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Examining the Handbooks on Environmental Journalism: A Qualitative Document Analysis and Response to the Literature

Lisa Rademakers
University of South Florida

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Examining the Handbooks on Environmental Journalism:
A Qualitative Document Analysis and Response to the Literature

by

Lisa Rademakers

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
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Major Professor: Robert Dardenne, Ph.D.
Deni Elliott, Ph.D.
Mark Jerome Walters, D.V.M

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ABSTRACT

This thesis addressed the question, “How should journalists cover the environment, according to the conversation between the scholarship on environmental journalism and the handbooks on environmental journalism?” Do the handbooks, written for practicing journalists, agree with the academic scholarship on environmental journalism?

The conversation between the literature and handbooks is important to examine, as the handbooks are tools journalists may use when reporting on the environment. The handbooks could influence a journalist, who influences the public, who make decisions in a democracy. As well, examining the conversation between the literature and the handbooks reveals whether or not the academy and the practice agree on how to respond to the criticisms and challenges of environmental journalism. Do they offer the same tips for improvement?

First, an extensive literature review on environmental journalism revealed the criticisms, challenges, and tips to improve. Second, a qualitative document analysis examined handbooks published for journalists covering the environment to capture definitions, meanings, and similarities and differences among them. Third, the results of

the literature review and the results of the document analysis were compared to examine if the handbooks respond, emulate, or differ from the literature content.

Findings include five qualitative document analyses of the handbooks, and a comparative essay of the handbooks to the scholarly literature. These findings were based on the researcher's interpretive analysis.

The conversation between the literature and handbooks is a healthy one. As the literature presents challenges and criticisms, the handbooks suggest solutions. Most importantly, as the literature presents tips and techniques for improvement, the handbooks agree with the ways to improve. Overall, the scholarship on environmental journalism and the handbooks on environmental journalism are “on the same page.” Both support understanding audience needs, obtaining a solid understanding of a topic before reporting, addressing environmental issues thoroughly, translating the science, providing the history of a topic, addressing risk, using diverse sources, maintaining long-term coverage, disseminating objective information, and more training for journalists.

CHAPTER ONE

Introduction

Some historians traced the “environment” as an issue in conflict back to 2500 BC when sewers ran through the streets in Rome (Neuzil & Kovarik, 1996, p. 201). “The mass media of nearly every historical era contained reports of environmental conflict” wrote Neuzil and Kovarik in the book *Mass Media and Environmental Conflict* (p. xxiii).

In *Reader of the Purple Sage: Essays on Western Writers and Environmental Literature*, Ronald (2003) stated that even in 1842, “Thoreau was aware of the power to be gleaned from environmental journalism when he wrote ‘I read in Audobon with a thrill of delight, when the snow covers the ground, of the magnolia, and the Florida keys, and their warm sea-breezes’” (p. 170). Ultimately, Ronald found, “It was with Muir’s articulation of specific threats to the California landscape – destruction of its redwoods, its Yosemite Valley, its mountain meadows, its wild rivers – that environmental journalism, as we know it today, was born” (p. 171). John Muir wrote in the late 1800s and eventually formed the Sierra Club in 1892, serving as its first president.

According to the literature, interest by the American media in the environment as a news story developed in the 1960s and ‘70s (Berger, 2002; Howenstine, 1987; Rubin & Sachs, 1973; Whelan, 1991). Rachel Carson jump-started a wave of environmental concern in 1962 when she published *Silent Spring*, a book about the effects of pesticides on the land and people (Detjen, 1997). Sachsman (1996) noted that the *New York Times*

created an environment beat in 1969, *Time* and *Saturday Review* began regular sections on the environment in '69, *National Geographic* offered a 9,000-word article on environmental problems, and *Life* increased its coverage of the topic in 1969 (p. 244).

Allen (2002) found,

It is something of a truism for many researchers interested in the circumstances surrounding the emergence of public discourses of “the environment” that everything changed in 1969. That was the year startling images of planet Earth were relayed from the surface of the moon...these images evidently contributed to what may be appropriately described as an “epistemological break” at the level of media representation. Never again would claims about the relative effects of human societies on “the natural world” fit quite so comfortably into “traditional” categories...a new vocabulary would be required. What was needed were ways to interpret the environment as “news” for the benefit of audiences anxious to understand the long-term implications of these events for their own lives. (p. 103-104)

Some suggest the first Earth Day in 1970 was critical year that demanded increased attention from the press and the public concerning the environment (Bowman, 1978; Brooks, 1990; Burke, 1995, Cantrill & Oravec, 1996; De Mott & Tom, 1990). As Shabecoff (1993) detailed in his book, *A Fierce Green Fire*, Congress enacted a series of environmental laws in the 1970s that added fuel to the fire of the environment as an important political news story. Furthermore, Whelan (1991) found “Environmental coverage in the United States began its upward swing in 1970, after the environment became a news issue” (p. 9). In 1972, Rubin and Sachs examined coverage of

environmental issues as represented in major consumer magazines across the nation and in San Francisco area newspapers, finding coverage increased appreciably from 1965 to 1970.

Since the '60s and '70s, coverage of the environment has continued, but fluctuated in frequency. Hansen (1991) said, "Public awareness and concern about the environment developed during the 1960s and reached an initial peak around 1970, then fell back during the 1970s...studies indicate that public concern about the environment has been on the increase since the mid-1980s" (p. 444). Hertsgaard (1989) wrote in reference to the environment,

Clearly the summer of 1988 deserves much of the credit for this shift in journalism, and public, consciousness. It was a hellish season...It woke people up to the dangers of the greenhouse effect, to the probability that the earth is gradually overheating from all the smoke and soot Industrial Man had sowed into the atmosphere...Not until a top NASA scientist, James Hansen, testified before Congress in June of last year that the greenhouse effect was no longer merely theory but fact did the media really take notice. The *New York Times* put the story above the fold on page 1 and gave the subject extensive play the rest of the summer. (p. 47)

Hertsgaard continued to explain that 1988 was the year when forest fires ravaged Yellowstone, the Mississippi dried up, garbage and medical wastes soiled East coast beaches and pollution weakened seals died in the North Sea (p. 48). To sum up, media and public concern for the environment continues to rise and fall.

Despite the different ideas of when it was that the environment became an important news story, it remains a topic that journalists encounter today. To meet the demands of the public, news organizations, and the natural environment, as well as to respond to the specific challenges that journalists experience, handbooks were written for new and veteran journalists alike who cover the environment occasionally or on a regular basis. These handbooks began to evolve in the 90s, as editors, educators and journalists became more concerned about the quality of environmental journalism. In 1990, the Society of Environmental Journalists (SEJ) developed. Then, in 1991, the Environmental Journalism Center of the Radio-Television News Directors Association and Foundation was created. After that, the Center for Environmental Journalism at the University of Colorado at Boulder developed in 1992, and then the Knight Center for Environmental Journalism at Michigan State University in 1994. These are just a few of the organized efforts that took place after 1990 in connection with environmental journalism.

This thesis' literature review revealed the challenges and criticisms of environmental journalism, as well as the tips and frameworks offered to improve. Then, a qualitative document analysis examined the handbooks on environmental journalism to explore the information presented there to assist journalists writing about the environment. How do these handbooks respond to the literature? What conversation is taking place between the two? What can we learn about environmental journalism from these handbooks? Ultimately, how should journalists cover the environment, according to the conversation between the scholarship and handbooks? This subject is of utmost importance considering the possibility that the handbooks could influence the media, who influence the public, who influence the government and assist in the creation public

policy. Thus, the media's presentation to the public about the environment has significant consequences, and the tools they use may present repercussions. These handbooks serve as rich documents full of lessons on environmental journalism.

The researcher found little commentary, and no studies or analysis of these handbooks written for journalists covering the environment. In one of the only references found on these handbooks for journalists covering the environment, Willis and Okunade (1997) mentioned the 1989 version of *Chemicals, The Press and the Public*, a handbook for journalists on chemicals. They explained, "Press guides can be extremely helpful, especially given the lack of knowledge of general assignment reporters about specific health hazards they never covered. But a word of caution: some of the agencies publishing press guides may indeed have a vested interest in the industry producing the health hazard or be biased in their anti-industry stance" (p. 77). This thesis examined the features of these handbooks.

Importance of Study

The media are often the sole source the public receives information from concerning environmental issues and other science-related topics. As LaFollette (1990) wrote, "Americans have primarily, if not exclusively, learned about science and scientists in school or through the news and entertainment media" (p. 18). The task of educating the public about general scientific and technological challenges is upon the mass media (Nelkin, 1995; Rubin and Sachs, 1973). As Goodfield (1981) found, "The public are those whose science teachers are the media" (p. 8).

The messages the media make can be as consequential as the issue itself.

LaFollette (1990) said, “The journalists could visit the scientists’ lairs and bring back accounts of what was going on, could even translate for the inhabitants. The social separation of the work of science, as well as the technicality of the language, magnified the importance of these media accounts” (p. 4).

What is deemed important by the media is often what the public deems important. Nelkin (1995) in *Selling Science* suggested that the media help create reality and set public opinion through the frame they provide around science news. She also believes that science writers shape the public’s consciousness about science-related events. The media’s selection of news assists in setting the agenda for public policy and encourages the public to examine the social, political, and economic system. In addition to the public, government officials, experts, and other decision-makers also obtain information from the media. This information can have a lasting effect on society through the formation of laws, regulations, and other innovations. As Gregory (1991) found, the news media help develop the public’s perception of health or environmental risks by facilitating a two-way conversation between technical experts and the public, and from the public to scientists and government or industry decision makers (p. 2). Media interpret scientific findings for the public, provide selective summaries of key information and overall assessments of scientific study (Gregory, 1991).

The media can affect decisions, research and development in the fields of human health and environmental quality. As described by Cohen (1963), the press “May not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about” (p. 13). McCombs and Shaw (1972) identified

this phenomenon as the agenda-setting function of mass media (p. 177). The agenda-setting function found that the media could set the public's political agenda, and make certain issues more important and salient than others. By ignoring a topic, the media tells the public it is not important.

Assuming that the media can set the public's agenda, and influence the public who can influence city, county, state and federal government, one places power in the media. Nelkin (1995) found that visibility through the media is needed for financial and public policy support and that media reports influence such support. Thus, the press can lay the groundwork for establishing research directions and credibility of requests for funding by scientists, environmental groups, and other organizations. Public understanding of the social implications, technical justifications, and political and economic foundations of science is in the interest of an informed and involved citizenry (Nelkin, 1995). To provide funds, the public must understand what the funds will do. Goodfield (1981) listed many reasons why the public needs to be informed about science:

The public's right to know about science and its implications is paramount. First, it needs to know the hard facts of scientific discovery and their relationship to past and changing ideas. Second, it needs to know what are the current scientific and trans-scientific issues, the areas of concern and debate, especially as they relate to the impact of scientific ideas on those social and political issues on which the public will be voting or on which citizens should make their opinions felt. And third, the public needs to know about the actual nature of the scientific process, for this, as much as the content of science, should be comprehended. The patterns,

the limits, the nature of discovery, the balance of certainty and uncertainty must be made explicit. (p. 88)

Most importantly, as LaFollette (1990) suggested, what Americans believe about science determines what they expect of it, what they allow scientists to do. What the public wants from science eventually determines what they pay for.

Environmental journalists have a challenging task before them. What they translate for the public is a language full of possibilities. The presentation of information, ideas, and outcomes is a significant assignment. Environmental journalists can have an influence on society, and consequently make significant impacts on the future. As Gore (1991) stated, “The media have a responsibility to inform and to educate, to tell us not only what is happening today but also why it is happening and what it will mean to us – today *and* tomorrow” (p. 183).

Communication of information to the public about environmental issues is critical to the public’s perception of the environment and what public policies will result. Specifically, communication about the environment becomes a social process with social consequences of how people live, and then, a democratic process of how people govern and are governed. As Ackland (1995) said, the core of the theoretical concept of democratic societies depends on the media to make information available, and “good journalism ultimately contributes to good public policy” (p. 250). “The goal is to enrich the public’s understanding of environmental issues by elevating the quality of media” (p. 254).

For the reasons explained above, environmental journalism is extremely important. As the public learns and is informed by the media, the quality of the media

accounts is critical. Thus, the process of the practitioner, and the tools the practitioner uses are also important. For, as Rogers (2002) referred to environmental journalism, the craft is firmly entrenched as a key beat in American journalism (p. 32). Hence, the handbooks and scholarship of environmental journalism are important and worthy of examination. As an illustration, Valenti (1998) found, “SEJ’s membership has climbed over 1000 members and expanded to international affiliations. Trends in this specialty area of reporting may provide indicators for the continuance of journalism in the future and invite a renewed discussion of needed protocol to assure quality” (p. 226). The examination of the conversation between the literature and the handbooks for environmental journalists will serve this end of examining how to assure quality, or how journalists should report on the environment, according to the conversation between the literature and the handbooks. As well, examining the conversation between the literature and the handbooks reveals whether or not the academy and the practice agree on how to respond to the criticisms and challenges of environmental journalism, and if they are offering up the same tips for improvement.

As Friedman (1991a) wrote,

More and more people, including those in the profession, are calling on environmental journalists to change, to become educators rather than just providers of information...Environment is becoming such a predominant issue that it will eventually permeate almost every beat. Every reporter, not just specialists, will occasionally be writing about the environment from some perspective. But while any good reporter can provide the facts, it will be the environmental reporter’s job

to provide the context and background that readers and viewers need to understand the issues. (p. 27-28)

To continue, on a global level, Salayakanond (1994) said environmental journalism is not an easy beat to cover, but one of extreme importance. Finally, as Willis and Okunade (1997) wrote about risk communication, a form environmental journalism can adapt, “No other area of reporting so demands that the journalist get the facts straight as risk communication,” (p ix). They found, “Of the many types of stories conveying risks, probably no other type affects so many potential victims as environmental hazards...environmental stories are all around us and affect us all in one way or another” (p. 75).

Methodology

This research was threefold. First, a literature review of environmental journalism revealed the criticisms of environmental journalism, the challenges of environmental journalism, and tips to improve environmental journalism. Second, a qualitative document analysis examined handbooks published for journalists covering the environment to capture definitions, meanings, and similarities and differences among them. Third, the results of the literature review and the results of the document analysis were compared to examine if the handbooks respond, emulate, or differ from the literature content. Through this process, this thesis contemplated, “How should journalists cover the environment, according to the conversation between the literature and the handbooks?” The findings include five qualitative document analyses of

handbooks, and a comparative essay of the handbooks to the scholarly literature. These findings were based on the researcher's interpretive analysis.

The sampling method for the handbooks was progressive theoretical sampling. As Altheide (1996) wrote in the book *Qualitative Media Analysis*, "This refers to the selection of materials based on emerging understanding of the topic under investigation. The idea is to select materials for conceptual or theoretically relevant reasons" (p. 33-34).

This researcher's aim was to examine the most "typical" handbooks. Typical handbooks are those that any type of journalist could use, not just print or broadcast. Typical handbooks offer information on an array of environmental issues, rather than information on just one specific issue. Lastly, typical handbooks are in print or available to print from the Internet.

The researcher excluded from the group of handbooks examined a guide written by Lou Prato (1991) entitled *Covering the Environmental Beat: An Overview for Radio and TV Journalists* because it was written for a specific type of journalists. The researcher also excluded the Radio-Television News Directors Association and Foundation's (2003) *Best Practices in Environmental Journalism* because it is a video. For inclusion in the group of handbooks examined in this thesis, handbooks must have fit the criteria to be considered "typical." Again, these typical handbooks were those that any type of journalist could use, not just print journalists or just broadcast journalists, handbooks that addressed an array of issues, not just one environmental issue, and handbooks that were in print or available online to print from a computer, not videos or tapes.

To date, no list of handbooks for journalists covering the environment exists, so one was compiled (See Appendix 1). In searching on the Internet to find handbooks, Google, World Cat Database, and Web Sites such as the Environmental Communication Network, the Society of Environmental Journalists, the Radio and Television News Directors' Foundation, and the International Center for Journalists were used. The final list identifies 40 handbooks for journalists covering the environment. However, this list is not all-inclusive. An extensive search on the Internet may yield even more various types of handbooks for reporters covering the environment.

