# OXYGEN AND THE SALAS Y GÓMEZ RIDGE

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# 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



Dissolved Oxygen at 300 m (mL/L)
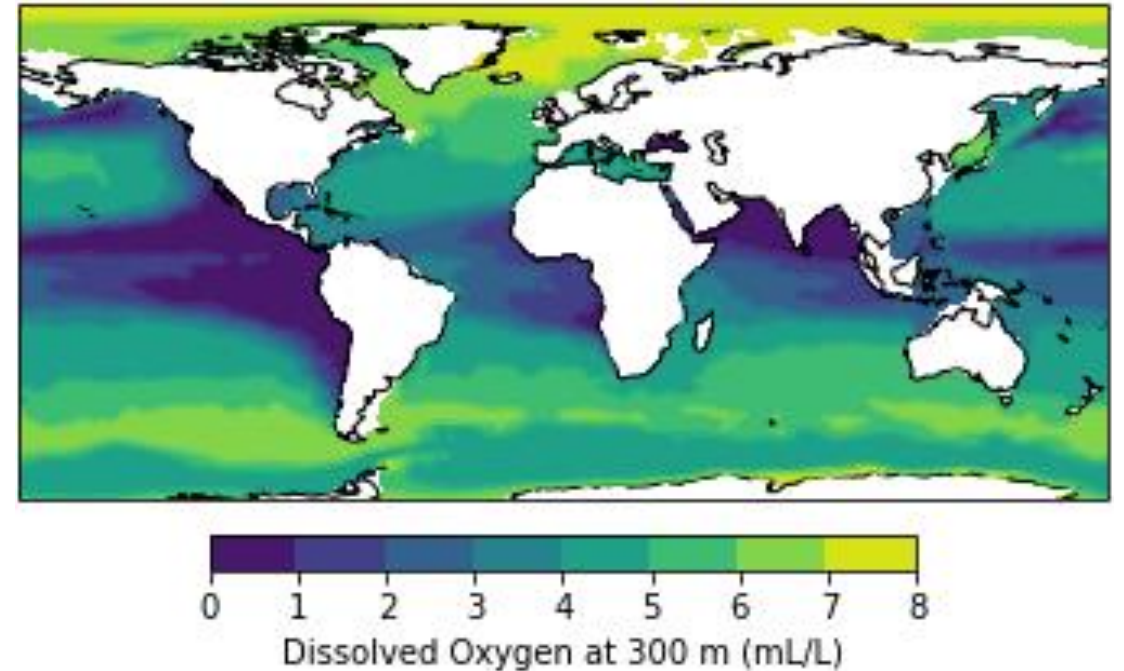
# Methods

- 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
