

# REGENERATIVE AGRICULTURE THRIVING FARMS HEALTHY BAY



The health of the Chesapeake Bay is intricately linked to the health of more than 83,000 farms that operate in its watershed. Fertilizers are key to growing our food, but when lost from farm fields, fertilizers contribute excess nutrients to the Bay's waterways, degrading water quality and harming aquatic life, including fish, oysters, crabs, and underwater grasses. Adding to this challenge, climate change is making fertilizer management even more difficult due to heavier rain events and prolonged droughts. Working alongside a diverse population of agricultural producers—from small to large scale—is critical to achieving our central strategies of infield nutrient management and edge of field/downstream habitat restoration.

## MANAGING NUTRIENTS, SOIL, AND WATER IN FIELDS

In the past 30 years, farmers have significantly increased the amount of food produced on every acre while also reducing the amount of nutrients making it to the Bay. To build on this progress, farmers will need to adopt more advanced nutrient management practices (e.g., precision use of fertilizer), to accelerate the Bay restoration, increase climate resiliency, and improve the economic sustainability of farms.

The Nature Conservancy (TNC) helped establish the Mid Atlantic 4R Nutrient Stewardship Association—a collaboration of agribusinesses, government agencies, researchers, and conservation groups—to increase the adoption of these practices. **Our shared goal is to see 2 million acres of cropland in the Bay watershed adopt climate-smart nutrient, soil, and water management practices.**

## RESTORING NATURAL HABITAT

The Chesapeake Bay watershed is made up of more than 150 rivers and 100,000 streams that carry water across the landscape, and eventually to the Bay. As the population across the watershed has grown, however, many of those waterways have been greatly impaired and wetlands have been converted to other land uses; primarily agriculture and development.

Restoring the Chesapeake will require restoring this network of rivers, streams, wetlands, forest buffers, and floodplains to slow and clean the water before it reaches the Bay. As we experience greater impacts of climate change, the water filtration and storage benefits

provided by wetlands and floodplains becomes even more critical.

Using cutting-edge science, TNC is identifying key areas where wetland and floodplain restoration can provide the greatest benefits to both people and nature. To complete restoration projects on a larger scale, TNC is also helping to build new coalitions and partnerships with landowners, federal and state agencies, NGOs, and others. **Our shared goal is to restore and enhance 235,000 acres of wetlands and floodplains across the Chesapeake Bay watershed for all the benefits they provide.**

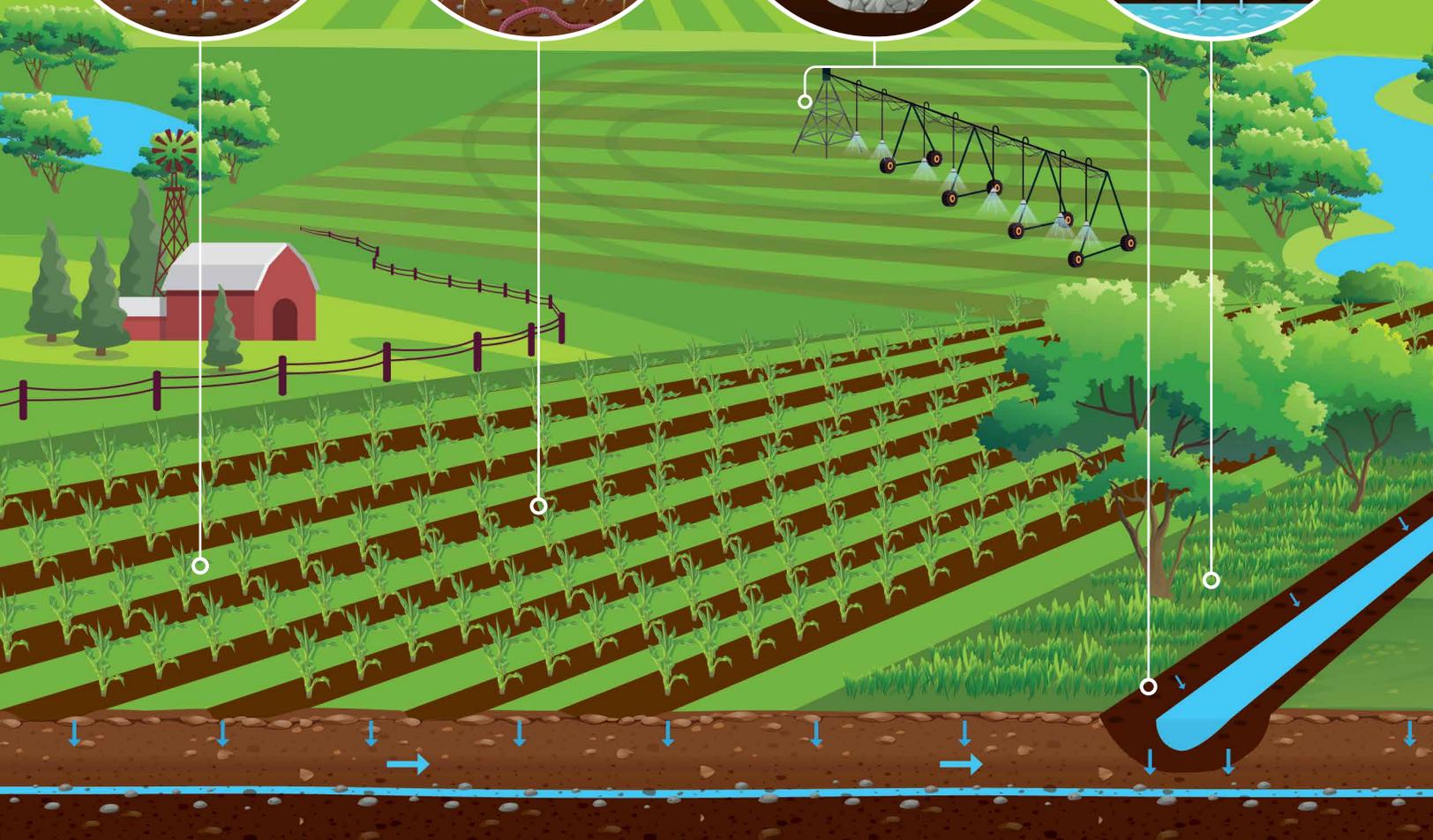
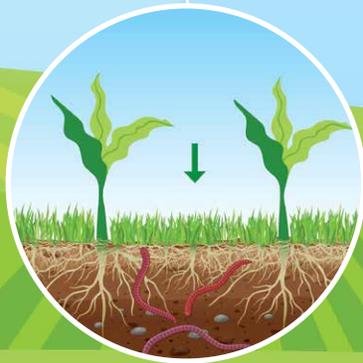
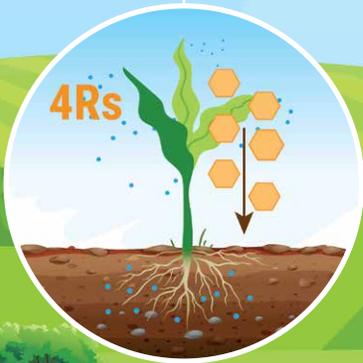
# MANAGING NUTRIENTS, SOIL, AND WATER

**PRECISION NUTRIENT APPLICATION** is the core premise behind 4R nutrient management, which aims to match fertilizer applications to crop needs. The "4Rs" are using the right source of fertilizer, applied at the right time, right rate, and right place. Applying just what the plants need when they need it means fewer nutrients leaving the field and savings for farmers.

Practices to improve **SOIL HEALTH** such as planting cover crops and avoiding unnecessary tillage help to maintain living roots in the soil that absorb remaining nutrients after the growing season, while also promoting soil microbial life, storing water, reducing erosion, and capturing carbon.

**PRECISION WATER MANAGEMENT** improves yields and reduces nutrient loss by maintaining ideal soil moisture conditions. By improving both tile drainage and ditch infrastructure, water can be stored and filtered longer.

Creating **NATURAL BUFFERS AND FILTER STRIPS** of vegetation and trees near the edges of farm fields traps nutrients and sediments leaving fields after storms before they flow into waterways, while also providing valuable habitat for wildlife and pollinators.

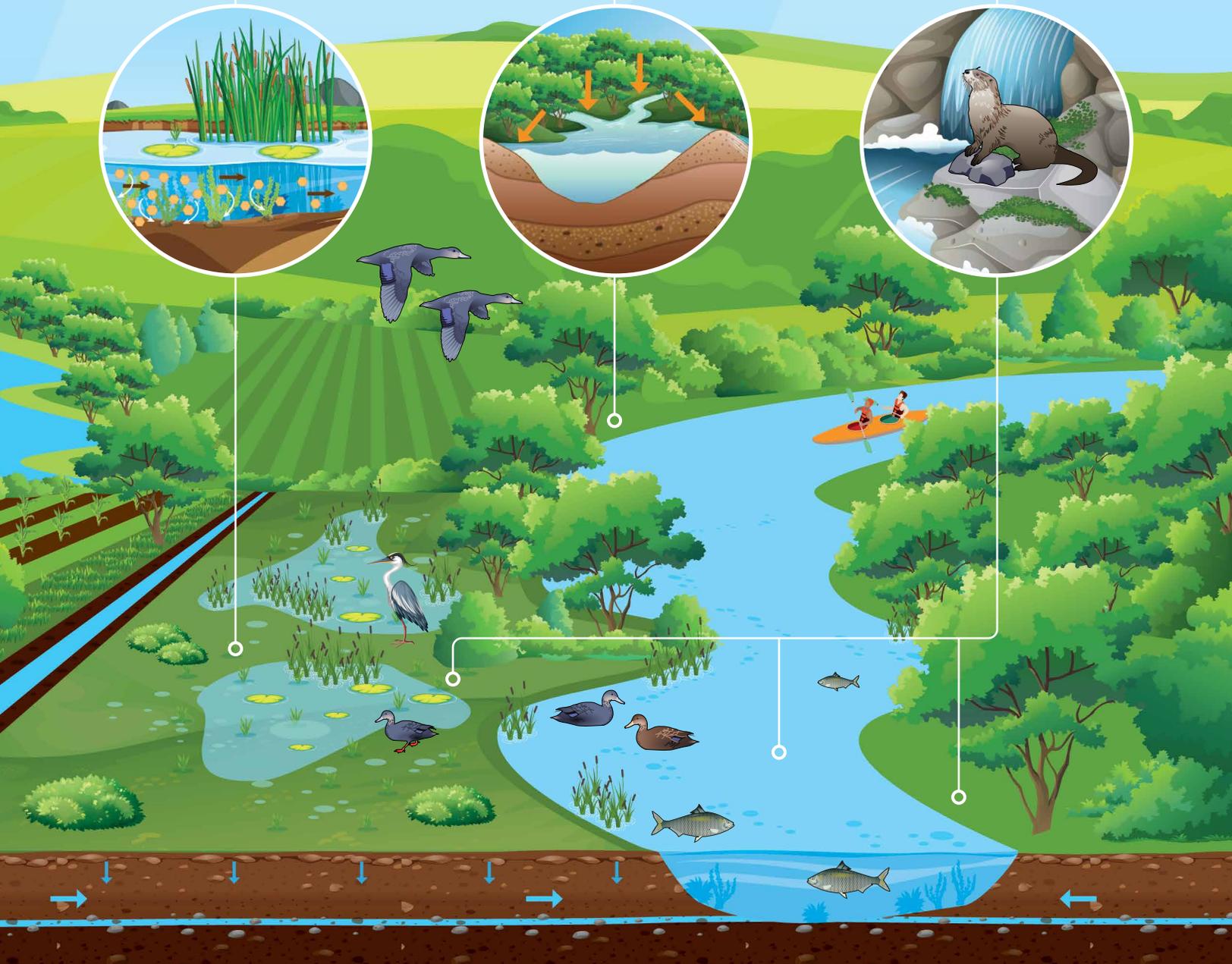


# RESTORING NATURAL HABITAT

Wetlands perform critical functions throughout different parts of the watershed. **WETLANDS ADJACENT TO FARM FIELDS CAN CAPTURE** nutrients and sediment carried away by rainwater during storms by slowing down runoff and allowing natural processes to filter the water before it continues downstream.

Large-scale storm events can impair water quality by moving high volumes of water very quickly across the land. Restoring streams and degraded **FLOODPLAINS** helps to slow and store flood water to allow nutrients and sediment to be removed. In some areas, it can also reduce flooding to communities downstream.

