DRAFT

Chesapeake Bay Strategy Goals Framework

March 19, 2010

Executive Order

Overview of Goals Framework

Draft
3/19/10

Chesapeake Bay Executive Order
On May 12, 2009, President Obama issued an Executive Order recognizing the Chesapeake Bay as a national treasure and calling on the federal government to lead a renewed effort to restore and protect the nation's largest estuary and its watershed. As part of developing a new strategy for restoration, the Executive Order directs the federal government to "define environmental goals for the Chesapeake Bay and describe milestones for making progress toward attainment of these goals."

Draft Vision, Goals and Measurable Outcomes
This document includes a draft vision for a restored Chesapeake Bay watershed, environmental goals and measurable outcomes of planned actions. Since draft goals and outcomes were not included in the draft strategy released in November 2009, the federal agencies committed to release this goals framework for public review prior to issuance of the final strategy in May 2010. The document does not include all of the actions that were outlined in the draft strategy released in November 2009 – or that will be included in the final strategy due in May – but presents an example of how sample actions will drive progress toward goals and measures.

To maintain coordination and consistency with current restoration activities of the Chesapeake Bay Program's federal and state partners, existing measures of health and restoration were used as the starting point for the goals and outcomes presented here. Some refinements were made to existing measures to better address the needs of the Chesapeake Bay ecosystem and reflect expanded federal action. More details on the draft goals and measurable outcomes are available in the appendix.

Next Steps
Public feedback on the draft vision, goals and measurable outcomes is essential and comments can be submitted by April 2, 2010 at http://executiveorder.chesapeakebay.net. The vision, goals and measurable outcomes will be modified based on public feedback and a revised version will be paired with detailed actions in the final strategy to be released by May 12, 2010.

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Goals Framework

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3/19/10

The Future We Want to See

Vision

A description of the desired future condition of the Chesapeake Bay watershed.

How We Get There

Goals

The goals that must be achieved to realize the vision of a restored Chesapeake Bay watershed.

Actions

The actions to achieve a restoration goal. The final strategy will include the full list of actions; they are not included in this document.

Measurable Outcomes

The expected on-the-ground, in-the-water improvements resulting from actions.

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The Vision

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3/19/10






We work toward a Chesapeake Bay watershed with clean water that is swimmable and fishable in streams, rivers and the Chesapeake Bay; with sustainable, healthy populations of blue crabs, oysters, fish and other wildlife; and with a broad network of land and water habitats that support fish and wildlife and are resilient to the impacts of development and climate change.

We work toward a Chesapeake Bay watershed with abundant forests and thriving farms that benefit both the economy and environment; with extensive areas of conserved lands that protect nature and the region's heritage; with ample access to provide for public enjoyment; and with cities, towns and neighborhoods where citizens are stewards of nature.

Executive Order

Federal agencies selected a tightly focused set of goals and limited number of measurable outcomes. This approach should result in faster and more effective action.

Goals

Draft
3/19/10

Restore Water Quality

- ***Goal:*** Reduce nutrients, sediment and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity and chlorophyll-a and toxic contaminants.

Restore Fish and Wildlife Populations

- ***Goal:*** Sustain healthy populations of fish and wildlife which contribute to a resilient ecosystem and vibrant economy.

Restore Habitat

- ***Goal:*** Restore a network of land and water habitats to support priority species and to afford other public benefits, including water quality, recreational uses, and scenic value across the watershed.

Conserve Lands for People, Wildlife and Water

- ***Goal:*** Conserve landscapes to maintain water quality, habitat, working forests, farms, and maritime communities; and cultural, community and indigenous values. Expand public access to the Bay and its tributaries through existing and new parks, refuges, reserves, trails and partner sites.

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Measurable Outcomes

Draft
3/19/10

Vision

Goals

Actions

Outcomes

Additional outcomes may be included in the final strategy.

Additional information on these outcomes is available in the appendix on slides 13-16

Restoring Water Quality

Goal: Reduce nutrients, sediment and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity and chlorophyll-a and toxic contaminants.

Measurable Outcome for Water Quality: Meet water quality standards for dissolved oxygen, clarity/underwater grasses and chlorophyll-a in the Bay and tidal tributaries by implementing 100% of pollution reduction actions for nitrogen, phosphorus and sediment no later than 2025, with 60% of segments attaining standards by 2025. *(Current condition: 89 of the 92 segments of the Bay and its tidal waters are impaired.)*

Measurable Outcome for Stream Restoration: Restore 70% of streams throughout the Chesapeake watershed by 2025 to a rating of three out of five or better as measured by the Index of Biotic Integrity. *(Current condition: 42% of sampled streams rate three out of five or better).*

Measurable Outcome for Agriculture Conservation: Work with producers to apply new conservation practices on 4 million acres of agricultural working lands in high priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries. *(Current condition: Of the 7.3 million acres of agricultural working lands in high priority watersheds, new conservation practices were applied on an estimated 260,000 acres in FY2009. The 4 million acres by 2025 would be targeted to apply or expand conservation treatment on virtually all of the 3.6 million acres identified as having soils with the highest potential for leaching and runoff.)*

Supporting Measure for Toxic Contaminants: Reduce the occurrence of toxic contaminants impacting the health of fish, wildlife, and people in the Bay and its watershed by 2025. *(Current condition: 25 of the 89 monitored tidal segments (28 percent) were unimpaired by toxic contaminants; conditions for emerging contaminants need to be determined)*

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Measurable Outcomes

Draft
3/19/10

Vision

Goals

Actions

Outcomes

Additional outcomes may be included in the final strategy.

