FY 14 GIT Funding Project Updates

Project Title: Forage fish indicator/metric development
GIT: Fisheries
Amount: $50,000
Project End Date: Final results expected in February 2016
Description:
Products and outputs:

- Performed a coordinated analysis of available data & developed diverse suite of indicators for dominant prey species (14 fish and invertebrate species) that will assist in managing important fish species in the Bay
- Developed "consumption profiles" for 6 of the main predator fishes in the Bay, essentially documenting how much prey is consumed by these predators, Bay-wide over the recent 13-year time period

Value added to the Bay Program Partnership:
This work is in direct response to a Sustainable Fishery GIT request for the development of indicators of the prey that important managed species consume; the information provided in the above products will be essential as Chesapeake Bay Fishery managers work toward a better understanding the variability of economically important fish populations, and toward a more ecosystem-based approach to management of these fish populations in the Chesapeake. Indicator methodology and predation analyses can be applied to other species in the future, and this work provides the scientific foundation for future discussions on identifying management priorities.
Status: Analyses complete and presented to the Fisheries GIT in December 2015.

Project Title: Development of baseline indicator of citizen stewardship
GIT: Stewardship
Amount: $75,000
Project End Date: Final results expected in February 2016
Description:
In the first year of this stewardship metric development process, methodology was developed to quantify the extent to which the public is taking or willing to take individual actions and behaviors that benefit local water quality. The actions and behaviors targeted in this measurement tool where selected using guiding criteria such as: (1) involves individual decision-making, (2) is repetitive and can be tracked over time, (3) can be broadly adopted, (4) has an impact on water health, and (5) and/or will effectively engage the public. This prioritization process resulted in the identification of specific citizen behaviors/actions that have the greatest potential for impact and/or public engagement which in and of itself is a service to the many public outreach programs around the region. Using these priority actions a questionnaire has been drafted and pilot level data will be collected via a randomly sampled general population survey in January, 2016 to test the viability of the survey instrument as well as provide preliminary data to inform the development of an aggregate index of citizen stewardship, and a methodology to establish a baseline measure of progress for the Citizen Stewardship Outcome. Phase II of this project will scale up the implementation the survey to increase the confidence in the results at the State and potentially, the county scales.

Project Title: CBSAC Research Needs
GIT: Fisheries
Amount: $85,000
Project End Date: December 2015
Description:
Analyses complete and presented to the Fisheries GIT in December 2015. Final report will be submitted in early 2016. This project compiled all available survey data for blue crab in the Chesapeake Bay into a database and conducted extensive data QA/QC. This work comparing multiple surveys will help inform the next stock assessment. This project also investigated the question of high mortality of the 2011 blue crab year class, a question of concern from management and the public. The project results provide evidence that the 2011 blue crab year class did experience high levels of mortality in specific areas of the Bay. The third and final component of this project provided estimates of how many broods a female blue crab can produce in a lifetime.

Project Title: Metrics finalization and state implementation plans/Environmental literacy planning
GIT: Stewardship
Amount: $75,000
Project End Date: December 2015
Description:
The Chesapeake Bay Trust awarded 5 grants to state organizations to help states, school systems and their partners administer the Environmental Literacy Indicator Tool (ELIT) to establish an indicator and baseline for the CBP Environmental Literacy outcomes. The awards ran from February 2015 through December 2015. ELIT response rates for school systems were as follows: DC: 100%, DE: 49%, MD:96%, PA: 20%, VA: 78%, WV: 4%. The Workgroup subsequently worked with Tetra Tech to do a preliminary analysis of the data. As a result of this work, the CBP now has a robust set of data upon which to establish metrics and plans to finalize the metrics in 2016.

