



OCEAN  
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INITIATIVE

# Considerations for Potential Pioneer Relocation

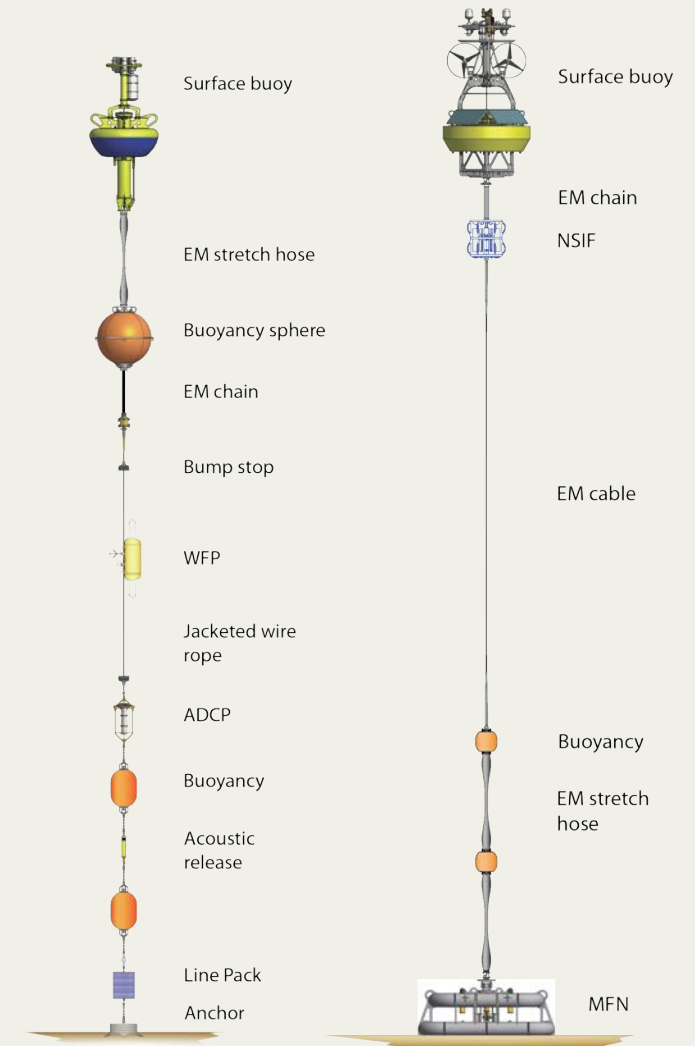
Al Plueddemann

Fall AGU OOI Booth session  
8 Dec 2020



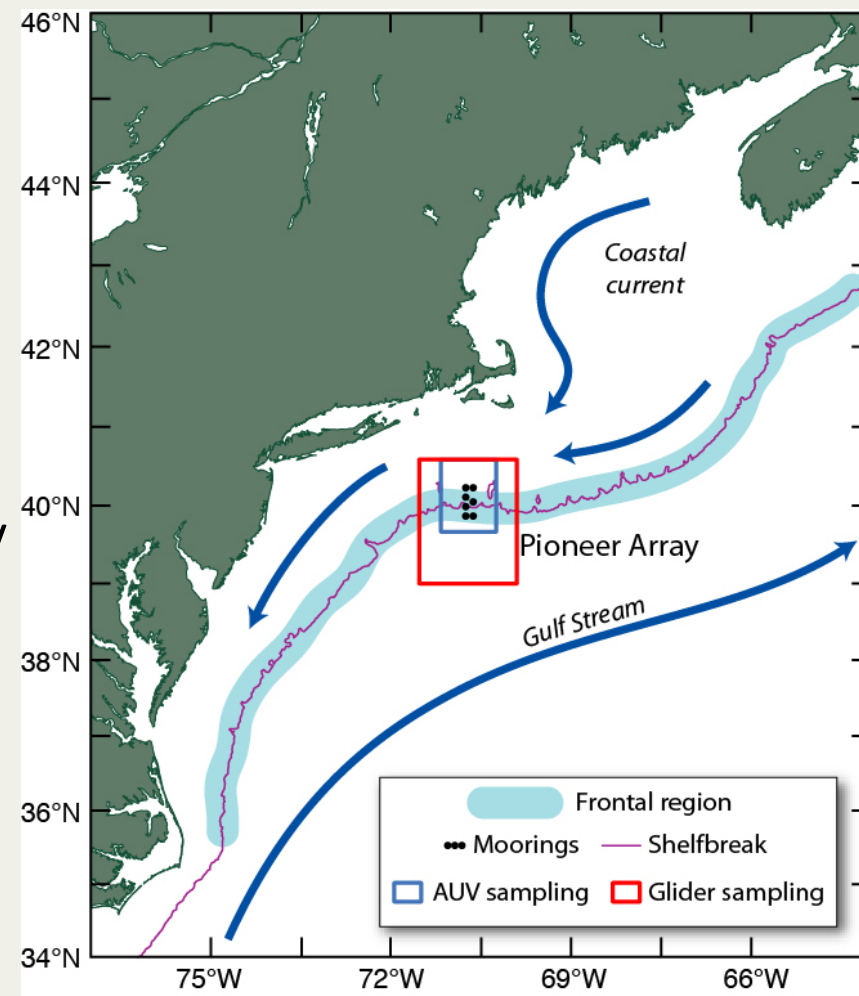
# Infrastructure

- Current Pioneer infrastructure
  - 7 sites occupied; 3 sites with mooring pairs
  - 3 surface moorings
    - Buoy, near-surface frame, bottom frame
  - 5(7) profiler moorings in summer (winter)
    - Wire following profiler, uplooking ADCP
  - 5 track-line gliders; 2 profiling gliders (summer)
  - 2 AUVs, operated from ships, ~24 h missions
- Goal for relocation
  - Maximize use of existing infrastructure
  - Advance the design, tune to the science goals



# Environment

- Designed as a shelf/upper-slope array
  - 100 m to 600 m depth
- Designed for moderate currents
  - Typical current speeds  $\sim 0.5$  m/s
  - Intermittent events of 0.6-0.8 m/s
  - Moorings designed to survive up to 2 kt (1m/s)
- Designed for moderate wave environment
  - Typical significant wave ht 2-4 m
  - Intermittent events of 6-8 m peak ht
  - Moorings designed to operate up to 10 m ht



# Financial

- Transition costs for a new site
  - Array design, engineering design
  - Procure, fabricate, integrate and test
  - Outreach and permitting
  - No new money; funded by a “phased transition”
- Operating costs
  - Includes prep/refurb, logistics, and ship time
  - Constrained by existing Pioneer operating budget