Additional information on these outcomes is available in the appendix on slides 17-19.

Restoring Fish and Wildlife Populations

Goal : Sustain healthy populations of fish and wildlife which contribute to a resilient ecosystem and vibrant economy.

Measurable Outcome for Oysters: Restore self-sustaining native oyster populations in 20 out of 35-40 candidate tributaries by 2025. *(Current condition: 0 tributaries with fully restored and self sustaining oyster populations, several tributaries in progress, with successful living reefs restored.)*

Measurable Outcome for Blue Crabs: Maintain sustainable blue crab interim population target of 200 million adults (1+ years old) through 2025. *(Current condition: 2007-2008: 131 million; 2008-2009: 223 million).*

Measurable Outcome for Brook Trout: Restore brook trout populations in headwater streams by improving 58 Chesapeake Bay sub-watersheds classified as 'reduced' habitat to 'healthy' by 2025. *(Current condition: 388 of 1294 sub-watersheds in Chesapeake Bay currently classified as 'reduced' for brook trout.)*

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Measurable Outcomes

Draft
3/19/10

Vision

Goals

Actions

Outcomes

Additional outcomes may be included in the final strategy.

Additional information on these outcomes is available in the appendix on slides 20-22.

Restoring Habitat

Goal: Restore a network of land and water habitats to support priority species and to afford other public benefits, including water quality, recreational uses, and scenic value across the watershed.

Measurable Outcome for Wetland Restoration: Restore 30,000 additional acres of tidal & non-tidal wetlands and enhance the function of 150,000 additional acres of degraded wetlands by 2025. *(Current condition: 1 million acres of tidal and non-tidal wetland estimated to be available in Chesapeake watershed for restoration or enhancement. Between 1998 and 2008, 18,217 acres of wetlands were restored and 97,738 acres were enhanced in the Bay watershed portions of MD, PA, VA, DC, NY and DE.)*

Measurable Outcome for Riparian Buffers: Restore riparian forest buffers to 64%, or 148,000 miles, of the total riparian miles (streambank and shoreline miles) in the Bay watershed by 2025. *(Current condition: 58% of the 230,000 total riparian miles in the Bay watershed has forest buffers in place.)*

Measurable Outcome for Fish Passage: Restore historical fish migratory routes by opening an additional 1,000 stream miles by 2025, with restoration success indicated by the presence of river herring, American shad and American eel. *(Current condition: Approximately 1,924 miles in the Chesapeake Bay watershed have been opened and are accessible for fish migration. Projects are currently being ranked and prioritized through a collaborative federal and state process designed to strategically target priority projects. Number of miles opened per project is a key criterion in the prioritization process.)*

Measurable Outcomes

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3/19/10

Vision

Goals

Actions

Outcomes

Additional outcomes may be included in the final strategy.

Additional information on these outcomes is available in the appendix on slides 23-24

Conserving Lands for People, Wildlife and Water

Goal: Conserve landscapes to maintain water quality, habitat, sustainable working forests, farms and maritime communities; and cultural, community and indigenous values. Expand public access to the Bay and its tributaries through existing and new federal, state, and local parks refuges, reserves, trails and partner sites.

Measurable Outcome for Land Conservation: Protect 2.3 million acres of lands throughout the watershed currently identified as high conservation priorities at the local, state and federal level (including 695,000 acres of forest land of highest value for maintaining water quality) by 2025. *(Current condition: approximately 7.8 million acres protected watershed-wide)*

Measurable Outcome for Public Access: Increase public access to the Bay and its tributaries by adding 300 new public access sites (40% increase) by 2025. *(Current condition: 754 public access sites providing access to the Bay and its tributaries exist in DC/MD/PA/VA)*

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Example: Restoring Water Quality

Draft
3/19/10

This slide provides one specific example of how all aspects of the framework fit together.

Goal: Reduce nutrient, sediment and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity and chlorophyll-a and chemical contaminants

Action: EPA to propose and take final action on new regulations for Concentrated Animal Feeding Operations.

Measurable Outcome: Meet water quality standards for dissolved oxygen, clarity and chlorophyll-a and underwater bay grasses (SAV) in the Bay and tidal tributaries with 60% of segments attaining standards by 2025.

