

## **RRI-1. New Criteria for Identifying Natural Resource Priority Protection (and Restoration?) Areas**

### **Option Description**

This option provides the technical and scientific foundation for developing and testing new and existing criteria for identifying priority protection areas. The assessment will focus on identifying undeveloped lands and ecologically and economically important lands (including important habitats and marsh migration corridors) that will be critical for targeted conservation and coordinated restoration in response to sea-level rise and its associated effects. The assessment will also address the future distribution and condition of underwater habitats and resources such as Submerged Aquatic Vegetation (SAV) and oyster beds. This information will be fed into other policy options to strategically and cost-effectively direct and implement specific conservation, restoration and growth management actions.

Rising sea level will impact coastal ecosystems and natural resource lands. These resources provide important ecosystem services and benefits. Coastal resources support wildlife habitats, have regional significance for migratory birds, sequester large amounts of carbon, provide sediment and nutrient water quality and flood control benefits, and generate economic benefits through farming, forestry, fishing and passive recreation. Preserving undeveloped, vulnerable lands also offers a significant opportunity to avoid placing people and property at risk to sea level rise and associated hazards including storm surge, coastal flooding, and erosion.

As sea level rises, various future conditions are possible. As an example, tidal marshes, beaches and dune habitats have the potential to: 1) migrate landward if there are no barriers to migration, such as roads and buildings or other unsuitable physical factors or 2) become eliminated if the opportunity to migrate landward is blocked, or the rate of migration is exceeded by the rate of sea level rise. Identifying where these resources are, how important they are for various ecosystem values and economic services and what the likely impact of sea level rise will be provides the basic information needed to plan for the protection and management of priority coastal natural resources. Existing assessments should be used to develop GIS-based and modeled criteria. These criteria should be ground-truthed and enhanced by additional field-based criteria.

The objective of this option is to identify target areas where strategic management actions, identified in other policy options, can be focused to buffer against the impacts of sea level rise and other climate changes. These actions can include expanding the priorities for existing land conservation to promote horizontal marsh migration, risk reduction and other land use goals. Other actions may focus on appropriate areas for restoration or rehabilitation projects, such as sand and sediment replenishment to fuel the vertical growth of wetlands, barrier removal or other alternative land management practices.

## Option Design

### Targets:

- Identify high priority ecological and economic natural resource lands and aquatic habitats in the coastal zone (a condition assessment).
- Identify coastal land areas that will be important for wetland migration corridors, for maintaining ecosystem integrity and connectivity, to support farming, forestry and fisheries industries and to confer risk reduction to coastal communities in response to projected sea level rise inundation and coastal flooding scenarios (a functional assessment).
- Determine through conserved lands and protective zoning overlays where high priority coastal lands are currently protected and where strategic conservation and forest and wetland restoration targets should be identified.
- Develop a peer-reviewed method for modeling wetland migration resulting from sea-level rise.
- Develop a set of field-based criteria to further identify the suitability of lands for protection and/or restoration in order to ensure eligibility for implementation programs.

### Timing:

- Within the first year, develop a scoping plan for conducting the study which includes identifying existing data and models, determining what additional data, models and criteria are needed, developing a timeline to include initial assessment using best available information and additional assessments as new data, models and criteria are developed, and determine the level of staffing and funding resources needed to complete each phase of assessment.
- Implement the assessment plan over the following 2 years provided technical resources can be secured. Phase I implementation can include an initial and coarse level assessment of resource priorities, current level of protection and resource vulnerability to sea level rise using results existing resource assessments and sea-level rise projections.
- Field studies may need to be conducted in order to develop and test specific criteria. For examples, indicators may need to be developed that would allow formerly upland agricultural lands that are transitioning into wetlands to be eligible for wetland restoration funds or wetland regulatory protection. The timing of this would be dependent on the programs being concerned for adaptation responses as detailed in other policy options.

### Parties Involved:

- Resource assessment, threat analysis and model development should be completed by MD DNR, UMD and other technical and scientific organizations.

- The MDP should evaluate the degree of current protection of vulnerable lands targeted as conservation and restoration priorities through local and State growth management controls MDE to evaluate degree of protection through regulatory mechanisms

### **Implementation Mechanisms**

Implementing this recommendation would require the investment of staff and funding to complete the analysis, conduct any needed specialized studies and document and publish the results. Potential funding mechanisms that could be explored include Section 309 (Coastal Zone Management Act) Coastal Enhancement Strategies dealing with coastal hazards. A National Oceanic and Atmospheric Administration (NOAA) Coastal Zone Management fellowship could also be pursued to recruit the staffing expertise needed for developing the first year plan and focusing on Phase I implementation.

### **Related Policies/Programs in Place**

Existing natural resource assessments can be used, in concert with other modeling and mapping efforts. In addition, existing conservation priorities, such as DNR's Priority Conservation Areas, those identified in Maryland's Coastal and Estuarine Land Conservation Plan and other agency conservation targets.

