

Date: Wed, 20 Jun 2001 11:23:40 -0400
From: ebh02@health.state.ny.us
To: "S.M. Mandaville" <limnos@chebucto.ns.ca>
Subject: Re: Info needed for identifying the source of fecal pollution!

It is true, that the FC/FS ratio is no longer considered a valid measure here in NY; we haven't used it in at least 7 years here in Albany. It is considered an unreliable measure for a couple of reasons. Studies have shown that certain species of fecal strep survive longer in the environment than others. Other studies have demonstrated the regrowth of fecal coliforms in the environment. Both of these factors can, of course, affect the FC/FS ratio.

We are currently testing a method that can reportedly distinguish between human and ruminant fecal contamination using PCR amplifications. So far, our results are promising. We are still in the validation phase of the studies, however, and testing feces and water contaminated from known sources (i.e., CAFO runoff). We should have these studies completed by the end of the summer, and I can let you know how things turn out. In the meantime, here is the reference that we are working from:

Bernhard, A. E., and K.G. Field. 2000. Appl. Environ. Microbiol. 66 (4): 1587-1594 and
Bernhard, A.E. and K.G. Field. 2000. Appl. Environ. Microbiol. 66 (10): 4571-4574.

These papers discuss other available methods and the advantages of using PCR, versus ribotyping (e.g., Washington State) or antibiotic resistance genes. We chose not to go that way because both methods require the establishment of large libraries of organisms before you can get any meaningful results. Very costly and time-intensive.

I hope that this information has been helpful. I do not have a contact at the NIH, but I could provide you with one at the USEPA (they regulate drinking water here in the US) , if you wish.

Sincerely,
Ellen Braun-Howland