Bay cleanup effort could use a strategic plan like that for the Baltic Sea

By Donald Boesch on July 01, 2016

It is hard to believe, but it has been 16 years since I contributed a commentary, “Bay has a lot to learn from European efforts to reduce nutrients,” to the Bay Journal (March 2000). I noted, in particular, the efforts of the Baltic Marine Environment Protection Commission, widely known as the Helsinki Commission (HELCOM), was in many ways analogous to the Chesapeake Bay Program.

Keep in mind, though, that the surface area of waters within HELCOM’s scope is 2.5 times that of the entire Chesapeake watershed. The area of its watershed is 10 times that of the Chesapeake, extending into 14 separate nations and including 85 million people.

HELCOM’s Baltic Sea Action Plan is an ambitious effort to restore the “good environmental status” of the Baltic marine environment by 2021. The plan’s goals and objectives fall into four themes: eutrophication, hazardous substances, biodiversity and maritime activities.

As with the Chesapeake, there is a strong focus on tracking the reduction of nitrogen and phosphorus inputs toward specific country-allocated reduction targets (CARTs) assigned by nation and by subregion. Among the nine nations bordering the Baltic, only Russia is not a member of the European Union, so that body’s directives drive many of the actions that are being taken in a way somewhat similar to our Clean Water Act.

In these 16 intervening years, I have had opportunities to serve as a scientific adviser and peer-reviewer for agencies in Sweden, Finland and Germany and for a multinational program for science for a better future of the Baltic Sea region called BONUS. This has allowed me to keep abreast of progress and help the Europeans advance actionable science, bringing in U.S. ideas and approaches derived from the Chesapeake.

After recently attending a meeting of the BONUS Advisory Board in Brussels, I was reminded that what I wrote many years ago is still true. We in the Chesapeake region still have a lot to learn from our counterparts in the Baltic.

I wouldn’t say that my appeal completely fell on deaf ears. Scientists in the two regions closely follow the research of their colleagues and even collaborate. As we approach our respective restoration deadlines, just a few years apart, scientists and managers alike should be exchanging ideas and approaches with a greater sense of purpose and urgency. The whole world is watching to see if and how

societies in the Baltic and the Chesapeake regions can accomplish the grand challenge of greatly reducing nutrient loads to reverse eutrophication in large coastal ecosystems.

An excellent example of an innovative approach from which we can learn was the research published late last year by a team of Danish, Finnish and Swedish scientists. Using a HELCOM Eutrophication Assessment Tool, they documented how the symptoms of eutrophication worsened and spread throughout the Baltic beginning in the 1950s. They also documented improvements in recent years as nitrogen and phosphorus loads were reduced.

This is just the kind of innovative analysis we need in the midpoint assessment of the implementation of the Chesapeake Total Maximum Daily Load. It is critical that responses in the real world of monitoring observations be evaluated, and we not just rely on estimations derived from the virtual world of Bay Program models.

Since 2009, BONUS has invested around 90 million euros in science addressing key elements of relevance to the HELCOM Action Plan. Through a highly competitive process, funding is provided for project teams that pursue components of a strategic research agenda. The funding comes from a blended mix of investments by agencies of the Baltic Sea nations and by the European Commission, the executive branch of the European Union.

Research teams typically involve investigators from multiple countries and have addressed a wide array of topics, including ecosystem dynamics; biodiversity; fish stocks; consequences of changing land use in the watersheds; integrated approaches to management; maritime spatial planning and risk management; and governance mechanisms.

In addition, smaller grants have been awarded to advance eco-technologies and stimulate innovation in measurement technologies as well as information and communication services. BONUS also supports the synthesis of results across projects and the transnational training of young scientists in order to build capacity in the engaged scientific community.

BONUS is proposing to the European Commission to extend its successful model for supporting strategic science to the North Sea. There, it would engage agencies of the additional nations of France, Belgium, Netherlands, Norway and Great Britain — although the recent referendum vote to leave the European Union complicates its participation. BONUS would also help advance the actions of the Oslo-Paris Commission, the analogous body to HELCOM for the northeast Atlantic.

While we in the Chesapeake region are rightfully proud of the world-renowned status of our scientists and scientific institutions, the truth is that there has never been anything remotely close to a strategic Chesapeake science program since the original Chesapeake Bay Study in the 1980s.

The scientific community has had to pursue specific agency support or nationally competitive funding that just happens to be in the Bay's or its watershed's region. The result has been largely disjointed investigations and discoveries that do not promote regional collaboration and the transdisciplinary science needed to address complex management problems.

For example, Chesapeake regional scientists lack support for research and modeling that links socio-economic drivers and constraints, performance of best management practices, pollutant transport and estuarine responses in a way that could provide a credible basis for transjurisdictional trading that produces accelerated and sustainable results.

Similarly, while we are struggling to incorporate disparate and sketchy information on the effects of climate change for the Chesapeake TMDL midpoint assessment, last year Baltic scientists published their second comprehensive assessment of climate change in the Baltic Sea basin. With encouragement from governmental organizations, scientists have formed an organization called Baltic Earth to pursue four grand challenges in order to improve these climate assessments.

While we are all focused on the 2025 water quality goal before us, we should remember that the challenges do not end then, even if we are successful. It is not too late to learn a lesson from the Baltic region to conceive and implement a strategic science program, appropriately funded by federal and state governments, which can produce smart guidance in sustaining the Chesapeake in an ever-changing world.