



Losing and Saving Wetlands in the 21st Century

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For the 25th American Wetlands Month:

May is American Wetlands Month. This is the 25th anniversary of American Wetlands Month

It is a time to celebrate wetlands, to visit, enjoy, and help to protect. Let's also take a look at where we have been and where we may want (and need) to go for wetlands.

Needing Wetlands

Wetlands are an essential and invaluable part of the ecosystem. High functioning and varied wetlands protect and improve water quality (including the drinking water for much of Massachusetts), provide opportunities for boating, fishing, birding, swimming, and other recreation, support active fisheries, and are home to native animals and plants, including rare and endangered species that would go extinct if not for wetlands. With a changing climate and rising sea levels, the ability of wetlands to soak up carbon and storm water and buffer us from floods is especially significant. Wetlands are a part of the web of life that supports and protects us all, locally and globally.

Losing Wetlands

We as a society have a sad history of destroying wetlands. At the time of European settlement in the early 1600's, the area that was to become the conterminous United States had approximately 221 million acres of wetlands. About 103 million acres remained as of the mid-1980's. During that time, six states lost 85 percent or more of their original wetland acreage and an additional twenty-two states lost 50 percent or more of their original wetland acreage. The huge loss of wetland acreage, often done for agricultural and urban expansion, was abetted by advances in technology and encouraged by political, financial, and institutional incentives to drain and fill wetlands. Even today, all of the effects of the losses are not fully understood.

Slowing Our Loss

The wholesale destruction of wetlands in the United States ended in the 1970's with the increased awareness that wetlands are valuable areas that perform important environmental functions. During that decade, laws such as the federal Clean Water Act and the Massachusetts Wetlands Protection Act were enacted, President Carter issued Executive Order 11990 requiring Federal government agencies

to take steps to avoid impacts to wetlands when possible, and incentives and other mechanisms that had made the filling of wetlands economically feasible were eliminated. Nonetheless, the USGS reported that estimates of wetland losses in the conterminous United States from the mid-1970's to the mid-1980's were about 290,000 acres per year (one-half of the losses that occurred each year in the 1950's and '60's). Those numbers do not include degraded or modified wetlands. Although the estimate reflected a declining rate of loss, land development continued to destroy wetlands. In 1994, USGS noted that the rate of wetland conversion had slowed but wetland losses continued to outdistance wetland gains, despite the federal policy of "no-net loss of wetlands" established in 1989.

Still Losing Wetlands

Most recently, the U.S. Fish & Wildlife Service, in its Status and Trends of Wetlands in the Conterminous United States 2004 to 2009 Report to Congress (<http://www.fws.gov/wetlands/Status-And-Trends-2009/index.html>), released in 2011, determined that an estimated 62,300 acres of wetlands were lost in the conterminous United States between 2004 and 2009. (The report compared wetland acres lost to wetland acres gained and found that losses outnumbered gains even though 489,600 acres of former uplands were re-classified as wetlands during 2004-2009.)

Losing Wetland Types

Of great concern, Status and Trends of Wetlands reported that programs allowing for the mitigation of continued wetland losses through wetland re-establishment and creation have affected the diversity of wetland type(s) and spatial distribution locally and regionally. Some types of wetlands, such as freshwater emergent marshes and open water ponds, have been preferentially reestablished or created, but replacement of forested wetlands (a type that has experienced some of the greatest losses), has lagged behind and other types of wetlands including bogs and fens are seldom, if ever successfully replaced. There continues to be non-parity between wetland types that have been lost and subsequent wetland mitigation, reestablishment, or creation actions. The net effect has been the loss of wetland diversity, hydrologic function, biological communities, and a "homogenization of wetland landscapes." This is a serious loss that must be stopped.

We are in Massachusetts

We in Massachusetts have a very effective Wetlands Protection Act that has protected much wetland acreage, with protections strengthened by local wetland ordinances and bylaws in more than 190 cities and towns. Nonetheless, state law authorizes conservation commissions to allow wetland filling in limited situations if the filling cannot be avoided or minimized. Usually when filling is permitted, the mitigation required for lost wetland acreage is the creation of a new wetland, through wetland "replication" or "replacement." The mitigation is not simply to replace wetland acreage lost as a bean-counting exercise, but instead the replication must contribute to the protection of the interests that would be affected by the filling. (More information about wetland replication requirements is in *Protecting Wetlands and Open Space: MACC's Environmental Handbook for Massachusetts Conservation Commissions*.)

Wetland replication and restoration projects must succeed if Massachusetts is to have no net loss of wetlands. At MACC's Fall Conference 2015, we were reminded of a study, *Compensatory Wetland Mitigation in Massachusetts* by Stephen Brown and Peter Veneman (December 1998), that painted a bleak picture of the failure of wetland replication projects in Massachusetts. The Brown and Veneman report should have been a wake-up call across the state. It was not. Conference speakers discussed a recent study they had completed, not yet released, that reached a similarly bleak conclusion about wetland replication in Massachusetts. Only 29% of the wetland replication projects reviewed were built, appropriately sized, and regulatory compliant. That amounts to a 71% failure rate! Inexplicably, some of the projects that were not built, failed to produce wetlands, or failed to meet regulatory requirements nonetheless received certificates of compliance.

We Can Stop the Losses

There is data on why many wetland replication projects fail in Massachusetts. Too many projects are

poorly planned, in the wrong location, not well implemented, or done without adequate follow-up. Nonetheless, better planning and implementation can lead to more successful projects. Permitting of projects with appropriate conditions and with strong oversight and long term monitoring can help ensure successful replication of wetlands -- but permit conditions, oversight, and monitoring cannot make a bad design in the wrong place into a good wetland. And replacing a bog, fens, or maple swamp with a pond is ecologically wrong and an unacceptable loss of wetland diversity.

No regulatory system is perfect. There is no complete assurance of no net loss of wetlands. We know the limitations of the current wetland protection regulations, implement them the best we can, and seek to improve them.

Many of us are doing more. For example, 197 municipalities in Massachusetts have adopted their own local wetland laws that fill in at least some of the blanks in state law and offer more protection to wetlands. Key additional safeguards include protecting important intermittent rivers, streams, and vernal pools that are not protected under state law, better protections for areas that border and protect wetlands (known as buffer zones), better wetland mitigation and replication requirements, and better protection of lands subject to coastal flooding.

We also need to be as vigilant about the regulatory system as we are about wetlands. People will propose programs, legislation, and projects that seemingly forget or ignore the recent gains we have made in saving wetlands. We need to be on the lookout and ready to respond.

We understand the values of wetlands. How we communicate those values to others and at the same time make an imperfect system work well to protect valued natural resources is in the DNA of Massachusetts and a job for conservation commissions throughout the state, their allies, and everyone who appreciates the beauty and value of wetlands.