

# Risk and the environment reporters: a four-region analysis

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Who are the environment reporters who explain the science of the environment to the general public? Do they consider risk when writing environmental stories? How often do they say they use a risk assessment angle compared to other issues? Are they concerned that they may be exaggerating environmental risks, excessively frightening their readers and viewers?

This study used a census approach to interview 354 environment reporters in four regions of the United States. The majority of environment reporters in all four regions said they used risk angles at least sometimes, many more than might have been true in the past. However, the journalists said they more frequently framed their stories using government, human-interest, business, nature, pollution, politics, science, and health angles, and some reporters, ranging from 28.3 percent in New England to 41.8 percent in the Pacific Northwest, said they rarely or never included risk assessment in their environmental stories. Although most journalists in the four regions did not believe that news reports generally sensationalized environmental risks, some reporters (16.9–25.0 percent) said that environmental journalists generally have overblown environmental risks, unduly alarming the public.

## 1. Introduction

What factors do journalists consider when they are writing environmental stories? How often do they say they use a risk assessment angle compared to other issues? Do environmental journalists differ due to regional differences? From their earliest days in journalism school, reporters are taught which values make a story newsworthy. While the lists of news values may vary, most include timeliness, proximity, prominence, consequence, and human interest. “Nothing is so dead as yesterday’s newspaper . . . or the radio and television newscast of an hour ago,” quotes Curtis D. MacDougall (1982: 114) in *Interpretative Reporting*. And many newspaper editors consider their essential mission to be local journalism, asking their reporters to find the local angle in national and even international stories.

Scientists and the journalists who cover them often disagree on the framing of stories. The AIDS epidemic became a hot, front-page story when it was revealed that movie star Rock Hudson had contracted the disease. And it reached a larger and younger audience

when basketball star Magic Johnson announced that he had tested positive for the HIV antibody. Some scientists were surprised that it took a combination of prominence and human interest to put such an important story on the front page. For scientists, consequence (or importance) is the only news value that really matters, while for journalists it is simply one factor among many.

Many scientists spend much of their careers analyzing risk, but they often must rely on environment reporters to communicate their findings to the general public through newspapers and television stories. These scientists might benefit from better understanding environment reporters. Do environment reporters consider the risk assessment angle when writing their stories? Are environment reporters concerned that they may be exaggerating environmental risks, excessively frightening their readers and viewers?

## 2. Literature review

Journalism and mass communication scholars have found systematic variations among reporters working in different media and on different news beats (Peiser, 2000). Journalists' personal agendas—or risk predispositions—are relevant to the news judgments they make. The impact of community structures on local news coverage (Griffin and Dunwoody, 1995), the effects of how environmental messages are framed in news stories (Davis, 1995), and agenda setting for the issue of environmental pollution (Ader, 1995) have been studied and suggest a range of influences potentially impacting risk reporting. The current study analyzes the attitudes of those newspaper and television journalists who are assigned to the environment beat, full-time and part-time, and are most likely to cover risk in their reporting.

There is a need for more and better risk assessment reporting. Sandman et al. (1987) analyzed the content of environmental stories considered by their newspaper editors to be the very best. The experts “felt very strongly that environmental risk is not covered as much as it should be . . . that the risk information which needed to be talked about in environmental articles was simply not there” (1987: 52). The authors concluded: “Reporters should avoid treating environmental risk as a dichotomy that either ‘is’ or ‘is not.’ The important questions for public understanding and public policy are how much risk, under what circumstances, and with what degree of certainty” (1987: 101).

The nature of the medium may influence how environmental stories are covered by reporters. Greenberg et al. (1989a) studied network evening news coverage of environmental risk and found that “risk as calculated by scientists had little to do with the amount of coverage provided by the three networks’ evening news broadcasts. Instead, the networks appear to be using the traditional journalistic determinants of news plus the broadcast criterion of visual impact to determine the degree of coverage of risk issues” (1989a: 125). In addition, the researchers concluded that the networks “are also guided in their coverage by geographical factors (such as cost and convenience) much more than by risk, and apparently sometimes more than by their own broadcast news values” (Greenberg et al., 1989b: 275).

Do environment reporters exaggerate environmental risks, excessively frightening their readers and viewers? Greenberg et al. (1989a: 125) noted that “journalistic news values focus reporters on events rather than issues, and on the spectacular rather than the chronic” and concluded that “the public’s conception of risk is almost certainly distorted by television’s focus on catastrophes and its dependence on films.”

Valenti and Wilkins (1995) offered a protocol for ethical reporting of risk to improve

public understanding of science and environment issues in the news. Valenti (1998) later examined ethical decision making among members of the Society of Environmental Journalists when covering risk and found that extrinsic values such as what is legal and peer evaluation were the major factors. When journalists fail to cover risk information completely and accurately, Valenti said, “the consequence is misunderstanding and poor judgments” by readers and viewers (1998: 229).

Other factors also may help explain variations in risk assessment stories. Slovic et al. (2002a) stressed the importance of affect, “how we infuse needed ‘doses of feeling’ into circumstances where lack of experience may otherwise leave us too ‘coldly rational.’” Researchers recognized the importance of affect in risk decision making early on. Zajonc (1980) argued that affective reactions are often an individual’s first reactions. Such reactions occur automatically to guide information processing and judgment. Ferguson et al. (1991) tested the effectiveness of mediated health risk messages and found significant effects resulting from the receiver’s risk-taking predisposition. The attributed source of the message, the perceived target or potential victim of the threat, and the medium of delivery interacted to impact the intended behavioral response. Those who design risk messages as persuasion, such as public relations practitioners, may take into consideration such psychological preconditioning. However, journalists’ training to seek out and report events and reactions may offer an exemplary model of how their readers, viewers or listeners ultimately navigate through complex, uncertain, and generally unresolved information. Journalistic training develops a professional “gut instinct” or what Slovic et al. (2002b) might label the ultimate risk judgment pooled reaction, based in part on affect and informed by learned reporting skills.

