VA DEQ Comments on Boat Pump-Out BMP Expert Panel Report and Recommendations

Submitted by Allan Brockenbrough, VA DEQ on May 21, 2018

A permittee in VA has requested credits for reductions in nutrient loads from boat pump-out facilities and we need certainty in the reductions estimated in the report. DEQ understands that the scope of the report does not include reductions for MS4 compliance and will work internally to determine those baseline issues. However, DEQ believes the report grossly overestimates the historic loads. Numerous assumptions that account for this include:

- **Assuming nutrient output/person/day occurs uniformly over the 16 waking hours/day**
  This assumes that nobody voids during the night or first thing upon waking up in the morning and that the nutrient load generated in the overnight hours is voided evenly over the waking hours thus increasing the load from recreational boats by 12.7% (0.333 sleeping hrs X 0.38 power boat prorate factor = 12.7%)

- **Assuming that people are just as likely to void on a recreational boat as they are on land.**
  This assumption completely ignores human nature and if I had to guess I would think that it at least quadruples the assumed load at a minimum. It could be a tenfold increase. It completely ignores a person's aversion to using a cramped, uncomfortable facility on board a boat. It also ignores the amount of fluid lost through perspiration on board a boat and a person's natural instinct to manage their fluid and food intake so as to avoid using on board facilities. It ignores the fact that most people are sure to use a restroom on land just prior to boarding a boat and that a visit to the restroom is the first thing they do upon returning to land.

- **Assuming that any waste voided on board historically was released to the water**
  Some of this waste historically could have been held and pumped out at whatever pump out facilities existed at the time

- **40% occupancy rate for each weekend from early May to late September**
  The 40% came from EPA guidance (from 1994) as an assumption of occupancy rate on a peak holiday weekend (e.g. July 4). It may not be appropriate for the full boating season.

- **The removal calculation assumes that all active boaters use a pump-out every weekend between May and September.**
  This seems to be a high value and could probably easily be verified by counting boat usage and pump out activity over a typical summer weekend.

Additionally, by using Kirscmann et al. (1995) and Hänninen, S., & Sassi, J. (2009) to estimate potential nutrient loads from boats and the results of the HRSD and Virginia

Beach studies to estimate annual nutrient loads captured by the pump-out program, the draft expert panel reports different percent reductions for TN and TP. It would seem that on a volumetric basis, the same percentage of waste is being captured and that the TN and TP reduction percentages would be close to the same value.