*Draw your predictions*: Below is a diagram of an estuary where you can draw your predictions. Fill in the diagram to show your predictions for the upper and lower parts of the Plum Island Estuary. Be sure to include the following organisms: 1) algae, 2) plants, 3) decomposers, and 4) fish. Also include your predictions for levels of 1) nitrogen (N), 2) phosphorus (P), and 3) dissolved oxygen (O_2) in each location. Label each part of your diagram or create a legend.

Lower Estuary
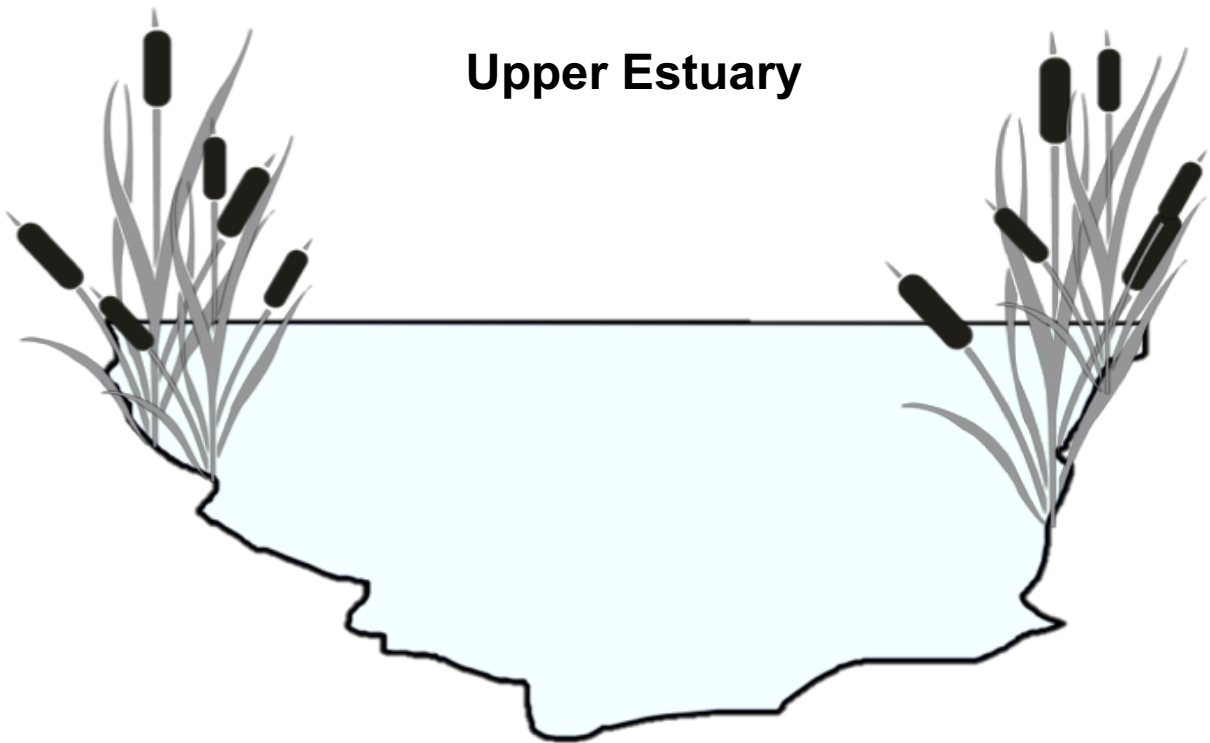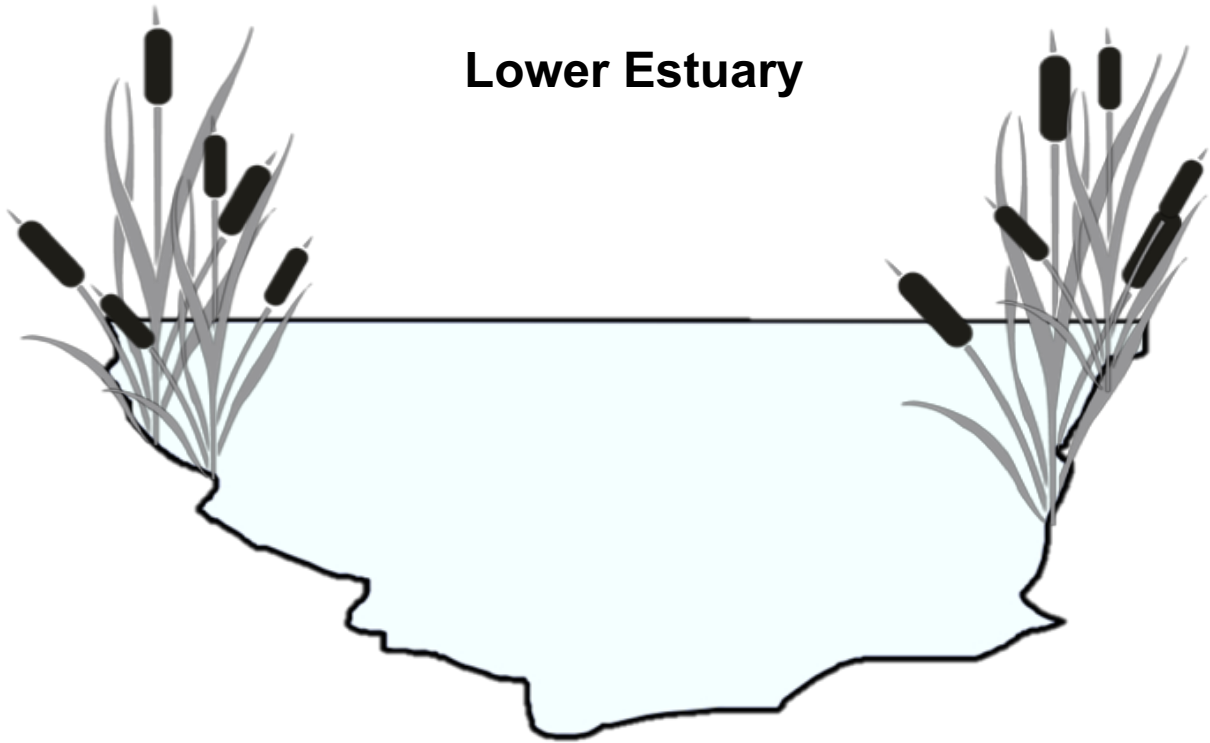
Upper Estuary

