Chesapeake Bay Watershed Agreegment Goal	Outcome	CBP Strategy Review System Cohort	Need
Vital Habitats	Black Duck	Climate Change and Resiliency	Development of new black duck indicator
Vital Habitats	Black Duck	Climate Change and Resiliency	Fully evaluate and model the recent sea level rise scenarios and how they are impacting black duck habitat (energetic availability and refugia) in the Chesapeake.
Vital Habitats	Black Duck	Climate Change and Resiliency	A better understanding of mallard/black duck hybridization on resident birds.
Vital Habitats	Black Duck	Climate Change and Resiliency	A better understanding of heavy metal/pollutant uptake by black ducks (and/or all ducks).

Vital Habitats	Black Duck	Climate Change and Resiliency	Evaluate detectability and visibility correction factors of multiple breeding waterfowl survey techniques (fixed wing aircraft, helicopter, boats, walk in).
Vital Habitats	Black Duck	Climate Change and Resiliency	Evaluate ABDU Decision Support Tool assumptions
Vital Habitats	Black Duck	Climate Change and Resiliency	Update ABDU Decision Support Tool with updated SLAMM and Urban growth model data.

Completed?	More specific detail
N	Currently, CBP does not have a habitat-based indicator. We have established a baseline/goal, but are lacking the wetland restoration data need to determine progress made/method of tracking progress each year. No A&M filed yet.
N	
N	
N	

N	
N	1) investigate alternatives such as eBird for stepping down NAWMP waterfowl population objectives at various scales (e.g., continental, JV, Chesapeake Bay, etc.). County level and degree block harvest data is currently used to step NAWMP waterfowl population objectives at the continental scale down to the county and degree block scale and subsequently used to generate DUDs and energy demand for the DST energetic carrying capacity model. Because harvest data is restricted to the fall migration and winter periods it is likely not representative of the distribution of waterfowl during spring migration. In addition, harvest data may be biased because it is currently not adjusted for hunter effort. 2) Investigate potential biases associated with eBird waterfowl migration chronology data. eBird data at the BCR scale was used to construct waterfowl migration chronology curves to estimate duck use days in the DST energetic carrying capacity model. Comparative evaluations of waterfowl migration curves generated by eBird data and those constructed using survey data at a similar spatial scale suggest eBird data may be biased.
N	Initial ABDU DST model runs for the Chesapeake Bay watershed included sea level rise projections based on an older version of SLAMM as well as UMASS urban growth projections to evaluate impacts to energetic carrying capacity and subsequent restoration and protection habitat objectives through 2030 and 2080.

Why is this needed?	Category	Other Goals/Outcomes This Addresses	Engaged resources
Adopting a habitat-based indicator will better reflect Outcome language and progress. With the adoption of a new indicator, an accompanying baseline/acreage target with which to work toward progress with becomes necessary.	Analysis/Modeling/Data Gathering	Wetlands	None
A better understanding of SLR impacts on black duck habitat will help predict how much suitable habitat based on energy supply will be available and can help target ideal areas for restoration/conservation.	Analysis/Modeling	Wetlands	
Given we have large mallard releases in the Chesapeake it would be useful to know what sort of localized impact this is having on the local breeding black duck population.			
This would build on historic data and document long term changes in the Chesapeake.		Toxic Contaminants	

This would help provide better population estimates of black ducks in Mid-Atlantic/Chesapeake states, providing an additional metric with which to track progress towards the Outcome.			
Since the Black Duck Outcome is based on the output of the Decision Support Tool, these changes to the model would provide a more accurate baseline of available habitat and restoration goal.	Modeling		
Incorporating updated SLAMM projections would improve future predictions of energetic carrying capacity and restoration and protection needs for ABDU (and other competing dabbling ducks).	Modeling		

Potential resources	Priority	Related STAC recommendations (under development)
USGS potentially incorporating into new plan; CBPO is exploring the possibility of designating a Living Resource Data Manager position through a short-term contract to specifically: 1) Identify where the NEIEN system is underrepresenting progress towards the wetland and black duck outcomes, and ultimately, all other living resources outcomes. 2) Streamline the process for the states such that they are incentivized to enter the data in the fields to support living resources outcomes, particularly black duck and wetlands goals	High	
University of Delaware paper coming out exploring these topics on the Delaware Bayshore and it should be expanded into the Chesapeake; USGS Research (Integration topic 2A): Assess risks to coastal habitats and DOI lands, by forecasting vulnerability and resiliency of coastal systems to future change		
University of Delaware collaboration with Phil Lavretsky (UTEP) to research this hybridization on the NC coastline.		

1) eBird data may provide an alternative data source and a group is currently working with Cornell scientists to evaluate its potential use to distribute NAWMP objectives through space and time. Funding is currently being sought to support a post doc position to evaluate further. 2) A group is currently working with Cornell scientists to evaluate this potential bias. Funding is currently being sought to support a post doc position to evaluate further (see above).		