Project Title: Assessment of Local Leadership Development Programs
GIT: Partnering and Leadership
Amount: $20,000
Project End Date: September 2015
Description:
Environmental Leadership Strategies (ELS) published a report titled, “Chesapeake Watershed Local Leadership Development Programs.” ELS compiled a list of over 50 local leadership programs with input from GIT 6, and selected the top twenty on which to do initial research. Then they selected the top ten relevant programs to research in-depth, and conducted 20 interviews with local officials representing elected, and staff positions from all over the watershed. Based on their research, ELS provided recommendations for content that should be provided to local leaders, and for three leadership training approaches that should be considered if any new leadership programs are developed. The three recommendations include an umbrella group that would serve as a coordinating entity, state-led programs, and individual topic-based programs. ELS expressed a preference for an umbrella group that would utilize the efforts and expertise of existing groups.

Project Title: Striped bass health indicator development
GIT: Fisheries
Amount: $40,000
Project End Date: September 2015
Description:
Project complete and presented to the Fisheries GIT in June 2015 and October 2015. This project investigated how the Bay's health could be influencing a valuable fish species. Analyses of striped bass disease data from Maryland and environmental variables show that the apparent prevalence of mycobacteriosis disease is positively correlated with several water quality factors. These data could be used as a Bay-specific indicator of water quality effects on striped bass. This methodology can be applied to existing disease data for Virginia.

Project Title: Accelerate wetland restoration in support of WIPs / GIT integration
GIT: Habitat
Amount: $50,000
Project End Date: December 2015
Description:
This project developed and tested a research-based social marketing plan designed to help meet the WIP goal for wetland restoration, with a target audience of agricultural landowners of 40 or more acres in three geographic areas of Pennsylvania and Delmarva. The study recieved 409 responses and found that even though there is little outreach, many landowners are already engaged with government programs and know that such programs come with strings attached. Many other landowners are hesitant to trust these programs.

Project Title: Summarizing potential benefits of nutrient and sediment practices to reduce toxic contaminants
GIT: Water Quality
Amount: $50,000
Project End Date: Final report expected in March 2016
Description:
A project was completed by the Chesapeake Stormwater Network that involved a literature review on best management practices (BMPs) that reduce inputs of toxic contaminants. The work produced two reports “Potential Benefits of Nutrient and Sediment Practices to Reduce Toxic Contaminants in the Chesapeake Bay Watershed – Report 1: Removal of Urban Toxic Contaminants and Report 2: Removal of Toxic Contaminants from the Agriculture and Wastewater Sectors”. The information will be used to consider ways to develop scenario planning tools that may lead to optimizing nutrient, sediment and toxic contaminant reductions through BMP implementation.

Project Title: Leveraging local lessons / Development of a crowd sourced database as part of the Chesapeake Network to promote shared outreach and marketing case studies, results, and materials
GIT: Stewardship
Amount: $35,000
Project End Date: Expected Spring 2016
Description:
The Crowd Source Database which will be called the Outreach Case Study Database has been developed and in exists on the web in draft format, the webpage content will be finalized in February 2016 and piloted in Spring 2016. The fields in the database were selected based on a template provided by Erin Ling from Virginia Tech University as part of her work for the National Fish and Wildlife Foundation, and

then finalized through a series of meetings with the contractor and a sub-set of the stewardship goal implementation team workgroup. Meetings have been held with the contractor, Skylink Technologies, as well as the Alliance for the Chesapeake Bay, to finalize wire frames and review the webpages developed. Recommendations and requests have been made to edit the database twice and most recently Chesapeake Bay Trust staff was trained on how to manage the back-end of the database in order to build out the final content before the piloting stage moves forward. The contract with Skylink Technologies has been extended due to delays in the Case Study Database development as a result of Trust staff being absent (due to emergency) over the summer of 2015. The extension in the contract with Skylink will allow the final phase of the contract (pilot the database) to be completed with their support. Hosting of the webpage in year one in being discussed now, and will be finalized in Spring 2016. Moving forward into year two and beyond, the case study database webpage will be hosted by the Alliance for the Chesapeake Bay. The piloting phase which will be begin in early spring 2016 will allow organizations to enter ongoing on completed outreach programs into the system allowing organizations to share data and streamline outreach program design and development.

