

JP R/V Neil Armstrong Orientation Cruise 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 4 to 8); 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 9 to 12); 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)
- 4 Ring net tows: zooplankton (shelf side, front, slope side)
- Underway equipment:
 - Additional IFCB
 - SADCP (38, 150, 300 kHz: 150kHz if possible)
 - EK80 Mid-Water Echo Sounder (fish, zooplankton)
 - Multibeam: bathymetry (test briefly during first 3 stations to show students)

Assumptions for time estimates

Typical cruising speed: 12 kn

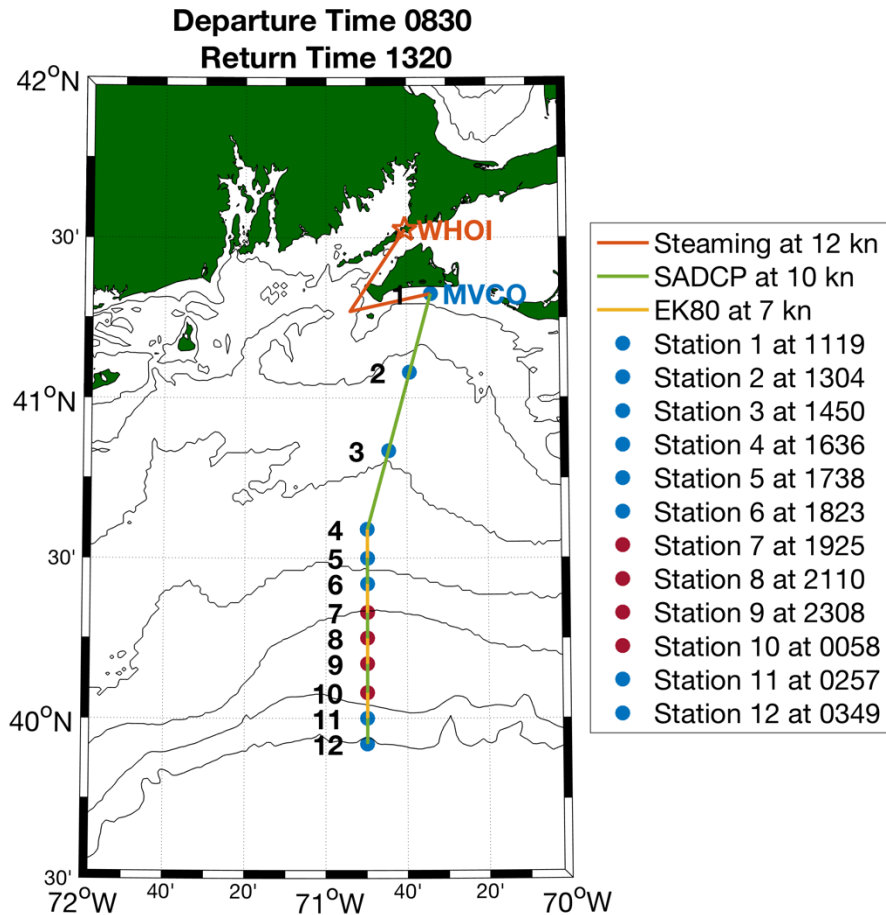
Speed when using the SADCP: 10 kn

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
- 10 min extra time per station

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



Cruise plan

Day 1: Saturday, 2 September 2017

0730 Everybody has to be on board

0830 Depart WHOI

Transit

- Safety instructions
- Introductory talks:
 - Glen: Hydrography of the region
 - Kevin: Biology, Northeast LTER (Long Term Ecological Laboratory)

1119 CTD Station 1: 41.33° N, 70.57° W; 17 m depth

- First station at Martha's Vineyard Coastal Observatory (MVCO)
- Start SADCP
- Bottle samples at 6 depths
- Everyone participates

- 1304 CTD Station 2: 41.08° N, 70.65° W; 45 m depth**
- Training station for watch 2
 - Bottle samples at 6 depths
- 1450 CTD Station 3: 40.84° N, 70.74° W; 55 m depth**
- Training station for watch 1
 - Bottle samples at 6 depths
- 1636 CTD Station 4: 40.59° N, 70.83° W; 69 m depth**
- Start of cross-shelf transect along OOI Pioneer mooring line
 - Switch from SADCPC to EK80
 - Bottle samples at 6 depths
 - Watch 1
- 1738 CTD Station 5: 40.50° N, 70.83° W; 76 m depth**
- First station of previous transect
 - Switch from EK80 to SADCPC
 - Bottle samples at 6 depths
 - Watch 1
- 1823 CTD Station 6: 40.42° N, 70.83° W; 85 m depth**
- Switch from SADCPC to EK80
 - Bottle samples at 6 depths
 - Watch 1
- 1925 CTD Station 7: 40.33° N, 70.83° W; 102 m depth**
- Ring net tow
 - Switch from EK80 to SADCPC
 - Bottle samples at 6 depths
 - Watch 1
- 2110 CTD Station 8: 40.25° N, 70.83° W; 122 m depth**
- Ring net tow
 - Switch from SADCPC to EK80
 - Bottle samples at 6 depths
 - Watch 1
- 2308 CTD Station 9: 40.17° N, 70.83° W; 131 m depth**
- Switch from EK80 to SADCPC
 - Bottle samples at 6 depths
 - Watch 2

Day 2: Sunday, 3 September 2017

0058 CTD Station 10: 40.08° N, 70.83° W; 149 m depth

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

0257 CTD Station 11: 40.00° N, 70.83° W; 293 m depth

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

0349 CTD Station 12: 39.92° N, 70.83° W; 574 m depth

- Bottle samples at 6 depths
- Watch 2

Transit

- If time allows: run SADCP at 10 kn, trace transect back from Station 12 to Station 4
- Data Analysis
- Wrap Up

1320 Return WHOI (based on time estimates)

1400 Scheduled return