Pioneer 8 Deployment

Installation Readiness Review

May 16, 2017

Pioneer 8 Deployment

Inshore
- CP03ISSM

Central Inshore
- CP02PMCI

Central Offshore
- CP02PMCO
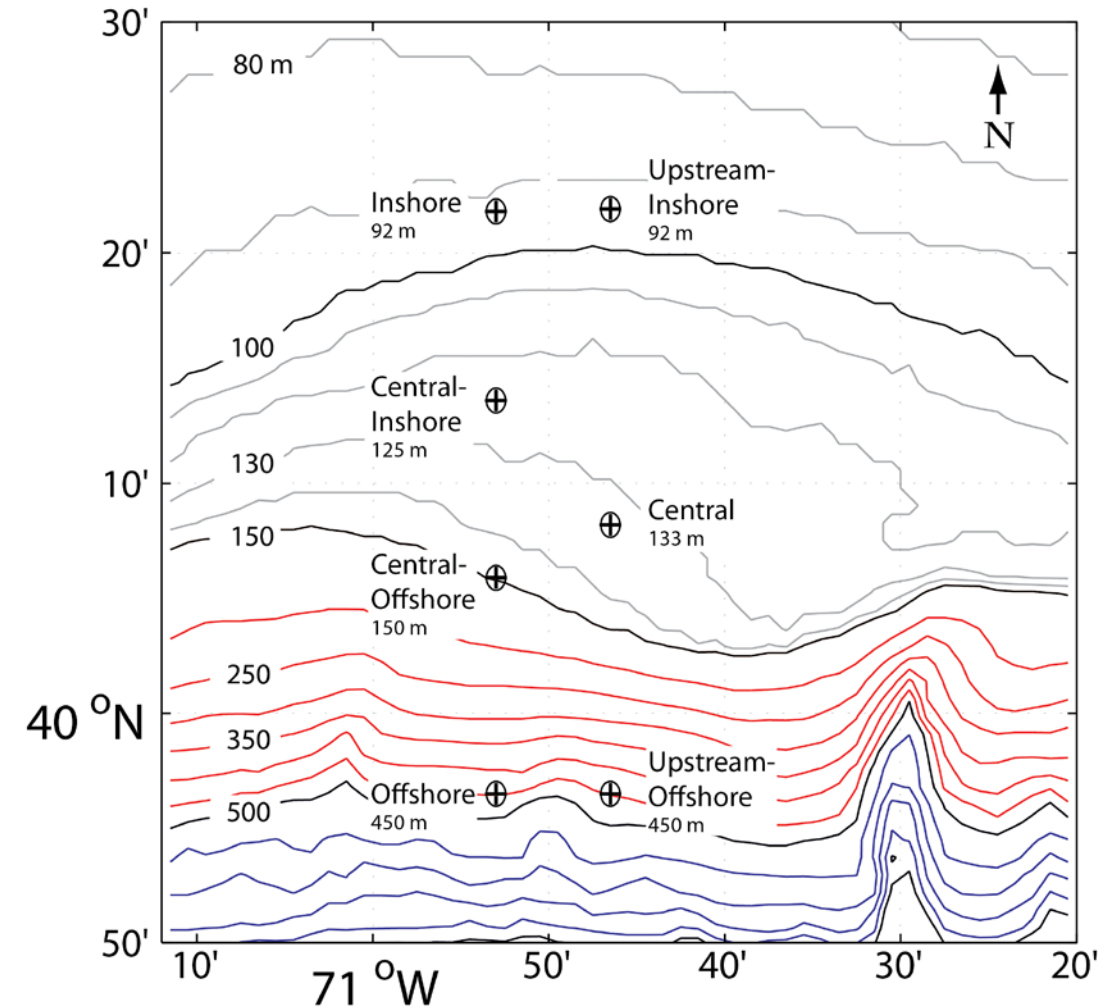
