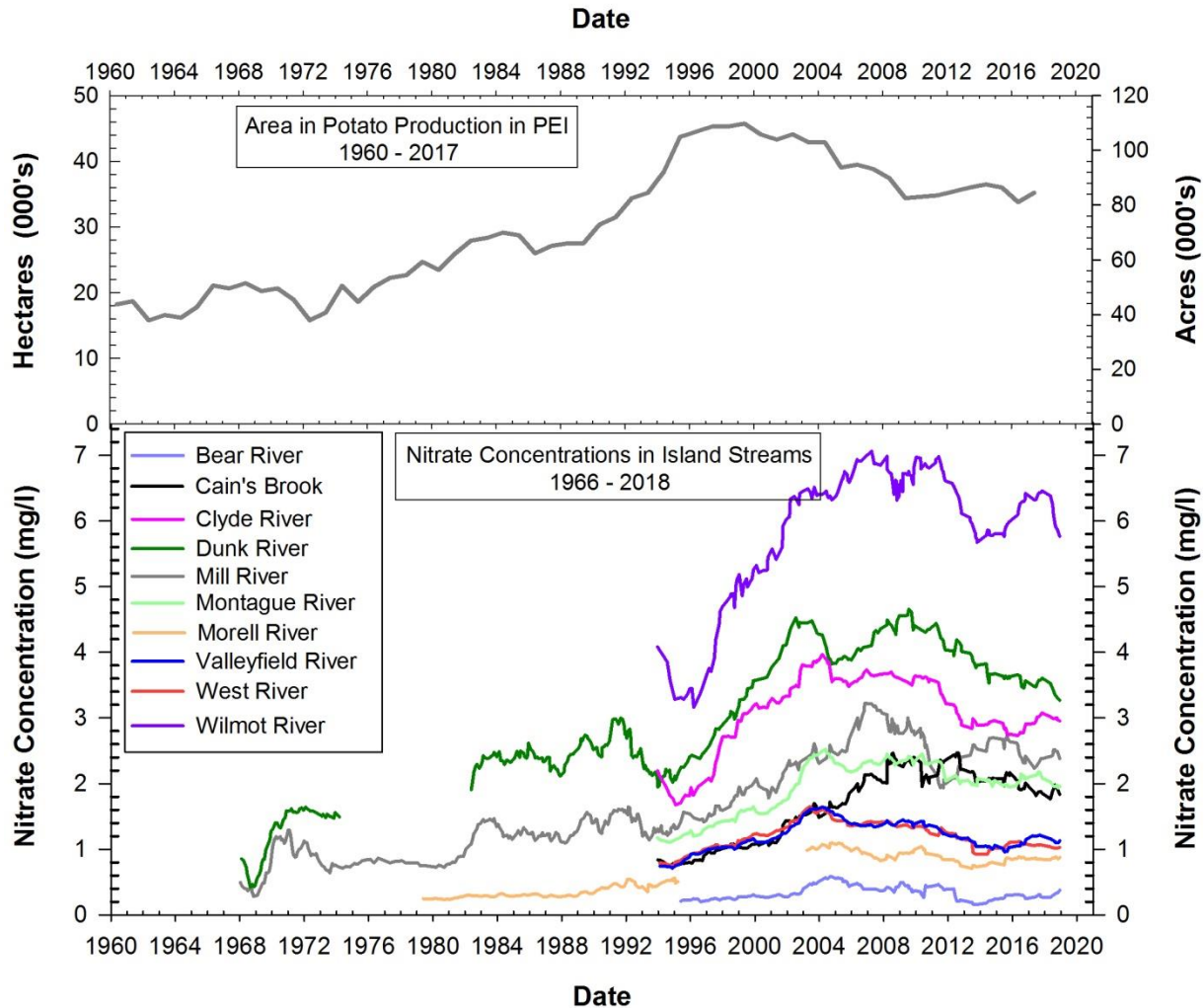


Land-Use and Long Term Nitrate Trends in Island Streams



Most of the nitrate in Island streams comes from agriculture in the form of fertilizers applied to land for potato production. The graph shows that ups and downs in Island potato production are generally matched by ups and downs in nitrate but with a time lag of 5-8 or more years. This lag is due to the time it takes for nitrates to travel through the groundwater system to get to streams.

Nitrate concentrations have increased overall in each stream since the time that they were first sampled. The concentrations for some streams increased more rapidly than others and reached a higher level overall due to differences in land use in each watershed. Overall the streams which have a higher percentage of agriculture and land in potato production have the highest nitrate levels. The rate of increase was highest after the rapid increase in potato production which occurred in the early 1990s. Results from the last 1-2 years indicate that 6 of the 10 streams in this monitoring network are showing decreasing trends nitrate trends while the other 4 streams have a recent trend that is stable or not changing over time.

Peak potato production occurred in 1999. The decline in production since then may be the reason for the overall decline in nitrates observed in these results from about 2009 onward. Some of the overall decline may also be due to nitrate management practices in use by many farmers. Unfortunately, as annual potato production information is not publically available at the watershed level, the relationship between potato production and nitrate level cannot be tested for each stream individually. The Wilmot River is an example of how having watershed level potato production data would be useful. It has had increases in nitrate concentration from 2015 to 2017 that do not match Island-wide potato production figures in the 5-8 previous years.

In the past, increases in potato production have resulted in increasing nitrate levels. If the production of potatoes or other high-nitrate-leaching crops increases, stream nitrate levels may also increase in the future.

The overall declines in stream nitrates that have been observed are a step in the right direction however they are not enough to properly address the issue of anoxia in estuaries or nitrates in drinking water.