



## Minutes from the March 2019 Meeting of the Mariners' Advisory Committee

Captain Griffin welcomed members and guests of the MAC to the March 2019 meeting.

**I. Approval of Minutes** Captain Jon Kemmerley moved that the reading of the Minutes from the December 2018 meeting be dispensed with. Captain David Cluff seconded. All voted in favor. All approved.

### **II. Reports**

#### **Treasurer's Report**

MAC Treasurer Captain Iuliucci reported a balance of \$16,797.01 and added a short description of the breakout of the meeting expenses.

#### **III. Membership Report**

MAC Membership Chairman Captain John Gazzola welcomed new members:

Silver Run- Anita Tang  
Mattioni, Ltd- Eugene Mattioni  
Gulftainer- Eric Casey  
Maritime Academy Charter School- Lucy Feria

### **IV. USACE Reports**

Captain Griffin introduced Lt. Col. Kristen Dahle of the ACOE.  
Lt. Dahle and Tim Kelly reported on the following distributed report.

Philadelphia District Corps of Engineers  
Project Status Update  
Mariners Advisory Committee for the Delaware River and Bay  
14 March 2019

#### **Delaware River, Philadelphia to Sea & Main Channel Deepening**

The Upper Reach B section of the river is currently being dredged by Great Lakes Dredge and Dock Company's (GLDD) Blasting Barge Apache and the Dredge 55. All blasting is scheduled for completion by 15 March 2019. The Dredge 55 will continue to perform clean-up work on spot shoals. The Government is currently requesting National Marine Fisheries Service (NMFS) to extend the bucket dredging window a few days to complete the clean-up work.

This year's annual maintenance dredging was awarded to Norfolk Dredging Company on 24 October 2018 for \$13,501,500.00. The Dredge Essex began dredging operations in Marcus Hook Range to a depth of 45+2 MLLW in January and have completed both Marcus Hook Range and Marcus Hook Anchorage Deepening to depths of 45+ ft MLLW. The Dredge Essex will be mobilizing to New Castle Range to begin dredging operations to a depth of 46+1 ft MLLW. The Government has also requested a proposal from Norfolk Dredging Company to perform dredging operations in Deepwater Point Range to a depth of 46+1 MLLW.

#### **Delaware River, Philadelphia to Trenton**

The Hopper Dredge McFarland completed 30 days of dredging operations between 1 October and 05 November 2018 to address shoaling in the Harbor, Delair, Frankford, Mud Island, Enterprise/Beverly and Edgewater/Devlin Ranges. Approximately 137,000 cubic yards of material dredged from the 40ft channel was placed at the Ft. Mifflin Confined Disposal Facility (CDF). A similar operation is anticipated to occur between 1 October and 31 December 2019. In addition, a project to dredge the federal portion of the Fairless Turning Basin is anticipated to be advertised and awarded this summer and completed by November of 2019.

#### Wilmington Harbor

A contract for maintenance dredging of both the 35-foot and 38-foot project channels and turning basin was completed by Cottrell Contracting Corporation in December 2018. Approximately 447,000 cubic yards of dredged material was removed and placed at the Pedricktown North CDF. A similar operation is anticipated to be advertised and awarded this summer and completed by October of 2019.

#### Schuylkill River

A contract for maintenance dredging of the 33-foot channel is scheduled to be advertised 15 March 2019. Bid Opening is scheduled for 16 April 2019, Award is scheduled for 07 May 2019, and Notice to Proceed is scheduled for 21 May 2019.

Jean Cureton inquired as to when the restrictions at MHA will be lifted. Captain Griffin replied that the Dredge Essex may be headed to New Castle Range by as early as Saturday until the end of April. Then it will move to Deep Water Range.

Tim Rooney reported on the following: We are in the process of modifying the maintenance contract to deepen Deep Water Range to 46+1. Mr. Rooney also reported on the above report. We are considering an option on the contract for the approach of the Salem River for 2020. The hopper dredge completed their work in the channel near Trenton in November. We will award a contract this summer for the turning basin there this summer for completion in the November.

#### V. NOAA Charting

Lucy Hick reported on the following distribution.

**CATZOC in the Delaware River**  
Mariners' Advisory Committee for the Bay & River Delaware  
March 14, 2019

Lucy Hick, Acting Chief, Customer Affairs Branch  
NOAA's Office of Coast Survey  
Lucy.Hick@noaa.gov ~ (240) 533-0066  
<https://nauticalcharts.noaa.gov>

#### **What is CATZOC?**

CATZOC (category zone of confidence) is an attribute, encoded in the Electronic Navigational Charts (ENC), that assigns a confidence grade to chart bathymetry based on the assessment of hydrographic data accuracy used by the charting authority to update the nautical chart. The CATZOC attribute, associated with data displayed on ENCs, is provided for mariners to assess the limitation of the hydrographic data from which the ENC was compiled, and to assess the associated level of risk to navigate in a particular area. Unlike the more traditional source diagram on the paper chart, these survey quality assessments have specific horizontal and vertical uncertainty values associated with them.

#### **Why does CATZOC matter?**

Shipping companies and insurance underwriters determine the maximum draft allowed for a vessel during transits of waterways in U.S. ports, adding a margin of error to the draft for safety. In some cases a safety margin of 25-30% may be added, ultimately resulting in money lost for the shipping and terminal operators. Additionally, these safety margins often end up negating the expense and time involved in deepening a channel. The navigational tolerances are determined using guidelines that include the known quality of survey data in a particular waterway. The better the quality of the survey, the lower the risk associated with the ship transit, resulting in additional cargo loading per transit.

Improving survey quality and upgrading the CATZOC classification allows operators to accommodate smaller margins of error while still ensuring that navigating maritime approaches and constrained environments remain safe. These decreased tolerances allow ships to maximize their loads, ultimately increasing inbound and outbound cargoes.

#### **What are the CATZOC Attributes?**

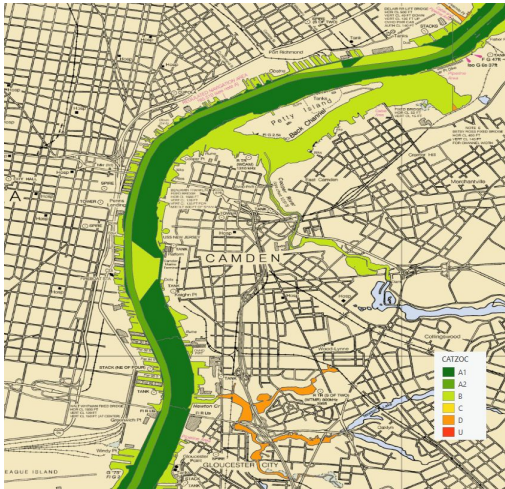
There are six different zones of confidence ranging from the highest assessed confidence (A1) to the lowest assessed confidence (D) and unassessed (U). See NOAA CATZOC Table below.

#### **History of CATZOC in Federal Channels**

The maintenance of all federal channels falls under the jurisdiction of the USACE, and as such, Coast Survey recognizes the USACE as the authority for survey data acquired in these active waterways. Previously, all federal channels were designated as a CATZOC 'U' for Unassessed. However, spurred on by requests from INTERTANKO, in 2017, NOAA's Office of Coast Survey implemented a policy that all federal channels, as maintained by the USACE, would receive a CATZOC value of 'B' fully replacing the previously encoded value of 'U'.

