



CHESAPEAKE ENVIRONMENTAL PROTECTION ASSOCIATION, INC.  
P.O. Box 117, Galesville, Maryland 20765

## NEWSLETTER

Fall 2012

### PRESIDENT'S MESSAGE

By Al Tucker, President, 2012



Have you thought about what the Bay might look like in the future? Many of us are committed to "Save the Bay" but just what does that mean? In all likelihood it means different things to different people, depending on how they interact with the Bay. For an oysterman it's having enough oysters; for the sport fisherman, it's replenishing our declining stocks of fish; for the commercial fisherman it's a

matter of economics; for those who enjoy recreation, it's the absence of disease and poor water quality. If we were able to have all this, our mental picture becomes a nostalgic view of a century ago that exists only through stories from our elders. In fact, the clean water goals that have been established to "save the Bay" represent conditions existing in the Bay in 1950. A common refrain, we hear, is "restore the Bay". We talk about oyster restoration, shoreline restoration, stream restoration, etc. It sounds as if we are going to restore everything. At this point, we have to ask if it is possible to return to 1950.

The focus of "Save the Bay" is only on the here and now; it focuses on replenishing oysters, building new reefs, managing blue crab catches, restricting nutrient and sediment flows, or creating commercial aquaculture opportunities. Each of these actions is oriented toward restoring the conditions to prior times.

For example, we are spending several tens of millions of dollars to restore oysters. Currently, the oyster harvest is now about 5% of its peak. Has oyster restoration succeeded? Or has it reached a tipping point where the species cannot survive without extraordinary support from us?

As the CEPA trustees were casting about for topic for the next forum, the one that emerged as the focus of our attention was a dark horse. It started as, "What is the state of the fisheries in the Bay?" (See Gary Antonides' article below.) As the topic evolved, we realized that what we were really asking is if the fisheries we know today can survive? We had no idea just how complex this subject is.

Every ecosystem has a number of species that are keystones; they either manufacture food for the ecosystem prey species or are themselves the principal feedstock for larger prey species. Ecosystems are finely tuned systems that have feedback mechanisms that attempt to maintain the equilibrium of the plants and animals within them. However, when perturbed

beyond their ability to maintain equilibrium, they seek to establish a new, different equilibrium state. There is a story about a lake in the Netherlands that by 1970 had been choked by sediments and nutrients, much like the Bay today. Heroic efforts were undertaken to eliminate the nutrients sediment flows from nearby farms into the lake. After years of waiting for conditions in the lake to improve, they did not. During the time of change an invasive species of fish had moved into the lake that thrived on turbid water; its survival depended on keeping the lake turbid, and the fish themselves stirred up the sediment to their liking. The lake by then had reached a different and unexpected new equilibrium condition in spite of the efforts to restore it. Current research for ecosystems under stress show that it's not the number of species, but the type of species and its ecological function in the food web that is important. More species are not necessarily better for preventing ecosystem collapse. For the Chesapeake Bay, ecosystem data is severely lacking and funding for gathering and interpreting it is not adequate. We simply do not know enough.

While managing TMDLs, stormwater runoff, and sediment flows is necessary, we may ask if these actions are sufficient. The answer may be no! There are global forces changing the underlying conditions in the Bay that may thwart the current path to restoration. In 2050 the climate of Bay will be similar to North Carolina; this represents the inexorable northward environmental shift of the tropical zone. In addition to the temperature, salinity, acid and sea levels are also rising in the Bay. None of these changes is conducive to current native marine populations, especially those that need calcium for their shells. Often the new conditions are more conducive to invasive species of plants and fish, such as snakeheads and Asian catfish, that accelerate the change further.

The time has come to have a realistic discussion of what the Bay might look like in the future. Global forces changing the Bay are accelerating rapidly, and note that these forces are beyond our regional capability to influence them. At this time, we need to have discussion about whether our efforts to restore the bay have real potential for success or whether we should prepare for a different outcome. If the answer is the latter, then we need to examine how we will have to adapt and manage this changed future of the Bay.

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## WEST/RHODE RIVERKEEPER'S REPORT

By Bob Gallagher  
[www.westrhoderiverkeeper.org](http://www.westrhoderiverkeeper.org).



### Regulatory Double Play

Two of the biggest contributors of nutrient pollution to our rivers are septic systems and the runoff from the application of manure to farm fields. Important new regulations limiting both were recently approved.

**Septic** - Nutrients leaching through the soil from septic systems contribute about six percent of excess nutrients

going into our waterways. Failing conventional septic systems are the worst. Even well maintained conventional systems are big polluters. While new enhanced technology systems are much better, their effluent still contains three or four times as much nutrients as effluent from a modern sewage treatment plant. It should not come as a surprise then that "smart growth" principles encourage higher density development near sewers and discourage McMansion development of farmer's fields served by septics.