Existing resource assessments and conservation priorities include the following:

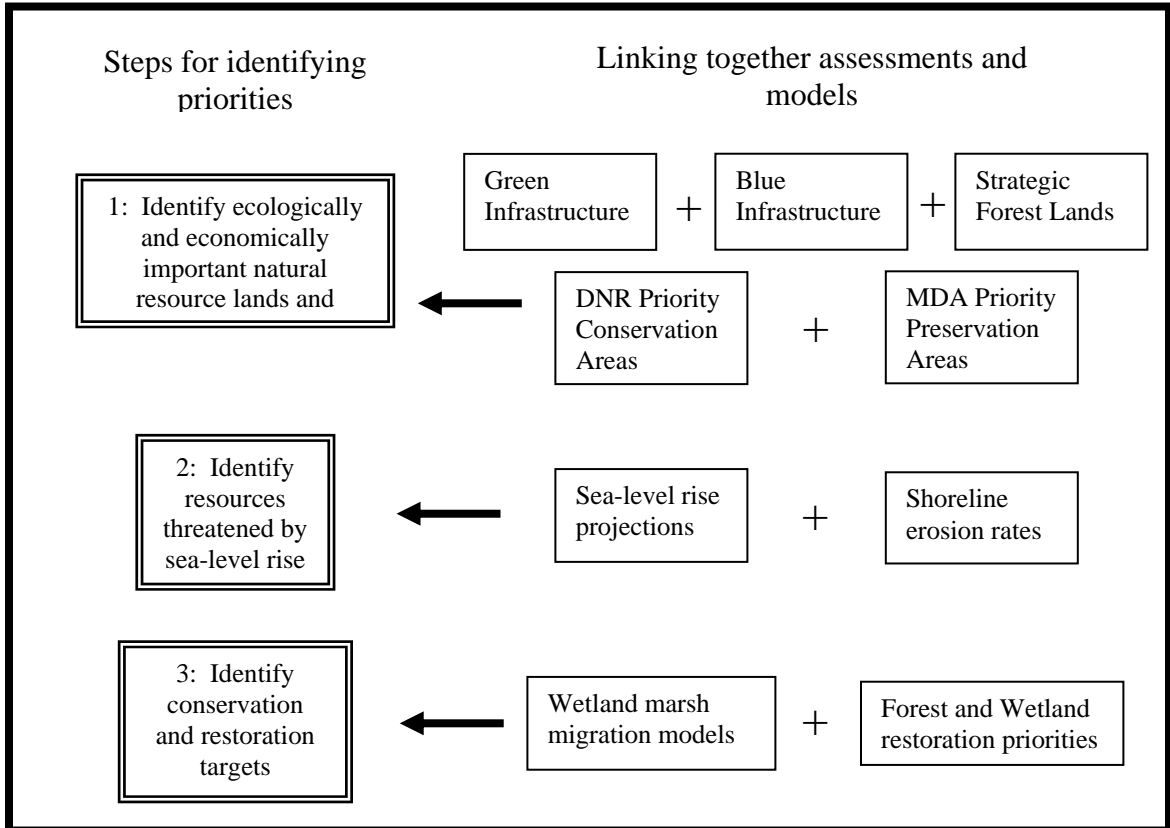
- The Green Infrastructure Assessment (DNR): identifies an ecological hub and corridor network across the State, prioritizes for ecological value, and is a DNR foundation for focusing conservation and restoration work.
- The Blue Infrastructure Assessment (DNR): specifically focuses on aquatic values and the aquatic/terrestrial interface; surveys aquatic, wetland and shoreline natural resources and identifies areas of highest ecological and economic value; currently under development
- Strategic Forest Lands Assessment (DNR): specifically focuses on forests; identifies forested areas of highest ecological and economic value
- Shorelines Online (DNR): A survey of shoreline condition (built, soft/hard stabilization, naturalized), erosion rates and habitat benefits.
- Sea level rise projections, elevation assessments and inundation maps (DNR)
- DNR Priority Conservation Areas: DNR's Program Open Space has identified landscapes with high ecological value (based on Green Infrastructure and other resource assessments) and designated these areas as Priority Conservation Areas. POS then focuses in on a subset of these areas to target its ecologically based land conservation objectives.
- MDP/MDA Priority Preservation Areas: These areas have been identified, as required through the 2006 Agricultural Stewardship Act (House Bill 2; 2006), as high priority agricultural resource lands and will be the targets for agricultural land preservation programs.

## Other studies and programs

- Restoration of Blackwater Wildlife Refuge marshes: This is an ongoing study that is building up degraded marshes through sediment replenishment and marsh grass plantings. Marsh accretion and carbon sequestration is being intensely monitored at this site and will provide the basis for field and modeled criteria and factors for determining suitable marsh migration corridors and restoration sites (University of Maryland, US FWS, MD DNR, Constellation Energy).
- Sea Level Affecting Marshes Model (SLAMM): This is an EPA funded modeling effort first developed in the mid-1980s and currently being refined as version 5. Results for the Chesapeake Bay will be available by mid-2008 and were funded by The National Wildlife Federation.

## Integration Strategy

A framework diagram will illustrate how these various assessment and models could be linked together to determine the location of high priority natural resource conservation and restoration areas.



## Feasibility Issues

Implementation feasibility is largely hindered by inadequate staffing and funding resources. For the first year, one full-time staff member at DNR would need to be dedicated to the development of the resource assessment plan and to coordinate the necessary peer review required to approve and move forward with the plan.