



First in Flight, Last In Wetlands Preservation?

by
John Petersen and Nancy London
Environmental Studies Program
Oberlin College



Background

The City of Cleveland's Department of Port Control has submitted a proposal to expand Cleveland Hopkins International Airport. This would be the first major expansion of the airport in 50 years. Reasons cited for the proposed runway expansions include: enhanced safety, reduced delays, increased capacity during peak operating periods, ability to accommodate larger aircraft, and capacity for direct transoceanic flights departing from Cleveland. Proponents argue that airport expansion is vital to the economic health of the region. Hopkins currently serves as the hub for Continental Airlines.

There is a problem. According to a press release by the Ohio Environmental Protection Agency (EPA), the expansion, if approved, would damage 88 acres of wetlands, 5,000 feet of Abram Creek, and 3,000 feet of two unnamed tributaries to Abram Creek.^[1] Damage includes filling and paving over sections of the wetland, relocating and diverting the stream through a culvert, and significantly altering water flow. A survey of the wetland site identified the presence of endangered plant species. The system for rating wetland quality established by the EPA classifies the Abram Creek site as a "3," the highest quality category. Wetland ecosystems serve a number of important ecological and societal functions, including plant and animal habitat, flood control, erosion control, and improvement in water quality. In a press release, the EPA stated, "Ohio EPA believes the [airport] project could cause degradation to the existing water quality of Abram Creek, its tributaries, and adjacent wetlands."

The federal Clean Water Act includes a recommended solution to this problem of wetland degradation. It requires anyone proposing to develop wetlands to obtain a Section 401 Water Quality Certification from the state EPA and a Section 404 Permit from the U.S. Army Corps of Engineers. Typically a Section 404 Permit requires developers to "mitigate" (lessen or compensate for) damage to wetlands. The city has proposed to mitigate development at the airport site by restoring approximately 265 acres of wetlands in Lorain County and a combined total of 19,000 feet of river in various locations within Northeast Ohio. The process of "restoring" wetlands is site-specific and can range from removing factors that are interfering with the function of an existing wetland (such as structures that prevent adequate water flow and invasive species) to wholesale re-creation of wetland ecosystems that have been obliterated through drainage and/or filling. In the latter case, the first step is to recreate wetland hydrology (patterns of water flow that at least periodically cover the land surface), and the second step is to introduce and then maintain characteristic wetland species. Some ecologists question whether restored wetlands can ever serve the same function as the natural wetlands that are destroyed. According to the Ohio Department of Natural Resources, the Northeast region of Ohio has already lost 90% of its native wetlands as a result of human activity.

The Scenario

In order to help her make an informed decision that is compatible with environmental concerns, legal obligations, and her desire to build a strong local economy, Cleveland's mayor Jane Campbell has assembled a group of experts with diverse backgrounds and competing interests. This group of experts, led by an EPA officer, is charged with producing a document for the mayor that describes the rationale for the competing positions and outlines a compromise recommendation for action. Each member of your working group will represent one of four different experts. These stakeholders, described below and in the handouts, embody genuine points of view regarding development of wetlands at the airport.

1. As an individual, your job is to "get under the skin" of the stakeholder you have been assigned to represent. Strive to understand and to accept temporarily the validity of the position you represent. Your first task during class discussion is to assemble with others representing this viewpoint in order to flesh out the best strategy for convincing the members of your working group of the validity of your position.
2. Your objective in your working groups is to present your stakeholder's view in its best possible light, to listen carefully to other viewpoints so that you understand them, and to help your lead author synthesize these opposing views in a recommendation for the mayor. Stay in your character throughout the process. Start by allowing each stakeholder an uninterrupted three minutes to state his/her case, followed by two minutes of clarifying questions and answers before the next stakeholder presents. Then proceed with identifying potential points of compromise and unresolvable differences. We will reserve the last 20 minutes of class to discuss strategies for your report to the mayor. Keep in mind that this is not a debate—you win not by being "right" or hard-nosed, but by articulating the position of your stakeholder in the clearest possible light so that it is well represented in the report that goes to the mayor.

The Stakeholders

- **Sally Fairview** is a regional officer of the Ohio EPA responsible for Section 401 permitting. Her primary concern is to adhere to EPA procedures in order to protect the environment and public health.
- **Harnet Gordon** is a local businessman and member of the Greater Cleveland Growth Association. Although he has no direct stake in development at the airport, he feels strongly that airport expansion is necessary for regional economic development.
- **Dr. Whinny Larson** is a professor of wetland and aquatic ecology at Cleveland State. She is a respected research scientist and believes strongly in the ecological and economic value of preserving remaining wetlands.
- **Samuel Shore** is president of "Ohio Smart Growth," a regional nonprofit organization dedicated to revitalizing cities, preserving open space in rural areas, and generally preventing the phenomenon of "urban sprawl."

