**Habitat GIT Meeting**

October 14, 2015

USFWS CBFO, Main Conference Room

**Participants:**

Mike Slattery (Chair), USFWS

Jana Davis (Co-Chair), CBT

Jennifer Greiner (Coordinator), USFWS

Kyle Runion (Staff), CRC

Steve Fuller, NALCC and Wildlife Management Institute

Scott Phillips, USGS

Jason Clingerman, Downstream Strategies

Claire Buchanan, ICPRB

Neely Law, CWP

Jeff Allenby, Chesapeake Conservancy

Margaret McGinty, MDNR

Julie Devers, USFWS

Mary Andrews, NOAA

Alicia Berlin, USGS

Lacy Alison, USFWS

Amy Jacobs, TNC

Erin McLaughlin, MDNR

Nicole Carlozo, MDNR

Brooke Landry, MDNR

Tom Idhe, NOAA

Nancy Butowski, MDNR

Denise Clearwater, MDE

Ann Jennings, CBC

Tony Watkinson, VMRC

Jake McPherson, DU

Anne Timm, USDA FS

David Thorne, WVDNR

Mindy Ehrich, UMCES

Kara Skipper, CRC

Zack Smith ICPRB

Becky Golden,

Lee Karrh, MDNR

Alison Armecida, MDNR

Rich Mason, USFWS

Karl Blankenship, Bay Journal

Julie Winters, EPA

Sally Claggett, USFS

Mary Gattis, LGAC

L. Moss, FWS

Emile Franke, NOAA

Anne Wakeford, WVDNR

Howard Weinberg, UMCES

Alana Hartman, WVDEP

Alan Weaver, VA DGIF

Albert Spells, FWS

Serena McClain, American Rivers

Angie Sowers, USACE

Jeff Allenby, Chesapeake Conservancy

Tim Jones, ACJV

Elizabeth Byers, WVDEP

Jill Whitcomb, DEP

Howard Townsend, NOAA

Peter Tango, USGS

Dave Gorman, PA DEP

**Actions:**

Action: With the input from MD, VA, and WV, Greiner and Runion will populate workplan template with potential actions for the 11/2/15 deadline of draft workplans to the Management Board, and share with the GIT during the week of 10/19-10/23.

Action: *Gattis* and *Law* will have a conversation offline to discuss potential actions for this approach. Should also be raised with new cross-GIT coordinator to develop link to local leadership strategy.

Action: *Law* and *McGinty* will follow-up about DNR fish habitat sampling strategies.

Action: STAR (*Tango* and *Ehrich*) will provide assistance in “adapting” goals and seeking guidance from the Management Board.

Action: Landry will cross check with the Stewardship Goal Team as this work (Management Approach 4 of SAV workplan) connects with their workplan.

Action: Workgroup chairs will provide workplan edits to *Greiner* and *Runion* by 10/28 for submission to the Management Board. We ask for Columns A-E to be completed; funding information (columns F-G) is not necessary in this preliminary draft version, but will be needed by late November/early December.

**Action**: HGIT members will provide chair nominations now through the end of November by email or phone to Jennifer Greiner ([jennifer\_greiner@fws.gov](mailto:jennifer_greiner@fws.gov), (410) 267-5783) or Jana Davis ([jdavis@cbtrust.org](mailto:jdavis@cbtrust.org), (410) 974-2941).

Action: HGIT members will think about locations and venues for the spring meeting taking place about April.

**Notice:** *Slattery* begins a 60 day detail as manager of Chesapeake Marshlands National Wildlife Refuge Complex on Monday, 10/19. During this time, Jana Davis will serve as acting Chair and Mike Slattery will serve as acting Vice-Chair of the GIT.

**Meeting Notes**

Meeting Theme: Applying landscape- and regional-level tools to guide work toward habitat outcomes in the Chesapeake Watershed Agreement.

Objectives: 1. Familiarize members with science tools available to support good decisions for habitat conservation/restoration in face of change at various scales.