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Supporting Strategies

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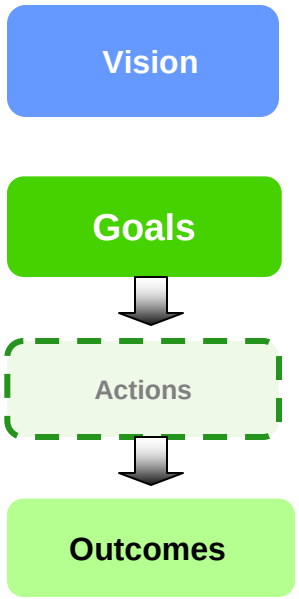
3/19/10



The following **"cross-cutting" strategies** are key to supporting achievement of the goals outlined on the prior slides. These strategies are not described further in this document but will be detailed in the final strategy released in May 2010.

- ***Science & Adaptive Management:*** Strengthen and use science and adaptive management to continuously improve strategies and outcomes. Improved models, monitoring, and research will be used to better prioritize, improve on-the-ground practices, assess progress, and evaluate effectiveness of actions and policies.
- ***Climate Change:*** Ensure all conservation and restoration activities, including regulatory efforts, are planned and designed to adapt to impacts of a changing climate. Support adaptive management strategies by providing accessible climate science to decision makers and conducting climate impact vulnerability assessments of lands, habitats, communities and water quality.
- ***Ecosystem Markets:*** Build ecosystem markets to foster ecological and economic sustainability.
- ***Citizen Stewardship:*** Foster a dramatic increase in the number of citizen stewards – of every age – who support and carryout local conservation and restoration. The final strategy will include actions focused on expanding citizen involvement in on-the-ground stewardship and supporting watershed educational opportunities.

Appendix

Background information on measurable outcomes

Executive Order

Background Information

Restoring Water Quality

Draft
3/19/10

This slide provides supporting information on the following outcome:

Meet water quality standards *for dissolved oxygen, clarity/underwater bay grasses (SAV) and chlorophyll-a in the Bay and tidal tributaries by implementing 100% of pollution reduction actions for nitrogen, phosphorus and sediment no later than 2025, with 60% of segments attaining these standards by 2025.*

Why is it important? Restoration of tidal water quality is central to bringing back a healthy Chesapeake Bay ecosystem.

What is the measure? This outcome directly measures the three most important water quality parameters—dissolved oxygen, clarity/underwater Bay grasses and chlorophyll *a*. All three parameters are routinely sampled at the over 150 stations that comprise the Chesapeake Bay Water Quality Monitoring Network.

What is the current condition? Currently, 89 of the 92 tidal segments across the Chesapeake Bay and its tidal tributaries and embayments are listed by MD, VA, DE and DC as impaired for nutrients and/or sediments on their 2008 303(d) lists.

What is the basis for the target? Currently, EPA estimates the nitrogen loads delivered to the Bay tidal waters at about 277 million pounds per year and they have set a 200 million pounds total nitrogen target load. Under EPA's written expectations for the jurisdictions' watershed implementation plans, the jurisdictions need to have the practices and technology implemented on the ground necessary to achieve 60 percent of the total nutrient and sediment reductions required to achieve their Bay TMDL allocations by 2017 or about 231 million pounds for nitrogen.

Based on Phase 5.2 watershed model results input into the prior version of the Bay water quality & sediment transport model, when nitrogen loadings reach in the range of 236 millions of pounds, EPA predicts that the majority of the Bay's tidal segments come into attainment of their dissolved oxygen water quality standards. The exceptions are the large areas of the middle mainstem Chesapeake Bay and a small number of smaller segments. Based on the latest findings from the USGS pointing to groundwater lag times of up to 10 years (on average) and higher, the Bay's tidal waters won't see the full effect of all the practices and pollution reduction technologies in place in 2017 until after 2025. An estimate of 60 percent was made for the number of segments that will meet water quality standards for dissolved oxygen, clarity/underwater bay grasses (SAV) and chlorophyll *a* in the Bay and tidal tributaries by 2025. By May 2011, EPA will have access to additional model runs and information that will increase confidence in the above percentage or a refined percentage. Following an adaptive management process under the Bay TMDL, there will be further information with the adoption of the jurisdictions' Phase 1 and Phase 2 watershed implementation plans as well as with the jurisdictions' development of their 2012-2013 two-year milestones. EPA can use that information to further refine the 60 percent by 2025 estimate.

For More Information:
http://executiveorder.chesapeakebay.net/file.axd?file=2009%2f11%2f202a+Water+Quality+Report.pdf

Executive Order

Background Information

Restoring Water Quality

Draft
3/19/10

This slide provides supporting information on the following outcome:

Restore 70% of streams throughout the Chesapeake watershed *by 2025 to achieve a rating of 3 out of 5 or better as measured by the Index of Biotic Integrity.*

Why is it important? Restoring water quality in streams is a necessary step in meeting water quality standards in the Bay. Similarly, actions to reduce nutrients, sediment, and other pollutants flowing into streams to achieve Bay standards also improves the quality of local streams. Restoring streams also benefits the fish, wildlife, and people using them. This outcome also helps address comments from the public and states stressing a need to improve local streams as a way of better engaging watershed organizations and involving the 17 million watershed residents in the restoration effort.