The new rules will require that new large-lot developments in rural areas install enhanced technology septic systems. Enhanced technology systems cost about \$8,000 more per house than conventional systems.

The new rules are required by legislation recommended by a state-wide septic task force to which Waterkeeper Chris Trumbauer was appointed by the governor.

**Manure** - About one-half of nutrient pollution comes from farms and about one-half of that comes from manure. For hundreds of years family farmers have used manure from their livestock to fertilize their crops. There is nothing wrong with that. But, with the development of corporate factory farms, like the chicken factories on the Eastern Shore, that has changed. They produce far more manure than the crops could ever use. Dumping manure on over-fertilized, frozen or saturated fields is not much different from dumping it in the bay.

Recent rules issued by the Maryland Department of Agriculture limit the extent to which manure can be dumped on fields when the crops cannot use it or when it is more likely to run off. The rules also contain some common-sense requirements like fencing animals out of streams and prohibiting the application of manure too close to streams.

The rules also apply to the dumping of municipal sewage sludge on farm fields.

There are still major loopholes in the manure rules. We will work with other groups to close these loopholes.

Lobbyists for corporate agriculture, counties and municipalities have opposed both the septic and manure regulations characterizing them as part of a "war on rural Maryland."

Of course that is hyperbole intended to prolong the time that corporate agriculture and local governments can ignore the real costs of their polluting activities. Each of us must do our part to solve this huge problem.

## BAY FISHERIES—WHY THEY ARE CHANGING

By Gary Antonides



CEPA is preparing a forum, which will take place early next year, on the fisheries of the Chesapeake Bay. We often read what the present populations of various species are compared to what they were when Captain John Smith explored the area. The Chesapeake Bay Foundation (CBF) publishes scores for a number of environmental categories, where a score of 100 is what John Smith experienced.

They consider that an overall score of 70 would represent a "saved" Bay, whereas in 2010 the overall score was 31. This reflects small improvements over a number of years; the lowest score was 23 in the 1980's.

Four of the scores are for traditional Bay fisheries:

Oysters got a 5, considered to be an "F." Overfishing and oyster diseases reduced the oyster population to about 1% of the original number, but they are slowly recovering.

Rockfish got 69, or an "A." However, a bacterial disease and low spawning rates may cause lower numbers in the near future.

Shad got 9, or an "F." Shad was once a prolific species, but dams and overfishing have decimated their numbers.

Crabs got 50, or a "B+." The number of crabs has more than doubled from 2008 to 2010.

Of these, two are not too bad and two are doing poorly. Past fisheries management has had a lot to do with these numbers, but management practices are not always successful. In the case of oysters, planting oyster beds, farming oysters, and increased resistance to diseases are responsible for an increase in numbers, particularly in Virginia, but it has been a long hard struggle to turn things around.

In the case of Rockfish, which was overfished until 1985 when a moratorium allowed the species to rebound. The moratorium was lifted in 1990, and rockfish are doing well, even though there are signs of future problems.

A moratorium was placed on shad in the 1980's. They were restocked in places, and dams were equipped with fish ladders

to allow spawning up rivers and streams. In spite of these measures, shad still gets an "F."

The main reasons for crabs rebounding were limits imposed by Maryland and Virginia, particularly on female crabs.

Another species that failed to respond to management efforts is Atlantic Cod. They were overfished until they numbered only about 1% of their traditional numbers. In 1992, there was a moratorium on cod, and it was expected that they would recover. They haven't, however, and it seems that they had reached a point of no return. One cause could be fish that prey on cod eggs. It has been speculated that the population of Capelin fish, which make up a large part of the Cod's diet, but which also feed on Cod eggs, may have increased to the point where they eat too many of the Cod eggs.

One point that is apparent from the above discussion is that it is pretty tricky to manage fisheries. Unfortunately, it is about to get more difficult in the future due to several factors discussed below. First, it is becoming more and more apparent that we cannot restore our fisheries to what they once were. Consequently, we need to take stock of where we are now, look at future possibilities in conjunction with the management practices available, being careful not to put too much time and effort into unrealistic goals.

Those goals must consider the interests of recreational fishermen, commercial fishermen, and the environment. Recreational fishermen are important to Maryland's economy and they have become more and more active in influencing fisheries management. There are 5,000 commercial fishing licenses in Maryland, but there are 500,000 recreational licenses ([www.readability.com/articles/kepeqku2](http://www.readability.com/articles/kepeqku2)). A lot of money is spent for fishing gear, boats, tournaments, etc., and that translates into political clout.

