3-Year Start-up Review of the Mid-Atlantic I&M Network
April 5-7, 2011, Fredericksburg, Virginia
Report and Recommendations from the Review Panel

1. Introduction

In 2000, the National Park Service organized 270 parks with significant natural resources into a system of 32 ecoregional networks that share core funding and a professional staff to provide an efficient means of carrying out expanded inventory and monitoring (I&M) activities. A few earlier-designed prototype monitoring programs continue and provide assistance to the more extensive but less intensive vital signs monitoring programs carried out by the 32 networks. The national program office and the 32 I&M networks leverage the program's limited resources through partnerships with others as part of a strategy to maximize the use and relevance of the data for key target audiences. This integration and collaboration with other NPS programs and agencies, and the interdisciplinary approach to compiling, analyzing, and reporting natural resource information, are key aspects of the I&M strategy.

The 32 I&M networks have been the flagship of the Natural Resource Challenge, and OMB and the Department of the Interior initially focused on the I&M program as a means of measuring the performance and success of NPS natural resource stewardship activities. Strong accountability has been an important aspect of the success and popularity of the program in the NPS. The program is accountable to the parks through the Boards of Directors and networks' Science Advisory Committees, and is accountable to OMB, Congress, and the taxpayers through oversight by the Boards of Directors, Regional I&M Program Managers, National I&M Program Manager, and the Associate Director for Natural Resource Stewardship and Science. Each network was provided with funding over 4-5 years to develop a monitoring plan that describes the highest priority needs for long-term monitoring in the form of a "short list" of vital signs, with detailed information on measurable objectives, sampling design, data management and reporting procedures, products to be delivered, staffing plan, schedule, and other information needed for parks to share funding and staff to meet their highest-priority needs and to meet the goals and standards of the I&M Program.

The primary responsibilities of the small staffs of the 32 I&M networks are to (1) facilitate the 12 basic natural resource inventories; (2) collect, manage, analyze and report long-term data for a modest set of vital signs (measurements of resource condition); and (3) effectively deliver data and information on resource condition to park managers, planners, interpreters, and other key audiences. Parks in each I&M network share core funding and a professional staff that is augmented by funding and staffing from park base accounts and other sources to plan, design, and implement an integrated long-term monitoring program. A February 2008 memo to the NPS Regional Directors summarized the core duties and expectations for I&M network staff, the roles and responsibilities of the network Boards of Directors and Regional and National coordinators, and updated program requirements for reporting and website development:
http://www1.nrintra.nps.gov/im/monitor/docs/Operations_of_I&M_Networks.pdf

2. Objectives of the Review

Periodic program reviews are an essential component of quality assurance for any long-term monitoring program. This 3-year "start-up review" of the Mid-Atlantic I&M Network (MIDN) focused on the operational and administrative aspects of the network's monitoring program and the role of the Shenandoah NP prototype within the network, and asked the basic question "Is the network set up to succeed?" The review was an opportunity for network and park staff to step back and evaluate their initial progress against the objectives and schedule set forth in the network's

monitoring plan, to develop a "road map" for completing and implementing the first set of protocols, and to make adjustments if needed. Three years is long enough for the network to appreciate the realities of implementing the program and to determine what level of monitoring is sustainable with current funding, but short enough to make adjustments and improvements before too much has been invested. The review was intended to help the network get off to a good start in developing a practical, sustainable monitoring program that provides parks with timely, relevant information.

Key questions that were addressed by the review included the following:

- Is the network on track to measure trends in the condition of selected park resources and to provide useful information to park managers, planners, and interpreters?
- Are the roles and responsibilities of key groups and individuals such as the Board of Directors, Science Advisory Committee, Network Program Manager, and Principal Investigators for each protocol adequately defined, and are good communication mechanisms in place?
- Which protocols have been implemented, and do protocols still in development have a reasonable timetable for completion?
- Is the network following good procedures for managing and analyzing monitoring results? Are the databases and data management systems working as designed?
- Is the network generating preliminary reports, and are adequate procedures in place for effectively delivering monitoring results to park managers and planners? Are managers using the information?
- Are there some current or anticipated problems that the network needs to address?
- What should happen to make the program better over the next 5-10 years?