Offshore
- CP04OSSM, CP04OSPM
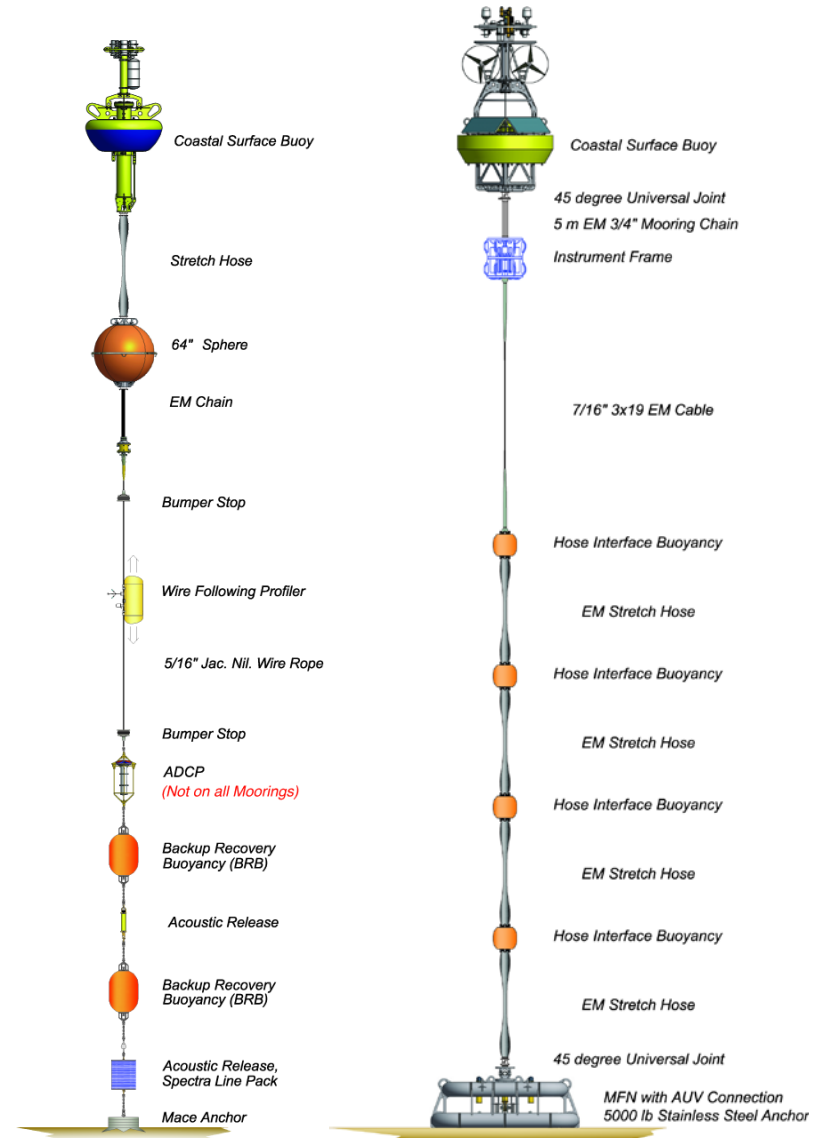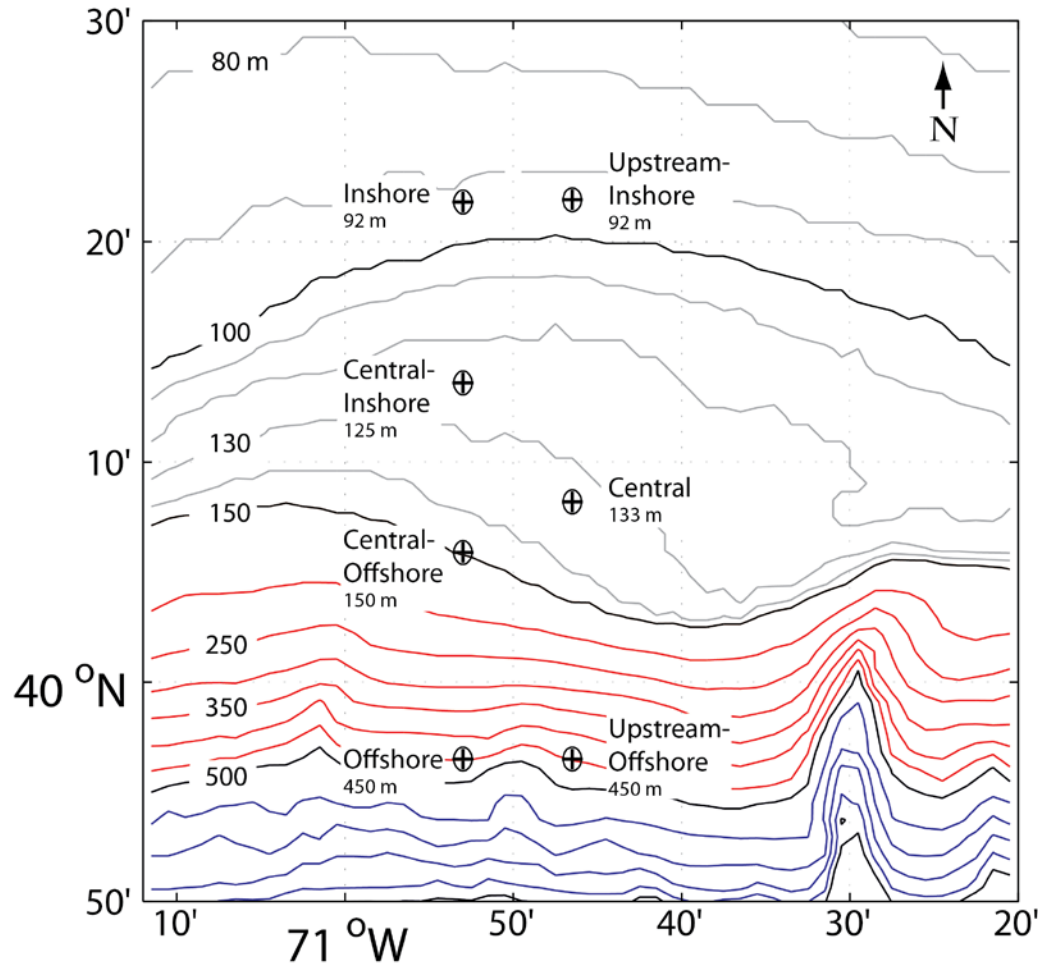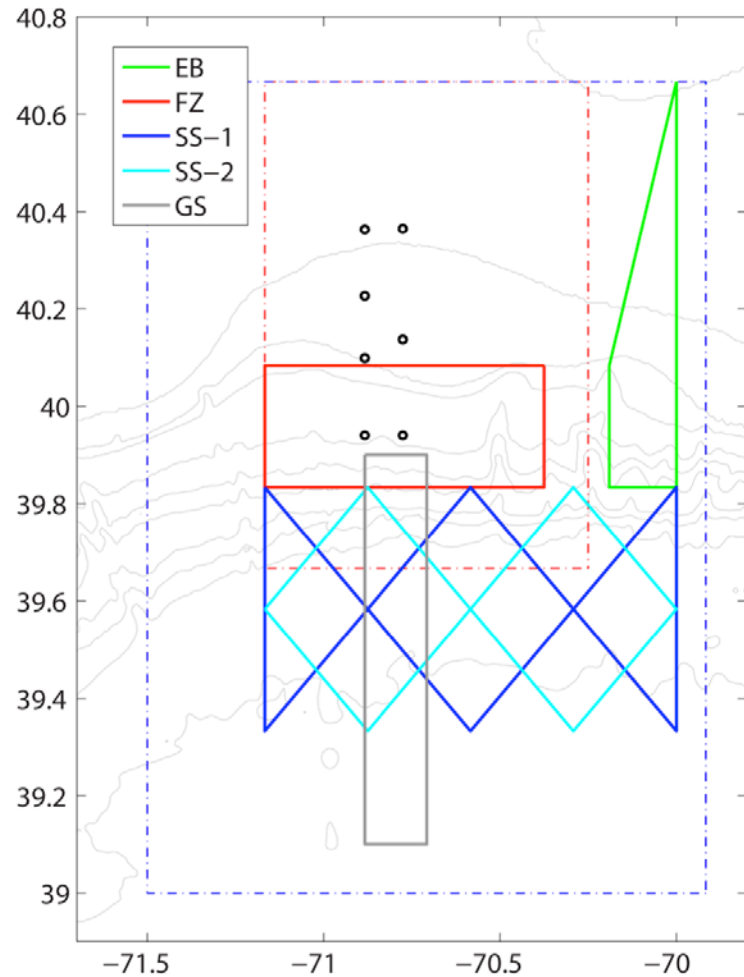
Upstream Inshore
- CP02PMUI

