November 1, 2013

Dear Chairwoman Stabenow and Ranking Member Cochran:

With farm bill conference negotiations now underway, we write to express our opposition to Sec. 12307 (Ensuring High Standards for Agency Use of Scientific Information) of H.R. 2642, the House-passed “Federal Agriculture Reform and Risk Management Act of 2013.” In March 2013, Representative Stephen Fincher (R-TN) introduced this section as the standalone “Sound Science Act,” and it was subsequently incorporated into the House-passed farm bill.

As national organizations supporting ocean and atmospheric research at over 100 of the nation’s universities, the Consortium for Ocean Leadership and the University Corporation for Atmospheric Research firmly believe in scientific integrity and the importance of high standards in the conduct and funding of science. However, we fear that this science section as written may have unintended consequences that could impede American science and do more to harm than help decision making at the science agencies. It is often assumed that science should be considered once it is settled, and that there will be unambiguous knowledge to make decisions related to issues such as endangered species, coastal inundation, or climate change. Unfortunately, this is rarely the case given the complexity of the natural environment and so policy makers must use the best science available to make decisions.

Without accepted and agreed upon definitions, basing policy decisions only on “well established” scientific processes has the potential to eliminate the use of new, cutting edge and innovative science in these decisions. For example, the use of data from surveys by unmanned sea gliders may be challenged because it is not “established.” New microsatellite technologies, like radio occultation, that utilize GPS signals from already existing satellites are helping us better forecast weather and space weather around the globe, as well as measure climate variables, all at costs that are a fraction of past weather satellite technologies. While these advances are leading to important science, the unfamiliarity and innovation utilized in their design and data collection methods could easily be challenged as not “well-established.” Limitation to “well established” peer-reviewed publications will likely create controversy over which publications qualify as “well established.” Consider an important paper1 (cited over 50 times in other publications) from the journal PLOS ONE on the extent of illegal fishing. This paper could be challenged as a basis for science-based policy decisions under the “Sound Science Act” provision because the journal was only founded in 2006. Not considering this research could lead to millions of dollars in lost revenue to legal US fishing and aquaculture industries, which are worth $5 billion2 and $1.1 billion3 respectively.

This bill also mandates that federal agencies prioritize experimental research studies. This means that agencies may not be able to use a vast amount of research that is descriptive, theoretical, or correlational, rather than experimental. As a result, ocean surveys (which are descriptive rather than experimental) may be challenged as a scientific basis for policy decisions. Ocean surveys are critical to ocean policy decisions because they give information about ocean conditions and the distribution and abundance of marine life.4 In addition, federal agencies will be specifically required to prioritize empirical research, meaning that research involving statistical or numerical modeling, rather than direct observation, may be challenged as a basis for policy decisions. Models are an invaluable marine science technique and critical resource for marine policy, as the ocean is large and impossible to sample in its entirety. Fisheries models, which are currently used to set fisheries quotas without the need to sample huge areas for fish abundance, are one ocean science model that impacts policy and regulations.5
For example, modeling of the Gulf of Mexico shrimp populations helps predict future catches and ensure continued availability of shrimp for this $314 million fishery. The economic impact of weather is also important, and numerical weather models are at the core of civilian and defense weather forecasts produced by defense agencies and NOAA. These forecasts keep American businesses, communities, families and the military informed about routine weather, which has an impact on the GDP of up to $485 billion per year, as well as the severe weather that can end lives and damage property and the economy. Yet despite their importance, agencies would be hard pressed to call weather models “experimental,” barring the use of weather information derived from models in making policy decisions under the “Sound Science Act.” Climate models are not experimental either, and would also likely be excluded. They are providing us windows into future global climates, from next season to the next decade to the next century, and in doing so they help us prepare for and adapt to the changing climate of today and of the future.

Federal agencies will also be forced by the proposal to prioritize reproducible research. This emphasis could be distorted to exclude important ocean research involving one-time or rare, non-reproducible events, such as research on the effects of the 2010 Deep water Horizon gulf oil spill, on whale stress response to the silencing of the oceans when shipping was suspended after 9/11, and on the effects of Superstorm Sandy on coastal areas. Important atmospheric research is also very often conducted on one-time major weather events. For example, Superstorm Sandy’s unusually westward hook from the Atlantic Ocean directly onto the mid-Atlantic seaboard had never been observed before. No severe weather event impacts the nation exactly like another, yet we can still learn from studying them as individual events. In cases of one-time events like Superstorm Sandy, the phenomenon can only be observed and data can only be collected for a short window of time, and as a result the research is not fully reproducible. Yet such research often provides valuable information to set policy in the event of future catastrophic events, thereby safeguarding person and property, lives, lifestyles, and livelihoods.

The constraints of the “Sound Science Act” section apply to a large range of federal agency policy decisions, including approval of funds, the approval of licenses, and the imposition of penalties. Application of the “Sound Science Act” section in these cases may inhibit federal agencies’ ability to enforce current regulations and disrupt funding and distribution of funds.

The “Sound Science Act,” as incorporated and passed as Sec. 12307 in H.R. 2642, has the very real potential to exclude crucial science from policy decisions, resulting in negative economic, health, and environmental impacts. Instead, we need a continuing supply of knowledge to develop adaptive strategies to manage risk. We hope that you can strip these damaging provisions from the conferenced bill so that science can help ensure that our marine resources are managed in the most sustainable manner possible and we have the best possible information about our weather and climate, which are important to your constituents and the national economy.

Regards,

Robert Gagostan

Thomas J. Bogdan

CC: The Honorable Jay Rockefeller, Chair, Senate Committee on Commerce, Science and Transportation
The Honorable John Thune, Ranking Member, Senate Committee on Commerce, Science and Transportation

2 http://www.st.nmfs.noaa.gov/commercial-fisheries/commercial-landings/annual-landings/index
4 http://chesapeakebay.noaa.gov/monitoring-and-research/fisheries-surveys
5 http://www.nmfs.noaa.gov/stories/2012/10/10_10_12_stock_assessment_part2b.html
6 https://www2.ucar.edu/atmosnews/news/4810/economic-cost-weather-may-total-485-billion-us