

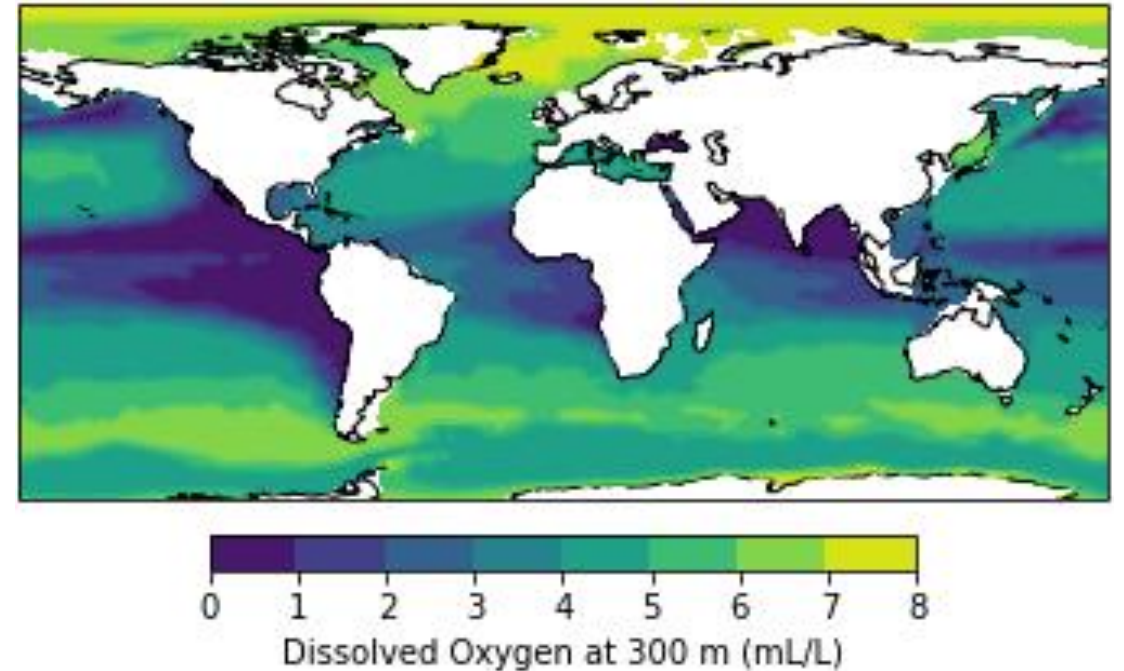
# OXYGEN AND THE SALAS Y GÓMEZ RIDGE

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Kara Eckley

# Background

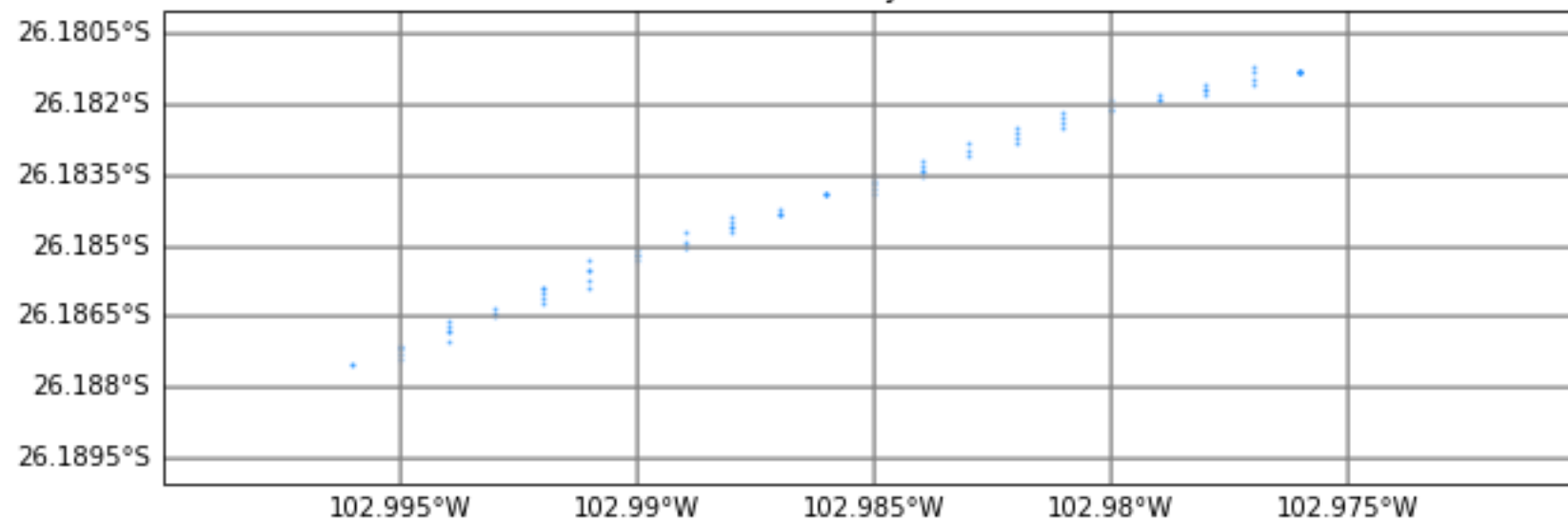
- Salas y Gómez Ridge (SyG)
  - Extends ~2,900 km from the Desventuradas Islands to beyond Easter Island
    - Dozens of seamounts
  - High levels of endemism
  - Eastern South Pacific Oxygen Minimum Zone
- East/Central Pacific International Campaign (EPIC) Cruise 2019
  - Surveyed SyG seamounts and oceanic islands
    - Towed camera
    - Environmental data: dissolved oxygen, temperature, salinity
- CSIRO CARS 2009 Oxygen Data