Please note that that this study did not analyze textbook resources for environmental communication or journalism, as would be used in a classroom. Nor is it examining brief, five to ten-page pamphlets written for journalists reporting on a certain issue, published by a government agency or private company. This study primarily looked at those resources journalists on the job might use as a place to obtain background information quickly on an array of issues, as an alternative to visiting the Internet. Together, the five typical handbooks represent one genre of information to which journalists can turn when covering the environment.

According to Altheide (1996), "Document analysis refers to an integrated and conceptually informed method, procedure, and technique for locating, identifying, retrieving, and analyzing documents for their relevance, significance and meaning" (p. 2). Altheide explained the approach to document analysis is guided by the theoretical and methodological position set forth by George Herbert Mead, Herbert Blumer and Alfred Shutz. The assumptions are consistent with the symbolic interactionists' perspective, which includes a focus on the meaning of activity, the situation in which is emerges, and

the importance of interaction for the communication process (p. 8-9). The result of this study was solid, descriptive material developed through a theoretically informed manner, which is based on the literature of environmental journalism. The documents in this study, the handbooks, enabled the researcher to, as Altheide writes, 1.) Place symbolic meaning in context, 2.) track the process of its creation and influence on social definitions 3.) let our understanding emerge through detailed investigation, and 4.) possibly use our understanding from the study of documents to change some social activities including the production of certain documents (p. 12).

Described as “ethnographic content analysis,” qualitative document analysis finds the meaning of the message reflected through information exchange, format, rhythm, and style including aural and visual (p. 16). As Altheide (1996) wrote, “ECA is not oriented to theory development but is more comfortable with clear descriptions and definitions compatible with the material. Central is the importance of constant comparison, contrasts, and theoretical sampling” (p. 17).

After obtaining all five of the typical handbooks on the list of handbooks (please see Appendix 2 for the handbooks examined), the researcher then developed a protocol sheet based on the suggestions from Altheide (1996) and also influenced by the methods presented by Strauss and Corbin (1990). Please see Appendix 3 for the protocol sheet. The handbooks were open-coded for content, writing style, tone, tips, meanings, miscellaneous features, and themes. As Strauss and Corbin defined, open coding is “The process of breaking down, examining, comparing, conceptualizing, and categorizing data” (p. 61). Interesting details and quotes were noted with corresponding page numbers.

To compare the results from the handbooks with information in the literature review, an extensive review of the literature was performed. The literature review began with books and articles on environmental journalism. The references in these led to the discovery in the next book or article with more references. Books, journal articles, Web sites and trade magazine material created the substance of the literature review.

To compare the literature and the handbooks, the findings of the document analysis and the categories in the literature review were treated as two separate entities. Then the researcher used a point of view as if the two were having a conversation. To compare, the researcher then asked, “What would they say to each other? Are they in agreement with each other, offering similar ideas on how to do environmental journalism? How exactly do the handbooks respond to the literature? Are the two on the same page?”

Explication and Definitions

Environmental journalism carries an array of possible meanings, and often embraces several at once. It can be considered an advocate’s beat, journalism with a purpose, or simply journalism about the environment. Elements of the science and health reporter’s beat also play a part in the environmental journalist’s job.

Over time, the definition of environmental journalism has varied, and environmental issues have changed from traditional, preservation ones to more modern, pollution-related ones, and the way the media have covered the environment has also changed. Environmental issues can range from those associated with the natural environment of the earth, or those associated with environmental threats to the health of

living things. Today, media coverage of the environment may be classified as risk reporting or science journalism, or as part of a more general field called environmental communication.

In one of the first articles on environmental journalism, “Environmental reporting...sometimes the shrill voices get more credence than they deserve,” Hendin (1970) asked, “Is there any reporting that isn’t environmental reporting?” (p. 15). He continued, “The environment is the world people live in, and ecology is the relationship of living things – men, animals and plants – with their environment. When one discusses environmental reporting, I suspect he really means reporting on the deterioration of ecological relationships, the upsetting of the ever-so-delicate balance of nature”(p. 15). Since the beginning, environmental journalism has been a complex beat, encompassing more than just the environment. Often, politics, economics, and social issues play a part.

In considering definitions of environmental journalism, one may consider the process or purpose of environmental journalism in order to define it. For example, the Environmental Communication Resource Center, established in 1996 at the School of Communication at Northern Arizona University, defined environmental communication as the communication of environmental messages to audiences by all means and through all channels. The definition continues,

Environmental communication may be considered a process that involves both communicators and audiences and is achieved through effective message delivery, interactive listening, and public discussion and debate. We envision such communication as the foundation for establishing relationships between people and the environment and as a means for enhancing environmental literacy and

sustainable environmental practices. (Environmental Communication Research Center, 1996)

Here, environmental communication is a process with a purpose. As well, Frome (1998) presented a similar definition, declaring environmental journalism is “writing with a purpose, designed to present the public with sound, accurate data as the basis of informed participation in the process of decision making on environmental issues” (Frome, p. ix).

He elaborated,

Environmental journalism differs from traditional journalism. It plays by a set of rules based on a consciousness different from the dominant in modern American society. It is more than a way of reporting and writing, but a way of living, of looking at the world, and at oneself. It starts with a concept of social service, gives voice to struggle and demand, and comes across with honesty, credibility, and purpose. It almost always involves somehow, somewhere, risk and sacrifice (Frome, p. 21).

Another writer, Ronald (2003) used the terms “environmental literature,” “nature writing” and “environmental journalism” interchangeably. Ronald defined “environmental journalism” as

A form of nonfiction prose that centers its attention, and ours, on the land around us. While it most often expresses a preservationist bias, or at least a conservationist slant, it also can be steadfastly neutral or even mildly prodevelopment...significantly, environmental journalism pleads for a reappraisal of values in a contemporary world, one that its practitioners, sadly enough, find

valueless. At any rate, it makes us think – about the landscape, about the land, about ourselves. (p. 169)

Ronald's definition seems to encompass only written environmental communication, but offers different purposes for the same term.

In contrast, Ward (2002) contemplated environmental journalism in terms of the advocacy-objectivity debate.

This pairing of words strikes me as an oxymoron. Environmental journalism? The noun trumps the adjective in the hearts and minds of reporters who are most committed to their craft. Environmentalist writers, yes. Environmentalist journalists? Not by the strict definition of journalism. The effort to inform and to separate fact from fiction in the forever- elusive pursuit of “truth” or accuracy comes first. (p. 40)

The debate over whether environmental journalists are, or should be, advocates for the environment, is a persistent one in the field. Some meanings of environmental journalism come with a mission while others are against any purpose other than to inform the public in an accurate and fair manner. When considering different purposes of environmental journalism, different definitions emerge.

To understand environmental journalists' own definition of “environment reporting,” Rubin and Sachs (1973) asked survey respondents to define the term. Reporters' definitions of environment reporting ranged from “Reporting on physical resources” to “everything” (Rubin and Sachs, p. 42). Some restricted their definition to the negative aspects, such as threats, pollution or deterioration. Over a third of the reporters restricted their definitions to coverage of physical resources such as air, water

and land, while nearly half of the reporters concentrated on humans, or threats to people caused by pollution or threats by humans to their environment. Willis and Okunade (1997) wrote, “Environmental journalism and crusading journalism have often been synonymous. In the more recent past, however, some environmental journalists have wondered where the line should be drawn between crusading – almost advocacy – journalism, and objective, scientific reporting of the facts” (p. 84).

Other scholars present more practical definitions of environmental journalism. Valenti (1998), in the article “Ethical Decision Making in Environmental Communication,” seemed to use the term “environmental communication” simply to mean reporting and writing about environmental issues. She acknowledged though, how environmental journalism has often been criticized of being more environmentalist than journalist (p. 219).

Pleasant, Good, Shanahan, and Cohen (2002) defined environmental communication as “The link between communication practices and environmental affairs” (p. 197). This definition was borrowed from the Environmental Communication Commission of the National Communication Association. As shown here, the meaning of environmental journalism can become very complex, or quite simplified, depending on the source and context.

It is important to note that while the areas of science journalism, risk communication, and environmental journalism overlap, they are not one and the same. Sharing some important elements, not all science journalism is environmental journalism and not all risk communication is environmental journalism. However, much

environmental journalism can be classified as risk communication and/or science journalism.

In the scholarship of journalism, science journalism is the oldest of the three and risk communication the newest. As Sachsman (1996) explained, “From the 1970s on, the list of specialized science communication fields became longer and more detailed: environmental communication, health communication, risk communication, press coverage of science and technology and more” (p. 248). In looking at the field of environmental risk communication, Sachsman said risk communication deserves to be considered its own area of study because it really is an environmental and health communication and perception field (p. 248). “By the mid-1980s, from any kind of academic perspective, it no longer made sense to discuss environmental communication or environmental reporting in a vacuum...increasingly, the terms in academic use were environmental risk communication and environmental risk reporting, and risk generally referred to the health risk involved in the environmental issue” (p. 249).

As they described “risk” as the new buzzword in science communication, Wilkins and Patterson (1991) found in the early 1980s that issues of environmental quality began to dominate the agendas of certain federal agencies, and the concept of risk communication emerged (p. xvii). “Under this new body of scholarship, risk communication was viewed as the one-way transmission of information about various risks in the environment from the expert, scientific community to the lay public” (Wilkins and Patterson, p. xvii).

According to Krinsky and Plough (1988), since 1986, “Scores of titles with the term ‘risk communication’ have appeared” (p. 2). Willis and Okunade (1997) defined risk

communication as occurring whenever the news or entertainment media depict dangers – potential, imminent, or existing – that could place at least some readers or viewers in a health risk (p. 1). They continued that risk communication casts a very wide net including health, science, crime, and the environment (p. 5). Authors Singer and Endreny (1993) defined risk as “the probability of property damage, injury, illness, or death associated with hazard. In the definition of a hazard, they followed Hohenemser and his colleagues (1983), who define hazards as ‘threats to humans and what they value.’ Toxic waste, low-level radiation, salt, tampons, automobiles, hurricanes, malaria – all these are ‘hazards’ as we use the term” (p. 6-7). Such a definition of risk does apply to environmental issues, and journalism about the environment.

This thesis considered aspects of risk communication studies because of its direct relation to environmental journalism. Many environmental stories encompass important facets of risk, and in communicating about the environment, there will likely be communication about risk as well. To show this, in their study on the literature of environmental communication, Pleasant et al. (2002) found the strongest concentration of environmental communication articles per journal in the aspect of environmental communication concerning risk (p.201). Additionally, from 1985 to 1990, as Sachsman (1999) described, the Environmental Risk Reporting Project took place to teach journalists about risk assessment (p. 115). “The project’s underlying assumption was that environmental and health journalism would be improved if reporters thought – like scientists – in terms of the degree of risk and if environmental news stories concentrated on the issue of risk” (p. 115). Sachsman said those involved in the project taught and

believed that risk was the most meaningful way to evaluate and report about the environment (p. 119).

In defining science communication, another field closely related to environmental journalism, Burns, O'Connor and Stocklmayer (2003) used a purpose-oriented definition.

The use of appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science (the vowel analogy)

Awareness, including familiarity with new aspects of science, **E**njoyment or other affective responses, e.g. appreciating science as entertainment or art, **I**nterest, as evidenced by voluntary involvement with science or its communication,

Opinions, the forming, reforming, or confirming of science-related attitudes,

Understanding of science, its content, processes, and social factors... This

definition clarifies the purpose and characteristics of science communication and provides a basis for evaluating its effectiveness (p. 191).

Such a definition considered more types of communication than that which only takes place through the media.

For this thesis, science journalism means media coverage about science for a general audience. As well, risk communication, or more specifically, risk journalism, a term not found in the literature, but for purposes here, means media coverage about risk for a general audience.

In the most broad context, environmental communication, or the communication of environmental information, includes public relations communication about the environment, advocate communication to change behavior toward the environment, communication for educational purposes on the environment, and more forms that are not

exhaustively detailed here. In mentioning these varieties of environmental communication, the researcher contrasts them with environmental journalism, a specific type of environmental communication, and the one of most importance to this study.

For the purposes at hand, “environmental journalism” means mass media coverage by a journalist about the environment for a general audience. Herein, “mass media” or simply, “media” refers to newspapers, television stations, magazines, and radio stations. This definition of media does not include specialized, niche mass media such as scientific environmental journals or specialized trade magazines. The purpose of environmental journalism is to inform the public so they make the best decisions in a democracy.

A final term that should be understood before moving forward is “handbook.” In this study, handbook refers to a guide, manual, or reference book providing information or instruction. Specifically, the handbooks examined here had to be in print, or available online to print from a computer, and targeted to any type of journalist, not just broadcast or print. Lastly, the handbook had to address several environmental topics to be included as a handbook under examination, not just one specific subject.

CHAPTER TWO

Literature Review

In the study “The Literature of Environmental Communication,” Pleasant, Good, Shanahan, and Cohen (2002) collected citations of all papers matching specified keywords covering environmental communication topics in the social science journal literature from relevant indices from 1945 to 2001. They found, “Environmental communication research really began to take off in 1985 when the number of articles doubled from the previous year” (p. 201). They concluded that, with the substantial amount of academic literature on environmental communication scattered in different journals of communication, science, and risk, there should be a specialized journal offering a discussion forum on only environmental communication (Pleasant et al.).

Research articles about communication and the environment can be found as early as 1973 in *The Journal of Environmental Education*. Academic scholarship has swelled in environmental communication studies in the form of books, journal articles, and in discussions in communication trade magazines over the last thirty years. The amount of literature concerning environmental journalism is vast, in the form of quantitative and qualitative research.

Often, the literature on environmental journalism leads one to the literature of science and risk communication, and the literature on science and risk communication leads one to the literature on environmental communication. Consequently, this study

incorporates information from the literature on risk communication studies and science communication studies. But, the literature on science or risk communication isn't exhausted here because that would confuse the purpose, which is to concentrate on the literature of environmental journalism. However, much of the discourse on science journalism applies to environmental journalism, as risk communication scholarship applies to environmental journalism.

For the purposes of this study, the researcher identified some main categories of interest running through the literature on environmental journalism. These include: criticisms of environmental journalism, challenges to environmental journalists, and tips for environmental journalists. The researcher acknowledges that topics like ethics and quality in the body of literature of environmental journalism attracted the researcher to them.

John Pauly (1991) in "A Beginner's Guide to Doing Qualitative Research in Mass Communication," said "Qualitative researchers often choose to study mass communication in one of three ways: as a process, as a product, or as a commentary" (p. 3-4). Through this researcher's review of the literature, environmental journalism is viewed as a product through the criticisms of environmental journalism, and as a practice through the challenges to environmental journalists and tips for environmental journalists. The handbooks on environmental journalism will later be viewed as a commentary in response to the literature.

The story written in the literature describes the beginnings, maturity, and life lessons of environmental journalism. Challenges, critiques, and tips stand out, both for the process and the product.

Criticisms of Environmental Journalism

Traditional news values include timeliness, proximity, prominence, consequence, conflict, and human interest. These often determine coverage of an issue more than anything else, and many of the criticisms of environmental journalism directly and indirectly criticize these traditional news values and the manifestation of them. Because environmental issues are different from many other news topics, environmental journalists may do more harm than help when adhering to news values like timeliness, conflict, and human interest.

In trying to understand how the mass media might better provide information on complex and uncertain issues, Rogers (1999) conducted research with focus groups on the subjects of AIDS and global warming. Some concerns the groups expressed included lack of information, lack of context, confusion about the story structure, that reports included an array of different points, that visuals were distracting or contradicted the content, and that story framing was confusing (p. 188-195). Many of these complaints stem from the incorporation of traditional news values.

Sachsman (1996) thought that what might seem to be bias on environmental journalists' part could simply be the normal tendencies of journalism (p. 250). He described,

Through more than twenty years of environmental coverage, journalists have stuck to their own news values...rather than moving toward or emphasizing 'importance,' the one value they share with science. By maintaining their own standards, they have kept control of their own agenda, and it has been this media agenda of prominence, proximity, timeliness, and human interest as well as

consequence that has influenced what the public has thought about, if not what people thought (p. 254).