One factor that is going to make fishery management tricky is global warming. Tom Miller, Director of the Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science at Solomons Island, Maryland says that by 2050 the Bay will have the same climate as the Carolinas do now. That means the species now inhabiting the Bay will adapt, move north, or, if they are not able to do either, they'll perish. Similarly, we can expect some of the Carolina wildlife to move up here. This will include the fish we like to eat, but it will also include their food sources, and plant life. There was a recent article that described how Mangroves, which were once only prevalent in southern Florida, are now growing in northern Florida. The underwater roots protect various forms of marine life, and it's not hard to imagine that that will affect what larger fish do or do not eat.

However, predicting something like that is very difficult. According to Professor Raghu Murtugudde of the Earth System Science Interdisciplinary Center at the University of Maryland, the species of fish and shellfish that we eat are routinely surveyed, but those we are not interested in are not usually surveyed even though they can be an essential link in the food chain. Global warming, or other factors such as pollution, may decimate a species that we know little about, and we may not know it until it affects a food fish and it's too late to fix the problem.

Another factor is the silt and phosphorous coming from behind Conowingo Dam. This is the last dam on the Susquehanna River before it runs into the Bay, and it has been collecting silt and phosphorous among other things for many years from the agricultural lands upstream. Until recently, scientists believed

that most of it would stay behind the dam until the dam was completely silted up in a few years. Exceptions would be storms that gouge out the material and send it into the Bay, smothering oysters, grasses, etc. Now they have determined that, even before it's silted up, the dam is passing significant amounts of silt with the phosphorous attached. This will probably be enough to measurably affect our plans with respect to the "pollution diet" for the Bay.

Finally, scientists have been studying how species interact in the Bay, but, according to Miller, until recently they have not been properly accounting for the effects of humans. It is necessary to determine the effects of growth on the Bay's ecosystem, particularly increases in impervious surface, that is likely in the coming decades.

Both Dr. Tom Miller and Dr. Raghu Murtugudde have agreed to speak at CEPA's forum. This article is a preview of the issues that will be covered in the upcoming forum, which is planned for March 2013.

### **PROFILE OF A TRUSTEE Lloyd Lewis Ph.D.**

CBF's BaySaver of the Year, 2006.



Lloyd has been heavily involved in environmental issues and has worked with numerous volunteer organizations for many years. His knowledge and experience has benefited CEPA since he became a Trustee in 1999.

His formal education was in Engineering Physics at U.C. Berkeley (B.S.), Physical Oceanography at MIT (M.S.), and Ocean Engineering at U. of Rhode Is. (Ph.D.) He worked for the federal Government, including the Navy Department and the Department of Energy for a total of 25 years, and also spent 10 years with industry as Oceanographer/Ocean Engineer, before retiring in 1995.

He has received many awards for his volunteer activities, including:

- Anne Arundel County Volunteer of the Year, 1996
- Maryland's "Most Beautiful People" Governor's Citation, 1996
- Anne Arundel County Utilities Citizen Volunteer of the Year, 1987
- Chesapeake Bay Foundation Oyster Restoration Volunteer of the Year, 2004
- Chesapeake Bay Foundation Maryland Bay Saver of the Year, 2006

The last award was reported in the Annapolis Capital (9/13/06), and recognizes his contributions to the CBF oyster restoration program. The captain of the CBF oyster restoration vessel *Patricia Campbell* says that he is an invaluable part of the oyster program, and has learned nearly all aspects of operating the vessel. Lloyd especially enjoys this work since it is outside, and many of his other interests, such as gardening are also outside activities.

He has served on the following Anne Arundel County Advisory

Committees:

- Edgewater/Mayo Water and Wastewater (Chair)
- Mayo Wastewater Reclamation Subsystem (Chair)
- Beverly-Triton Beach Park Management Plan
- Patuxent Greenways Committee

In addition to serving as a Trustee (currently as Secretary) of CEPA, he also works with the South River Federation and the Chesapeake Bay Foundation on Oyster Replenishment.

He is a member of the Southern Maryland Chapter, National Audubon Society; Maryland Ornithological Society; Anne Arundel Bird Club; Marine Technology Society; Nature Conservancy; National Resources Defense Fund; and the National Wildlife Federation.

In addition to his environmental interests, he has served in many other community service positions:

- Friends of Arundel Seniors (currently President)
- Commodore Mayo Kiwanis (Chairman of Community Services)
- Marine Technology Society - Anne Arundel County Science Fair Judge
- Mayo Peninsula Action Council
- South County Community Garden (Manager)

He resides in Cloverlea on the Rhode River and somehow has time to get involved in sailboat racing.



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