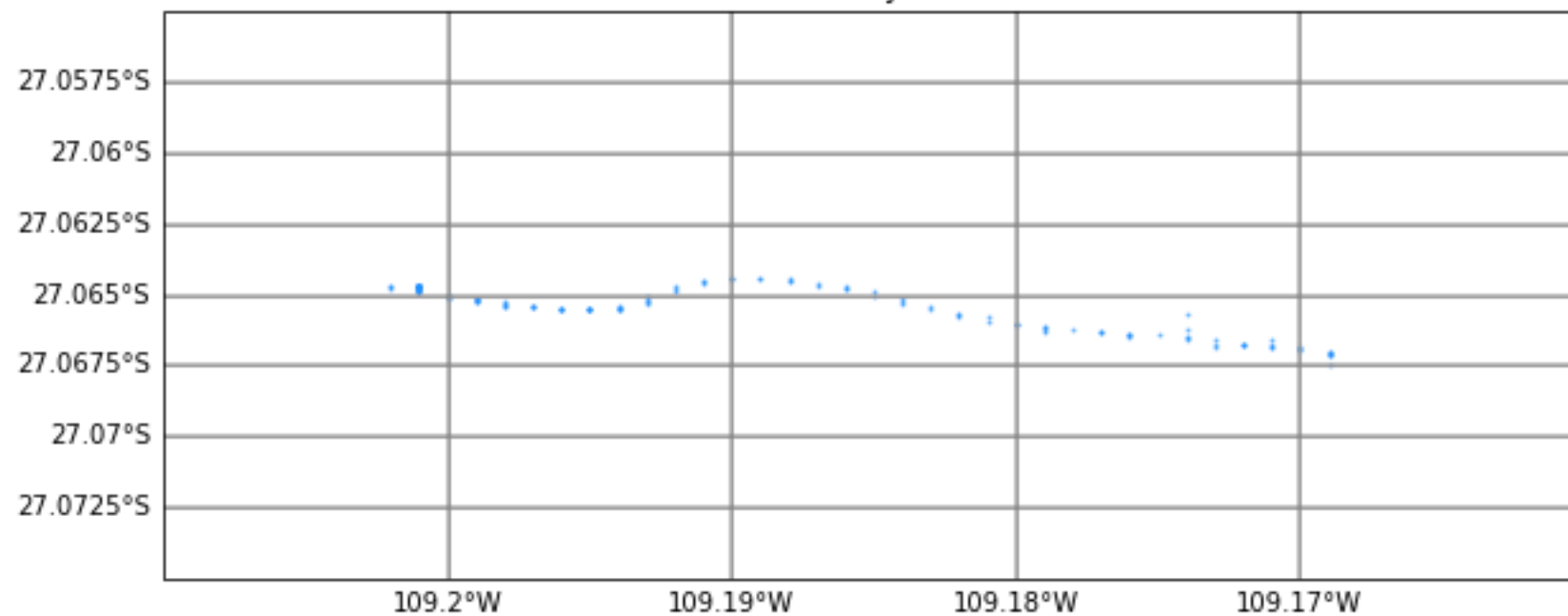
# Methods

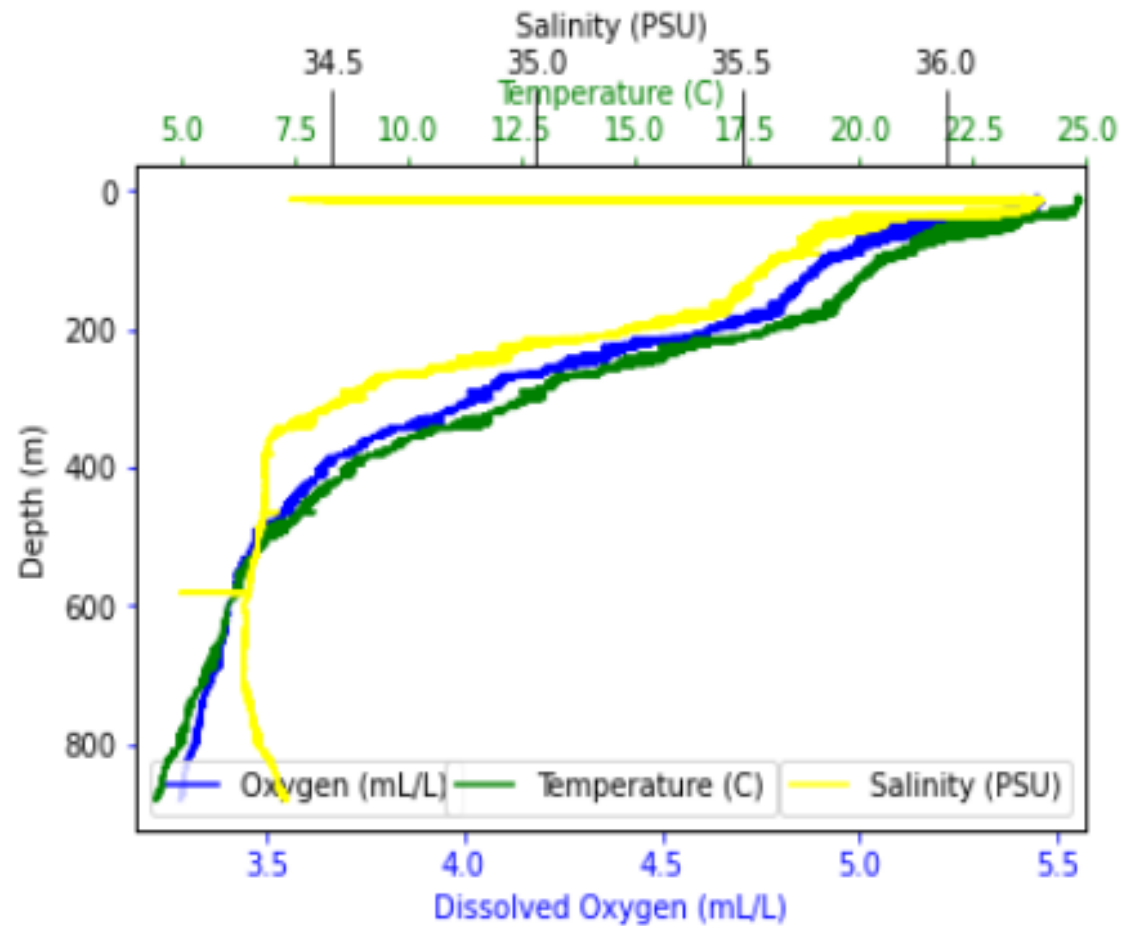
- One seamount: SPG6; One island: SPG7
  - 3 files per site: Habitat analysis, CTD data, and latitude and longitude
    - Datetime indices to combine
- Cartopy
  - Map transects
  - Plot oxygen minimum zone with CARS 2009 data
- Matplotlib
  - Depth profiles: temperature, salinity, dissolved oxygen
- Scipy Stats
  - Linear regression on oxygen varying by depth