Central
- CP01CNSM

Upstream Offshore
- CP02PMUO

Coastal Mooring Diagram

Pioneer Glider Lines

Name	Region	Buoyancy Engine	Pioneer-8
EB	Eastern Boundary	200 m	Planned deployment
FZ-1	Frontal Zone	1000 m	Planned deployment
SS-1	Slope Sea	1000 m	Planned deployment
SS-2	Slope Sea	1000 m	Not planned
FZ-2	Frontal Zone	200 m	Not planned
GS	Gulf Stream	1000 m	Not planned

Variations from the Baseline

- Moorings
  - No fuel cells on any Surface Mooring
  - NSIF CTDBPs taking only one sample every 15 minutes (baseline is 3 minute bursts every 15 minutes)

- Gliders/AUVs
  - Deploying 3 of 6 Coastal Gliders
  - 1 of 2 Coastal Profiling Gliders deployed
  - Only 1 of 2 AUVs being deployed

  - Completion of draft report on glider investigations with a list of corrective actions to be completed prior to Pioneer 8

Cruise Objectives

Primary Objectives

O1-3.	Recover 3 Coastal Surface Moorings/Anchors (ISSM, OSSM, CNSM)
O4-8.	Recover 5 Coastal Profiler Moorings (PMUI, PMUO, PMCI, PMCO, OSPM)
O9-13.	Recover 4 anchors from previous deployments
	(ISSM-4, PMCO-6, PMUI-7, PMUO-4), plus anchor and line pack from OSPM-5
O14.	Recover 2 deep (FZ-1, SS-1) Coastal Gliders
O15-17.	Deploy 3 Coastal Surface Moorings (ISSM, OSSM, CNSM)
O18-22.	Deploy 5 Coastal Profiler Moorings (PMUI, PMUO, PMCI, PMCO, OSPM)
O23-24.	Deploy 3 gliders: 2 deep (FZ-1, SS-1) and 1 shallow (EB)
O25.	Conduct multiple AUV missions in vicinity of moored array

Cruise Objectives (continued)

Primary Objectives (cont.)

O26. Conduct CTD casts with water sampling at the deployment and recovery sites

O27. Carry out shipboard underway sampling in support of field calibration/validation.
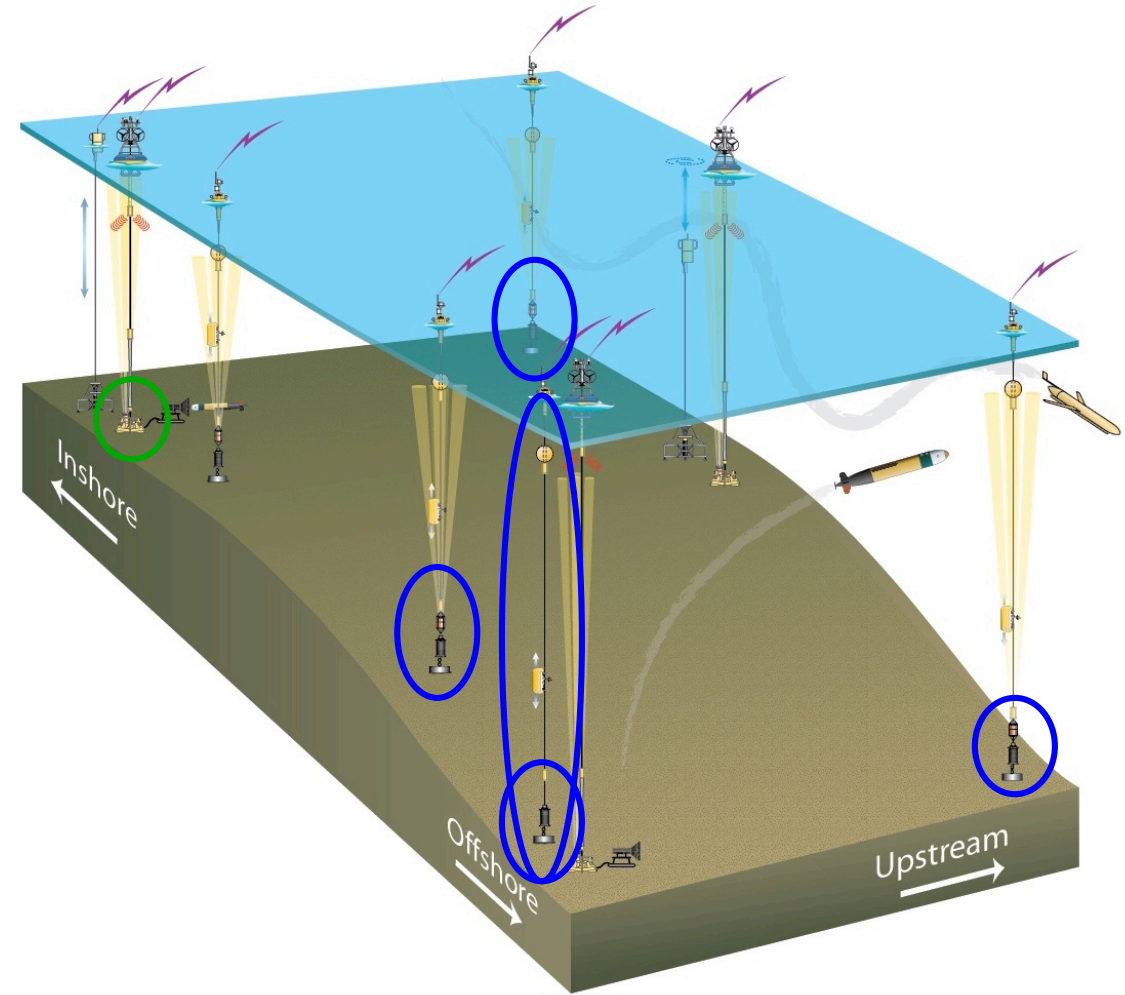
Cruise Objectives (continued)

Additional Objectives

A1. Conduct ship vs. buoy meteorological comparisons at each CSM site

A2. Conduct CTD surveys (no bottle samples) in the vicinity of the moored array

A3. Conduct underway surveys (ADCP, EK-80) in the vicinity of the moored array.

