Mixed reviews for US Clean Water Act

Forty-year-old environmental law has spurred progress in water quality, but problems remain.

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A fire on the oil-polluted Cuyahoga River in Ohio in 1952 was one of several US environmental crises that triggered the creation of the Clean Water Act of 1972.

When the United States' landmark Clean Water Act (CWA) was signed into law in 1972, the nation's waterways and coastlines were in crisis. Oily debris in the Cuyahoga River in Cleveland, Ohio, had notoriously caught fire several times. The southernmost of North America's Great Lakes, Lake Erie, had been pronounced dead or dying. Fish in Californian coastal waters were so laced with the pesticide DDT that it disrupted the reproductive systems of brown pelicans, threatening them with extinction.

Forty years and billions of dollars later, rivers no longer burn, Lake Erie is much healthier and pelicans are off the endangered species list. But much remains to be done, scientists said yesterday at the North American meeting of the Society of Environmental Toxicology and Chemistry in Long Beach, California.

In part, that is because many of today's water problems, such as sea-level rise and ocean acidification, were not known in 1972. "That's going to require other legislation," said Gerald McGowen, manager of a wastewater treatment lab for the City of Los Angeles in California.

But even within the scope of the CWA — which is often described in terms of achieving "swimmable, fishable" waters — progress has been mixed. On the plus side, McGowen said at the meeting, sewage-related pollutants in southern California's coastal waters have been greatly reduced, even though the region's human population has nearly doubled since 1970, and DDT levels in fish have fallen to the point at which most are safe for human (and bird) consumption.

Slow progress

Farther north, California's San Francisco Bay isn't faring so well. "In the past 20 years, progress has slowed," said Jay Davis, an environmental scientist at the San Francisco Estuary Institute in Richmond, California. Partly, the problem has been invasive species that cause harm to the environment, economy or health — another concern not covered by the original CWA. But conventional pollutants remain an issue. "We've attained the goals for many things — dissolved oxygen, silver, priority pollutants like arsenic and cadmium," Davis said in his presentation. "But there are many others that are likely to be problems."

Two are methylmercury and polychlorinated biphenyls, or PCBs. "There's a huge reservoir of these contaminants in the Bay," Davis said.

When the CWA was passed, the primary concerns were 'point sources' of pollution: sewage plants and other easily recognizable sources such as industrial facilities. "They dominated in almost everything," McGowen said. Now, the main concern is runoff water that drains from urban and agricultural sources. "We have not made the progress there," he said.

Runoff risk

One way of attempting to deal with such pollution is to pipe storm water farther out to sea before discharging it. But when the resort town of Myrtle Beach, South Carolina, tried just that early this century, there was essentially no improvement in beach conditions, said Marc Verhougstraete, a postdoctoral fellow and water-quality expert at the University of North Carolina, Chapel Hill. Instead, pollutants including human and animal faecal bacteria simply washed back towards the beach.

A better approach, scientists suggest, is to prevent polluted storm water from reaching the ocean in the first place. In California, McGowen said, this is done using 'low-flow diversions' in which, during the dry season, runoff is diverted to wastewater treatment plants. "Ninety-five percent of beaches in southern California are safe to swim at in those periods," McGowen said.

During the wet season, such diversions are not practical because they would overload the treatment plants. Instead, storm water can be diverted into catch basins: “someplace where it can percolate into the ground”, McGowen explained. That can be done by holding the water in cisterns or using planted 'rain gardens' that slow runoff and let water filter into soil — even small ones, such as planted areas on pavements, can help. “It's cheaper than trying to collect all of that water at the end of the stream,” Verhougstraete said.

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