SPG6 Survey Transect

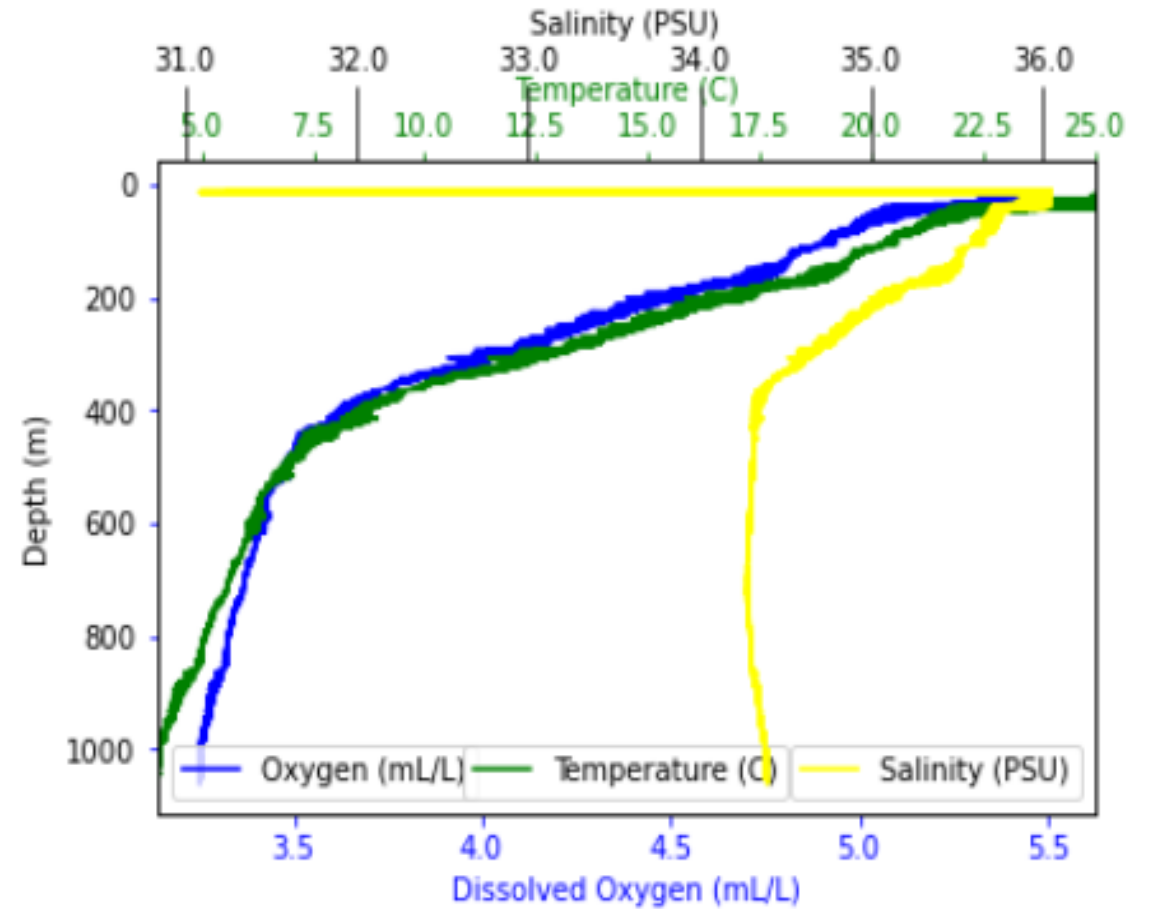


SPG7 Survey Transect



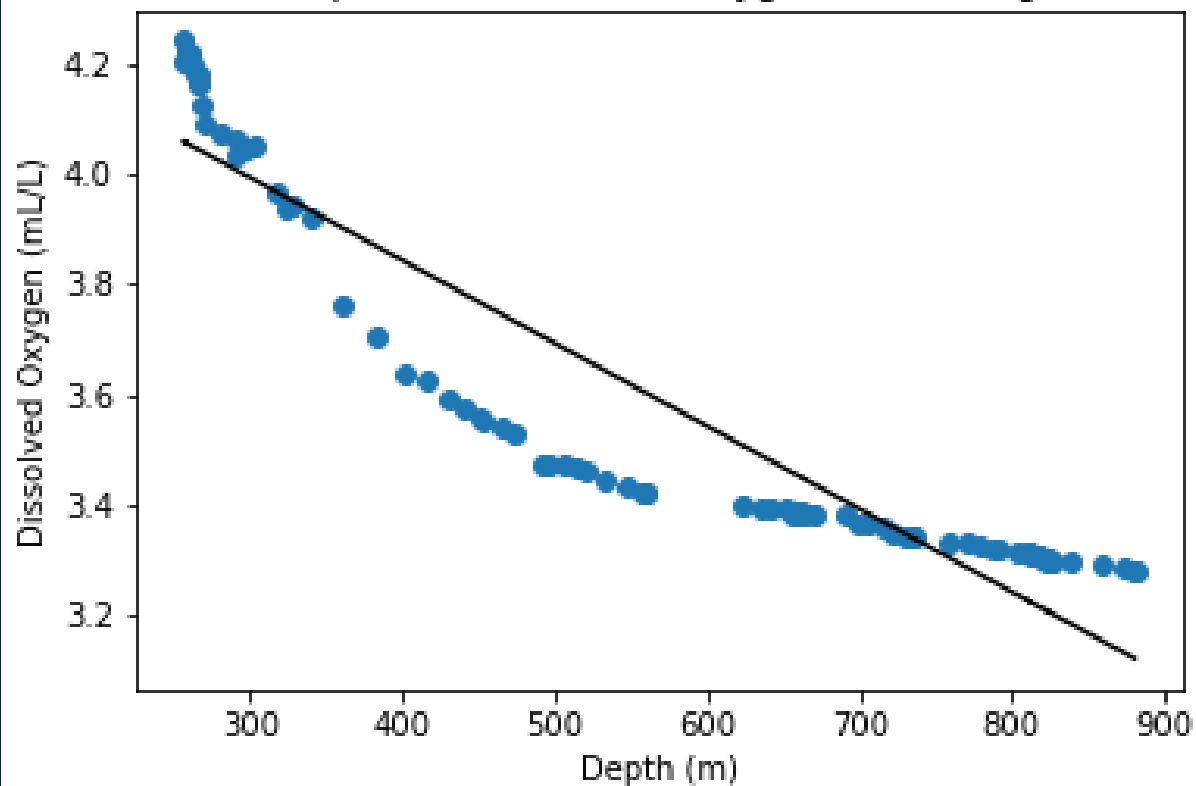


Depth profile for SPG6



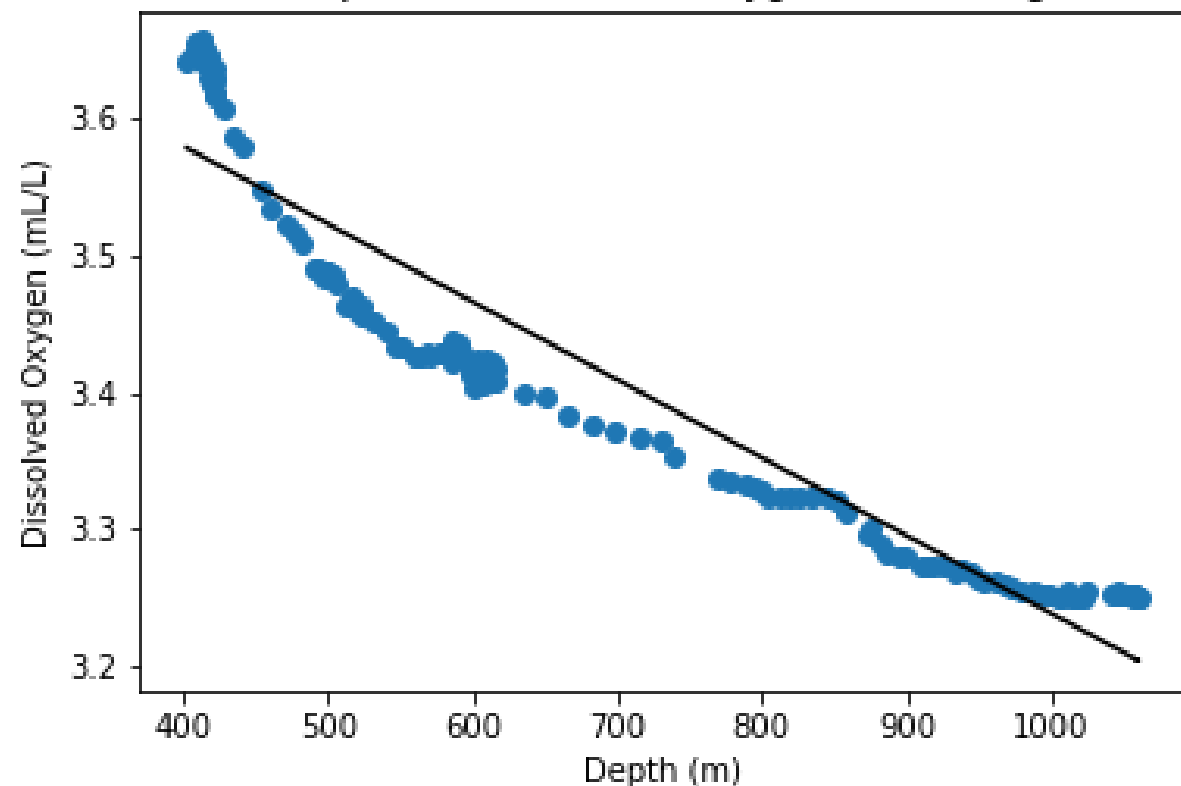
