

Defusing Environmental Education:

An evaluation of the critique of the environmental education movement

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Executive Summary

Since the mid-1990s, environmental education has gained the attention of a number of critics. Most prominent among these have been Michael Sanera and Jane Shaw, whose 1996 book, *Facts, Not Fear: A Parents' Guide to Teaching Children About the Environment*, has gone through numerous printings. Sanera has also played a major role in raising challenges to state-level environmental education programs. Central to Sanera and Shaw's criticism is the assertion that the most widely available environmental education materials are factually inaccurate and one-sided, favoring the catastrophic version of environmental issues and disregarding research that suggests that problems are less serious or non-existent. Drawing solely upon their review of textual materials, they also assert that many environmental educators are engaged in a process of misrepresentation and indoctrination.

Sanera and Shaw propose a three-part solution to the problems they identify: (1) the presentation in school textbooks of multiple science-based perspectives regarding environmental topics, (2) a more detailed exploration of the costs and benefits of strategies aimed at dealing with environmental problems, and (3) an avoidance of any effort to encourage students to become environmental advocates. From their perspective, environmental educators should focus on the science and economics of environmental issues and avoid any reference to connections that exist between environmental problems and broader social or cultural factors.

The critiques of the environmental education movement, however, appear to be biased by their funding sources: ideologically-based foundations supported by industries that are deeply involved in manufacturing and extraction and the consequent pollution those industries cause. Moreover, the studies on which those critiques are founded do not appear to stand up to scholarly scrutiny. They make assertions about what students are taught without any evidence of classroom observation, instead relying solely on textbook analysis. Finally, the critics' efforts to seek legislation weakening state environmental education mandates and programs have had mixed results.

Introduction

Since the 1970s, teachers at all levels of the U.S. educational system have incorporated environmental issues into the curriculum. Children in elementary schools learn about endangered species or the benefits of recycling; in middle schools, cross-disciplinary instruction often focuses on local environmental topics; many high school teachers are using a new

Advanced Placement environmental studies course that links science to social studies; and on college campuses, majors in environmental studies have become increasingly popular. Although this curricular trend has not brought about a corresponding increase in Americans' knowledge about environmental topics,¹ environmental education has become a distinguishable enough feature of contemporary schools to attract the attention of critics who are now challenging its premises and its practices. In a survey of 50 different media sources between 1995 and 1996, the National Environmental Education Advancement Project collected 60 articles that criticized educational efforts in this area.²

By and large, the critics claim that environmental education is alarmist, anti-business, catastrophic, and at bottom, unscientific. They also charge that most educators are ill-prepared to present environmental topics to students in a manner that reflects the complexity of the issues involved. Some of these charges are justified. Only a few states require all future teachers to take courses in environmental topics in the way they are required to study literacy acquisition or multicultural education. And environmental educators themselves have raised concerns about offering a diet of environmental problems to young children before they have had a chance to develop a sense of being at home in the world.³ Much of the criticism, however, appears aimed at diminishing legitimate concerns about issues such as global climate change, acid rain, or species extinction by focusing on the alleged failure of environmental educators to present conflicting scientific evidence, a failure linked to their avowed desire to turn their students into environmental activists. The critics offer no evidence based upon classroom observation for these charges. While it is possible that some teachers present a partisan position to their students, the critics assert that the great majority of educators who consider environmental topics are guilty of this kind of bias.

Among the leading critics are Michael Sanera and Jane Shaw. Published in 1996, their volume, *Facts, Not Fear: A Parent's Guide to Teaching Children About the Environment*, has gone through several printings.⁴ When *Facts, Not Fear* was published, Sanera, a former political science professor at Northern Arizona University, directed the Center for Environmental Education Research of the Claremont Institute, a conservative think tank founded in 1979 in Claremont, Calif.; he now directs the Center for Environmental Education Research, a project of the Competitive Enterprise Institute, based in Washington, D.C. Shaw is a senior associate at the Political Economy Research Center (PERC), a Montana-based think tank whose board of directors includes Adam Meyerson, vice president of the Heritage Foundation.⁵ Another significant document critiquing environmental education, "Are We Building Environmental Literacy?" was published in 1997 by the Independent Commission on Environmental Education.⁶ The Commission, itself, was founded by the George C. Marshall Institute, a Washington, D.C., think tank that has played a major role in questioning the reality or threat of ozone depletion and global warming.⁷

The effort to challenge environmental education has not been limited to the writing and distribution of books and reports. Sanera was instrumental in gutting a previously strong environmental education mandate in the state of Arizona. More recently, Sanera and his allies have taken their criticism of environmental education to other states including Wisconsin, Colorado, Iowa, Minnesota, Mississippi, and Washington with varying results. Most significant has been the degree to which this organized critique of environmental education has put

environmental education supporters on the defensive and diverted limited resources and energy away from the development of meaningful and effective educational programs.

The rest of this report discusses in more detail central points raised by the critics, strategies that have been pursued in different states to weaken environmental education programs, backers of these efforts, and the response of environmental educators.

The Critique

Sanera and Shaw's critique has been based upon a review of middle and high school geography, health, and science textbooks, environmental books found in selected school libraries, and texts used to prepare environmental education teachers. These materials were scrutinized with an eye to the degree to which their authors presented balanced information about major environmental issues such as ozone depletion, rates of species extinction, deforestation, global warming, and acid rain. Central to Sanera and Shaw's criticism is the assertion that the most widely available materials are one-sided, favoring the catastrophic version of environmental issues and disregarding research that suggests that problems are less serious or non-existent. They strive to correct this situation by citing evidence that suggests these problems are not worrisome.

For example, with regard to rates of deforestation in the United States, they argue that through the reversion of farmland to forests, the planting of extensive tree farms, and fire suppression, there is actually more forested land now than in 1920. They go on to suggest that old growth forests are not superior to second-growth forests, and that the latter usually display a greater variety of trees and plant life because more sunlight reaches the forest floor.⁸ These points obscure the fact that when most private and public forest lands are intentionally replanted, the result is not the rich variety of vegetation of a virgin forest but monocultures composed of trees with commercial value. Also obscured is the damaging effect of clearcutting on forest ecosystems and the wildlife that depends on them. Habitat destruction tied to conventional logging practices in the Pacific Northwest, for example, is one of the contributing factors to the dramatic decline in salmon populations over the past half century.⁹

In discussing global warming, Shaw and Sanera use a similar technique. They acknowledge that carbon dioxide levels in the atmosphere have increased since the beginning of the industrial age and that global temperatures are approximately 0.5 to 1.0 degree Fahrenheit warmer than a century ago. They suggest, however, that the link between human activities and atmospheric warming remains speculative, and that the degree of warming experienced so far should not trouble us. Ignored completely is the work of the 2,500 scientists who serve on the United Nations-created Intergovernmental Panel on Climate Change and their carefully considered statement that human activity almost certainly is linked to atmospheric warming and that the consequences of increased warming are likely to be problematic.¹⁰ Sanera and Shaw go on to fault imperfect climate models as the primary source of scientific and public concern, and dismiss these because of their apparent failure to accurately predict the increases in global temperature we have actually seen.¹¹ Neglected in their account is any acknowledgement of the increased accuracy of more current models or the now widely observable phenomena predicted by these models: rapidly melting glaciers, shrinking polar pack ice, and a steady increase in

average global temperatures.¹² Instead, they discount land-based measurements that clearly show a warming trend by citing measurements taken by a NASA satellite that showed no warming between 1979 and 1996.¹³ After their book was published, this evidence was shown to be inaccurate because the data had not been adjusted for the satellite's orbital decay.¹⁴ In many respects, their selective presentation of data about global warming and other issues mirrors the problem they identify in environmental texts.

Sanera and Shaw appear to have chosen to include facts that minimize the problems they discuss. This does not stop them from arguing that the one-sided nature of available texts leads most environmental educators to indoctrinate students rather than teach them. They assert that a significant gap exists between the intention of environmental education leaders to assure that teachers present students with multiple perspectives regarding critical environmental topics--as spelled out in *Environmental Education Materials: Guidelines for Excellence*¹⁵--and actual classroom practice.

Their critique, however, is based on a selective use of the NAAEE guidelines, whose effectiveness is tied to a careful consideration of six criteria: fairness and accuracy, depth, emphasis on skills building, action orientation, instructional soundness, and usability.¹⁶ The first criterion, fairness and accuracy, specifically calls for factual accuracy, balanced presentation of differing viewpoints and theories, openness to inquiry, and reflection of diversity. Taking all of these criteria into consideration, a thoughtful educator might decide that other values in a text outweigh minor failings in one area, failings that could be acknowledged during class discussions.

Sanera and Shaw's research, furthermore, includes no observations in classes where environmental issues are being taught to determine how materials are actually incorporated into lessons. Much of their critique, in fact, has relied upon anecdotes drawn from the popular press that focus on student fears or activism apparently triggered by the work of environmental educators.¹⁷ Interviews with individuals involved in these incidents, however, have revealed that Sanera and Shaw's analyses often misrepresent the reported events.¹⁸

Sanera and Shaw offer three proposals to solve the problems they identify: (1) the presentation in school textbooks of multiple science-based perspectives regarding environmental topics, (2) a more detailed exploration of the costs and benefits of strategies aimed at dealing with environmental problems, and (3) an avoidance of any effort to encourage students to become environmental advocates. From their perspective, environmental educators should focus on the science and economics of environmental issues and refrain from referring to connections that exist between environmental problems and broader social or cultural factors.¹⁹

The 1997 report of the Independent Commission on Environmental Education, "Are We Building Environmental Literacy?", uses methods similar to those of Sanera and Shaw and comes to similar conclusions. The commission was established not by any government agency but rather under the leadership of the George C. Marshall Foundation. The foundation, established and financed by corporate donors, took the lead in denying widely accepted scientific data on global climate changes, and in promoting benign interpretations of that data. The ten Commission members include three individuals who also served as science advisors to Sanera

and Shaw in their examination of materials discussed in *Facts, Not Fear*. Reviewing 71 documents, the ICEE assessed the treatment of acid rain, ecology and biodiversity, economic analysis, energy and natural resources, forests, global warming, population, risk analysis, and waste management.²⁰ The volumes under the Commission's review are themselves diverse. They include environmental science textbooks published by the Lawrence Hall of Science and the World Wildlife Fund, trade books such as *Going Green: A Kids' Handbook to Saving the Planet*,²¹ and children's stories such as *The Great Kapok Tree*.²² The text of the report focuses on the strengths and weaknesses of specific volumes, but offers no summary data regarding the way the volumes collectively present information about each of these topics. The impression the report leaves is that while some of the reviewed materials are in fact balanced, many contain misleading or inaccurate information. Whereas *Facts, Not Fear* suggests that most if not all environmental educators strive to frighten children into becoming eco-activists, the Commission's report achieves a more objective tone. Among the Commission's findings are the following:

- Study of the environment is important for K-12 students.
- Teachers are key to successful environmental education, but supporting materials are inadequate.
- Environmental education is not environmental science, but the promotion of environmental literacy depends on materials that include the best available science.
- Scope and sequence are lacking in environmental education materials.
- Environmental education has become unnecessarily controversial.
- Environmental education materials do not prepare students to deal with environmental controversies.
- Environmental education fails to help students understand the tradeoffs involved in addressing environmental issues.
- Factual errors are common in environmental education materials.²³

These findings led the Commission to make the following recommendations:

- Environmental educators should stress the acquisition of knowledge.
- Elementary school students should begin the study of science with a study of the natural world; in middle schools, environmental education should be presented as a multidisciplinary capstone course.
- Environmental education materials should contain more substantive scientific information.
- Environmental educators require substantial preparation in the fields of science, economics, and mathematics.
- Environmental education curricula should be regularly evaluated by an independent panel of experts.²⁴

Although presented in neutral terms, these findings and recommendations well match the unsettling trends identified by Jo Kwong in her 1995 article written under the auspices of the Center for the Study of American Business, "Environmental Education: Getting Beyond Advocacy." Kwong asserts that:

“EE is often based on emotionalism, myths, and misinformation.

“EE is often issue-driven rather than information-driven.

“EE typically fails to teach children about basic economics or basic decision-making processes, relying instead on mindless slogans.

“EE often fails to take advantage of lessons from nature, and instead preaches socially or politically correct lessons.

“EE is unabashedly devoted to activism and politics, rather than knowledge and understanding.

“EE teachers an anti-anthropocentric philosophy [that] man is an intrusion on the earth and, at times, an evil.”²⁵

What is striking about the nature of the critique that has been leveled at environmental education is that it is based on virtually no classroom observations or formal interviews with environmental educators. The review of materials is helpful and needed -- inaccurate facts and failures to present legitimate, and contrasting scientific perspectives about environmental topics should be identified and corrected. This research, however, provides limited insight into what actually transpires in EE classrooms. Not pursued by Sanera and Shaw or the members of the ICEE, for example, is the possibility that teachers may well encourage their students to examine and critique these texts in an effort to enhance their critical capacities. Salem, Oregon environmental educator John Borowski, for example, makes a point of pairing curriculum materials produced by corporations and environmental advocacy groups to encourage students to examine the arguments and make up their own minds about particular topics.²⁶ There is no room for teachers like Borowski in Sanera and Shaw's analysis. They simply assume that teachers are uncritical and minimally informed consumers of materials developed by others. This may or may not be the case, but EE critics provide no evidence upon which to make a judgment. The challenge that they are raising against environmental education is based on little more than what they imagine is happening in environmental education classrooms. They present no systematically gathered information regarding what this might be.

The irony about much of this critique is that dollar-strapped schools often have few resources to devote to the purchase of new environmental education materials.²⁷ Teachers are instead forced to rely upon a burgeoning selection of industry-developed and distributed materials that suggest, for example, that gasoline is really a form of solar power (a premise -- advanced in Exxon's “Aquarium Without Walls” -- that obviously pushes the definition of solar power to absurd limits),²⁸ or that increasing levels of atmospheric carbon will enhance plant growth (from an activity book distributed by the American Coal Foundation).²⁹

While both statements contain some degree of fact, they mask the gravity of the problems they present to students. While it is true that fossil fuels are the product of solar energy collected by plants during the Paleozoic era, this statement sidesteps the fact that unlike efforts to tap the sun's current output, the use of coal, oil, and gasoline cannot be sustained indefinitely and that their combustion is increasing the amount of carbon in the atmosphere. Similarly, some plants, including the great majority of those used for human consumption, are likely to produce higher yields, especially if growth is channeled into seeds; many weeds, however, are also likely to become more aggressive. Of even more significance, however, are the climate disruptions that

could accompany increased atmospheric warming and the agricultural failures and increased human hunger this would induce.³⁰ Such materials have become increasingly common in schools. Exxon's video, *After the Spill*, was sent to 10,000 classrooms; it presents the corporation's clean-up efforts following the Valdez oil spill as a "triumph of pollution control."

³¹ Bruce Selcraig, writing in *Sierra Magazine*, estimates that industry groups ". . . from the insurance industry to chlorine manufacturers to the Aseptic Packaging Council which pushes those waxy drink-boxes kids love for lunch" distribute their materials to 2 million teachers.³² The very popular *Project Learning Tree*, sponsored by the American Forest Foundation, has been used by approximately 25 million students in the U.S., its Trust Territories, Canada, Sweden, Finland, Japan, Brazil, and Mexico.³³ These materials present conventional forestry practices uncritically, emphasizing the importance of the wood products industry as both a supplier of goods and jobs.³⁴ Corporate-sponsored curriculum is ubiquitous and becoming more so.

Efforts to Weaken State-Level Environmental Education Programs

Industry groups and their intellectual allies have not been not satisfied with their capacity to flood classrooms with curricular materials or to gain widespread public attention for critiques based solely upon a review of texts rather than observations of EE classrooms. After castigating one of the strongest environmental education teacher preparation programs in the country at the University of Wisconsin-Stevens Point,³⁵ Michael Sanera attempted to persuade state legislators to reduce support for this effort set in motion in 1985 under the leadership of former Wisconsin Senator Gaylord Nelson. According to Randall Champeau, director of EE at UW-Stevens Point, continuing strong political support for environmental education in Wisconsin deflected this effort.³⁶ Efforts in Colorado to eliminate the state-level environmental education position in the Department of Education were initially more successful until they were quashed by then-Governor Roy Roemer.^{37, 38}

Sanera also played a principal role in weakening Arizona's environmental education mandate. A 1990 bill had required all school districts in the state to teach environmental education, supporting this effort by revenues generated through the sale of environmental-theme license plates. In 1995, Arizona Representative Rusty Bowers introduced Arizona Bill 2274 that removed the mandate and rerouted revenues from license plate sales away from the Education Department to the state's Land Department, where decisions about environmental education would be made by a new advisory council filled with political appointees and representatives from extraction industries. Among those presenting testimony during hearings about Arizona Bill 2274 was Michael Sanera. Arizona Senator Chris Cummisky observed that Sanera ". . . was the ringleader and presented information that showed that environmental education was creating green eyed monsters, teaching respect for the earth."³⁹ As in *Facts, Not Fear*, much of the testimony presented during these hearings was based on incidents unrelated to the actions of environmental educators or anecdotes taken out of context.⁴⁰

During 1999, well-established environmental education programs in Washington state became the object of Sanera's scrutiny. Washington is one of eight states targeted as part of an initiative by the Competitive Enterprise Institute in Washington to examine environmental curricula for potential bias.⁴¹ In conjunction with the Evergreen Freedom Foundation, an

Olympia-based think tank that regularly attacks public education and the Washington Education Association, Sanera published a 23-page report card about environmental education. In it he argued that Washington's vague guidelines for environmental studies left room for wide interpretation and teacher bias.⁴² Like *Facts, Not Fear*, this study focused on textual analyses rather than interviews with educators or environmentalists, or any observation of classrooms. Much of the report is a rehash of themes set out in his and Shaw's book, with only eight pages devoted to a review of Washington's state guidelines for environmental education. Darin Saul, director of the Center for Environmental Studies at Washington State University in Pullman, observed that rather than presenting a single point of view, as Sanera claimed, Washington environmental programs typically strive to bring people from industry, agriculture, and environmental advocacy groups together to work on common projects.⁴³ Saul noted, however, that criticism does not have to be legitimate to create its desired effect. Headlines in Tacoma's October 21, 1999 *News Tribune* provide evidence of this point. In large bold letters, the reader is confronted with the statement that "Schools flunk environmental education, conservative group says." The state supervisor of environmental education's rebuttal -- "It's fabrication based on thin air" -- is printed in much smaller letters.⁴⁴

In conjunction with this attack, there was talk in late 1999 among some elected representatives in Washington State of directing environmental educators to focus only on science and economic issues, essentially eviscerating efforts over several years to teach EE from the standpoint of multiple disciplines.⁴⁵ This legislation parallels Sanera's call for the "depoliticization" of environmental education, a call that is questionable given his own strong political roots. Jennifer Lamson of the Washington Environmental Media Services in Seattle responded: "[Sanera] comes from an ideological background that supports unimpeded free enterprise and unfettered property rights. He's not [here] to improve public education; instead, he tries to tear it down as he did in Arizona."⁴⁶ Washington State environmentalists fear that Sanera intends to erode public support for the 1990 law that requires the teaching of environmental education in K-12 schools. Looking at Sanera's efforts elsewhere, Kathy Becker, a program officer at Seattle's Bullitt Foundation--an organization led by the 1970 Earth Day co-founder Denis Hayes, observes: "It's clear we're next."⁴⁷

Attacks on environmental education in other states have followed Sanera's lead. Jim Motavalli reports in the September/October 1999 volume of *E-Magazine* that religious fundamentalists in Texas are objecting to environmental science textbooks on the grounds that they are too negative to industrial society. Concerned that children were receiving an unbalanced impression about environmental issues, Texas officials sponsored a 1997 seminar where leading oil and chemical corporations were invited to present their positions. No environmental organizations were asked to participate in this event.⁴⁸ In New Hampshire, the American Legislative Exchange Council, a Washington, D.C.-based organization of conservative state legislators, sought to gain public approval of a Parental Rights Amendment that would require children to gain parental permission before learning anything about nuclear war, nuclear policy, globalism, population control, and organic evolution, including Darwin's theory.⁴⁹

