

## Q and As for Heinz Center Report

### *Filling the Gaps: Priority Data Needs and Key Management Challenges for National Reporting on Ecosystem Condition*

#### **Why is this report important?**

This report calls attention to 10 key information gaps that stand in the way of effective reporting on the condition and use of U.S. ecosystems. It selects 10 gaps for special attention from the larger set of gaps identified in The Heinz Center's 2002 report *The State of the Nation's Ecosystems: Managing the Lands, Waters, and Living Resources of the United States*. Filling these gaps would more than double the number of indicators that could be reported nationally, from 32 in the 2002 report to 66 (out of total of 103), significantly improving the nation's ability to understand and manage its ecosystems.

#### **How does this report relate to the 2002 edition of *The State of the Nation's Ecosystems* report?**

In late 2002, the Heinz Center released the first *State of the Nation's Ecosystems Report*. The primary purpose of the 2002 report was to identify those key indicators that describe ecological conditions in the Nation's coasts and oceans, farmlands, forests, fresh waters, grasslands and shrublands, and urban and suburban areas – about 15 indicators for each major ecosystem type. An important corollary objective was to identify those cases where it was not possible, using then-available data, to report on an indicator for the nation as a whole.

The next *State of the Nation's Ecosystems Report* is scheduled for publication in 2007, and thereafter at five year intervals. The current report on data gaps is the first of three interim reports resulting from efforts to improve the indicators and underlying data collection systems. The other two reports, on non-native species and landscape pattern, are also scheduled for publication in 2006.

#### **At this time, what are the 10 highest priority data gaps?**

The highest priority data gaps, *not* listed in priority order, are:

**Extent (area) of specific key habitat elements** – such as wetlands, coral reefs, and underwater grasses, that are relatively small in area but ecologically critical

**Landscape pattern/remote sensing analysis** – the arrangement of land cover (such as farmland proximity to suburban development), requiring improvements to, and analysis and reporting of remote sensing data

**Contaminants related to human exposure** – levels of contaminants found in the edible portions of freshwater and saltwater fish and fish sold for human consumption

**Nitrogen yield and load in rivers** – the amount of nitrogen delivered to the nation's coastal waters, and the amount of nitrogen released per square mile of land

**Carbon storage/soil organic matter** – the amounts of carbon stored in forests and grasslands/shrublands, and as soil organic matter in farmland areas

**At-risk species and communities** – reporting on at risk plants for specific ecosystems, coastal and marine plants and animals, used population trend data in all at risk reporting, distinguishing between naturally rare and declining species, and improving reporting on at risk community types

**Non-native species** – non native plant cover in forests, grasslands/shrublands, and farmlands and a wide array of species in freshwater and coastal systems

**Biological community condition** – the overall condition of the groups of species that inhabit the nation’s lands and waters

**Stream and riparian condition** – the condition of in-stream habitat in freshwater streams and the condition of riparian areas

**Groundwater levels** – increases or decreases in the amount of water stored in the nation’s major regional drinking water aquifers

### **Of the 71 data gaps cited in the 2002 report, how did you select the 10 most important?**

These emerged from a multistage process managed by the Heinz Center and the *State of the Nation’s Ecosystems* Design Committee. The Design Committee is a senior-level committee with membership from businesses, environmental organizations, academic institutions and government agencies which is responsible for guiding the *State of the Nation’s Ecosystems* project. Information utility, cost, and feasibility were key factors for determining priorities.

### **Are these the most important data gaps for the nation overall? What about monitoring for violations of air and water quality regulations, etc.?**

The recommendations in this report would, if implemented, improve our ability to report on ecosystem conditions from a national and regional perspective. Filling these gaps would not replace the important monitoring undertaken by state and federal regulatory agencies, just as that monitoring often cannot support broad regional or national reporting. Filling gaps to improve national-level reporting may improve reporting at other levels, but a major conclusion of the report is that there are insufficient mechanisms for finding and taking advantage of the opportunities for such combined benefits.

### **Who will lead the charge, to make sure these data gaps are filled?**

The entities and agencies that conduct, oversee, and fund the nation’s environmental monitoring activities all have a role to play in ensuring that the resources are available to meet key information needs, such as the national reporting highlighted here. There is no single agency, organization, or Congressional committee that has purview over the range of resources that need to be monitored and programs that conduct such monitoring.

The report purposefully does not recommend creation of a single “czar” or coordinating body. The report steers clear of political and organizational implications, such as, which entities should undertake the work necessary to fill the 10 key data gaps – states? federal agencies? some combination?. While cautious about the risks of over-centralization, the report does recommend that “smaller, targeted efforts could reduce the fragmented nature of the current system.”

**You have indicated that there are costs associated with filling each of these data gaps. Is additional funding needed, or can increases be avoided by redirecting resources from less effective programs?**

At least for now, additional funding is needed, because no mechanisms exist to assess the *relative* importance of existing monitoring efforts --- many of which support the information needs of important regulatory, management and research programs. Coordinating and integrating monitoring programs will cost money and staff time, but will provide major benefits and efficiencies for environmental monitoring, reporting, and policymaking, and help to focus allocation of resources to priority areas.

In addition, it may be that the nation's monitoring infrastructure has been pared over time to a relative minimum, and that absolute increases are called for. An indication of this is in the recent report of the Advisory Committee on Water Information (a Federal / state / private / NGO body). This report, describing a network of monitoring needed to address needs identified by the U.S. Commission on Ocean Policy, indicated that the improvements needed to better describe water quality in relation to the nation's coasts does not replace all other existing monitoring, which is for specific management purposes.

**What about the rest of gaps identified in the 2002 Report. Where do they stand?**

All of the indicators in the 2002 *State of the Nation's Ecosystems Report* and the data to support them are vital to understanding conditions and trends in the nation's ecosystems and thus worthy of future action. All gaps identified in the 2002 report should be filled as resources are available.

**What about the *system* that supplies information on ecosystem condition? Does it need to be fixed too?**

Yes, a sole focus on filling the data gaps would miss the larger picture – that the Nation's environmental monitoring infrastructure can be made more effective.

**What are the challenges to effective environmental monitoring at the national level?**

The United States has a large, highly professional, but also highly distributed (even fragmented) “system” for collecting and reporting environmental data. Individual agencies and organizations collect data according to their mandates, missions, interests and resources. An important consequence of this highly distributed system is that there are few mechanisms to assess overall priorities, promote data comparability across agencies and geographic areas, and address key factors that affect multiple programs. In other words, there is no overall “system” and problems and priorities that transcend the mandates of specific programs may not be addressed.

For example, there is no overall means to make choices about investments in, or termination of, specific monitoring programs: who decides whether a program is “more important” or “less important” and thus should be dropped to enable newer work to take place (or conversely that new resources are needed). Currently, such decisions are made within individual agencies and programs, rather than across the full suite of resources and programs.

### **What can be done to better coordinate across agencies?**

Both tactical and strategic integration should be fostered as part of an overall monitoring improvement strategy. Tactical integration seeks to improve the consistency and compatibility of data, collection and reporting methods. Strategic integration, on the other hand, is a management function, that involves making choices about what should be monitored and who should do it, which programs should grow and be made permanent, and the like.

### **What are the estimated costs of filling the 10 priority data gaps?**

Working with a wide range of government agencies and individual experts, the Heinz Center has determined that total costs for addressing the 10 priority data gaps will consist of both one-time initial start-up expenses and of ongoing costs. The estimated costs range widely; filling some gaps would cost less than one million dollars per year in ongoing costs, while others exceed ten million dollars per year. These costs are not trivial, but they should be viewed in light of the value of the information to society. For example, invasive non-native species can pose significant environmental risks, and cause an estimated \$100 billion per year. Adequate information on the spread of these species is crucial to understanding the scale of needed management responses and ultimately whether these responses are effective or not. Likewise, groundwater provides nearly 25% of all water withdrawals in the United States, and nearly 40% of water for public water supplies. The ability to understand whether this resource is being depleted at rates greater than it is being recharged and if so where is crucial to effective management of this important resource.

Ours is an information society – we need to have feedback to know whether our goals are being met, whether our programs are working, to avoid emerging problems, and to gauge the correct level of risk and thus appropriate levels of response when conditions change, and to target responses to the most important places and problems. If filled, the gaps identified here could provide crucial elements of this feedback.

### **Would integration of monitoring programs result in cost savings?**

Consultations with managers, funders and those who oversee monitoring programs suggest that costs savings are unlikely, at least in the short term. Coordination and integration are real tasks that cost money and staff time, they say. Long term, with the development of processes to assess relative importance of monitoring programs, it may be possible to re-allocate resources to higher priority areas.

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