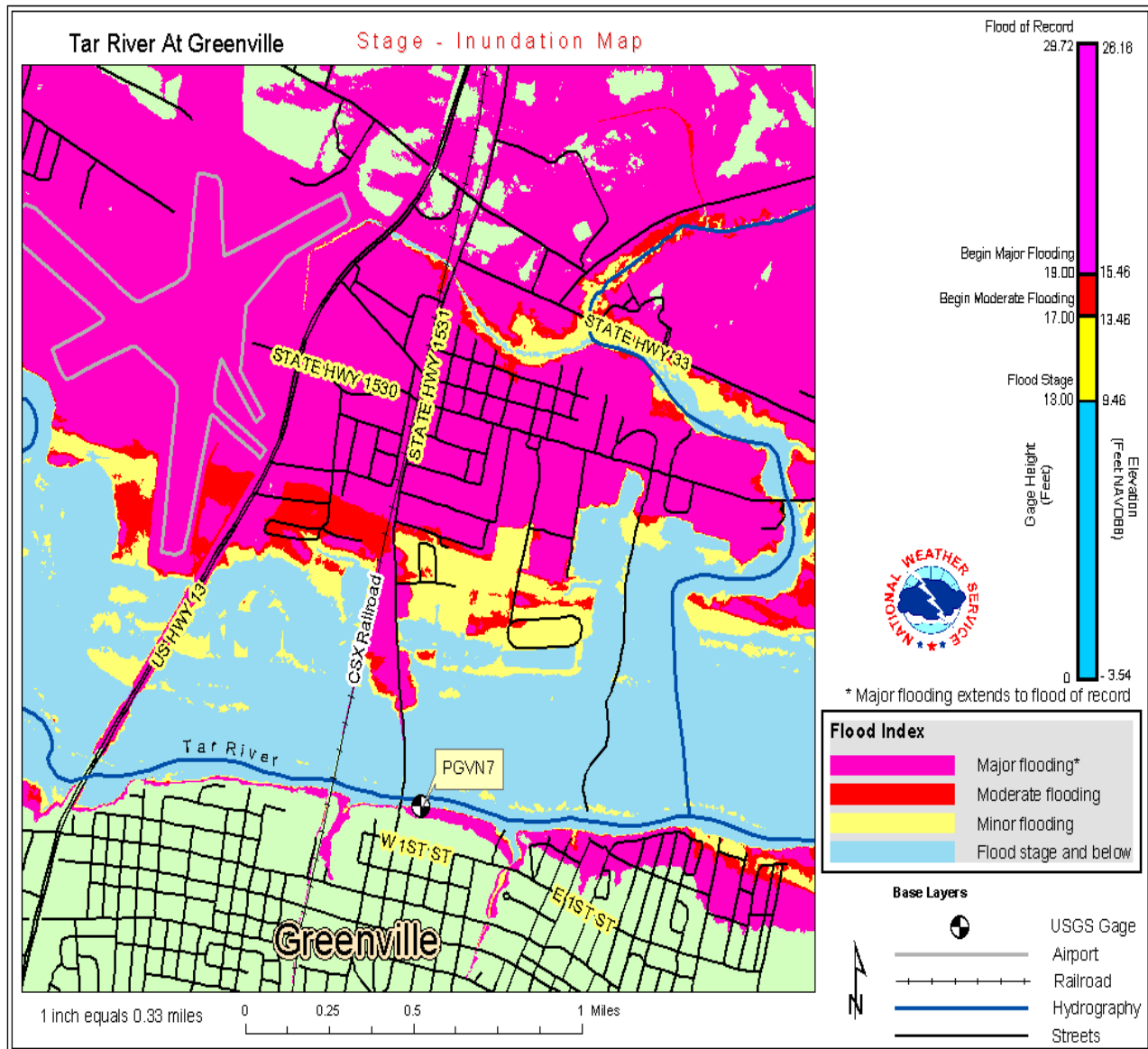
- a. Yes
- b. No

23) Using a 10 point scale where 1 means not at all useful and 10 means very useful, please rate the usefulness of these flood severity categories in interpreting the impact of river flooding.

24) If 5 or less to Q23, What could the NWS do to make these flood severity categories more useful? (open end)

Questionnaire – English continued

Recently, the NWS has combined the flood severity categories with terrain elevation information to portray the area impacted by each flood category in map form. An example is shown below.



25) Using a 10 point scale where 1 means poor and 10 means excellent, please rate the graphical flood severity map on the following:

- Visual appeal
- Ease of understanding
- Tells me what I need to know about flood severity



Questionnaire – English continued

VII. Additional Access Modes

The NWS is considering providing information using additional access modes and formats, focused primarily on making automated data processing more efficient.

26) Do you now use or do you plan to use automated processing of hydrologic information?

- a. Yes
- b. No (skip to Q30)

27) Please rate the following modes, using a 10 point scale, where 1 is not very close to the ideal and 10 is very close to the ideal.

- a. Using a graphical Web-based interface (e.g., menu) to select information for download
- b. Query a data base (i.e., direct access to specific information)
- c. Wholesale downloading of information (i.e., ftp)

28) Please rate the following data formats, using a 10 point scale, where 1 is not very close to ideal and 10 is very close to ideal.

- a. XML
- b. In a GIS compatible format

29) Please list any additional access modes and formats not already mentioned that you would like the NWS to consider to make automated data processing more efficient. (open end)

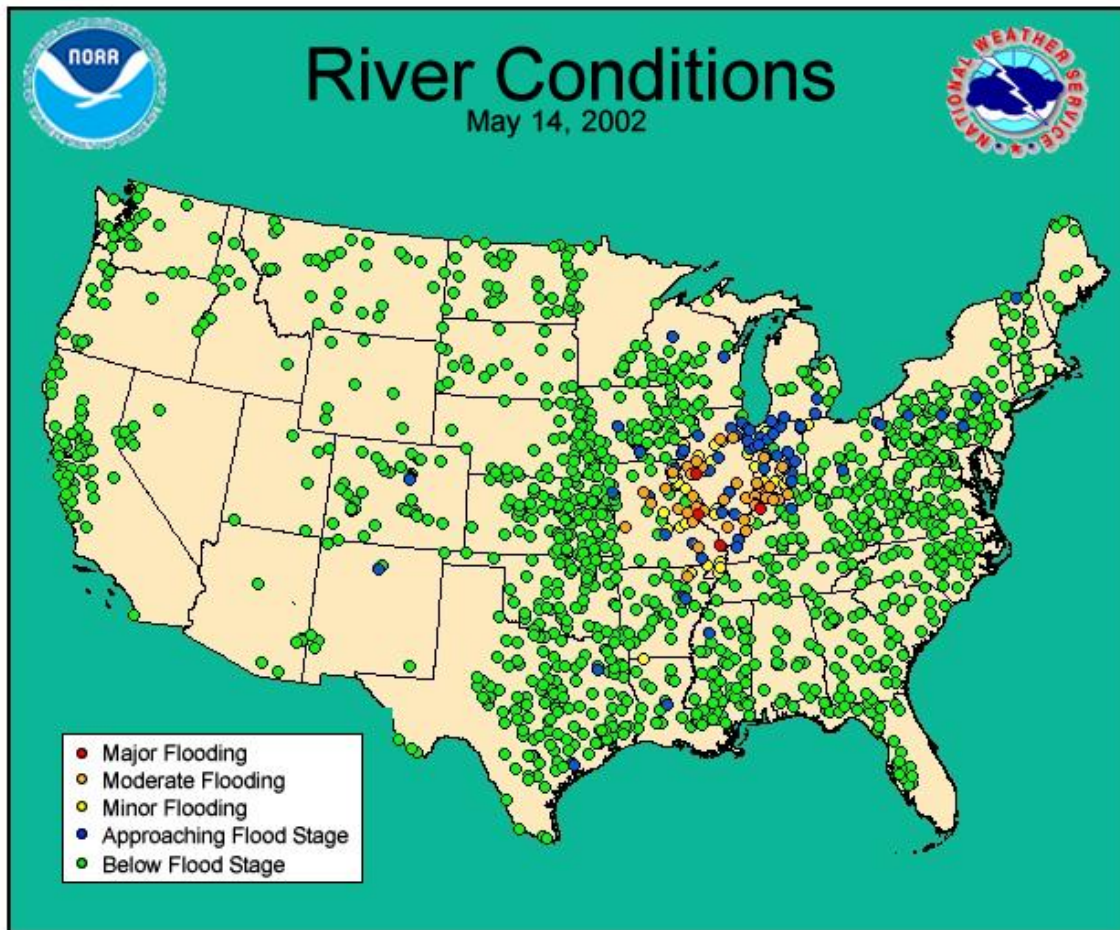
Questionnaire – English continued

VIII. Graphics

The National Weather Service has web sites that enable users to zoom in from a national map, to a regional level, to a point location along a river where detailed hydrologic information can be obtained. In order to provide our customers with the most useful graphics online, please answer the following questions. The next several questions, are based upon the graphics that either can be viewed from these web sites, or we are considering for future deployment.

30) The graphic below provides an overview of river conditions across the continental United States. Using a 10 point scale where 1 means poor and 10 means excellent, please rate the river conditions map on the following:

- Visual appeal
- Ease of understanding
- Tells me what I need to know about river conditions at a national level

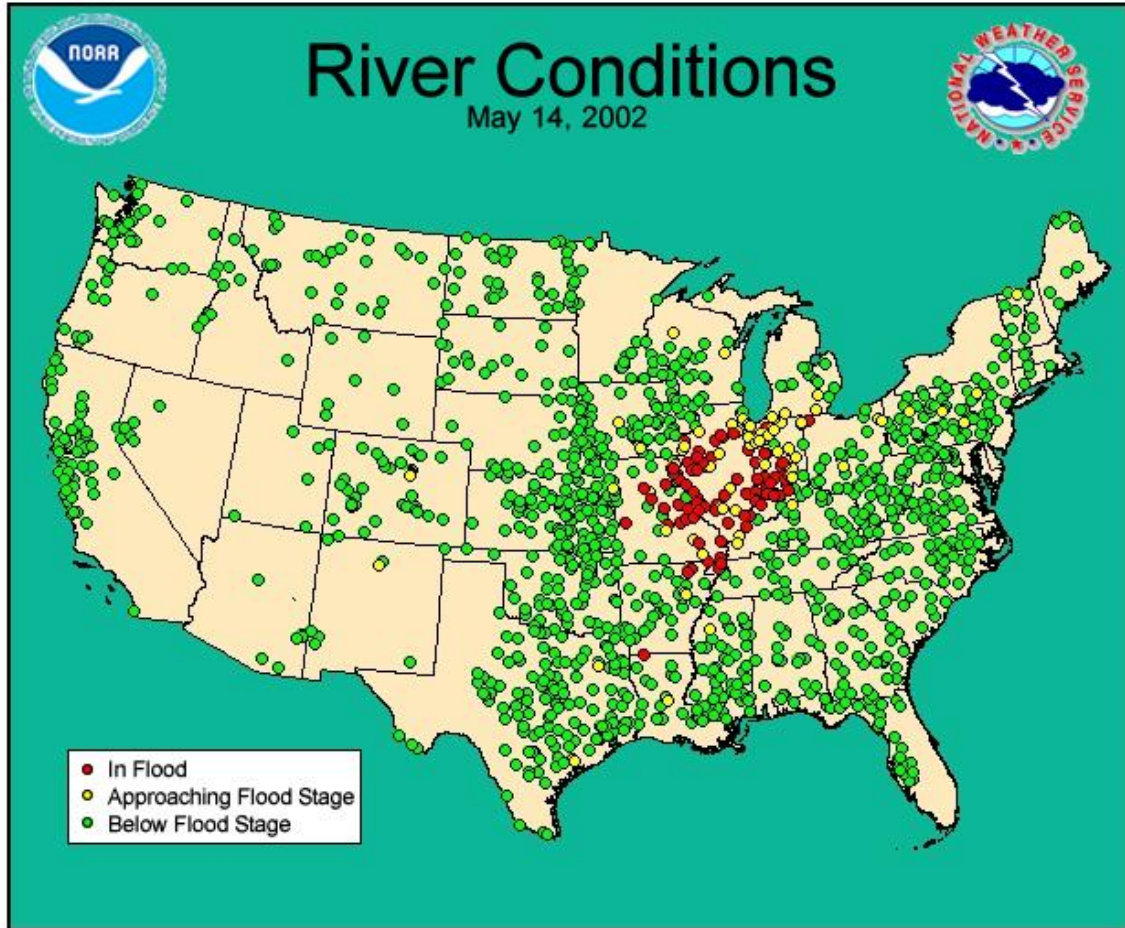


31) Below is the same map, depicting river conditions in a slightly different way. Using the same 10 point scale where 1 means poor and 10 means excellent, now please rate the river conditions map on the following:

- Visual appeal
- Ease of understanding
- Tells me what I need to know about river conditions at a national level