The following panel members participated in this review:

Dr. Steve Fancy	National I&M Program Leader, Natural Resource Program Center
Dr. John Karish	Regional I&M Program Manager, Northeast Region
Lisa Garrett	Network Program Manager, Upper Columbia Basin I&M Network

An online survey was sent out prior to the review to obtain feedback from superintendents, park natural resource chiefs and other park staff, network staff, and key cooperators on whether the MIDN was off to a good start. Comments on the network's progress were received from 28 park and network managers and staff. The results of the survey, as well as background materials and all of the presentations and handouts given during the review, are posted on the following website: http://www1.nrintra.nps.gov/im/monitor/networks/MIDN/MIDN_review.cfm

3. Role of the Shenandoah NP Prototype

The Shenandoah National Park (SHEN) prototype was one of the three long-term ecological monitoring programs established by the National Park Service in 1992. The SHEN prototype has more than a 20-year history of providing credible, relevant scientific data and information to inform park management and planning decisions, and also to inform the scientific community, visitors, and various constituency groups about the status and trends in selected park natural resources. Beginning in 1992, the Servicewide I&M Program transferred $448,000 to the SHEN base account to support the long-term monitoring program, and additional cost-of-living adjustments have been added to park base over the years to support the FTEs associated with the monitoring program.

The current vision of the prototype monitoring programs and the expectations for the SHEN prototype within the 10-park network were described in a December 12, 2003 policy memo. SHEN and the other early prototypes operate as "centers of excellence" that, by nature of their enhanced funding and staffing levels, are able to do more in-depth monitoring and conduct research and development work that benefits other parks. All prototypes are nested within one of the 32 monitoring networks, and the main distinction between the prototypes and other parks within their network is a greater emphasis on protocol development and technical support that will benefit all parks in the network, as well as other parks outside of the network. In addition to the initial emphasis on protocol development, there is a long- term role for the prototypes in developing and testing new approaches to data analysis and synthesis, reporting of monitoring results, and in providing mentoring and training to others.

In the December 2003 policy memo, the Associate Director stated "Although seven of the prototypes were fully- or partially-funded prior to the Natural Resource Challenge and the development of the 32 vital signs monitoring networks, I believe it is important that all of the prototypes adhere to the monitoring program guidance and the higher standards for accountability and documentation developed as part of the Natural Resource Challenge. Each region has a full-time Regional I&M Coordinator who plays a key role in the coordination and accountability of monitoring activities within their region and is an advisor and liaison to the Servicewide I&M Program. To improve the scientific integrity and accountability of monitoring activities within each region, all prototypes should submit annual administrative reports and work plans, progress reports, monitoring plans, and other documents through their Regional I&M Coordinator."

4. Review Panel Comments and Recommendations

There was a consensus among the three review panel members and all of the superintendents, park natural resource chiefs, and other park staff and collaborators who attended the review or responded to the anonymous online survey that the network is off to a great start. The MIDN is a year ahead of other networks that received full funding at the same time, and the network has done an amazing amount of work given the relatively small amount of funding and staffing available. Park managers spoke about the dedication and productivity of the MIDN staff, and expressed appreciation for the scientific and technical support that the parks receive from the network.

As stated by one of the park managers in the pre-meeting survey, "This Network was presented with the challenge of blending a large prototype program (SHEN) with several small, ecologically dissimilar parks. This could have been a major stumbling block. As it turns out, the Network and SHEN have an excellent working relationship and a spirit of cooperation. While other Networks have awkward mixes of parks and monitoring programs, few, if any, have been as successful as the MIDN in developing a cohesive program". Park scientists at Shenandoah NP are in the process of updating protocols and data analysis and reporting procedures to meet the standards put in place by the I&M Program after the SHEN monitoring program was designed and implemented, and the superintendent and Chief of Natural and Cultural Resources at SHEN are committed to aligning the monitoring efforts at SHEN with the national I&M Program.

Overall, the "Job 1" core duties of routinely collecting, managing, analyzing, and reporting data for a modest set of vital signs are being accomplished for this phase of the network's development, and the network is set up to succeed.

A. Network Strengths:

- ✓ There has been strong support and active involvement by the park resource chiefs through the Science Advisory Committee, and by most of the superintendents through the Board of Directors. Park managers and scientists have been actively engaged since the beginning in a series of planning and scoping meetings, and various workgroups focused on developing long-term monitoring protocols to provide relevant, credible, and timely scientific data to the parks. The network has developed a strong scientific foundation as it now implements the operational phase of the long-term monitoring effort.
- ✓ Jim Comiskey is recognized as one of the best Network Program Managers service-wide who goes "well above and beyond the call of duty". The parks appreciate the excellent leadership and communication skills that Jim has demonstrated.
- ✓ The network has made excellent progress on the basic inventories; 97% of the 120 inventory data sets (12 basic inventories times ten parks) for the initial phase have been developed and delivered to the parks.
- ✓ The network has selected a reasonable number of vital signs and protocols to monitor the condition of terrestrial and aquatic systems in the parks, and has figured out how to leverage the very limited resources by involving park staff and by combining efforts with adjacent networks in the Northeast and National Capital regions. The workload and schedule is ambitious, and is probably not sustainable over the long term unless additional staff or funding can be secured for the network, but because of the dedication and high productivity of the core network staff and staying focused on the key objectives, the network has been able to accomplish more than was expected. There has been an emphasis on quality and the collection and delivery of reliable data and information.
- ✓ Good progress has been made by the core staff in establishing the infrastructure and procedures for effective data management, data analysis, reporting, and delivery of results to parks. The strong data management foundation and the standards and procedures that are being put in place will pay big dividends over time. Procedures are being finalized for the routine analysis of monitoring results and for preparing, formatting, peer-reviewing, and publishing reports in the three NPS report series: Natural Resource Report, Natural Resource Technical Report, and Natural Resource Data Series.
- ✓ Excellent progress has been made in the development of a parallel series of internet and intranet websites, and a network Sharepoint site, which are being used as a clearinghouse for the large number of data sets, protocols, reports, work plans, resource briefs, and other products of the inventory and monitoring efforts. The reports, data sets, maps, and other products that have been discovered, organized, compiled, or produced by the network are available through the Natural Resource Information Portal (http://nrinfo.nps.gov) to make them more readily available to park managers and staff. It may take a few years before park managers, planners, and others learn about the utility of these sites as a source of I&M and other natural resource data and information, but the efforts will pay off over time. The information and products available through these websites will especially be important for upcoming planning to address climate change impacts, and for future Natural Resource Condition Assessments, Resource Stewardship Strategy, and State of the Park reporting efforts for each park.
- ✓ The network is making good progress in the area of Science Communication and "getting science into the hands of park managers and planners", and is developing a suite of products such as resource briefs, information briefs, a newsletter, annual summary reports, and websites that the parks are already finding useful. The "brown bag" sessions where the MIDN staff visit the parks and include all interested staff are valued by the parks.

B. Recommendations for Making the Network even Better:

- ✓ Considering the very limited funding and staffing for MIDN, it is particularly important that the network stay focused on the "Job 1" duties and the priorities as documented in the monitoring plan and the "operations of the I&M networks memo (http://www1.nrintra.nps.gov/im/monitor/docs/Operations_of_I&M_Networks.pdf), and to be careful not to lose focus by having to "chase the latest issue" that the parks are dealing with. The core network staff are very productive and effective, and the parks and regional office staff should be careful not to ask them to do too much more unless additional staffing and funding can be made available. There will always be a pull towards getting involved in special projects, grants, and partnerships that enhance our knowledge of resources, but MIDN staff need to be strategic and be careful about getting involved in projects that aren't part of the "Job 1" duties that the I&M Program received the funding and FTEs to do. The network will be an important source of data and expertise for Natural Resource Condition Assessments and Resource Stewardship Strategy reports, but these are secondary roles and the core network staff's involvement in them will be limited.
- ✓ Several people from Shenandoah, including the park superintendent, thought it would be good for SHEN to revisit its priorities for vital signs monitoring in light of all of the work that has been done to date, and the current opportunities for leveraging resources with MIDN and other networks. Staff at SHEN are making good progress with updating protocols to the Oakley et al. (2003) standards of the I&M Program. It is important that the person responsible for revising the protocol, and their supervisor, to agree on a specific due date when the draft protocol will be available to be sent out for peer review, and to ensure that time is available to do the work.
- ✓ To ensure that staff at SHEN who are responsible for long-term monitoring but also have a number of other park duties have adequate time to routinely manage, analyze, and report the monitoring results, the panel recommends that for each staff member who has I&M responsibilities, the park (1) develop a written agreement to formalize the core duties, expected products and due dates, and percent of time that the staff member will devote to I&M responsibilities; and (2) ensure that position descriptions and performance elements accurately reflect these responsibilities and expectations.
- ✓ The network (including Shenandoah) will routinely need assistance from a biometrician or quantitative ecologist, and should consider an arrangement where several networks in the Northeast region pool resources and establish a cooperative agreement with a university to provide this support. The UCBN and other networks in the Pacific West Region have done this and have had good success with a multi-year arrangement.
- ✓ Steve Fancy recommended that the network take a fresh look at the aquatic macroinvertebrates protocols for SHEN and the other parks in the network, to make sure that the approach and the products that are being generated are "best management practices" in light of all of the aquatic macroinvertebrate work that is going on elsewhere in Virginia and surrounding states, especially since the current cooperator may retire in the near future. For example, the protocol for the Maryland Biological Survey was developed after a thorough evaluation of other protocols for macroinvertebrates, and there may be some data analysis or reporting routines from other states or networks that could be incorporated. The network should review the various reports that have been generated by the aquatic macroinvertebrate monitoring at SHEN and the initial work at the other parks in the network, to see what the key findings and potential management applications have been and to see how the data can be put into context by comparison with other work in the region.
- ✓ As the final protocols and "almost ready for primetime" draft protocols are developed, they should be entered into the NPS Vital Signs and Protocol database so that other NPS networks

can learn from them. Draft protocols can be marked for internal use only if they are not yet ready to share with others outside of the NPS. The database is available at http://www1.nrintra.nps.gov/im/monitor/VitalSignsDB/Default.aspx

- ✓ There are a number of opportunities for leveraging resources with the new I&M Program for the National Wildlife Refuge System that is being developed by the U.S. Fish and Wildlife Service. Bill Thompson, the Regional I&M Coordinator for FWS, was formerly with the NPS Southwest Alaska I&M Network and is interested in strong collaboration at the field level. At the national level, the NPS and FWS I&M Programs will be leveraging resources for data analysis, synthesis, modeling, and landscape-scale monitoring.
- ✓ The network should consider an annual "science day" along the lines of the approach used by the Upper Columbia Basin I&M Network. Once each year, all of the park resource chiefs and network staff get together at a different park in the network to share the latest findings from the network, and to learn about key natural resource issues at the host park. This has been a successful approach for a network that has many things in common with MIDN.
- ✓ The network should consider the use of social media such as Facebook and Twitter to communicate with some of their audiences.
- ✓ Several people talked about the value of a Research Learning Center, and the network should consider putting in a multi-park OFS request for a Research Learning Center that would be aligned with the network. The Heartland I&M network was successful in getting an EPMT that benefits all of the parks in the network through an OFS request that was submitted by one of the small parks but supported by all of the parks in the network.