Pioneer 8 Leg 1

- Recover 4 Coastal Profiler Mooring Anchors:
  - CP02PMUI-00007
  - CP02PMCO-00006
  - CP02PMUO-00004
  - CP04OSPM-00005

- Recover 1 Coastal Surface Mooring Anchor and ARM:
  - CP03ISSM-00004

- Recover Coastal Profiler Mooring
  - CP04OSPM-00006

Pioneer 8 Leg 1 Deck Plan

Drawn By: J. Ryder 21 Feb 17

FLAT RACK w/ HOSE BOX'S on STORAGE VAN

HOSE BOX HOSE BOX

UCONN ROV VAN

FLAT RACK HLW (HPU) on RIGGING VAN

ROV WINCH

HEAVY LIFT WINCH 8480 LBS.

UCONN ROV

TSE WINCH 7000 LB

ANCHOR TRACKS

PARKING METER
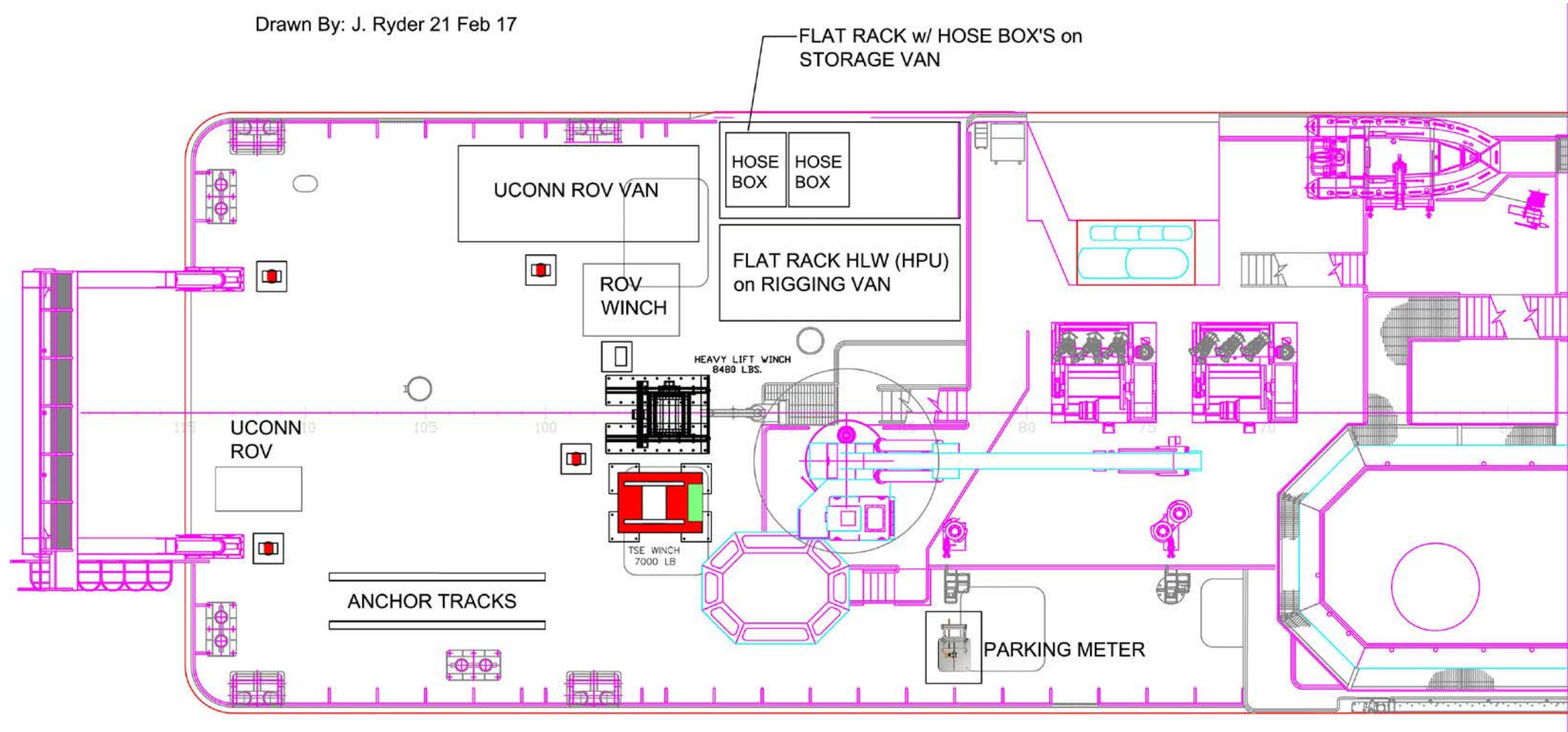
Pioneer 8 Leg 1 Cruise Schedule

28-29 May
- In-port WHOI
- Staging and Loading for Leg 1

30 May
- Complete loading, depart WHOI

31 May
- Recover CP03ISSM-00004 anchor & ARM
- Recover CP02PMUI-00007 anchor

1 June
- Recover CP04OSPM-00005 anchor & line pack
- Recover CP04OSPM-00006

2 June
- Recover CP02PMCO-00006 anchor
- Recover CP02PMUO-00004 anchor

3 June
- Arrive WHOI, offload

Pioneer 8 Leg 2

Turn Coastal Surface Moorings

- CP04OSSM
- CP01CNSM

Turn Coastal Profiler Moorings

- CP02PMUO
- CP04OSPM

Turn Coastal Gliders

- Deploy 2 deep Gliders 336, 376 (FZ, SS)
- Deploy 1 shallow Glider 339 (EB)
- Recover 2 deep Gliders (FZ, SS)