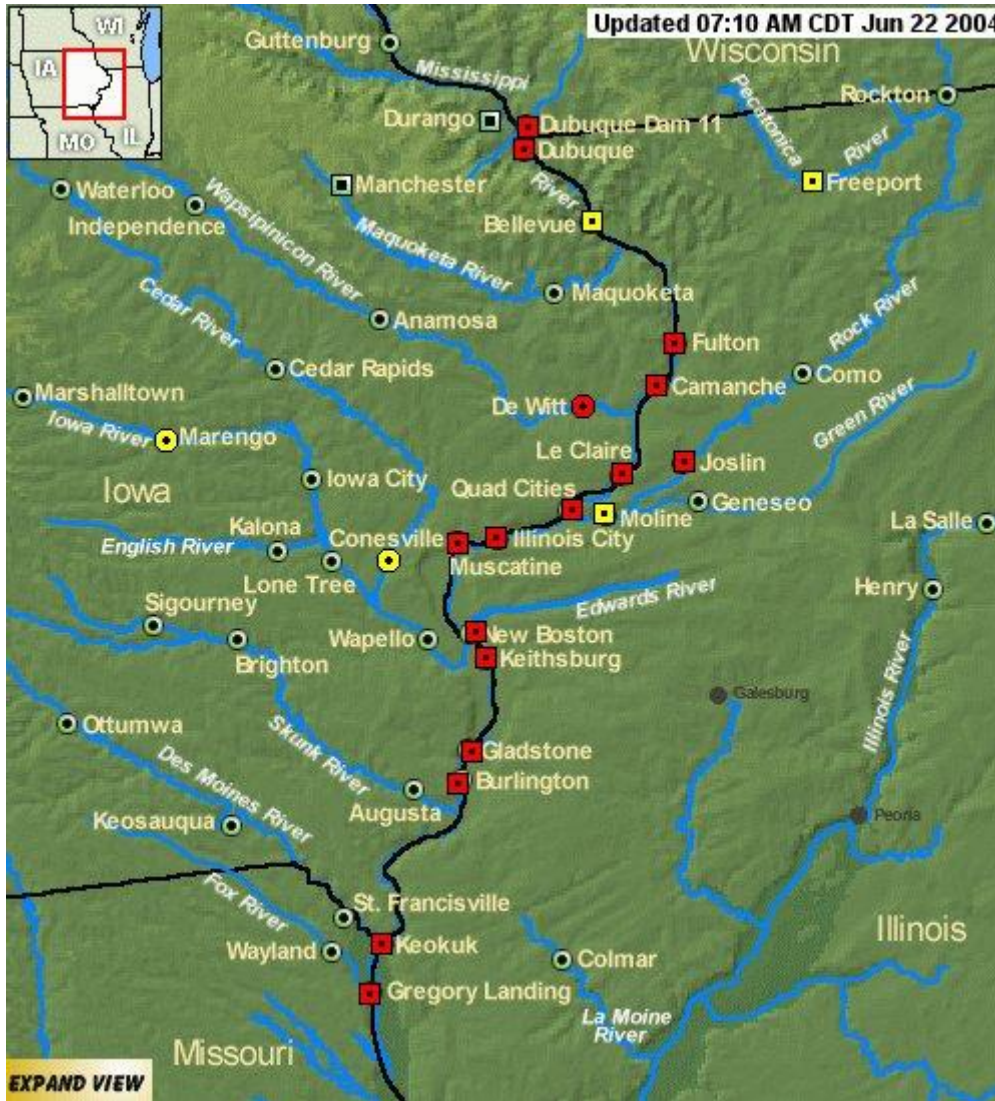


Questionnaire – English continued



Questionnaire – English continued

- 32) If the viewer uses his/her mouse to click on an area of interest on the national map, s/he is linked to a regional map as shown in the example below. Using a 10 point scale where 1 means poor and 10 means excellent, please rate this graphic on the following:
- Visual appeal
 - Ease of understanding
 - Tells me what I need to know about river conditions at a regional level



Map Legend

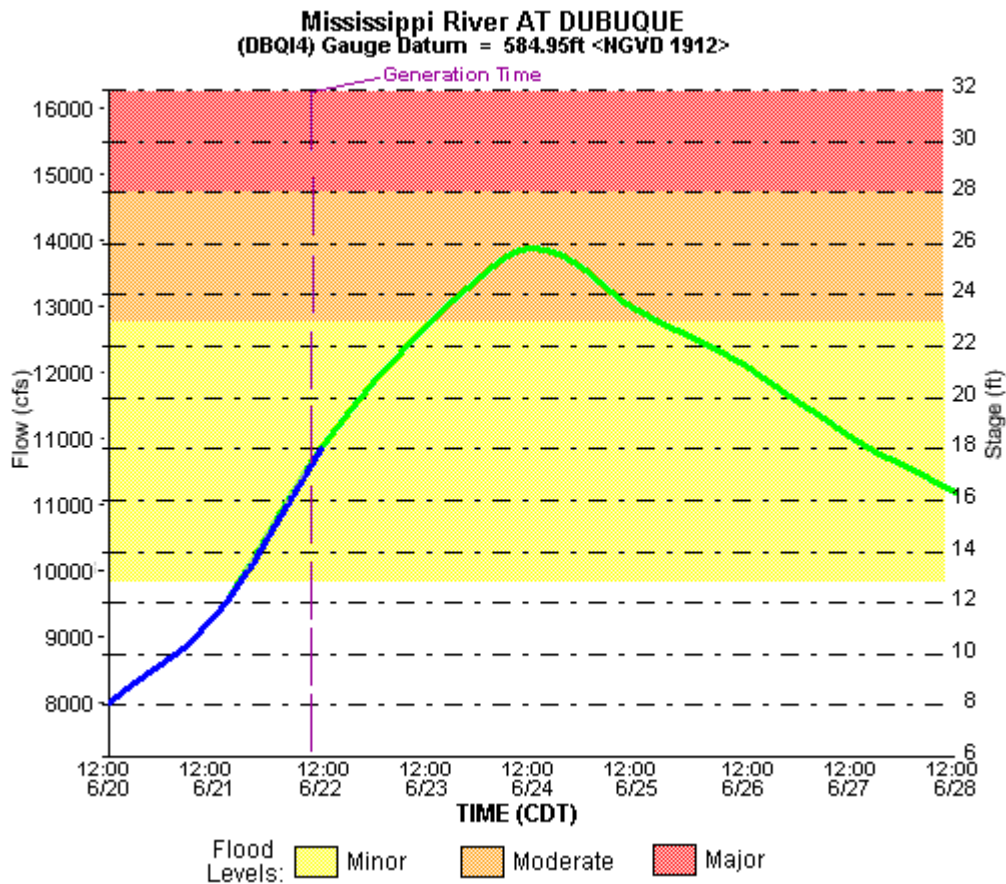
- | | |
|---|---|
| ● or ■ at or above Flood Stage | ■ A square indicates that hydrograph information is available |
| ○ or □ high water, below Flood Stage | ● A circle indicates that both probability and hydrograph information are available |
| ● or ■ below Flood Stage | |
| ○ or □ observation more than 12 hours old | |
| ○ or □ neighboring area point | |



Questionnaire – English continued

- 33) Following is a hydrograph, which shows degrees of flood severity. Using a 10 point scale where 1 means poor and 10 means excellent, now please rate the hydrograph on the following:
- Visual appeal
 - Ease of understanding
 - Tells me what I need to know about river conditions

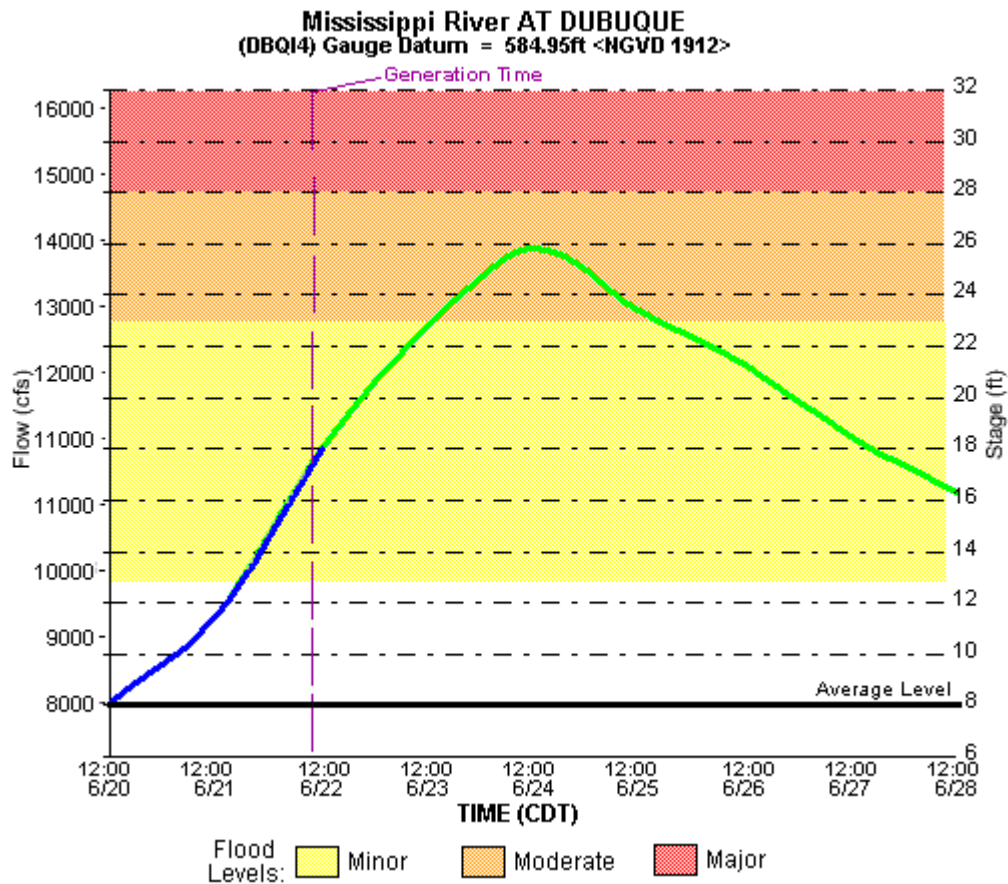
Mississippi River at Dubuque
Flood Stage: 17 Feet
Latest Stage: 18.14 Feet at 05:30 CDT 06/22



Questionnaire – English continued

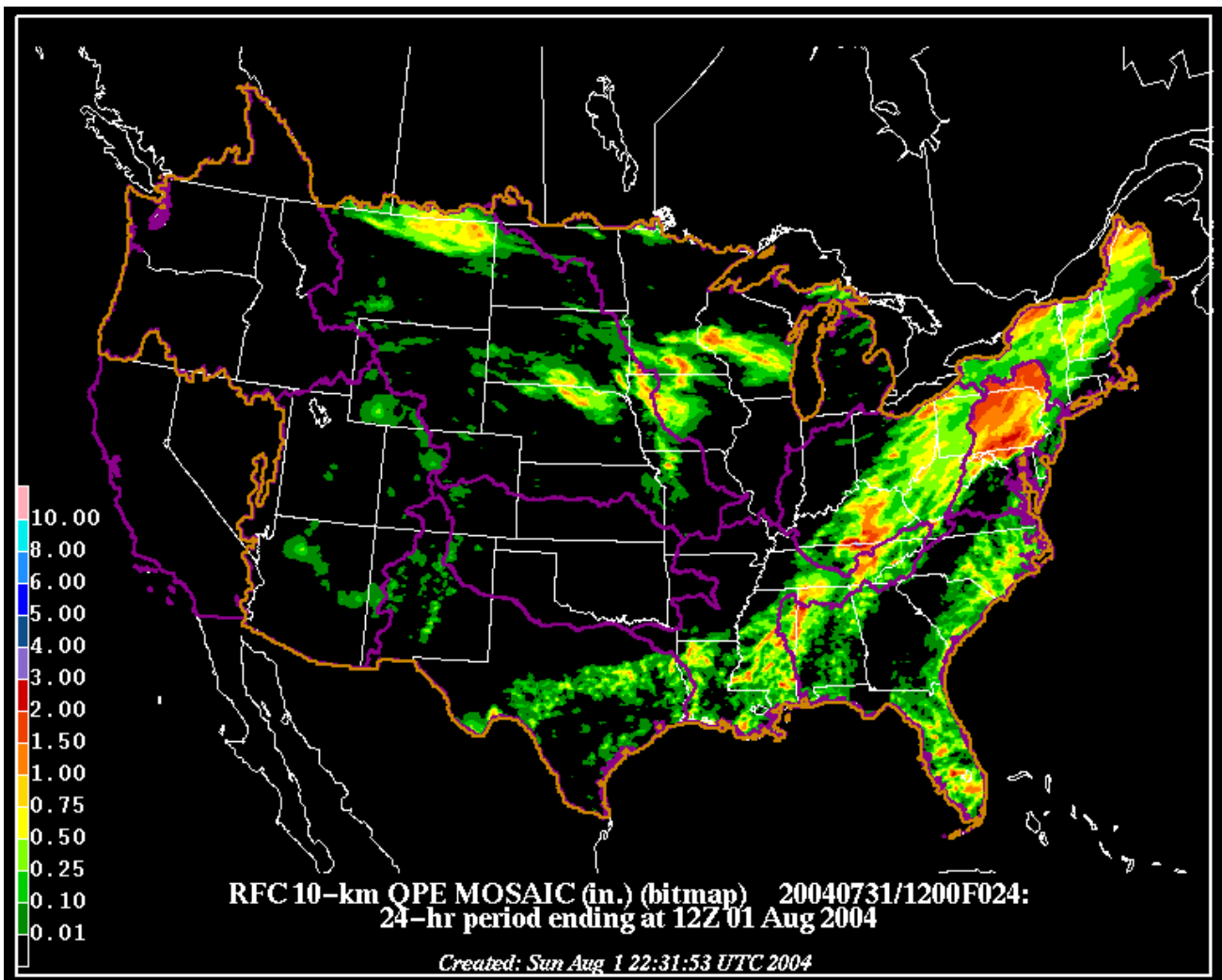
34). The hydrograph below also includes an indication of the average river level. Using a 10 point scale where 1 means poor and 10 means excellent, please rate this hydrograph on the following:

- Visual appeal
- Ease of understanding
- Tells me what I need to know about river conditions



Questionnaire – English continued

- 35) The NWS combines rain gauge and radar data to create a national precipitation analysis such as that shown below. Do you currently use this information?
- Yes
 - No



36) Using a 10 point scale where 1 is poor and 10 is excellent, please rate the graphic above depicting a national precipitation analysis using rain gauge and radar data on the following:

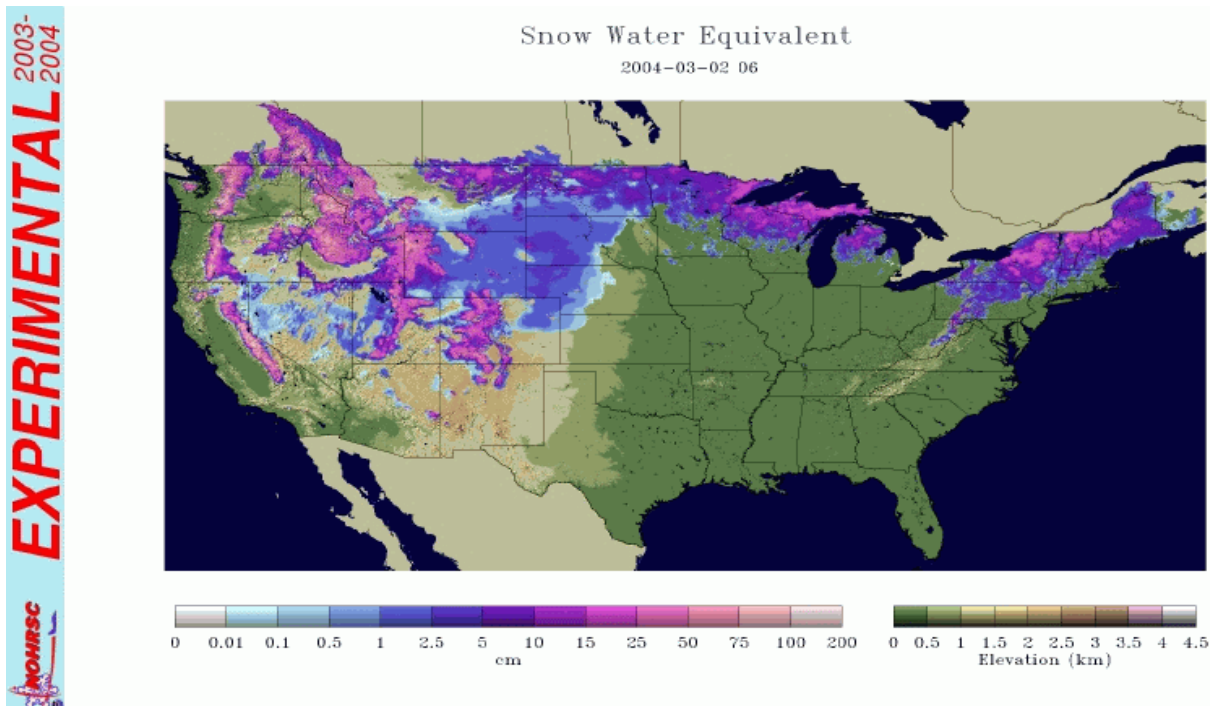
- Visual appeal
 - Ease of understanding
 - Tells me what I need to know about national precipitation
- 37) In what format(s) would you like to receive quantitative precipitation information? Select all that apply.
- Graphical (as a Web page)
 - A gridded array (i.e. using the GRIB format)
 - In a GIS-compatible format
 - XML
 - Other (please specify)

Questionnaire – English continued

38) Using a modeling system, the NWS combines observational snow information to provide a national analysis of the amount of water in the snow pack (i.e., snow water equivalent) – an example is shown below.

Do you currently use this information?

- a. Yes
- b. No



39) Using a 10 point scale where 1 means poor and 10 means excellent, please rate the graphic above that depicts a national analysis of the amount of water in the snow pack on the following:

- a. Visual appeal
- b. Ease of understanding
- c. Tells me what I need to know about snow pack water amounts

40) In what format(s) would you like to receive snow water equivalent information? Select all that apply.

- a. Graphical (as a Web page)
- b. A gridded array (i.e. using the GRIB format)
- c. In a GIS-compatible format
- d. XML
- e. Other (please specify)

Questionnaire – English continued

IX. Uncertainty and Probability

41) Forecasts of river levels involve a degree of uncertainty. To reflect this, forecasts can be provided as a range of possible values (e.g., the river will crest between 11 and 12 feet above flood stage). Using a 10 point scale where 1 means Not at all Useful and 10 means Very Useful, please rate how useful it would be to have forecasts include uncertainty information.

42) Uncertainty can also be expressed in terms of probabilities (i.e., there is a 70% chance the river will exceed flood stage by 11 feet). Using a 10 point scale where 1 means Not at all Useful and 10 means Very Useful, please rate how useful it would be to have forecasts include probability information.

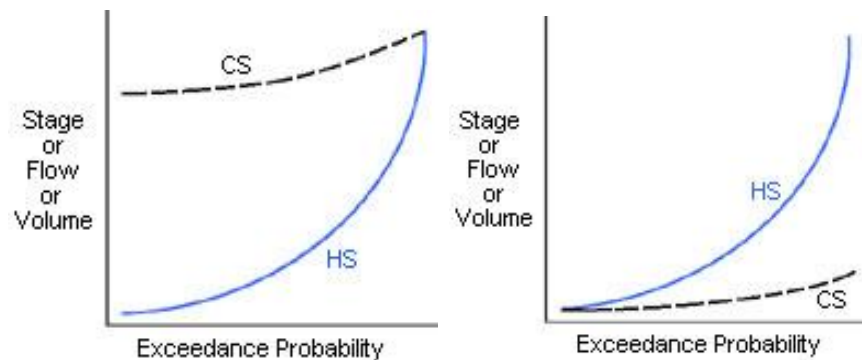
43) Forecast uncertainty typically increases with the length of the forecast (i.e., the uncertainty in short-term forecasts is usually less than for long-term forecasts). Using a 10 point scale where 1 means Not at all Useful and 10 means Very Useful, please rate the usefulness of providing information regarding uncertainty of river forecasts for the following time scales.

- a. Short-term flooding
- b. Long-term water supply

The following questions seek your assessment of the utility of several specific examples of how probabilistic forecasts can be depicted graphically.

The graphic following the next question shows chances of the river stage going above various levels during a 90-day period. The **conditional simulation (CS)** line indicates chances of the river going above given levels based on current conditions. The **historical simulation (HS)** line indicates the chances of the river going above given levels based on the total range of past levels. The gray, blue and red shading show the flood severity. These long-range forecasts allow you to see what computer simulations can tell us about extended periods.

Here are some possible scenarios to help you understand the graphic following the next question:



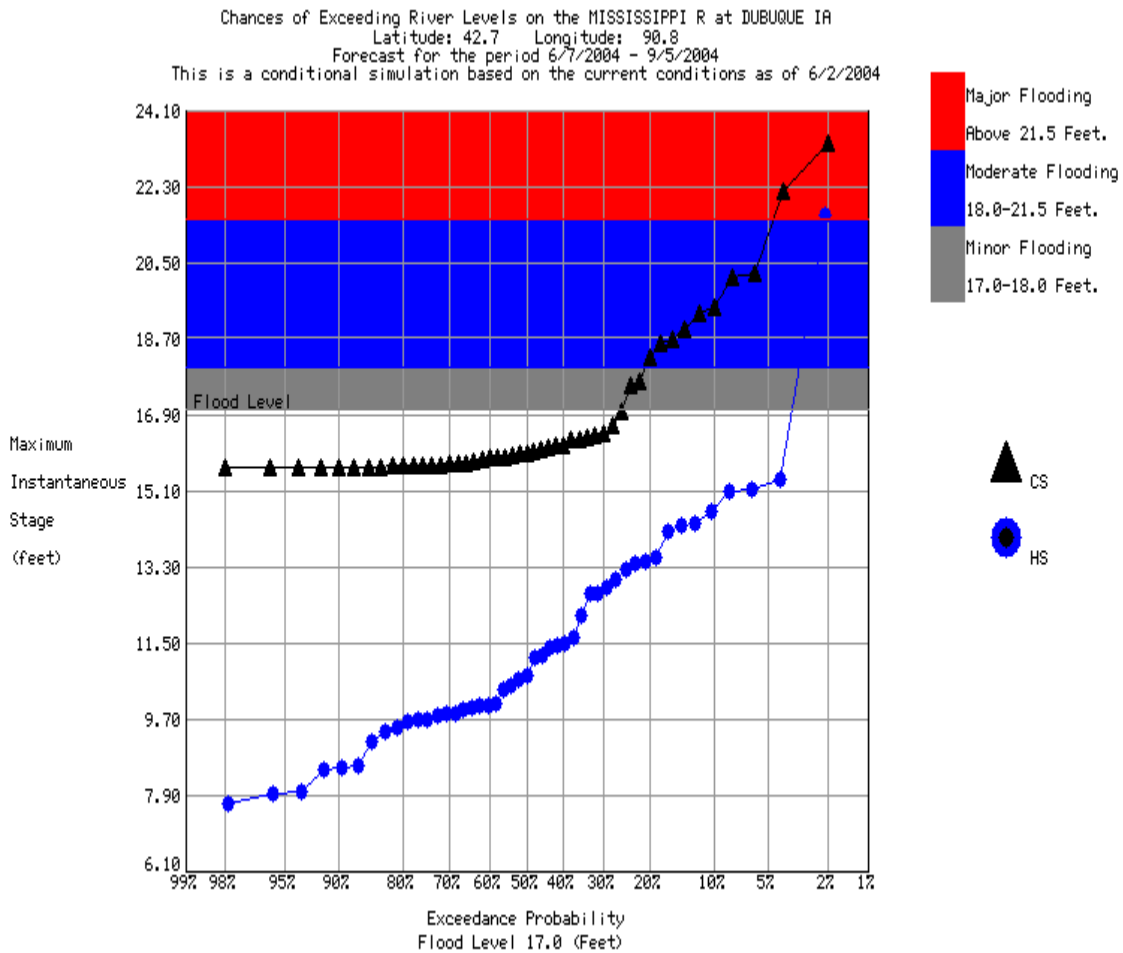
More wet than "normal" conditions over the forecast period. The chances are greater for wet conditions, as indicated by the **Conditional Simulation**, over the entire range of possible outcomes.

More dry than "normal" conditions over the forecast period. The chances are greater for dry conditions, as indicated by the **Conditional Simulation**, over the entire range of possible outcomes.

When the two simulations are very close across the entire range, the chances of the river going over a certain level are similar to the total range of past levels.

Questionnaire – English continued

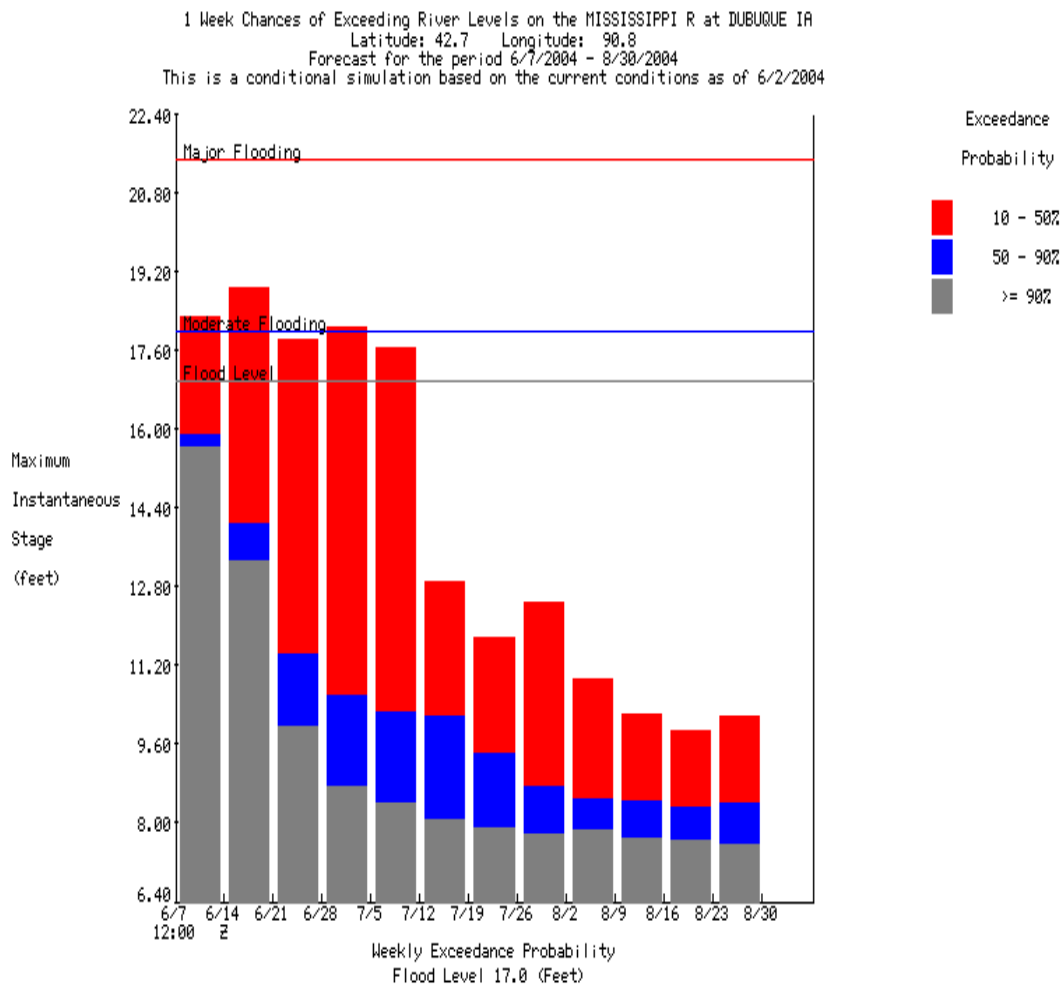
- 44) Now, using a 10 point scale where 1 means poor and 10 means excellent, please rate the graphic below that communicates the chance of exceeding a given river stage during the 90 day forecast period on the following:
- Visual appeal
 - Ease of understanding
 - Tells me what I need to know about river stages during a 90 day forecast period





Questionnaire – English continued

The graphic below shows the probability the maximum stage at a point on a river will exceed a particular value in a 90 day forecast. The vertical axis shows river stage measured in feet (ft) and the horizontal axis shows time. Each vertical bar represents the exceedance probabilities for a 7 day period. Color is used to indicate probability levels.