2. Present draft workplans for consideration and approval for submission to the Management Board.

Support for Strategic Conservation

* The North Atlantic Landscape Conservation Cooperative (NALCC) is working together to realize a common vision of a national network of connected habitats founded on the best available science.
* Regional Conservation Opportunity Areas (RCOAs) will identify a connected network of resilient and ecologically intact habitats that will support biodiversity under changing conditions.
  + RCOAs are identified by the following criteria:
* **Core areas** for all biodiversity
* Important **habitats** for rare and threatened **species**
* Prioritization tools to implement **restoration** projects
* **Connectivity** of habitats
* RCOAs, available by online data access, (DataBasin.org) will coordinate better implementation on the ground. This better implementation is achieved by efficient conservation using maps to help align priorities and leverage funding.
* Overarching vision is to, as a Chesapeake cohort, work on these kinds of large scale blueprints to develop a habitat “master plan” for the Chesapeake watershed.
* Coastal areas and estuaries are some of the most important ecosystems and areas for wildlife. We should look at an ecological output such as number of species, etc. rather than valuing a number of acres. (Example of valuing 10 one dollar bills over a one hundred dollar bill because they take up a larger space.)
  + Comments:
* There is value in relating conservation efforts to local government actions, specifically regulation of land use. The NALCC makes available science delivery grants so this type of information can be translated and put in the hands of local decision makers.
* Need aquatic tech experts on the RCOA team.
* Need implementers to help build scenarios in each of the five restoration categories (threatened habitats, early successional, agricultural, upland/riparian areas, and in-stream connectivity)
  + Whom from the Habitat GIT can help here?

Science Support for Chesapeake Decisions

* One of the Science, Technical Assessment, and Reporting (STAR)’s goals is to increase coordination among science providers to support goal teams. Scott Phillips (USGS) is the Habitat GIT liaison to work with us for indicators and monitoring needs related to management strategy implementation.
* The Chesapeake Science Support is split up into: GITs, science needs; STAR, science coordinators; STAC, science advisors; and various science providers.
* Management strategies are our intervention in the Chesapeake Bay ecosystem to combat drivers of ecosystem change and improve conditions for various populations in and around the Bay.
* We need to better integrate existing monitoring networks in order to meet the needs of the other goal teams. A process called “Building Environmental Intelligence” will examine the needs each goal team has and work with STAC to have discussions about meeting those needs (used to be called “Basins of Building Integrated Networks”).

Brook Trout Habitat Prioritization Tool

* [www.FishHabitatTool.org](http://www.FishHabitatTool.org)
* Downstream Strategies was contracted through the Mid-West Fish Habitat Partnership to create this tool, and the NALCC to adapt this tool to the Chesapeake watershed.
* Landscape characteristics are used to predict aquatic characteristics. “Post-modeling” indices include stress, natural habitat quality, and climate change vulnerability to help sharpen the assessment process. Key factors in the tool are natural (temp, slope, and precipitation) and stressors (impervious cover, agriculture, and mining). Limitations of the tool include invasive species data, barriers in the stream network, groundwater contributions, acid precipitations, and local variabilities.
* *Jason Clingerman provided a live demonstration of the tool, accessible at the address above.*
* Various attributes are available within the tool and can be weighted according to user preference to be able to deliver the most efficient catchment for restoration/conservation.
* Comments:
* AMD layer to add to the model, energy/gas exploration layers?
* Groundwater would be an important aspect to include
* Habitat connectivity would be an important variable to be added when prioritizing catchments
* Aiming the tutorials towards local planners (or having separate tutorials) could help with informing decision makers
* The Brook Trout workplan is yet to be shared. Action: With the input from MD, VA, and WV, Greiner and Runion will populate workplan template with potential actions for the 11/2/15 deadline of draft workplans to the Management Board, and share with the GIT during the week of 10/19-10/23.

Stream Health Workplan

* The Stream Health outcome is to improve the health and function of 10% of stream miles above the 2008 baseline for the Chesapeake Bay watershed. The Strategic Approach adopts a holistic approach including measurement, research, permitting, scientific-based project process, and capacity building (see draft workplan for specific key actions).
* Key Action 5 – Pooled Monitoring. With the pooled monitoring approach, we want to ask questions then collect data in a way to be most efficient in delivering answers with our time and money.
* No Key Actions for Management Approach 5, Capacity Building. Action: *Gattis* and *Law* will have a conversation offline to discuss potential actions for this approach. Should also be raised with new cross-GIT coordinator to develop link to local leadership strategy.

Chessie BIBI – Chesapeake Basin-wide Index of Biotic Integrity

* Important to note that there is no one indicator of ecological uplift.
* Mulit-metric index composed of discriminatory, family level metrics that scores uniformly across jurisdictional boundaries in the watershed.
* How do you measure stream health for an entire region? Measure change? Three different styles of analysis: number of sites in each condition (misrepresentative of size), area size with an average certain condition (stuck on the mean condition), and stream miles with a certain condition. The choice of statistic -- and how that statistic is calculated -- will reflect the underlying question. Be sure of the underlying question.
* Potential collaboration with Healthy Watersheds GIT

Conservation Innovation: Using New Technologies to Identify Landscape Scale Conservation and Restoration Priorities

* Precision Conservation, Landscape Analysis: Getting the right practices, in the right places, at the right time, and making sure they are working.
* Chesapeake Conservancy is using remote sensing and GIS modeling to generate new data that allows them to identify priorities for conservation and restoration at the parcel-scale. Various LiDAR technology allows pixel size of 1m and the ability to automatically classify buildings and other impervious surfaces.
* Concentrated Flow Path Analysis – allows for determination of actual necessary BMP size such as buffers to address uneven flows over a landscape.
* Composite buffer health score as opposed to percent forested buffer cover results in greater match with other models such as USGS SPARROW water quality model
* Potential collaboration with each of CBP’s GITs.