AUV
- Expeditionary missions
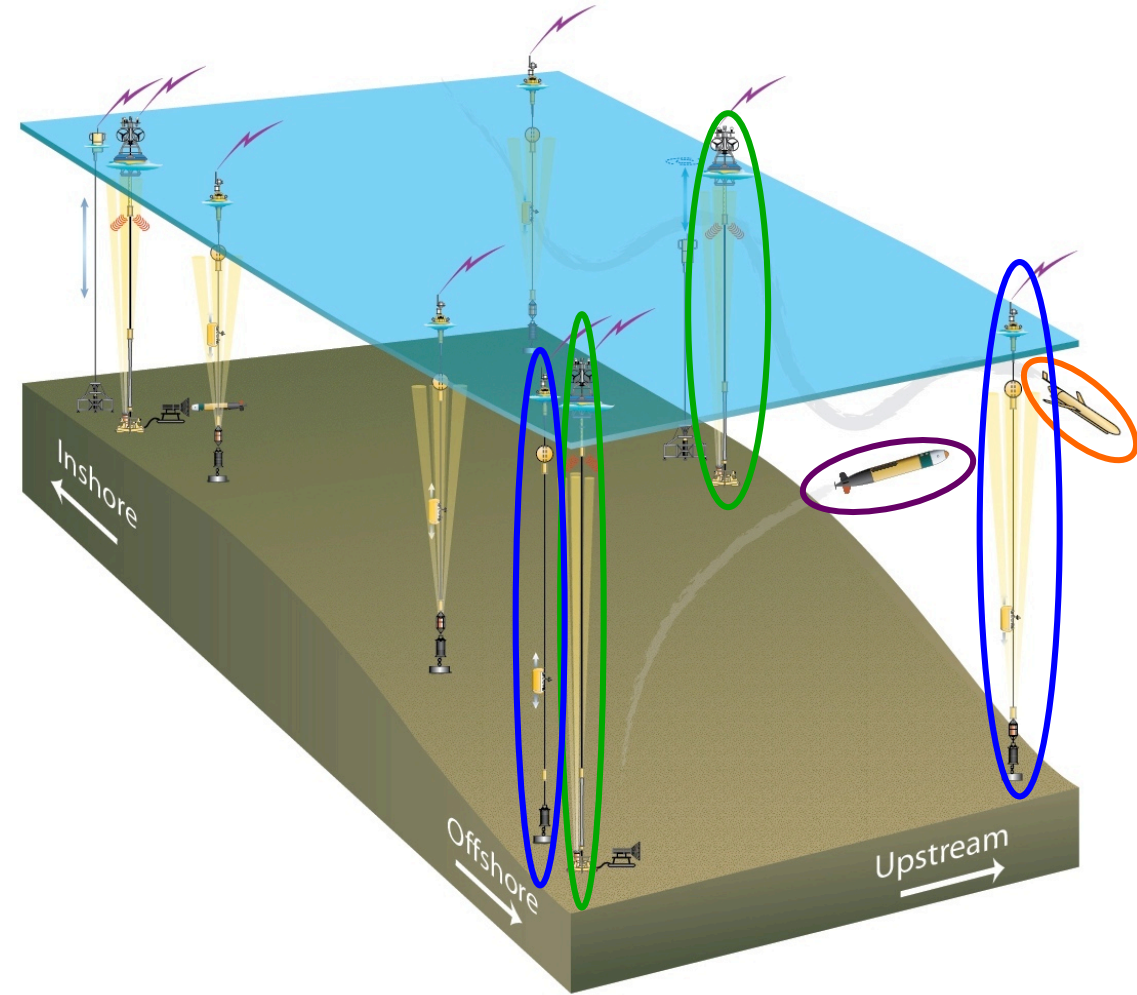
Pioneer 8 Leg 2 Deck Plan