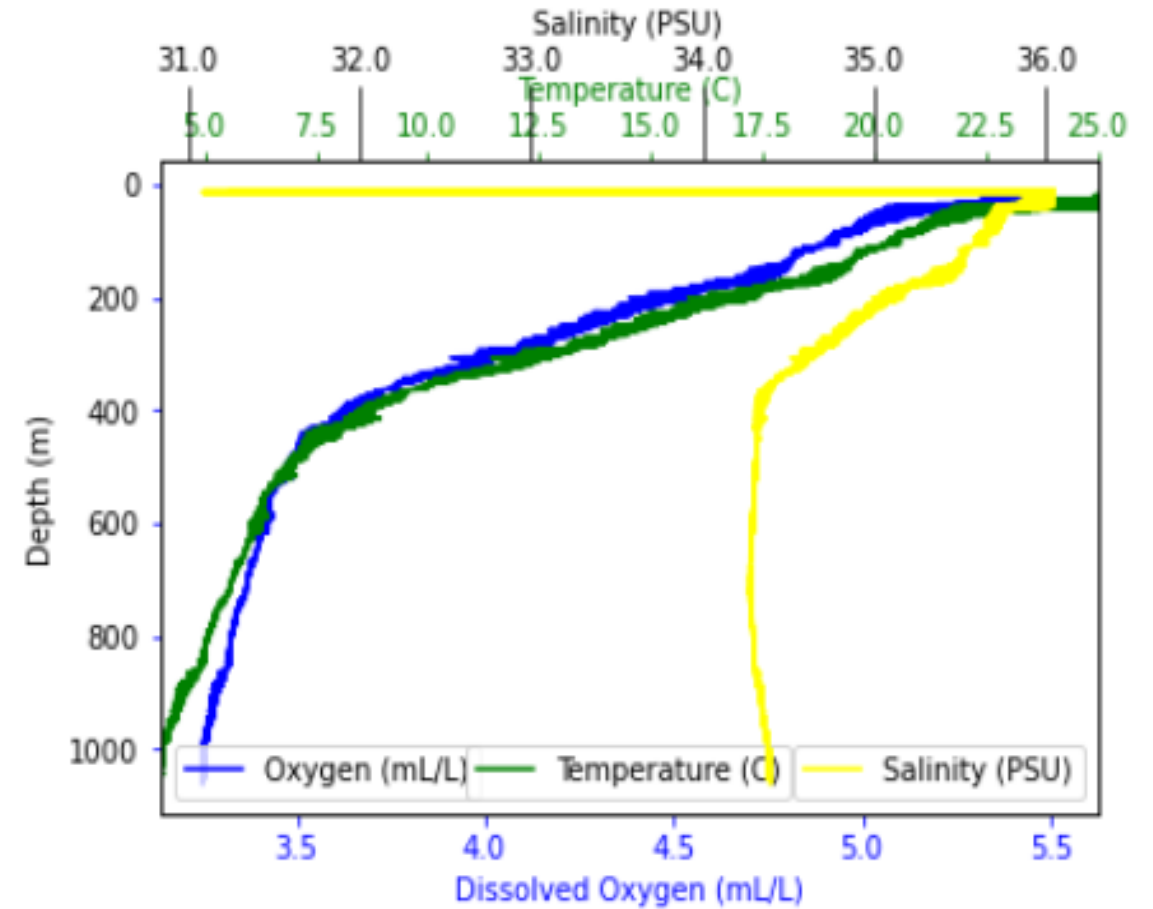  - Linear regression on oxygen varying by depth

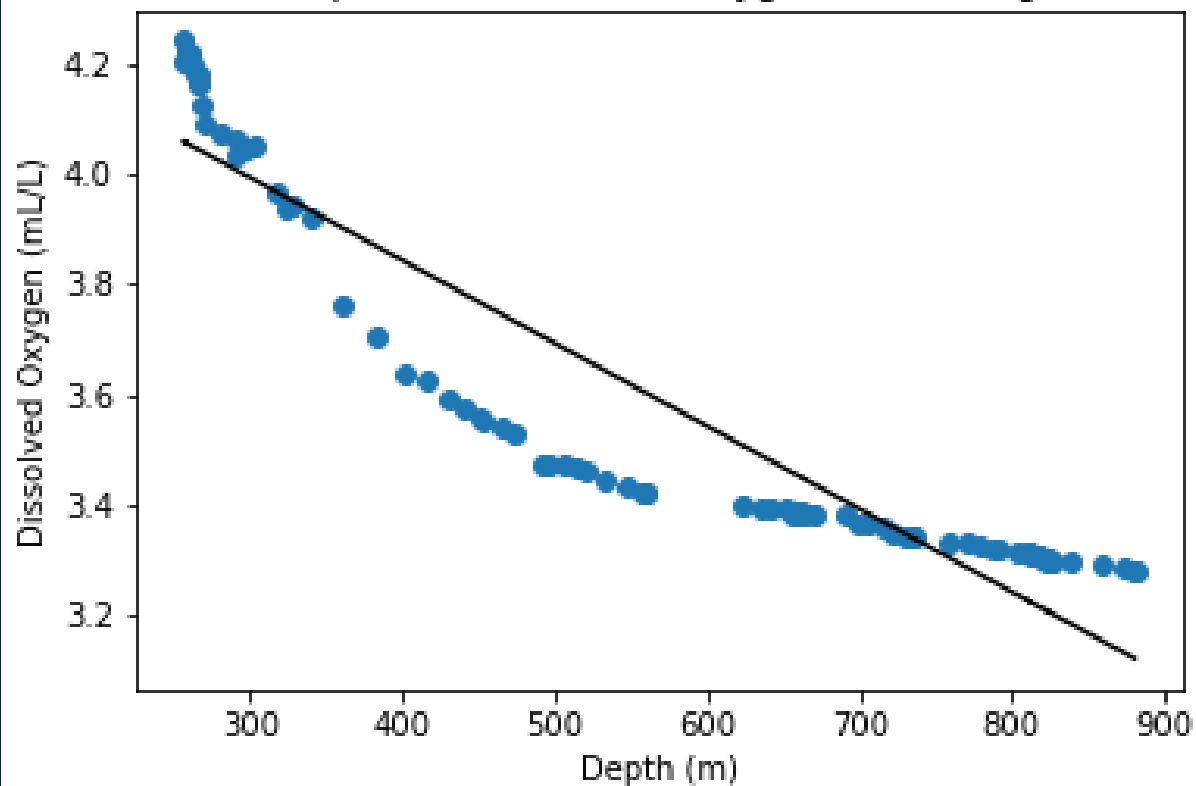SPG6 