Understanding the Grody Plot of Bacterial Contamination at Huntington Beach

This homework is to help you prepare for tests. You don't need to turn it in, but I've learned that people have a lot of trouble with these questions on tests. If you clearly understand the answers to these questions, you'll do well on the test.

First, do some preliminary exploration of the plot:

- what are the axes?
- sketch the beach, showing how the y-axis of the plot relates to the real world
- what does a diamond on the plot indicate?
- what do stars and squares indicate?
- what does the size of the mark indicate?
- what patterns can you see?
- what do the shapes on the right indicate?
- does the size of the shapes on the right mean something?

Now, use it to answer important scientific questions:

- do enterococcus bacteria appear on the beach at the same time as fecal coliforms?
- do enterococcus bacteria appear in the same place as fecal coliforms?
- do you think the two types of bacteria come from the same place?
- why or why not?

To the right of the main plot are a large square and a small diamond. These represent the concentrations of different bacteria in the plume.

- why are they different sizes?
- is the enterococcus concentration greater in the plume or at the beach?
- is the fecal coliform concentration greater in the plume or at the beach?
- based on these concentrations alone, is enterococcus likely from the plume?

I often ask which bacterium is more likely to come from the plume. Some people say "enterococcus because it's spread out", and others say "fecal coliform because it's localized near the plume".

- which of these arguments makes more sense to you?
- does this plot alone contain enough information to answer the question?
- could you answer the question by looking at concentrations in the plume?