In an additional article, Sachsman (1999) stated, "Reporters generally apply the same standards to science reporting that they do to Hollywood or sports reporting" (p. 115). Arguing that journalists are more loyal to their traditional news values, Sachsman (1999) continued, "By hanging on to their own ways of looking at things, the media steered clear of the influence of those involved in environmental affairs. They set their own environmental agendas instead of depending on the value judgments of their sources. The many independent voices of the mass media were maintained" (p. 120). Because environmental journalism, like science journalism, is so complex and can be highly technical, scholarship criticizes coverage that utilizes the same traditional news values found in other news (Greenberg, Sachsman, Sandman, & Salomone, 1989).

In a study of risk news stories on hazards, Singer and Endreny (1993) found errors such as statements that were substantially different from the research report, different emphasis in a story from the research report, and that important information was omitted from the original report to the story (p. 157-158). The authors believe, "If readers and viewers are not made aware of these contingencies, if mass media accounts do not reflect limitations in the data or the research method used, and if conflicting findings are presented without interpretation or evaluation, then flaws exist in the communication process, whether we call these flaws inaccuracies or give them some other name (p. 157). The authors concluded that reporting about hazards is ordinarily reporting about events rather than issues, and about immediate consequences rather than long-term considerations. Alternatives, risks, benefits, moral or ethical issues, and even economic

issues were for the most part ignored. But, they continued, “Nothing in the rules of journalism says that the reporter must, in addition to describing an industrial accident, also inform readers about the likelihood of such an event occurring again, or about the risks posed by the industry in general, or about alternatives and their benefits and costs” (p. 163).

As it can be seen, traditional news values depreciate journalism on the environment. To continue, through his study of radio broadcasts, Darley (2000) said the need for conflict and news as entertainment will hinder coverage of the issues of the environment (p. 164) and claims the environment demands keener and deeper reporting and discussion techniques. The question, he said, should not be “Will this entertain?” but rather “Is this what we need to know?” (p. 166). As Allan (2002) found,

Many of the deficiencies indicative of Western news coverage of post-Chernobyl [1986] developments in nuclear energy are attributable to the journalistic search for the novel and the unusual, for dramatically compelling ‘news pegs’ confinable within episodic narratives...an emphasis on specific events, such as accidental ‘leaks’ or ‘spills’, to the detriment of a thorough accounting of the embodied risks for citizens over a period of time longer than yesterday’s headline. (p. 109-110)

Allan concluded that reporting which reduces environmental risks to isolated events or incidents, to “personalities” made to stand for larger economic, political, and cultural factors, fails to make the necessary connections at a social structural level (p. 119).

Environmental journalism is often belittled because of tendencies to be event-oriented, and failure to explain larger issues (Allen, Adam, and Carter, 2000; Anderson, 1997).

Lundberg (1984) found coverage of tropical rain deforestation in magazines

comprehensively covered causes, effects, and background information, but addressed solutions and documentation least (p. 382). Another complaint has been that journalists tend to be crisis-oriented on the environmental beat (Hertsgaard, 1989).

To turn to the literature on journalists who cover science, Stocking (1999) found several groups of consensus: Journalists make science more certain than it is by loss of caveats, single-source stories, lack of context, being more interested in the product over the process, and assuming science will bring a triumphant quest (p. 24-27). On the other hand, some journalists make science appear uncertain and baffling (Krimsky and Plough, 1988; Stocking, 1999). Stocking also found journalists don't explain flip-flops in science's findings of one thing one day, and something completely contradictory the next. Also, journalists sometimes give equal weight to majority and fringe scientists, as well as scientists and nonscientists (Stocking, p. 28-29). To account for these different patterns, Stocking discussed journalists' ignorance, education and experience as factors, journalists' concerns for scientists' values as well as allegiance to their own profession's values and standards, media routines and organizational demands (p. 32-33).

This researcher has identified specific criticisms in the literature that appear to be environmental journalists' "easy-way-out" while adhering to traditional news values. As Goodfield (1981) found, "Many scientists believe that too many people in the media always will present the public with simplistic stories rather than struggle to explain complicated truths" (p. 7). Environmental journalism often demands thorough background investigation, translation of technical information, and consideration of larger issues like future consequences. As Goodfield (1981) states,

The temptation is, of course, to take the shortcuts, and this is often done. There are two kinds of shortcuts: one is simply not to go deep enough or spend time enough to find the correct story; the other is to create interest in an irresponsible way, by bending the facts, exaggerating the impact, distorting the consequences, indulging in a spot of free association, even just getting things plain wrong and not caring (p. 18).

Journalists often want just a general understanding because of the constraints they work under, and don't interpret underlying issues (Nelkin, 1995). For example, Sachsman (1976) found that journalists often rely heavily on press releases, resulting in coverage that is actually done by a public relations practitioner. Taking the easy way out of a complex subject does not have positive consequences for anyone involved -- the media, the environment, or the public.

Friedman (1999) found that "covering long-term issues in which the science is uncertain and keeps changing is not the media's forte...the media has serious problems covering long-term aspects of this issue...rarely did they tell people how much knowledge scientists lacked about some of the elements in the risk estimate equation" (p. 132). Likewise, in criticizing journalism for its simplicity, Shabecoff (1993) found, "The mass media have probably been more effective than the slow-off-the-mark schools in educating the American public about the nation's ecological problems -- although not necessarily about potential solutions" (p. 137).

In addition to lacking long term coverage, Rubin and Sachs (1973) found that the environmental beat is prone to "Afghanistanism" which "permits perceptive coverage of problems in other parts of the country but produces myopia in dealing with similar

problems at home” and “is characterized by the presentation of bold editorial solutions for the problems of countries halfway around the globe but only silence for problems at home” (p. 252).

Environmental journalism is also criticized for always obtaining information from and using traditional, dominant sources like government officials (Lacy and Coulson, 2000; Rubin and Sachs, 1973; Sachsman, 1976; Smith, 1993). In their comparative source study on source use on the environmental beat, Lacy and Coulson wrote, “Traditional bureaucratic types of sources criticized by some scholars continue their dominance in shaping the news about an important public issue,” (p. 22). Sources with expertise, but not affiliated with government, such as sources at universities were used only occasionally (p. 23).

Corner and Richardson (1993) summarized mediations of the environment in the news as

...Often characterized by a strong element of threat and risk, ranging from ill health to planetary death...Following from this, many images and phrases used in coverage acquire a highly charged symbolic resonance...and given the scientific nature both of many perceived threats to the environment...and the detection and assessment of such threats...there is often a core of esoteric, ‘expert’ knowledge at issue in many environmental stories” (p. 223).

Finally, Simon (1980) in *Science* found that “Bad news about population growth, natural resources, and the environment that is based on flimsy evidence or no evidence at all is published widely in the face of contradictory evidence” (p. 1432). Simon found the reasons to be: 1.) There is a funding incentive. 2.) Bad news sells. 3.) There are a host of

psychological explanations. 4.) Such warnings can mobilize institutions and individuals to make things better. He concludes by asking, “Who will tell us the good-and-true news? How will it be published for people to learn?” (p. 1437).

To sum up, criticisms of environmental journalism include lack of context, confusing story framing, coverage with insufficient information, an emphasis presented that differs from reality, reports of events rather than issues, a focus on conflict or entertainment, n inclusion of solutions to environmental problems, use of traditional news sources, simplistic stories that don’t make larger connections, coverage that is crisis-oriented, the making of science as more certain than it really is, a reliance on press releases, a lack of long-term coverage, “Afghanistanism,” or coverage that lacks locality, and stories that sell rather than inform.

Challenges to Environmental Journalists

Many of the same challenges that apply to journalists in general are the ones that challenge environmental journalists. However, some challenges are very specific to environmental journalists, but also apply to science journalists and risk journalists.

As early as 1973, Sellers and Jones listed many of the difficulties the mass media face in covering the environment. News traditions including event reporting, objective reporting, and writing about response rather than initiative challenged journalists. Advertiser pressure, management policy, unavailability of information, provincialism, reluctance to trust conservationist sources, and space, time and finances all created special challenges for environmental journalists (p. 51-56).

As Friedman (1991b) said, the amount of attention in the media given to the environment has significantly increased, but,

The environmental beat of the 1990s is not very different from what it was in the 1970s. While quantity may be up and environmental topics different and more varied, the quality of environmental coverage presents many of the same problems it did 20 years ago. There are other similarities as well. No one knows now – just as no one knew then—how many environmental reporters there are working in the mass media or just what topics fall under the rubric of environmental reporting. Where does one draw the line between science and environmental reporting, or between political and environmental reporting? (p. 19)

Environmental journalists must wear many different hats. “The environmental news writer is as much a business news writer as a science writer or political reporter since the decisions of private business materially affect the quality of the environment” (Rubin and Sachs, 1973, p. 31). However, “The average business page is not a promising place to seek quality coverage of public utilities, the nuclear power dilemma, land development, water resource, or other environmental problems. The level of reporting is often low; the section is oriented toward investment news, puff; the pressures are great” (Rubin and Sachs, p. 33). The environmental journalist’s beat is extremely challenging because it encompasses the topics of many other beats like law, business, and politics (Bowman, 1978; Detjen, 1997; Friedman, 1991b; Sachsman, 1999; Schoenfeld, (1980); Wilson, 2000).

To understand and write about the environment is a tall order. Friedman (1999) explained, “Tracking a long-term controversy such as dioxin is difficult enough for scientists who spend years studying the issue. For journalists, keeping abreast of all the scientific data and arguments is an almost impossible task because they must keep track of a wide range of other scientific and environmental news, not just one issue” (p. 114). The sheer science on the environmental journalist’s beat presents another major challenge to journalists (Anderson, 1997; Archibald, 1999; Detjen, 1997; Goodfield, 1981). Overall, there is wide agreement that environmental journalist’s beat is innately complex (Anderson, 1997; Bowman, 1978; Fisher, 1974; Friedman, 1979; Gee, 2000; Harrabin, 2000; Miller, 2003; Willis and Okunade, 1997; Wilson, 2000). As Sandman, Sachsman, Greenberg, and Gochfield (1987) stated, “The most fundamental problem characteristic of environmental news reporting is that environmental risk information is neither easy to obtain nor easy to understand” (p. xii).

Today, coverage of the environment is not only reporting current practices, issues, and trends, but what kind of repercussions they will have, in the social and political realm (Goodfield, 1981; Hamilton, 1991; Nelkin, 1995). The difficulties in reporting on the environment involve uncertainties associated with research and innovation and with their long-term, real-life impacts (Gee, 2000). Knowing what new developments mean to society and how they are going to affect the lives of individuals is important to the public at large. Singer and Endreny (1993) asked,

The fact is that scientists often disagree, from whether or not the ‘big bang’ theory can explain the origin of the universe, to whether or not electromagnetic fields are

capable of causing cancer, to how much of a threat radon in homes really is.

Under these circumstances, what does accurate reporting demand? (p. 165)

Scientists and other experts often disagree about the facts, making it hard for journalists to judge the testimony (Corner and Richardson, 1993).

Furthermore, Smith (2000) discussed challenges to media covering the environment. He asked, "How to tell stories about highly complex science and policy debates which unfold slowly in meetings and journals?" and "How to ensure that coverage of the deep underlying issues of environment and sustainability don't get bounced out of the way by late-breaking news items?" as well as "How to represent issues that are important and new, but not 'news'?" (p. 4).

According to Goodfield (1981), one of the common constraints of the media covering science is that science journalism cannot work the same way as basic journalism, in the style of the inverted pyramid. In telling a story about science, the reporter must start by building a series of bridges between the reader's understanding and the essential background information. One builds bridge after bridge until finally an understandable conclusion is reached, but if any one of these bridges is cut out, the whole story collapses. Translation is yet another challenge to environmental journalists, from risk statistics to scientific processes (Anderson, 1997; Fisher, 1974; Krimsky and Plough, 1988). This is compounded with limited time and space for a journalists to explain (Archibald, 1999; Bowman, 1978; Harrabin, 2000; Miller, 2003; Rubin and Sachs, 1973; Sandman et al., 1987). To show this, Sachsman, Simon, and Valenti (2002) reported that New England journalists interviewed said the biggest barrier to reporting environmental

stories was “everyday, practical journalistic process concerns such as time constraints and the size of the news hole” (p. 430).

A challenge journalists face personally is that they don't have an education or background in environmental issues or science (Anderson, 1997; Detjen, Fico, Li and Kim, 2000; Friedman, 1991a) or, as Nelkin (1995) said, “Journalists might avoid substantive questions because they are unable to evaluate what they are told.” Friedman (1991a) noted that some journalists couldn't interpret environmental pollution data and have to ask sources (p. 40). In addition, many environmental journalists, like journalists generally, work in newsrooms in which higher-level constraints influence their work (Detjen et al, 2000).

Most media do not have a full-time environmental reporter on staff. As Farrow (2000) said, “in the US, environment is not a prime beat. Environmental journalists do not stay around very long” (p. 191). As well, resources to pay for environmental journalists and their work is limited (American Opinion Research, 1993; Archibald, 1999; Detjen et al., 2000; Harrabin, 2000; Nelkin, 1995). According to Sachsman, Simon, and Valenti (2002), out of the 55 reporters interviewed who cover the environment at New England newspapers and television stations, only two spent 100 percent of their time on environmental stories (p. 422). More than 40 percent of the journalists interviewed reported their title as reporter, general reporter, or staff writer (p. 423).

Editors are another major challenge for environmental journalists. They may not have interest in environmental journalism, be educated about it, or believe it is important (American Opinion Research, 1993; Izakon, 2001; Miller, 2003; Sandman et al., 1987). Editors choose to describe science so that each description makes sense to their readers,

fits with that audience's general beliefs about science, and therefore enhance the publication's marketability (LaFollette, 1990). The need to create the interest to sell newspapers to readers is another challenge for journalists covering science and the environment (Gee, 2000; Goodfield, 1981). Journalists may feel the need to find the new all the time, which is another challenge since environmental issues are chronic, long lasting issues (Anderson, 1997). Editors usually evaluate news stories based on basis of color and excitement (Nelkin, 1995). All these reasons exemplify the challenge that environmental journalists face covering their beat.

In writing about the organizational requirements of the news media, Willis and Okunade (1997) listed advertising, consumers, and marketable content (p. 33). Within the profession of journalism, there is the problem concerning, "Publishers are dependent on advertising and consumerism, and covering the environment tends to attack that," states Phil Shabecoff in an article by Selcraig (1995). Additionally, as Anderson (1991) found, "environmental news stories rarely make headline news and much depends on the extent to which other social issues command greater political attention" (p. 473). Environmental reporters are competing for space against whatever this week's diplomatic crisis is (Detjen, 1997; Hertzgaard, 1989).

To mention pros and cons, or those for and against, an obvious division is found in the literature between those who believe in environmental journalism as an advocate beat and those who don't. If a journalist does choose to cover the environment with a preservation bias, one might wonder, "What's wrong with a cause like saving the earth? Doesn't everyone want clean air and water to breathe and drink?" One answer is economics. How much is it worth to save one acre of land or one person's life if it costs

taxpayers or industry a substantial amount? Another answer is science. Both sides have science supporting their claims, and the debate becomes a controversial one. Shabecoff (1993) found the issue concerns power.

I have occasionally wondered why business leaders so bitterly opposed efforts to protect the environment...The most likely explanation is that many of our captains of industry simply do not want to be told how to run their companies – not by the government and certainly not by a mob of tree-loving hippie environmentalists. The underlying issue is power – power over decisions that industry possesses and does not want to yield or share (p. 226).

This tog-of-war becomes especially touchy for journalists. According to Izakon (2001), journalists face a hostile environment when covering the environment because people assume a journalist is a tree hugger, leftist political activist.

Smith (1991) quoted Robert L. Rapetto, then senior economist at the World Resources Institute, “most conflicts over whether and how to address environmental hazards boils down to one argument: How much will it cost” (p. 161). Smith wrote,

The solutions to environmental problems will increasingly revolve around trade-offs between social and political goals and economic impacts....To adequately probe the economics of environmental solutions, or the issues that today’s environmental dangers raise for economic development – and inform the public – puts new demands on reporters to examine the assumptions and information paradigm underlying current economic analysis and economics itself. For that they will need to look beyond conventional thinking to alternative visions,

analysis and new ideas about the links between economics and the environment, technology, economic development and regulatory mechanisms. (p. 165)

Social-ideological issues like these are a constant challenge for environmental journalists.

