

Research topic and goals

OPEN OCEAN MESOSCALE EDDIES: Effect on surrounding biogeochemistry

CONSTRAINTS: Short time scales (3-month project, AUV surveys monthly, ship support)

SAMPLE CONSTRAINTS: 30 days preservation at 26°C ✓

SAMPLE TYPES

WATER

~100mls total to look at.

- ✓ Nutrients
- ✓ Trace elements
- ✓ DOC
- Dissolved gases

FILTERS

- ✓? nucleic acids
- ✓? POC/PON/P metals
- ✓ pigments

SENSORS

- NO₃
- pH
- NH₄/NH₃
- PO₄
- ISMS (dissolved gases)
- CTD
- fluorometry
- ACS (wavelengths)
- flow cytometry
- scanning

CAVEAT: PARAMETERS VARY BASED ON SCIENTIFIC QUESTION
(STATISTICAL DESIGN EXERCISE- ADAPTIVE SAMPLING)

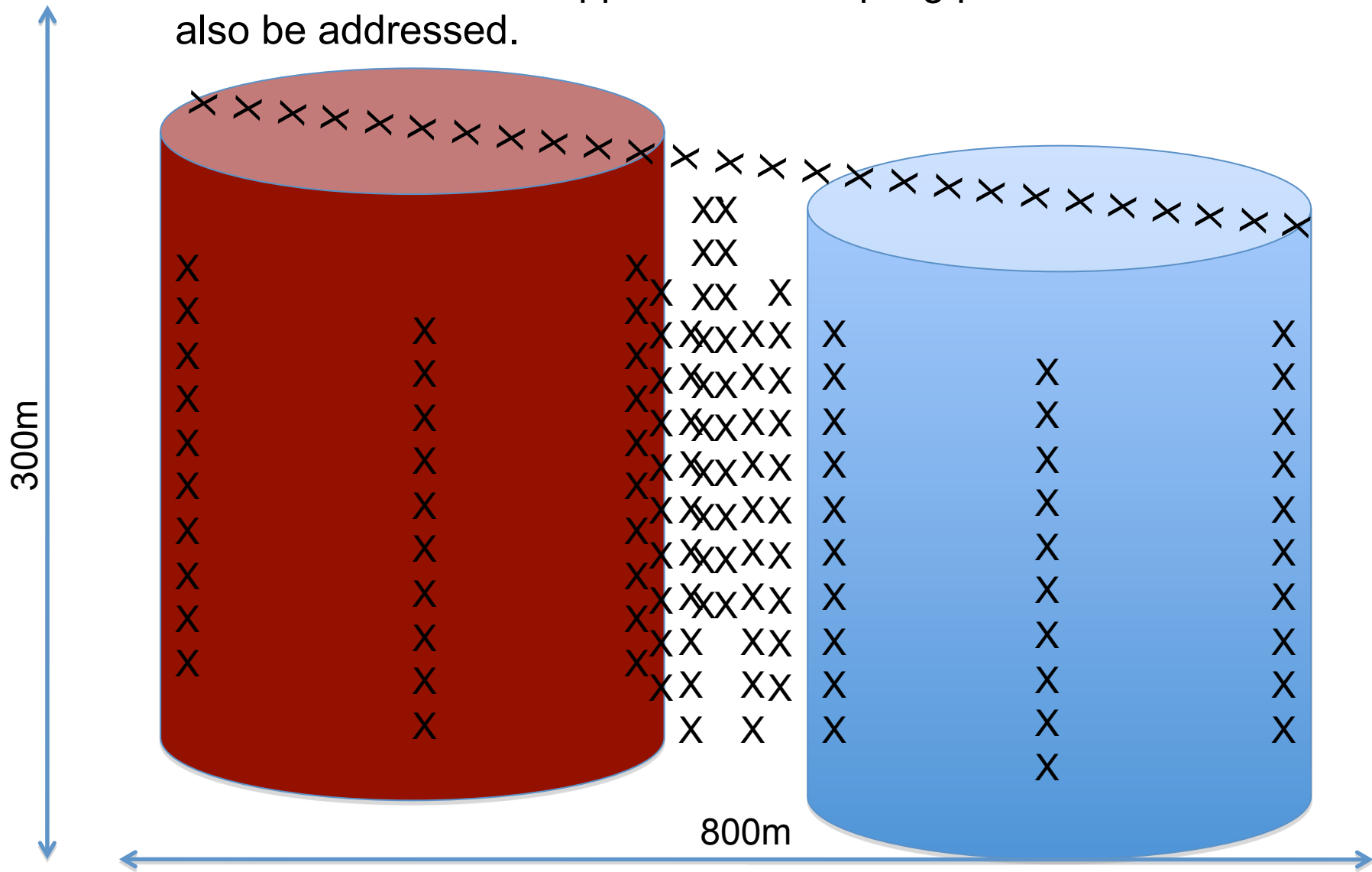
-imaging



100 -1000 samples optimal

(for site characterization in autonomous mode)

- Note that statistical approach to sampling positions must also be addressed.



WISH LIST:

Rate measurements (SID)
Respiration/Production (250ml incubations)
-*in situ* oxygen isotopes
Growth rates
Export (floating sediment traps)
Speciation
Metals
CO₂
Physical
N fixation
The players: PP, consumers (bacteria/predators)
Other mortality
Microarrays
Sequencing
qPCR