(You will receive position statements for each of these stakeholders when we meet in class to discuss this case)

Assignment Overview

The lead author of your working group (the individual representing Sally Fairview) is charged with producing a crisp, two-page document, in the form of a letter, with succinct and specific recommendations for Mayor Campbell. The letter should summarize and critically analyze the alternative views. It will not be possible for all stakeholders to get what they want, and points of irreconcilable disagreement as well as points of agreement should be identified. The lead author of your group need not assume that all viewpoints have equal merit, but if s/he feels that some points are more valid than others, the logic of recommendations should be explained. Although you are welcome to research the basis of the stakeholder positions further, you need not do so to write an effective letter. Draw on the readings as much as possible to support your recommendations. I encourage you to be creative in your proposed solution, but stick within the bounds of realism. After you turn in your letter, you will be provided with the interesting (and strange) story of how this debate was actually resolved.

Note: Although the characters and specific decision-making scenario are fictitious, the facts and opinions represented in this case are genuine.

^[1] Ohio EPA press release 1/16/01

Image Credits:

Left: detail of a photograph of the Santa Barbara Airport, California, copyright © 2002-2003 Kenneth Adelman, California Coastal Records Project, <http://www.californiacoastline.org>. Used with permission.

Right: detail of a photograph of wetlands by Tom Blagden, Jr., courtesy of the [National Oceanic and Atmospheric Administration](#).

Date Posted: 06/11/03 nas

Copyright © 2003 by the [National Center for Case Study Teaching in Science](#). Please see our [usage guidelines](#), which outline our policy concerning permissible reproduction of this work.

Sally Fairview

Officer at Ohio EPA

Ten years ago, Sally Fairview took a job at the EPA because it combined her interests in preserving the environment with her interest in public policy. She views herself not as an activist, but as a public servant, charged with the task of fairly enforcing environmental legislation.

The role of the Ohio EPA is to protect the natural environment and residents' health, but to do so in a reasonable, measured, and systematic fashion. Although the EPA has the ultimate authority to enforce actions against violators of pollution laws and regulations, the emphasis of the agency has been on working in a cooperative manner with other parts of the government, private organizations, and business.

The Division of Surface Water, Sally's home office within the EPA, is responsible for protecting, enhancing, and restoring all of Ohio's waters, including wetlands. She is personally responsible for evaluating 404 permits involving wetland filling and dredging. She feels that her role is particularly important within the agency, since wetland development often results in greater degradation to water quality than other projects that the EPA reviews.

Section 404 of the Clean Water Act requires developers who intend to alter aquatic ecosystems to obtain a permit from the EPA. The permit must demonstrate that: (1) impacts to aquatic resources cannot be avoided, (2) efforts to minimize aquatic resource impacts through modification of construction plans and designs have been taken, and (3) compensation for unavoidable impacts has been made. This last part is known as wetland "mitigation"—in exchange for eliminating a wetland for development, the developer is required to pay for the re-creation of wetlands of "equivalent value" elsewhere. The way it works is that the value of the wetland that the developers propose to destroy is rated from "1" to "3," with "3" being highest quality (i.e., relatively pristine, high species diversity, etc.). The Cleveland airport site was rated a "3."

The EPA then decides how many acres of new wetland a developer must create or restore for each acre of wetland they destroy (the "mitigation ratio"). Developers sometimes do the restoration/creation themselves, but it is much more common for them to pay others to do it (for-profit companies, non-profits, and more recently public parks have all entered the mitigation business). Sally agrees strongly with the standing policy of the EPA and the Army Corps that favors wetland creation/restoration in areas that have historically been wetlands and in areas relatively close to the development site. Three criteria qualify a site for possible use as a wetland mitigation site: hydric (wetland) soils, wetland hydrology, and wetland plants. In this region of Ohio developers typically pay approximately \$10,000-15,000/acre for restored wetland.

In general, Sally strongly favors the growing trend in public policy towards allowing developers and industry to develop and pollute on one site in exchange for improving overall conditions. On balance this approach encourages efficient economic growth and preservation of the environment with little cost to taxpayers. However, she is aware of a number of downsides to this approach when it comes to wetland mitigation. One is that the Corps of Engineers typically relies on consultants hired by the developers for most of the hands-on assessment of restored wetland quality—there is a financial incentive for consultants to bend analyses towards the wishes of the developers who hire them. Second, there are few officers assigned to check up on the quality of the restored sites (only two in Northeast Ohio). Third, there is only a five-year period during which the constructed wetlands are monitored at all. Finally, little evidence exists, one way or another, to indicate whether wetland mitigation really works as intended over the long term—the presence of "indicator" wetland plant species on a restored site immediately following restoration work does not necessarily mean that the new system provides the functional values provided by a natural wetland or will remain a wetland in the future.