For example, in “The End of Science Writing,” Franklin (1997) wrote about his experience as a writer covering science. He discussed how science

Almost always came out on the glorious end of the story...the public bought this...Scientists thought of themselves as apolitical. That they had that luxury was a measure of the privilege they enjoyed. In our political system nothing is apolitical. As soon as science started being financed by public dollars it was political...What all this means is that science’s political childhood is over, and what is true of science is doubly true for the science writer...When it came to taking important stands, and articulating basic principles, the scientific culture had pretty much taken a walk...It is time for scientists to come to terms with the fact that they’re eating at the political trough and that they’d damned well better make their political case, and make it in a way that real people can understand it.

Challenges to environmental journalists are many, including news traditions, advertiser pressure, management policy, editors, space, time, finances, complexity of the environment beat, the relationships the environment has with other beats, translation of scientific or technical information, reporting repercussions, the uncertainty of the environment, disagreement between sources on the facts, the need to find the new, competition with other news, education of journalists who report about the environment, and the advocate versus objective role on the environmental beat. Luckily, as well as the

criticisms and challenges found in the scholarship, there are many tips and suggestions to assist in improving environmental journalism.

Tips for Environmental Journalists

Researchers offer a plethora of suggestions to improve environmental journalism. They address understanding the needs of the specific audience, addressing environmental issues thoroughly, finding the best sources, covering the environment persistently, using an ethical framework, and developing or increasing training. There are numerous specifics within the literature, but for the purposes here, the most important, general suggestions are noted. For example, Kim (1977) suggests science journalists need to be taught ways to explain science including definition, examples, and analogy (p 81). In this study, that is considered a tip to address environmental issues thoroughly.

Archibald (1999) found the environmental beat should be covered without the influence of ideology, more environmental reporting should be less crisis-oriented, there should be an environmental editor, and journalists should find a way to personify issues. Salayakanond (1994) said the press has three roles to play in the environmental debate: to educate, to expose, and to encourage debate (p. 40). A multitude of specific tips is found in the literature to improve environmental journalism.

Some suggest that science and environmental journalists better understand the needs of their audiences (Krimsky and Plough, 1988; Rogers, 1999; Weigold, 2001). Rogers (1999) found that writers need to provide complete information and avoid making assumptions about the background and level of knowledge of the audience (p. 197). She also found that writers “cannot assume that readers encountered those earlier stories or, if

they did, that they attended to them or can recall them” (p. 197). She asked, “Might audiences have better understood the stories if the reporters had begun with an explicit acknowledgment of beliefs audiences might already have had and then explained how this new information related to that?” (p. 197).

Frome (1998) encouraged environmental journalists to maintain a historical perspective (p. 95). “Awareness and appreciation of the breadth of history help to ‘write whole’ he finds. Environmental journalists need to explore history and expose it fully to public light (p. 96). Concerning interviews, as a pointer, Frome suggested preparation as key. “The more you know in advance, the more you’ll learn. That’s what environmental journalism is all about” (p. xiii).

In Bowman’s (1978) survey of editors, one responded, “The task of the news media is to make complex environmental issues comprehensible to a mass audience. We should place issues in context and avoid coverage of mere symptoms. The story should be told in terms of people and how it fits their daily environment” (p. 10).

Translation of complex scientific information, and thorough explanations of the background on an issue also might help improve environmental journalism (Flannery, 2000; Friedman, 1999; Rowan, 1990). Rowan said journalists have an obligation to explain technical ideas when their comprehension is necessary to the public’s welfare (p. 25). However, Sandman et al. (1987) said reporters need to “make sure they understand the technical material they plan to explain” (p. 101). As Rogers (1999) suggested, stories might do well to answer the “so what?” question (p. 198). “Context is especially important in stories of uncertain science that involve health or environmental risks such

as AIDS and global warming” (p. 198). Schoenfeld’s (1980) interviews with journalists suggested finding the human element in environmental stories.

Goodfield (1981) said it is the duty of the press to see that science journalists are well-versed in scientific issues, educable about the facts, and willing and able to spend the necessary time to do the job properly. “Without such safeguards the consequences of an extended role for journalists could be as dangerous to society as their silence” (Goodfield, p. 86). Specifically, to achieve understanding, Bowes and Stamm (1979) suggested making new and abstract ideas familiar by relating them to something familiar. They call this “interpretation” (p. 26). The obligation of the journalist is to maintain the ethic – doing justice to all situations by digging hard enough and deep enough to bring out the truth. It is not as if the ethics of good journalism are not there, but in the rush to press, they may be ignored, bypassed, or just forgotten (Goodfield, 1981).

Additionally, journalists should address the aspects of uncertainty when it comes to science or risk (Gregory, 1991). Journalists need to explain research procedures and scientific concepts, including validity of tests and understanding methodology (Nelkin, 1995). The press usually believes that science holds the answers, but the press should respect scientists when they say they don’t know the exact risks (Nelkin, 1995). Premature publication of scientific data needs to be avoided, and scientific limitations need to be mentioned. Perhaps the media should act as “an early warning system” to identify hazards before they reach such an advanced state that repair is impractical, suggested Rubin and Sachs (1973). They reported that the media must inform the public of environmental practices being considered by government or business before they have been adopted and should be particularly alert to instances where laws are being violated.

Also, they suggest, the media should attempt to synthesize for the public the solutions to environmental problems put forth by government, citizen groups, business, and the academic and scientific communities” (p. 250).

Sharma (2000) called for journalists who understand and appreciate science and who are at the same time deeply concerned about the environmental crisis and the future of the human society. She continued that journalists need to be able to explain the implications of new technology expressed in global treaties, legislation and undertakings (p. 88). Additionally, journalists covering science and the environment might do well to ask the critical questions, and to analyze issues critically (Nelkin, 1995; Wilkins, 1997). Lazarus (1991) suggested asking the awkward questions, and to know the facts before asking them (p. 101).

In his lecture at the “Environmental Journalism for the 1990s” seminar, Binger (1991) talked to the media,

You have traditionally been what I describe as the eyes, ears and minds of society. You, in a way, influence public opinion unlike any other body of people in this society and the challenge that the media faces is: How do you go from what has been primarily a reactive role in waiting until something is said or done or an experience has happened to one in which you take a more pro-active role in which you yourselves become voices for change, for second thoughts, for alternative ways of looking at issues, to analyze issues, to take an issue of energy or agriculture or land degradation or deforestation and to begin to take that as your story, to begin to research it, to look for other things, to get that communicated to the kids in school to get that communicated to the professors in schools, but above

all to get that communicated through print, through audio-visual aid, through books, or whatever else is needed to get that into the minds of people. (p. 157)

As Valenti (1998) stated, "If journalists do not advocate complete information, the consequence is misunderstanding and poor judgments" (p. 229). Overall, the press should be dedicated to the goal of better communication, understanding, and cooperation, believes Nelkin (1995). The literature also agrees that journalists should strive to remain objective (Archibald, 1999; Fisher, 1974; Flannery, 2000).

Sellers and Jones (1973) suggested that the media turn to academics or conservation expert sources, place effort into providing information before decisions are made about urban growth planning, and, to bring more information to the public domain by accessing government records (p. 57)

Because scientists are fearful of the consequences that could result from becoming entangled with the media, journalists must remember that scientists aren't always neutral sources of information. They may actively seek a favorable press for his/her profession. Journalists need to cite other groups besides experts in a science article to avoid expert bias, suggested Nelkin (1995). Journalists also need to be aware that public relations groups often control the information the media gets. Sachsman (1976) suggested designating a special reporter to the environmental beat who is given the time to analyze information and be a "watchdog" (p. 59). As LaFollette (1990) stated, "A clearer view will be healthy for all concerned – for scientists as well as the public" (p. 184). Using ordinary people who are dealing with environmental consequences, as well as the regular, authoritative sources could also enrich coverage (Detjen, 1997; Wilkins, 1997). Overall, diverse sources should be used (Fisher, 1974; Hertzgaard, 1989; Sandman

et al., 1987). Sandman et al. (1987) suggested reporters find sources who can answer questions about the degree of risk, under what circumstances, and with what degree of certainty (p. 101).

In addition to improving audience understanding, doing thorough background work, or homework, and being diligent about source use, journalists covering the environment are encouraged to maintain coverage on a persistent basis with follow-up stories (Detjen, 1997; Sandman et al., 1987). Hall (2001) wrote an article about the resurgence of environmental reporting due to the controversy over George Bush's administration policies. In the end, Hall quotes Phil Shabecoff, "The environment isn't a one-shot news story – it's something that needs to be covered in-depth, day after day" (p. 10). Friedman (1999) said editors and news directors should become more innovative in the way they cover stories about long-term uncertain science. She found,

Media organizations could also duplicate for other uncertain subjects the innovative approach attempted in the fall of 1997 by *The New York Times*, with its unprecedented coverage of climate change issues. Concentrating on detailing and explaining the scientific, political, economic, and social ramifications of the issue, the newspaper published more than 200 articles that mentioned the subject between September and December... The sheer quantity of stories, if nothing else, drew readers' attention to this uncertain issue in a new way, indicating its growing importance to the country and the world. Such innovative efforts need to continue and grow. The media must recognize the obstacles inherent in covering long-term scientific issues, such as dioxin, and find fresh approaches to them. Only in this

way will they provide coverage that allows the public to understand the evolving nature of uncertain science. (p. 133)

Issues surrounding the environment take a long time to develop, and coverage might improve if it follows in being persistent and long-lasting.

Another way to improve environmental coverage is through a framework of ethics. The literature offers several possible foundations of ethics. The ethics of good journalism must apply with special force to the reporting of science and scientific issues (Goodfield, 1981). Wilkins (1997) suggested that environmental journalists use an alternative frame, “founded in a more communitarian world view” (p. 204). The way to this frame is by speaking two languages, those Enlightenment ones concerning rights and roles, and those communitarian values of connection and responsibility. Overall, “it is focusing on the issue of cooperation that journalists, through the response of the viewers and readers, stand to contribute to the long term health of the body politic” (p. 212). “The goal of such coverage would be to expand both understanding of the issue and the potential policy debates surrounding the question, and to empower the stakeholders in a process that is clearly going to affect those living now, as well as those living in the millennia to come” (p. 213).

Valenti and Wilkins (1995) developed a protocol for ethical risk communication with the following tips for journalists “Journalists have a responsibility to seek this information from a multiplicity of sources and to report it accurately and in a context that includes not only the facts of science but of economics and politics as well” (p.185). “When journalists are reporting risk the resulting stories should facilitate public participation in a communication process” (p. 186).

Allen (2002) wrote about the duty of journalists. “Journalists are charged with the responsibility of imposing meaning upon uncertainties, that is, it is expected that they will render intelligible the underlying significance of uncertainties for their audiences’ everyday experiences of modern life” (p. 91-92). He continued, “the identification of the slips, fissures, silences and gaps in media reporting needs to be simultaneously accompanied by a search for alternatives. New ways need to be found to enhance the forms and practices of science journalism in a manner consistent with today’s moral and ethical responsibilities for tomorrow” (p. 95). Griswold and Swenson (1993) found that journalists covering the environment should adopt the global perspective prevalent in environmental ethics.

Overall, there is agreement in the literature that journalists covering the environment need more training (American Opinion Research, 1993; Binger, 1991; Detjen, 2001; Sandman et al., 1987; Singer and Endreny, 1993; Rubin and Sachs, 1973; Weigold, 2001). Wilkins (1990) recommended to improve environmental reporting, journalists need to be trained in environmental studies first and in journalism skills second. Additionally, Bruggers (2002) said, “Continuing education is essential on the environment beat, if only to find one’s way through the beat’s minefield of acronyms such as SMRCA, RCRA, CERCLA, and NEPA” (p. 37). Detjen (1997) recommended attending workshops and seminars whenever possible (p. 174).

Singer and Endreny (1993) suggested another alternative for journalists. “Perhaps what is needed is a joint effort by journalists and scientists, sitting around a table with some actual science reports and the news stories based on them, to arrive at a working guide for what, at a minimum, every such news story should contain” (p. 164).

Of course, there are also tips in the literature on teaching environmental journalism that can apply to the practice of environmental journalism. In 1974, Fisher detailed some tips for instructors when teaching environmental journalism in the article “Students should be prepared to cover environmental beat.” These include that students should develop a skeptical awareness of the environmental situation, and the student needs to be shown how environmental stories are different from other stories (p. 47-48).

Flannery (2000) wrote about teaching environmental journalism and covering risk reporting elements within environmental journalism through a guidesheet with the following tips: (a) Ask, “Who is my audience?” Be specific in understanding your audience; (b) Be accurate; (c) Be understandable. By this, the author means writing about risk within a neutral frame, report the facts explaining the problems related to the facts, and provide background and examples; (d) Be objective by distinguishing between facts and beliefs on both sides of an issue and mention regulations and laws along with their impact on the arguments heard; (e) Provide substantial completeness through the presentation of both sides with their support and evidence, analysis of these claims in consideration of your audience, and cover the justice and science of a given risk (p. 47-48). Flannery found “This framework includes the reader in an effort by the reporter to write a comprehensive treatment of risk” (p. 48).

Casey (1998) identified an educational model for the teaching of environmental communication by a comprehensive evaluation of the literature and an in-depth analysis of the few undergraduate programs nationwide offering specializations in the environmental communication fields. Casey found that the ideal educational model

includes courses in three general areas of study: sciences, environmental studies, and environmental communications.

These general areas are complemented with courses in natural resources sciences and management, environmental sciences and management, science communication, and ecology sciences. The environmental studies component addresses questions and issues pertaining to the cultural, historical, philosophical, and social aspects of the environment. Studies in laws and regulations, and policy and law address the political and legal questions and issues (Casey, p. 71).

Casey continued, “In the ideal model, the program is rich in content and diversity, and the curriculum includes hands-on field explorations, conferences, colloquiums, and other discussion-based seminars” (p. 72). Friedman (1979) also promoted a course to teach environmental writing integrating the complexity of environmental issues, environmental politics, and the tactics used in environmental information campaigns by various publics (p. 38).

To sum up, several researchers have developed detailed tip lists for journalists. In 1973, Rubin and Sachs made some very helpful recommendations for communicating environmental news, including:

1. Media should designate a staff member as an environmental reporter.
2. Editors and broadcast executives should seriously consider creating a special environmental news page or a continuing broadcast feature.
3. The electronic media should aid in the development of a computer-accessed archive system so that the public can make more effective use of the information presented by these media.

4. Editors and reporters should make a greater effort to provide specific information the public can use, such as the names of companies with lengthy records of violating anti-pollution laws, the performance of public officials in enforcing those laws, the way to obtain government and academic reports about the environment, and the names of groups lobbying for and against environmental bills.
5. Advertising acceptance departments should look with a more critical eye at the plethora of environmental advertisements that cross their desks; that is, ads claiming a product or service will improve the quality of the environment.
6. Reporters should attempt to extend the adversary relationship they now maintain in covering public officials to reporting on private industry as well.
7. News executives should seek to report on the growth of their communities with all the experience and wisdom about population increase, unplanned development, and regional growing pains that recent years have brought.
8. Without surrendering balance and fairness in reporting, newsmen should give more attention to nongovernment, nonindustry news sources. (p. 255-256)

Lastly, they believe the reporter should have some of the insight of the biologist in order to report on the environment (p. 257).

Wilkins (1987) concluded with a comprehensive overview of how journalists need to remedy some of their own shortcomings:

1. Provide a context for the event, including framing the event in the larger issues, and placing an event in perspective to others.