What is the measure? This measure of stream quality is an existing CBP indicator, based on the Index of Biotic Integrity which scores benthic macroinvertebrate communities on a scale of 1 to 5. The CBP has worked with the states to gather information from 3,291 sites across watershed where samples have been collected during 2000-2006 and scored the average of this data based on ecoregion thresholds. An acceptable benthic community is defined as having a score of 3 or better. In the future, the CBP will take a subset of these sites to look at change in stream quality over time. The subset of sites will be designed to adequately represent the distribution of streams conditions throughout the watershed.

What is the current condition? In the last assessment, conditions at 1,375 sampling sites are rated as having an acceptable score of 3 out of 5 or better (42 percent) while 1,916 sites are rated as having an unacceptable score of less than 3 (58 percent).

What is the basis for the target? The basis for the target is that as practices are implemented in the watershed to reduce nutrients, sediment and other pollutants, we will see improvements in the quality of streams. The current target (a benthic index of biotic integrity score of 3 or better) is closely tied to the Bay estuary target of meeting water-quality standards for oxygen, clarity, and chlorophyll-a in 60% of the Bay segments by 2025. We should have a greater percentage of improvements in streams in the watershed by 2025 since they will response to management actions prior to seeing improvements in the estuary. Therefore a target of 70 percent was chosen. The original option was to achieve fair to excellent conditions in all streams by 2040. This was modified to the current outcome because some streams will not achieve good or excellent conditions due to be impacted by legacy pollutants (such as contaminants) and other habitat conditions that will continue to degrade their quality. Index scores were chosen as the basis for goals instead of qualitative scores because the quantitative scores are directly comparable to the estuarine phytoplankton and benthic IBI restoration goals and conditions deemed healthy by scientists.

More information: http://www.chesapeakebay.net/status_watershedhealth.aspx?menuitem=26057

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Background Information

Restoring Water Quality

Draft
3/19/10

This slide provides supporting information on the following outcome:

Work with producers to apply conservation practices on 4 million acres of high priority agricultural working lands *by 2025 to improve water quality in the Chesapeake Bay and its tributaries.*

Why is it important? This outcome reflects the application of high priority conservation practices that are most closely aligned with reducing potential nutrient and sediment losses from farming activities. Our Conservation Effects Assessment Project (CEAP) results are quantifying the biophysical effects of conservation practices and suites of practices. Preliminary data from the Upper Mississippi River Basin suggests that treatment of the most vulnerable acres with high impact conservation practices can reduce substantially the nutrient (N&P) and sediment losses from farming activities.

What is the measure? The measure will track the application of selected conservation practices in identified priority watersheds. The selected practices will reflect those most closely aligned with reducing potential nutrient and sediment losses from farming activities. The source will be USDA program data from NRCS and FSA.

What is the current condition/status/baseline? In FY2009, conservation practices were applied on about 530,000 acres in the Chesapeake Bay watershed. This includes all practices on all lands in the entire Bay watershed, rather than the subset of priority watersheds. Based on the proportion of the priority watersheds to the Basin at large, we estimate about 50 percent of the acres applied (260,000 acres) would fall within the 2010 priority watershed boundaries.

What is the basis for the target? Of the 7.3 million acres of agricultural working lands in high priority watersheds, 3.6 million acres are identified as having soils with the highest potential for leaching and runoff. The 4 million acres goal would apply or expand conservation treatment on virtually all of the 3.6 million acres. The high priority watersheds are based on Sparrow data vetted through State Technical Committees and soils with the highest potential for leaching and runoff are based off of SSURGO data. We have used this process to approximate the potential size of the area to focus conservation resources; the 4 million acres goal does not imply that these acres are not currently under effective conservation management. This goal further reflects the “targeting” of resources described in the 202b report and 203 strategy, whereby we identify and treat the most strategic acres to improve water quality.

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Background Information

Restoring Water Quality

Draft
3/19/10

This slide provides supporting information on the following outcome:

Reduce the occurrence of toxic contaminants *impacting the health of fish, wildlife, and people in the Bay and its watershed by 2025.*

Why is it important? The CBP has a current goal for 100 percent of the tidal tributaries to be unimpaired by toxic contaminants such as metals and PCB's. During the past decade, new threats from "emerging" contaminants, such as pharmaceutical and personal-care products, have impacted the health of fish and wildlife and pose new risks to the 17 million people in Bay watershed. The risks to people include potentially higher incidence of cancer by consuming fish and wildlife with high levels of toxic contaminants and infections and disease due to contact with water. The impacts on fish and wildlife include greater susceptibility to disease and infections, compromised reproductive systems (such as "intersex" in some fish in the Potomac river), lesions, and death. Therefore, minimizing the impacts of toxic contaminants will be included in the EO strategy.