Project Title: Landscape level demonstration project designed to test incentives for forestland retention through the TMDL model
GIT: Water Quality and Healthy Watersheds
Amount: $50,000
Project End Date:
Description:
The first phase of this project was completed in September of 2015. A comprehensive status report entitled: "Healthy Watersheds Forest/TMDL Phase 1 Project" was provided to the Goal Team and circulated widely. The results were also presented at the Rappahannock River Basin Summit in September 2015. The study focused on the Rappahannock River Basin area to model various land use scenarios as a proof-of-concept pilot to determine if forest retention would result in a decrease in pollution loading rates over the current 2025 projected TMDL land cover. The results of the alternative development modeling scenarios found forestland retention to have a positive effect on both water quality and healthy watershed values. Phase II was funded as part of the FY 2015 EPA funding and will focus on developing a strategy and suite of tools for locals to encourage forest land retention in local policies, incentives and planning tools. This project supports several CBP goal team objectives including, but not limited to protection of healthy watersheds, protected lands, and enhancing the knowledge and capacity of local officials.

Project Title: Stream Health Outcome Baseline/Defining new Metric
GIT: Habitat
Amount: $20,000
Project End Date: Expected June 2016
Description:
ICPRB's CBP 117 grant was amended in Nov 2014 to include the new task of updating the CBP stream biological database with federal, state and county monitoring data collected since 2010. A data request was sent to 18 agencies in the Chesapeake Bay region with active monitoring programs asking for their recent biological, habitat and water quality data. To-date, nine agencies have contributed data and a data set from another agency is pending. Approximately 4,800 new sampling events have been incorporated into the CBP database structure. Three more agencies submitted data sets that had information gaps or came in hard-to-use formats (e.g. PDF), so they could not be processed. One agency had no recent data to report. Four agencies – all counties in the greater metropolitan region – did not respond. This database effort is concurrent with another, analysis effort—also supported by the CBP117

grant—to refine the Chesapeake Basin-wide Index of Biotic Integrity (Chessie BIBI) for streams and develop a 2008 baseline for reporting progress.

Project Title: Brook Trout monitoring support to EBTJV/Web-based Decision Tool Development
GIT: Habitats
Amount: $40,000
Project End Date:
Description:
Monitoring efforts are needed to assess brook trout population status to ensure a consistent approach in reporting of progress toward the brook trout outcome in the 2014 Chesapeake Watershed Agreement. With funding from the Chesapeake Bay Program partnership, a pilot field season of brook trout monitoring was initiated in 2015 that focuses on these metrics: (1) species present (brook trout only, brook trout with rainbow or brown trout), (2) size and connectivity of patches (trend in average patch size, trend in distance to adjacent patches), and (3) genetic metrics (trend in genetic diversity, trend in effective number of breeders). State collaborators from each state in the watershed sampled 25 'sentinel' patches (5 per state). With continued funding, this program will be expanded to include more than a quarter of identified patches in the watershed (250 of 868). Some of the patches will have management actions (dam removal, habitat restoration, and acid remediation) conducted during the monitoring period, and others will allow monitoring before and after non-native trout invasion. These management treatments will maximize our ability to evaluate the utility of each monitoring metric. Appropriate metrics will, in turn, allow for consistent reporting by States of progress toward the outcome, while enabling estimation of the quality of the habitat added, and maximizing benefits of conservation action by targeting investments to the places of greatest resiliency over time.

Project Title: Black Duck Prioritization
GIT: Habitats
Amount: $30,000
Project End Date:
Description:
The primary focus of this project is to develop a decision support tool to estimate wintering black duck habitat needs under current and future landscape conditions throughout the Atlantic Coast Joint Venture (ACJV) and the Atlantic Flyway. These estimates will be scaled to the Chesapeake Bay Watershed, and incorporate maps to show target areas. And these target areas will guide strategic conservation investments to improve habitat conditions across the landscape. The $30,000 provided through FY14 GIT Funding supported the creation of a preliminary habitat prioritization map, which was received from ACJV in September 2015. Another $50,000 have been provided through FY15 GIT Funding to refine this map on a smaller scale with a decision support tool.