2. Provide a discussion of the science of the event, not just two sides of a question. Journalists need to inform readers that the answers may not be all-inclusive or unilateral.
3. Broaden and significantly alter existing sourcing patterns. Journalists need to become more educated about the scientific aspects of stories such as Bhopal, and seek out and quote scientific experts even if what those experts say does not fit neatly into a two-sided dialogue.
4. Shift, through inclusion of context and discussion of long-term issues, the tone of news reports. Journalists need to place the issue in the context of the political, social, and economic debates so citizens can understand the power they have to make decisions about the issues. Comprehensive media reports can provide information to encourage discourse that can lead to change. (p. 151-154)

Tips to the science journalist are also helpful to consider when doing environmental journalism. Offering some guidelines for reporters covering science news, Rowan (1999) suggested journalists should help audiences think like scientists about science news, provide balance and accuracy in science news, and understand and explain complex scientific information (p. 219-220).

In the end, as Willis and Okunade (1997) found, “The best of the science writers, however, will find a way to do what the best reporters do: convey factual and significant information in an interesting way that doesn’t distort or rob the news of its meaning” (p. 14).

We find, then, tips to improve environmental journalism in the literature including understand audience needs, address issues thoroughly, find and use diverse sources, cover the environment persistently, use an ethical framework, increase journalist training, expose and encourage debate, ask the critical questions and analyze issues critically, advocate complete, objective information, and think like a scientist.

CHAPTER THREE

Analysis of Handbooks

Covering the Environment

Written by Keating (1993) and published by the National Round Table on the Environment and the Economy, which exists to advance environmentally sustainable development, this handbook was also published in conjunction with the graduate school of Journalism at the University of Western Ontario. Additional funding for *Covering the Environment* came from the Laidlaw Foundation and the Ontario Ministry of the Environment. The handbook was obtained through the researcher's library.

The creation of this guide included a rigorous process that started with the creation of a course on environmental journalism for editors and news directors in 1991. In a "message to journalists about environmental education," the handbook stated, "The aim of the program is to give journalists accurate information on environmental issues, and ideas on how to research and write environment stories that are both interesting and balanced. There are sessions on environmental issues, sustainable development and environmental journalism" (p. 161). Students in the 1992 course evaluated material for the handbook, and the final was published in 1993. The handbook maintains throughout the 164 pages, a Canadian perspective.

As the earliest published handbook in this thesis' examination, it set a solid standard, with 63 pages of analysis of key issues including hard science, 10 pages on the

practice of environmental journalism, and 69 pages of reference, including definitions, statistics, contacts, a reading list, and other practical features for the working journalist.

In the Preface, Leone Pippard, the chair for the Task Force on Education at the National Round Table on the Environment and the Economy wrote, “It is this recognized power to influence the masses that confers on the media a special responsibility towards society. As such, if Canada and the world are to achieve sustainable development, what does this imply for the media?” (p. ix). By prompting such a question, the Preface set the tone for the handbook. The tone assumes sustainable development is a goal of society, and should be for the media as well. As explained in the handbook, sustainable development is a term defined by the Brundtland Commission, the World Commission on Environment and Development, as,

Humanity has the ability to make development sustainable – to ensure that it meets needs of the present without compromising the ability of future generations to meet their own needs...At a minimum, sustainable development must not endanger the natural systems that support life on earth: the water, the soils, and the living beings. (p. 69)

As well, ethics for media practitioners are implied with Pippard’s statement, in mentioning the media’s “special responsibility.” Furthermore, in the Introduction, Keating (1993) wrote, “The media have a heavy responsibility, because they are the primary source of environmental information for most people” (p. 1). An emphasis on ethics is initially evident, an ethic that supports sustainable development. This frame around the handbook is not surprising, considering the publisher, National Round Table on the Environment and Economy, advances sustainable development.

The first main section, “Environmental Issues and Sustainable Development” discussed air, land, water, and additional major environmental issues. Graphs, maps and lists were spaced throughout, such as “Urban Settlements in Canada” (p. 30) and “Mean Concentrations of PCBs in coho salmon from the Credit River, Ontario, 1972-89” (p. 45). Concerning science, terms like methane, nitrous oxide, and chlorofluorocarbons (p. 11) were clearly explained with background information. Because the handbook was written more than 10 years ago, information about regulations and technology is likely outdated, but fundamental concepts were clearly explained and remain valid. For instance,

In order to meet new pollution standards, electric utilities use air pollution control devices called scrubbers, burn low-sulphur coal and use new forms of combustion. Scrubbers spray fine limestone into waste gases to capture the sulphur before it goes up in the smokestack. (p. 24).

Such an explanation of scrubbers is definitely applicable and useful to journalists today, even though “new pollution standards” are likely different. This first section concluded with “Some principles of sustainability” (p. 76). Some of the listed objectives for sustainable development included stewardship, conservation, and scientific and technological innovation (p. 76-80). The handbook teaches environmental journalists about environmental issues through a frame of ethics in support of sustainable development.

Section Two, “Environmental Journalism” (p. 81) serves as a worthy summary of the scholarship on environmental journalism. It described the beginning of environmental journalism, the challenges of covering the environment, and makes some recommendations for journalists including: learn the basics about ecosystems, go out into

the field when doing environmental journalism, tips on how to analyze “green” products, and questions to ask to get a sense of whether or not something is environmentally damaging. In the end of this section, Keating (1993) wrote, “The health of the environment, including humans, and the resources on which we base our economy, is at stake, and journalists have a duty to fairly and accurately explain risks and alternatives to people” (p. 93). It appears the main “tip” in *Covering the Environment* is to approach environmental journalism with an ethical framework that encompasses sustainable development. The language of responsibility and duty exemplify this.

In the final section, measurements, symbols, statistics on water, forestry, cans and bottles, contacts, definitions, and a reading list inform and guide journalists. Especially interesting are the statistics provided, like, “It takes 43 per cent less energy to recycle paper, than to process raw wood” (p. 103), which help journalists in providing interesting key facts. Searching for statistics like these can consume a journalist’s time.

Overall, the handbook is comprehensive with numerous definitions, tips, and visuals, in combination with a framework built on an ethic of sustainable development. This is one of the only handbooks examined with an identifiable purpose, supporting ethical environmental journalism that supports sustainable development.

Ten Practical Tips for Environmental Reporting

The shortest handbook examined, *Ten Practical Tips for Environmental Reporting* is a lightweight, easy-to-read, motivational handbook. Published by the International Center for Journalists with support from the World Wide Fund for Nature,

53 pages offered 10 chapters with titles as specific tips, and then within each chapter, more specific tips, including lucid sidebars called “Keep in Mind.”

The Foreword explained how environmental journalism differs from other types of journalism. It is broad, interdependent, complex, technical, imprecise, and emotional (p. vii-viii). However, in some ways, “Good environmental reporting should be the same as any other good journalism: make it interesting; write it clearly; explain the complexities to the audience; and raise solutions – not just problems” (p. viii).

Written more than the other handbooks from the standpoint of a journalist and in the language of journalism, this handbook stands out from the others because it doesn’t concentrate on explaining environmental science and issues, but offered general tips for journalists while on the environmental beat. The introduction claims that there were two main themes in the handbook: (a) Reporters need to keep their audience in mind, and (b) Reporters should ask questions (p. ix). Such simple tips are not tailored for the environmental journalist who is striving to become an expert, or to do an in-depth story, but more for any journalist covering any subject. In actuality, these tips could broadly apply to more than just the environmental journalist’s beat, and serve to improve the coverage of more beats than just the environment.

The ten “practical tips” in the handbook include:

1. Write original stories.
2. Build and maintain good sources.
3. Prepare in advance.
4. Translate environmental jargon.
5. Make the story alive and relevant.

6. Think twice about statistics.
7. Report science carefully.
8. Look for hidden interests.
9. Seek balance.
10. Don't forget follow-up stories.

These tips are indeed practical, sensible reminders. As the Introduction read, this handbook found, “The only prerequisite for good environmental reporting is being a good reporter” (p. xi). This tone is carried out through the remainder of the handbook.

Each chapter offered essential tips concerning the routines journalists go through, and other tips to remember about doing quality journalism in general. For example, “When a press release arrives, the first question a reporter should ask is whether it contains news” (p. 1). Another general journalism tip, “Journalists must never report stories with the goal of pleasing their sources” (p. 8). And, as always, “Reporters need to anticipate readers’ questions,” (p. 18). However, there are specific tips for environmental journalism as well. “Good science reporting is essential to good environmental reporting” (p. 29). Keep environmental stories alive by looking for environmental stories in other beats, or think like ecologists and look for connections (p. 39-40). Additionally, the author suggested in reference to ozone coverage, “The public would have been better informed if reporters had focused on the overall ozone picture, and less on the ‘doomsday’ prediction” (p. 31). Journalists covering any beat, including the environmental beat, could refresh and possibly improve their skills by reading this handbook.

In contrast to the others, this handbook did address the debate over whether or not journalists covering the environment should assume an advocate role. After a brief discussion, Nelson writes, “Journalists should not impose their values on a story. A journalist’s good basic skills should win out: fact-finding, verifying, and presenting information clearly” (p. 36). Such a view coincides with the traditions of journalists on all beats, not just the environmental beat.

Sidebars labeled “Keep in Mind” are the only visual in this short handbook. These boxes include tips such as, “Avoid putting several complex ideas into one paragraph” (p. 2), “Reread your story and ask yourself: Have I accurately and appropriately translated the scientific jargon and terms?” (p. 15), and “Ask your source for examples” (p. 37). Reminders like these are often already second nature to experienced journalists. However, as reminders, they are motivational for the veteran journalist.

Ten Practical Tips for Environmental Reporting is a reasonable guide for new journalists on the environmental beat, and a pleasant refresher for veteran journalists covering the beat. With 6 glossary pages at the end with technical terms, the handbook presented a mix of information, but mostly, the information is about doing environmental journalism well by doing journalism well. This handbook is a basic, motivational, quick read for the journalist who occasionally covers environmental issues or any other general reporter. For information on a certain environmental issue, the journalist will have to go elsewhere for the answers. For some solid, practical tips for the beginner, this handbook serves that end well.

Environmental Issues for the '90s

This handbook addressed 16 different environmental issues in a thick, dense, spiral bound handbook. Written by Robert Logan with Marie Tessier and Stacy Christiansen (1995), *Environmental Issues for the '90s* was published by The Media Institute, a nonprofit research foundation specializing in communications policy issues.

The Preface mentioned the challenges journalists covering the environment in the '90s face,

First, to develop an understanding of the new realities of Washington and to use that understanding in the service of accurate and objective reporting. Second, to help audiences relate that developments in their local communities to the new zeitgeist of federal and state environmental reporting. (p. xi)

Then, a suggestion, "The reporter who can combine a clear-headed policy perspective with an understanding of an issue's scientific background will be a giant step ahead of the competition" (p. xi). What The Media Institute believed was the challenge at hand is the administration of the '90s.

Every chapter included a subsection explaining "What is it?" about each issue as well as a subsection on the "History" of issues. The authors quoted numerous sources in each chapter, which directs journalists in finding primary sources when researching an issue in depth. As well, each chapter included "Questions reporters should ask" about an issue, concerning the technical aspects of science, and the practical aspects of economics, politics, and law, such as "What is the state of biochemical/immunological evidence that EMFs (Electromagnetic fields) can lead to cancer?" (p. 39) and "Is it financially and ecologically practical to establish corridors for wildlife preservation in areas used for

logging, farming, ranching, tourism, and economic development?” (p. 53).

Environmental Issues for the '90s encourages journalists to ask the hard questions. There also was a suggested reading list at the end of each chapter, directing journalists to additional sources in order for journalists to more quickly obtain the background information needed on a topic.

One stylistic technique that stands out is the handbook's use of metaphors, such as the comparison of acid rain levels to tomato juice (p. 2). In utilizing metaphors, the handbook sets an example of a tool journalists can use when translating science into terms that audiences can understand. In addition, much of the content of the handbook was about research studies, which also familiarizes journalists with a good example to follow when writing about environmental issues. Each chapter referenced 20 to 80 different primary sources used.

Tips offered included places for journalists to watch. For example, “Improvements in refining coal that could lower acid emissions and coal's conversion into synfuels are developments for journalists to watch” (p. 63) and “Reporters should look to these researchers to provide critical – and perhaps the most exciting – new information on EMFs in the near future” (p. 35). In the chapter “The Greenhouse Effect and Global Warming” Logan et al. (1995) ended with, “As corporate and governmental policies shift, reporters will not want to lose sight of (1) the extent to which multinational corporation invest in ongoing scientific research on greenhouse emissions...” (p. 96) and continued with four other things journalists should remain vigilant about concerning this issue. Another suggestion for journalists was, “Certainly, it will be interesting for journalists to see if the EPA can reinvent its management strategies, particularly

regarding the regulation of hazardous wastes” (p. 118). Thus, the handbook performs a crystal ball like function. For example, “The possibility that some pesticide problems could be solved in the kitchen sink is an intriguing future policy option and news story” (p. 181). Perhaps the authors were trying to capture the reader’s interest, and hint at possible leads for stories.

Additionally, the handbook assumes journalists need to remain unemotional when reporting, for it presented the point that, “The rhetoric from all sides during the U.N. Population Conference reflected the extent of dissent and reinforced the challenge to journalists to report about population unemotionally” (p. 131). The language assumes journalists already understand their challenge to be objective.

The handbook offered information that was current as of December 1994 as a starting point to find contacts for stories, admitting that future changes in government will bring changes in contact information. Regardless, this information was thorough, and encompassed much of the book, in more than 60 pages in the second main section of the handbook. These contacts were divided into Government Organizations (p. 235), Trade Associations/Industry Groups (p. 255), Environmental/Public Interest Groups (p. 263), and Resources for Journalists like the Society of Environmental Journalists (p. 297).

Environmental Issues for the '90s presents a plethora of information, pointing reporters in the appropriate directions to investigate an environmental story, considering the economics, science, and politics. It can save considerable amounts of time, as it provides a thorough discussion of each topic, and the general background up to the 1995 status of a single issue was explained and documented through just one chapter, from 10 to 20 pages each. Uncertain, mixed science was also addressed, citing the different sides

of complex environmental issues. There is no obvious bias, and there were almost no visual elements except for a couple of lists, like “Current EPA Tolerances for Chemicals in Community Water Systems” (p. 216). Overall, this handbook is useful for the serious environmental journalist who has some time to write a more investigative environmental piece.

Covering Key Environmental Issues

Available for free download, (<http://www.rtnda.org/resources/cke/contents.shtml>)

Covering Key Environmental Issues (1999) was also attainable through the researcher’s library. The Radio-Television News Directors Foundation and Association created its Environmental Journalism Center in 1991, and published this handbook for the first time that year. This study looks at the most recent 4th edition, published in 1999.

The introduction stated, “Helping your community understand how the changing environment has a local impact is an important and challenging task” (p. 3). To help with this challenge, the Environmental Health Center for the Radio and Television News Directors published this handbook. “We hope you find this resource helpful in providing your audience with the highest quality coverage of these important issues” (p. 3) read the Introduction

When referring to “quality” coverage, *Covering Key Environmental Issues* means community based coverage of environmental issues. At the end of each chapter, a page with a box of 8 to 14 “Story Ideas” prompts reporters to approach environmental issues through their own local community. For example, “What are major ‘indirect sources’ of air pollution in your area – for instance, large shopping malls, theater complexes, sporting

arenas? What are they doing to help reduce air pollution from the crowds and vehicles they attract?” (p. 10). From the first to the last chapter, the handbook encourages the incorporation of local angles into environmental stories. “What are the trends on wetlands acreage in your community? What major factors have led to directions in those trends? What are local governing agencies doing to adequately protect the region’s wetlands?” (p. 98). The Environmental Journalism Center’s idea of “quality coverage” is community-based, local coverage of the environment.

Each chapter discussed one major environmental issue for four to 9 pages, and includes bold, bulleted points at the beginning pointing out why each issue should be covered. Each chapter also included a section explaining the key players of an issue. Both of these features are helpful for reporters in order for them to become familiar with the reasons environmental issues are important, and also informs reporters about which groups, organizations, or arms of the government are contact sources, or key players involved with certain issues.

Overall, *Covering Key Environmental Issues* is the handbook with the most visuals, including charts, sidebars, maps and tables like “Sprawl Statistics” (p. 20) and “Recycling of Municipal Waste by Major Countries” (p. 87). Additionally, the handbooks’ text was laid out much like a newspaper, with several narrow columns per page. This makes the handbook reader-friendly to the eye and mind, helping to gain and keep the reader’s attention.