Pioneer 8 Leg 2 Cruise Schedule

4 June
- In-port WHOI, loading for Leg 2
- SOO-LARS test

5 June
- Complete loading, depart WHOI
- Recover gliders
- Deploy shelf glider (EB)

6 June
- Deploy CP04OSSM-00006
- CTD cast
- Deploy slope gliders (FZ, SS)
- CTD cast

7 June
- Recover CP04OSPM-00006 anchor?
- CTD casts
- Deploy CP04OSPM-00007

8 June
- Recover CP02PMUO-00008
- CTD casts
- Deploy CP02PMUO-00009

9 June
- Recover CP04OSSM-00005
- Assess CN profiling glider
- Deploy CP01CNSM-00007

10 June
- Recover CP01CNSM-00006
- CTD cast
- Start along-shelf AUV survey

11 June
- Complete AUV survey

12 June
- Arrive WHOI, start offloading

Pioneer 8 Leg 3

Turn Coastal Surface Mooring
- CP03ISSM

Turn 3 Coastal Profiler Moorings
- CP02PMCO
- CP02PMCI
- CP02PMUI
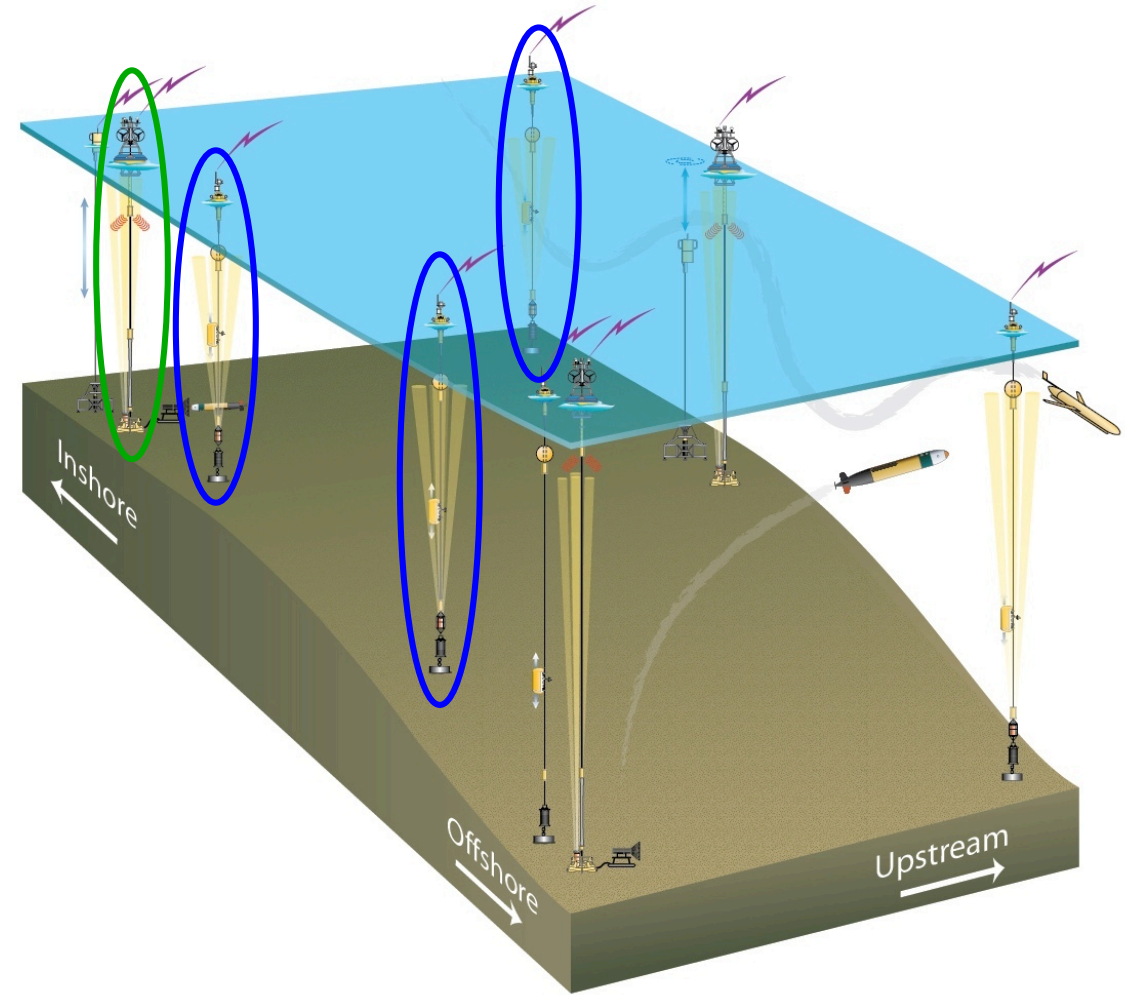
Pioneer 8 Leg 3 Deck Plan

Drawn By: J. Ryder 22 Feb 17

FLAT RACK w/ BRB FLOATS on STORAGE VAN

HOSE BOX

FLAT RACK on RIGGING VAN

HEAVY LIFT WINCH 8480 LBS.

TSE WINCH 7000 LB

WHOI DECK BOX
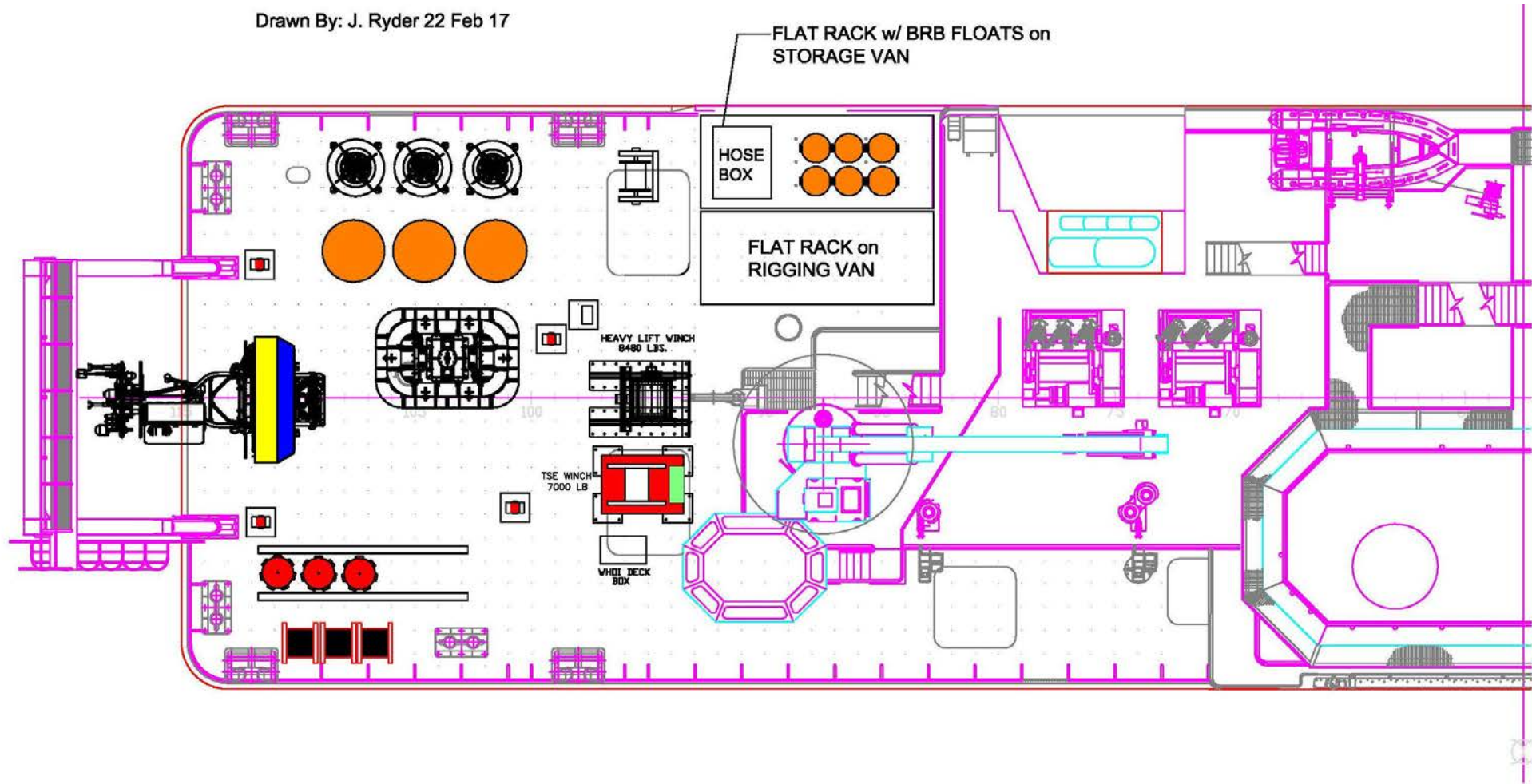
Pioneer 8 Leg 3 Cruise Schedule