What is the measure? A quantitative outcome and enhanced control strategies for toxic contaminants and selected "emerging contaminants" will be developed by 2013. The outcomes will be based on examination of existing information for toxic contaminants and initial assessments of newer "emerging" contaminants in the watershed. There is an existing measure for toxic contaminants in the bay based on sampling by MD, VA, and DC. However, this measure needs to be revised based on conducting assessment of "emerging" contaminants and estimating the amount of improvement we can expect for persistent toxics chemicals (such as PCBs) that can be achieved through different control options.

What is the current condition? Currently, 25 of the 89 segments of the Bay and tidal tributary segments (28 percent) were unimpaired by toxic contaminants. The other 64 segments contained a partial or full impairment. There are no complete assessments of "emerging" contaminants in the Bay watershed. The USGS is conducting an assessment in the Potomac basin of emerging contaminants, with a focus on endocrine -disrupting chemicals, that will be completed in 2013.

What is the basis for the target? A numerical outcome to reduce the number of segments in the Bay and its tidal tributaries that are impaired due to toxic contaminants is not possible without further analysis of the amount of actions needed to reduce persistent chemicals (such as PCBs, metals, and Hg) by 2025. Results from an on-going assessment of "emerging "contaminants in the Potomac will be available in 2013 and used to help develop a revised outcome(s) for toxic contaminants. After the outcome for toxic contaminants is developed by 2013, more specific control strategies will be prepared and actions implemented, including promoting take back programs and regulatory action as appropriate. Assessments for the 2 other largest river basins in the Chesapeake Bay watershed (Susquehanna and James Rivers) will be conducted to provide additional information on "emerging" contaminants.

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Background Information

Restoring Fish and Wildlife Populations

Draft
3/19/10

This slide provides supporting information on the following outcome:

***Maintain sustainable blue crab interim population target of 200 million adults** (1+ years old) through 2025.*

Why is it important? Blue crabs not only comprise the most valuable fishery in the Chesapeake Bay, but are major predators of benthic communities and are prey for many other fish species. The blue crab population is vulnerable to increased harvest pressure, as well as the effects of habitat loss due to poor water quality. Proper management of the crab harvest, as well as water quality improvements and habitat restoration will help restore the Bay's blue crab population and maintain this valuable resource into the future.

What is the measure? In 2008, the Chesapeake Bay Stock Assessment Committee (CBSAC) recommended an abundance target labeled as an 'interim rebuilding target' (200 million age 1+ adults). The target level of 200 million is intended as an initial rebuilding goal (seen as something achievable in the short term). It is envisioned that a 'new/updated' abundance target will be identified and adopted through a peer-reviewed process by 2012.

What is the current condition? *(Current condition: 2007-2008: 131 million; 2008-2009: 223 million).* The Blue Crab Advisory Report provides advice to the management jurisdictions as they set regulations for the blue crab fishery. The 2009 Blue Crab Advisory Report indicated that the overall crab population in the Chesapeake Bay rebounded significantly in 2008, but that the number of juvenile crabs remained well below the historical average. Other findings included that the abundance of blue crabs over the age of one was 223 million, a 70 percent increase from the 2007-08 survey numbers. This was primarily due to an increase in abundance of spawning-age females, which may have resulted from new regulations implemented in 2008 limiting harvest of females.

What is the basis for the target? ? In 2008, the Chesapeake Bay Stock Assessment Committee (CBSAC) recommended an abundance target labeled as an 'interim rebuilding target' (200 million age 1+ adults). The target level of 200 million is intended as an initial rebuilding goal (seen as something achievable in the short term). There has been recent progress toward inter-jurisdictional (Maryland and Virginia) management of blue crabs. The Executive Order provides an opportunity to maintain the gains made in the past two years and collaboratively establish a longer term goal to implement ecosystem based management approaches for blue crab.

More Information: *http://www.chesapeakebay.net/bluecrabmanagement.aspx?menuitem=14769*

Executive Order

Background Information

Restoring Fish and Wildlife Populations

Working Draft 3/19/10

This slide provides supporting information on the following outcome:

Restore self-sustaining native oyster populations *in 20 out of 35 to 40 candidate tributaries by 2025.*

Why is it important? Oysters are a keystone species in Chesapeake Bay. They grow naturally in reefs that create and provide habitat not just for themselves and additional generations of oysters, but for many species of commercially and recreationally important finfish and shellfish. Oyster reefs were once the dominant hard-bottom habitat in Chesapeake Bay, and it is thought that the ability to restore the overall water quality, habitat and fisheries in the Bay is likely closely linked to our ability to restore oyster populations.