Humans aren't the only ones who benefit from wetland restoration. A huge array of wildlife depend on wetlands for everything from food to shelter to a place to rear young. Wetland and **STREAM RESTORATION** can be particularly beneficial for animals like fish, birds, small mammals, reptiles and amphibians. Around the Chesapeake Bay watershed, that includes species like black ducks, river otters, salamanders, and trout.





## REGENERATIVE FOOD: A WIN-WIN CYCLE



### Secures the global food supply

Global food demand is set to increase by 50% by 2050



### Builds a better economy

One third of the world's population obtains its livelihood from agriculture, and food production accounts for nearly 10% of the global economy.



### Increases biodiversity

Agricultural expansion is the primary driver in 80% of native habitat loss globally



### Protects our water

Agriculture accounts for 70% of freshwater withdrawals



### Tackles climate change

The global food system accounts for 34% of greenhouse gas (GHG) emissions



### Ensures a healthy ocean

Food from the sea currently accounts for 17% of the global production of edible meat.

The Nature Conservancy 

Protecting nature. Preserving life.

## FOR MORE INFORMATION

Amy Jacobs  
Chesapeake Bay Agriculture Lead  
ajacobs@tnc.org  
443-521-3034

Andy Lacatell  
Virginia Chesapeake Bay Director  
alacatell@tnc.org  
804-516-8609

Dan Sweeney  
Maryland/Delaware Agriculture  
Program Director  
daniel.sweeney@tnc.org  
484-459-1952

Su Fanok  
Pennsylvania Director  
of Freshwater Conservation  
sfanok@tnc.org  
610-906-0802

P1: Forested buffers adjacent to farm fields help keep excess nutrients out of Tuckahoe Creek—a tributary to the Chesapeake Bay.  
© David Harp; P4: Hutchinson Brothers Farm, Cordova, Maryland. © Isaac Shaw