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Health of Galveston Bay in jeopardy

Concerns grow that new rules won't provide enough water to protect the coast's most valuable estuary

By MATTHEW TRESAUGUE, HOUSTON CHRONICLE

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The Trinity River ends and consequence begins just beyond Anahuac, a small town known as the alligator capital of Texas.

Despite the title, the marshy area hasn't been as hospitable as usual to the large reptiles. The state's driest year on record has left the water too salty for alligators, resulting in an unusually low number of nests.

Drought has always been a part of Texas ecology, and alligators have persevered. But conservationists and some scientists fear that the dry conditions could become the norm because of growing pressures on the Trinity from thirsty cities and industry.

The river feeds fresh water into Galveston Bay, the state's most productive and commercially valuable estuary. But forecasts show population doubling in Texas over the next 50 years, and all those people need water, too.

So will there be enough water left for a healthy bay?

Critics of new rules from the Texas Commission on Environmental Quality say they do not keep enough water in the Trinity River to protect Galveston Bay's health, particularly in times of drought. A change in the mix of salt and fresh waters could unravel the estuary system.

"These systems adapt to natural droughts," said Cindy Loeffler, who leads the water resources branch of the Texas Parks and Wildlife Department. "But we are concerned about severe, prolonged droughts because of management decisions."

Flawed rules?

Historically in Texas, folks considered water not tapped by cities, industries and farms and left to run to the Gulf of Mexico to be "wasted." But the thinking changed in recent years after the Rio Grande and other rivers ran dry.

Now, state law requires some - if not all - the available water in a river to be set aside for the benefit of the environment.

But the question of how much water is needed for the bays and estuaries that lie at a river's mouth has proven difficult to answer.

Galveston Bay was one of the first estuaries to go through the process to establish these so-called environmental flows under the law. But the process collapsed after scientists and stakeholder groups, mostly aligned with water suppliers, couldn't reach an agreement.

The TCEQ eventually sided with the stakeholders in April and approved lower flow levels and fewer monitoring stations along the Trinity and San Jacinto rivers than the scientists recommended.

Critics say the rules also should set monthly or seasonal targets for the low flow based on natural rainfall patterns, instead of annual goals. Some fish species, such as alligator gar, need high springtime flows to spawn.

"We need variability in flow to keep the diversity of fish," said Norman Johns, a Texas-based water expert for the National Wildlife Federation. "A single base flow is not defensible."

What's more, Johns said, the new rules allow more water to be drawn from the river in dry times than before. "TCEQ is basically authorizing drought-level flows the majority of the time," he said.

TCEQ, which governs rights to the state's fresh water, said the new rules adequately protect the bay and river while balancing human needs, as required by law. Roughly half of the state's population relies on water from the Trinity.

"If we set a different rule, we would see the same effects" on the bay from the drought, said Todd Chenoweth, special counsel in TCEQ's water office.

The bay is too salty

For ages, the Trinity's flow mixed with Gulf of Mexico backwash to create an ecological superconductor. Galveston Bay produced a seemingly endless supply of oysters, shrimp and fin fish and became the center of the state's \$2 billion a year fishing industry.

But things have been unraveling during Texas' current dry spell. Less rain means less water coming out of the rivers that feed the bay and less dilution for the saltwater that creeps in from the Gulf.

This shift, officials said, has caused the upper reaches of Galveston Bay to become as salty as the Gulf this year. At the mouth of the Trinity, salinity levels have reached 32 parts per thousand in water that usually has 5 parts per thousand.

Wild celery, a native grass with little tolerance for high salinity, has all but disappeared from these waters, robbing juvenile fish and shrimp of shelter. And parasites that thrive in high salinity have feasted on oysters, one of the bay's most important residents.

Sammy Ray, a marine biologist at Texas A&M University in Galveston, said dermo, a protozoan parasite emboldened by saltier Trinity Bay waters, is infecting even younger oysters than before. Dermo typically doesn't attack the shellfish in its first year, as the parasite is doing now.

Without a lot of rain, soon, the bay will produce nothing but dead oysters this season, Ray said.

"For 40 years, I've been preaching that our bays haven't been getting enough water," he said. "With enough water, you can make a desert bloom."

Murky area

How much water is enough isn't clear.

The Trinity River, which accounts for more than half the flow of freshwater into Galveston Bay, has a higher base flow - even amid a record-setting drought - than any time before 1988, according to federal data.

The lower basin's higher flow can be traced to water use by Dallas and other upstream cities in recent years. The more water they store, then use, treat and release back into the river, the more water is available for later use downstream.

But scientists and water suppliers acknowledge that they don't have enough data to know how much water is needed for a sound ecological environment in the bay. The TCEQ set the minimum flows under the assumption that the river and bay are healthy.

"We got the cart before the horse," said Glenn Clingenpeel, who leads the planning and environmental management division of the Trinity River Authority. "It would have been nice to have the science before we got into the process."

The river authority has started gathering data about water and habitat conditions every two miles from Fort Worth to Lake Livingston to get a better understanding of the link between flow and ecology.

Still, Clingenpeel said the current conditions in the bay are related to the dry spell, not the TCEQ's new rules.

"What's made the bay more saline isn't base flows," he said. "The key is the rain. The high saline is driven by the drought."

While some scientists and conservationists agree that the drought is the problem, they worry that the rules will allow users to pump the rivers nearly dry on a regular basis.

Jim Lester, an ecology expert and vice president at the Houston Advanced Research Center, said the TCEQ ignored scientific recommendations when

establishing the rules, "so nobody is looking after the ecological needs."

"The ecology still doesn't have much of a voice," said Lester, who participated in one of the flow studies for Galveston Bay. "The critters are the canary in the coal mine."

No easy answers

The TCEQ's Chenoweth said the agency will review the rules every five years to ensure that the bay is healthy and productive.

But it won't be easy to find more water if the required Trinity flows are inadequate because almost every gallon is already dedicated to cities, farms and ranches and industrial plants. The rules impact permits for new water rights, not existing ones.

"That's the Catch-22 of environmental flows," said Andrew Sansom, who leads the River Systems Institute at Texas State University. "Even if you set adequate standards, the water is already allocated. So the next step is trying to figure out how to get it back."

Sansom said one idea would be to use money awarded the state from last year's BP oil spill to restore forests and wetlands that hold storm water and act as natural filters. Others said farmers could be paid for not using the water required to nourish some crops.

The city of Houston has already set aside a share of its treated wastewater for the benefit of the bay. The water will be released into the bayous and streams that feed the bay.

But it would be difficult to prove the need for the landmark deal under the current rules, the National Wildlife Federation's Johns said. "Without stronger standards," he said, "there is no incentive to pursue strategies like this."

Galveston Bay is a sound ecological environment, said Loeffler of Texas Parks and Wildlife, which has been critical of the rules. But the question is will it be healthy and productive in the years ahead, she said.

"It's hard to say the bay is changing before our eyes, but you wonder," she said. "This is historic."

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