CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

National Fish and Wildlife Foundation
Final Programmatic Report

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Project Name: Chesapeake Nutrient Neutral Fund

Recipient Organization/Agency: Chesapeake Bay Foundation

1) Summary of Accomplishments

The Chesapeake Fund, a partnership of the Chesapeake Bay Foundation (CBF), the World Resources Institute and Forest Trends, has been established as a division of Forest Trends. The Chesapeake Fund's structure is based on taking businesses and individuals through a four step process:

1) Estimate the nitrogen footprint: The Fund helps citizens, businesses, and organizations estimate their impact on water quality using nitrogen calculators and accounting processes to estimate a nitrogen footprint;

2) Reduce onsite nitrogen emissions: The Fund encourages citizens and businesses to reduce their nitrogen footprint through simple behavior changes or by providing technical assistance in the development of a nitrogen reduction strategy;

3) Purchase nitrogen offsets: For those emissions that can't be reduced, we encourage citizens and businesses to purchase nitrogen "offsets" through the Chesapeake Fund; and

4) Invest in best management practices: The Chesapeake Fund invests the offset purchases in on-the-ground, cost-effective nitrogen reduction projects and practices.

Since its inception, the Fund has hired a Fund Director (August 2008); established an advisory board (August 2008); developed a strategic plan (November 2008); released a web-based nitrogen footprint calculator for individuals (December 2008); developed a logo, branding, and marketing materials (December 2008, see attached); completed a market analysis to evaluate the willingness of businesses to participate in the Fund (April 2009, see attached) and capitalized the Fund with $200,000 in private corporate investments (January 2009). We are close to finalizing an agreement that would put those dollars on the ground. We have developed guidance for: ranking and scoring project proposals (Sept 2009), verification and monitoring procedures for projects (Sept 2009), estimating nitrogen offset credits (Nov. 2009) and assessing the nitrogen

footprint of small businesses (July 2010) (see Project Documents). Finally, as detailed below, we have several entities with whom we are working/have worked to assess their nitrogen footprint.

2) Project Activities & Results

- *Establish a self-sustaining Chesapeake Nutrient Neutral Fund that will leverage private dollars toward Bay water quality improvements and help catalyze the market for agricultural non-point source load reductions.*

As noted above, the Chesapeake Fund has been established as a division of Forest Trends and we have secured $200,000 from Pepco Holdings to generate nitrogen offset credits (Step #4 above, see details below). The Fund is not yet self-sustaining, however, in the sense that future activities will likely rely on some grant funds. That said, the Chesapeake Fund has secured two firm commitments, with funding, to implement nitrogen footprint accounting protocols (Steps #1 and 2 above). The first agreement is with The Bozzuto Group, Incorporated. The core activity of this partnership will be to estimate nitrogen footprint from The Bozzuto Group's new Towson Manor development to be located in Towson, MD. Working in partnership with the Low Impact Development Center, located in Beltsville, MD, and World Resources Institute, located in Washington, DC, we will work with The Bozzuto Group to calculate the nitrogen load resulting from storm water runoff, energy consumption, and wastewater management.

The second agreement is with the Lawrence Berkeley National Laboratory to estimate the nitrogen footprint associated with nitrogen emissions from the operations, facilities, and land managed by the U.S. House of Representatives, including the U.S. Capitol. This high visibility project was requested by the "Green the Capitol" Program and could provide much needed exposure and momentum for the Chesapeake Fund. We also explored similar initiatives with MD and VA involving their state capitol grounds (via a "Clean Water Capitols" project); however, funding limitations have, for the time being, stymied progress.

We also completed a project with the Ingerman Group, a land developer. The objective of this partnership was to identify opportunities for the Ingerman Group to reduce and neutralize the nitrogen emissions from its new senior housing building in Elkton, Maryland. Further, the objective was to establish the building, as well as the nitrogen accounting and reduction planning process developed through this partnership, as models for the rest of the state and the Chesapeake Bay region.

We are currently working on a formal agreement with the Boatyard Bar and Grill, located in Annapolis, MD, to estimate their nitrogen footprint and develop a simple nitrogen reduction strategy. In addition, we are starting a project with the Episcopal Diocese of Maryland through their Environmental Initiative Committee to pilot the small business footprint calculator and users manual with seven churches and provide suggestions for practices/projects that will reduce their nitrogen emissions. If successful, the Environmental Initiative Committee would like to expand this initiative to other member churches.

Finally, we continue to believe that there is great potential to grow this aspect of the Chesapeake Fund – that is, to provide technical assistance to businesses for onsite nitrogen accounting and to develop strategies to reduce their emissions (Steps # 1 and 2 above). This was a conclusion of the marketing survey by MacWilliams, Kirchner, Sanders and Partners that we funded early on

during the grant period that has been confirmed in the numerous discussions we have had with businesses and government officials over the last 2 ½ years.

The survey consisted of hour long interviews with roughly 20 regional business leaders and these interviews indicate that a real opportunity exists to establish and grow the Fund. Two key findings of the survey that influenced our marketing and outreach strategy are that: most business leaders wanted help with assessing how and how much, nitrogen their businesses generated. This service, helping businesses assess their nitrogen footprint, was highly valued and sought after. Many business leaders also wanted help with determining how to take direct action to reduce the nitrogen emissions identified by accounting. We shifted the focus of the Chesapeake Fund based on these findings and other recommendations of the report. (Survey report is attached in Project Documents).

- *Creation and acceptance of nutrient credit standards across the watershed.*

Fundamental to the adoption and acceptance of nutrient credit standards is agreement on which practices are eligible to generate credits, how much pollution they will reduce (pollution removal efficiencies) and what tool(s) will be used to estimate these pollution reductions. The World Resources Institute's (WRI) NutrientNet calculator incorporates the best management practices and pollution removal efficiencies adopted and accepted by the Chesapeake Bay program into an "on-farm" calculator that estimates the pollution reduction credits associated with implementing practices. Maryland, Pennsylvania, and West Virginia are using NutrientNet in their nutrient trading programs. Consequently, among these states there is general agreement that NutrientNet is an acceptable tool to estimate nutrient credits. In addition, WRI recently adapted NutrientNet for use in Virginia. Nonetheless, there is not universal acceptance of NutrientNet across the watershed.

In hindsight, we were naïve in thinking we could achieve acceptance of nutrient credit standards because of the political and bureaucratic hurdles in doing so. The good news is that talk of an interstate trading program (because of pending federal legislation and USDA's commitments in the Chesapeake Bay Executive Order) will likely mean that sometime, in the near future, this issue will be addressed. In addition, this aspect of our project became less important when we discovered, via our market research noted above, that the initial focus of the Chesapeake Fund should be more on the footprinting and nitrogen accounting side (Steps #1 and 2 above) and less on the nitrogen credit offset side (Steps #3 and 4 above) where the standardization of nutrient credits is more relevant, at this point. Consequently, WRI focused more effort on the development of the small business calculator and user's guide as this was the more urgent need.

- *Establish a region-wide nutrient registry using the World Resources Institute's established "Nutrient Net" as the web-based platform.*

We are working with the Bay Bank to use "Markit" as the credit registry for credits generated by projects funded by the Chesapeake Fund. We felt this was more appropriate than generating another, potentially competing registry, via NutrientNet.

- *Increase awareness and familiarity with water quality markets and nitrogen offsets among agricultural producers, private sector companies (e.g., developers and other businesses), and the public.*

We established an advisory committee that initially met in August 2008. The committee is composed of a diverse array of stakeholders, including developers, those with experience in environmental markets and finance, EPA, Chesapeake Bay Commission, credit aggregators, and the energy sector. The main purpose of this committee was to provide advice to the Chesapeake Fund on issues such as marketing, strategic planning, project selection criteria, contracts and legal agreements, etc. But it also served to engage and educate a diverse array of stakeholders about water quality markets and the Chesapeake Fund. Since the initial meeting, this committee has met three times.

We selected the Tuckahoe watershed (MD) as the area where we intend to make the initial Chesapeake Fund investment. We issued a request for proposals that was sent to more than 30 agricultural conservation practitioners (e.g., soil conservation district staff, extension agents, private consultants, etc). We followed up the request notification by hosting a meeting at Adkins Arboretum on October 21, 2009 to discuss the purpose of the Chesapeake Fund and the proposal process.

We have made presentations on the Chesapeake Fund at the following meetings and conferences: The Nature Conservancy regional meeting; Summer 2008; The Nature Conservancy strategic planning meeting, February 2010; EPA Office of Research and Development, Workshop on Ecosystem Services, June 2010; Transportation Research Board Annual Meeting, Spring 2010; Environmental Working Group Lunch Forum, Spring 2010; World Bank Water Managers Training hosted by CBF, May 2010; Environment Virginia Conference, May 2010.

Beyond these activities, however, the focus of our outreach and communications to the public and businesses has been on nitrogen footprinting (i.e., "we all contribute pollution to the bay") and onsite reductions (i.e., "here's what you can do to help" because of what we learned from the market research and preliminary discussions with businesses.

The household nitrogen calculator was launched on the CBF website in late December 2008 as the "Bay footprint" calculator. Since that time, we have had almost 10,000 unique hits on the calculator – it is among the highest viewed web pages of any on our site. In May 2009, the Chesapeake Fund web page was launched and also included a version of the household nitrogen calculator and gives the users the option to "offset" their nitrogen footprint by donating to the Chesapeake Fund.

In addition, over the last 2 ½ years, we have reached out to more than 30 businesses across the watershed in regards to the Chesapeake Fund project. These businesses ranged from large Fortune 500 companies, to local businesses such as restaurants. In depth conversations and proposals were developed for: The Bozzuto Group, Marriott, Hyatt, Lockheed Martin, Constellation Energy, Miller Coors, Flying Dog Brewery, Boatyard Bar and Grill, Worley & Obetz, Restaurant Nora, and DuPont.

- *Generate offsets totaling $150,000 that would be used to implement cost-effective agricultural conservation projects on targeted agricultural lands. Implemented projects will reduce annual nitrogen pollution by roughly 90,000 pounds.*

We received a $200,000 donation from Pepco Holdings, Inc. to fund one or more agricultural projects in the Tuckahoe watershed that would provide cost-effective pollutions reductions and generate nitrogen offset credits that we could then market to businesses and individuals wanting to offset all or part of their nitrogen footprint (Steps 3 and 4 above). We received two competitive proposals in response to our request for proposals in the Tuckahoe watershed: one for cover crops from the Caroline County Soil Conservation District and one for a treatment wetlands (from Red Barn and EBX) to capture and filter barnyard runoff from a dairy farm. Total amount requested for the two projects was $550,000 – exceeding the amount we had available ($200,000).

The Chesapeake Fund Management Committee (CBF, FT, WRI, and WSI) was "lukewarm" on the cover crops proposal that proposed to encourage greater participation by paying even more than the state offered for the practice. In addition, the life of the credits would only be for one year and hence, could only be sold during that one year. We did explore the potential of seeking multi-year cover crop agreements with landowners, but this option did not pan out. Because of these drawbacks, the Committee preferred the wetland project on a farm and decided to seek additional funds to get the project on-the-ground (e.g., through Chesapeake Bay Trust and potential corporate donors). This project was strongly supported by the Caroline County Planning and Zoning Dept as well as the Choptank Riverkeeper because of its high potential to benefit water quality. Dr. Tom Miller (Univ. MD, Horn Point) has been doing surface water monitoring in the watershed and indicated that the stream near the farm had the highest nitrogen concentrations of all the tributaries he has sampled in the watershed.

In conducting "due diligence" on the farm project, it came to our attention that treatment wetlands may not be the best, or most cost-effective, solution for the nutrient-runoff related problems at this farm. Consequently, we went back to Red Barn and asked them to explore other options with the landowner. We are currently discussing an alternate proposal that would involve increased manure storage capacity at the farm, piping the effluent to adjacent row crop fields where it would be spray irrigated based on enhanced nutrient management application rates. (We have a site visit scheduled for August 16.) We are also exploring the possibility of working with Dr. Miller to do some water quality monitoring on the farm to document real, as opposed to modeled, reductions. This monitoring would be in addition to the credit verification and certification monitoring of the installed practices that we will be conducting via Water Stewardship, Inc. We expect to make a decision within the next few weeks on the project.

3) Lessons Learned

Our original proposal was intended to develop and implement each of the four basic steps that serve as the structure for the Chesapeake Fund: 1) estimate nitrogen footprint; 2) reduce onsite nitrogen emissions; 3) purchase nitrogen offsets and 4) invest in practices that reduce nitrogen and create offsets. However, we were asked to reduce our original proposal by 50 percent. We made the decision to eliminate the development of detailed nitrogen accounting protocols and tools (steps #1 and 2) and a CBF staff person dedicated to assist in marketing the Chesapeake Fund to businesses and corporations. We did this because we envisioned that the focus of the Fund would be more on the "offset" and project implementation side (steps #3 and 4), than on

the footprinting and onsite pollution reduction side (steps #1 and 2), so we thought it best to devote our limited resources there. As noted above, however, we discovered, from our marketing survey and discussions with business and government officials, that we were wrong.

In its current form, the immediate potential of the Fund lies in educating businesses, corporations, citizens, etc. about the ways in which we all contribute pollution to our local streams, rivers and the bay and then providing some tangible solutions that can be implemented, onsite, to help reduce that impact. These actions will also represent pollution reductions to the Bay and we think efforts to standardize and count these activities will be key to the integrity and sustainability of this type of program. Eventually, we hope to move businesses and citizens toward purchasing "offsets" and going "nitrogen neutral", but first we need to lead them through steps #1 and 2.

In hindsight, faced with the same choice, I think we would have focused on marketing the Fund and developing and refining the tools needed to implement steps #1 and #2. This would include identifying partners that have expertise in stormwater management and energy conservation/ efficiency that we could access to help develop nitrogen reduction strategies. We have developed these partnerships informally (e.g., Low Impact Development Center assistance with Ingermann and Bozzuto) out of necessity. These partnerships will be key to the future success of the Fund.

4) Dissemination

The Chesapeake Fund has been featured in the Bay Journal, the Annapolis Capitol, Wilmington News Journal, Southern Maryland Online, as an Op-Ed in the Baltimore Sun and online via distribution through Blue Ridge Press which was picked up by nine papers throughout the country including the Sunday issue of the Virginian-Pilot. In addition, as noted above, we have made numerous presentations at conferences, meetings, and workshops.

5) Project Documents

On-line references:

Guidance documents for: ranking and scoring project proposals (Sept 2009)
Verification and monitoring procedures for projects (Sept 2009)
(http://chesapeakefund.org/documents/CF%20Investment%20Guidelines%20Sep%2009.pdf)
Bay Journal articles (http://www.bayjournal.com/article.cfm?article=3643 and http://www.bayjournal.com/article.cfm?article=3490)
"Green the Capitol" Program (http://cao.house.gov/greenthecapitol/)
NutrientNet adapted for use in Virginia (http://www.wri.org/publication/how-baywide-nutrient-trading-could-benefit-virginia-farms)

Project Documents attached:

1) Chesapeake Fund Advisory and Executive Board members
2) Chesapeake Fund 2-page info sheet
3) Nutrient Net Methodology for Calculating Nitrogen Offsets from Pasture and Cropland
4) Nitrogen Calculator for Small Businesses, User's Guide (July 2010)
5) Chesapeake Fund Research Findings (market analysis), MacWilliams Kirchner Sanders and Partners (April 2009)
6) Media
    a. Bay Journal (January 2009)
    b. Bay Journal (July/August 2009)
    c. The Baltimore Sun op-ed (July 2008)
    d. The Capitol (December 2008)