Tips for journalists were often hidden in the text explaining the subjects. A majority of each chapter was devoted to environmental laws and regulations, but among the technical information explaining the legislation were tips and suggestions. One

incident of this took place in the “Story Ideas.” It referred to the National Pollution Discharge Elimination System, explaining, “Reporters should expect to encounter sources who shorthand this term as ‘NPDES’ as in ‘nipdees.’ Once delegated to a state, professionals in the field may refer to ‘SPDES,’ and pronounce it either as ‘sipdees’ or as ‘speedies’” (p. 17). Specific information like this can save a reporter much time and confusion.

Other tips included, “Reporters focusing solely on the smokestack industries – those most heavily targeted by state and federal pollution control laws – are missing an important and growing part of the story,” (p. 25). On page 28, there was a sidebar, “How Can Reporters Separate PR Chaff from Substantive Wheat?” These types of suggestions are like insider pieces of information, which a reporter can definitely benefit from. “Watch for each side to try to shift the burden of proof to the other,” (p. 33). The handbook suggested “healthy skepticism” (p. 81), and explained, “Journalists do not need to understand the math behind the probability calculations as long as they understand and interpret the reasoning based on them” (p. 81). Again, some insider information was provided, “Reporters likely will find few cases in which supposed science-based studies championed by a party at interest differ widely from the sponsoring interests’ policy preferences” (p. 81). In talking about wetlands, the handbook advised, “Reporters sometimes will hear them referred to as ‘wetlands,’ and at other times as ‘marshes,’ ‘swamps,’ or ‘bogs’” (p. 94). Explanations like these are things a reporter might know after some time on the environmental beat, but until one reaches that point of knowledge, such tips and information serve as useful time-savers.

In the middle of the handbook, Chapter 7, some interesting language appeared. “Journalists have a responsibility to report a balanced perspective that takes into account...” (p. 46). This type of language emphasizes personal responsibility and ethics. “Journalists are often left with the responsibility of weighing conflicting opinions from those who quantify risk” (p. 60) read Chapter 9 on Public Health.

In describing what environmental journalism is, *Covering Key Environmental Issues* wrote, “The environmental beat is full of competing scientific views...Worse yet, environmental reporters must deal with not just one or two sciences, but an enormous range of sciences: toxicology, genetics, atmospheric chemistry...” (p. 80). Also,

Reporters covering environmental health and resources issues may find that helping their audiences sort out the various scientific claims and counterclaims is among the most challenging work they will face in attempting to communicate knowledgeably and fairly. They also will likely find their successes in doing so to be among the most professionally rewarding in their work, and among the most valuable in helping their audiences better understand and influence environmental decision-making. (p. 80)

This type of description clarifies the challenges and rewards of environmental journalism, while defining it simultaneously.

At the end of the 14 chapters on environmental issues, there was an appendix with acronyms and abbreviations, and a glossary 12 pages long, and then a bulk of contacts and resources by subject in alphabetical order for 27 pages. Devoting this many pages to this information emphasizes the importance of understanding acronyms, and the use of sources in environmental stories.

Overall, the handbook stands out through the visual components, legal content, and resource list at the end. It suggests environmental journalists understand environmental law, be community oriented, know and identify key players involved in the issues, and understand the importance of environmental issues. The format is professional, easy to read and interesting, as might be expected from a professional organization like RTNDF.

The Reporter's Environmental Handbook

Published by Rutgers University Press, *The Reporter's Environmental Handbook* was a joint undertaking of the University of Medicine and Dentistry of New Jersey's School of Public Health and Rutgers, the State University of New Jersey. Funded by the Hazardous Substance Management Research Center at the New Jersey Institute of Technology, the Environmental and Occupational Health Sciences Institute provided additional support for this third edition of the handbook.

Written by West, Lewis, Greenberg, Sachsman, and Rogers (2003), *The Reporter's Environmental Handbook* featured three main sections. The first, "Getting Started," introduced the reader to the basics of covering environmental issues and includes some important tips. "Always speak to at least two experts...to verify facts" (p. 5) wrote the authors. In discussing reporting on companies and institutions that have been in an environmental controversy, the authors wrote, "While some may not lead very far, others can prove to be very productive, especially when the reporter considers all possible angles of the story" (p. 10). In commenting on how to handle scientific disagreement or uncertainty, West et al. (2003) reminded the reader, "Answers contain implicit value

judgments about the trade-offs between public health and cost” (p. 19). Tips like these rise above simple reminders to adhere to the normal dictums of journalism. These tips are specific and valuable to the environmental journalist who is not an expert on environmental issues. The last part of the first section explained how to track down a company’s environmental record, which can be extremely helpful for journalists covering the environment.

In that first section of the handbook, a chapter on “The Language of Risk” was provided. The authors said, “To write a story accurately about an environmental topic, a reporter must be sensitive to the language of risk and hazard” (p. 3). The authors explained tips on how to do this in their chapter on risk. To continue this point, language on the back of the book jacket referred to the handbook as a reference needed “to understand and communicate environmental risks,” and another description read that the book “contains a short background chapter on every imaginable kind of risk situation.” *The Reporter’s Environmental Handbook* approaches environmental journalism within the frame of reporting on risk. Indeed, not all risk stories are environmental stories, but most environmental stories include elements of risk. As the most recent handbook examined in this thesis, this handbook hints at the should-be-future-frame of environmental journalism.

The second main section of the handbook, “The Larger Context,” looked at journalists’ own perspectives on covering the environment, the role they play, and some of the challenges they face, including how press releases can manipulate the environmental agenda. Three pages of thoughts on the future of environmental policy and regulation ended this second section, creating a thorough introduction for journalists

covering the environment before the handbook begins to explain science, policy, economics, risk, and other factors contributing to environmental issues. Often, background information on environmental journalism itself is exactly what journalists do not have, but benefit from knowing and understanding.

The final section, “Briefs,” was more than 200 pages, and as the authors wrote, “the main thrust of the book” (p. 26). The purpose of these briefs “is to clarify the hazard side of high-outrage environmental risks. These risks are heavily covered because they are controversial, that is, because they are significant outrages. The briefs that follow should make it easier to judge and report their hazard” (p. 26).

The 28 different briefs are topics the authors provided background information on and sources for, in response to their survey on environmental health issues that journalists identified as most important in their own communities. With an approach that responds to the results from a survey of what journalists said they needed on the environmental beat, the handbook takes an academic, applied research approach for the method of their handbook’s content.

Two subsections -- “Important Points for Researching a Story” and “Avoiding Pitfalls” proved to be the most valuable information in the briefs. Revealed in the “Important Points for Researching a Story” is insider information that only an expert environmental journalist would be able to recommend. For example, in the brief on Cancer and Other Disease Cluster Claims, the authors noted,

In situations where the population at risk is too small to achieve statistical significance, public health agencies should not ignore these cases. Disease prevention practices and strategies still need to be put in place. It is important that

journalists include in their stories ways for the public to minimize exposure and/or reduce the risk of disease. (p. 115).

Additionally, in the same chapter, the subsection “Avoiding Pitfalls” assists in warning journalists about possible mistakes, and about what has gone wrong in journalism on the subject previously.

Consider whether there was exposure and whether there are alternative explanations for the suspected cluster. Those factors should not only go into the story, but they should also go into the decision as to how “big” to play the story. This is especially true when writing stories about neighborhoods affected by hazardous waste sites. (p. 116)

Providing information like this can aid a journalist in not only improving the quality of environmental journalism, but the quantity of environmental journalism as well. This information saves times, clarifies some important aspects of the issues, and directs journalists in an easy to identify “Do’s and Don’t’s” fashion. As a result, journalists have more time to produce more quality stories.

Overall, *The Reporter’s Environmental Handbook* assists journalists by providing a thorough introduction to environmental journalism, presenting the language of risk, and supplying insider, expert information on environmental stories that journalists may not be able to find elsewhere until spending more time on the beat. As the most current document out of the handbooks examined, the handbook hints at what will come in future training of environmental journalists. The biggest tip from the authors is to incorporate risk information into environmental journalism.

CHAPTER FOUR

Conversation Between the Literature and the Handbooks

Several topics of conversation surface between the literature on environmental journalism and the handbooks on environmental journalism. From the standpoint of a journalist, the literature acts as the interviewer and the handbooks as the interviewee. The literature introduces a point or topic, and the handbooks respond, often in agreement.

Herein is an examination of the similarities and differences, or agreements and disagreements between the two. Unless otherwise mentioned, the researcher refers to the handbooks as a single entity, with several common features generally shared among them. The only handbook that may not always be included when referring to the handbooks is *Ten Practical Tips for Environmental Reporting*. This was the handbook most different from the others, as it did not thoroughly explain the science, or offer a lengthy list of sources. As well, the researcher refers to the literature as one entity.

As mentioned in the literature review, the scholarship presented criticisms, challenges, and tips. Criticisms of environmental journalism included lack of context, confusing story framing, coverage with insufficient information, an emphasis presented that differs from reality, reports of events rather than issues, a focus on conflict or entertainment, no inclusion of solutions to environmental problems, use of traditional news sources, simplistic stories that don't make larger connections, coverage that is crisis-oriented, the making of science as more certain than it really is, a reliance on press

releases, a lack of long-term coverage, “Afghanistanism,” or coverage that lacks locality, and stories that sell rather than inform.

Challenges to environmental journalists included news traditions, advertiser pressure, management policy, editors, space, time, finances, complexity of the environment beat, the relationships the environment has with other beats, translation of scientific or technical information, reporting repercussions, the uncertainty of the environment, disagreement between sources on the facts, the need to find the new, competition with other news, education of journalists who report about the environment, and the advocate versus objective role on the environmental beat.

Tips to improve environmental journalism in the literature included understand audience needs, address issues thoroughly, find and use diverse sources, cover the environment persistently, use an ethical framework, increase journalist training, expose and encourage debate, ask the critical questions and analyze issues critically, advocate complete, objective information, and think like a scientist.

Specifically, the qualitative document analysis of the handbooks revealed that the handbooks addressed environmental journalism in five different ways. *Covering the Environment* encouraged journalists to report within a frame of sustainable development. *Ten Practical Tips for Environmental Reporting* suggested journalists simply become better journalists, and therefore become better environmental journalists. *Environmental Issues for the '90s* encouraged journalists to delve deeper into the research on a story, and offers extremely thorough explanations of the issues and hundreds of primary sources. *Covering Key Environmental Issues* prompted journalists to report environmental issues

through a community-based approach. Lastly, *The Reporter's Environmental Handbook* encouraged journalists to approach the environment through a frame of risk.

As is shown in the following sections, through the conversation between the scholarship and the handbooks, the handbooks respond to the criticisms in the literature. The handbooks agree that there are major links between science, risk, health, and the environment, that environmental journalists should be thorough and address the larger issues, that journalists should understand and follow environmental issues so the real issues may be addressed, that journalists should cover the long-term issues and not simply use press releases for a story, and that an array of sources should be used.

In responding to the criticisms in the literature, the handbooks explain the complexities of the environmental beat, supply sources who can tell the story, describe contrasting research, describe how stories might be linked to other beats or at least hint at these connections, and promote objectivity. The only challenges that the handbooks can not address are the organizational challenges within a media company.

In responding to the tips in the literature, the handbooks are in full agreement. The handbooks support understanding audience needs and obtaining a sufficient understanding of an issue before reporting on it, support addressing environmental issues thoroughly, translating scientific or technical information, support addressing risk, providing the history of an environmental issue, the use of diverse sources, maintaining persistent, long-term coverage, advocating the dissemination of objective information, and more journalist training.

Overall, the scholarship on environmental journalism and the handbooks on environmental journalism are “on the same page.”

Criticisms in Literature, Answers in the Handbooks

In addressing the general subject of the environment, the literature and the handbooks agree that science, risk, health, and the environment intertwine. As the literature on environmental journalism leads one to literature on risk, science, health, and hazard communication, the contents of the handbooks refer to subjects and sources, or points of contact, also associated with science, risk, and the environment.

Criticizing environmental journalism for adhering to traditional news values and being event-oriented rather than concerned with the larger, deeper issues, the handbooks respond with hundreds of pages of background information on an array of environmental topics. From this, a journalist can learn about a subject in less time, and therefore allocate more time to investigate the deeper issues. Furthermore, this may assist a journalist in not having to rely on traditional news values like proximity, consequence, conflict, or human interest to lead a story. Instead, handbooks help journalists learn about the issues, and then address the issues that genuinely make news of an environmental story. Using the handbooks, journalists become more informed and can inform the public in a manner consistent with the nature of environmental issues. After becoming more educated, journalists can uncover more, and gain a more balanced perspective on an issue.

Additionally, criticisms in the literature show environmental journalists all too often take “the easy way out” by simplifying the issues, centralizing on just one aspect of an issue, or concentrating on what will entertain an audience. The handbooks respond to this criticism with inside information on the issues so journalists don’t feel they have to avoid the technical, scientific, or larger issues to take the easy way out. With the background information provided in the handbooks about specific environmental issues,

journalists are already ahead of the game. From there, journalists can approach an environmental story from an already advanced position, and possibly reveal something more meaningful, applicable, and newsworthy to the public.

The literature finds that the media forget about an environmental issue after the story is once told. In other words, journalists don't treat environmental issues like the long-term issues they are. In response, the handbooks suggest many different story angles and ideas, questions to ask, and specific aspects to investigate so a journalist can almost always find an alternative, new angle or frame for any environmental topic or provide an update on a chronic issue. Similarly, the handbooks supply story ideas and questions for journalists to ask so they can present coverage initiated by environmental issues themselves, not press releases about the issues.

As the literature criticizes environmental journalism for always using the traditional, dominant sources, the handbooks press journalists to use an array of sources, and actually list these sources for the journalist to locate various types of contacts, easily and quickly, through telephone numbers, addresses, e-mails, web sites, and more.

Thus, most of the criticisms of environmental journalism in the literature are countered by the information supplied in the handbooks. The handbooks do indeed respond to the criticisms in the literature through the content they provide, offering a new, better way for journalists to approach environmental stories so the literature does not find fault with environmental journalism in the future.

Challenges in the Literature, Solutions in the Handbooks

Accompanying the criticisms of the product of environmental journalism in the literature are challenges of the practice of environmental journalism. The handbooks reply to these challenges environmental journalists, offering some information to address the restraints. With the literature mentioning challenges like the complexity of the beat, the relationships the beat has with other beats like politics and economics, the conflicting claims of science, the difficulty in interpretation of issues, time constraints, and journalists' education, the handbooks supply some solutions.

Most importantly, the sheer existence of the handbooks gives journalists an alternative to digging through volumes of books, articles, and web sites to find the facts, background information, and larger issues concerning water quality, global warming, and other issues related to the environment. If more information is needed than what the handbooks provide, references in the handbooks direct journalists to additional sources of information. In the event that a journalist does not have experience reporting on environmental issues, or an education or background in science, handbooks supply some of this information to educate the journalist on where to gain additional knowledge. The handbooks definitely respond to the complexity of the environmental beat.

Explaining such complex issues in concise, brief chapters, journalists can acquire a general idea about nuclear waste and other environmental issues, and where to look for information on related topics. Complex environmental issues are whittled down in the handbooks to make them easier to understand in a short amount of time. Reading lists and references give even more direction for more information.

In response to the challenge of the complexity of the environmental beat in regard to the science and risk aspects, interpretation of issues, and connection of environmental issues with other issues, the handbooks supply the basic science, and various scientific, expert, academic, government, and environment sources, which and who can tell the story for a journalist. Journalists can ask sources to comment on the risk, or to explain or interpret what the science and risks mean. Journalists can approach diverse sources to evaluate how topics relate, what that means, and what the repercussions are rather than trying to address it all on their own. Additionally, the handbooks often hint at, or describe how an issue might be linked to politics or economics, and what the conflicting claims are about the science or risk of an issue. Meanwhile, the handbooks provide an overview of the issues so journalists are better equipped to begin making the connection between the environment and other larger, social, political, or economic issues.