Fish Habitat Conservation: Targeting Tools and Strategies

* Examining land-use and fish habitat dynamics in the Chesapeake Bay.
* Tidal finfish responses to landscape impacts suggests the ecosystem is changing – do urban watersheds represent a new ecological regime?
* Fisheries management options with increasing urbanization/imperviousness – Conserve & restore; conserve & rehabilitate; conserve & re-engineer.
* Emphasis on conserving the eastern shore of Maryland due to the low development of the area.
* Land Conservation is Fish Conservation
* Community engagement – identifying a watershed champion can help with a change in attitude to conservation rather than development. Election cycles can also be an opportunistic time to “strike” and push conservation efforts.
* *Law*: Is DNR thinking about how their sampling strategies and design may shift to accommodate the now-available higher resolution data? Action: *Law* and *McGinty* will follow-up about DNR fish habitat sampling strategies.

Culvert Assessments

* Natural resource agencies are working with roadway engineers to provide fish passage and have safe culverts at the same time. Sandy resiliency funds and CBP funding has provided an opportunity to assess culverts and work towards fish passage projects.
* [www.streamcontinuity.org](http://www.streamcontinuity.org)
* Culvert assessment projects include measurements such as width, height, length of culvert, outlet drop, road fill height, slope, bankfull width, sediment, water width and depth, etc.
* One hope is to recruit additional observers to get trained in assessment protocol so that work can be “outsourced” to those already doing other work with these culverts.

Fish Passage Workplan

* The Fish Passage workgroup has been in existence since 1989. Fish passage activities such as latters and denils were the focus in the early 1990s. Dam removal became the focus in the late 1990s and early 2000s. This past year, we have accomplished two significant projects:
  + The Harvell Dam Removal Project provided access to 127 miles of spawning and rearing habitat with the removal of the first blockage on the Appomattox River.
  + The Heistand Sawmill Dam Removal Project opened 12.4 miles and removed the first blockage in the Chiques Creek
* Variable number of projects per year largely due to the opportunistic nature of fish passage and dam removal projects.
* Old definition of river miles opened: stream miles opened in the stream order of the newly added passage plus stream miles of any connected -1 order streams. New (GIS-based) definition of miles calculated: all miles opened upstream until headwater or the next blockage.
  + New definition allows for a more accurate description of accessible miles for anadromous fish.
* Fish Passage Prioritization Tool shows high priority dams which are first blockages and may open the largest number of stream miles.
* Review of Workplan – mostly focused on dam removal due to the raised efficiency of fish passage with dam removal rather than other projects such as ladders or denils. We want to formally accept the new definition of stream miles and then possibly change our target goal to reflect this new figure.
  + *Slattery*: Likely cannot change goals as it would require actions by six governors. Action forward would be to tell the Management Board about the new approach based on advice from the experts (FP workgroup) and use the approach in the future.
  + Action: STAR (*Tango* and *Ehrich*) will provide assistance in “adapting” goals and seeking guidance from the Management Board.
* *Clearwater*: MDE is interested in getting a product that shows location of culvert blockages to add to MDE screening system.

Black Duck Energetics

* Sub-outcome is to increase Black Duck wintering habitat on or near refuge lands by 10% by 2025; research is being done to determine what quality wintering habitat is. Part of the data being collected is what food Black Ducks consume and where can they receive the most energy by conducting respirometry trials. Bioenergenics modeling can create a map of quality habitats for restoration, enhancement, and conservation. Wetland vulnerability can also show changes in habitat with time.

Black Duck Workplan

* Management approaches included habitat restoration, habitat enhancement & management, habitat protection, and other conservation activities.
* BDJV and ACJV are currently developing a decision support tool to estimate wintering black duck habitat needs under current and future landscape conditions throughout the ACJV and the Atlantic Flyway. The tool uses a GIS based model framework which estimates the energetic capacity of available Black Duck habitat and compares this to estimates of energetic demand at the level we hope to achieve to ensure habitat supply matches demand.
* The tool could also inform conservation action recommendations in the SAV and Wetlands strategies.
* Looking for collaboration/help from other partners
  + STAR has offered to help with the indicators.