What is the measure? Re-establishing oyster reefs and oyster populations in priority tributaries where oysters once thrived. Restored oyster reefs should not only provide habitat structure but should support self sustaining populations of oysters over time that contribute to the overall ecological health of the tributary.

What's the current condition? *(Current condition: 0 tributaries with fully restored and self sustaining oyster populations, several tributaries with successful living reefs restored.)* Disease and overfishing have reduced oyster populations to about 1% of historical levels. Most oyster restoration efforts since the 1990's have been small scale and aimed at restoring the fishery. Recent large scale efforts in the Great Wicomico and Lynnhaven Rivers in Virginia show signs of success, with living reefs having been restored in these tributaries. However, large (tributary) scale of "fully restored" and "self-sustaining" oyster populations have not yet been achieved. For this reason, the baseline of tributaries restored on a large scale with self sustaining populations is set at 0.

What is the basis for the target? The USACE Final Programmatic Environmental Impact Statement (PEIS) Record of Decision signed in June 2009 recommends expanding, improving and accelerating native oyster restoration and repletion in Maryland and Virginia. This target establishes a spatially explicit, tributary or large scale based approach to significantly increase the level of focused restoration effort and will drive improved coordination among agencies and partners bay-wide. The number of candidate tributaries is an initial estimate based on the Draft Maryland Oyster Restoration Plan, the Virginia Oyster Reef Restoration Map Atlas, and the USACE Draft Master Plan. Based on these maps and their associated information, there are at least 35-40 tributaries or portions of rivers identified for potential restoration (most of these are not designated as sanctuaries at this point). There has been recent progress toward collaborative restoration approaches in Maryland and Virginia, and an emphasis on ecological restoration focused on long-term success metrics of restored, sustainable oyster populations. The Chesapeake Bay Executive Order coupled with ongoing efforts such as the USACE Master Plan and the Maryland Oyster Restoration Plan present an opportunity for Federal, state, and NGO partners to implement the first truly large-scale native oyster restoration efforts across the bay.

More Information: http://www.dnr.state.md.us/fisheries/oysters/ ; http://www.mrc.state.va.us/; http://chesapeakebay.noaa.gov/oystermain.aspx; http://www.nao.usace.army.mil/oysters/

Executive Order

Background Information

Restoring Fish and Wildlife Populations

Draft
3/19/10

This slide provides supporting information on the following outcome:

Restore brook trout populations in headwater streams *by improving 58 Chesapeake Bay sub-watersheds classified as 'reduced' habitat to 'healthy' by 2025.*

Why is it important? Brook trout are an a quintessential component of headwater streams, an important part of the natural heritage of the upper Chesapeake watershed, and an extremely valuable recreational resource. The Pinchot Institute is developing a credit for brook trout habitat for trading in the BayBank. Land Trusts in WV, NY, and VA are finding that the possibility of restoring brook trout to local streams is a real motivator for private landowners to take conservation actions, including livestock fencing and easements.

What is the measure? Restore healthy populations of brook trout to sub-watersheds classified as "reduced" based on presence of sensitive freshwater species as outlined in the Eastern Brook Trout Joint Venture's (EBTJV) targeted watershed approach.

What is the current condition? 388 of 1294 sub-watersheds being assessed (30%) in Chesapeake Bay are classified by EBTJV as reduced for brook trout. A century of declining brook trout populations has resulted in lost economic revenues and recreational fishing opportunities in the headwaters. Unless action is taken to reverse these trends, fishery managers agree that within 20 years brook trout could exist as a relic fishery with little economic value and be at risk of becoming regionally threatened in 30-40 years.

What is the basis for the target? One component in the EBTJV regional conservation strategy that is particularly important for the Mid-Atlantic states is to improve population productivity of brook trout in 30% of reduced watersheds. EBTJV has developed highly specified targeted watershed strategies to focus action. The Chesapeake Bay will contribute half of this regional goal by improving 58 of the 388 sub-watersheds (15%) that are reduced within the drainage to healthy over 15 years, or a rate of four sub-watersheds per year, with funding support from the National Fish Habitat Action Plan.

More Information: www.easternbrooktrout.net

Executive Order

Background Information

Restoring Habitat

Draft
3/19/10

This slide provides supporting information on the following outcome:

Restore 30,000 acres of tidal and non-tidal wetlands and enhance 150,000 acres *of degraded wetlands by 2025.*

Why is it important? Wetlands act as natural filters by absorbing nutrients and sediment from overland flow before it enters the Bay. Wetlands are a credited BMP in the CBP Watershed model (7-25% for nitrogen and 12 – 50% for phosphorus). Wetlands provide critical stopover habitat for birds using the Atlantic Flyway, spawning habitat for the Bay's commercially important fish species, and rearing habitat for juvenile crabs. Chesapeake marshlands provide world-class hunting, kayaking and bird watching opportunities and as such are important to the regional economy. Wetlands stabilize shorelines, control erosion, and buffer inland and coastal properties from the costly damage associated with floods and storm surge.