Scientific Data:

Finish filling in the tables below. Use the data to answer the scientific question.

Part of Estuary	Sample number	Dawn O_2 (mg/l)	Dusk O_2 (mg/l)	Fluctuation in Dissolved O2 (dusk - dawn)
Upper Estuary	1	10	11	
Upper Estuary	2	7	12	
Upper Estuary	3	7.5	10	
Lower Estuary	1	11.2	12.8	
Lower Estuary	2	8.5	9.5	
Lower Estuary	3	9	10	

| Dissolved O2						Fluctuation in Dissolved O2		
Part of Estuary	Dawn Mean	Dawn SE	Dusk Mean	Dusk SE		Part of Estuary	Mean	SE
Upper Estuary		0.9		0.6		Upper Estuary		1.2
Lower Estuary		0.8		1.0		Lower Estuary		0.2

* Standard error (SE) tells us how confident we are in our estimate of the mean and depends on the number of replicates in an experiment and the amount of variation in the data. A large SE means we are not very confident, while a small SE means we are more confident.

What data will you graph to answer the question?

Independent variable(s): _____

_____

Dependent variable(s): _____

_____

Below are graphs of the data: Identify any changes, trends, or differences you see in your graphs. Draw arrows pointing out what you see, and write one sentence describing what you see next to each arrow.
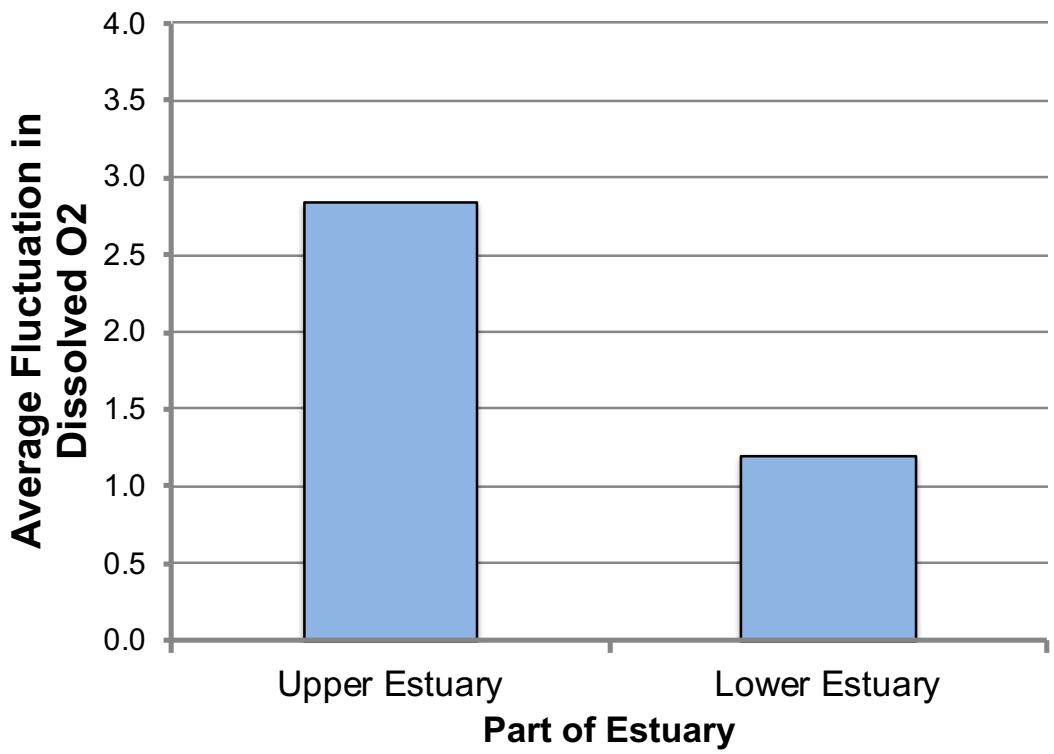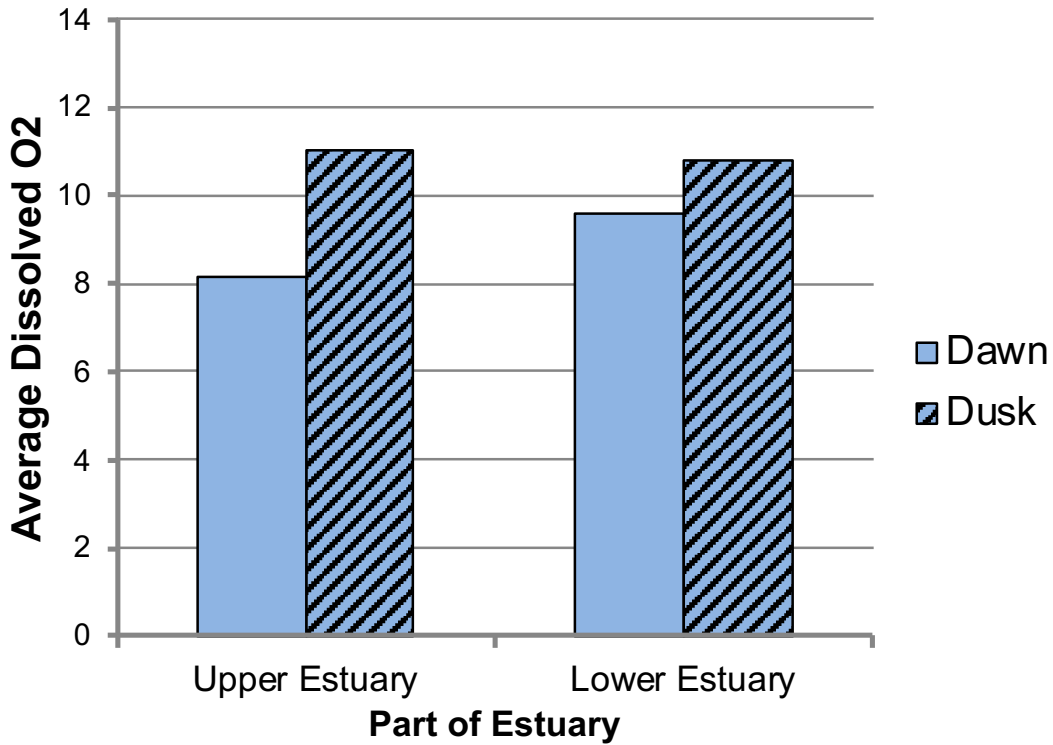
Interpret the data:

Make a claim that answers the scientific question.

What evidence was used to write your claim? Reference specific parts of the tables or graphs.

Explain your reasoning and why the evidence supports your claim. Connect the data back to the two features used to identify whether eutrophication is occurring.