Depth profile for SPG7

SPG6 - Depth and Dissolved Oxygen Linear Regression

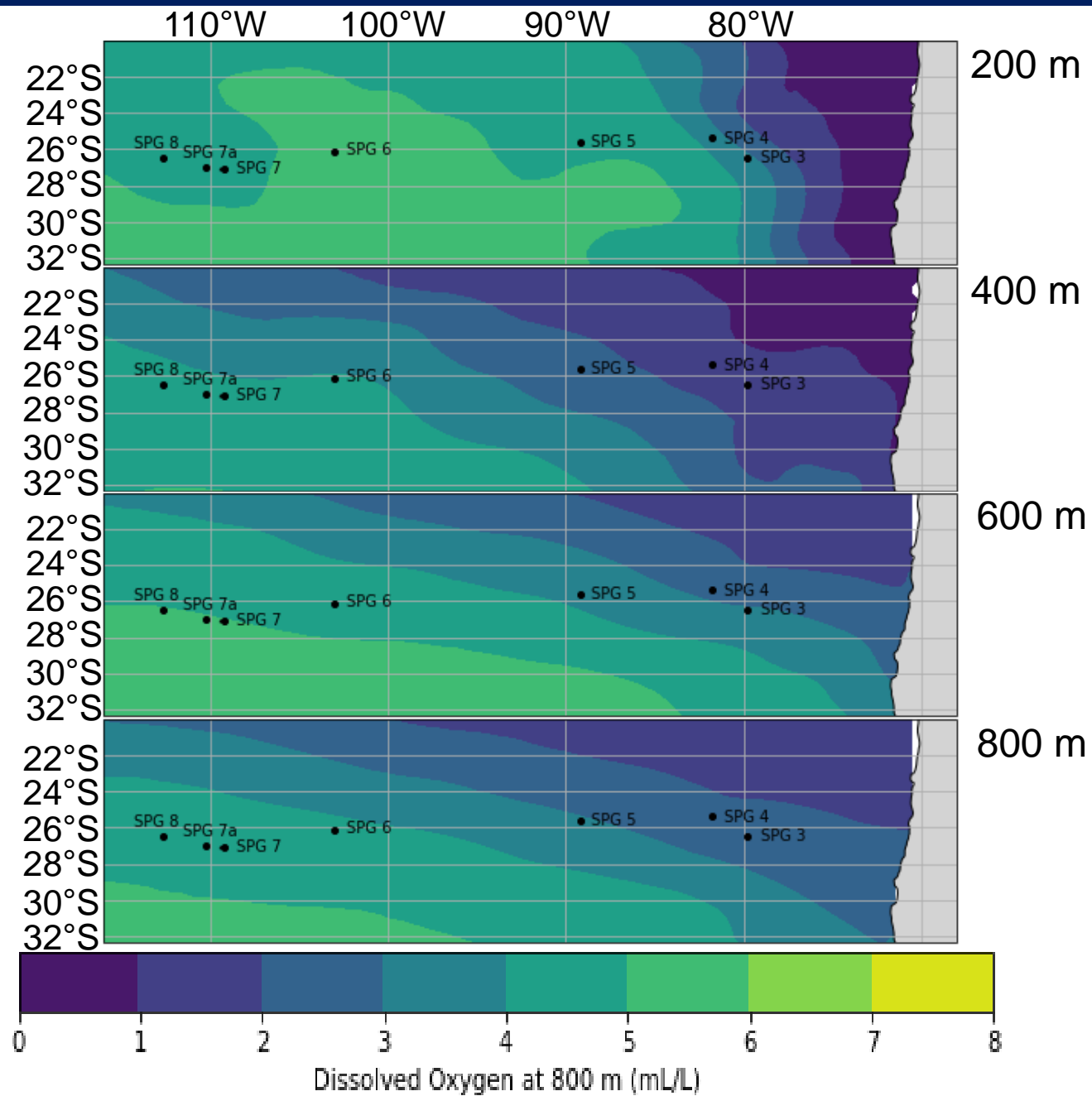


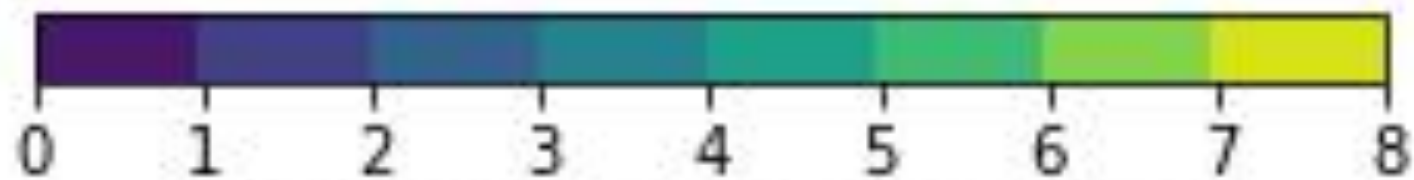
