

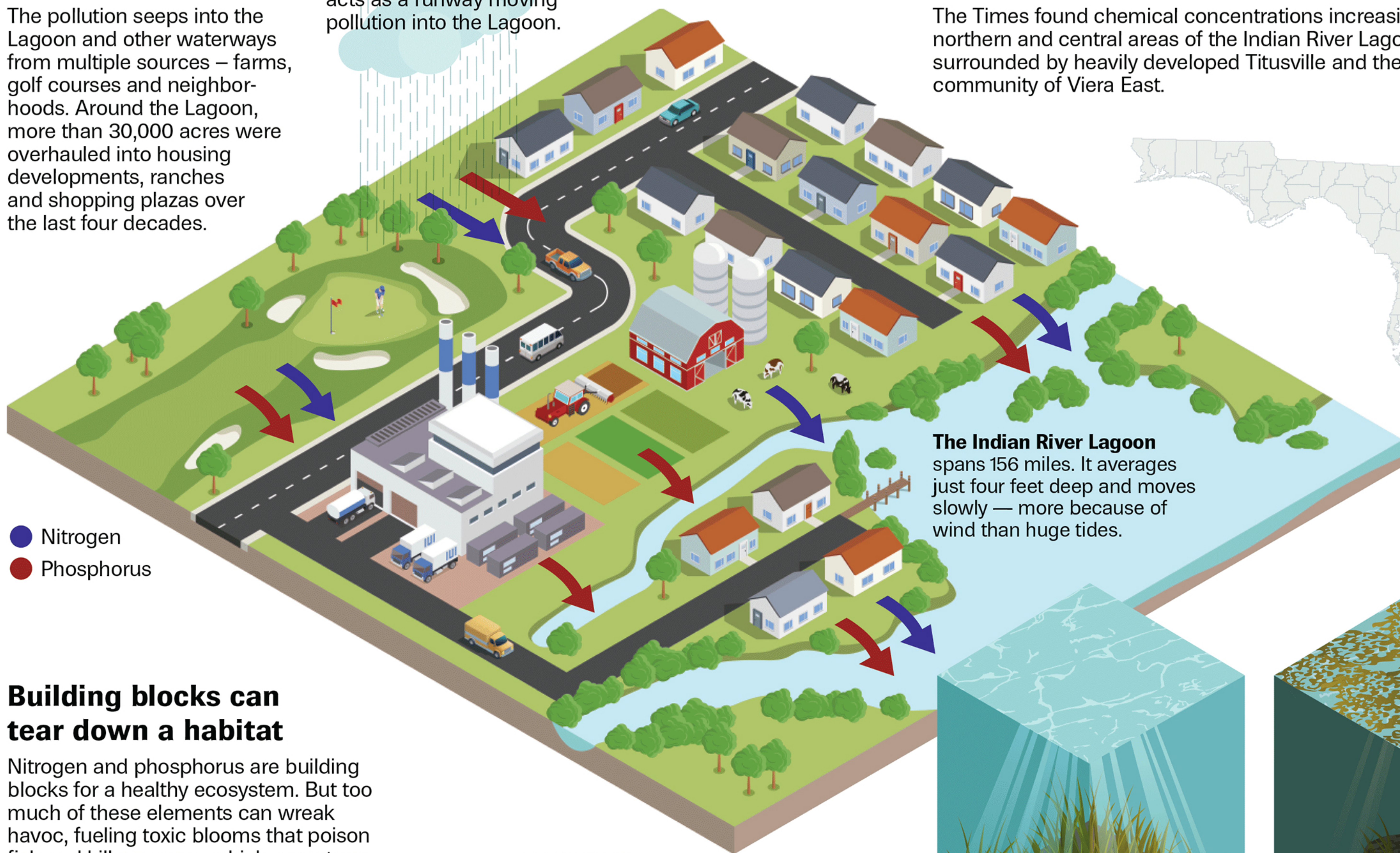
AN ESTUARY IN CRISIS

A mass die-off of manatees that began in late 2020 was attributed to the widespread loss of their main food source — seagrass — in the Indian River Lagoon. A Tampa Bay Times analysis found the Lagoon's downfall is a dire example of a broader problem in Florida. Tens of thousands of acres of seagrass disappeared statewide over roughly a decade, especially from waterways tainted by high levels of pollution and algae blooms. Chemicals feed blooms that shade the water, depriving seagrass of its light source. Nearly 1 in 4 Florida waterways are tainted by alarming levels of contamination. The Times found hundreds of waterways were either getting worse or no better over about 25 years. The Lagoon is among the most heavily impacted bodies of water. Nearly all of the seagrass manatees could have eaten there vanished.