### 3. Research questions

This research studies the attitudes, opinions, and demographics of environmental journalists in four regions of the United States. It analyzes baseline data collected as part of a nationwide series of regional studies of newspaper and television environment reporters. The researchers proceeded region by region, not necessarily expecting regional differences, but rather regional similarities that would point to the existence of national standards for environmental journalism. The presence of similarities of responses among regions may be the sign of such national trends, while the presence of regional differences needs to be explained.

This report seeks to answer a number of research questions:

- Who are the environment reporters who provide the general public with most of its information about risk assessment? Where do they work? Do environmental journalists differ due to regional differences?
- From what sources do environment reporters get their information? Do environmental journalists in different regions rely on similar news sources?
- How often do environment reporters in various regions say they use a risk assessment angle in their stories compared to other issues? Do significant correlations exist between the use of particular news sources, story frames, or work routines and the use of a risk assessment angle?
- Do environment reporters agree or disagree with the following: environmental journalists generally have overblown environmental risks, unduly alarming the public; an

environmental problem is generally a better news story than an environmental success; and environmental journalists generally concentrate far too much on problems and pollution, rather than writing stories to help the public understand research or complex issues?

#### 4. Methods

The researchers in this study interviewed reporters who regularly covered environmental issues for daily newspapers and television stations in the U.S. New England (in 2000), in the Mountain West states (in 2001), in the Pacific Northwest (in 2002), and in the Southern states (in 2002–2003). These regions were selected because the researchers felt they were as different, one from the other, as any areas of the country. If few regional differences were found in such disparate areas, then it would appear geography is not a key independent variable in helping to explain variance in the responses of environment reporters. This project used the conventional six-state New England region. The Mountain West consisted of an eight-state region running from Montana to Arizona. The Pacific Northwest contained Alaska, Washington, and Oregon. The South consisted of 11 states in the traditional South (not including Texas or Oklahoma).<sup>1</sup>

The names of newspaper and television environment reporters were collected from a variety of sources. In addition, the *Editor & Publisher International Yearbook* and the “Directory of Television Stations in the U.S.” section of the *Broadcasting & Cable Yearbook* were used to create a list of all newspapers and over-the-air television stations, and every daily newspaper and television station was contacted to identify environment reporters. A newsroom executive (usually the managing editor for newspapers, the assignment editor for television stations) was telephoned and asked to name anyone who covered the environment on a regular basis.

All potential reporters were called. They were interviewed if they met one of two criteria listed in a screening question: they covered the environment as a beat; or they covered a variety of issues, including the environment, but wrote about the environment on a regular basis. The interviewed reporters were then asked to identify any other reporter in the news organization or in competing news organizations who should be called.

In all, 364 reporters were contacted, and 354 of the 364 (97.3 percent) agreed to be interviewed. The interviewers consisted of the authors, graduate students, and some advanced undergraduates. Consistency and reliability were assured through training, pre-testing, and the use of a fully scripted questionnaire. The complete questionnaire was pre-tested successfully on five current and former environment reporters and editors.

The interviewers followed the script and noted the responses on a printed survey form. Later, the data were entered into an SPSS (Statistical Package for the Social Sciences) spreadsheet program for analysis. Very few of the interviews were conducted with reporters who were recommended only by an earlier interviewee. In the South, for example, no reporters who were interviewed were recommended only by an interviewee.

The response rate ranged from 95.0 percent in the Pacific Northwest and 95.6 percent in the South to 100 percent in New England and the Mountain West states. Each respondent was interviewed by telephone for 30 to 40 minutes. The results of this study are based on these self-reports of the respondents, not on a content analysis of their work. We studied the reporters, not their stories.

## 5. Results

Who are the environment reporters who provide the general public with most of its information about risk assessment? Where do they work? Do environmental journalists differ due to regional differences?

This project found that 42 of the 82 daily newspapers in New England in 2000 employed 51 environment reporters. Fifty-five of the 108 daily papers in the Mountain West states in 2001 employed 81 environment writers. Thirty-five of the 50 papers in the Pacific Northwest in 2002 employed 52 environmental journalists. And 124 out of 310 newspapers in the South in 2002–2003 employed 131 reporters who regularly covered the environment.

In addition, four environment reporters worked for four of New England's 33 television stations with news operations. Ten environment reporters worked for nine of the Mountain West's 87 television stations with news departments. Eight environment reporters worked for eight of the 42 television stations with news operations in the Pacific Northwest, and 27 environment reporters worked for 23 of the 184 television stations with news departments in the South.

The percentage of television stations with one or more environment reporters (12.1 percent in New England, 10.3 percent in the Mountain West, 19.0 percent in the Pacific Northwest, and 12.5 percent in the South) was much lower than the percentage of newspapers with environmental journalists (51.2 percent in New England, 50.9 percent in the Mountain West, 70.0 percent in the Pacific Northwest, and 40.0 percent in the South). Environment reporters were employed most frequently in the Pacific Northwest and least often in the South, with the New England and Mountain West states in between. The total number of environment reporters was 55 in New England, 91 in the Mountain West, 60 in the Pacific Northwest (of whom 57 were interviewed for this project), and 158 in the South (of whom 151 were interviewed).