What is it the measure? Acres of tidal and non-tidal wetlands reestablished, established, and enhanced in the Chesapeake Bay Watershed from 2011 – 2025 as reported by the state partners using standard Federal wetland tracking definitions adopted by Bay Program partners in 2005. CBP guidance issued in 2005 directed partners to target wetland restoration and enhancement to areas with hydric soils, high nutrient and sediment loadings, and high wildlife habitat values.

What is it the current condition? The National Wetlands Inventory estimates that 1.1 million acres of tidal and non-tidal wetlands are available in the Chesapeake Bay watershed for restoration or enhancement. The Chesapeake experienced 5% (20,556 acres) of the net wetland loss in the conterminous United States (409,500 acres) from 1982-1989. *(Sources: Dahl and Johnson, 1991; Tiner et al., 1994)*. Partners have agreed on a milestone to establish baseline data for total extent of wetland acreage in the watershed based on hydric soil maps compiled at the county level.

What is the basis for the target? The new targets would be in addition to progress made over the past decade and require an increased rate of implementation. Between 1998 and 2008, signatory states (MD, PA, VA, NY, DE, and DC) restored 18,217 acres of tidal and non-tidal wetlands and enhanced 97,738 acres of wetlands.

More Information: *http://www.chesapeakebay.net/habitat_git_info.aspx?menuitem=47173*

http://www.chesapeakebay.net/status_wetlandsrestored.aspx?menuitem=19698

Executive Order

Background Information

Restoring Habitat

Draft
3/19/10

This slide provides supporting information on the following outcome:

Restore riparian forest buffers to 64%, or 148,000 miles, of the total riparian miles *(streambank and shoreline miles) in the Bay watershed by 2025.*

Why is it important? The single most important indicator of watershed health is the amount of forest in that watershed (Sweeney 2009). Forests covered 95% of the Chesapeake watershed prior to European settlement and now account for 58% of the watershed. Riparian forest buffers, because they are situated along streams and shorelines, play a particularly critical role in processing nutrients and sediments that flow off non-forest land uses before entering streams (across the watershed, riparian forest buffers have a baseline efficiency of 65%N reduction). Riparian forest buffers offer multiple water quality and habitat benefits including: stream cooling, food for aquatic organisms that conduct 'in stream' nutrient processing, improved stream morphology, and preferred habitat and migration corridors.

What is the measure? Forest restoration is measured in miles of land that borders water. A buffer must be 35 feet or wider to count. Outcomes of scientific research support a 70% target for riparian forest cover to maintain healthy functioning watersheds (Goetz et al. 2003; and King et al. 2005). It is not feasible to reach the full 70% by 2025 with current levels of funding.

What is the current condition? The baseline for riparian forest cover is 58% (this number is currently being updated by USGS). Riparian forest buffer loss is approximately 0.09% per year (Claggett 2010). The average miles restored in the Chesapeake for the past 4 years is 563/year. The average width for 2009 of restored riparian forest buffer was 135 feet.

What is the basis for the target? In the 2007 Forest Conservation Directive, all 7 jurisdictions and the federal government agreed to collectively restore at least 900 miles/year (http://www.chesapeakebay.net/committee_forestryworkgroup_info.aspx?menuitem=16736). At this rate of restoration, and an additional 27 miles/year to offset riparian forest loss, the 64% mark can be reached by 2025, pending current analysis of baseline condition being done by USGS. Thus current amount of forest restoration needed to attain 64% is approximately 14,800 miles.

Executive Order

Background Information

Restoring Habitat

Draft
3/19/10

This slide provides supporting information on the following outcome:

Restore historical fish migratory routes by opening an additional 1,000 stream miles by 2025, with restoration success indicated by the presence of river herring, American shad and American eel.

Why is it important? Physical structures that block or impede fish migrations to historic upstream spawning habitats are potentially the most important factor in the decline of migratory fish like American Shad, River Herring, and American eel. By removing dams or installing fish lifts, ladders and other passageways, migratory fish are able to return to upstream spawning and nursery grounds while resident fish are able to move freely throughout streams.

What is the measure? Restore historical fish migratory routes by opening and additional 1,000 stream miles by implementing 100 priority dam removal/fish passage projects by 2025.

What is the current condition? Approximately 1,924 miles in the Chesapeake Bay watershed have been opened and are accessible for fish migration. Projects are currently being ranked and prioritized through a collaborative federal and state process designed to strategically target priority projects. Number of miles opened per project is a key criterion in the prioritization process. Maryland has completed a ranking process for fish passage projects. Virginia and Pennsylvania are applying for funding to complete the prioritization of the fish passage projects within each state.

What is the basis for the target? The vast majority of identified blockages in the watershed are small culverts that if removed will provide limited benefit to diadromous fish resources. In addition, many dams will not be able to be removed or modified due to lack of dam-owner cooperation or other high priority uses for those structures (flood control, water supply, recreational areas, etc.). Therefore, the number of feasible, high priority projects is limited. The Chesapeake Bay Fish Passage Workgroup believes the goal is measurable and attainable under the current working conditions.