### What is the CATZOC for the channel in the Delaware River?

The portion of the federal channel from Newbold Channel Range down to the mouth of the Delaware Bay is A2. This is the first waterway in the U.S. to have an improved quality classification assigned to USACE survey data



### How does NOAA's Office of Coast Survey assess CATZOC?

A CATZOC assessment includes both a review of the survey data itself and a review of the survey equipment and personnel, survey design and methodologies, execution, chart production process, and quality control systems used in all phases.

#### *Individual Survey Review*

Generally, in order to determine the CATZOC, Coast Survey reviews individual surveys for:

- position accuracy
- depth accuracy
- seafloor coverage and survey technique
- feature detection, processing, and handling
- survey characteristics - sensor and equipment capability, integration, correction and calibration; data acquisition, processing, and quality assurance which includes data collection and monitoring, review and cleaning, data products and review, quality control processes and procedures, and personnel experience and training

#### *Repeat Surveys*

Surveys that are received from a source that conduct repeat surveys in an area of their responsibility, that use consistent equipment, procedures, training, and deliverables over the same geographic area, may request that those surveys receive an initial assessment and be assigned the same CATZOC without individual survey assessment for every survey delivered. Currently, this is limited to a USACE channels and certain lidar data.

### What information does Coast Survey to assess CATZOC?

In order to assess CATZOC, Coast Survey requires both the hydrographic data and the associated metadata to prove that the survey has met the requirements listed in the NOAA CATZOC table.

### Does CATZOC change over time in an area?

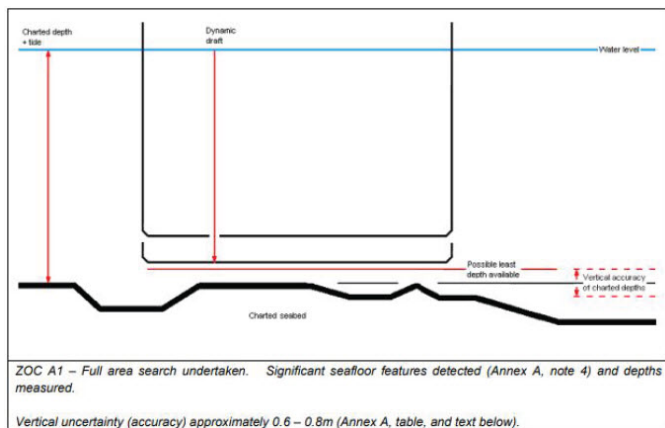
CATZOC assessments also include consideration of survey age and seafloor changeability. For areas where CATZOC has been assessed, based on repeat areas, a new assessment will likely be required every 1-2 years.

### What is the difference between CATZOC A1, A2, and B?

The International Hydrographic Organization (IHO) included the following general descriptions of zones of confidence in the draft publication S-67, *Mariner's Guide to Accuracy of Electronic Navigational Charts (ENC)*

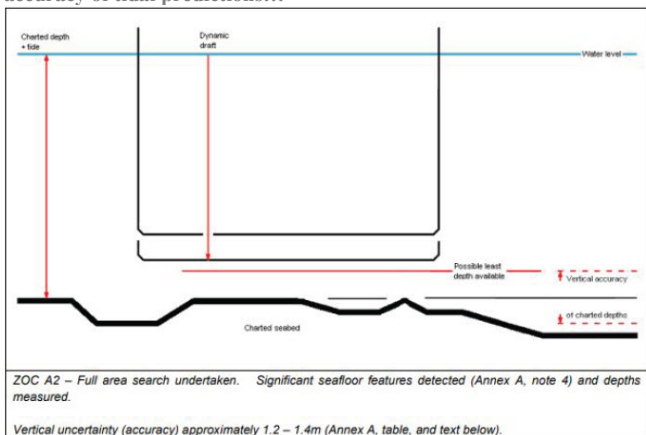
#### *CATZOC A1*

"Surveys within this category have met the requirements for full seabed search...The likelihood of any remaining undetected features is extremely low, and is most likely to be the result of undetected silting, or a channel which moves as a result of storms or seasonal changes. A very high degree of confidence can be had that there are no uncharted features between the charted depths or other features already shown on the chart...In practical terms, if the Harbour Master can positively confirm that there are no undetected features within the channel or depicted area, mariners should make an allowance for an under-keel clearance at least equivalent to the quoted depth accuracy for the area. **For a 10-20m draft ship this would be an allowance of at least 0.6 to 0.8m in a ZOC A1 area, plus allowances 1 for squat, settlement and the accuracy of tidal predictions...**"



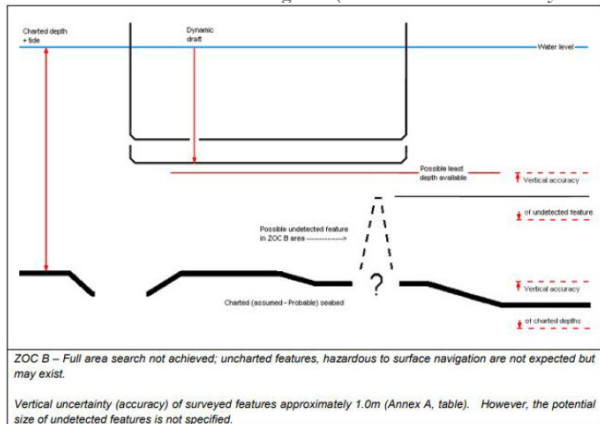
### CATZOC A2

“Surveys within this category have also met the requirements for full seabed search. They have the same level of confidence as ZOC A1 that there are no uncharted features lying between the charted depths or other features already shown on the chart. However, the safety margins the Master should allow in a ZOC A2 area are larger than those in a ZOC A1 area...In practical terms, mariners should make an allowance for an under-keel clearance at least equivalent to the quoted depth accuracy for the area. For a 10-20m draft ship this would be an allowance of at least 1.2 to 1.4m in a ZOC A2 area, plus 2 allowances for squat, settlement and the accuracy of tidal predictions...”



### CATZOC B

“While the vertical accuracy of charted depths (the ‘known’ depths) is the same as for ZOC A2, the size of possible undetected features is not actually specified, leaving both hydrographic offices and mariners with a degree of uncertainty...In assigning ZOC B to an area, the national hydrographic office responsible for the ENC has assessed that ‘undetected features hazardous to surface navigation are unlikely but may exist...As a general recommendation, **it would be prudent to allow at least an additional 5 metres margin in areas within well used ZOC B shipping routes, and 10 metres<sup>3</sup> in other ZOC B areas.** These margins should be increased where the nature of the seabed is irregular (such as a coral or rocky seabed), or subject to change (such as a sandwave area).”



### How can we get to CATZOC A1?

CATZOC A1 is desired for all critical under keel clearance areas, and requires high accuracy hydrographic surveys as well as a complete feature investigation of the area surveyed to identify any hazards.