Understandably, one group of challenges the handbooks can not respond to is organizational level constraints that journalists work within. Perhaps editors and news producers should read the handbooks to have a better understanding of environmental journalism, and then stories about the environment would be given appropriate space, time, and weight. Also, if editors and news producers examined the handbooks, they may understand environmental issues are chronic, long term issues in their own communities, not brief news events elsewhere.

As far as the challenge journalists face in choosing an advocate or objective tone, most of the handbooks responded in a traditional fashion. They assume a journalist should remain as objective as possible, and not take on an advocate role in support of the

environment. Only one handbook encouraged journalists to approach the environment through a frame supporting sustainable development.

Tips in Literature, Reinforced in Handbooks

Both the handbooks and the literature present tips for environmental journalists. In general, most of these tips are quite similar. For example, the literature emphasized understanding audience needs. The handbooks agree, especially *Covering Key Environmental Issues*, which emphasizes community reporting. As well, through the condensed briefs explaining environmental issues in all the handbooks except *Ten Practical Tips for Environmental Reporting*, the handbooks encourage journalists to obtain a solid understanding themselves before explaining and reporting to their audience.

By supplying the critical information in the numerous briefs, the handbooks support another tip found in the literature: address environmental issues thoroughly. *Environmental Issues for the '90s* is a prime example of a handbook encouraging journalists to address environmental stories thoroughly, simply by its supply of primary sources, discussion of conflicting research, and explanation of the various sides of an environmental issue.

Additionally, the literature suggested translation of environmental information, and maintenance of a historical perspective. Briefs in the handbooks supplied the beginning of such information to the journalists so translation and historical explanation are possible to perform. While much of the literature on environmental journalism associated environmental issues with risk issues, so do the handbooks. Especially, *The*

Reporter's Environmental Handbook, which approaches environmental journalism with an association to risk issues. These are some of the components of the tip “Address environmental issues thoroughly” that the literature and handbooks both support.

As the literature advocates for journalists to obtain information from an array of sources, the handbooks agree. Four out of the five handbooks provided specific contact information for an array of diverse sources, as well as other tips on picking sources, and how many sources to pick. Concerning suggestions in the literature on long-term coverage of environmental issues, the handbooks concur. *Ten Practical Tips for Environmental Reporting* devotes a chapter to “Don't forget follow-up stories.” Through the background information for issues addressed in the handbooks, journalists likely realizes that environmental issues are persistent. The nature of the environment is forever changing, and therefore, follow-up coverage would be appropriate.

While several ethical frameworks are provided in the literature, ethics are also implied in the handbooks. The language in the handbooks presents journalists with a “responsibility” and “duty” to inform the public, especially in *Covering the Environment*. However, *Covering the Environment* also supports an ethic associated with sustainable development. As noted before, the literature on the debate over whether journalists should be advocates or objective was divided. This division is in the handbooks as well, but only one handbook supported an advocate role for journalists, in support of sustainable development. Meanwhile, the handbooks and literature both follow the traditions of journalism and advocate the dissemination of complete information, whether this is communicated through an ethical framework or not.

As might be assumed, the handbooks agree that further training for environmental journalists is recommended. As the literature supported and suggested further training for environmental journalists, so do the handbooks. The fact that the handbooks were written and published in the first place supports the suggestion for more training and education for environmental journalists.

CHAPTER FIVE

Conclusions and Discussion

The purpose of this thesis was to investigate how journalists should cover the environment, according to the conversation between the scholarship on environmental journalism and the handbooks on environmental journalism. Findings reveal that the handbooks do indeed address the challenges and criticisms that the scholarship presents, and that the tips in the handbooks do compare to the points made in the scholarship for improvement. The two are on the same page concerning the way journalists should report on the environment. The handbooks, written for practicing journalists, agree with the research and academic scholarship on environmental journalism.

The conversation between the literature and handbooks is a healthy one, in agreement concerning the general techniques journalists should practice when covering the environment. As the literature presents challenges and criticisms, the handbooks suggest solutions. Most importantly, as the literature presents tips and techniques for improvement, the handbooks agree with the ways to improvement. Both support understanding audience needs, obtaining a solid understanding of a topic before reporting, addressing environmental issues thoroughly, translating the science, providing the history of a topic, addressing risk, using diverse sources, maintaining long-term coverage, disseminating objective information, and more training for journalists.

In addition, the research revealed unique suggestions and additional approaches to environmental journalism as presented in the handbooks. The handbooks offer a solid source for journalists to turn to in order to learn about environmental issues in a short time, as well as interesting, individual emphases in each.

The specific approaches to environmental journalism presented in the handbooks include an approach that emphasizes community-based coverage, an approach that encourages reporting through a frame of risk, an approach that supports reporting through an ethic in support of sustainable development, an approach that encourages reporting that is extremely thorough, and an approach that improves environmental journalism through improving journalism in general.

Indeed, several challenges and criticisms of environmental journalism can be addressed and corrected by journalists individually through the tips, techniques, and practices agreed upon in the scholarship and handbooks. But what if coverage continues to lack? Assuming that journalists do use the handbooks, and/or begin to utilize the tips, and coverage continues to lack, the responsibility of making changes to improve may then fall on the shoulders of news organizations and their management and editors. Perhaps they are the ones who need to be retrained. This constitutes as a challenge that neither the handbooks nor journalists can respond to.

To respond to the organizational challenges, the organizations themselves would need to examine their own faults in the production of environmental news. But, as revealed in the literature, traditional news values persist in the real world of news organizations, including in editors' minds, and often prevail over any other influences on environmental news coverage. Additionally, the bottom line of any organization, the

financial aspect, has a direct impact on the final product. Such challenges are not so easily addressed and corrected.

So, criticisms in the literature will likely remain, as many of the challenges to journalists remain. Individually, journalists can increase their own knowledge on the issues, adjust their use of sources, and be conscious of their audience, among other approaches presented through the literature and handbooks, but then organizational interruptions will likely force coverage to conform to the rules previously made by economics, politics, and other ideological aspects of the organization. Therefore, alternative forms of media, special-niche media, and enterprise journalism must be sought out by the public in order to obtain the most useful information to make decisions about the environment in a democracy. Otherwise, a hefty paradigm shift in newsrooms should take place in order to address the challenges that journalists themselves can not control to improve the quality of environmental journalism.

In the continuous information explosion that society remains a part of today, journalists should choose to be specialists, and organizations should allow them to develop a specialty. In such an environment, perhaps journalists would eventually become expert journalists, likely resulting in more quality coverage. In the eyes of the researcher, specialists are capable of maintaining their duty to inform the public because practitioners can develop more understanding and knowledge in a certain field. The result would be more quality coverage in a democracy that places responsibility in the media to inform the public in a manner consistent with reality so they may better make informed decisions.

In conclusion, the researcher recommends the common tips and techniques revealed in the scholarship and handbooks. Environmental journalists should understand audience needs, obtain a solid understanding of an environmental topic before reporting, address environmental issues thoroughly, translate the science, provide the history of an environmental topic, address risk, use diverse sources, maintain long-term coverage, disseminate objective information, and seek more training.

Direction for Further Study

Limitations of time, as well as space for discussion, pressed the researcher to condense the criticisms, challenges, and tips revealed in the literature. Therefore, most specifics were not revealed and discussed in this thesis. An examination of the specifics in one or each of the three categories (criticisms, challenges, and tips) might better illuminate how to improve environmental journalism more specifically. On the other hand, because the amount of literature on, and literature related to, environmental journalism is so vast, this research could not address all the possible categories in the literature. Further research on condensed, additional categories in the literature may benefit the body of scholarship on environmental journalism in the long run.

As well, applied future research could investigate whether environmental journalists have used specific tips and techniques from the handbooks in their products. A content analysis could examine stories to reveal whether they employed advice from the handbooks. Additionally, such a content analysis could reveal whether or not journalists are covering the environment the way they should, as instructed through the tips, techniques, and practices presented in the literature and in the handbooks.

Furthermore, a survey could be conducted to ask and answer the question, “Do reporters covering the environment actually use handbooks?” And if they use the handbooks, how do journalists think they could be made even more helpful?

Lastly, a qualitative document analysis of a different group of the handbooks on the researcher’s list of handbooks may yield more suggestions for improvement. Handbooks encompassing only specific topics may present different, additional tips and techniques.

REFERENCES

- Ackland, L. (1995). A phantom audience for environmental journalism? *Contents of the 1995 Conference on Communication and our Environment Proceedings*, 248-255.
- Allan, S. (2002). *Media, risk, and science*. Buckingham: Open University Press.
- Allan S., Adam B., & Carter C., (2000). Introduction: The media politics of environmental risk. In S. Allan, B. Adam, & C. Carter (Eds.), *Environmental risks and the media* (pp. 1-26). London: Routledge.
- Altheide, D.L. (1996). *Qualitative media analysis*. London: Sage Publications.
- American Opinion Research Inc. (1993). *The press and the environment – How journalists evaluate environmental reporting*. Los Angeles: Foundation for American Communications.
- Anderson, A. (1991). Source strategies and the communication of environmental affairs. *Media, Culture & Society*, 13(4), 459- 476.
- Anderson, A. (1997). *Media, culture and the environment*. New Brunswick, New Jersey: Rutgers University Press.
- Archibald, E. (1999). Problems with environmental reporting: Perspectives of daily newspaper reporters. *Journal of Environmental Education*, 30(4), 27-?.
- Berger, G. (2002). Environmental journalism meets the 21st century. *Intermedia*, 30(5), 8-11.

- Binger, A. (1991). Lecture. In *Environmental journalism for the 1990s: Held at Rancho House College, 6th-8th March 1990*. National Seminar Series Report.
- Bowes, J.E., & Stamm, K.R. (1979). Science writing techniques and methods. *The Journal of Environmental Education*, 10(3), 25-28.
- Bowman, J.S. (1978). American daily newspapers and the environment. *The Journal of Environmental Education*, 10(1), 2-11.
- Brooks, M.M. (1990, April 21). Environmental journalism. *Editor and Publisher*, 123(16), 20-21, 131.
- Bruggers, J. (2002). The beat is a tougher one today. *Nieman Reports*, 56(4), 36-38.
- Burke, E. (1995). Ecocrisis in Nepal: The role of environmental media. *Mass Comm Review*, 22(1/2), 46-63.
- Burns, T.W., O'Connor, D.J. & Stocklmayer, S.M. (2003). Science communication: A contemporary definition. *Public Understanding of Science*, 12(2), 183-202.
- Cantrill, J.G. & Oravec, C.L. (1996). Introduction. In J.G. Cantrill & C.L. Oravec (Eds.), *The symbolic earth* (pp. 1-5). Kentucky: The University Press of Kentucky.
- Carson, R. (1962). *Silent spring*. Boston: Houghton Mifflin.
- Casey, W.E. (1998). Environmental journalism and environmental communication education: Identifying an educational model, (Thesis for Master of Arts, University of Nevada, 1998).
- Cohen, B. (1963). *The press and foreign policy*. Princeton: Princeton University Press.
- Corner, J. & Richardson, K. (1993). Environmental communication and the contingency of meaning: A research note. In A. Hansen (Ed.), *The mass media and environmental issues* (pp. 222-233). Leicester: Leicester University Press.

- Darley, J. (2000). Making the environment news on the today program. In J. Smith (Ed.) *The daily globe: Environmental change, the public and the media* (pp. 151-167). London: Earthscan Publications Ltd.
- De Mott, J, & Tom, E. (1990). The press corps of spaceship earth: A trend analysis, 1968-88. *Newspaper Research Journal*, 11(4), 12-23.
- Detjen, J. (1997). Environmental writing. In D. Blum & M. Knudson (Eds.), *A field guide for science writers* (pp. 173-179). New York: Oxford University Press.
- Detjen, J., Fico, F. Li, X. & Kim, Y. (2000). Changing work environment of environmental reporters. *Newspaper Research Journal*, 21(1), 2-11.
- Environmental Communication Resource Center, School of Communication, Northern Arizona University, (1996). Retrieved October 5, 2004 from <http://www.nau.edu/~soc-p/ecrc/>
- Environmental Journalism Center (Producer). (2003). *Best Practices in Environmental Journalism* [Motion picture]. Available from Radio-Television News Directors Association and Foundation, Leslie Gwinn, leslieg@rtndf.org.
- Farrow, C. (2000). Communicating about climate change: An NGO view. In J. Smith (Ed.), *The daily globe: Environmental change, the public and the media* (pp. 189-197). London: Earthscan Publications Ltd.
- Fisher, C.N. (1974). Students should be prepared to cover environmental beat. *Journalism Educator*, 29(2), 42-43.
- Flannery, M.A. (2000). Risk communication and the reasonable reader concept. *Journalism and Mass Communication Educator*, 55(3), (42-49).

- Franklin, J. (March 17, 1997). The end of science writing. The Alfred and Julia Hill Lecture at the University of Tennessee. Retrieved October 5, 2004 from <http://www.bylinefranklin.com/writing/endof.htm>
- Friedman, S.M. (1979). Using real world experience to teach science and environmental writing. *The Journal of Environmental Education*, 10(3), 37-42.
- Friedman, S.M. (1991a). Risk management: The public versus the technical Experts. In L. Wilkins & P. Patterson (Eds.), *Risky business: Communicating issues of science, risk, and public policy* (pp. 31-41). New York: Greenwood Press.
- Friedman, S.M. (1991b). Two decades of the environmental beat. In C.L. LaMay & E.E. Dennis (Eds.), *Media and the environment* (pp. 17-28). Washington, D.C.: Island Press.
- Friedman, S.M. (1999). The never-ending story of dioxin. In S.M. Friedman, S. Dunwoody, & C.L. Rogers (Eds.), *Communicating uncertainty: Media coverage of new and controversial science* (pp. 113-134). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Frome, M. (1998). *Green ink: An introduction to environmental journalism*. Salt Lake City: University of Utah Press.
- Gee, D. (2000). Communicating complexity and uncertainty: A challenge for the media. In J. Smith (Ed.) *The daily globe: Environmental change, the public and the media* (pp. 208-222). London: Earthscan Publications Ltd.
- Goodfield, J. (19 81). *Reflections on science and the media*. Washington, DC: American Association for the Advancement of Science.

- Gore Jr., A. (1991). Steering by the stars. In C.L. LaMay, & E.E. Dennis (Eds.), *Media and the environment* (pp. 179-183). Washington, D.C.: Island Press.
- Greenberg, M.R., Sachsman, D.B., Sandman, P.M., & Salomone, K.L. (1989). Risk, drama and geography in coverage of environmental risk by network TV. *Journalism Quarterly*, 66(2), 267-276.
- Gregory, R. (1991). Risk perceptions as substance and symbol. In L. Wilkins and P. Patterson (Eds.). *Risky business: Communicating issues of science, risk, and public policy* (pp. 1-10). New York: Greenwood Press.
- Griswold, W.F., & Swensen, J.D. (1993). Not in whose backyard? The ethics of reporting environmental issues. *Mass Comm Review*, 20(1-2), 62-75.
- Hall, J. (2001, August). In review: How the environmental beat got it's groove back. *Columbia Journalism Review*, 40(2), 10.
- Hamilton, J.M., (1991). Survival alliances. In C.L. LaMay & E.E. Dennis (Eds.), *Media and the environment* (pp. 3-14). Washington, D.C.: Island Press.
- Hansen, A. (1991). The media and the social construction of the environment. *Media, Culture & Society*, 13(4), 443-458.
- Harrabin, R. (2000). Reporting sustainable development: A broadcast journalist's view. In J. Smith (Ed.) *The daily globe: Environmental change, the public and the media* (pp. 49-63). London: Earthscan Publications Ltd.
- Hendin, D. (1970, August). Environmental reporting...the shrill voices sometimes get more credence than they deserve. *The Quill*, 15-17.
- Hertsgaard, M. (1989, November 16). Covering the world: Ignoring the earth. *Rolling Stone*, 47-49.

