The effort to restore Chesapeake Bay is something I knew vaguely about but had never looked into. A new on-line dashboard of relevant material inspired me to take a deeper dive. The restoration plan is definitely worth a closer look., It's the U.S. leading effort to reduce"nonpoint source" water pollution such as agricultural runoff. It is increasingly that type of pollution, not discharges from factories or sewage plants, which causes the most harm to water bodies. So far, the restoration plan has had some genuine success, but it's behind schedule and needs a shot in the arm from EPA.

As far as I can recall, I've never seen the Chesapeake—another gap in my environmental awareness. Here's what I found out from some quick research.To begin with, it's really big. The 200-mile-long bay is the largest estuary in the United States and third largest in the world, with an area of 4500 square miles. (That's about three times the size of San Francisco Bay, even if you count all the smaller bays connecting with it.) Chesapeake Bay is shallow, averaging about twenty feet, with large areas that are six feet or less. This shallowness makes it more vulnerable to pollution.The Bay supports more than 3,600 species of plants and animals, including fish, shellfish, and over two thousand species of plants. It's also year-round home to about thirty species of water birds, and a million birds (almost ninety species) winter in the area. Eighteen million people live in its watershed, not to mention any number of farms. Not surprisingly, a lot of pollution has poured into the Bay.

The Chesapeake restoration program could become a model for other water bodies. It's a controversial program. As Politico explained in 2016:

> "In the 5½ years since the Obama administration announced the Chesapeake Bay cleanup plan, it has become one of the most contentious environmental battles in the U.S. To its advocates, it's a long-overdue move by Washington . . . To opponents, it represents typical Obama excess, using the 1972 Clean Water Act as a blunt instrument to accomplish something it was never intended to do."

EPA has described the program as putting the Bay on a diet, basically to control nutrients that flow into the Bay and cause algae blooms and kill other forms of aquatic life – the same nutrients that have created the "dead zone" at the mouth of the Mississippi. The program caps the amounts of nitrogen, phosphorus, and

sediment that can enter the Bay, allocates quotas to the states on the Bay, and requires them to come up with Watershed Implementation Plans to meet the quotas.

The program design is a response to what has turned out to be a major gap in the Clean Water Act. The Act has an ambitious, and overall very successful, set of provisions to control pollution from factories and sewage treatment systems. As pollution from those sources has become less significant, what is called “nonpoint source” pollution – basically, runoff from farms and cities – has become more important. But the statutory provisions dealing directly with nonpoint source pollution are fairly toothless. So the Chesapeake plan takes a different route. One provision of the statute calls for what are called total maximum daily loads to cap total pollution entering a water body. These in turn require stricter limits on point sources, but states can soften those limits by addressing nonpoint sources.

The Plan called for a 2017 assessment of state progress. In 2016, the Center for Progressive Reform (CPR) warned that collectively the states were far away from hitting their 2017 milestone. Some jurisdictions were doing well or a least keeping on their timetables: Virginia, the District of Columbia, Maryland, Delaware and West Virginia. But Pennsylvania was failing disastrously, with net increases in agricultural pollution rather than the cuts it was supposed to be achieving.

Even so, there has been an overall reduction in pollutants, which has already shown positive effects. There were improvements in fish and crab populations. A study published in March 2018 showed:

> “[A] 23 percent reduction of average nitrogen levels in the Bay and an eight percent reduction of average phosphorus levels have resulted in a four-fold increase in abundance of Submerged Aquatic Vegetation (SAV) in the Chesapeake Bay. This ecosystem recovery is an unprecedented event; based on the breadth of data available and a sophisticated data analysis, this is the biggest resurgence of underwater grasses ever recorded in the world.”

Another study, released in June 2018, offered further encouragement.This study by the University of Maryland’s Center for Environmental Science found a significant long-term trend toward improvement, with restoration of sea grasses, less

persistence of dead zones, and a resurgence in sharks, dolphins, and osprey populations. But the study also identified problems, including the prospect that a key reservoir holding back sediment would soon reach capacity.

There was considerable trepidation over what EPA – which you may recall is part of the Trump Administration – would do in response to the shortcomings of efforts to date. As the deadline approached for EPA to issue a set of “expectations” for the new phase, observers worried that it would back away from the plan. Evan Isaacson at CPR feared that “some of the strong language and firm expectations expressed by prior EPA leadership may be at risk if Pruitt or other political appointees have a hand in reviewing this key document.” That was certainly a reasonable concern, given that Scott Pruitt as Oklahoma Attorney General had joined a suit to invalidate the plan.

But somewhat to everyone’s surprise, EPA actually came out with a strong document, supporting the plan and discussing new expectations for Pennsylvania, the biggest laggard. It shouldn’t be a surprise that EPA is actually doing its job of protecting the environment. In today’s political climate, however, that’s not the sort of thing you can count on.