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Two Major Questions

1. What controls the size, intensity and variability of Low Oxygen Zones? (How will they change in future)

2. What are the rates and controls of fixed N loss within these systems (How well do we understand global N, C budgets)

1. What controls the size, intensity and variability of Low Oxygen Zones?

- a) What are 'far field' preformed O2/Nut ratios in mode waters that feed the ETP Low Oxygen Zones
- b) How do horizontal and vertical mixing processes occur within these zones, can they be quantified well enough to establish mass balance
- c) How do these systems respond to interannual and decadal climate forcing
- d) Why don't these systems go to zero nitrate, sulfidic

- 2. What are the rates and controls of fixed N loss
- a) Determine rates of dNO3/dt and dN2/dt
- b) What is the role of trace elements in controlling rates
- c) How tightly are these systems coupled to continental margin sediments

Floats and Gliders are uniquely well-suited to study 1 a, b, c and 2 a, c