In order for a survey area to be assessed CATZOC A1, NOAA must be able to determine that it meets one of the following conditions (draft policy):

1. Survey was conducted to object detection or complete coverage standards in accordance with the latest NOAA Hydrographic Survey Specifications and Deliverables (<https://nauticalcharts.noaa.gov/publications/docs/standards-and-requirements/specs/hssd-2019.pdf>), with appropriate metadata demonstrating and documenting that these standards were met
2. Survey met standards of another organization with a quality system that is at least as rigorous as the most recent International Hydrographic Organization (IHO) “special order” or “order 1a” as published in S-44 ([https://www.iho.int/iho\\_pubs/standard/S-44\\_5E.pdf](https://www.iho.int/iho_pubs/standard/S-44_5E.pdf)), with appropriate metadata documenting that these standards were met and what procedures were followed to meet those standards. Also see Admiralty Zones of Confidence (ZOC) Table (<https://www.admiralty.co.uk/AdmiraltyDownloadMedia/Blog/CATZOC%20Table.pdf>)
3. Survey was individually assessed by NOAA to meet the NOAA and/or IHO standards stated above in A and B. Given the difficulty of this assessment, this will be done by exception only.

In order to determine that these conditions are met typically requires submission data that can be ingested into NOAA’s workflow system and inclusion of a Total Propagated Uncertainty Model (TPU) or uncertainty layer.

For USACE data, NOAA is proposing:

- The full high-resolution multibeam bathymetry (and/or side scan sonar data) is provided in a bathymetry attributed grid (BAG) file format, with the appropriate offset parameters provided as part of the final delivery product
- The BAG file, along with any additionally required metadata, is uploaded to E-Hydro no more than 30 days after final survey acquisition of a channel reach.
- Resurvey to object detection standards will not exceed 5-years between surveys.

**NOAA CATZOC TABLE**

ZOC <sup>a</sup>	Position Accuracy <sup>b</sup>	Depth Accuracy <sup>b</sup>	Seafloor Coverage	Typical Survey Characteristics <sup>c</sup>	NOAA CATZOC Description
<b>A1</b>	± 5 m + 5% depth	~ 0.50 + 1% d	Full area search undertaken. Significant seafloor features detected <sup>d</sup> and depths measured.	Controlled, systematic survey <sup>e</sup> achieving high position and depth accuracy	1. Any survey coverage that meets A1 feature detection and uncertainty requirements. Horizontal <sup>2</sup> and vertical <sup>2</sup> uncertainty estimates must be computed and meet A1 accuracy standards at 95% confidence interval  2. Examples may include object detection coverage, complete coverage (HSSD 5.2.2)
		Depth (m)			
		Accuracy (m)			
		10 ± 0.6			
		30 ± 0.8			
<b>A2</b>	± 20 m	~ 1.00 + 2% d	Full area search undertaken. Significant seafloor features detected <sup>d</sup> and depths measured.	Controlled, systematic survey <sup>e</sup> achieving position and depth accuracy less than A1	1. Any survey coverage that meets A2 feature detection and uncertainty requirements. Horizontal <sup>2</sup> and vertical <sup>2</sup> uncertainty estimates must be computed and meet A2 accuracy standards at 95% confidence interval
		Depth (m)			
		Accuracy (m)			
		10 ± 1.2			
		30 ± 1.6			
<b>B</b>	± 50 m	~ 1.00 + 2% d	Full area search not achieved. Uncharted features hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey <sup>e</sup> achieving position and depth accuracy less than A2	1. Any survey coverage that meets A1/A2 uncertainty requirements but fails to meet A1/A2 feature detection requirements  2. Any survey coverage that meets B uncertainty requirements  3. Examples may include set line spacing coverage, trackline coverage (HSSD 5.2.2)
		Depth (m)			
		Accuracy (m)			
		10 ± 1.2			
		30 ± 1.6			
<b>C</b>	± 500 m	~ 2.00 + 5% d	Full area search not achieved. Depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage	1. Any survey coverage that meets C uncertainty requirements
		Depth (m)			
		Accuracy (m)			
		10 ± 2.5			
		30 ± 3.5			
<b>D</b>	Worse than C	~ 2.00 + 5% d	Full area search not achieved. Large depth anomalies may be expected.	Poor quality data or data that cannot be quality assessed due to lack of information	1. Any survey coverage that does not meet C uncertainty requirements
		Depth (m)			
		Accuracy (m)			
		10 ± 2.5			
		30 ± 3.5			
<b>U</b>	Unassessed – The quality of the bathymetric data has yet to be assessed	Worse than C			

**NOTE: Unassessed shall not be used.**



- <sup>1</sup> The allocation of a CATZOC indicates that particular data meets minimum criteria for position and depth accuracy and seafloor coverage defined in this Table. CATZOC categories reflect a charting standard and not just a hydrographic survey standard.
- <sup>2</sup> Position accuracy of survey data at 95% CI (2 sigma) with respect to the given datum. It is the cumulative error and includes survey, transformation and digitizing errors, etc. Position accuracy need not be rigorously computed for CATZOC B, C, and D but may be estimated based on type of equipment, calibration regime, historical accuracy, etc.
- <sup>3</sup> Depth accuracy of survey data =  $a + (b \cdot d)/100$  at 95% CI (2 sigma), where d = depth in meters at the critical depth. Depth accuracy need not be rigorously computed for CATZOC B, C, and D but may be estimated based on type of equipment, calibration regime, historical accuracy, etc.
- <sup>4</sup> Significant seafloor features are defined as those rising above depicted depths by more than:

<u>Depth</u>	<u>Significant Feature</u>
≤ 40 m	2 m
> 40 m	10% depth

A full seafloor search indicates that a systematic survey was conducted using detection systems, depth measurement systems, procedures, and trained personnel designed to detect and measure depths on significant seafloor features. Significant features are included on the chart as scale allows. It is impossible to guarantee that no significant feature could remain undetected, and significant features may have become present in the area since the time of the survey.

- <sup>5</sup> Typical survey characteristics - These descriptions should be seen as indicative examples only.
- <sup>6</sup> Controlled, systematic surveys (CATZOC A1, A2, and B) - Surveys comprising planned survey lines, on a geodetic datum that can be transformed to WGS 84.

Report out at Delaware River/Bay Marine Advisory Council  
 Philadelphia, PA  
 March 14, 2019  
 Lucy Hick - Acting Chief, Customer Affairs Branch, NOAA's Office of Coast Survey  
[Lucy.Hick@noaa.gov](mailto:Lucy.Hick@noaa.gov), (240) 533-0066

- Survey/SURF Status
  - The *Bay Hydro 2* surveys from 2018 are still in review at our processing branch.
  - *BH2* will be returning in June in order to complete the rest of the survey requests in the Delaware River and Bay. There is a possibility that they could arrive sooner, but this is dependent on completion of repairs to their sonar.
- Chart updates
  - Channel Depths on Raster Charts
    - Coast Survey is in the process of replacing controlling depths with project depths on raster charts. Standardizing depth presentation on these products will improve data consistency and overall safety. The initial priority will be on deepwater channels. NOAA's suite of ENC's are not affected by these changes. For more information, see the recent blog post, *NOAA announces change in channel depths on raster nautical chart products --* <https://www.nauticalcharts.noaa.gov/updates/?p=171708#more-171708>
  - ENC Priority
    - Due to the government shutdown, there is a significant backlog of chart updates to be applied to the RNC & paper charts.
    - As a reminder, the ENC will always be the most accurate and up-to-date source of charting information. As we have been publishing in the LNM, "NOAA recommends that mariners take advantage of the most recent chart updates by using the NOAA Electronic Navigational Chart (ENC) for coverage. Over the next few years, mariners will see continued improvement in the extent and detail of ENC coverage, while there will be a reduction in RNC and paper chart coverage and service. ENC's will include routine changes between editions that are not published through notices to mariners..."
- CATZOC/Survey Quality for USACE data
  - Coast Survey is still in the process of developing a policy for addressing and prioritizing future requests for CATZOC evaluation. We plan to post information about this on our website. In the meantime, I've put together a CATZOC document, that I hope you will find helpful.
- Externally sourced data (ESD) -- NOAA has a policy of evaluating externally sourced data (non-NOAA/non-USACE) for use in updating the chart. These can be survey acquired by private contractors or academic institutions. Please feel free to reach out to me if you are aware of datasets which are available.
- Questions or problems
  - Everyone is encouraged to report questions or problems with NOAA charts and navigation services via our ASSIST website -- <https://www.nauticalcharts.noaa.gov/customer-service/assist/>