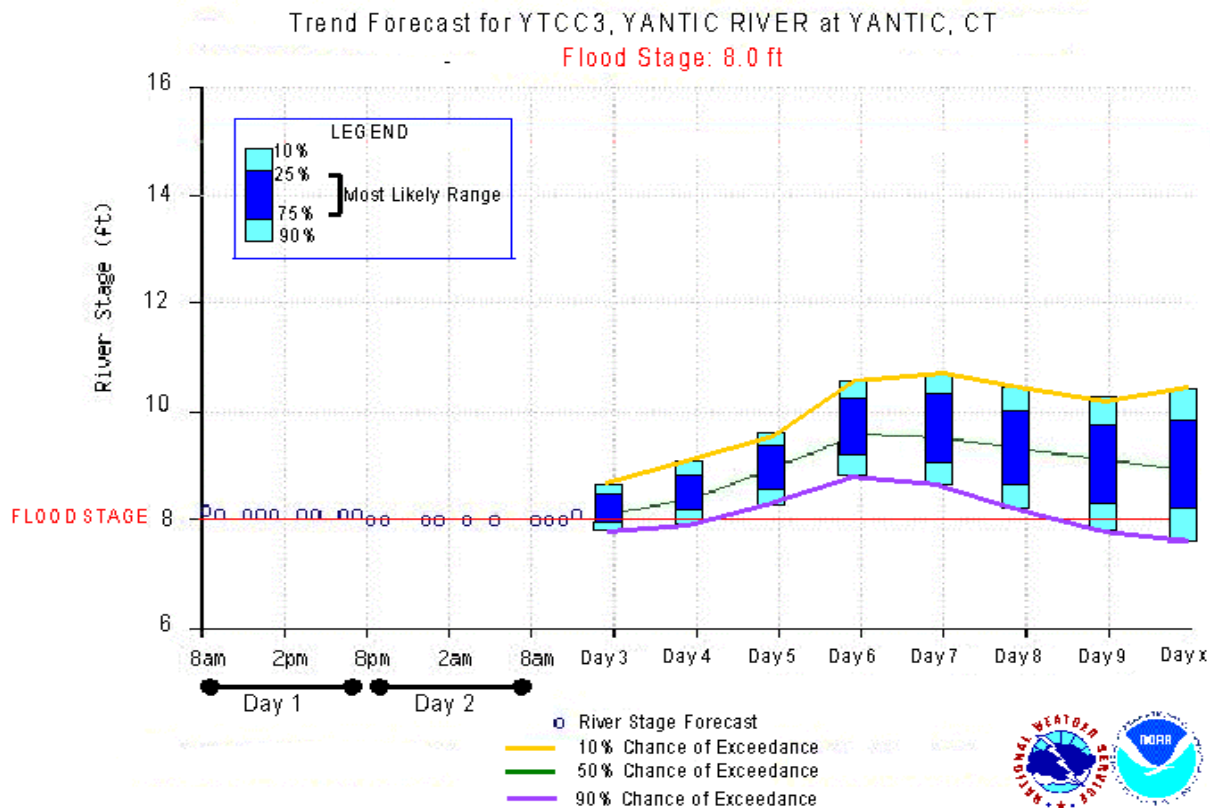
45) Using a 10 point scale where 1 means poor and 10 means excellent, please rate the graphic above that depicts the chance of exceeding a given river stage during any given week over the next 90 days on the following:

- Visual appeal
- Ease of understanding
- Tells me what I need to know about a given river stage during any given week over the next 90 days

The prior two graphics are used to convey long term probability information.

For shorter range river forecasts, the graphic below depicts an alternate means of conveying probability information.

Questionnaire – English continued



- 46) Using a 10 point scale where 1 means poor and 10 means excellent, please rate this graphic that depicts the chance of exceeding a given river stage during the next X days on the following:
- a. Visual appeal
 - b. Ease of understanding
 - c. Tells me what I need to know about a river stage on a daily basis

A commonly used term associated with flood risk is the “100-year flood.” The 100-year flood is based on statistical analysis and estimates a water level that will be reached, on average, once every hundred years. In terms of probability, it is a level that has a 1% chance of occurrence in any given year.

- 47) Using a 10 point scale where 1 means not at all useful and 10 means very useful, please rate how useful it would be to include the 100-year water level to characterize flooding in NWS products.



Questionnaire – English continued

X. Concluding Questions

48) Please provide any additional comments on current NWS hydrologic services and/or suggestions on how the NWS could better serve your hydrologic needs.

49) The NWS is in the midst of a services modernization program, known as the Advanced Hydrologic Prediction Service (AHPS), to improve the quality of its hydrologic services. If you would be willing to let us contact you for additional feedback as we make decisions on how to implement AHPS, please complete the following:

- a. Person to Contact:
- b. e-mail address:
- c. and/or
- d. Phone number:

You have reached the end of the survey. Please click on the "Finish" button below to submit your survey.

The staff of the National Weather Service thanks you for your time and thoughtful feedback. Your input will be of great assistance as the agency works to improve its services.



Questionnaire – Spanish

Encuesta para el Programa de Servicios Hidrológicos del Servicio Nacional de Climatología (NWS)

El Servicio Nacional de Climatología, (National Weather Service, NWS) emite alertas sobre inundaciones, advertencias y avisos para la protección de la vida y de la propiedad. También tiene a su cargo proporcionar información para mejorar la economía nacional. El Programa de Servicios Hidrológicos de NWS se enfoca en proporcionar previsiones del tiempo, alertas y avisos sobre desbordamientos de ríos e inundaciones.

Este estudio es parte de un esfuerzo que se está llevando a cabo para determinar la satisfacción general de los usuarios de NWS y para obtener las sugerencias necesarias para mejorar los servicios. La encuesta se enfoca específicamente en el Programa de Servicios Hidrológicos de NWS.

I. Preguntas demográficas

Las siguientes preguntas tienen la intención de ayudarnos a comprender mejor sus respuestas, permitiéndonos que clasifiquemos sus respuestas por área geográfica y por tipos de usuarios. Al igual que con la totalidad del estudio, sus respuestas son completamente voluntarias y confidenciales.

- 1) ¿Cuál es su código postal?
- 2) ¿Cuál es el uso principal que hace de la información que le proporciona el NWS o qué sector comercial representa usted? (por favor, seleccione sólo una).
 - a. Gerencia de emergencia
 - b. Medios “tradicionales”(radio, TV, prensa)
 - c. Internet/Web
 - d. Abastecimiento de agua/hidráulica
 - e. Agricultura
 - f. Envío (por ej. barcas)
 - g. Gerencia de recursos naturales
 - h. Consultoría/valor añadido/proporcionar servicios hidrológicos a medida
 - i. Educación
 - j. Recreación
 - k. Uso personal
 - l. Otros (por favor, especifique)
- 3) ¿Cuál es el alcance primario de su responsabilidad? (seleccione una)
 - a. Nacional
 - b. Regional (todos o parte de múltiples estados)
 - c. Un sólo estado
 - d. Todos o parte de múltiples condados
 - e. Un sólo condado
 - f. Gran ciudad/área urbana (población más grande de 100,000)
 - g. Ciudad más pequeña/pueblo (población más pequeña de 100,000)
 - h. Personal
 - i. Otros (por favor especifique)

Questionnaire – Spanish continued

II. Productos hidrológicos actuales

- 1) ¿Cuál de los siguientes tipos de información hidrológica obtiene usted de NWS?
(seleccione todo lo que se aplique)
- Información de inundaciones (alertas, avisos y declaraciones)
 - Información sobre suministro de agua/reservas
 - Información sobre sequía
 - Información/previsiones rutinarias sobre ríos
 - Información recreativa
 - Información sobre precipitaciones (lluvia, nieve)
 - Otra información (por favor especifique)

Si 4=a:

- 5) Piense acerca de la **información sobre inundaciones** proporcionada por el NWS (por ejemplo avisos, alertas, predicciones y declaraciones). En una escala de 10 puntos, en la que 1 significa malo y 10 excelente. Por favor califique la calidad de la información sobre inundaciones con respecto a lo siguiente:
- Claridad
 - Concisión
 - Prontitud
 - Precisión
 - Organización de la información
 - Satisface mis necesidades

Si 4=b

- 6) Piense acerca de la **información sobre abastecimiento de agua/reservas** proporcionada por NWS, en una escala de 10 puntos donde 1 significa malo y 10 excelente. Por favor califique la calidad de la información sobre abastecimiento de agua/reservas con respecto a lo siguiente:
- Claridad
 - Concisión
 - Prontitud
 - Precisión
 - Organización de la información
 - Satisface mis necesidades

Si 4=c

- 7) Piense acerca de la **información sobre sequía** proporcionada por NWS, en una escala de 10 puntos, donde 1 significa malo y 10 excelente. Por favor califique la calidad de la información sobre sequía con respecto a lo siguiente:
- Claridad
 - Concisión
 - Prontitud
 - Precisión
 - Organización de la información
 - Satisface mis necesidades

Si 4=d

- 8) Piense acerca de la **información/previsiones rutinarias sobre ríos** proporcionada por NWS, en una escala de 10 puntos donde 1 significa malo y 10 excelente. Por favor califique la calidad de la información/previsiones rutinarias sobre ríos con respecto a lo siguiente:
- Claridad
 - Concisión
 - Prontitud
 - Precisión
 - Organización de la información
 - Satisface mis necesidades



Questionnaire – Spanish continued

Si 4=e

9) Piense acerca de la **información de recreación** proporcionada por NWS, en una escala de 10 puntos, donde 1 significa malo y 10 excelente. Por favor califique la calidad de la información de recreación con respecto a lo siguiente:

- a. Claridad
- b. Concisión
- c. Prontitud
- d. Precisión
- e. Organización de la información
- f. Satisface mis necesidades

Si 4=f

9) Piense acerca de la **información sobre precipitaciones** proporcionada por NWS, en una escala de 10 puntos, donde 1 significa malo y 10 excelente. Por favor califique la calidad de la información de recreación con respecto a lo siguiente:

- a. Claridad
- b. Concisión
- c. Prontitud
- d. Precisión
- e. Organización de la información
- f. Satisface mis necesidades

10) ¿Por qué medios recibe usted productos hidrológicos de NWS basados en Textos (por ej. alertas sobre inundaciones)? (Seleccione todo lo que se aplique)

- a. Páginas Web de NWS
- b. Páginas Web que no pertenecen al NWS
- c. Teléfono
- d. Radio sobre el tiempo NOAA
- e. Cables sobre el tiempo NOAA
- f. Familia de Servicios (Family of Services, FOS)
- g. Red de Información del Tiempo para Gerentes de Emergencias (Emergency Managers Weather Information Network, EMWIN)
- h. TV local o cable
- i. Radio comercial
- j. Contratista privado
- k. Otros (por favor, especifique)

NWS está proporcionando cada vez más información en diferentes formatos. Las siguientes preguntas se refieren a cómo podemos proporcionarle de forma más efectiva la información en distintas categorías.

11) Por favor, califique los siguientes formatos para recibir información sobre **inundaciones súbitas/avisos sobre inundaciones y alertas** del NWS, utilizando una escala de 10 puntos donde el 1 no está muy cercano a lo ideal y el 10 está muy cerca de lo ideal.

- a. Texto
- b. Gráficos
- c. Una combinación de Texto y gráficos
- d. Radio del tiempo NOAA

12) Por favor, califique los siguientes formatos para recibir información sobre **previsiones de ríos** del NWS, utilizando una escala de 10 puntos donde el 1 no está muy cercano a lo ideal y el 10 está muy cerca de lo ideal.