Newspapers with circulations above 60,000 (whether or not they were located in major metropolitan areas) were most likely to employ environment reporters in all four regions. In fact, only seven such newspapers (one in the Mountain West and six in the South) did not employ at least one environmental journalist. Likewise, most newspapers with circulations between 30,000 and 60,000 had one or more environment reporters (73.3 percent in New England, 73.8 percent in the South, 85.7 percent in the Pacific Northwest, and 100 percent in the Mountain West).

There were, however, significant regional differences at newspapers with very small circulations (below 14,000). Only 17.9 percent of these small-circulation newspapers in New England and 19.4 percent in the South employed an environment reporter, compared to 31.7 percent in the Mountain West, and 44.4 percent in the Pacific Northwest. Among newspapers with circulations between 14,000 and 29,999, 37.5 percent of the newspapers in the South and more than half of the newspapers in New England and the Mountain West employed an environmental journalist compared to 77.8 percent in the Pacific Northwest.

The fact that only 40 percent of the newspapers in the South employed environmental journalists can be explained by the very high number of Southern newspapers (160 of 310) with circulations below 14,000. The Pacific Northwest's unusually high percentage of newspapers with environment reporters (70 percent) may be due to a number of factors, such as a high regional interest in environmental issues, the area's wealth, and the comparatively high percentage (44.4 percent) of small-circulation newspapers employing environmental journalists.

The number of television stations employing environment reporters in the four regions is so small (44) that it is generally difficult to see either regional similarities or differences. Except, again, for the Pacific Northwest, where 19.0 percent of the television stations with news operations had environment reporters, nearly 60 percent more than in any other region.

The environment reporters tended to be experienced journalists with considerable experience in covering environmental issues (see Table 1). They had a higher percentage of graduate degrees than did US reporters in general in 1992 (Weaver and Wilhoit, 1996). They carried a variety of job titles and generally spent only part of their time on environmental reporting (see Tables 1 and 2).

In New England the average time spent on environmental issues was only 37.9 percent, compared to 44.2 percent in the South, 50.0 in the Mountain West, and 53.7 percent in the Pacific Northwest. In all four regions a substantial number of reporters spent less than 34 percent of their time on environment stories.

The part-time nature of environmental reporting for many of these journalists is reflected in their job titles at their news organizations. A minority of reporters had the word "environment" in their titles. The percentage of reporters with such a title ranged from 18.2 percent in New England to 33.8 percent in the South. Other reporters had terms such as "natural resources," "science," or "health" in their titles. But the environment reporters in all four regions were far more likely to have an official title of "reporter," "general assignment reporter," or "staff writer." These reporters were generalists by title if not inclination, who would cover an environment story when they had the time to pursue a topic of interest or when an environment story arrived in the newsroom and was routinely assigned to them.

**Table 1.** Demographics and experience of environment reporters, by region

	New England (2000)	Mountain West (2001)	Pacific Northwest (2002)	South (2002–2003)	US journalists in general 1992/2002*
Age (years)					
mean	42.5	39.3	40.5	39.9	
median	45	39	41	41	36/41
Graduate degree	30.9%	22.0%	15.8%	14.6%	11.4%/NA
Years in journalism					
mean	15.8	14.4	14.7	13.5	NA
median	15	13	15	12	
Years covering the environment					
mean	10.2	8.8	7.6	7.9	NA
median	9	6	5	5	
Time covering the environment					
mean	37.9%	50.0%	53.7%	44.2%	NA
median	30%	50%	50%	33%	
< 34%	58%	37%	35%	52%**	
34–66%	24%	32%	25%	19%**	
> 66%	18%	31%	40%	30%**	
<i>N</i>	55	91	57	151	

\* Weaver and Wilhoit (1996); Weaver et al. (2003).

\*\* Percentage does not total 100 due to rounding.

NA, not available.

**Table 2.** Job titles of environment reporters

Job titles	New England (2000)	Mountain West (2001)	Pacific Northwest (2002)	South (2002–2003)
Environment reporter, writer; all environment combinations	18.2%	28.6%	29.8%	33.8%
Natural Resources writer	0.0%	8.8%	10.5%	8.6%
Science reporter or writer	9.1%	0.0%	1.8%	0.7%
Health reporter or writer	3.6%	0.0%	1.8%	0.0%
Reporter, general assignment reporter, staff writer	54.5%	46.2%	38.6%	47.7%
Specialized reporter (business, politics, sports)	10.9%	8.8%	10.5%	3.3%
Specialized editor	3.6%	7.7%	7.0%	6.0%
Total	99.9%*	100.1%*	100%	100.1%*

\* Percentages do not always total 100 due to rounding.

### **From what sources do environment reporters get their information? Do environmental journalists in different regions rely on similar news sources?**

Environment reporters used a wide variety of news sources, most often government sources and state and local sources. The reporters ranked each of 29 potential sources on a five-point scale, ranging from “always” using the source to “never” using it. The sources included eight federal agencies, seven state-level sources, four local sources, four national environmental lobbying groups, three business-oriented sources, plus academics, local groups active on the environment, and local individuals active on the environment.

The study found striking similarities in the use of sources (based on mean scores) across regions (see Table 3). In all four regions, the reporters were most likely to use local and state-level sources such as the state department of environmental quality, local environmental groups, and individuals active on the environment. They were least likely to use the activist group Greenpeace and certain federal agencies and national organizations (e.g., the US Agency for Toxic Substances and Disease Registry, the National Health and Safety Council, the Chemical Manufacturers Association).

### **How often do environment reporters say they use a risk assessment angle in their stories?**

The study asked the environment reporters to consider nine angles, or issues, they might deal with in writing an environment story. The reporters estimated on a five-point scale<sup>2</sup> whether their stories always, often, sometimes, rarely, or never involved the following issues: a government angle, business angle, nature/wilderness angle, human-interest angle, political angle, science/technology angle, pollution angle, health angle, or a risk assessment angle.

