Q&A from Pesticides & the Chesapeake Bay Conference
December 1, 2022 –

Some questions were answered live and those answered below were typed in by presenters.

Askers:
- Chris Victoria
- Charles Brown
- Ken Hatch
- Susan Beal

Questions:

**Ask: Chris Victoria**

**Question:** From an ecological perspective (not human health), have there been studies that show some sorts of stress inducement for aquatic organisms from PFAS?

**Answer:** Yes, several coming out in the last few years. Most of the first 20 years of literature has focused on where we find PFAS, but now the next generation of studies are focusing on human health impacts and ecological health impacts (but probably in that order...). Here is a recent review article that will do better than me in summarizing what is known and what needs to be studied more: [https://doi.org/10.1002/etc.4869](https://doi.org/10.1002/etc.4869)

**Ask: Charles Brown**

**Question:** How comparable is the 1633 method to the modified 537 method? Are detection limits similar for various types of PFAS compounds?

**Answer:** Very comparable in terms of techniques and method detection limits (slightly higher for some PFAS of course), and the number of PFAS measured has grown from 28-32 to 40.

**Ask: Ken Hatch**

**Question:** What about TEFOLON which is a fluorinated molecule?

**Answer:** Teflon (Polytetrafluoroethylene) is a PFAS, but it is a polymeric form of PFAS, which in itself is thought to be too large to be bioavailable. This is likely true, but every study we have performed has found lots of small PFAS molecules embedded and intercalated within the polymer material. We have a study published that shows in firefighter textiles, these molecules come out of the clothing at 10 times higher rates than the non-teflon coated material. Scary. [https://doi.org/10.1021/acs.est.1c06322](https://doi.org/10.1021/acs.est.1c06322)

**Ask: Susan Beal**

**Question:** Firefighting foam is being used for the large scale euthanasian in poultry flocks who are being depopulated because of exposure to highly pathogenic avian influenza. I’m not aware of any meaningful conversations happening around the woes of this, including exposure to the applicator humans and their crews (and the clean up crews), to the wider environment (immediate and residual), both short and long term. Can you or anyone else at the meeting speak to this? Thanks

**Answer:** I was not aware of this...class B firefighting foams should never be released to the environment because of their high PFAS content, but I don’t think it would work well as a euthanasia agent...are you sure they aren't using a gaseous fluorochemical for euthanizing birds? There are several fluorochemicals that are used as anaesthetics, that could probably knock out geese rapidly, and subsequently euthanized. If it is AFFF that is being used, then the ingestion by the poultry and subsequent burial will lead to a waste
PFAS problem, and if the foam isn't contained and disposed of as a toxic chemical, then you have release to the environment there as well. Let me know if you have more information on this...would be happy to help chase it down. **Follow up:** Hey there, Yep - suffocation w/ firefighting foam - not gassing them w/ fumes. It’s a wild situation - and a much larger conversation. My bias is that it’s a huge issue for the reasons you mention above - and others. I’m happy to circle back w/ you by email about this.

**Asker:** George Hubbell  
**Question:** will the eventual levels of PFAS in our water continue to increase even if use of fluorinated pesticides laced with PFAS are stopped immediately? These forever chemicals stand the chance to leach forever  
**Answer:** Absolutely. We are seeing PFAS coming from everywhere now. The best approach is to stop manufacturing them for non-essential uses as soon as possible...with the hope that in a couple hundred years we see a reduction in the environment. For the Ozone depleting chlorofluorochemicals, the Montreal Protocol has been successful in reducing them in the atmosphere in a little under 30 years. It will take a similar effort for PFAS, and it will take much longer in water for PFAS....

**Asker:** Barbara Walsh  
**Question:** Could you comment on the route of agricultural and environmental contamination via land application of sewage treatment bio solids - especially from sewage treatment plant that accept landfill leachate?  
**Answer:** Not an expert on this, but there are at least three states that I know about where PFAS contamination has been spread directly by biosolid applications...older work by the EPA in Mississippi and Alabama, and recent work in Maine. We are looking into this in Indiana next year, and I think it will be an issue in most states within a few years. **Follow up:** In Virginia land application of biosolids is favored for the advantages to Chesapeake water quality conferred by nutrient management plans, however since PFAS are not measured in biosolids, are we substituting control of nutrients for 'forever' contamination by PFAS? **Answer:** Perhaps. Some biosolids have been found to be very high in PFAS concentrations. Probably good for nutrient recycling, but these persistent toxins are bad news for biosolid applications in general.

**Asker:** Anonymous  
**Question:** Do we have a list of BMPs that are particularly effective at treating pesticide contamination?  
**Answer:** Answered live.

**Asker:** Anonymous  
**Question:** How much and where is monitoring happening in the Bay and is it enough?  
**Answer:** Answered live.

**Asker:** Anonymous  
**Question:** What is the practical application if we have a method that would assess risk for multiple
contaminants?
Answer: Answered live.

Askern: Barbara Walsh

Question: What sort of BMP’s were documented to improve contaminant levels in water? What legislative initiatives on mitigating PFAS are ongoing or anticipated? What legislative initiatives on mitigating PFAS are ongoing or anticipated?
Answer: Answered live.

Askern: Anonymous

Question: When will the environmental community announce its priorities? Will there be a summit?
Answer: The community will be selecting its priorities next week. There will be another virtual summit - we're looking at the end of January. Tentative date is January 31st but we will be sharing the date widely.