*Captain Griffin introduced Eric Clarke (PES) to talk further about the CATZOC program. Mr. Clarke reported that by being the first port certified, the tanker industry now has additional confidence in USACE surveys of the Delaware, resulting in their ability to carry additional cargo as a result of smaller required extra UKC due to survey quality. For the tanker industry, getting the port CATZOC Certified, has meant a world of difference in getting extra freight to the berth.*

## NOAA PORTS

John Stepnowski reported on the following distribution:

**DELAWARE BAY PORTS  
PORTS UPDATES  
CO-OPS  
FIELD OPERATIONS DIVISION**  
Submitted By:  
Mr. John Stepnowski  
NE and Mid-Atlantic Field Operations Team Lead

The current status of the Delaware River and Bay PORTS is very strong, all sensor reporting with the exception of the follow;

- Brandywine Winds, Water Temp. and Conductivity sensors - A Resource Estimate has been requesting and accepted from PORTS maintenance contractor. Access still remains to be an issue. Work is expected to be complete this spring.
- Ship John Shoals – The annual maintenance trip was performed by contractors during the month of December, contractors found the protective well for the conductivity sensor to be damaged below low water. A Statement of Work (SOW) has been drafted and will be presented for a resource estimate. Work is expected to be complete this spring. The pier to the Ship John Shoal Lighthouse is severely damaged and the station is only accessible using a large vessel that can push up next to the damage landing pier. The CT sensor is stuck and will have to be freed by divers if possible.
- Delaware Channel Buoy 10 – System has been tested and is ready for deployment, contractors are waiting on a weather window.

Delaware Memorial Bridge Air Gap installation is moving forward, with the installation will be performed spring 2019 (tentatively in April).

### Delaware Current Survey

The CURBY buoy will be deployed at Petty Island's historic station ([39.967, -75.118], 10.7 m depth) for 60 - 90 Days. CO-OPS plans to deploy the buoy equipped with a downward facing current meter in July and leave it deployed at this one location for 60 - 90 days, providing enough time to compare recent observations to the historic predictions and complete a harmonic analysis.

Scheduled work performed during the first quarter;

- Philadelphia HADCP – The scheduled maintenance was performed in February
- The Cape May Conductivity Sensor was visited on December 18, 2018 for routine bi-monthly maintenance. The CT sensor was raised and cleaned of light biofouling and the bleed air hole was cleaned out
- The Lewes water level station was visited on December 14, 2018 for bi-monthly routine maintenance. The conductivity sensor was raised and cleaned of light fouling, and the bleed air hole was cleaned

Delaware River and Bay PORTS, NOAA/NOS 2019-03-12 17:35 EDT

```

-----Water Levels (above MLLW)-----
Newbold      5.4 ft, Rising Burlington      5.1 ft, Rising
Bridesburg   4.7 ft, Rising Philadelphia    4.8 ft, Rising
Marcus Hook  5.0 ft, Rising Delaware City    4.1 ft, Falling
Reedy Point  4.1 ft, Falling Ship John Shoal  2.9 ft, Falling
Brandywine Shoal Li.. 1.4 ft, Falling Cape May      1.4 ft, Falling
Lewes        1.3 ft, Falling

-----Winds-----
Spd Dir Gusts      Spd Dir Gusts
Newbold      12 kn NNW  18 Burlington      8 kn NNW  12
Delaware City 9 kn  NW   15 Ship John Shoal  14 kn NNW  16
Brandywine Shoal Li.. *** kn ***  *** Cape May      17 kn NNW  21
Lewes        13 kn  N   17

-----Air and Water Temperature-----
Air  Water      Air  Water
Newbold      44 °F  42 °F Burlington      43 °F  40 °F
Bridesburg   45 °F  42 °F Philadelphia    46 °F  39 °F
Marcus Hook  47 °F  42 °F Delaware City    45 °F  37 °F
Reedy Point  44 °F  40 °F Ship John Shoal  43 °F  40 °F
Brandywine Shoal Li.. *** °F      Cape May      43 °F  42 °F
Lewes        42 °F  43 °F

-----Barometric Pressure-----
Newbold      1025 mb Rising Burlington      1024 mb Rising
Bridesburg   1024 mb Rising Philadelphia    1024 mb Falling
Marcus Hook  1024 mb Falling Delaware City    1025 mb Falling
Reedy Point  1024 mb Rising Ship John Shoal  1024 mb Rising
Brandywine Shoal Li.. 1025 mb Rising Cape May      1024 mb Rising
Lewes        1025 mb Rising

-----Salinity/Specific Gravity-----
Salin.  S.G.      Salin.  S.G.
Ship John Shoal *** psu   *** Cape May      26.7 psu  1.022
Lewes        24.2 psu  1.020

-----Air Gap/Bridge Clearance (above water surface)-----
Ben Franklin Bridge 136.1 ft, Decr. Reedy Point Bridge 137.4 ft, Incr.

-----Currents (F)lood, (S)lack, (E)bb, towards °T-----
Spd Dir      Spd Dir
Philadelphia Curren.. 1.4 kn (F), 4.0°T Reedy Point (pred) *** kn ( ), ****°T
Delaware Bay Channe.. *** kn ( ), ****°T

```

## VI. USCG

### P.O. Welker reported the following:

Mariners Advisory Committee (MAC) For the Bay & River Delaware  
Fifth Coast Guard District and Sector Delaware Bay  
Waterways and Aids to Navigation Report for March 14, 2019



1. **Increased Grounding Frequency**
  - a. On 31JAN19, an MSIB was issued due to an increase in the number of groundings by deep draft vessels while at anchor.
  - b. Mariners are encouraged to employ proactive measures such as keeping engines in immediate standby, utilizing two anchors, or utilizing assist tugs if conditions warrant. For any additional questions or reporting tools, please contact the 24 hour Command Center at (215) 271-4960.
2. **Marcus Hook Anchorage Requests**
  - a. Traffic patterns within Marcus Hook Range have returned to normal.
  - b. The Captain of the Port (COTP) will permit two vessels at a time in the northernmost portion of Marcus Hook anchorage on a "first-come, first-served" basis. Vessels desiring to anchor within the Marcus Hook anchorage must obtain permission from the COTP at least 24 hours in advance, at (215) 271-4807.
3. **Marcus Hook Range Rock Blasting Operations**
  - a. The established safety zone within the waters of the Delaware River, from Eddystone, Pennsylvania south to Marcus Hook, Pennsylvania that began on 15FEB19 is scheduled to be completed **15MAR19**.
  - b. For additional information of traffic patterns, please check the Sector Delaware Bay Homeport page for updates.