- a. Texto
- b. Gráficos
- c. Una combinación de texto y gráficos
- d. Radio del Tiempo NOAA



Questionnaire – Spanish continued

13) Por favor, clasifique los siguientes formatos para recibir **observaciones sobre ríos/corrientes** del NWS, utilizando una escala de 10 puntos donde el 1 no está muy cerca de lo ideal y el 10 está muy cerca de lo ideal.

- a. Texto
- b. Gráficos
- c. Una combinación de texto y gráficos
- d. Radio del Tiempo NOAA



Questionnaire – Spanish continued

III. Riesgo de inundaciones

El NWS categoriza la severidad de las inundaciones para comunicarle de forma más efectiva el impacto de las inundaciones. Utiliza las siguientes categorías:

Inundación menor – daño a la propiedad mínimo o ningún daño, pero posiblemente algún tipo de amenaza pública o inconveniente.

Inundaciones moderadas – algunas inundaciones de estructuras y carreteras cercanas. Serán necesarias algunas evacuaciones de personas y/o transferencia de la propiedad a elevaciones superiores si es necesario.

Inundaciones grandes – extensa inundación de estructuras y carreteras. Evacuaciones significativas de personas y/o transferencia de propiedad a elevaciones superiores.

14) ¿Está usted familiarizado con la forma en la que estos términos se utilizan por NWS en sus avisos sobre inundaciones?

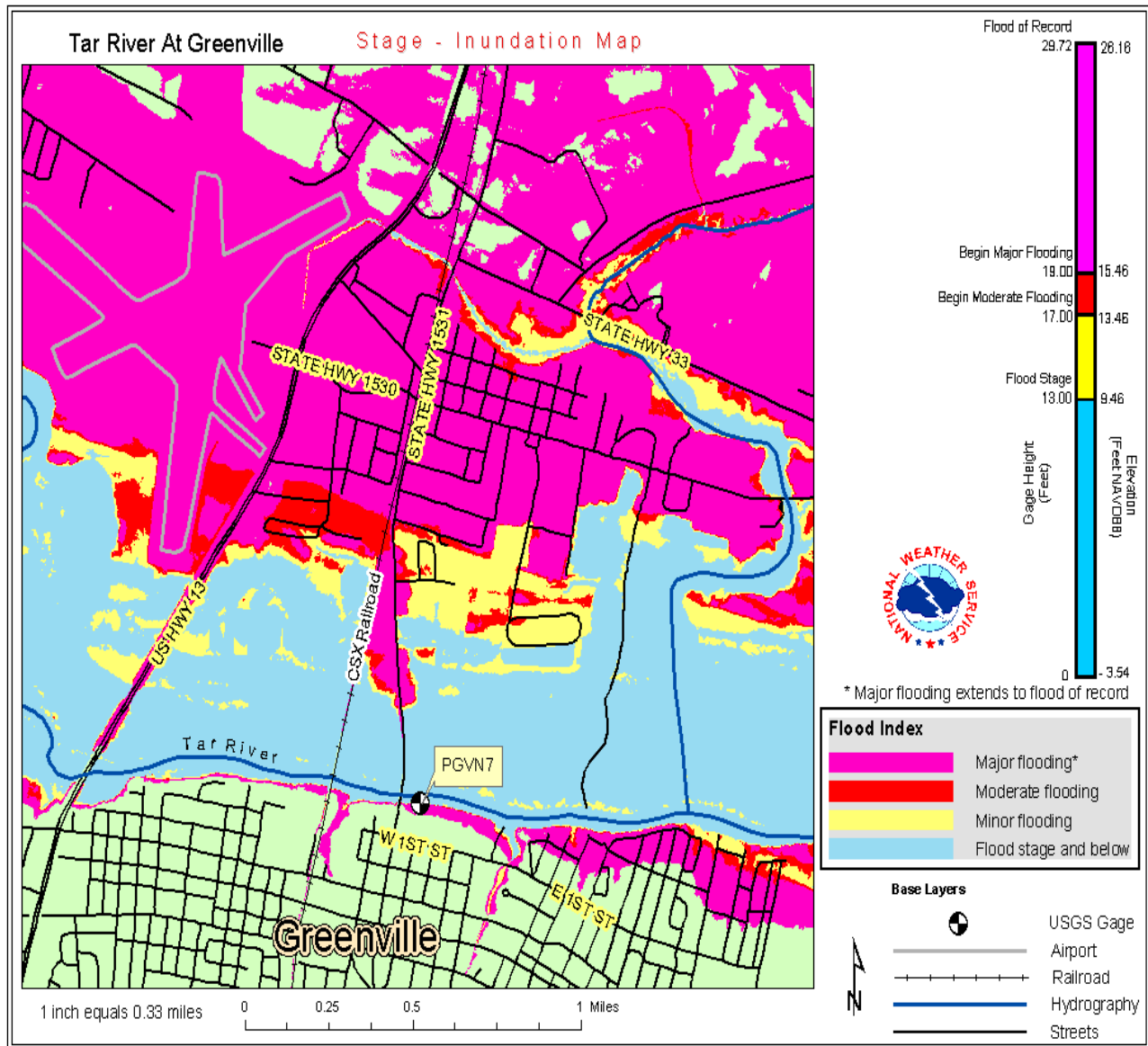
- a. Sí
- b. No

15) Utilizando una escala de 10 puntos donde 1 significa ninguna utilidad y 10 significa muy útil, por favor califique la utilidad de estas categorías de severidad de inundaciones para interpretar el impacto de las inundaciones de ríos.

16) Sí ha dado un 5 o menos a la pregunta 15, ¿qué puede hacer el NWS para que estas categorías de severidad de inundaciones resulten más útiles? (respuesta abierta)

Questionnaire – Spanish continued

El NWS ha combinado recientemente las categorías de severidad de las inundaciones con información sobre la elevación del terreno para representar en forma de mapa el área impactada por cada categoría de inundación. Abajo se muestra un ejemplo.



17) Utilizando una escala de 10 puntos, donde 1 significa malo y 10 excelente. Por favor califique el mapa gráfico de severidad de la inundación sobre lo siguiente:

- Atractivo visual
- Facilidad de comprensión
- Me dice qué es lo que necesito saber acerca de la severidad de las inundaciones



Questionnaire – Spanish continued

IV. Modos de acceso adicionales

El NWS está considerando proporcionar información utilizando modos de acceso y formatos adicionales, enfocados principalmente en hacer que el proceso de datos automatizado sea más eficiente.

18) ¿Utiliza usted ahora o planea utilizar un proceso automatizado de la información hidrológica?

- a. Sí
- b. No (pase a la pregunta 21)

19) Por favor califique los siguientes modos utilizando una escala de 10 puntos, donde 1 no está muy cercano a lo ideal y 10 está muy cercano a lo ideal.

- a. Utilizar una interfaz gráfica basada en Internet (por ej. un menú) para seleccionar información para descargar.
- b. Buscar en una base de datos (por ej., acceder directamente a información específica).
- c. Descarga al por mayor de información (por ej. ftp)

20) Por favor, califique los siguientes formatos de datos utilizando una escala de 10 puntos, donde 1 no está muy cercano a lo ideal y 10 está muy cercano a lo ideal. Por favor enumere cualquier modo de acceso adicional y formato que no se haya mencionado y que a usted le gustaría que NWS considerara para hacer el proceso automatizado de datos más eficiente.

- a. XML
- b. En un formato compatible con GIS

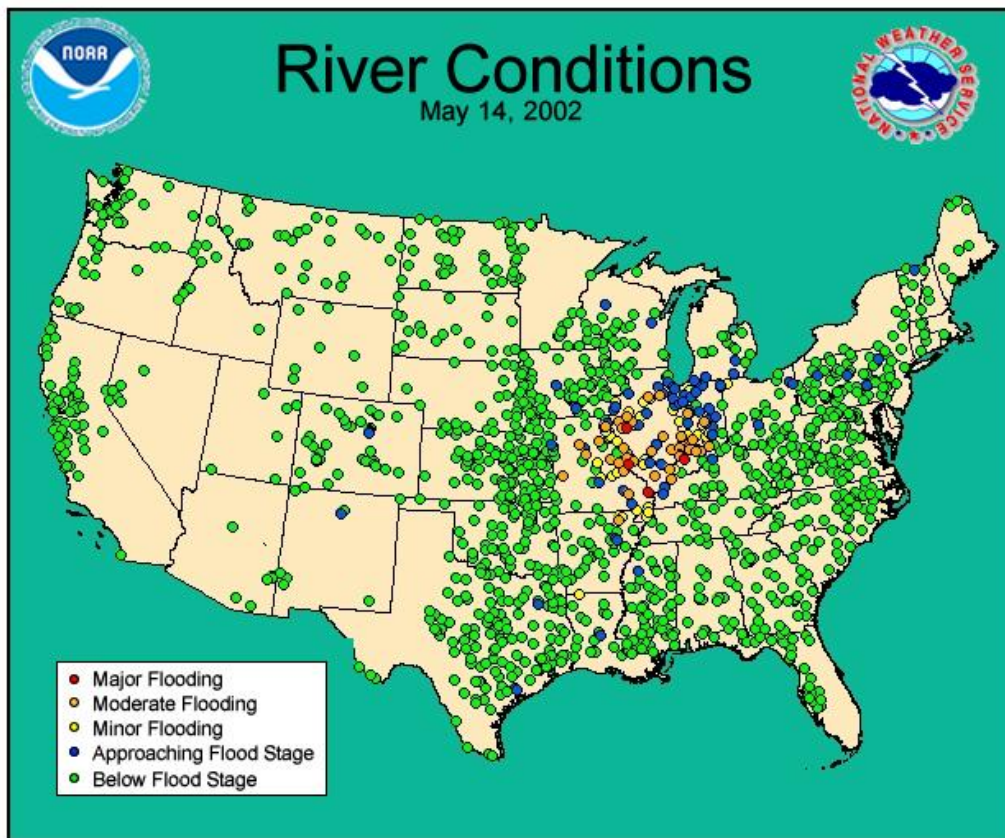
Questionnaire – Spanish continued

V. Gráficos

El Servicio Nacional de Climatología tiene páginas Web que permiten a los usuarios agrandar un mapa nacional a un nivel regional, a una localización en un punto a lo largo de un río donde se puede obtener información hidrológica detallada. Para proporcionar a nuestros clientes los gráficos más útiles en línea, por favor responda a las siguientes preguntas. Las siguientes preguntas están basadas en los gráficos que se pueden ver desde estas páginas Web o bien en los que estamos considerando para un desarrollo en el futuro.

21) El gráfico abajo proporciona una visión general de las condiciones del río a través de los Estados Unidos continentales. Utilizando una escala de 10 puntos, donde 1 signifique malo y 10 signifique excelente, por favor clasifique las condiciones del mapa con respecto a lo siguiente:

- Atractivo visual
- Facilidad de comprensión
- Me dice lo que necesito saber acerca de las condiciones del río, a nivel nacional

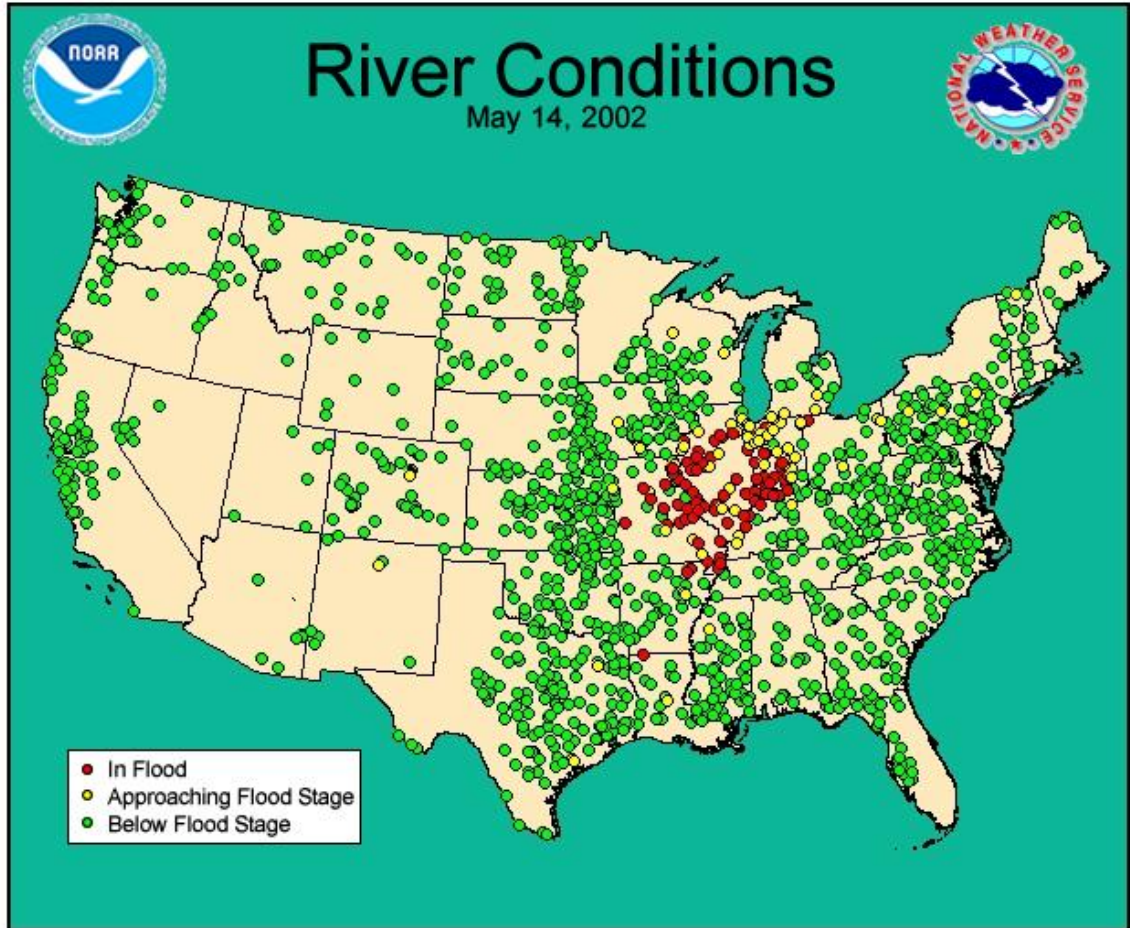


22) Abajo tiene el mismo mapa, describiendo condiciones en los ríos de una forma ligeramente diferente. Utilizando la misma escala de 10 puntos donde 1 significa malo y 10 significa excelente, califique ahora por favor el mapa de condiciones de los ríos con respecto a lo siguiente:

- Atractivo visual
- Facilidad de comprensión
- Me dice lo que necesito saber acerca de las condiciones de los ríos en a nivel nacional



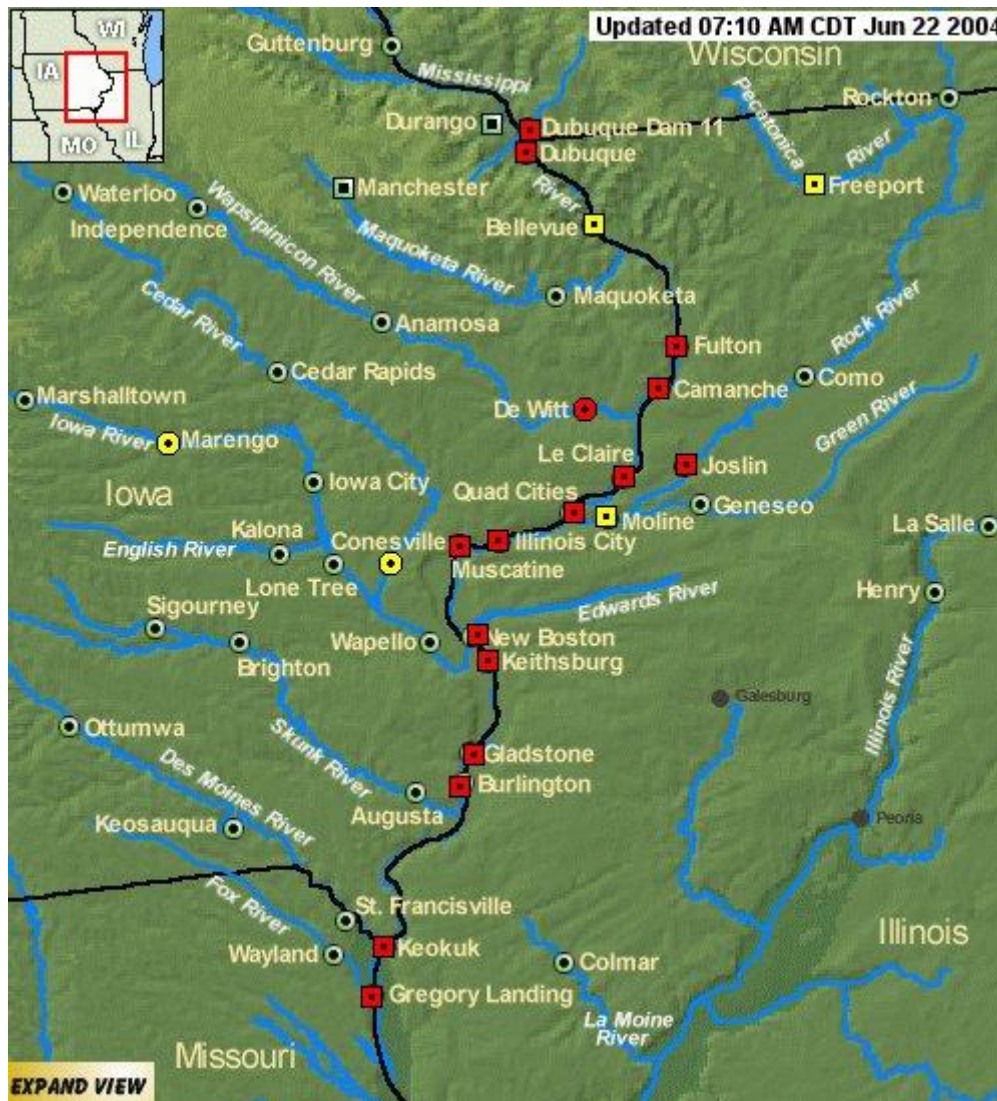
Questionnaire – Spanish continued



Questionnaire – Spanish continued

23) Si el usuario utiliza su ratón para hacer clic en un área de interés en el mapa nacional, estará enlazado a un mapa regional como se muestra en el ejemplo abajo. Utilizando una escala de 10 puntos donde 1 significa malo y 10 excelente, por favor califique este gráfico con respecto a los siguiente:

- Apariencia visual
- Facilidad de comprensión
- Me dice lo que necesito saber acerca de las condiciones del río a nivel regional



Map Legend

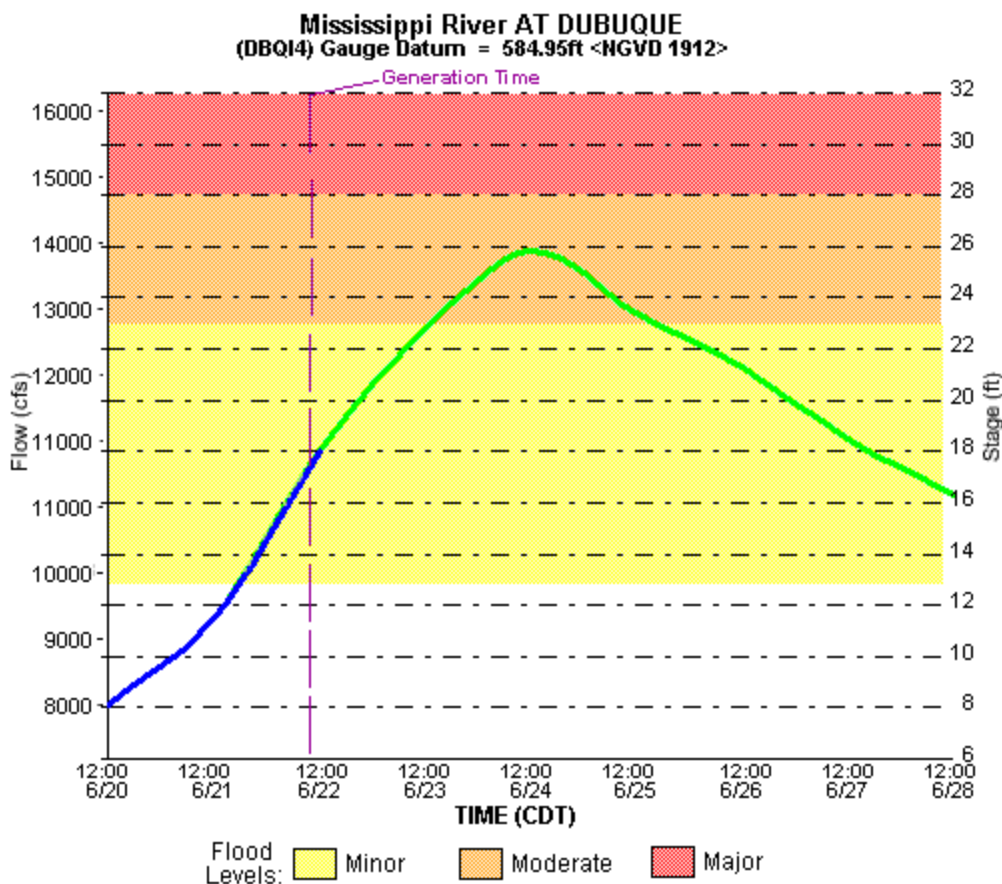
- | | |
|---|---|
| ● or ■ at or above Flood Stage | ■ A square indicates that hydrograph information is available |
| ○ or □ high water, below Flood Stage | ● A circle indicates that both probability and hydrograph information are available |
| ● or ■ below Flood Stage | |
| ⊙ or ⊠ observation more than 12 hours old | |
| ⊙ or ⊠ neighboring area point | |

Questionnaire – Spanish continued

24) A continuación hay un hidrógrafo, que muestra los grados de severidad en las inundaciones. Utilizando una escala de 10 puntos donde 1 significa malo y 10 significa excelente, por favor califique el hidrógrafo con respecto a lo siguiente:

- Apariencia visual
- Facilidad de comprensión
- Me dice lo que tengo que hacer acerca de las condiciones de los ríos

Río Mississippi en Dubuque
Situación de la inundación: 17 pies
Última situación: 18.14 pies a las 05:30 CDT 06/22

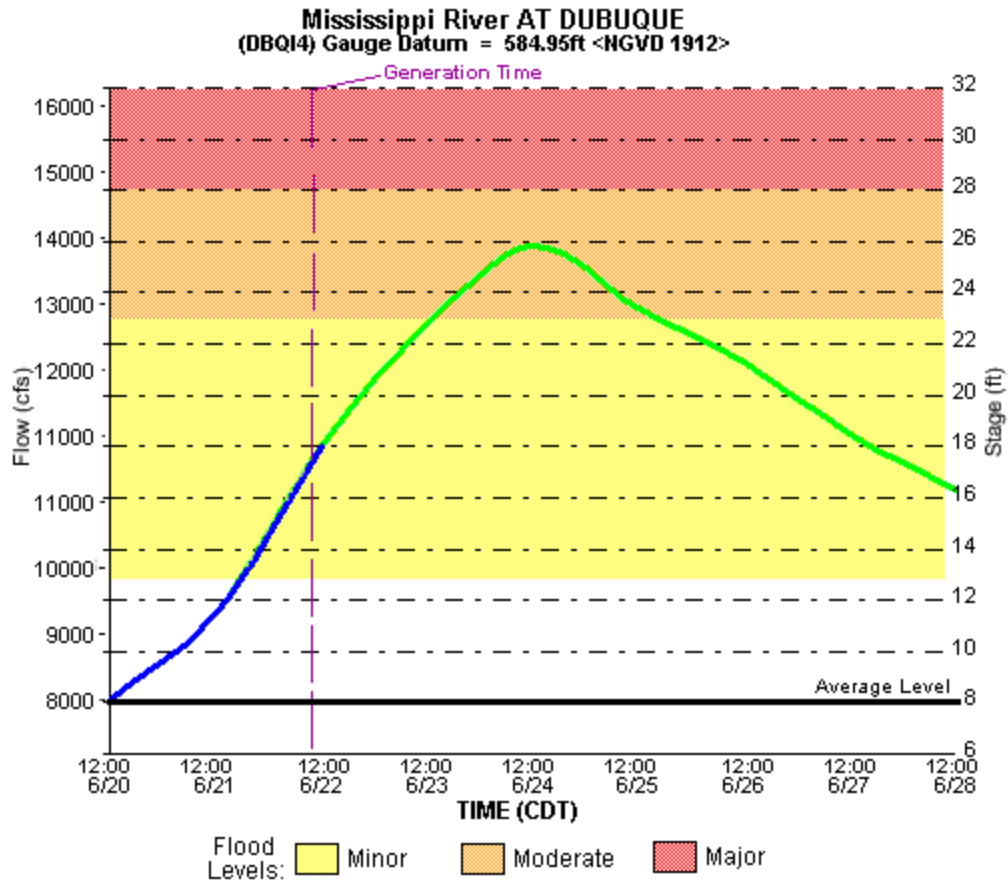


25) El hidrógrafo abajo también incluye una indicación sobre el nivel medio del río. Utilizando una escala de 10 donde 1 significa malo y 10 significa excelente, por favor, califique este hidrógrafo con respecto a lo siguiente:

- Apariencia visual
- Facilidad de comprensión
- Me dice qué es lo que necesito hacer acerca de las condiciones de los ríos