Pollution sources

The pollution seeps into the Lagoon and other waterways from multiple sources — farms, golf courses and neighborhoods. Around the Lagoon, more than 30,000 acres were overhauled into housing developments, ranches and shopping plazas over the last four decades.

Up to 5 feet of rain a year acts as a runway moving pollution into the Lagoon.



● Nitrogen
● Phosphorus

Building blocks can tear down a habitat

Nitrogen and phosphorus are building blocks for a healthy ecosystem. But too much of these elements can wreak havoc, fueling toxic blooms that poison fish and kill seagrass, which manatees feed upon. Nitrate is a nitrogen compound found in fertilizer as well as animal and human waste. Nearly three-quarters of springs reviewed by the Times have shown rising nitrate-nitrite pollution over the last 25 years.

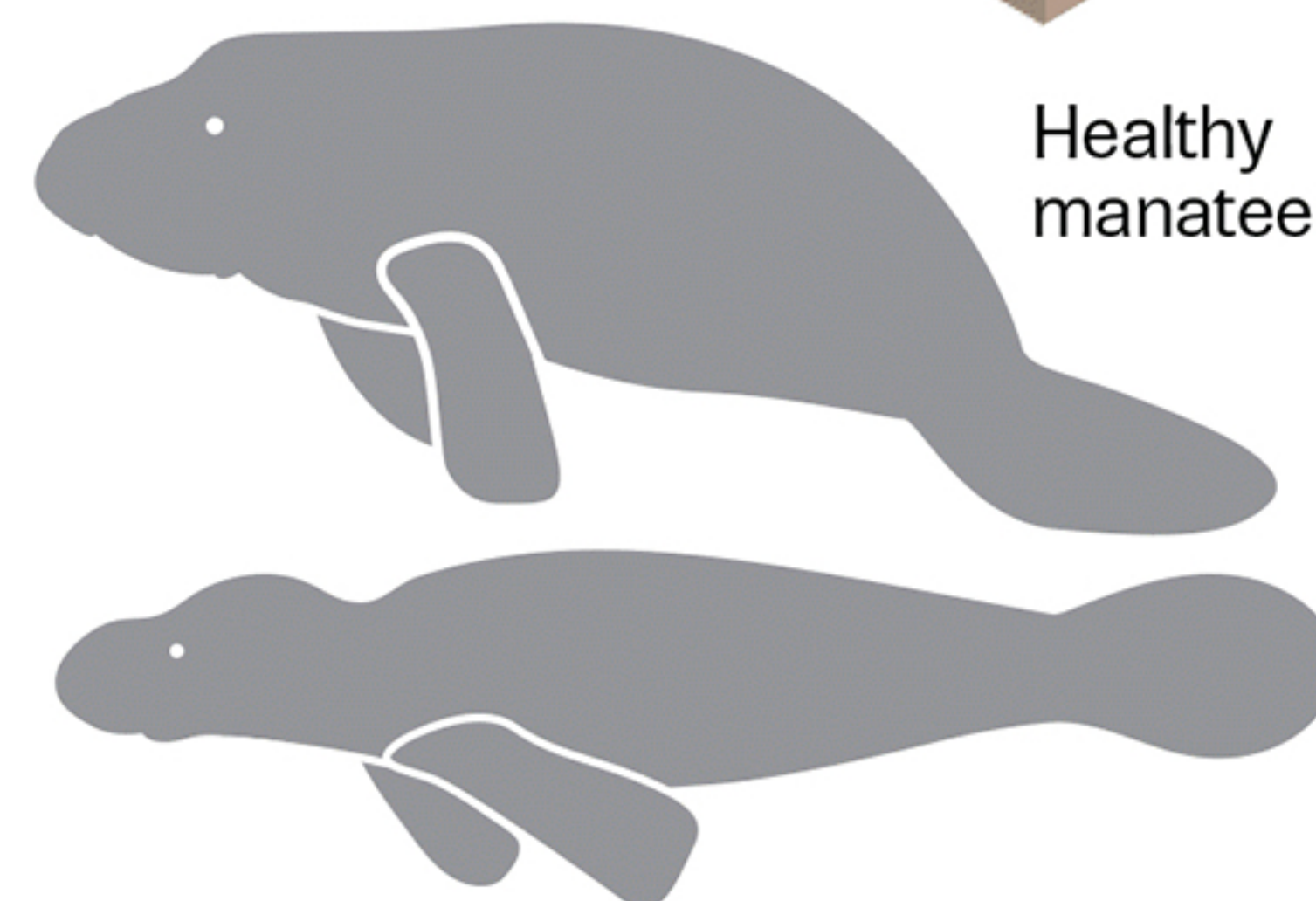
The Times found that an estimated 100 million pounds of nitrogen and 4.5 million pounds of phosphorus could make their way into already contaminated waterways. That includes more than 3 million pounds of nitrogen and 400,000 pounds of phosphorus in the Indian River Lagoon.

