

JP R/V Neil Armstrong Orientation Cruise AR22 September 2017

Timing

Dates: 2-3 September 2017

Ship time: 29.5 h

Departure: Saturday, 2 September 2017 08:30 EST (sunrise around 06:10 EST)

Return: Sunday, 3 September 2017 14:00 EST (sunset around 19:10 EST)

Personnel

Number of science berths: 24 (6 Organizers, 16 1st and 2nd year JP Students, 2 SSSG Techs)

Organizers (6):

- Glen Gawarkiewicz (Chief Scientist, PO Scientist)
- Jake Forsyth (PO 3rd year JP student, Deputy Chief Scientist and student liaison)
- Kevin Archibald (Bio 3rd year JP student, Biology/ chemistry coordinator)
- Joleen Heiderich (PO 3rd year JP student, PO/ G&G coordinator)
- EeShan Bhatt (AOPE 3rd year JP student, Acoustics specialist, AOPE coordinator)
- Taylor Crockford (Biology research assistant, VPR and FlowCytobot specialist)

1st and 2nd year JP students (16):

Watch 1: 1600 to 2200 (6 h, Stations 3 to 6); Watch leader: Jake Forsyth

- Andrew Hirzel
- Rebecca Chmiel
- Emmanuel Codillo
- Jingxuan (Jay) Li
- Nastasia Winey
- Adrian Garcia
- Jessica Dabrowski
- Lauren Dykman

Watch 2: 2200 to 0400 (6 h, Stations 7 to 10); Watch leader: Joleen Heiderich

- Ryan Conway
- Jing He
- Ellen Lalk
- Fiona Clerc
- Marissa Kellog
- Rui Chen
- Julia Middleton
- Sheron Luk

Cruise objectives

Science

- *Hydrography*: capture shelf-break front dynamics (T, S, velocity)
- *Biology*: take phytoplankton, zooplankton and nutrient samples at new Northeast LTER (Long Term Ecological Research) site

Broader Impacts

- *Education*: orientation for first year MIT/WHOI Joint Program students
- *Outreach*: introduce first year students to science communication; write entry for JP blog; WHOI picture of the day

Equipment and sampling

- CTD rosette
 - VPR (Video Plankton Recorder): zooplankton
 - IFCB (Imaging Flow CytoBot): phytoplankton
 - Bottles (6 samples; incl. chl max, approximately evenly spaced)
 - Nutrients (nitrogen: nitrate, nitrite, ammonium)
 - Chlorophyll
 - Flow cytometry samples
- 4 Ring net tows: zooplankton (shelf side, front, slope side)
- Underway equipment:
 - Additional IFCB
 - SADC (38, 150, 300 kHz: 150kHz if possible)
 - EK80 Mid-Water Echo Sounder (fish, zooplankton)
 - Multibeam: bathymetry (show briefly during first 2 stations or net tows)

Assumptions for time estimates

Typical cruising speed with SADC: 10 kn

Speed when using the EK80: 7 kn

CTD station times:

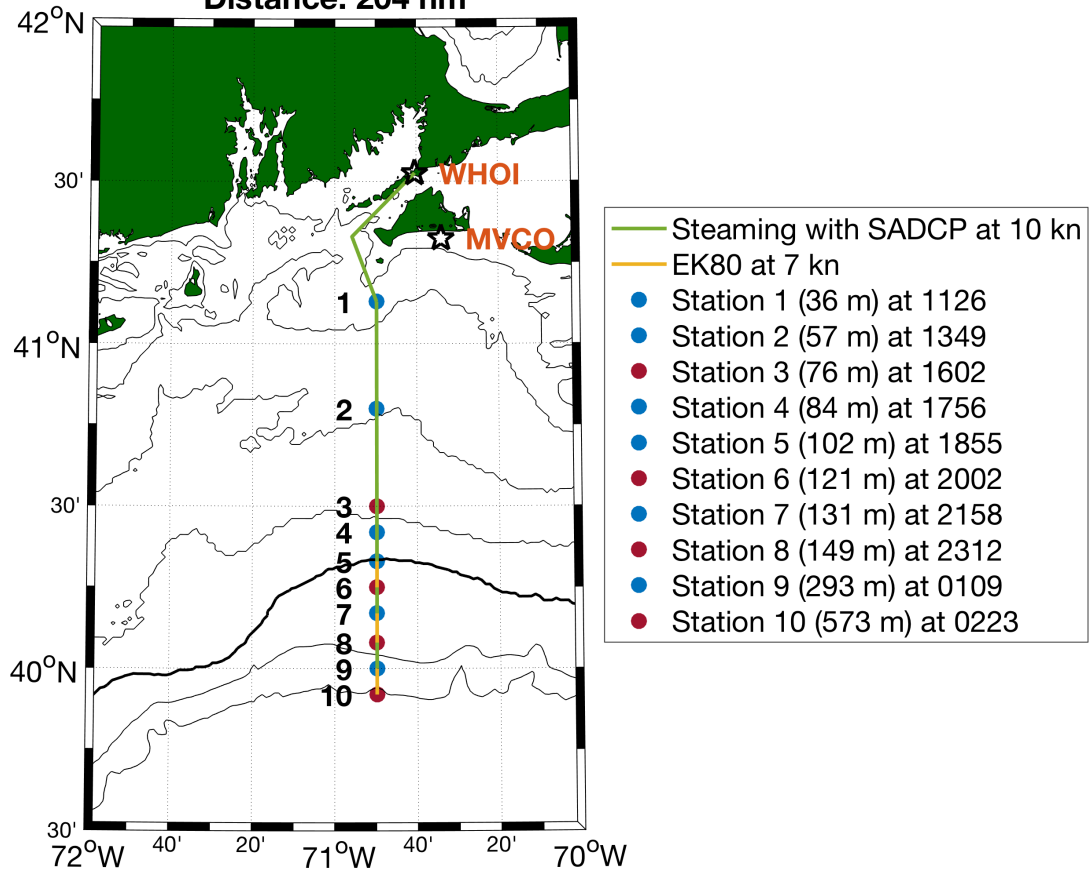
- Lower and raise CTD at speed of 1 m/s from surface to bottom
- Add 30 s per bottle
- 20 min extra time per station

Ring net tows (at red dots in map): 1 h added at each station

Departure Time: 0830

Return Time: 1400

Distance: 204 nm



Cruise plan

Day 1: Saturday, 2 September 2017

0730 Everybody has to be on board

0830 Depart WHOI

Transit

- Switch SADCPC on
- Safety instructions
- Introductory talks:
 - Glen and Kevin: Recap of pre-cruise meeting (hydrography and biology in the region, Northeast LTER (Long Term Ecological Laboratory))
 - Taylor: MVCO (Martha's Vineyard Coastal Observatory)
 - Jake and Joleen: Updates on cruise plan

- 1126 CTD Station 1: 41.13° N, 70.83° W; 36 m depth**
- Training station for watch 1
 - Bottle samples at 6 depths
- 1349 CTD Station 2: 40.80° N, 70.83° W; 57 m depth**
- Training station for watch 2
 - Bottle samples at 6 depths
- 1602 CTD Station 3: 40.50° N, 70.83° W; 76 m depth**
- First station of previous transect SVC06
 - Ring net tow
 - Bottle samples at 6 depths
 - Watch 1
- 1756 CTD Station 4: 40.42° N, 70.83° W; 84 m depth**
- Bottle samples at 6 depths
 - Watch 1
- 1855 CTD Station 5: 40.33° N, 70.83° W; 102 m depth**
- Bottle samples at 6 depths
 - Switch from SADCP to EK80
 - Watch 1
- 2002 CTD Station 6: 40.25° N, 70.83° W; 121 m depth**
- Ring net tow
 - Bottle samples at 6 depths
 - Switch from EK80 to SADCP
 - Watch 1
- 2158 CTD Station 7: 40.17° N, 70.83° W; 131 m depth**
- Bottle samples at 6 depths
 - Switch from SADCP to EK80
 - Watch 2
- 2312 CTD Station 8: 40.08° N, 70.83° W; 149 m depth**
- Ring net tow
 - Bottle samples at 6 depths
 - Switch from EK80 to SADCP
 - Watch 2

Day 2: Sunday, 3 September 2017

0109 CTD Station 9: 40.00° N, 70.83° W; 293 m depth

- Bottle samples at 6 depths
- Switch from SADCPC to EK80
- Watch 2

0223 CTD Station 10: 39.92° N, 70.83° W; 573 m depth

- Ring net tow
- Bottle samples at 6 depths
- Switch from EK80 to SADCPC
- Watch 2

0734 Waypoint for SADCPC: 40.50° N, 70.83° W; 75 m depth

- No equipment deployed, trace transect back to CTD Station 3 with SADCPC switched on

Transit

- Data Analysis
- Wrap Up

1400 Scheduled return