### Boatswain Joseph Carlino reported on the following:

#### Sector ATON Updates

1. **Marcus Hook Project**

Contract awarded 14AUG18, Contractor: Atlantic Subsea Inc. UPDATE: 26FEB19 Piles have been installed for both range structures. Tower structures are being fabricated at this time offsite. Estimated contract completion date 30APR19.
2. **Kinkora Upper Range Rear Light**

Replacement project bumped up in priority. Looking for design completion quarter 3 2018 and award/contract bidding mid-2019. UPDATE: Design completed 21SEP2018. The project is in contracting now with an anticipated award date of 01JUL2019.
3. **CGC WILLIAM TATE**
  - a. Seasonal swap outs to standard buoy hulls completed for the entire Lower Delaware River and Bay north to Delaware River #68 just below Horseshoe.
  - b. Operation plan is to complete seasonal swap outs in the Upper Delaware River during the week of March 18<sup>th</sup>.
  - c. Marcus Hook anchorage buoy "A" will be redeployed at the end of this month, following dredge operations
4. **ANT PHILADELPHIA**
  - a. Seasonal relief swaps are planned for the 2<sup>nd</sup> week in April.
  - b. In an effort to assist mariners transiting the Salem River, ANT Philadelphia will be re-deploying a TRUB at structure 4 and temporary lights on structures 3, 5, and 7 (at a lower focal plane).
5. **ANT CAPE MAY**
  - a. Spring seasonal swaps will start the 2<sup>nd</sup> week of March with the intention of having all 26' TANB Aids done by approximately March 25<sup>th</sup>.
  - b. ANT Cape May's 49' BUSL is scheduled to return from its maintenance yard period in late June 2019. They will be borrowing the 49' BUSL from ANT Baltimore to complete their 49' BUSL seasonal swaps during the first week of April 2019.

### CMDR. Munoz report on the following:

#### District 5 ATON Updates

1. **Delaware Ice Breakwater Lights:** The project scope is to remove the abandoned towers (foundations to remain) at Delaware Bay Ice Breakwater Lights "W" and "2". Repair the JRIRS "W" light and install a new monopile structure at light "2" buoy location. Design was completed Oct 5, 2017. **UPDATE:** Project remains on schedule pending updated information on award date.



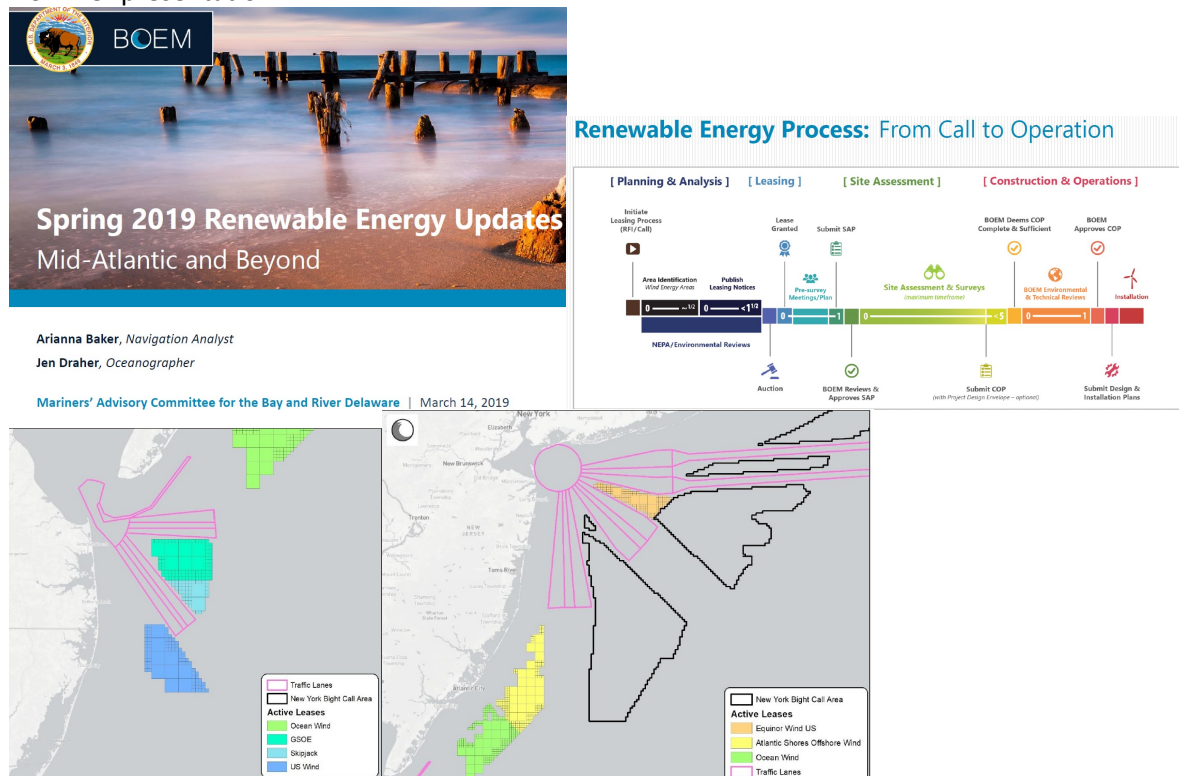
2. **Rebuild Liston/Reedy Range Lights:** This project will entail the relocation/rebuild of front and rear structures for both ranges. The new range front light will be constructed at the intersection of both ranges and will serve as a combined range front structure. Separate rear structures will be constructed. CG3213/PDS submitted to SILC Mar 16, 2016. **UPDATE.** Project remains on schedule to have the design completed in FY20 and construction begin in FY21.
3. **Rebuild New Castle Front/Rear Range Lights:** This project will entail the relocation of the front and rear structures for the range. The existing range front and rear towers located on land will be demolished. The new range front light will be constructed near the edge of the channel. The new rear light will be constructed near the shoreline in front of the existing front tower in approx. 22 feet of water. Both new structures will have mono-pile type foundations driven into the river bottom. All optics will be changed to solar power. CG3213/PDS submitted to SILC Mar 16, 2016. **UPDATE.** Project remains on schedule to have the design completed in FY20 and construction begin in FY21.
4. **NJICW Hazards to Navigation**  
Sector/District are working with CEU Cleveland and Regional Dive Locker to develop and fund a project this summer to remove 21 currently destroyed fixed ATON throughout the NJICW. Due to several area of shoaling all this aids will have to be converted to floating aids until future dredging operations can occur.
5. **WATERWAYS ANALYSIS AND MANAGEMENT SYSTEM (WAMS) REVIEW**  
Sector/District are reviewing possible waterways to conduct a Waterways Analysis and Management System (WAMS) review. This review focuses on the area's aids to navigation system, waterborne commerce, marine casualty information, port/harbor resources, emergency response plans, routine and emergency communication capabilities, and future development projects.
6. **Mid Atlantic Forum (former Reg. Planning Body (RPB)/MARCO) and BOEM Updates:**
  - a. 28 NOV: NY Bight CFI Interagency TF Meeting NY/NJ CGHQ briefed nav safety concerns and updated status of proposed fairways.
  - b. Ocean Winds deployed two Met Buoy off the NJ coast.
  - c. Nautilus (former Fisherman's Energy) established three 8-megawatt turbines 2.8nm off form Atlantic City, NJ.