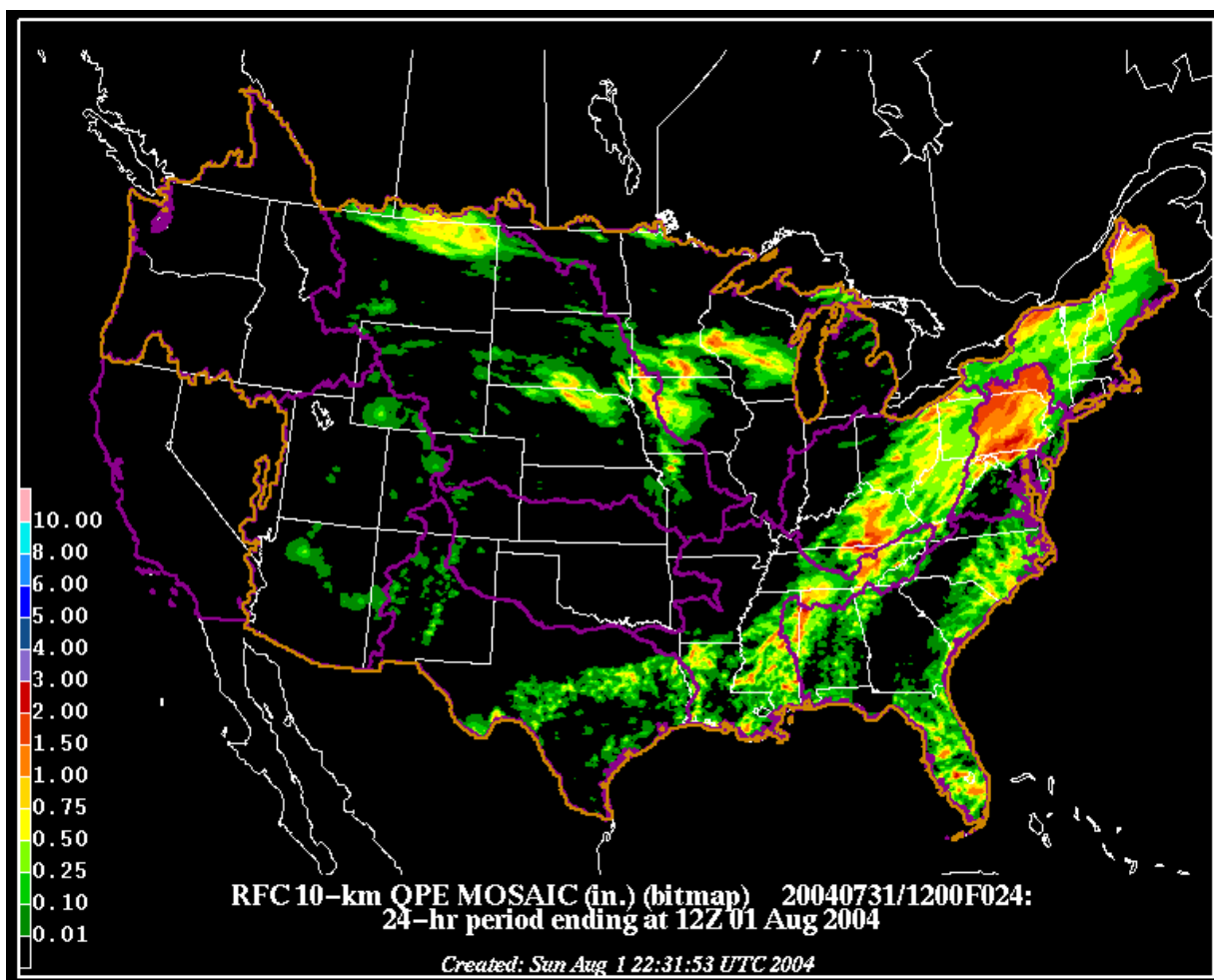
Questionnaire – Spanish continued



Questionnaire – Spanish continued

26) El NWS combina datos de recogida de lluvias y de radar para crear un análisis de precipitaciones como el que se muestra abajo. ¿Utiliza usted actualmente esta información?

- a. Sí
- b. No



27) Utilizando una escala de 10 puntos donde 1 es malo y 10 es excelente, por favor califique el gráfico de arriba que describe un análisis de las precipitaciones nacionales utilizando datos de recogida de lluvias y de radar con respecto a lo siguiente:

- a. Atractivo visual
- b. Facilidad de comprensión
- c. Me dice lo que necesito saber acerca de las precipitaciones nacionales

28) ¿En qué formato(s) le gustaría a usted recibir información cuantitativa sobre las precipitaciones? Seleccione todo lo que se aplique.

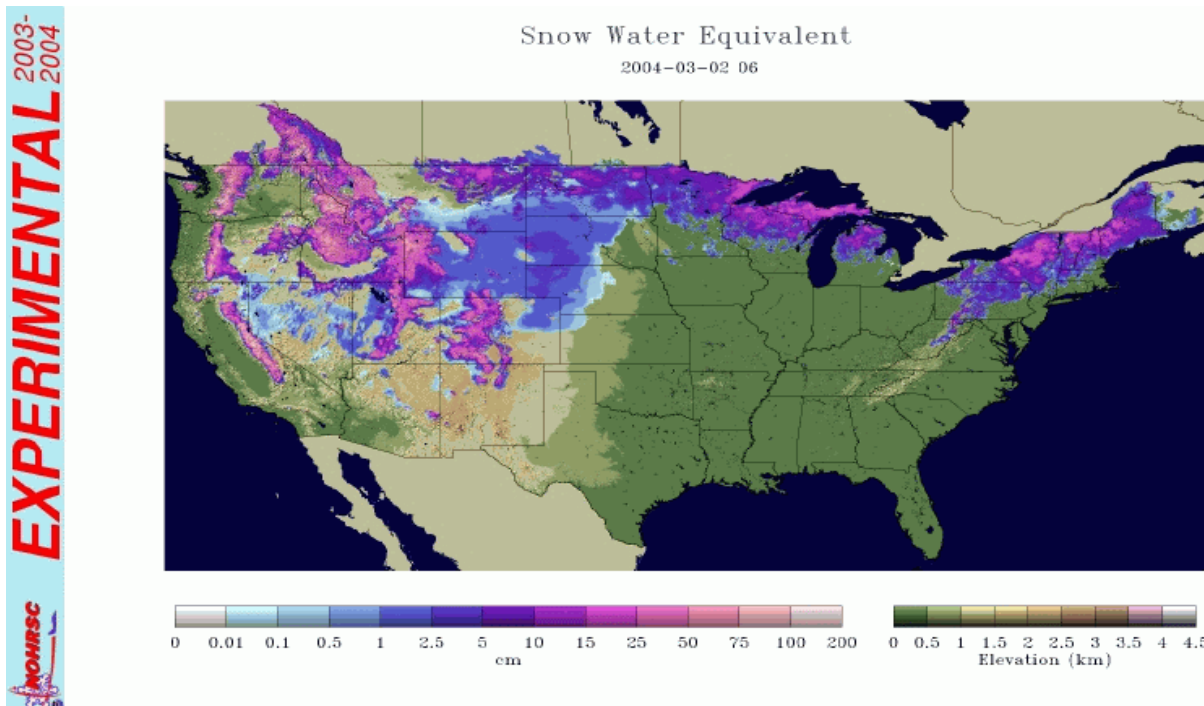
- a. Gráfica (como una página Web)
- b. Una estructura en rejilla (por ej. utilizando el formato GRIB)
- c. En un formato compatible con GIS
- d. XML
- e. Otros (por favor especifique)

Questionnaire – Spanish continued

29) Utilizando un sistema de modelado, NWS combina la información de observación sobre nieve para proporcionar un análisis nacional de la cantidad de agua en el paquete de nieve (por ej. el equivalente en agua de nieve). Abajo se muestra un ejemplo.

¿Utiliza usted actualmente esta información?

- a. Sí
- b. No



30) Utilizando una escala de 10 puntos, donde 1 significa malo y 10 significa excelente, por favor clasifique el gráfico arriba que describe un análisis nacional de la cantidad de agua en el paquete de nieve con respecto a lo siguiente:

- a. Atractivo visual
- b. Facilidad de comprensión
- c. Me dice lo que necesito saber acerca de cantidades de agua en la capa de nieve.

31) ¿En qué formato(s) le gustaría a usted recibir la información equivalente al agua en la nieve? Seleccione todas las que se apliquen.

- a. Gráfico (como una página Web)
- b. Como una estructura de rejilla (por ej. utilizando el formato GRIB)
- c. En un formato compatible con GIS
- d. XML
- e. Otros (por favor especifique)

Questionnaire – Spanish continued

VI. Incertidumbre y probabilidad

32) Las previsiones sobre los niveles de los ríos envuelven un cierto grado de incertidumbre. Para reflejar esto, las previsiones proporcionan una gama de posibles valores (por ej. el río crecerá entre 11 y 12 pies por encima de la situación de desbordamiento). Utilizando una escala de 10 puntos, donde 1 significa ninguna utilidad para nada y 10 significa muy útil, por favor califique lo útil que sería hacer que las previsiones incluyeran información de incertidumbre.

33) La incertidumbre también se puede expresar en términos de probabilidades (por ej. hay una posibilidad del 70% de que el río exceda la situación de desbordamiento en 11 pies). Utilizando una escala de 10 puntos donde 1 significa, ninguna utilidad y 10 significa muy útil, por favor clasifique lo útil que sería tener previsiones que incluyan probabilidad de información.

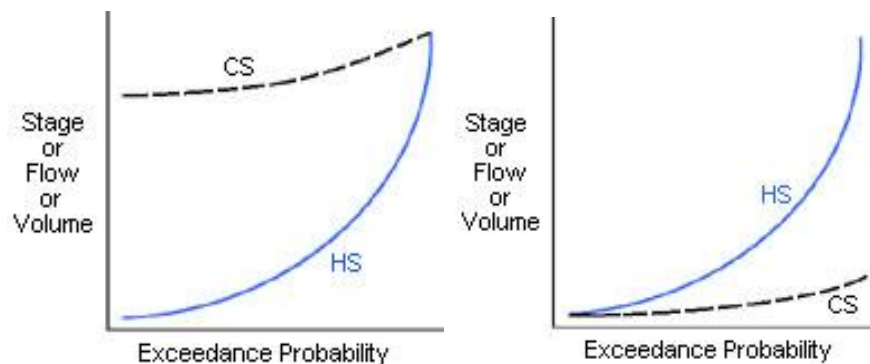
34) La incertidumbre de las previsiones aumenta típicamente con la longitud de la precisión (por ej. la incertidumbre en las previsiones a corto plazo es generalmente menor que para las previsiones a largo plazo). Utilizando una escala de 10 puntos, en la que 1 significa ninguna utilidad y 10 muy útil, por favor clasifique la utilidad de proporcionar información con respecto a la incertidumbre de las previsiones para los ríos para las siguientes escalas de tiempo.

- a. Inundaciones a corto plazo
- b. Abastecimientos de agua a largo plazo

Las siguientes preguntas buscan su evaluación sobre la utilidad de varios ejemplos específicos sobre cómo las previsiones de probabilidades se pueden describir gráficamente.

El gráfico que sigue a la siguiente pregunta muestra las posibilidades de la situación del río de subir por encima de varios niveles durante un periodo de 90 días. La línea de **simulación condicional (CS)** indica las posibilidades de que el río suba por encima de los niveles dados, basándose en las condiciones actuales. La línea de **simulación histórica (HS)** muestra las posibilidades de que el río suba por encima de los niveles dados, basándose en el alcance total de los niveles del pasado. El sombreado gris, azul y rojo muestra la severidad de las inundaciones. Estas previsiones a largo plazo le permiten ver qué es lo que las simulaciones de computadora pueden decirnos acerca de extensos periodos de tiempo.

Aquí tiene algunos posibles escenarios que le ayudarán a comprender la siguiente pregunta gráfica:



Condiciones más húmedas de lo "normal" en el periodo de previsión. Las posibilidades son más grandes para condiciones húmedas como se indica por la **Simulación Condicional**, sobre la gama completa de posibles resultados.

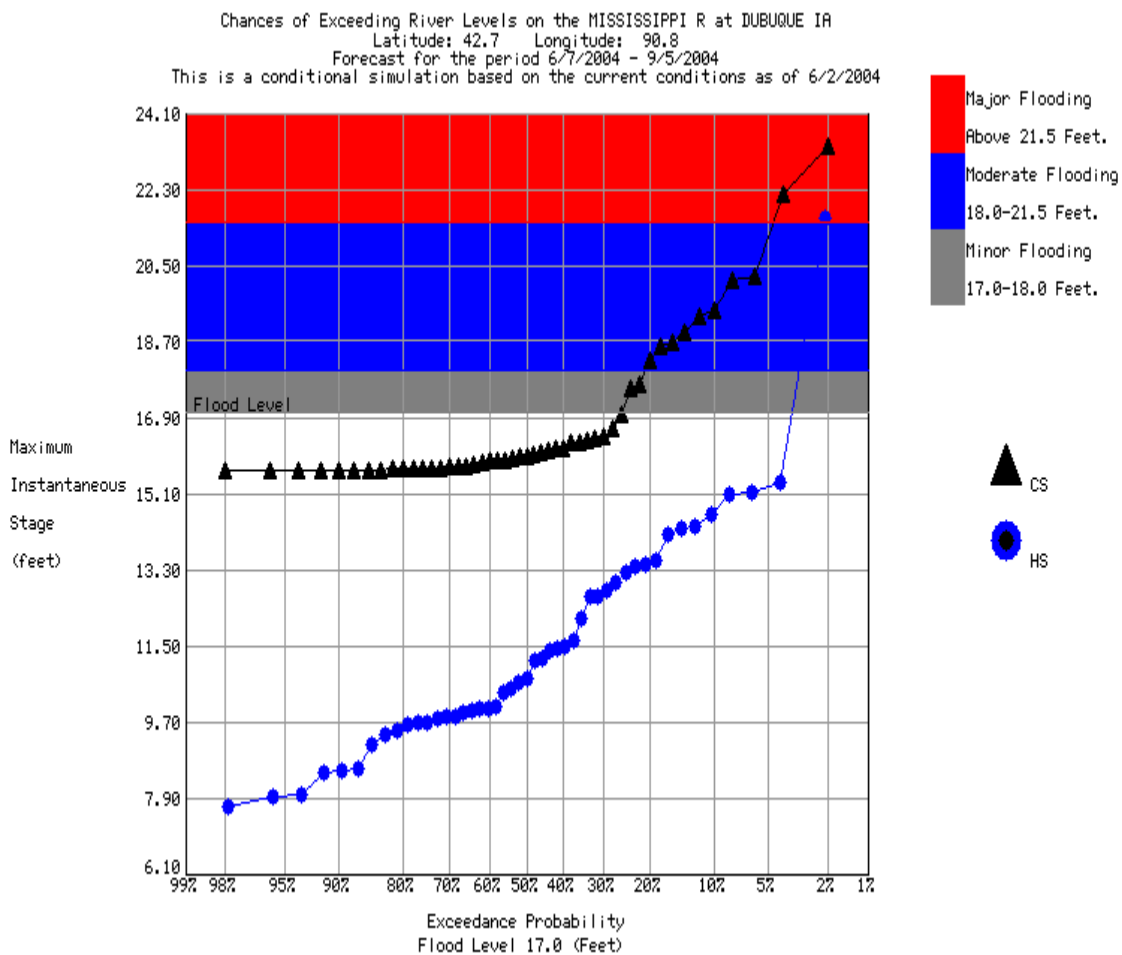
Condiciones más secas de lo "normal" en el periodo de previsión. Las posibilidades son más grandes para las condiciones secas, según se indica por la **Simulación Condicional**, sobre una gama completa de posibles resultados.