Survey Transect
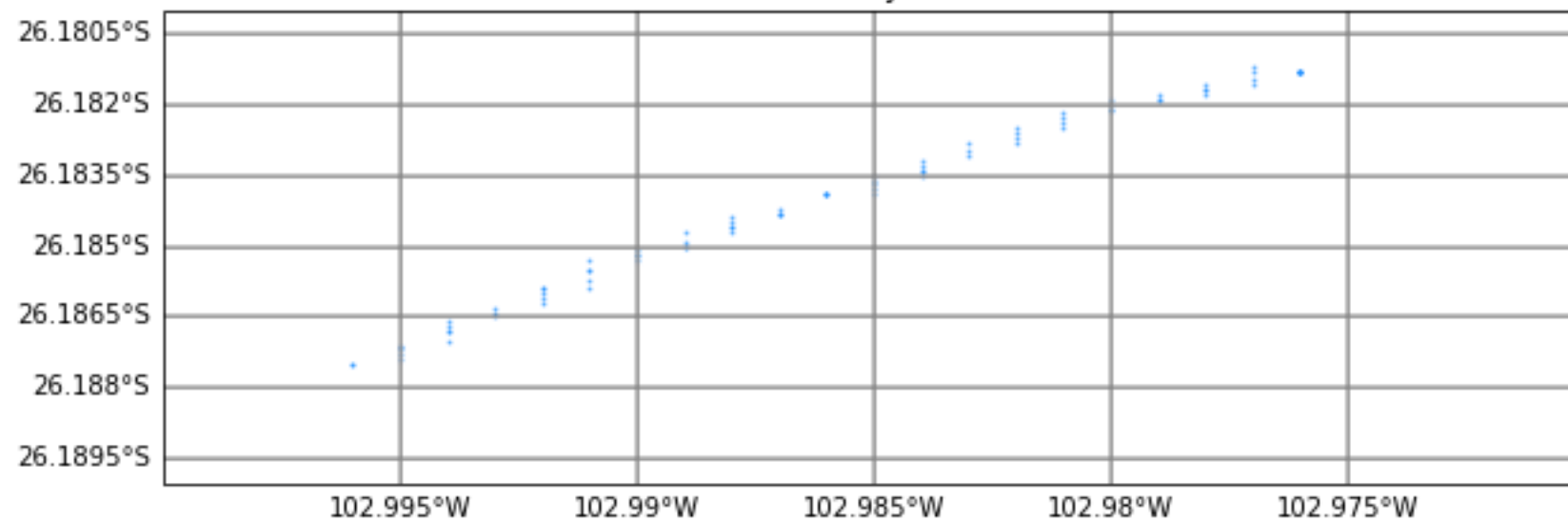
SPG7 Survey Transect
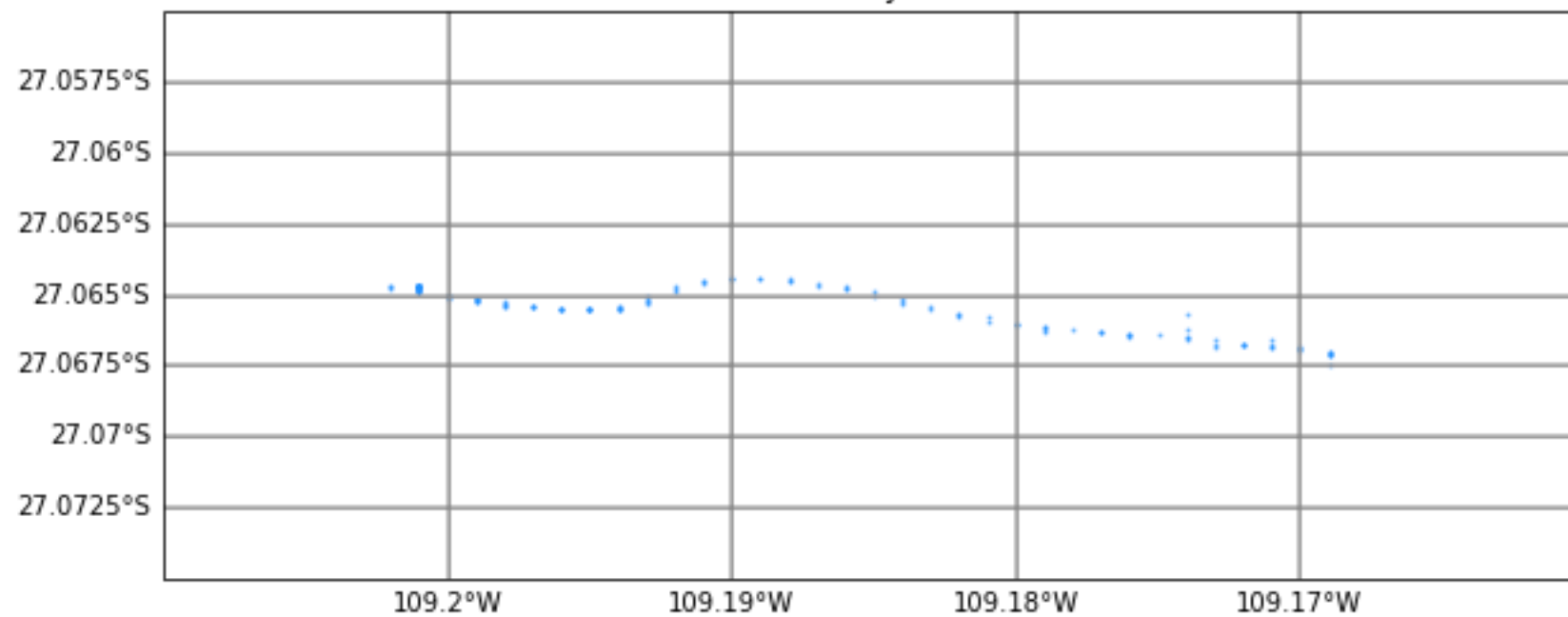