More Information:

http://www.chesapeakebay.net/fishpassage.aspx?menuitem=14762

http://www.chesapeakebay.net/status_fishpassage.aspx?menuitem=19701

http://archive.chesapeakebay.net/pubs/calendar/fpwkgp_12-17-09_Handout_2_10623.pdf

Executive Order

Background Information

Conserving Lands for People, Wildlife & Water

Draft
3/19/10

This slide provides supporting information on the following outcome:

Protect 2.3 million acres of lands *currently identified as high conservation priorities at the local, state and federal level (including 695,000 acres of forest land of highest value for maintaining water quality) by 2025.*

Why is it important? Land conservation is crucial to ecological health and community well-being. The Chesapeake's working farms, forests, natural areas and cultural and historic lands are central to a unique sense of place – and they provide a suite of benefits. Forests and natural areas safeguard air and water quality, reduce flood damage and sustain wildlife. Historic areas and working farms maintain the region's cherished character. These lands also add billions to the economy. The annual market value of Chesapeake farm products exceeds $5 billion. Chesapeake forest products deliver annual sales of $22 billion and support over 140,000 jobs. Yet, many lands are threatened by development; for example, while trends vary locally, the watershed has lost 100 acres of forest land daily since the mid-1980s.

What is the measure? This outcome is measured by the number of acres identified as high conservation priorities at the local, state or federal level which are permanently protected from development, whether by purchase or donation, through a perpetual conservation easement or fee ownership for their cultural, historical, ecological, or agricultural value. Information on protected lands is reported annually by MD, VA and PA to the Chesapeake Bay Program. This measure would expand reporting to include NY, DE and WV.

What is the current condition? More than 7.8 million acres of land are currently protected in the Chesapeake Bay watershed, including MD, PA, VA, WV, DE, NY.

What is the basis for the target? The target of protecting 2.3 million acres by 2025 is based on consultations with state officials, past land protection trends (from 2000 to 2009 an average of 125,000 acres were protected annually in PA, VA, MD & DC – continuing this trend through 2025 would conserve 1.875 million acres in these states alone) and a compilation of existing conservation priorities identified by state governments totalling some 2.5 million unprotected priority acres (this is a *conservative* accounting that does not include a complete list of state priorities in NY, DE, and WV; nor does it include any local priorities; and it does not fully represent priority cultural landscapes). As data gaps are filled, the acreage of priority unprotected land is expected to increase.

More Information: http://www.chesapeakebay.net/landpreservation.aspx?menuitem=14779

http://executiveorder.chesapeakebay.net/file.axd?file=2009%2f11%2f202e+Access+%26+Landscapes+Report.pdf

Executive Order

Background Information

Conserving Lands for People, Wildlife & Water

Draft
3/19/10

This slide provides supporting information on the following outcome:

***Increase public access sites** by adding 300 new public access sites (40% increase) by 2025.*

Why is it important? Public access is the vehicle through which people experience conserved lands. Freeman Tilden, a pioneer in enhancing visitor experiences in national parks, recognized that people whose lives are enriched by personal connections to the landscape become its most strident defenders. Outdoor experiences are critical to personal well-being, community character, and stewardship of the environment. They also provide substantial economic benefits; in 2007, visitors to heritage and recreation sites generated $31.6 billion in Maryland and Virginia alone. Yet, public access is limited in the Chesapeake region; less than 2 percent of the 11,600 mile tidal shoreline is publicly accessible. At the same time, the demand for water access is growing and is regularly cited as the most needed outdoor recreational opportunity.

What is the measure? This outcome is measured by the addition of new public access sites. A site is a location providing access to the water through a boat ramp, fishing pier, swimming area or adjacent boardwalk or trail); water means the Chesapeake Bay and its tributaries. Information on public access sites is reported annually by MD, VA, PA and DC to the Chesapeake Bay Program. This measure would expand this reporting to include NY, DE and WV.

What is the current condition? The Chesapeake Bay Program currently reports 757 public access sites in MD, PA, VA and DC. A watershed-wide list of sites including NY, WV & DE is not currently available.

What is the basis for the target? The target of adding 300 new sites by 2025 is based on consultations with state officials, past access site development trends (between 2000 and 2008 an average of 17 new sites were added annually in PA, VA, MD & DC), the continuing high priority for adding water access sites as expressed in State Comprehensive Outdoor Recreation Plans, and information provided by states, Federal agencies and a small sample of local and non-governmental sites indicating over 100 possible projects over five years.

More Information:
http://www.chesapeakebay.net/publicaccessrestoration.aspx?menuitem=16774

http://executiveorder.chesapeakebay.net/file.axd?file=2009%2f11%2f202e+Access+%26+Landscapes+Report.pdf