Harnet Gordon

Businessman

Harnet Gordon likes the outdoors as much as the next guy, but the idea of potentially trading jobs and economic growth for a small swamp area strikes him as naïve, dangerous, and ultimately counterproductive for the environmental cause. Gordon follows local economics closely and is certain that the Cleveland metropolitan area is poised on the brink of a recession. In the last few years he has seen Ford Motor Company, Daimler-Chrysler, Goodyear Tire & Rubber Co., LTV Corp, and Office Depot each lay off hundreds of workers in Northeast Ohio. Gordon feels that the region simply cannot afford to wait until the airport has reached capacity before making the needed expansions. If it does, airfares will rise, the number of destinations will plateau, and Cleveland will lose its competitive edge in the region over cities such as Pittsburgh, Detroit, and Cincinnati. Now, more than ever before, Gordon believes it is imperative to expedite the expansion of Cleveland's Hopkins International Airport. "Today, Hopkins is vital to our region's continued growth.... We need a better airport to compete in this growing economy."^[1]

Gordon has three strong arguments that he wants to make in his presentation to the group the mayor has assembled:

1. The airport serves two economic development functions. First, it is an industry that creates jobs and income. Second, it is an essential part of Northeast Ohio's economic infrastructure, allowing this region's producers to be better integrated into the national and international economy.
2. Cleveland Hopkins Airport currently serves as Continental Airlines' regional hub. The area benefits from being a hub, not only through the many jobs it generates, but also through increased numbers and destinations of departing flights. Continental Airlines has made it clear that it requires an extended runway and other expansions in order to continue its hub operations at Cleveland Hopkins. Because airlines can easily move their hubs from one airport to another, it is crucial for Cleveland to meet Continental's expansion demands. "If the airport capacity isn't increased in the near future, we can't make the hub competitive in the Midwest with the other airlines' hubs."^[2]
3. In addition to keeping the Continental hub, the expansion is needed to attract new businesses. Recently, package shipper DHL/Worldwide Express chose to locate its \$170 million hub and sorting operations in Cincinnati rather than Cleveland. The reason: Cleveland did not have large enough airport facilities to host them.

To Gordon, the hard economic fact is that developing a tax base that can support amenities such as environmental preservation depends first and foremost on securing a strong regional economy. In support of this view, Gordon points towards the fact that countries of the world and regions of the U.S. with the strongest economies tend to be the most concerned with local environmental conditions. Halting development at the airport to preserve one small wet area that has previously received little public attention will ultimately occur at the expense of larger economic *and* environmental health.

^[1] Quote from Gordon Harnet, co-chairman of the Greater Cleveland Growth Association's air-service committee, as cited in *The Cleveland Plain Dealer*, 2/2/01.

^[2] Quote from Dave Messing, a spokesman for Continental Airlines, as cited in *The Cleveland Plain Dealer*, 4/8/01.

Dr. Whinny Larson

Wetland Ecologist

Dr. Whinny Larson recognizes that convincing citizens with little or no ecological training that areas traditionally treated as wastelands and dumps should be preserved is an uphill battle. Now in her 80s, Larson has witnessed and documented a number of critical changes, both encouraging and discouraging, in the ecology of Lake Erie and the surrounding watersheds. One of the most dramatic and troublesome changes has been the steady decline in Ohio's native wetlands to the point that only 10% remain. Further loss is simply unacceptable. If she can somehow present her arguments in a way that addresses the long-term economic viability of the region, she feels she has a chance of swaying the decision.

During the late 1960s and early '70s Dr. Larson had been part of the team that negotiated the Great Lakes Agreements and the first Clean Water Act. This national, regional, and local legislation did a good job of reducing point-source pollution—wastewater treatment facilities were built and the discharge of industrial toxins was reduced substantially. Indeed, by the 1990s, Larson and others had documented dramatic improvements in the water quality of Lake Erie. However, going from severely polluted to moderately polluted was not good enough—further reductions were sorely needed in order to stimulate more complete ecological recovery. This further progress would require that the harder nut be cracked—"non-point source pollution" that enters over broad areas of land. This is where wetlands come into play.

A growing body of scientific research indicates that wetlands, areas of land that are submerged by water for all or part of the year, play a key role in pollution abatement. When speaking to lay audiences, Larson often describes wetlands as the "kidneys" of the landscape in the sense that their biogeochemical activity naturally purifies the water that flows through them. Furthermore, she is quick to point out that wetlands harbor a variety of endangered plant and animal species. Larson feels frustrated by the fact that environmental activists get caught up in preserving the spectacular species of the tropical rainforest while remaining largely ignorant of the dramatic loss in biodiversity brought about by habitat destruction occurring in their own backyards. She recently inventoried the airport site and found that while it contains a mixture of typical wetland vegetation including cattail, phragmites, sedges and button-bush, it also harbors a number of species on the Federal endangered species list, including the blunt mountain-mint. Experimental evidence continues to accumulate that biodiversity is linked to ecological function—like the rivets holding the wings on an airplane, you can remove species, functional groups or ecosystems one by one without noticing an effect, but at some point the results may be catastrophic.

Over the long term, Larson feels that the survival and quality of life possible for the human species are inextricably linked with preserving biodiversity at all scales. That means preserving genetic diversity of individual species, diversity of organisms within ecosystems, diversity of ecosystems within a landscape and diversity of biomes on Earth. On the regional scale, a case can certainly be made that wetlands serve an important economic function. Indeed, a number of Larson's colleagues have quantified the economic values of wetlands.^[1] They have found, for instance, that an acre of wetland can be worth tens of thousands of dollars per year in terms of its role in flood control, reduced erosion, and improved water quality.

As far as Larson is concerned, the scientific validity of wetland "mitigation" is still open to debate. On one hand, she has visited constructed wetlands and been impressed by the numerous species of birds present. On the other hand, she firmly believes that constructed wetlands can never really take the place of those destroyed. In support of this position, Larson's colleague, Joy Zedler, recently published a paper indicating that even 10 years after mitigation, some constructed wetlands fail to exhibit critical functions of the natural marshes that were destroyed, such as habitat for endangered species.^[2] Furthermore, the National Academy of Sciences reviewed hundreds of replacement wetland projects and found that some were never started, some were never completed, and others failed to provide the benefits of natural wetlands.^[3] The study revealed that the Army Corps fails to adequately track compliance, and when it does, it finds that compliance is poor. In Larson's view, by all means society should experiment with building and restoring wetlands, but not at the expense of the few remaining intact native wetlands!

^[1] R. Costanza, R. d'Arge, R. de Groot et al. 1997. The failure of the world's ecosystem services and natural capital. *Nature* 387:253-259.

^[2] J. Zedler and J.C. Callaway. 1999. Tracking wetland restoration: Do mitigation sites follow desired trajectories? *Restoration Ecology* 7:69-73.

^[3] National Academy of Sciences Committee on Mitigating Wetland Losses. 2001. Compensating for wetland losses under the Clean Water Act. National Academy Press, Washington DC.

Samuel Shore

"Smart Growth" Activist

Samuel Shore considers himself an environmental activist, but likes to take a realistic, big-picture view of development. Like it or not, the human population is growing and further human development is inevitable. Indeed, in his view the important question is not *whether* to develop, but *how* to develop in an environmentally sustainable fashion. In Sam's view it is wrong to think of this as a simple choice between expansion of Cleveland-Hopkins airport into a wetland and no expansion at all. The fact is that if the airport is not expanded here, an airport will be expanded someplace else within the region to accommodate the need. His fear is that if Hopkins is prevented from expanding, then expansion will occur in the more rural areas he has been working so hard to preserve. Expansion of these smaller regional airports only serves to increase the migration of people from city to country, and in Sam's view this has a detrimental impact on both urban and rural areas. The bottom line is that closing off development at Hopkins will inevitably increase the phenomenon of "suburban sprawl."

Sam contemplates the relevant facts of the situation as he sees them. First, between 1960 and 1990, the density of Cleveland's urbanized area decreased 14%, from 3,000 to 2,600 people per square mile. Second, between 1959 and 1992, Ohio lost over four million acres of farmland, an astonishing rate of 11,000 acres per month! The Cleveland metropolitan area lost 39% of its farmland during this time period. There are many regional airports that are within an hour's drive of Cleveland-Hopkins. Any one of these could step up to the plate to take additional passengers that exceed Hopkins' capacity. Indeed, the Lorain County airport is currently considering expansion. For the time being, advocates of expanding this regional airport say they only want to accommodate corporate aircraft, but once the runway is lengthened, they may change their minds. Expansion of regional airports means widening roads and other development pressures. The remaining family farms (and wetlands) surrounding the Lorain airport are certain to be affected if constraints at Hopkins encourage regional airport development.

As another local smart growth advocate stated, "We must do whatever it takes to keep the airport at Hopkins.... The important thing is not to have the airport move farther out. That's what Denver did, and it's been a disaster for sprawl containment and for Denver itself."^[1]

^[1] David Beach, quoted in "Land Use and Development Policy in Cuyahoga County," a publication of the Ohio League of Women Voters, 2000.