13 June
- In port, Staging & loading for Leg 3

14 June
- Complete loading
- Depart WHOI

15 June
- Deploy CP03ISSM-00006
- CTD casts
- Recover CP03ISSM-00005

16 June
- Recover CP02PMCO-00007
- CTD casts
- Deploy CP02PMCO-00008

17 June
- Recover CP02PMCI-00007
- CTD casts
- Deploy CP02PMCI-00008

18 June
- Recover CP02PMUI-00008
- CTD casts
- Deploy CP02PMUI-00009

19 June
- Cross-shelf CTD survey
- Complete primary objectives as needed

20 June
- Arrive WHOI, offload

OOI IRR Checklist

	Item	Ready
1	All instruments planned for the deployment are integrated onto the platforms or are ready to be integrated at sea	✓
2	All instruments have been tested successfully	✓
3	All platforms have been tested successfully	✓
4	Emergency process, procedures, and contacts are ready	✓
5	Safety training is complete	✓
6	Operations training is complete	✓
7	Cruise staffing is in place	✓
8	The associated shore facilities (OMCs and/or shore station) are ready	✓
9	System for sea-to-shore data communication is ready	✓
10	Data from all Instruments can be captured by CI. (If not, attach a document detailing the alternate plan.)	✓
11	All platforms can be commanded and controlled	✓
12	Initial mission plans are developed and documented for mobile assets	✓
13	Initial sampling strategies are developed and documented for all instruments to be deployed	✓
14	All permits, clearances, and authorizations are in place	✓
15	All PATONs are in place	✓
16	The property management system has been updated for those items that are covered by the Property Management Plan	✓

To be completed prior to deployments

To be posted following deployments

To be done following deployment

OOI IRR Checklist

OL IRR Checklist Item

#1 All instruments planned for the deployment are integrated onto the platforms or are ready to be integrated at sea

#3 All platforms have been tested successfully

#11 All platforms can be commanded and controlled

CGSN Evidence

- Moorings
  - Initial checklists for mooring integration

  (Operations > Coastal Pioneer Cruises > Pioneer 8 Deployment Mooring folders in Vault; and to *(CG EA) Moorings* in Alfresco)*

- Coastal & Coastal Profiling Gliders
  - Functional Checkout Test Results

  (To be completed and posted to Vault and *OOI > ARCHIVE > Test Documents > (CG EA) Gliders* folder in Alfresco)

OOI IRR Checklist
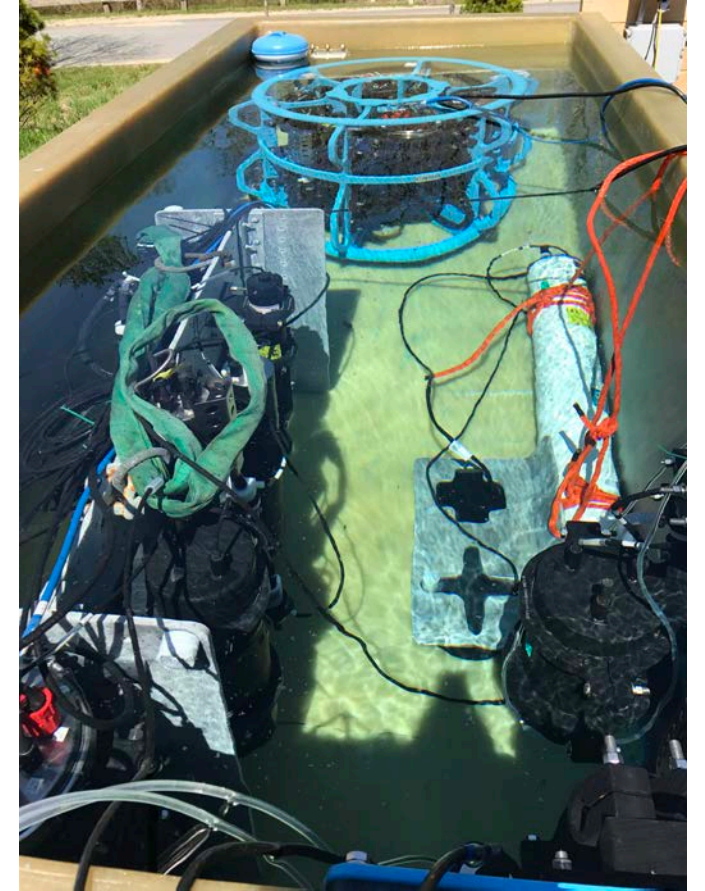
OOI IRR Checklist

OOI IRR Checklist

OL IRR Checklist Item

#2 All instruments have been tested successfully

CGSN Evidence

- Fixed Instruments
  - Quality Conformance Test Results
  - Pre-deployment Test Results – OPTAA & NUTNR to be done after burn-in

  (OOI > ARCHIVE > Test Documents > (CG EA) Instruments folder in Alfresco)

- Wire Following Profiler
  - Quality Conformance Test Results

  (OOI > ARCHIVE > Test Documents > (CG EA) Profilers folder in Alfresco)

OOI IRR Checklist

OL IRR Checklist Item

#4 Emergency process, procedures, and contacts are ready

CGSN Evidence

- OL Notification/Reporting Procedures
  - Equipment_Notification_Escalation_Process_OOI_09_20_12_Rev -1.2.doc
  - Incident_Reporting_Process_OOI_2012_09_21_ver_1-1.doc

    (*OOI > REFERENCE > Process Library > Environmental, Health, and Safety* folder in Alfresco)
- Emergency Contact Lists

    (*Operations > Coastal Pioneer Cruises > Pioneer_Operations* folder in Vault)
- DISA Card Procedure (3312-10000)