- Hohenemser, C., Kates, R.W., & Slovic, P. (1983, April 22). The nature of technological hazard. *Science* 220, 378-384.
- Howenstine, E. (1987). Environmental reporting: Shift from 1970 to 1982. *Journalism Quarterly*, 64, 842-846.
- Izakon, O. (2001, March/April). The write stuff. *E: The Environmental Magazine* 12, 22-24.
- Kim, H. (1977). Small department can gain from science writing course. *Journalism Educator*, 32(3), 81-83.
- Krimsky, S. & Plough, A. (1988). *Environmental hazards: Communicating risks as a social process*. Dover, Massachusetts: Auburn House Publishing Company.
- Lacy, S. & Coulson, D.C. (2000). Comparative case study: Newspaper source use on the environmental beat. *Newspaper Research Journal*, 21(1), 13-25.
- LaFollette, M. C. (1990). *Making science our own: Public images of science 1910-1955*. Chicago: The University of Chicago Press.
- Lazarus, D.S. (1991). A green battle for the truth. In *Environmental journalism for the 1990s: Held at Rancho House College, 6th-8th March 1990*. National Seminar Series Report.
- Lundburg, L.J. (1984). Comprehensiveness of coverage of tropical rain deforestation. *Journalism Quarterly*, 61(2), 378-382.
- McCombs, M.E. & Shaw, D.L. (1972). The agenda-setting function of mass media. *The Public Opinion Quarterly*, 36(2), 176-187.
- Miller, S. (2003). Disappearing green ink. *Sierra magazine*, 88(6), 50.

- Nelkin, D. (1995). *Selling science: How the press covers science and technology* (Rev. ed.). New York: W. H. Freeman.
- Neuzil, M. & Kovarik, W. (1996). *Mass media and environmental conflict: America's green crusades*. London: Sage Publications.
- Pauly, J. (1991). A beginner's guide to doing qualitative research in mass communication. *Communication Monographs*, 125, 1-29.
- Pleasant, A., Good J., Shanahan J., & Cohen, B. (2002). The literature of environmental communication. *Public Understanding of Science*, 11(2), 197-205.
- Prato, L. (1991). Covering the environmental beat: an overview for radio and TV journalists. Washington, DC: Environmental Reporting Forum.
- Rogers, C.L. (1999). The importance of understanding audiences. In S.M. Friedman, S. Dunwoody, & C.L. Rogers (Eds.), *Communicating uncertainty: Media coverage of new and controversial science* (pp. 179-200). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Rogers, P. (2002). Complexity in environment reporting is critical to public decision-making. *Nieman Reports*, 56(4), 32-34.
- Ronald, A. (2003). *Reader of the purple sage: Essays on western writers and environmental literature*. Reno: University of Nevada Press.
- Rowan, K.E. (1990). Strategies for explaining complex science news. *Journalism Educator*, 45(2), 25-31.

- Rowan, K.E. (1999). Effective explanation of uncertain and complex science. In S.M. Friedman, S. Dunwoody, & C.L. Rogers (Eds.) *Communicating uncertainty: Media coverage of new and controversial science* (pp. 201-220). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Rubin, D. M., & Sachs, D.P. (1973). *Mass media and the environment: Water resources, land use, and atomic energy in California*. New York: Praeger Publishers.
- Sachsman, D.B. (1976). Public relations influence on coverage of environment in San Francisco area. *Journalism Quarterly*, 53(1), 54-61.
- Sachsman, D.B. (1996). The mass media “discover” the environment: Influences on environmental reporting in the first twenty years. In J.G. Cantrill and C.L. Oravec (Eds.), *The symbolic earth* (pp. 241-256). Kentucky: The University Press of Kentucky.
- Sachsman, D.B. (1999). Commentary: Should reporters use risk as a determinant of environmental coverage? *Science Communication*, 21(1), 114-121.
- Sachsman, D.B, Simon, J., & Valenti, J.M. (2002). The environment reporters of New England. *Science Communication* 23(4), 410-441.
- Salayakanond, W. (1994, May 2-14). The role of the media in covering environmental issues. *Environmental Journalism Seminar Papers*, 40-41. Cambodia: Cambodia Communication Institute.
- Sandman, P.M., Sachsman, D.B. Greenberg, M.R., & Gochfeld, M. (1987). *Environmental risk and the press: An exploratory assessment*. New Brunswick: Transaction Books.

- Schoenfeld, C.A. (1980). Newspersons and the environment today. *Journalism Quarterly*, 57(3), 456-462.
- Selcraig, B. (1995, January/February). Print no evil. *Sierra*, 80, 36-37.
- Sellers, L. & Jones Jr., D.W. (1973). Environment and the mass media. *The Journal of Environmental Education*, 5(1), 51-57.
- Shabecoff, P. (1993). *A fierce green fire: The American environmental movement*. New York: Hill and Wang.
- Sharma, D. (2000). Genetic modification, food and sustainable development: Telling the story. In J. Smith (Ed.), *The daily globe: Environmental change, the public and the media* (pp. 79-94). London: Earthscan Publications Ltd.
- Simon, J.L. (1980, June 27). Resources, population, environment: An oversupply of false bad news. *Science*, 208(4451), 1431-1437.
- Singer, E. and Endreny, P.M. (1993). *Reporting on risk: How the mass media portray accidents, diseases, disasters, and other hazards*. New York: Russell Sage Foundation.
- Smith, C. (1993). News sources and power elites in news coverage of the Exxon Valdez oil spill. *Journalism Quarterly*, 70(2), 393-403.
- Smith, E.T. (1991). Greens and greenbacks. In C.L. LaMay & E.E. Dennis (Eds.), *Media and the environment*, pp. 157-169. Island Press: Washington, D.C.
- Smith, J. (2000). Introduction. In J. Smith (Ed.), *The daily globe: Environmental change, the public and the media*, pp. 3-14. London: Earthscan Publications Ltd.
- Strauss, A. & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. London: Sage Publications.

- Stocking, H.S. (1999). How journalists deal with scientific uncertainty. In S.M. Friedman, S. Dunwoody, & C.L. Rogers (Eds.) *Communicating uncertainty: Media coverage of new and controversial science*, 23-41. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Valenti, J.M (1998). Ethical decision making in environmental communication. *Journal of Mass Media Ethics*, 13 (4), 219-231.
- Valenti, J., &Wilkins, L. (1995). An Ethical risk communication protocol for science and mass communication. *Public Understanding of Science*, 4, 177-194.
- Ward, B. (2002). Environment journalists don't get much respect. *Nieman Reports*, 56(4), 40-41).
- Weigold, M. (2001). Communicating Science: A review of the literature. *Science Communication*, 23(2), 164-193.
- Whelan, T. (1991). Environmental coverage around the world: 1970-1990. In J. Cornell (Ed.), *Proceedings of a Technical Session at the American Association for the Advancement of Science, New Orleans, Louisiana, USA, 18 February, 1990. Ground-Level Views of Global Problems: International Environmental Reporting* (pp. 5 –23). Bethesda, MD: International Science Writers Association.
- Wilkins, D.M. (1990). The daily newspaper and environmental journalism: A primer for environmental advocates and professionals. Essay of Distinction for Master in Environmental Study, The Evergreen State College.
- Wilkins, L (1987). *Shared vulnerability: The media and American perceptions of the Bhopal disaster*. Greenwood Press: New York.

- Wilkins, L. (1997). Communitarian and environmental journalism. In J. Black (Ed.) *Mixed news: The public/civic/communitarian debate* (pp. 200-214). Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Wilkins, L. and Patterson, P. (1991). Introduction. In L. Wilkins & P. Patterson (Eds.), *Risky business: Communicating issues of science, risk, and public policy* (pp. xvii-xxii). New York: Greenwood Press.
- Willis, J. & Okunade, A.A. (1997). *Reporting on risks: The practice and ethics of health and safety communication*. Westport, Connecticut: Praeger.
- Wilson, K.M. (2000). Communicating climate change through the media. In S. Allan, B. Adam & C. Carter (Eds.), *Environmental risks and the media*, pp. 201-217. London: Routledge.

APPENDICES

Appendix 1: List of Handbooks

- Asia-Pacific Forum of Environmental Journalism and United Nations Environment Programme, (1996). *Reporting on tourism and environment: A backgrounder*. Bangkok, Thailand: Asia-Pacific Forum of Environmental Journalism and United Nations Environment Programme.
- Canadian Institute for Environmental Law and Policy, (1989). *Bridging the gap: A handbook for scientists and journalists on toxic pollution reporting*. Canada: Canadian Institute for Environmental Law and Policy.
- Day, B. & Monroe, M.C. (Eds.). (2000). *Environmental education and communication for a sustainable world: Handbook for international practitioners*. Washington, D.C.: Academy for International Development.
- Edelson, E. (1985). *The journalist's guide to nuclear energy*. Bethesda, Maryland: Atomic Industrial Forum, Inc.
- Environmental Health Center. *Reporting on radon: A journalist's guide to covering the nation's second-leading cause of lung cancer*. Washington, D.C.; National Safety Council.
- Environmental Health Center (2000). *Chemicals, the press, and the public*. Washington, D.C.: National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/guidebks/chemtoc.htm>
- Environmental Health Center, (2000). *Reporting on climate change: Understanding the science (2nd Ed.)*. Washington, D.C.; National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/guidebks/climtoc.htm>

Appendix 1(Continued)

- Environmental Health Center, (2001). *A reporter's guide to Yucca Mountain*. Washington, D.C.: National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/yuccamt.htm>
- Environmental Health Center (1998). *Coastal challenges: A guide to coastal and marine issues*. Washington D.C.: National Safety Council.
- Environmental Health Center, (1997). *A reporter's guide to the Waste Isolation Pilot Plant*. Washington D.C.: National Safety Council. Retrieved October 27, 2003 from <http://www.nsc.org/ehc/guidebks/wipptoc.htm>
- Environmental Health Center. *Understanding radiation in our world*. Washington, D.C.: National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/journali.htm>
- Environmental Health Center. *Chemical safety in your community: Risk management backgrounders*. Washington, D.C.: National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/rmp.htm>
- Environmental Health Center. *Climate and weather backgrounder series*. Washington D.C.: National Safety Council. Retrieved October 27, 2004 from <http://www.nsc.org/ehc/jrn/weather.htm>
- Environmental Health Center (2002). *Low level radioactive waste*. Washington, D.C.: National Safety Council.
- Environmental Health Center (1993). *Reporting on municipal solid waste: A local issue*. Washington, D.C.: National Safety Council.

Appendix 1(Continued)

Environmental Journalism Center (1994). *World population and the environment*.

Washington, DC.: Radio and Television News Directors Foundation.

Environmental Journalism Center (1997). *Childhood lead poisoning: Good news, bad*

news. Washington, D.C.: Radio-Television News Directors Foundation.

Environmental Journalism Center (1999). *Covering key environmental issues: A*

handbook for journalists (4th Ed.). Washington, D.C. : Radio-Television News Directors Foundation.

Environmental Journalism Center (Producer). (2003). *Best practices in environmental*

journalism [Motion picture]. Available from Radio-Television News Directors

Association and Foundation, Leslie Gwinn, leslieg@rtndf.org.

Environmental Journalism Center (1998). *Childhood cancer: Covering this scientific*

mystery. Washington, D.C.: Radio-Television News Directors Foundation.

Retrieved October 27, 2004 from <http://www.rtndf.org/resources/ejco.shtml>

Environmental Journalism Center (1997). *Clearing the air: Covering asthma and other*

childhood diseases. Washington, D.C.: Radio-Television News Directors Foundation.

Environmental Media Services (2000). *Reporters' guide: Genetic engineering in*

agriculture. Washington, D.C.: Environmental Media Services.

Appendix 1(Continued)

Friedman, S. & Friedman, K. (1988). *Reporting on the environment: A Handbook for journalists*. Bethlehem, PA: Department of Journalism and Communication, Lehigh University.

* This handbook was written for southeast Asian journalists, and is not available in the United States.

Goldberg, D. (1999). *Covering urban sprawl: Rethinking the American dream*. Washington, D.C.: Radio-Television News Directors & Foundation. Retrieved October 27, 2004 from <http://www.rtndf.org/resources/sprawl/sprawl.shtml>

Gordon, D. *The environment and children's health: A journalists' resource for in depth reporting*. Washington, D.C.: Radio and Television News Directors Foundation. Retrieved October 27, 2004 from <http://www.rtnda.org/resources/childrenshealth.shtml>

Hazardous Media (2003). *The reporter's hazardous assignment handbook: Wildfires (United States Ed.)*. Boulder, Co.: Hazardous Media LLC.

International Federation of Environmental Journalists. *Ciudadania planetaria*. Retrieved October 26, 2004 from <http://www.ifej.org/publi/publications.htm>.

* This handbook is only available in Spanish.

Kamrin, M.A., Katz, D.J., & Walter, M.L. (1995). *Reporting on risk: A journalist's handbook on environmental risk assessment*. Michigan: Foundation for American Communications and National Sea Grant College Program.

Appendix 1(Continued)

- Kandel, K.R. & Mainali, M. (1993). *Playing with poison*. Kathmandu, Nepal: Nepal Forum of Environmental Journalists. Retrieved October 26, 2004 from http://www.nefej.org.np/_pub/books.htm
- Keating, M. (1993). *Covering the environment: A handbook on environmental journalism*. Ottawa: National Round Table on the Environment and the Economy.
- Kovarik, B., Pelaseyed, R. & Worcman, N. (1994-95). *International environmental sourcebook*. Reston, Va.: Center for Foreign Journalists.
- Logan, R.A. (1995). *Environmental issues for the '90s: A handbook for journalists* (1995 Ed.). Washington D.C.: The Media Institute.
- Moore, C.A. *Beyond the spotted owl: Covering the economy and the environment in the '90s*. Washington, D.C.: Radio-Television News Directors Foundation
- Moore, C. (2004). *Air pollution: A reporter's manual*. Washington, D.C.: International Center for Journalists.
- Nelson, P. (1995). *Ten practical tips for environmental reporting*. Washington D.C.: International Center for Journalists.
- O'Donnell, F. (1994). *Autos in America: Moving toward zero emissions*. Washington, D.C.: Radio-Television News Directors Foundation
- Prato, L. (1991). *Covering the environmental beat: an overview for radio and TV journalists*. Washington, DC: Environmental Reporting Forum.
- Raloff, J. (1999). *Environmental hormones: Threats to health and reproduction?* (3rd Ed. Washington, D.C.: Radio-Television News Directors Foundation. Retrieved October 27, 2004 from <http://www.rtndf.org/resources/horm/horm.shtml>

Appendix 1(Continued)

Wartenberg, D. (1994). *Epidemiology for journalists*. Los Angeles: Foundation for American Communications.

West, B.M, Lewis, M.J., Greenberg, M.R., Sachsman, D.B., & Rogers, R.M. (2003). *The reporter's environmental handbook (3rd Ed.)*. New Brunswick: Rutgers University Press.

Appendix 2: Handbooks Examined

- Environmental Journalism Center (1999). *Covering key environmental issues: A handbook for journalists* (4th Ed.). Washington, D.C. : Radio-Television News Directors Foundation.
- Keating, M. (1993). *Covering the environment: A handbook on environmental journalism*. Ottawa: National Round Table on the Environment and the Economy.
- Logan, R.A. (1995). *Environmental issues for the '90s: A handbook for journalists* (1995) Washington D.C.: The Media Institute.
- Nelson, P. (1995). *Ten practical tips for environmental reporting*. Washington D.C.: International Center for Journalists.
- West, B.M, Lewis, M.J., Greenberg, M.R., Sachsman, D.B., & Rogers, R.M. (2003). *The reporter's environmental handbook* (3rd Ed.). New Brunswick: Rutgers University Press.

Appendix 3: Protocol Sheet

Qualitative Document Analysis Protocol

to examine handbooks on environmental journalism

1. Title:
2. Author:
3. Publication year:
4. Published by:
5. Length:
6. Format (spiral bound, downloadable)?
7. Chapters, subsections in chapters?
8. Does the handbook mention the process of the book's creation? Methodology?
9. Tone or bias (advocate, scientific, formal, conversational, etc.)?
10. Writing style or techniques (word choice, language, content chosen, etc.)?
11. Visuals (charts, graphs, tables, pictures)?
12. List of tips or suggestions? Call journalists to action?
13. Certain sources emphasized? References?
14. Definition of environmental journalism? Language to describe environmental journalism?
15. Overall message/meaning/theme/purpose of the document? Key phrases?
16. Notes and quotes: