



Charting Our Course on Chesapeake Science

Where we've been and where we hope to take you

by Lynn Teo Simarski and Guy G. Guthridge

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Chesapeake
Winter

We surprised even ourselves when we sold our J/30 sailboat, bought a secondhand 40-foot Albin trawler named Bright Pleiades, and — gasp — left our jobs to fix up the boat and move aboard.

Science has been our careers. Our combined half-century working at the National Science Foundation, the federal agency that funds basic research at universities, gave us front-row seats on discoveries, particularly in Earth's polar regions.

We were in the Antarctic, helping to tell how stratospheric chemists in the 1980s figured out that manmade chemicals cause the ozone hole. Nations and businesses got the message and started phasing out the bad chemicals, and the ozone hole began its decades-long recovery. Worldwide, fewer people were destined to get skin cancer from the sun — all because a few committed scientists gathered data in the dead of winter in Antarctica. At the other end of the world, in the Arctic, we worked with scientists to get the word out about the melting sea ice and the Greenland ice sheet, harbingers of a warming planet.

In our free time, we were on the Bay. Cruising the sailboat in light air on a silent winter day, we heard the flute-like music of ducks migrating from the Arctic, but we didn't know that their numbers are declining, or why. We watched amazed over a mere 30 years as High Island in the Rhode River eroded from tree-lined cliffs to a mere shoal, awash at high tide.

We saw the in-your-face shift of the Bay's wealth from the living harvest by watermen to sport fishing, pleasure boating, waterfront living, and tourism. We began to wonder if the Chesapeake would become a boutique ecology, its classical values preserved only in relic skipjacks, the photographs of Marion E. Warren and A. Aubrey Bodine and the huge mosaic blue crab tiled into the floor of Baltimore Washington International Airport.

Now the Bay is ours in all seasons. Summer is familiar, winter for us is nurturing and special. We stop at science laboratories, museums, reserves — learning to see the estuary and its tributaries in ways not visible from the surface, using the uncompromising eyes of science.



Bright Pleiades

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Chesapeake Winter

Take an underwater zone with an obscure name. We can't see the estuarine turbidity maximum. But striped bass and white perch know where it is and what it does in the Chesapeake. Scientists now have mapped it and can explain it. The zone forms near the bottom, usually somewhere between the Susquehanna Flats and Tolchester. A saltwater front advances from the ocean — along the bottom because it is heavier than the fresh river water flowing down-Bay. Like any good train wreck, the collision of salty and fresh kicks up dust — wet dust — turbidity. The swirl concentrates the particles, food for tiny marine animals. Larval and juvenile fish eat those animals in turn.

Bass and perch lay their eggs in the estuarine turbidity maximum zone, when they can. Throughout the world, these zones or salt fronts are rich with life in coastal-plain estuaries like the Chesapeake. They are nurseries for economically important fishes.

Research is finding how changes in this turbid zone in the upper Bay affect the breeding success of fishes. Year-to-year survival of white perch juveniles there can vary 70-fold; striped bass, 20-fold.

As wind and rain patterns shift, this zone moves up and down the Bay. Humans alter it by building dams and dredging channels. Scientists are learning enough about these complex and dynamic waters to show how to keep the zone productive. A research cruise we'll join this spring should add a chapter to this saga.

From the mouth of the Susquehanna to Hampton Roads, investigators with new technology are seeing the Chesapeake in ways they couldn't just a few years ago. We'll share the challenges and discoveries these scientists are telling us about as we dock at the cutting edge of research around the Bay. We may revisit some themes, because science changes fast and a story can have more than one side. We'll connect, too, to the watermen, the riverkeepers, the farmers, the artists, the come-heres. We all have a stake in Bay science.