COTP Scott E. Anderson reported on a few personnel changes.

## VII Unfinished Business

### A. Offshore Wind

The MAC was treated to a presentation from BOEM hosted by Arianna Baker. Here are some screen shot from her presentation.



**Arianna Baker**

arianna.baker@boem.gov  
(703)787-1677

**Jen Draher**

jennifer.draher@boem.gov  
(703)787-1363

John O'Keefe from Ørsted, formerly Deep Water Wind, provided a brief overview of the merger and announced that he will be making a full presentation during the June meeting on Skipjack and the Ocean Wind project.

Jen Banks of U.S. Wind reported on the following items:

Permitted meteorological tower is set for installation this summer

There will be 2 weeks of offshore construction

We will be establishing a 500 meter safety buffer

We are planning to proceed with more surveys for the wind farm this summer.

Including high-resolution surveys.

We have our navigation risk assessment in a preliminary form now that will be available for discussion.

B. Packer crane delivery- Captain Griffin reported on the delivery of a second crane ship due to the port on March 17<sup>th</sup>.

C. Burlington County Bridge Commission- Sasha Harding reported on the following:

**Burlington Bristol Bridge**

Painting of the lift span beginning in March. There will be a 3-foot reduction in clearance for 6 months. Also there will be repairs under the span through April 15<sup>th</sup>.

Beginning March 11<sup>th</sup> there will be fender repairs through the first week of May.

**Tacony Palymra Bridge**

There will be maintenance and painting beginning April 11<sup>th</sup> that will call for 3 and 4 foot reductions in vertical clearances for the 21 month project.

D. Upper River Shoaling- Captain Griffin reported that the MAC Transit Advisories are temporarily modified until dredging is completed during the August to October project time frame.

E. Deepening Transition Plan- Captain Griffin reported that this plan, listed below, has been initiated.

45' Project Channel Transition 2.13.2019

**Stage One Transit Advisories**

**-The maximum fresh water draft for river transit from sea to Beckett Street is 42 feet. The maximum fresh water outbound draft is 40 feet.**

This 42' draft restriction shall be effective for a period of 6 months or long enough to allow a minimum of six round-trip vessel transits (six inbound/six outbound) in excess of 40' draft to be safely completed before consideration of scaling up draft restrictions.

-All vessels arriving with a fresh water draft in excess of 39' are to transit during flood current only.

-All vessels over Panamax size beam (106 feet) with a block coefficient of .70 and above (see appendix) having a fresh water draft in excess of 37'-06, shall only transit during flood current.

- All vessels up to and including Panamax size beam (106 feet) having a fresh water draft of 39 feet and under should arrange their river transit to afford a minimum of three feet clearance in the Marcus Hook area. The clearance should give due consideration to vessel squat, predicted tide, and the wind effect on actual tide.

- Vessels outbound from Paulsboro, NJ and above, having a fresh water draft of 37 feet and up to 40 feet should arrange to sail 2 hours after low water. Due to the extended time of transit for these particular deep draft vessels, two (2) river pilots will be arranged for transit to sea.

-Lower end of Marcus Hook Anchorage shall be reserved as a bail out/turnaround location for vessels whose draft exceeds 40' fresh water.

**Stage Two Transit Advisories**

**-The maximum fresh water draft for river transit from sea to Beckett Street is 43 feet.**

This 43' draft restriction shall be effective for a period of not less than 3 months. During this time period, a minimum of three round-trip vessel transits (three inbound/three outbound) in excess of 41' draft shall be safely completed before consideration of scaling up draft restrictions.

- All vessels arriving with a fresh water draft in excess of 40' are to transit during flood current only.
- All vessels over Panamax size beam (106 feet) with a block coefficient of .70 and above (see appendix) having a fresh water draft in excess of 38'-06", shall only transit during flood current.
- All vessels up to and including Panamax size beam (106 feet) having a fresh water draft of 40 feet and under should arrange their river transit to afford a minimum of three feet clearance in the Marcus Hook area. The clearance should give due consideration to vessel squat, predicted tide, and the wind effect on actual tide.
- Vessels outbound from Paulsboro, NJ and above, having a fresh water draft of 40 feet and up to 43 feet should arrange to sail 2 hours after low water. Due to the extended time of transit for these particular deep draft vessels, two (2) river pilots will be arranged for transit to sea.
- Lower end of Marcus Hook Anchorage shall be reserved as a bail out/turnaround location for vessels whose draft exceeds 40' fresh water.

Stage Three Transit Advisories

**-The maximum fresh water draft for river transit from sea to Beckett Street is 44 feet.**

This 44' draft restriction shall be effective for a period of not less than 3 months. During this time period, a minimum of three round-trip vessel transits (three inbound/three outbound) in excess of 42' draft shall be safely completed before consideration of scaling up draft restrictions.

- All vessels arriving with a fresh water draft in excess of 41' are to transit during flood current only.
- All vessels over Panamax size beam (106 feet) with a block coefficient of .70 and above (see appendix) having a fresh water draft in excess of 39'-06", shall only transit during flood current.
- All vessels up to and including Panamax size beam (106 feet) having a fresh water draft of 41 feet and under should arrange their river transit to afford a minimum of three feet clearance in the Marcus Hook area. The clearance should give due consideration to vessel squat, predicted tide, and the wind effect on actual tide.
- Vessels outbound from Paulsboro, NJ and above, having a fresh water draft of 41 feet and up to 44 feet should arrange to sail 2 hours after low water. Due to the extended time of transit for these particular deep draft vessels, two (2) river pilots will be arranged for transit to sea.
- Lower end of Marcus Hook Anchorage shall be reserved as a bail out/turnaround location for vessels whose draft exceeds 40' fresh water.

Stage Four Transit Advisories

**-The maximum fresh water draft for river transit from sea to Beckett Street is 45 feet.**

- All vessels arriving with a fresh water draft in excess of 42' are to transit during flood current only.
- All vessels over Panamax size beam (106 feet) with a block coefficient of .70 and above (see appendix) having a fresh water draft in excess of 40'-06", shall only transit during flood current.
- All vessels up to and including Panamax size beam (106 feet) having a fresh water draft of 42 feet and under should arrange their river transit to afford a minimum of three feet clearance in the Marcus Hook area. The clearance should give due consideration to vessel squat, predicted tide, and the wind effect on actual tide.
- Vessels outbound from Paulsboro, NJ and above, having a fresh water draft of 42 feet and up to 45 feet should arrange to sail 2 hours after low water. Due to the extended time of transit for these particular deep draft vessels, two (2) river pilots will be arranged for transit to sea.
- Lower end of Marcus Hook Anchorage shall be reserved as a bail out/turnaround location for vessels whose draft exceeds 40' fresh water.