Journalists in all four regions frequently used government and human-interest angles, along with business and nature angles, as measured by mean scores on a 1–5 scale (with 1 as Always and 5 as Never) (see Table 4). But there were regional differences as well. Pollution was often the environmental story in New England and the South. Health was often an issue in New England. While in the two western regions (where the federal government and landowners are often at odds over such questions as land use and grazing rights) and in the South, business was near the top and health was near the bottom.

Risk assessment was the least used of the nine story angles in all four regions. It was found that 28.3 percent of the New England environment reporters, 27.0 percent of the

**Table 3.** Most used and least used sources by environment reporters, by region

	New England (2000)	Mountain West (2001)	Pacific Northwest (2002)	South (2002–2003)
Most used (means)	1. State department of environmental quality (1.98) 2. Local environmental groups (2.29) 3. State department of natural resources (2.32)	1. Local environmental groups (2.21) 2. Local citizens active on the environment (2.29) 3. State department of environmental quality (2.31)	1. Local environmental groups (2.18) 2. State department of environmental quality (2.21) 3. Local citizens active on the environment (2.49)	1. State department of environmental quality (2.18) 2. Local citizens active on the environment (2.34) 3. Local environmental groups (2.36)
Least used (means)	27. Chemical Manufacturers Association (4.18) (tie) 27. US Agency for Toxic Substances and Disease Registry (4.18) 28. Greenpeace (4.31)	27. National Health and Safety Council (4.27) 28. Greenpeace (4.45) 29. US Agency for Toxic Substances and Disease Registry (4.68)	27. US Food and Drug Administration (4.23) 28. Greenpeace (4.42) 29. Chemical Manufacturers Association (4.58)	27. US Agency for Toxic Substances and Disease Registry (4.07) 28. National Science Foundation (4.20) 29. Greenpeace (4.28)

Question: Now I am going to read you a list of potential *sources* that you might use on environmental stories. Please tell me if you always use the source in your reporting, often use it, sometimes use it, rarely use it or never use it.

Scale ranges from Always (1.0) to Never (5.0).

Mountain West reporters, 38.2 percent of the Pacific Northwest reporters, and 27.9 percent of the Southern reporters said that they rarely included risk assessment in their environmental stories. An additional 3.4 percent of the Mountain West reporters, 3.6 percent of the Pacific Northwest reporters, and 0.7 percent of the Southern journalists actually said their stories never involved risk assessment (see Table 4).

Yet a substantial percentage of reporters in all four regions said they used a risk assessment angle. Thirty point two percent of the New England reporters, 13.5 percent of the Mountain West reporters, 9.1 percent of the Pacific Northwest reporters, and 19.7 percent of the Southern reporters said their environmental stories often included a risk assessment angle. And 41.5 percent in New England, 53.9 percent in the Mountain West, 49.1 percent in the Pacific Northwest, and 49.0 percent in the South said their stories sometimes involved risk. In addition, 2.2 percent of the Mountain West reporters and 2.7 percent of the reporters in the South said their stories always involved risk assessment.

While risk is at the bottom of all four lists, the distance between the issues at the top of the lists and the bottom is not that great. In fact, the majority of environment reporters in all four regions use risk angles at least sometimes, many more than might have been true in the

**Table 4.** Story angles used by environment reporters, rank-ordered by region. How often do environment stories involve these angles?