Questionnaire – Spanish continued

Cuando las dos simulaciones están muy cerca a lo largo de la gama completa, las posibilidades de que el río suba por encima de cierto nivel son similares a la gama total de los niveles pasados.

35) Ahora, utilizando una escala de 10 puntos, donde 1 significa malo y 10 excelente, por favor, califique el gráfico abajo que comunica la posibilidad de exceder la situación dada de un río durante el periodo de previsión de 90 días, con respecto a lo siguiente:

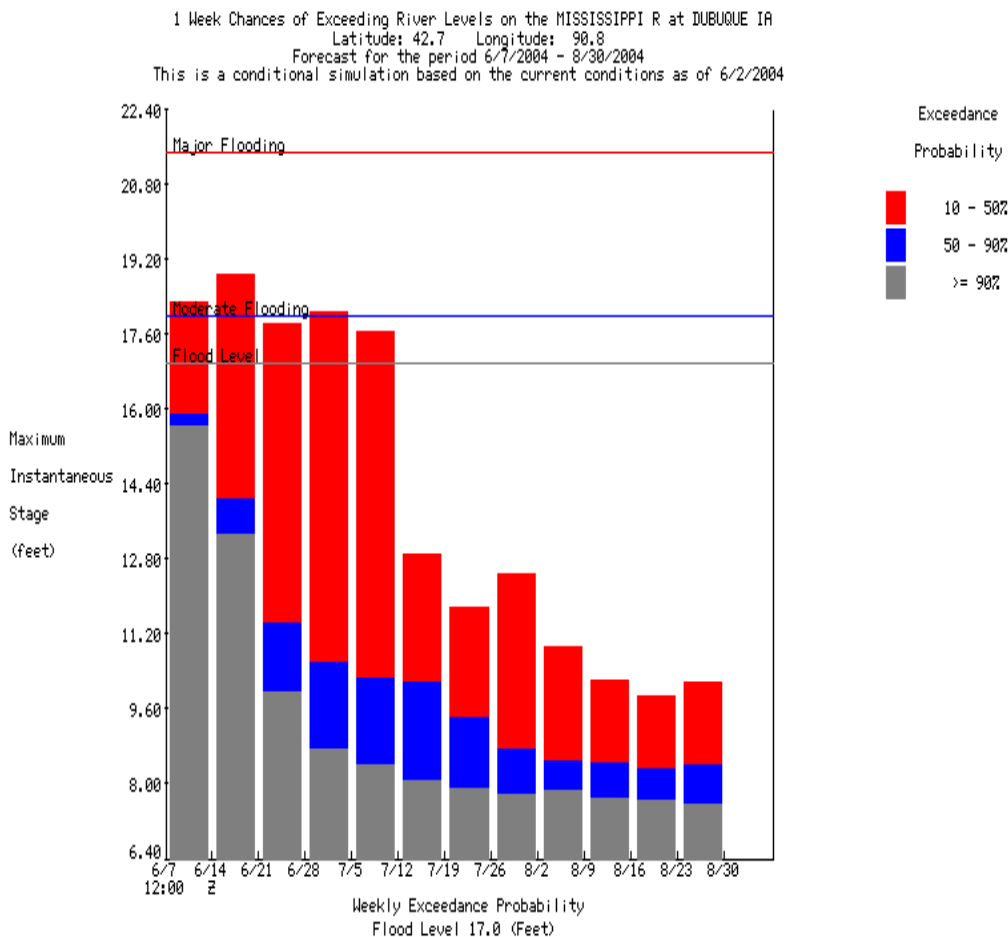
- Atractivo visual
- Facilidad de comprensión
- Me dice lo que necesito saber acerca de las situaciones de los ríos durante una previsión de 90 días





Questionnaire – Spanish continued

El gráfico abajo muestra la probabilidad de que la situación máxima en un punto en un río exceda un valor particular en una previsión de 90 días. El eje vertical muestra la situación del río medida en pies (ft) y el eje horizontal muestra el tiempo. Cada barra vertical representa las probabilidades de exceso durante un periodo de 7 días. El color se utiliza para indicar los niveles de probabilidad.



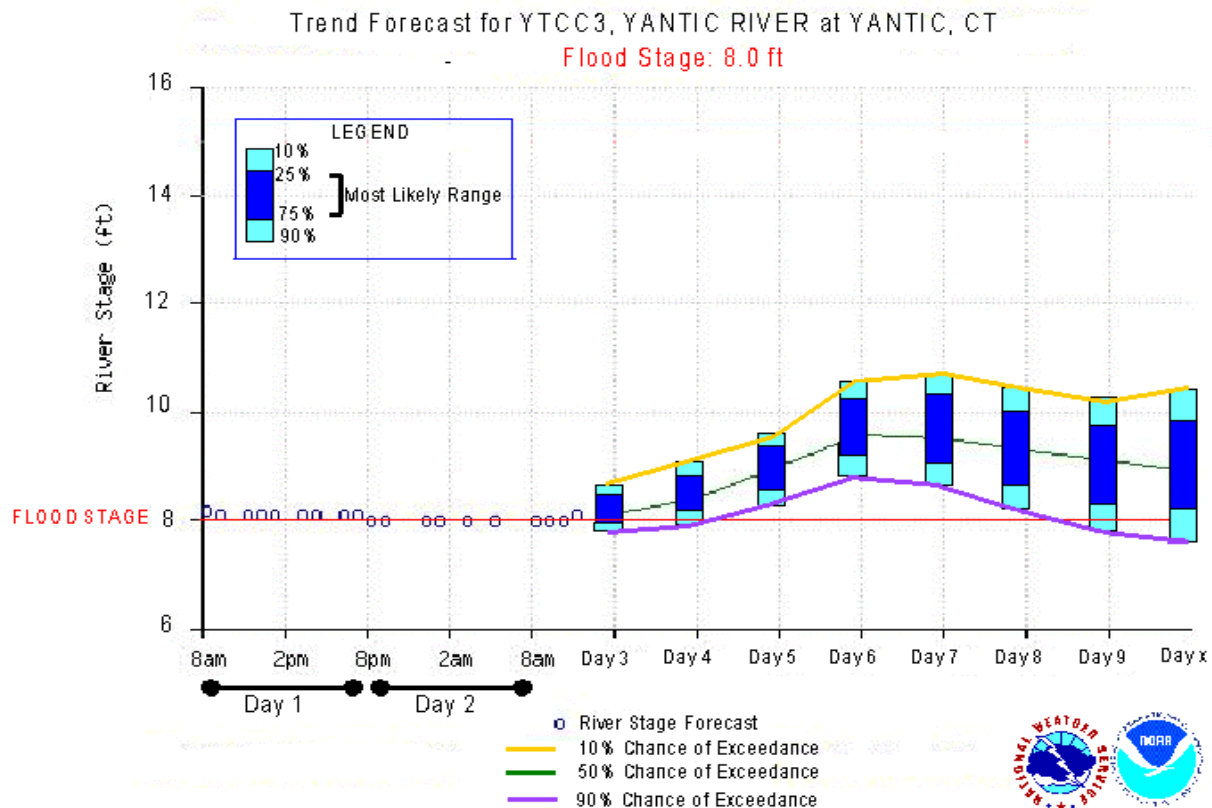
36) Utilizando una escala de 10 puntos donde 1 significa malo y 10 significa excelente, por favor califique el gráfico arriba que describe la posibilidad de exceder la situación dada de un día durante una semana determinada en un periodo de 90 días, con respecto a lo siguiente:

- Atractivo visual
- Facilidad de comprensión
- Me dice lo que necesito saber acerca del estado de un río determinado durante cualquier semana determinada en los próximos 90 días

Los dos gráficos anteriores se utilizan para proporcionar información de probabilidades a largo plazo.

Para predicciones de ríos con un alcance más corto, el gráfico abajo describe una forma alternativa de comunicar información de probabilidad.

Questionnaire – Spanish continued



37) Utilizando una escala de 10 puntos, donde 1 significa malo y 10 significa excelente, por favor facilite las posibilidades de sobrepasar la situación dada de un río durante los próximos X días con respecto a lo siguiente:

- a. Atractivo visual
- b. Facilidad de comprensión
- c. Me dice lo que necesito saber acerca del estado de un río en una base diaria

Un termino que se usa comúnmente asociado con el riesgo de inundaciones es la “inundación cada 100 años”. La inundación cada 100 años está basada en análisis estadísticos y estima el nivel de agua que se alcanzará como promedio, cada cien años. En términos de probabilidad es un nivel que tiene hasta un 1% de ocurrencia en cualquier año dado.

38) Utilizando una escala de 10 puntos, donde 1 significa ninguna utilidad y 10 significa muy útil, por favor clasifique lo útil que sería incluir un nivel de agua de 100 años para caracterizar las inundaciones en productos de NWS.



Questionnaire – Spanish continued

VII. Índice de satisfacción del cliente

Ahora por favor, piense acerca de su nivel de satisfacción total con el Programa de Servicios Hidrológicos de NWS.

39) Primero considere por favor todas sus experiencias con el Programa de Servicios Hidrológicos de NWS. Utilizando una escala de 10 puntos, donde 1 significa insatisfecho y 10 significa muy satisfecho, ¿qué tan satisfecho está usted con el Programa de Servicios Hidrológicos de NWS?

40) Considerando todas las expectativas que hemos discutido, ¿hasta que punto el Programa de Servicios Hidrológicos de NWS no ha llegado o ha excedido sus expectativas? Utilizando una escala de 10 puntos, en el que 1 significa que no ha llegado a sus expectativas y el 10 que las ha cubierto con creces, ¿hasta que punto el Programa de Servicios Hidrológicos de NWS no ha llegado o ha excedido sus expectativas?

41) Olvídense un momento del Programa de Servicios Hidrológicos de NWS. Ahora, imagine un programa ideal de servicios hidrológicos. ¿Que tanto cree usted que el Programa de Servicios Hidrológicos se compara con el programa ideal de servicios hidrológicos que usted se acaba de imaginar? Por favor utilice una escala de 10 puntos, en la que 1 significa no muy cercano al ideal y 10 signifique muy cercano al ideal.



Questionnaire – Spanish continued

VIII. Resultados deseados

42) ¿Ha contactado usted alguna vez formalmente con el Servicio Nacional de Climatología para reportar un problema o realizar sugerencias con respecto a sus productos y servicios hidrológicos?

- a. Sí
- b. No **(pase a la pregunta 44)**

43) En una escala de 10 donde 1 significa malo y 10 significa excelente, por favor clasifique la respuesta de personal de NWS a su problema o sugerencia.

44) Utilizando una escala de 10 puntos, donde 1 signifique no probable en absoluto y 10 signifique muy probable, ¿qué tan probable sería que usted tomara una acción basándose en la información hidrológica que usted recibe el Servicio Nacional de Climatología?

45) Utilizando una escala de 10 puntos, en la que 1 significa no del todo confiado y 10 signifique muy confiado, ¿cuanta confianza tiene usted en que el Programa de Servicios Hidrológicos de NWS hará un buen trabajo proporcionando previsiones, alertas y avisos en el futuro?

IX. Preguntas finales

46) Por favor proporcione cualquier comentario adicional sobre los servicios hidrológicos actuales de NWS y/o sugerencias sobre cómo puede el NSW satisfacer mejor sus necesidades hidrológicas.

47) El NWS se encuentra en un programa de modernización de servicios, conocido como el Servicio de Predicción Hidrológica Avanzada (Advanced Hydrologic Prediction Service, AHPS), para mejorar la calidad de sus servicios hidrológicos. Si usted está dispuesto a contactar con nosotros para proporcionarnos sugerencias adicionales, a medida que tomamos decisiones para implementar el AHPS, por favor complete lo siguiente:

- a. Persona a contactar:
- b. Dirección de correo electrónico:
- c. y/o
- d. Número de teléfono: