

INTRODUCTION

Health of the Bay—Health of People Colloquium, November 13, 1998

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The protection and restoration of our natural environment are important to people for a variety of reasons, but one reason that is emerging from decades long obscurity is the impact of environmental degradation on human health. Over a century ago at the dawn of the modern public health movement, the implementation of large-scale clean drinking water supplies and adequate sanitation facilities dramatically lessened epidemics such as cholera and typhoid fever in our cities. As recently as the late 1960s, urban air pollution resulted in higher than normal deaths from respiratory illness. Since that time, many environmental laws have been passed that have improved the aesthetics of the ambient environment. While most acute outbreaks of environmentally induced disease have become rare in this country, the long-term impacts of low-level exposure to environmentally occurring chemical and biological agents are not well investigated or measured. The November 1998 colloquium titled *Health of the Bay—Health of People*, co-sponsored by the Center for a Livable Future of the Johns Hopkins School of Hygiene and Public Health and the Chesapeake Bay Foundation, helped bring these issues further into the spotlight by exploring the inextricable links between the health of our human and ecological systems. The dialogue that emerged from this colloquium went to the core of recognizing that ecology and human health are an interlinked continuum that can no longer be ignored.

In this century, much, but not all, of society's impact on the environment can be attributed to short-term economic expedients that frequently benefit only a narrow slice of the community. The true costs of these shortcuts are disguised and often show up over the long term in the bill for healthcare and environmental clean-up. For example, we build smokestacks to shoot airborne pollutants into the sky where they can disperse into the air, out of sight and out of mind. Science data clearly show the ultimate fate of these pollutants: they are not rendered benign but are carried some-

where called "away." For example, high-level airborne spraying of pesticides/herbicides in south Asia has been shown to contaminate lakes in the Great Lakes region of the United States. Likewise, because it is "monetarily less expensive," we often run discharge pipes for industrial and municipal effluent into our rivers, bays, and oceans, rather than pay the cost to reduce, recycle, or reuse the chemicals that are released. Similarly, we raise livestock and poultry in concentrated feedlots (in numbers equivalent to a medium-sized city) to "reduce the cost" of producing chicken, pork, and dairy products. And instead of paying the cost of transporting, composting, or incinerating the huge quantities of resulting manure, we dump it on the land in amounts that far exceed the crops' and land's ability to assimilate the polluting fertilizers. While the greater environment has tremendous resiliency and ability to recover from these onslaughts, in many areas we have reached the eighth of the cat's nine lives.

Scientists have long understood that one can neither create nor destroy matter, just move it around. A pertinent corollary seems to be that one cannot avoid the true costs of one's actions, only transfer them to others. In the Chesapeake Bay region, the environmental impact of our centuries of short-sighted actions has been tangible for some time now, but the broad impact on human health over one's lifetime has only just recently become discernible. Is it by chance that asthma among inner-city children has doubled since 1980? What role do both indoor and outdoor pollutants play in childhood asthma? How do multiple environmental contaminants such as lead and airborne particulate matter contribute to disease? These are but a small subset of questions about the role of the environment on the health of the public. It is well known that urban subsistence fishermen are exposed to toxic chemicals found in fin and shellfish, but these data have been received by many in a manner reminiscent of a modern version of

the Henrick Ibsen play, Enemy of the People. Denial of the chronic effects of consuming these contaminated fish and shellfish does not make the problem go away and with the recent events of commercial fishermen afflicted by a syndrome dubbed “*Pfiesteria*-related illness,” people are now more responsive to the linkage between ecological disruptions and human health.

It is on this background that *Health of the Bay—Health of People* grew out of a meeting between the two organizations led by Johns Hopkins School of Public Health (JHSPH) Dean, Alfred Sommer, and Chesapeake Bay Foundation (CBF) President, William Baker, to explore their mutual interest in the health/environment relationship. The two had met in 1997, when they both served on Maryland Governor Glendening’s Blue Ribbon Task Force on *Pfiesteria*. After an initial meeting of key staff from CBF and JHSPH, a smaller group met and further examined the complex interrelationship between environmental and human health. Multiple issues that face both the environment and human health were pinpointed, including nitrates, coliforms, toxic chemicals, pesticides, and *Pfiesteria piscicida*. Faculty, scientists, and staff from both organizations agreed that there was a need to shed light on the complex problem and to publicize the link between the public health and the Bay. This group evaluated issues according to the population exposed or potentially exposed, the ecosystem effects, the existing regulatory and technical controls, and the monitoring data available, and determined that *Cryptosporidium parvum*, toxic chemicals, and *P. piscicida* were good starting points for a discussion of links between the Bay and human health. The group also agreed that one of the biggest obstacles to understanding the link between human health and the Bay is a lack of available monitoring and surveillance data on both the environment and human health. Finally, the group decided that the colloquium, to be complete, should examine the possibility of creating an annual assessment or report card for environmental and human health indicators.

A possible model for the environmental health assessment may be a report card recently developed by CBF to objectively answer the question, How is the Bay doing? The report relates the health of the current Bay to that of the pristine Bay described by Captain John Smith in his exploration narratives from the early 1600s. For its 1998 State of the Bay Report (which will be updated annually), CBF selected and analyzed 11 factors in three broad categories: pollution, habitat, and finfish and shellfish. The index reports that the work of public agencies, private groups, and individuals is showing small signs of success, such as the restoration of striped bass. Other species, such as oysters, remain heavily depleted. On a scale of 0 to 100, CBF charts the Bay’s current health at 27, which is 5 points above the all time low of 22 in 1983. Although the Bay can never be fully restored to the level described by Smith, CBF scientists believe that a Bay with an index of 70 is achievable. In the near future, there will be a need to decide what human health factors can be added into this report card to proportionately present the integrated effects of our actions on human health and on the health of the Bay.

The *Health of the Bay—Health of People* colloquium is the first step in developing environmental health indicators for a comprehensive Bay report card. The presentations and discussions at the colloquium emphasized the need for such indicators. Clearly our actions and policies can no longer ignore the connection between human health and the environment. Rather, we need to include human health indicators in our assessment of the environmental health of the Bay. The examples highlighted at the colloquium—*Pfiesteria*, *Cryptosporidium*, and toxic chemicals—are a critical place to start in developing an environmental health assessment. Through partnerships such as the one between the Chesapeake Bay Foundation and the Johns Hopkins University School of Public Health and improved monitoring of environmental health indicators, we can better influence policy makers to address the link between risks to our environment and our health.