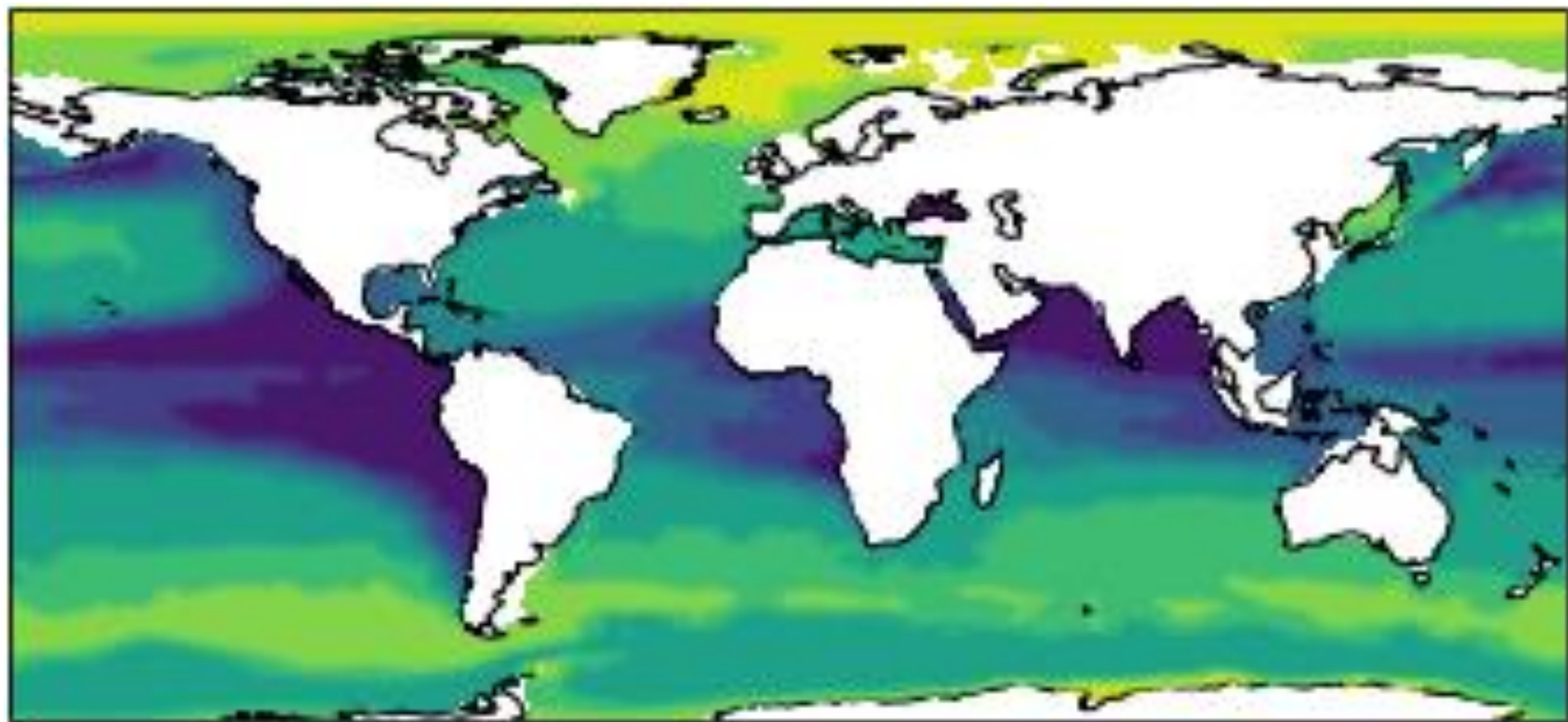
$$p = 7.58 \times 10^8, r = -0.93$$

SPG 7 - Depth and Dissolved Oxygen Linear Regression



$$p = 4.84 \times 10^{74}, r = -0.95$$





Dissolved Oxygen at 300 m (mL/L)



# Conclusions

- Oxygen varied by depth
  - Non-linear regression probably would have been more appropriate
- Oxygen did not appear to vary by site
  - Analysis of additional sites may affect this
- Future work
  - Adding the five additional sites
  - Mapping EPIC bathymetric data
  - Combining habitat analysis with environmental data

Questions?