F. Captain Griffin reminded the MAC of the 2019 National Harbor Safety Committee in Houston.

**VIII. New Business**

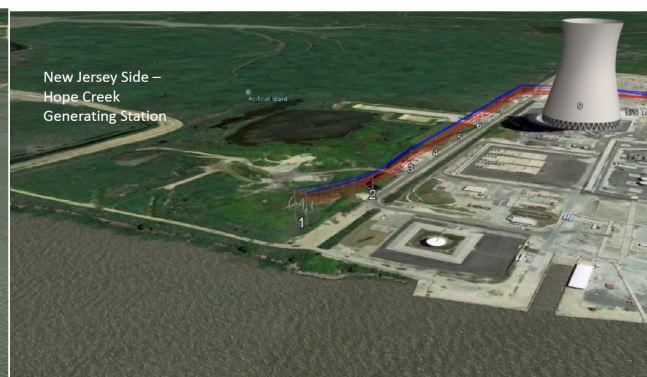
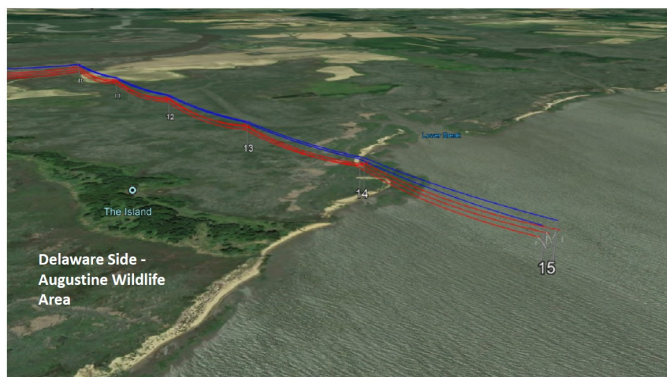
**A. Summer 2019 Silver Run Cable Project- Presentation by John Lafferty**



**Installation Overview**

Seven (7) Power Cables to be installed  
Cable installation will be from an in-river transition structure (Delaware Side – approx. 800ft from shore where DoW is approx. 2ft MLLW) to an onshore transition structure ( New Jersey Side – Hope Creek Generating Station)  
Cables are to be installed from West to East  
Power Cables #1 and #7 will be laid with an additional separate Fibre Optic Cable





## Operational Overview

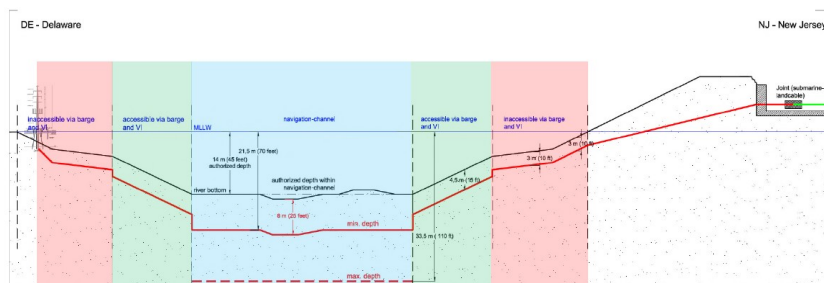
**PRE-LAY JETTING RUN (PLJR)** - Prior to actual cable installation, it is a requirement that each cable route is proven to ensure it is clear and that the cables will be able to be installed to the Target Burial Depth. PRYSMIAN has an agreement with the CLIENT that a total of up to three (3) PLJR's will be performed, if necessary, to get to depth. Therefore, during PLJR Operations, ULISSE is anticipated to conduct seven (7) PLJR's crossing the Delaware River for each cable. Additional pre-run(s) would be required only if and only where the previous pre-run did not reach the Target Burial Depth.

**OBSTRUCTION REMOVAL** - If, during the PLJR Operations, Target Burial is **NOT** achieved due to seabed debris/obstruction, then a Dredge Barge will be utilised to clear the debris/obstruction, prior to the burial tool returning to prove the cable route.

**CABLE INSTALLATION** - During the Cable Installation phase ULISSE will cross the Delaware River seven (7) times.

### Burial Depths Across Delaware River

- 3m (10ft) in areas **INACCESSIBLE** to ULISSE ("OTTER" Tracked ROV Burial Tool)
- 4.5m (15ft) in areas **ACCESSIBLE** by ULISSE (VERTICAL INJECTOR Burial Tool)
- 8m (25ft) across Nav Channel (ULISSE with VERTICAL INJECTOR Burial Tool)



## ULISSE Cable Installation Vessel

- 9-Point Anchor Spread
- Shallow Draft (Min 2.6m, Max 5.5m)
- 2 x Spuds
- 61 Man Accommodation (57 + 4 TLQ)
- Vertical Injector Burial System



## Specialised Anchor Handling Tugs

ULISSE operates with dedicated "Special" AHT's capable of the following:

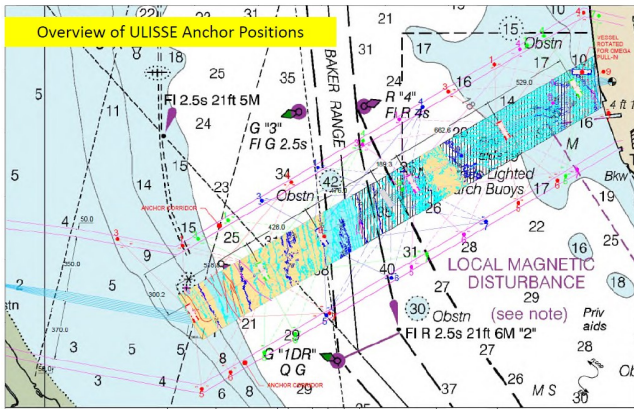
- Carrying all spread anchors (8 x 10T & 1 x 13T Delta Flipper Anchors)
- Deploying and decking 10T & 13T Delta Flipper anchors with other anchors on deck
- Performing full anchor move (7 anchors in 2.5hrs) (**Critical speed for channel closures**)



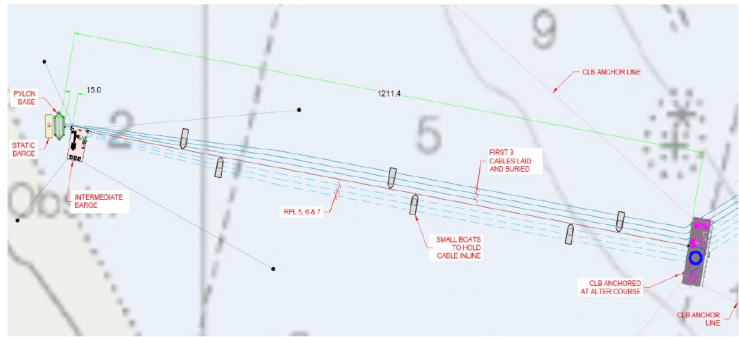
"BARNEY"  
1.8m Draft  
30T Bollard Pull



"ZWERVER II"  
2.6m Draft  
60T Bollard Pull, 300m<sup>2</sup> Deck Space



Cables are to be floated in from the ULISSE to an INTERMEDIATE BARGE positioned in front of Delaware transition structure.