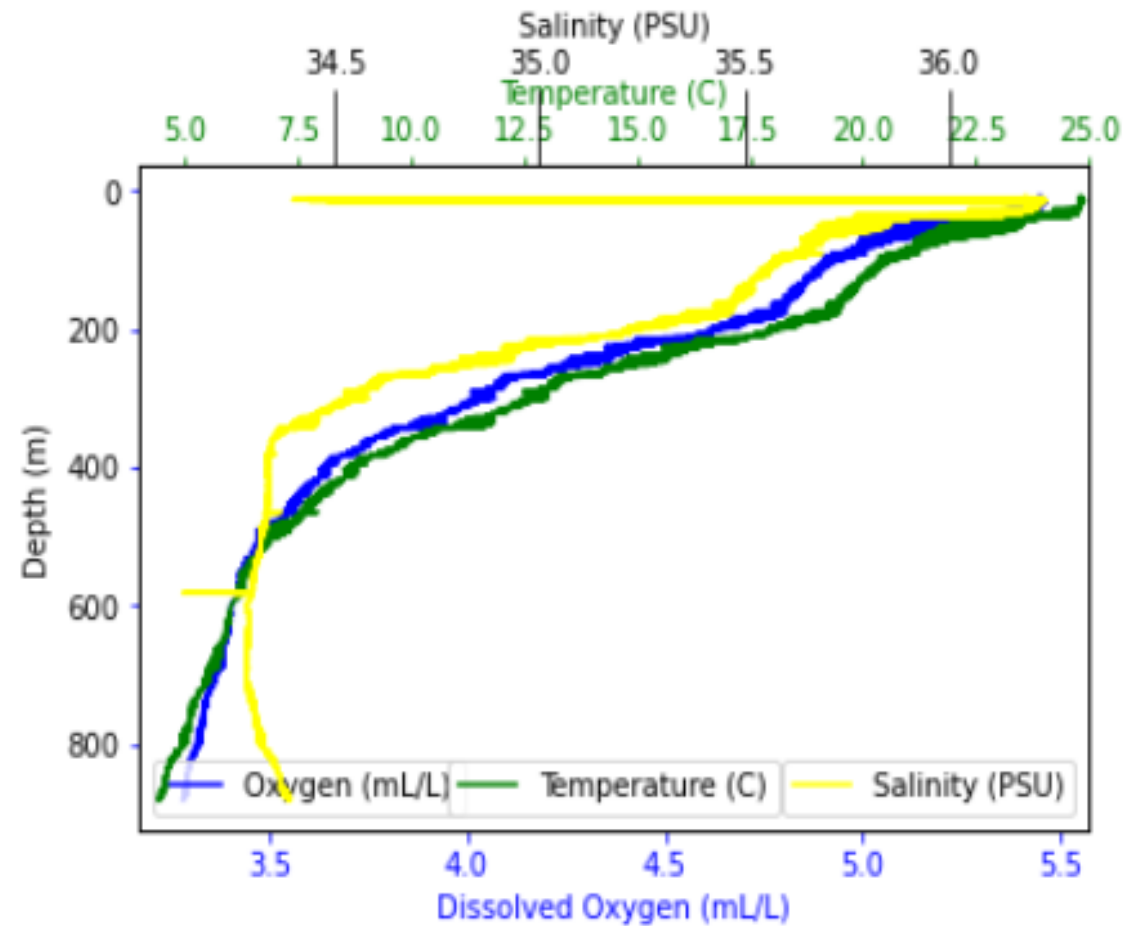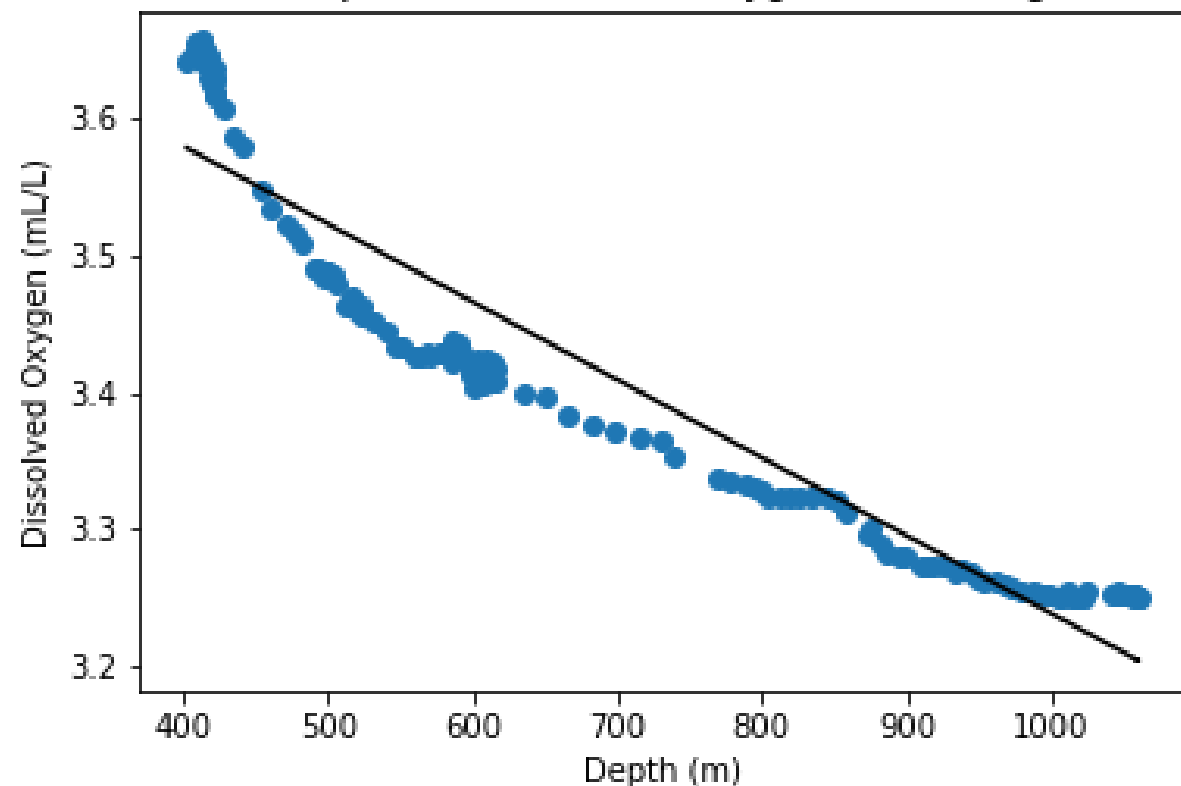
Depth profile for SPG6

Depth profile for SPG7