Where the Lagoon contamination is worse

The Times found chemical concentrations increasing at steep rates in northern and central areas of the Indian River Lagoon, which are surrounded by heavily developed Titusville and the master-planned community of Viera East.

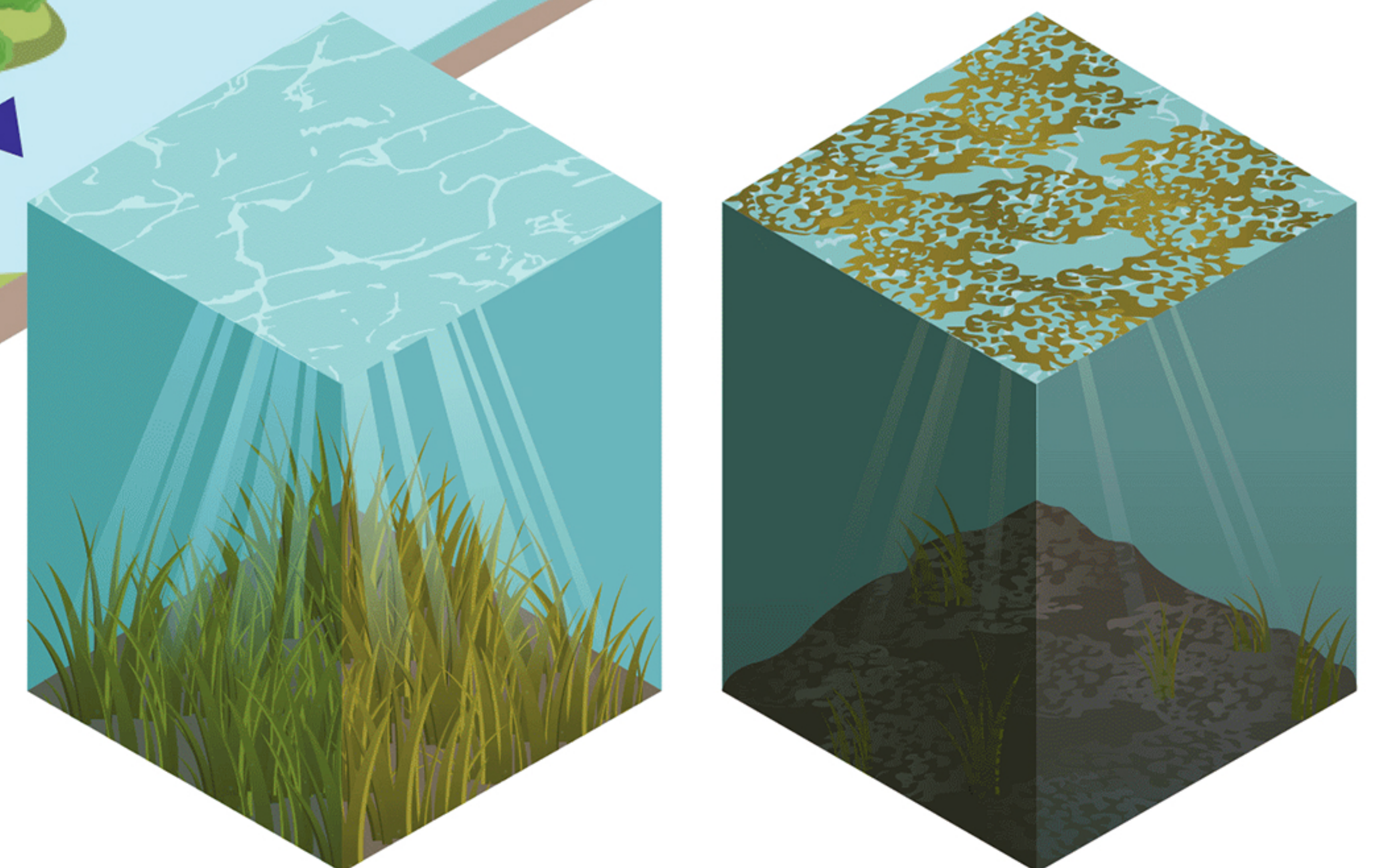


The Indian River Lagoon spans 156 miles. It averages just four feet deep and moves slowly — more because of wind than huge tides.



Signs of a starving manatee

Researchers recovered dead manatees that exhibited signs of starvation — sagging skin, deformed heads and flat bellies.



Blocking the light

Healthy seagrass basks in light from above. But when algae blooms block the light source, seagrass dies. Below the surface, several feet of dark muck or “black mayonnaise” cover the Lagoon floor, releasing stored nitrogen and phosphorus that mixes with new contamination.