	Always	Often	Sometimes	Rarely	Never	Total	Mean	SD
New England (2000)								
Human interest <i>n</i> = 55	16.4%	50.9%	30.9%	1.8%	0%	100%	2.18	.72
Government <i>n</i> = 55	5.5%	67.3%	25.5%	1.8%	0%	100.1%*	2.24	.58
Pollution <i>n</i> = 55	5.5%	58.2%	34.5%	1.8%	0%	100%	2.33	.61
Nature or wilderness <i>n</i> = 55	1.8%	61.8%	32.7%	3.6%	0%	99.9%*	2.38	.59
Health <i>n</i> = 55	3.6%	43.6%	49.1%	3.6%	0%	99.9%*	2.53	.63
Business <i>n</i> = 54	3.7%	44.4%	42.6%	9.3%	0%	100%	2.57	.72
Science or technology <i>n</i> = 55	0%	49.1%	40.0%	10.9%	0%	100%	2.62	.68
Political <i>n</i> = 55	5.5%	36.4%	41.8%	16.4%	0%	100.1%*	2.69	.81
Risk assessment <i>n</i> = 53	0%	30.2%	41.5%	28.3%	0%	100%	2.98	.77
Mountain West (2001)								
Government <i>n</i> = 91	15.4%	68.1%	16.5%	0%	0%	100%	2.01	.57
Business <i>n</i> = 91	17.6%	47.3%	31.9%	2.2%	1.1%	100.1%*	2.22	.80
Nature or wilderness <i>n</i> = 91	6.6%	52.7%	38.5%	2.2%	0%	100%	2.36	.64
Human interest <i>n</i> = 91	11.0%	42.9%	44.0%	2.2%	0%	100.1%*	2.37	.71
Political <i>n</i> = 91	12.1%	48.4%	29.7%	6.6%	3.3%	100.1%*	2.41	.91
Science or technology <i>n</i> = 91	3.3%	34.1%	51.6%	11.0%	0%	100%	2.70	.71
Pollution <i>n</i> = 90	3.3%	32.3%	54.4%	7.8%	2.2%	100%	2.73	.75
Health <i>n</i> = 91	1.1%	20.9%	56.0%	18.7%	3.3%	100%	3.02	.76
Risk assessment <i>n</i> = 89	2.2%	13.5%	53.9%	27.0%	3.4%	100%	3.16	.78
Pacific Northwest (2002)								
Government <i>n</i> = 57	14.0%	71.9%	14.0%	0%	0%	99.9%*	2.00	.53
Business <i>n</i> = 57	8.8%	59.6%	24.6%	7.0%	0%	100%	2.30	.73
Human interest <i>n</i> = 57	10.5%	45.6%	42.1%	1.8%	0%	100%	2.35	.69
Political <i>n</i> = 57	15.8%	42.1%	35.1%	5.3%	1.8%	100.1%*	2.35	.88
Nature or wilderness <i>n</i> = 57	5.3%	54.4%	36.8%	1.8%	1.8%	100.1%*	2.40	.70
Pollution <i>n</i> = 57	3.5%	26.3%	64.9%	3.5%	1.8%	100%	2.74	.67
Science or technology <i>n</i> = 57	1.8%	35.1%	50.9%	12.3%	0%	100.1%	2.74	.70
Health <i>n</i> = 57	0%	26.3%	54.4%	19.3%	0%	100%	2.93	.68
Risk assessment <i>n</i> = 55	0%	9.1%	49.1%	38.2%	3.6%	100%	3.36	.70
South (2002–2003)								
Government <i>n</i> = 151	14.6%	62.3%	20.5%	2.6%	0%	100%	2.09	.67
Human Interest <i>n</i> = 151	21.9%	45.7%	27.2%	5.3%	0%	100.1%*	2.17	.82
Pollution <i>n</i> = 151	12.6%	47.7%	37.1%	2.6%	0%	100%	2.28	.73
Business <i>n</i> = 150	9.3%	51.3%	33.3%	4.7%	1.3%	99.9%*	2.35	.77
Nature/wilderness <i>n</i> = 149	5.4%	43.6%	39.6%	10.7%	0.7%	100%	2.56	.78
Science/technology <i>n</i> = 151	2.6%	30.5%	53.6%	11.9%	1.3%	99.9%*	2.78	.74
Political <i>n</i> = 151	4.6%	29.8%	46.4%	18.5%	0.7%	100%	2.79	.82
Health <i>n</i> = 151	4.0%	26.5%	55.6%	13.2%	0.7%	100%	2.79	.73
Risk Assessment <i>n</i> = 147	2.7%	19.7%	49.0%	27.9%	0.7%	100%	3.04	.79

Question: Sometimes environmental stories deal only with the environment. Sometimes they also deal with other issues. Looking back on the stories you have done, how often would you say they also involve a (government) angle? Would you say your environmental stories always have a (government) angle, often do, sometimes do, rarely do, or never have a (government) angle?

Scale ranges from Always (1.0) to Never (5.0).

\* Percentages do not total 100 due to rounding.

past. These numbers show that today almost all environment reporters in these four regions use risk assessment—whether always, often, sometimes or rarely—as an angle in their stories.

The consistency across regions is striking. Not only is risk assessment ranked ninth in each of the four regions, there is not much variance across regions in the pattern of responses to the risk assessment question. Regarding risk, chi-square analysis shows no statistically significant difference across regions ( $\chi^2 = 18.021$ ,  $df = 12$ ,  $p = .115$ ). Likewise, there were no significant regional differences regarding the use of government, business, human-interest, nature, or science angles. Regional differences were found only regarding the use of political, pollution, and health issues.

**Under what circumstances were environment reporters more likely to use a risk analysis approach in their stories? Is there a significant correlation between the use of particular news sources and the use of a risk assessment angle? Do significant correlations exist between certain reporter responses and attitudes and the use of risk in stories?**

This project compared the reporters' use of risk assessment in environment stories with their use of specific sources and their responses to a variety of questions. The researchers found several significant ( $p < .05$ ) correlations using Spearman Rho as the measure of association (see Table 5 and Table 6).

The study asked reporters about their use of 29 different sources of information. Only one of these sources—use of the US Centers for Disease Control and Prevention—was significantly correlated ( $p < .05$ ) to use of the risk assessment angle in all four regions. As use of the source increased, so did use of the risk assessment angle (or vice versa). Across three of the four regions, three additional sources were significantly correlated with risk assessment: the US Environmental Protection Agency, the US Food and Drug Administration, and local departments of health. These government institutions are major sources of health risk information, although it is impossible to say whether reporters interested in risk call these agencies or whether reporters who call these agencies are then given risk assessment information. One additional source, the mayor, correlated significantly with risk assessment in two regions.

The study also examined 83 additional variables related to reporter work routines and attitudes. Only three of these variables were significant in two or more regions. In all four regions, reporters whose environmental stories included a health angle were more likely to

**Table 5.** Variables that correlated significantly with use of risk assessment angle in two or more regions

Variable	New England (2000)	Mountain West (2001)	Pacific Northwest (2002)	South (2002–2003)
Stories with health and risk angles	.480***	.588***	.369**	.423***
US Centers for Disease Control and Prevention	.423**	.365**	.334*	.167*
Local department of health	.360*	.250*	.297*	
US Food and Drug Administration	.302*	.275**	.286*	
US Environmental Protection Agency		.229*	.297*	.239**
Stories with pollution and risk angles		.447***		.296***
Mayor or top municipal official			.400**	.196*
Spend a greater percentage of work week on environmental stories	-.274*			.230**

Correlation coefficients were measured using Spearman Rho, two-tailed.