## Timeline for PLJR Run (Example 1<sup>st</sup> Cable Route)

Task Name	Duration	Start	Finish
<b>Pre Lay Run 1st Cable</b>	<b>2.51 days</b>	<b>Mon 01/07/19 00:00</b>	<b>Wed 03/07/19 12:15</b>
Transit from Wilmington to Delaware Landing Site	12 hrs	Mon 01/07/19 00:00	Mon 01/07/19 12:00
Set up anchor spread	4 hrs	Mon 01/07/19 12:00	Mon 01/07/19 16:00
Build VI	6 hrs	Mon 01/07/19 16:00	Mon 01/07/19 22:00
PLJR 519m @ 150m/hr (NO anchor moves) to HOLD POINT 1.	3.5 hrs	Mon 01/07/19 22:00	Tue 02/07/19 01:30
<b>Hold Point 1 - Contact Authorities and gain permission to run anchors across Navigation Channel.</b>	<b>0 days</b>	<b>Tue 02/07/19 01:30</b>	<b>Tue 02/07/19 01:30</b>
PLJR 428m @ 75m/hr (including anchor moves) to HOLD POINT 2. Barge at West edge of Navigation Channel. During this skid pattern Spuds can be deployed and FWD anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)	5.75 hrs	Tue 02/07/19 01:30	Tue 02/07/19 07:15
<b>Hold Point 2 - Barge at West edge of Navigation Channel. Anchors re-run to new positions.</b>	<b>0 days</b>	<b>Tue 02/07/19 07:15</b>	<b>Tue 02/07/19 07:15</b>
<b>PLJR 476m @ 150m/hr (NO anchor moves) across the Navigation Channel to HOLD POINT 3. Depth of Water too deep to deploy Spuds.</b>	<b>3.2 hrs</b>	<b>Tue 02/07/19 07:15</b>	<b>Tue 02/07/19 10:27</b>
<b>Hold Point 3 - Barge clear at East edge of Navigation Channel. Spuds can be deployed and AFT anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)</b>	<b>0 days</b>	<b>Tue 02/07/19 10:27</b>	<b>Tue 02/07/19 10:27</b>
PLJR 190m @ 100m/hr (FWD anchor moves) up to Navigation Channel to HOLD POINT 4. During this skid pattern Spuds can be deployed and AFT anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)	1.9 hrs	Tue 02/07/19 10:27	Tue 02/07/19 12:21
<b>Hold Point 4 - Last anchor cleared from Navigation Channel. Anchors re-run to new positions.</b>	<b>0 days</b>	<b>Tue 02/07/19 12:21</b>	<b>Tue 02/07/19 12:21</b>
PLJR 1192m @ 75m/hr (including anchor moves)	15.9 hrs	Tue 02/07/19 12:21	Wed 03/07/19 04:15
Partially Dismantle VI	4 hrs	Wed 03/07/19 04:15	Wed 03/07/19 08:15
Pick up anchors, connect tow and clear	4 hrs	Wed 03/07/19 08:15	Wed 03/07/19 12:15



# Timeline for Cable Installation Run (Example 1<sup>st</sup> Cable)

Task Name	Duration	Start	Finish
<b>1st Cable Installation</b>	<b>5.55 days</b>	<b>Thu 08/08/19 01:45</b>	<b>Tue 13/08/19 15:00</b>
Transit from Wilmington to Delaware Landing Site	6 hrs	Thu 08/08/19 01:45	Thu 08/08/19 07:45
CLB Set up anchor spread, move into position, SPUD down and recover nearshore anchor wires.	8 hrs	Thu 08/08/19 07:45	Thu 08/08/19 15:45
Power Cable & FO Cable Pull-in Operations (Bundled) (approx. 1300m), including cable hang off attachments	15 hrs	Thu 08/08/19 15:45	Fri 09/08/19 06:45
Intermediate Barge surface lay to CLB @ 30m/hr (including spudding down and anchor line moves) (approx. 1200m).	20 hrs	Fri 09/08/19 06:45	Sat 10/08/19 02:45
Unload cable bight from Intermediate Barge. (CLB transfer cable from chute to VI Quadrant and IB rig 3-leg lift).	4 hrs	Sat 10/08/19 02:45	Sat 10/08/19 06:45
Build VI and load Cable. Divers to remove final floats on cable.	12 hrs	Sat 10/08/19 06:45	Sat 10/08/19 18:45
Cable installation 519m @150m/hr (NO anchor moves) to HOLD POINT 1.	3.5 hrs	Sat 10/08/19 18:45	Sat 10/08/19 22:15
<b>Hold Point 1 - Contact Authorities and gain permission to run anchors across Navigation Channel.</b>	<b>0 days</b>	<b>Sat 10/08/19 22:15</b>	<b>Sat 10/08/19 22:15</b>
Cable installation 428m @75m/hr (inc. anchor moves) to HOLD POINT 2. Barge at West edge of Nav Channel. During this skid pattern Spuds can be deployed and FWD anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)	5.75 hrs	Sat 10/08/19 22:15	Sun 11/08/19 04:00
<b>Hold Point 2 - Barge at West edge of Navigation Channel. Anchors re-run to new positions.</b>	<b>0 days</b>	<b>Sun 11/08/19 04:00</b>	<b>Sun 11/08/19 04:00</b>
<b>Cable installation 478m @150m/hr (NO anchor moves) across the Navigation Channel to HOLD POINT 3. Depth of Water too deep to deploy Spuds.</b>	<b>3.2 hrs</b>	<b>Sun 11/08/19 04:00</b>	<b>Sun 11/08/19 07:12</b>
<b>Hold Point 3 - Barge clear at East edge of Navigation Channel. Spuds can be deployed and AFT anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)</b>	<b>0 days</b>	<b>Sun 11/08/19 07:12</b>	<b>Sun 11/08/19 07:12</b>
Cable installation 190m @100m/hr (FWD anchor moves) up to Nav Channel to HOLD POINT 4. During this skid pattern Spuds can be deployed and AFT anchor wires slackened to seabed if required to allow vessels to pass (1 hour notice required)	1.9 hrs	Sun 11/08/19 07:12	Sun 11/08/19 09:06
<b>Hold Point 4 - Last anchor cleared from Navigation Channel. Anchors re-run to new positions.</b>	<b>0 days</b>	<b>Sun 11/08/19 09:06</b>	<b>Sun 11/08/19 09:06</b>
Cable installation 1192m @75m/hr (including anchor moves)	15.9 hrs	Sun 11/08/19 09:06	Mon 12/08/19 01:00
Unload cable from VI and attach seabed stopper before placing cable on chute. Dismantle VI. Run anchor lines to shore side anchor points.	8 hrs	Mon 12/08/19 01:00	Mon 12/08/19 09:00
Attach floats to cable and set up for Omega Operation (Turn barge 90 degree). Run shore winch line out to Barge.	8 hrs	Mon 12/08/19 09:00	Mon 12/08/19 17:00
2nd end Omega Float and Power Cable pull in operation. Support Craft to manage Omega bight of cable.	12 hrs	Mon 12/08/19 17:00	Tue 13/08/19 05:00
FO Cable Turnover onboard Barge. Re-run shore winch line out to Barge.	2 hrs	Tue 13/08/19 05:00	Tue 13/08/19 07:00
FO Cable Direct Pull-in	4 hrs	Tue 13/08/19 07:00	Tue 13/08/19 11:00
Pick up anchors, connect tow and clear	4 hrs	Tue 13/08/19 11:00	Tue 13/08/19 15:00

## IX Open Discussion

Delaware Memorial Bridge air gap sensor is being installed in April replacing the temporary one.

## X. Adjournment

At 1250 Captain Griffin asked for a motion to adjourn. John Gazzola moved that we adjourn. Dennis Rochford seconded. All approved.

**Next meeting: June 13<sup>th</sup>, 2019 at 1100  
Popi's Italian Restaurant**