

Depolarizing Discussions About Red Tide by Frank Alcock, PhD

With only a couple of months left on the calendar, it appears that 2007 will be remembered in Southwest Florida as a year in which we were spared from any severe Florida red tides. It may also be remembered as a turning point in community discussions. For the most part, red tide debates in 2007 seem to be less tense and more constructive than they were a couple of years ago. Scientists, stakeholder groups, and public officials seem to be focusing less on contentious areas of disagreement and more on sensible measures that can be taken to advance research and policy agendas that are beneficial to the community. This is a good thing and I hope it continues.

Many people in Southwest Florida are concerned about the potential links between coastal runoff and Florida red tides. The concerns are legitimate. Most scientists agree that red tide blooms initiate offshore before being transported inshore by wind and ocean currents. Coastal runoff is unlikely to affect the early stages of a bloom, but when a bloom moves inshore, runoff can play a role in maintaining, intensifying, or prolonging a bloom. How much of a role it plays is debated within and outside the scientific community.

The scientific community, for its part, continues to work very hard on this and other nutrient questions. Definitive answers about red tide nutrient dynamics are few and far between. Clear, persistent correlations between coastal runoff and red tide blooms have not yet been established. Moreover, there are reasons to believe that

atmospheric and oceanic nutrient sources play important roles in allowing blooms to develop offshore.

Does this mean we should be complacent regarding the potential for coastal runoff to exacerbate red tides? No, it does not. Even if some important stages of red tide bloom development occur beyond the reach of coastal runoff, any contribution that runoff makes to the frequency, scope, intensity, and duration of a red tide bloom once it arrives inshore is of consequence. If the nutrients contained in coastal runoff do nothing more than extend the duration of red tide blooms, it still remains of paramount concern because the duration of a given bloom is often the most significant factor in its overall impact on our coastal communities.

Reducing nutrient loads to our watersheds is a sensible precautionary measure that may ease the intensity and duration of red tide blooms. Besides, we need to do this for other reasons. The Florida Department of Environmental Protection (FDEP) is currently overhauling Florida's water regulatory framework in the shadow of federal oversight. The overhaul includes assuming responsibility for permitting under the National Pollution Discharge Elimination System (NPDES), assessing all of the state's waterways and establishing Total Maximum Daily Loads (TMDLs), or water quality standards, for those designated as impaired, and developing 29 Basin Management Action Plans that implement the TMDLs across all 52 of Florida's watersheds. These regulatory changes under existing laws have

as great a likelihood of reducing nutrient loads and improving water quality in Florida as would any new laws enacted as a direct response to red tides. Does this mean that local laws like the recently passed Sarasota fertilizer ordinance are unwarranted? Not at all. While the specific elements of ordinances like Sarasota's need to be carefully considered, they have the potential to improve local conditions and influence the best management practices being developed at the state level. Still, we should not lose sight of the fact that

Florida's future water quality will largely be determined by rigorous enforcement of NPDES permitting requirements and the state's TMDL program. And these regulatory reforms will unfold regardless of any link between coastal pollution and Florida red tide.

Returning to the issue of red tide, it is important to realize that to best respond to red tides, we need to do more than reduce nutrient loads. We need a multi-pronged approach that combines measures to curb coastal pollution with continued research into a diversified suite of control technologies and an expansion of measures to mitigate the impacts of red tide blooms. Expanded mitigation measures should include a robust program on monitoring, detection, and forecasting, a broad portfolio of projects on human health impacts, economic impacts, and interagency coordination, and an aggressive education and outreach program.

The importance of an expanded monitoring, detection, and forecasting program cannot be undersold. In addition to improving our ability to mitigate the impacts of blooms, investing more in our monitoring and detection capacity will help to resolve some of the lingering uncertainties about red tide nutrient dynamics and inform our efforts to limit potential human contributions to blooms. It will also improve our ability to detect blooms at early stages in the hope that future generations of control technologies might knock back a bloom before it reaches a critical threshold. Better monitoring, detection, and forecasting will thus yield benefits to the full range of management strategies that include prevention, control, and mitigation.

Scientific uncertainties and lingering disagreements about the relative importance of coastal runoff as a nutrient source for red tide blooms should not undermine the agenda to improve water quality or the agenda to develop a more comprehensive red tide management strategy. Both agendas are vital to our quality of life in Southwest Florida, regardless of their overlap.

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