The correlations are between the use of risk assessment and the various independent variables, with region used only as a control variable.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 6.** Variables that correlated significantly with use of risk assessment angle in one region

Variable	New England (2000)	Mountain West (2001)	Pacific Northwest (2002)	South (2002–2003)
<i>1. Federal sources:</i>				
Agency for Toxic Substances and Disease Registry		.284**		
National Health and Safety Council		.354**		
Department of Energy			.410*	
<i>2. State sources:</i>				
Department of Health	.347*			
Governor's office				.166*
<i>3. Local sources:</i>				
City/town council			.385**	
<i>4. Academic sources:</i>				
		.245*		
<i>5. Lobbyists:</i>				
Chemical Manufacturers Association	.340*			
Local manufacturers, developers or other business leaders	.369**			
Individual citizens active on the environment	.272*			
<i>6. Work routine:</i>				
Their editors view environment stories as being important and worthy of prominent play		.436**		
<i>7. Story framing:</i>				
Stories with science/technology and risk angles		.327**		
Stories with human-interest and risk				.302**
<i>8. Barriers to reporting:</i>				
Reporters lack of technical knowledge on environment	-.319*			
Legal concerns			-.278*	
Environmental activists			-.288*	
<i>9. Attitudes—reporter agreed with statements:</i>				
“Environmental reporters tend to be too ‘brown’—meaning slanted in favor of business or industry”	.337*			
“Environmental journalists sometimes should be advocates for the environment”			.313*	
“Environmental journalists generally concentrate far too much on problems and pollution rather than writing stories to help the public understand research or complex issues”			-.330*	
Said “the chance to influence public affairs” was important to them in assessing a job	.292*			
In assessing a job, importance of job security				.226**
In assessing a job, “the chance to help people”				.183*
Ethical considerations of secondary importance to public's need to know			-.349*	
When environmental news judgments involve matters of professional ethics, reporter wants fellow staffers to approve of decisions			-.285*	

Correlation coefficients were measured using Spearman Rho, two-tailed.

The correlations are between the use of risk assessment and the various independent variables, with region used only as a control variable.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

use a risk assessment angle. In two regions, reporters whose environmental stories included a pollution angle were more likely to use a risk assessment angle. As use of these alternative story frames went up, so did use of the risk assessment angle (or vice versa). One perplexing finding dealt with the percentage of time the reporters spent covering the environment in the preceding year. In the South, the risk assessment angle correlated positively with reporters who spent a greater percentage of their time on the environment, while in New England, there was a negative relationship between the variables.

Of the 29 sources and 83 work routine and attitudinal variables examined, why were only two—the Centers for Disease Control and use of a health angle—significantly related to risk assessment reporting in all four regions? Here, the consistency across regions that we have seen in other parts of the study is absent. However, the many variables related to risk assessment in only one of the regions—the regional differences—offer a look at some of the reasons why a reporter in a particular region would be more likely to use risk (see Table 6).

For example, only in New England was there a significant correlation between use of a risk assessment angle and the use as sources of the Chemical Manufacturers Association; local manufacturers, developers and other business leaders; state departments of health; and individual citizens active in environmental issues. Only in New England was risk assessment correlated positively with the feeling that “environmental reporters tend to be too ‘brown’” and the importance of “the chance to influence public affairs” in assessing a job. And only in New England did the use of risk correlate negatively with the reporters’ lack of technical knowledge on the environment (meaning the more they agreed they lacked technical knowledge the less they used risk or the more they used risk the less they said they lacked technical knowledge). Why were these variables related to risk assessment coverage in New England and not in any of the other three regions?

Similarly, the Mountain West region was the only place where risk assessment correlated with the use of science or technology angles, the National Health and Safety Council, the Agency for Toxic Substances and Disease Registry, and academic sources, and with the feeling that their editors view environment stories as being important and worthy of prominent play. Only in the South did risk correlate with human-interest angles, the use of the governor’s office as a source, and the importance of job security and the “chance to help people” in assessing a job. And in the Pacific Northwest, five different variables correlated negatively with risk, while three correlated positively (see Table 6).

In each of these cases, either the use of risk results in the increase or decrease in some other factor, or the presence of a work routine or attitude results in the increase or decrease in the use of risk. It may be that regional differences and perhaps even differences in time and story content affect these relationships between reporters’ use of risk assessment and

**Table 7.** Attitudes of environment reporters toward “overblown” risks, by region

	Strongly agree	Agree	Disagree	Strongly disagree	Total	<i>n</i>
New England (2000)	0%	25.0%	66.7%	8.3%	100%	48
Mountain West (2001)	0%	16.9%	72.3%	10.8%	100%	83
Pacific Northwest (2002)	3.6%	18.2%	72.7%	5.5%	100%	55
South (2002–2003)	0.7%	20.7%	68.9%	9.6%	99.9%*	135

$\chi^2 = 8.092$ ,  $df = 9$ ,  $p = .525$ .

Question: Environmental journalists generally have overblown environmental risks, unduly alarming the public. Do you: strongly agree, agree, disagree or strongly disagree?

\* Total is not equal to 100% due to rounding.

their responses and use of specific news sources. Nevertheless, the lack of consistency across the regions is surprising, especially in light of consistent results elsewhere in this report.

**Do environment reporters agree or disagree with the following: environmental journalists generally have overblown environmental risks, unduly alarming the public?**

Some critics of environmental reporting complain that risk stories are exaggerated, sometimes blaming ignorance on the part of the reporter, environmental activism, or a desire to make page one. Most environment reporters in all four regions rejected this notion. Less than one percent—three of the 321 reporters responding—strongly agreed with the statement, “Environment journalists generally have overblown environmental risks, unduly alarming the public.”