Wetlands

* Wetland Expert Panel (WEP) was charged to assess and recommend wetland land uses for the Phase 6 Watershed Model, assigning them a loading rate, and looking at restoration and enhancement efficiencies for BMPs. WEP recommended two nontidal (tidal is not yet included) wetland classes: floodplain (surface water dominated systems), and other wetlands (groundwater dominated systems). The loading rate will be equal to forest, with the opportunity to adjust during the model calibration period.
* The bulk of “restoration” occurring today is actually enhancement/rehabilitation; little creation and/or restoration taking place. This results in no acreage gain, and cannot be credited as a BMP.
* NWI mapping is outdated and often inaccurate. PA & VA have voiced concerns and are working toward options with updating the data to supplement the NWI+ data in some areas. A discussion on this topic will take place during the upcoming Mid-Atlantic Wetland Workgroup meeting.
  + *Gorman*: We need to determine if there are/should be standards for data to be used within the Chesapeake Bay model. NWI is the minimum national standard; will we be able to supplement this with our own data? NWI+ will be a long and expensive process so we need to consider other products that we can use. We could possibly get PA data from the Upper Susquehanna Coalition to verify/update NWI by fall of 2016, though it may not meet the federal standard of mapping.
    - *Greiner*: Modelers at CBP are willing to included new data into the Phase 6 Model as long as it is provided on time and is valid – we need a modeler (Peter Claggett) to determine a standard for data to be included.
  + *Jacobs*: VA and Western MD have similar concerns to PA.

Wetlands Workplan

* (see draft workplan for specific key actions)
* Workshop at Delaware Wetland Conference to refine marketing and outreach strategies.
* “Enhancing Capacity” STAC workshop
* *Phillips*: USGS projects can help out under Management Approach 3 for the Wetlands outcome
* *Slattery*: Some groups are considering capitalizing on mitigation opportunities and use the money to fund more strategic restoration opportunities.
  + *McLaughlin*: Can be called stewardship or restoration, but as long as it is titled “mitigation” we cannot count the acres toward our goal.

Maryland Coastal Resiliency Assessment

* [www.CoastalResilience.org](http://www.CoastalResilience.org) (open source model, all documentation is online)
* Coastal resilience goal is to evaluate the risk reduction benefits of existing natural infrastructure and establish priorities for conservation/restoration of natural features to enhance resiliency of vulnerable coastal communities.
* Natural Infrastructure structures for wave attenuation include dunes, marshes, reefs, barrier islands, and maritime forests.
* Natural Features Analysis includes the InVEST Coastal Vulnerability model: a qualitative estimate of coastal exposure based on elevation, sea level change, wave exposure, erosion, geomorphology, etc.
* Community Risk Analysis uses the North Atlantic Coast Comprehensive Study to identify communities that are at-risk to coastal hazards.
* Combining those two analyses gives conservation priority areas.
* Diversity action team would be interested in this.

SAV Workplan

* (see draft workplan for full key actions)
* Management approaches included restore water clarity, protect existing SAV, restore SAV, and enhance research, education, and outreach.
* Bay-wide annual SAV aerial survey is potentially facing a shut down without immediate additional funding.
* Water clarity declining while water quality increasing is still an unknown issue.
* *Greiner*: Action: Landry will cross check with the Stewardship Goal Team as this work (Management Approach 4, SAV outcome) connects with their workplan.

Chesapeake Atlantis Model

* Marine model to address questions about cumulative simultaneous effects on the ecosystem with a whole ecosystem modeling approach, incorporating the biological environment, physical environment, nutrient inputs, and fisheries.
* CAM design is a 3-Dimensional box model made up of 97 different boxes in the Chesapeake and some major tributaries.
* Can be customizable to answer specific questions
* Can be parameterized to show different losses of habitat/changes in nutrients in each box
* Habitat Scenario (50 years) Assumptions: 50% marsh loss, 50% loss of seagrass:
* Temperature increase produces relatively strong effects on production compared to losses of marsh, SAV, or the TMDL water quality improvements.
* Modeling other stressors without expected temperature increase could be misleading
* Reasonable trends can be predicted modeling a single stressor *if* you happen to choose the dominant stressor
* Risk is relatively large for some important Chesapeake managed fish (~10% loss in production)
* (compared to baselines of 2010 levels)
* CAM shows that impacts should not be modeled independently, as synergistic effects can result in vastly different outcomes.

Closing Thoughts

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