Supporters of the Anti-Environmental Education Backlash

The Center for Commercial-Free Public Education, a San Francisco educators' and parents' group critiquing the use of commercial advertising materials in daily school interaction with children, has provided a systematic review of the organizations responsible for this campaign to challenge and reform environmental education.⁵⁰ Its leaders include the previously mentioned Claremont Institute, Competitive Enterprise Institute, and George C. Marshall Institute; and the Political Economy Research Center in Bozeman, Mont. Each of the preceding organizations sends representatives to the Environmental Education Working Group (EEWG), where they are joined by individuals from the Alabama Family Alliance, in Birmingham; the Alaska Council on Economic Education, in Anchorage; the Arizona Institute for Public Policy Research, the Atlas Economic Research Foundation, and the Heartland Institute, of Palatine, Ill. The Claremont Institute, under whose auspices Sanera initially wrote *Facts, Not Fear*, is a network member of the Heritage Foundation, as is the Competitive Enterprise Institute, the organization that now supports Sanera's research efforts. The CEI also is a member of Alliance for America and Get Government Off Our Backs. The CEI was responsible for publishing *The True State of the Planet*,⁵¹ a volume that seeks to discredit many environmentalist claims, presenting itself as a counter-balance to the Worldwatch Institute's influential annual reports, *The State of the World*. In addition, a wide range of other conservative organizations have been involved in anti-environmental education campaigns. These include the American Enterprise Institute, the Cato Institute, both in Washington, D.C.; Citizens for Excellence in Education, in Costa Mesa, Calif.; the Hoover Institution at Stanford University; the Hudson Institute, Indianapolis; the Pacific Research Institute for Public Policy, San Francisco; the Reason Foundation, Los Angeles; Resources for the Future, in Washington, D.C.; and the Wisconsin Policy Research Institute, Thiensville, Wis.^{52, 53}

Financial support for the attack on environmental education can be linked to a number of the largest funders of politically conservative causes in the U.S. The Claremont Institute and the Competitive Enterprise Institute receive funding from such organizations as the Lynde and Harry Bradley Foundation, the Jacquelin Hume Foundation, the Koch Family Foundations, the Scaife Family Foundations, and the Smith Richardson Foundation. The Earhart Foundation and the Jacquelin Hume Foundation provided initial financial support for the publishing of *Facts, Not Fear*. The AMOCO Foundation, the Bechtel Foundation, the Adolph Coors Foundation, the John M. Olin Foundation, and the Weyerhaeuser Foundation provide funds for other central players in this campaign, including the the Heritage Foundation, the Political Economy Research Center, and Resources for the Future. Also among the supporters of a number of the preceding organizations are the ARCO Foundation, the Eli Lilly and Company Foundation, and the Lilly Endowment, groups whose funding practices are more eclectic.⁵⁴

Response of the Environmental Education Community

The North American Association for Environmental Education (NAAEE) has taken the challenges raised by EE critics seriously and, with its state affiliates, been in the forefront of efforts to respond to Sanera and Shaw as well as other reports and articles. Deborah Simmons, past president of NAAEE, has questioned the scholarly rigor of the criticism itself. In a 1998 article in the *Canadian Journal of Environmental Education*, she charges that the study upon which *Facts, Not Fear* is based provides no guarantee against researcher bias. She raises the concerns mentioned earlier that Sanera and Shaw use materials guidelines developed by the

National Project for Excellence in Environmental Education out of context and in a way they were never intended to be applied. She suggests that “. . . arbitrarily choos[ing] which of the key characteristics and guidelines are to be scrutinized violates both the spirit and the intent of the *Guidelines*. Focusing one’s attention only on factual accuracy (or any one of the key characteristics for that matter) is limiting.”⁵⁵ She later states that Sanera’s application of the *Guidelines* fails to recognize that educators make judgments about the materials they use and that they do not use materials in a vacuum.⁵⁶ Although some materials may not include diverse perspectives, this does not mean that an environmental educator should discard them. Another response would be to work them into a lesson that “. . . explores different viewpoints and helps learners discern opinion and bias in individual presentations on the issue.”⁵⁷

The same argument can certainly be made for including industry materials, which used with adequate context can prove useful in Environmental Education classrooms, as the experience of teacher John Borowski previously discussed shows. The difficulty is that, in times of budget constraints, many teachers may not have the resources to get a fully representative sample of the range of EE curricular material. The current attack on Environmental Education texts may further discourage some wary school boards or administrators from investing in such material. The industry-sponsored materials, meanwhile, are provided for free to teachers who may lack the time and background to provide a systematic analysis and critique of them. It is not unreasonable to worry, then, that there is a very real risk that one-sided, industry-sponsored material may in some districts end up filling a vacuum, creating the very lack of balance that Environmental Education’s critics decry from the opposing vantage point.

Four years ago, while still president of NAAEE, Simmons urged members of her organization to respond quickly to criticism of EE by providing examples of good quality programs and teachers. She suggested that environmental educators draw upon research and their professional credentials to challenge the critics, noting that part of this process might well involve pointing out occasions when EE critics themselves blur the lines between advocacy and education. To assist NAAEE members, the National Environmental Education Advancement Project (NEEAP) developed an information kit aimed at helping state and local EE people to strengthen their programs and provide positive information about environmental education.⁵⁸

Such efforts on the national level continue. In December of 1999, EE proponents concerned about continuing challenges to environmental education met in San Francisco. Staff in the Environmental Education Program at UW-Stevens Point have taken the lead in coordinating responses to new reports from conservative organizations as well as political efforts to weaken EE programs at the state level. The San Francisco-based Tides Foundation is currently funding two projects aimed at grappling with this effort to defuse environmental education. The Center for Commercial-Free Public Education has taken an active role in collecting and distributing information about this campaign.⁵⁹

Important organizing efforts are also emerging at the state level. In the state of Washington, for example, the Environmental Education Association of Washington (NAAEE Affiliate) hosted a meeting in the summer of 1999 for its members, the Washington Education Association, and an Environmental Issues group after it had learned of Sanera’s research. A new organization, Citizens for Environmental Education (CEE), was formed following this meeting

with support from the Audubon Society and funding from Seattle's Bullitt Foundation. CEE and a sister organization in Pullman, Groundworks, have been instrumental in anticipating and responding to Michael Sanera's report about environmental education in their state. The CEE steering committee includes Washington State Secretary of State Ralph Munro, State Senator Ken Jacobsen (Seattle-Democrat), naturalist author Robert Michael Pyle, and environmental activist Hazel Wolf. The work of Washington environmental educators and supporters led to the publication of an article about Sanera's study in the *Wall Street Journal* as well as systematic responses to the Sanera-Evergreen Freedom Foundation report when it was distributed in mid-October.^{60, 61}

Conclusion

Paradoxically, this sustained and concerted challenge to environmental education suggests that the quarter-century effort of environmental educators has been more successful than even supporters of the discipline might be prepared to believe. Given the unwillingness of elected officials to grapple with such serious issues as global climate change or habitat destruction and the popularity of environmentally destructive products such as sport-utility vehicles, it is easy to conclude that directing young peoples' attention to environmental concerns has had little influence upon citizen behavior or public life. But clearly, Environmental Education is on someone's radar screen.

Although far-reaching in its influence, the criticism of EE raised thus far has been shallow. Much like the questionable science that has been employed to induce public doubt about global climate change⁶² -- all in the name of providing both sides of the issue -- Sanera and Shaw's as well as the ICEE's research studies have been small-scale and superficial. The Washington State study, for example, was completed on a \$3000 budget.⁶³ Among educational researchers, their work would be questioned because of the absence of classroom observation or extensive and systematically conducted interviews. This research, however, is not being directed to the educational research community but to the general public, and for this audience inflammatory anecdotes can potentially undercut years of successful programming. Relatively small investments on the part of EE critics and their corporate supporters can result in public distrust of environmental education.

Even so, the results of this campaign have been mixed. A strong mandate for environmental education in Arizona has been weakened, but efforts to accomplish the same end in Wisconsin and Colorado have thus far failed. And in Washington state, EE critics have been unable to bring to the floor of the state legislature any measure aimed at narrowing the definition and practice of environmental education; all Sanera's efforts there have accomplished by April 2000 is the creation of broad-based support for the state's exemplary work in EE.⁶⁴ That these efforts have gone no further can be largely ascribed to the vigilance of the environmental education community.

Given the persistence Michael Sanera and other EE critics have shown over the past five to six years, it seems likely that they will continue to raise questions about the quality and legitimacy of this new curricular component of American education. Although their scrutiny has made environmental educators more sensitive to the potential bias of their curricular materials,

efforts to divorce the study of environmental controversies from public life will ill prepare the nation's future citizens for the difficult decisions they will almost certainly need to make in coming decades about resource use, habitat loss, and the wastes associated with industrial civilization.

Relying primarily upon the work of scientists who discount such problems and their human significance, Sanera and his allies are guilty of their own form of bias as they create the impression that continuing with business as usual will result in little harm. Daily news reports and the evidence of our senses suggest that this may not be the case. The work of environmental education is too important to leave to the defense of its practitioners alone; as with equity and social justice, it deserves the support of other educators and the broader community.

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