Another 25.0 percent of the New England reporters, 16.9 percent of the Mountain West journalists, 18.2 percent of the Pacific Northwest reporters, and 20.7 percent of the reporters in the South agreed this was a problem. There was no significant difference in the results across the regions (see Table 7).

**Do environment reporters agree or disagree with the statement: an environmental problem is generally a better news story than an environmental success?**

Media critics sometimes contend that “bad” news gets more ink than “good” news. This study found significant differences in the way reporters in some regions addressed this issue. Asked whether an environmental problem is generally a better news story than an environmental success, more than two-thirds of the Mountain West environment reporters in 2001 said they disagreed with this proposal, while in New England in 2000, in the Pacific

**Table 8.** Attitudes of environment reporters toward “problem” stories, by region

1. Are problem stories seen as more newsworthy than success stories?						
	Strongly agree	Agree	Disagree	Strongly disagree	Total	<i>n</i>
New England (2000)	5.9%	43.1%	43.1%	7.8%	99.9%*	51
Mountain West (2001)	2.4%	29.4%	60.0%	8.2%	100%	85
Pacific Northwest (2002)	0%	51.0%	47.1%	2.0%	100.1%*	51
South (2002–2003)	10.7%	40.0%	44.3%	5.0%	100%	140

$\chi^2 = 19.835$ ,  $df=9$ ,  $p = .019$  for all four regions.

$\chi^2 = 8.906$ ,  $df=6$ ,  $p = .179$  when Mountain West is excluded.

Question: An environmental problem is generally a better news story than an environmental success. Do you: strongly agree, agree, disagree or strongly disagree?

\* Total is not equal to 100% due to rounding.

2. Are problem/pollution stories stressed instead of research/complexity stories?						
	Strongly agree	Agree	Disagree	Strongly disagree	Total	<i>n</i>
New England (2000)	1.9%	55.8%	42.3%	0%	100%	52
Mountain West (2001)	4.9%	45.7%	45.7%	3.7%	100%	81
Pacific Northwest (2002)	2.0%	58.8%	37.3%	2.0%	100.1%*	51
South (2002–2003)	3.6%	55.4%	36.7%	4.3%	100%	139

$\chi^2 = 6.348$ ,  $df=9$ ,  $p = .705$ .

Question: Environmental journalists generally concentrate far too much on problems and pollution, rather than writing stories to help the public understand research or complex issues. Do you: strongly agree, agree, disagree or strongly disagree?

\* Total is not equal to 100% due to rounding.

Northwest in 2002, and in the South in 2002–2003, the reporters split almost equally on the question. None of the reporters in the Pacific Northwest strongly agreed with the statement. Only 2.4 percent of Mountain West reporters and 5.9 percent of New England reporters strongly agreed with the proposition, while in the South, 10.7 percent strongly agreed (see Table 8).

**Do environment reporters agree or disagree with the assertion that environmental journalists generally concentrate far too much on problems and pollution, rather than writing stories to help the public understand research or complex issues?**

Simply reporting what happened and who said what about environmental problems generally is easier than attempting to provide detailed background and analysis. The environment reporters were asked whether their colleagues generally concentrate far too much on problems and pollution, rather than writing stories to help the public understand research or complex issues. On this question, 57.7 percent of the New England reporters, 60.8 percent of the Pacific Northwest journalists, and 59.0 percent of the Southern reporters agreed or strongly agreed, while the Mountain West reporters split nearly equally (see Table 8). For this question there was no significant difference across regions.

## 6. Conclusions

Earlier studies found that important risk information sometimes was not included in environmental stories (Greenberg et al., 1989a, 1989b; Sandman et al., 1987). The concepts of scientific degrees of risk, risk analysis, and risk assessment are relatively new to journalists, and environment reporting itself is a comparatively new journalistic beat. Thus it is not surprising that the current research finds that environment reporters do not consider environmental issues first and foremost in terms of risk. For journalists, the degree of risk is just one element used in determining the importance or consequence of a story, and consequence is just one of many factors used in deciding whether a story is newsworthy or not.

Yet, elements of risk assessment or risk communication can be seen in a wide variety of the stories carried by the news media. As Willis (1997: 1) wrote:

When a newspaper reporter writes a story about a chemical spill or a radiation leak, he is engaging in risk communication. When a television reporter does a story on a new wonder drug like Prozac, she is also involved in risk communication. When a magazine journalist produces an article about acid rain, she is writing about risks. When a television or theatrical movie depicts a family dealing with a disease, it is communicating information about risks. And when a journalist writes a story about a disaster like the Los Angeles earthquake or an act of terrorism like the Oklahoma City bombing, he is also dealing in risk communication.

American environment reporters in the twenty-first century—at least those in New England, the Mountain West, the Pacific Northwest, and the South—showed striking similarities in their handling of risk assessment. Most reporters said they consider the risk assessment angle—often only sometimes, but consider it nonetheless—when writing environmental stories. While many believe that environmental stories involve other coverage angles more frequently than risk, more than half of the environment reporters in all four regions are conscious of risk assessment as an environmental angle and use it at least sometimes. Although risk assessment finished at the bottom of all four lists of story angles, many more of the environment reporters in all four regions said that their reporting involves risk assessment than might have been true in the past.

Earlier studies suggest journalistic news values push reporters to focus on “the spectacular rather than the chronic” (Greenberg et al., 1989a: 125). But most environment reporters interviewed here do not believe that environmental journalists generally have overblown environmental risks, unduly alarming the public. Nevertheless, 25.0 percent of the New England reporters, 16.9 percent of the Mountain West reporters, 21.8 percent of the Pacific Northwest reporters, and 21.4 percent of the Southern journalists saw this as a “general” occurrence. What would the results have been had the question been phrased differently? When asked whether environmental journalists generally concentrate far too much on problems and pollution, rather than writing stories to help the public understand research or complex issues, 57.7 percent of the New England reporters, 50.6 percent of the Mountain West reporters, 60.8 percent of the Pacific Northwest reporters, and 59.0 percent of the Southern reporters agreed.

For scientists seeking to better understand how journalists handle risk assessment, the current research points to several practical suggestions. The environment reporters interviewed for this project often used the human-interest angle. If scientists can focus, in part, on the people affected by risk, they might build greater journalistic interest in a risk assessment study. Since environment reporters use risk assessment in their stories less often than other angles, scientists who wish to have risk studies covered may be well advised to offer journalists more attractive news pegs.

Scientists also may benefit from an awareness of the work routine of environment reporters, who usually function under daily deadline pressure. Sources who wait a day before returning telephone calls from journalists seeking comments may find that the story has already gone to press. Instead of waiting to be called, scientists can draw attention to their research by working with their corporate, agency, or academic public relations departments to develop news releases that meet the goal of simplicity without sacrificing precision. Scientists should send out press advisories or news releases before press conferences and try to hold press conferences early in the day (to meet reporters’ deadlines) (Valenti, 1999, 2000).

Work done on the social amplification of risk (Kasperson et al., 1988) illustrates what can happen when scientists choose not to perform in this type of public role. Instead of reporting on risk, journalists often describe harm or potential harm to actors in a story (Singer and Endreny, 1987). For example, the fact that no one immediately died from the Three Mile Island nuclear accident and the low risk of nuclear accidents in general was lost in a journalistic firestorm over the potential harm from the Pennsylvania incident. If this narrow focus on harm or potential harm is allowed to stand, there may be indirect consequences such as legal liability, loss of trust in institutions, and increased insurance costs (Kasperson et al., 1988; Petts et al., 2001). Scientists who understand how reporters package environment stories might be able to refocus such a story to look at broader risk factors instead of immediate or potential harm.

In the current study, newspapers were far more likely than television stations to have a reporter covering the environment on a regular basis. Therefore, scientists may want to invest time in seeking out and developing personal relationships with area print reporters. While television coverage provides instant visibility, the print media often provide the kind of in-depth coverage that scientists seek in order to explain a complex issue such as risk assessment.

The concept that scientists should develop relationships as trusted sources for reporters reinforces Slovic’s research on affect, which may help scientists better understand how reporters handle risk assessment stories. Journalists depend on fast, instinctive, and intuitive reactions during a news event. They bring with them to each reporting assignment a well-

honed reasoning intended to assure accuracy and something close to objectivity. They do not engage in scientific deliberation or analyses, but rely on experts to provide such background or informed opinion to their stories. Journalists are also trained to be aware of advocacy or political motives, thus the resulting stereotype of the journalist as cynic. However, Slovic and colleagues argue that reliance on feelings should be characterized as what they have called the affect heuristic (Slovic et al., 2002a). Affect plays a central role in what other scholars have called dual-process theories of thinking, knowing, and information processing (Chaiken and Trope, 1999; Epstein, 1994; Sloman, 1996). When journalists sense or “gut” the affect pool in the process of making news judgments, they are relying on well-researched cues. Journalists rely on images, associations, experience, and training in determining what is newsworthy, including whether something or some provided information is good or bad.

The current study underscores the potential information gap between scientists, who spend their life working in a given area of inquiry, and the environment reporters in this study who spend, on average, from about one-third to half of their time on environment stories. These reporters often have more interest in the cause of a problem or whether something is really “risky” or “not risky” than in technical details or significant correlations. The lack of technical background on the part of some environment reporters may lead them to rely on quoting from two sides of a controversy, forcing poorly equipped readers to decide on the “truth” for themselves. An environmental journalist is not necessarily also a science writer, however, either specialist may be better equipped to cover risk than a general assignment or feature reporter. Scientists seeking to use the news media to publicize their work may benefit from recognizing that they are dealing with non-scientists who are asked to explain the science of the environment.

This study set out to find similarities and differences in the responses of environment reporters in four US regions. While some regional differences were identified, the reporters’ responses regarding risk assessment generally were strikingly similar across regions. Given the consistency of the findings in the four very different geographical regions studied to date, it is possible to hypothesize that the results obtained so far generally reflect national rather than regional trends. But this project is not leaving such questions to supposition. It is proceeding region by region to interview America’s environment reporters.

### **Acknowledgements**

A three-region analysis of the research described in this article was presented at the Society for Risk Analysis Annual Meeting, 8 December 2003, in Baltimore. An earlier, two-region version of this work was presented on 9 December 2002 at the SRA Annual Meeting in New Orleans.

### **Endnotes**

- 1 The states involved were: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont in New England; Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming in the Mountain West; Alaska, Oregon and Washington in the Pacific Northwest; and Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia in the South.
- 2 Uniform phrasing was used on questions pertaining to the angles, and the survey relied on the respondents to define the term however they saw fit. For example, the risk assessment angle question read: “Sometimes environmental stories deal only with the environment. Sometimes they also deal with other issues. Looking back on the stories you have done, how often would you say they also involved a risk assessment angle. Would you say your stories: (1) always have a risk assessment angle; (2) often do; (3) sometimes do; (4) rarely do; or (5) never have a risk assessment angle?” Respondents who replied that they don’t know, refused or said no answer

also were recorded. Regarding the risk assessment angle, only four of the 354 respondents answered “don’t know,” only four replied “no answer,” and only two “refused.” Thus, 344 out of 354 reporters understood the risk assessment question well enough to answer it.

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