Project Title: Citizen monitoring of land conversion to development, tree cover, and riparian buffers
GIT: Water Quality and Healthy Watersheds
Amount: $60,000
Project End Date:
Description:
Contractor has developed website for citizens to register information on land use gained by using the Land Image Analyst software. Interested parties can see where land use is changing and how citizen users determined that. The LIA is particularly useful for detecting riparian forest buffer changes, impervious surface changes and tree cover changes using various scales of imagery (from high to low resolution). The website still needs to be tested.

Project Title: Climate change, marsh erosion, and the Chesapeake Bay TMDL
GIT: Water Quality
Amount: $82,000
Project End Date:
Description:
We envisioned two broad classes of impacts of marsh loss on Chesapeake Bay water quality. The first class results from the effect of eroding materials on the receiving water. The second class results from loss of marsh function. We proposed a three phase project: 1) Estimate marsh loss and transition due to sea level rise; 2) Investigate the reactivity of material eroded from marshes; 3) Quantify the effects of marsh loss on water quality and the TMDL. Two phases were funded in September 2014. The remaining phase was funded in March 2015. To date, we have obtained maps, in GIS format, of existing tidal wetlands and mapped the wetlands to adjacent cells on the Water Quality and Sediment Transport (WQSTM) grid. We have explored methods of estimating marsh loss and interacted with principal investigators in this field. We will likely adapt an existing projection based on the Sea Level Affecting Marshes Model. We have initiated the development of a wetlands module for the WQSTM and are currently calculating the effects of solids retention and marsh respiration. We have accepted a proposal for laboratory examinations of the reactivity of marsh materials and we are in the process of contracting with the offeror. As we proceed with re-evaluation of the TMDL, we are compelled to examine sources of nutrients and organic matter aside from conventional watershed and point-source loads. These new sources include shoreline erosion, reservoir scour, and marsh erosion. The proposed work adds value by ensuring the limits imposed by the TMDL account for the quantity and reactivity of alternate sources of nutrients and organic matter.

Project Title: Facilitation and technical content development support for GIT development of management strategies
GIT: All GITs
Amount: $50,000
Project End Date:
Description:
This Work Assignment (WA) was implemented through an EPA Headquarters' Office of Water contract with Tetra Tech in January 2015, and continued through December 2015, to provide technical support to the GITs on Management Strategy development. The WA tasks and deliverables included:

- formatted final versions of all Management Strategies,
- conducted a literature review and developed a habitat requirement report on 13 species in the Chesapeake Bay watershed,
- developed a draft options paper on a habitat-based indicator and recommendations for associated monitoring for black ducks,
- edited the draft diversity action strategy document and developed a summary narrative of the baseline information on diversity programs submitted by states and federal agencies,
- conducted research using available baseline data and worked with stakeholders to develop a useful indicator to measure progress towards respective outcomes of the Stewardship GIT,
- conducted research to identify baselines and establishing a plan for monitoring progress to be included in the Local Leadership Management Strategy,
- developed an economic analysis document regarding the socio-economic value and outputs associated with current brook trout habitat and additional potential brook trout habitat if outcome is achieved,
- developed a draft flow chart for the Local Leadership Management Strategy,

- refined the Healthy Watersheds Management Strategy,
- analyzed school survey and provided metrics for an environmental literacy presentation, and
- developed an outline for an effective and cost-efficient approach to carrying out the three major tasks of the Healthy Watersheds GIT Land Use Options Evaluation Outcome.

In December 2015, the contract Option Period V was exercised to continue providing technical and analytical support to the GITs on work plan development and execution. This new option period will run from January 1 – June 30, 2016.