

Dragonfly Mercury Project

Phase II Proposal



Overview

The Dragonfly Mercury Project (DMP) directly implements Call to Action Items #7: Next Generation Stewards and #16: Live and Learn by enlightening a new generation of citizen scientists about the connection of all living things, the influence humans have upon natural systems, and how environmentally-responsible decisions can protect our parks and the planet.

Although the DMP has very effectively demonstrated citizen and youth engagement in the environmental sciences at national parks, there is still tremendous untapped educational potential in this project. Phase II funding would allow for a part-time program coordinator who would facilitate study implementation and act as a communication liaison between the involved parties, as well as improve the quality of educational resources and tools available to participating parks. This work would better establish data accountability and usability between the study's research team and the citizen scientists who collect the samples. Furthermore, the program coordinator would work to expand the study to other federally managed public lands such as those managed by the U.S. Fish & Wildlife Service and Bureau of Land Management.

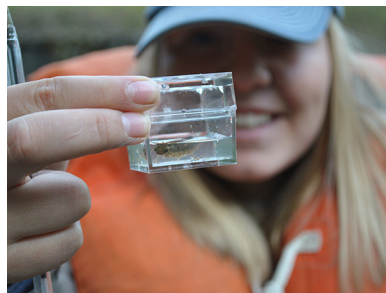
Previous surveys and informational forums – including a January 2014 webinar on interpretive products – provided the core DMP team with data on the need to cultivate a more valuable project for citizen scientists. While findings suggest that participating park staff enjoy the project as it allows them to engage park visitors in real science, park staff and visitors often have questions before, during, and after their engagement with the field portion of the project, such as: *How does mercury affect the plants and animals of my park? What do data from my park mean? What can I do?*

In order to help answer these questions, outreach materials have been developed to assist park leaders, including “train the trainer” videos, field identification cards, condensed field sampling protocols, and a research flowchart that outlines sampling methods for each component of the project. These tools assist the park leader, but do not necessarily move the data from collection to critical evaluation and interpretation, nor do they help participants develop skills to share or synthesize the data with other lines of evidence to fully understand the issue. The Phase II educational strategy proposed here includes a pilot study with informal and formal educators that takes data from collection through interpretation. The ultimate goal is to empower participants to not just collect, but also interpret and use data to tell a meaningful environmental story on a local, regional, or national scale. This work promotes data literacy – the ability to create, read, interpret, and communicate data – by providing the foundational skills necessary to make informed environmental decisions and furthering the development of our next generation stewards and scientists.

The DMP uses a “train the trainer” approach, whereby the park leader serves as the primary point of contact for the project team. Each park leader is provided a sampling kit that includes supplies used in sampling, field sheets, paperwork for shipping, and the sampling protocol. Typically, each park leader customizes the implementation of the project to best fit the available citizen science group, their park's specific outreach or education mission, and access to the sampling sites. The four main citizen scientist groups utilized include: (1) organized corps; (2) school group, (3) adult volunteers, and (4) interpretive program attendees. In addition to enhancing educational opportunities and increasing data relevance among the public audience, Phase II would strengthen the interaction between the national parks, research scientists, and citizen scientist groups as identified.

Phase II outcomes would include the standard suite of scientific data, reports, fact sheets, and webinars, but also instructive products including results from the pilot study on participant outcomes and an educational strategy for future years of the project. Beyond increasing both the scientific and public understanding of mercury risk across the national parks, funding would take the DMP to the next level by fostering a deepened engagement with citizen scientists and ultimately advancing an appreciation of national parks and the diversity of resources they contain for thousands of youth across America.

FY16 Projected Budget	Sample Analysis for 40 NPS units (USGS/UMaine)	\$60,000
	Includes 3 sites per park, equipment, and 19% overhead	
	Project Scientist oversight	
	• USGS	\$15,000
	• UMaine	\$15,000
	Program Coordinator	
	50% time GS-9 or equivalent	\$45,000
	• Conduct pilot study with select parks on participatory scientist outcomes	
	• Develop educational strategy for project's future	
	• Coordinate webinars and annual summaries	
	• Facilitate project between NPS/USGS/UMaine	
	• Forge new partnerships and secure funding for continued success of DMP	
	Travel	\$10,000
	In-Kind Contributions estimated at \$166,000	(\$0)
	• Citizen scientists for 40 hrs (\$20/hr) * 40 parks = \$64,000	
	• NPS Staff Support: GS 7-9 (one per park) for 80 hrs * 40 parks = \$92,000	
	• Database support and development (USGS) = \$10,000	
	TOTAL	\$145,000
Supplementary Considerations	<i>Project Scientist – Travel to park – connect with project execution</i>	
	• USGS	\$2,500
	• UMaine	\$2,500
	<i>Annual DMP Core Team Meeting</i>	\$15,000
	SUPPLEMENTARY TOTAL	\$20,000
FY16 Requested Funds	GRAND TOTAL	\$165,000



Glacier NP, MT



Acadia NP, ME



Indiana Dunes NL, IN



Olympic NP, WA

References

Project Webpage:
http://www.nature.nps.gov/air/studies/air_toxics/dragonfly/index.cfm

Nelson, S. J., H. M. Webber, and C. M. Flanagan Pritz. 2015. Citizen scientists study mercury in dragonfly larvae: Dragonfly larvae provide baseline data to evaluate mercury in parks nationwide. Natural Resource Report NPS/NRSS/ARD/NRR—2015/938. National Park Service, Fort Collins, CO.

NPS. 2011. A Call to Action: Preparing for a Second Century of Stewardship and Engagement. September 25, 2011. Washington, DC: NPS. http://www.nps.gov/calltoaction/PDF/Directors_Call_to_Action_Report.pdf

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