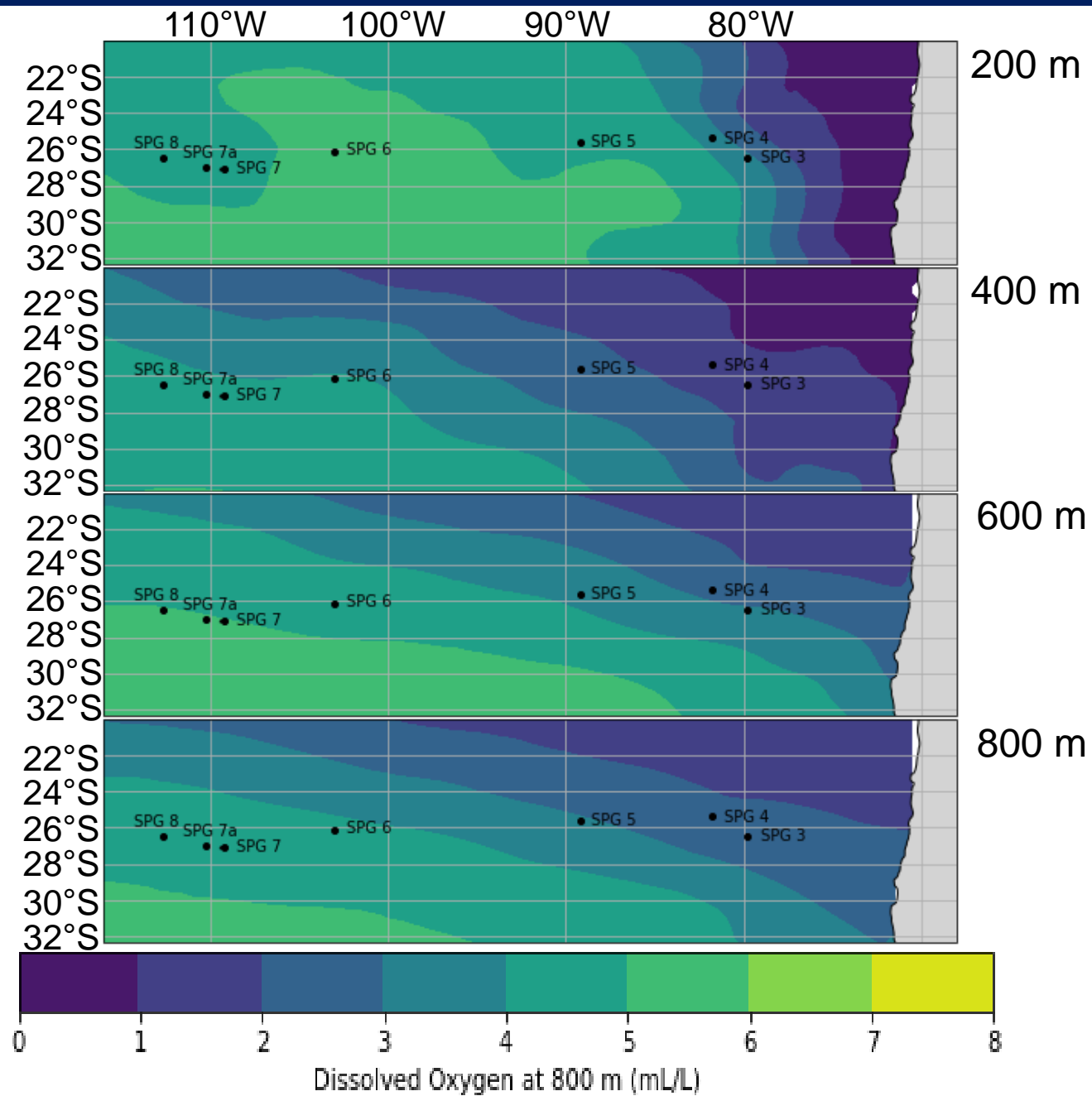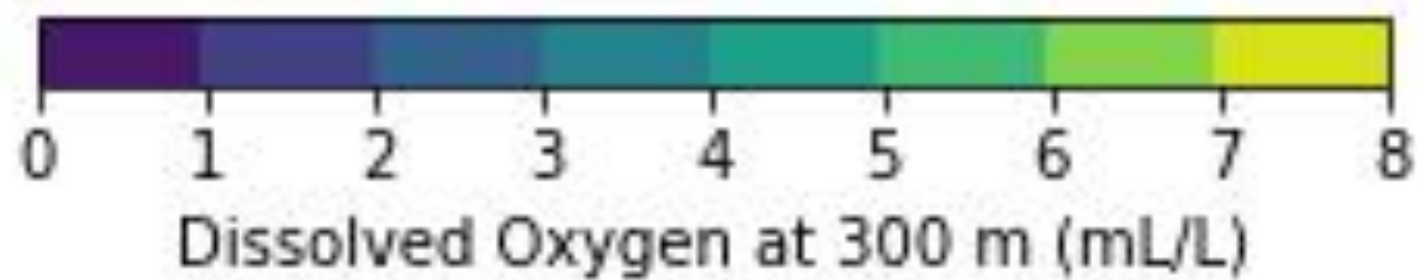
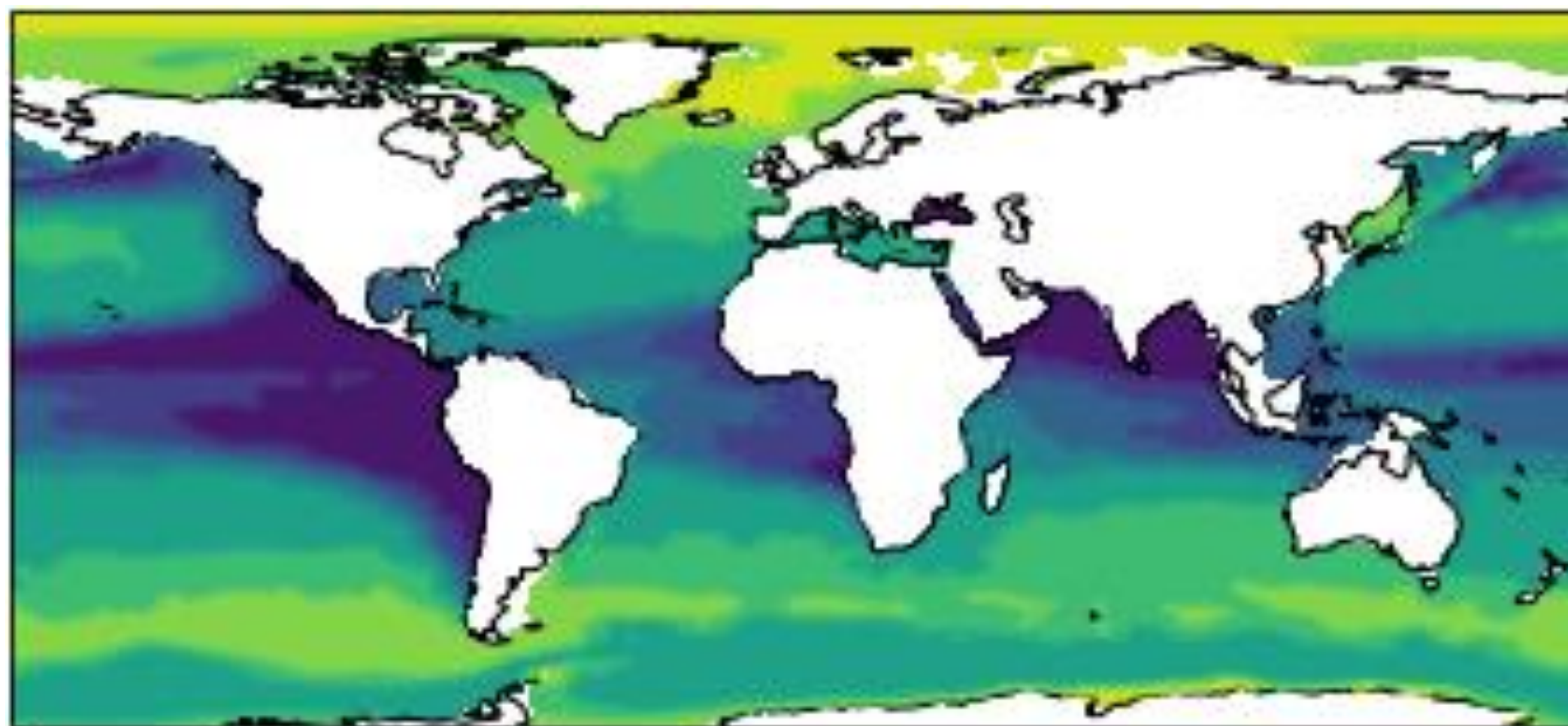SPG6 - Depth and Dissolved Oxygen Linear Regression

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

SPG 7 - Depth and Dissolved Oxygen Linear Regression

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

Dissolved Oxygen at 800 m (mL/L)

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?