



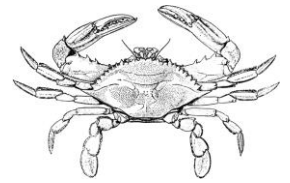
Links to Agriculture  
**Crabs and the Chesapeake Bay**



### **Bernie's Toes** (A True Story)

In the 1940s, a young boy named Bernie Fowler spent many summers swimming, fishing, and crabbing in the Patuxent River near where it meets the Chesapeake Bay. One of Bernie's favorite things to do was to wade into the water and look for soft shelled crabs hiding in the underwater grasses. As Bernie grew, he noticed changes in the river. He was catching fewer crabs and it seemed that each year it became more difficult to see his toes underwater. He began to keep a record of how deep he could wade into the river before his toes disappeared.

While Bernie was noticing changes in his river, other people were seeing changes in the entire Bay and were concerned. In 1988, Bernie held his first annual "Wade-In" in the Patuxent River, encouraging concerned citizens and leaders of Maryland to join him in **wading** into the water to see how far they go before they cannot see their toes.



Many years ago, people living in the Chesapeake Bay watershed put sewage and other **pollutants** in the Bay. As time went on, fishermen noticed they were catching fewer fish, crabs, and oysters. Scientists measured the quality of the water in the Bay. They discovered the water quality had **declined** and there were fewer submerged aquatic grasses (SAV). These grasses were a food source and habitat for many of the Bay animals and fish and add oxygen to the water.

Today, both citizens and the government are working hard to clean up the Chesapeake Bay and to pass and enforce environmental laws that prevent pollutants such as fertilizers, chemicals, oil, and grease from getting into the Bay. Farmers are using **no-till** farming techniques to reduce disturbing soil and planting **cover crops** to keep soil and extra nutrients from washing off their fields and into the Bay. Maryland farmers are leaders across the nation in planting cover crops. Farmers also plant trees near streams on their property to prevent runoff. Manure pits and poultry storage sheds also protect the Bay from manure **runoff**.

Bernie Fowler eventually became a Maryland State Senator from 1983 – 1994 and he continues to hold his annual "Wade-In" with others from across the state each year in support of a healthy Bay. He even wears the same sneakers each year! Hopefully, when everyone works together, we will be able to fully restore the quality of the Chesapeake Bay and Bernie will be able to go a little deeper into the river before his toes disappear.

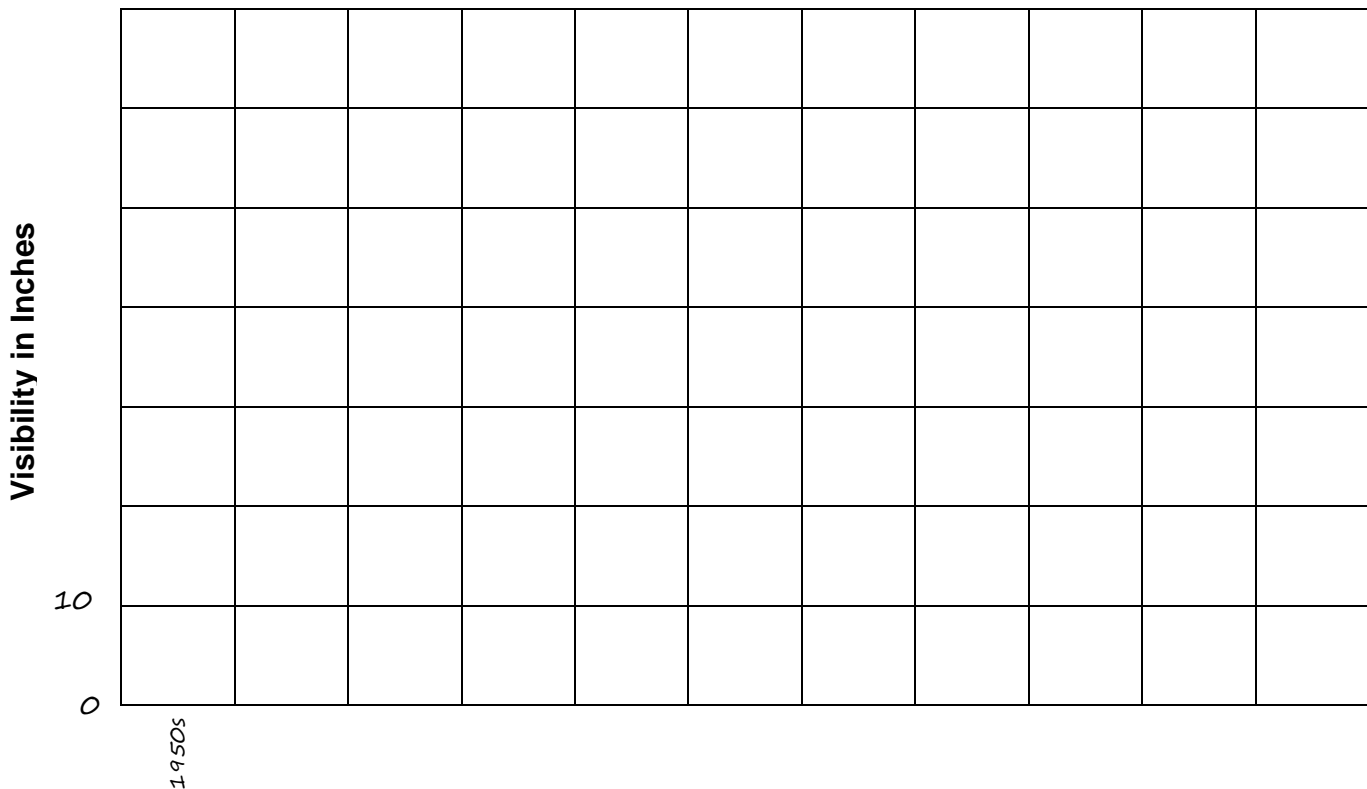
## Graphing Bernie's Toes

Use the information in the table to create a bar graph below. Be sure to add a title, inches (counting by tens), and years.



Year	Visibility
1950s	63 inches
1960s	57 inches
1980s	10 inches
1990	16 inches
2000	40 inches
2010	35 inches
2015	45 inches
2016	31 inches
2017	42 inches
2018	36 inches
2019	47 inches

Title:



**Year\***

(Due to space restrictions on this page, the years skip. This is important to recognize when reading the graph. For full data, visit:

<https://mdp.state.md.us/Pages/OurWork/fowlerwadein.aspx>

**Use the bar graph you made to answer the following questions.**

1. In the 1950s, how many inches down into the water could Bernie see his toes? \_\_\_\_\_

2. Is the Bay restored to the visibility from when Bernie started measuring how far down he could see his toes? \_\_\_\_\_

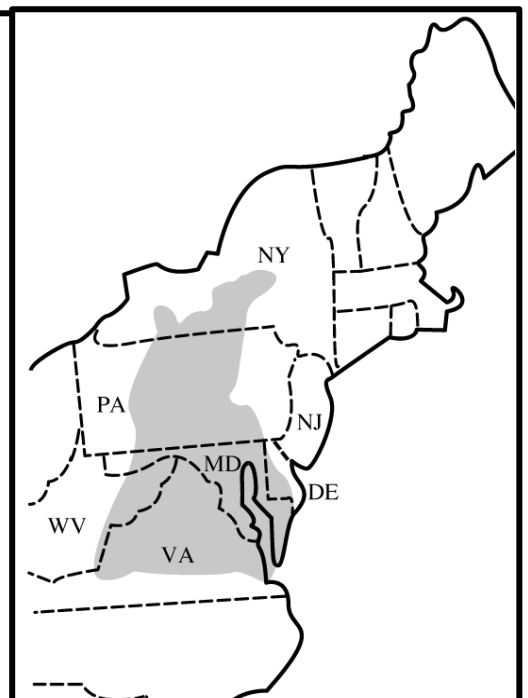
3. What do you notice on the graph after 1990?  
\_\_\_\_\_  
\_\_\_\_\_

4. Why do you think this happened?  
\_\_\_\_\_  
\_\_\_\_\_

### The Chesapeake Bay Watershed

A **watershed** is an area of land from which rain and melting snow drain into a body of water. Look at the gray section of the map. These are all states that are part of the Chesapeake Bay watershed. List them:

\_\_\_\_\_  
\_\_\_\_\_



## Crab Trivia

- There are more than 4,500 species of crabs.
- Crabs have been around for more than 200 million years!
- Crabs can be found in all of the world's oceans.
- Crabs walk and swim sideways.
- Female crabs can lay millions of eggs at one time.
- Crabs live to be around 3 – 4 years old.
- A group of crabs is called a **cast**.



## Joke Time

Why did the crab keep all the seaweed for itself?



## Did You Know...?

The Chesapeake Bay is 200 miles long and 4 to 30 miles wide. It is surprisingly shallow with an average depth of 21 feet. It has 11,684 miles of shoreline.

The Bay supports more than 2,700 species of plants and animals. The Chesapeake region is home to at least 29 species of waterfowl. Nearly one million waterfowl winter on the Bay which is approximately one-third of the

Atlantic coast's migratory population. The birds stop to feed and rest on the Bay during their annual migration along the Atlantic Flyway.



## Joke Answer:

It was shellfish.



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