    (*OOI > CONTROLLED > 3000 Coastal Global* folder in Alfresco)
- Surface Mooring Recovery Procedure (3350-00001)

OOI

NSI

OOI IRR Checklist

OL IRR Checklist Item

#5 Safety Training is complete

#6 Operations training is complete

CGSN Evidence

- Cruise participants up-to-date on WHOI EH&S training

  (Project_Files > Operations > 04-Deployments > Deployments Notebook > Cruise Staffing in Vault)

- UNOLS safety procedures, hydrogen safety procedures will be covered on the cruise

  (Initial safety meeting, Research Vessel Safety Standards and RVOC Safety Training manual available on-board and on-line)

- Glider piloting training (at TWR) complete

  (Project_Files > Documentation > Program > Program Notebook > Training > CGSN_Training_Record.xls in Vault)

OOI IRR Checklist

OL IRR Checklist Item
#8 The associated shore facilities (OMCs and/or shore station) are ready
#9 System for sea-to-shore data communication is ready
#10 Data from all Instruments can be captured by CI

CGSN Evidence

- OMC is online and functional and receiving data from deployed platforms at Pioneer and all Global Arrays
- Burn-in data is being recieved by the OMC
- All data is on the Data Server and accessible by CI

OMC Platform Status

OMC Glider Fleet Status
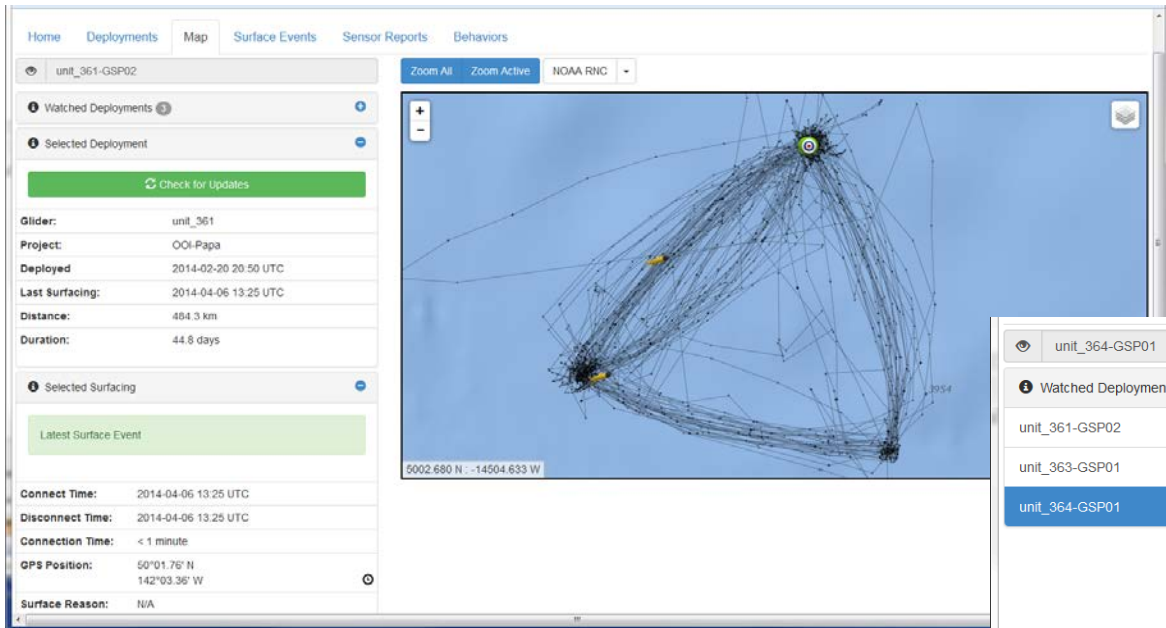
Fleet view and last surfacing

Surface event summary

OOI IRR Checklist

OL IRR Checklist Item

#12 Initial mission plans are developed and documented for mobile assets

#13 Initial sampling strategies are developed and documented for all instruments to be deployed

CGSN Evidence

- 1102-00200 OOI Sampling Strategy Document
  (Released to Alfresco)
- Mooring Configuration Spreadsheets
  (Pioneer 8 Deployment folder in Vault & Alfresco) – Finalized post-deployment
- Mission Files for Profilers and Gliders
  (Pioneer 8 Deployment/Mission Files folder in Vault) – To be posted

OOI IRR Checklist

OL IRR Checklist Item

#7   Cruise staffing is in place

#14 All permits, clearances, and authorizations are in place

#15 All PATONs are in place

CGSN Evidence

- Cruise Plan indicates cruise participants
  (3204-00801 Coastal Pioneer 8 Deployment Cruise Plan in Vault; will be released to Alfresco prior to ship departure)
- Permits and PATON in place
  (UACE Permit NAE-2010-1283; *Program Notebook > Field Ops > Pioneer Permit* folder in Vault)
  (PATON – http://www.usharbormaster.com)
- Navy Fleet Surface and Subsurface checked
- USCG notified
- Boatracs notified (fishing fleet)

OOI IRR Checklist

OL IRR Checklist Item

#16   *The property management system has been updated for those items that are covered by the Property Management Plan*

CGSN Evidence

- Configuration Spreadsheets for Asset Tracking and Property Management are drafted
  - Will be completed during the deployment and submitted to the WHOI Property Office

  (*Pioneer 8 Deployment* folders in Vault)
- As-Built TDP index drafts posted to Alfresco
  - Indices will be completed and all documents posted Alfresco

  (*OOI > Technical Data Package (TDP) Repository > As-Built >* Array folders in Alfresco)

OOI IRR Checklist

- **Mooring Configurations**
  - Captured in spreadsheets for deployment check-offs and Asset Tracking

- **As-Built TDP items**
  - Deck Drawings
  - Drawing Trees
  - Assembly Drawings
  - Design Drawings
  - BOMs

OOI IRR Checklist

- Calibration Info Spreadsheets to CI
  - Instrument calibration information provided to CI prior to deployment of platforms
  - Updated spreadsheets will be provided after the cruise (w/ deployment times/locations/etc.)

Questions?