

Marine Mammal Monitoring and Mitigation during Pier Construction in Palmer Station, Antarctica, 2022

Prepared for:

**Leidos
and
The National Science Foundation
United States Antarctic Program**

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Monitoring and Mitigation Dates:

23 January – 14 June 2022



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Acronyms, Initialisms, and Abbreviations

| | |
|---------|------------------------------------------|
| CPA | closest observed point of approach |
| ESA | Endangered Species Act |
| HF | high-frequency |
| hr | hours |
| IHA | Incidental Harassment Authorization |
| in | inches |
| km | kilometers |
| LF | low-frequency |
| m | meters |
| MF | mid-frequency |
| min | minutes |
| MMPA | Marine Mammal Protection Act |
| NMFS | National Marine Fisheries Service |
| NSF | National Science Foundation |
| OW | otariid seal in water |
| PALPIER | Palmer Station Pier Construction Project |
| PSO | Protected Species Observer |
| PTS | permanent threshold shift |
| PW | phocid seal in water |
| SD | standard deviation |
| USAP | United States Antarctic Program |
| VHF | Very High Frequency |

1 Introduction

1.1 Project Background

This report describes marine mammal monitoring and mitigation efforts conducted by the National Science Foundation (NSF) during in-water pier construction activities at Palmer Station, Antarctica during January–June 2022. Numerous marine mammal species are known to occur in waters adjacent to Palmer Station, including multiple pinniped and cetacean species. Several Antarctic cetacean species are listed under the United States Endangered Species Act (ESA).

NSF applied to the National Marine Fisheries Service (NMFS) for an Incidental Harassment Authorization (IHA) pursuant to the Marine Mammal Protection Act (MMPA) in December 2020 (revised July 2021) to support pier construction activities at Palmer Station (NSF 2020). NMFS subsequently issued an IHA to NSF in October 2021. The NSF IHA authorized the “taking” of small numbers of marine mammals by Level-A and Level-B acoustic harassment, incidental to in-water pier construction activities (NMFS 2021a, Appendix A, Table 1). The IHA was in the possession of the Holder of the Authorization (Holder), supervisory construction personnel, lead protected species observer (PSO), and other relevant designees of the Holder operating under the authority of this IHA during all times activities subject to the IHA were conducted. During PALPIER activities, the terms and conditions of the Biological Opinion issued by NMFS pursuant to section 7 of the Endangered Species Act were also followed (Appendix B, Incidental Take Statement). No ESA-listed marine mammal species were encountered during the project; therefore, this report is written primarily in context of the issued IHA and associated MMPA terminology.

Level-A acoustic harassment is defined by a sound-level threshold, at or above which has the potential to result in a permanent threshold shift (PTS) in marine mammal hearing (i.e., potentially injurious sound levels). Level-B acoustic harassment is defined by a sound-level threshold, at or above which may result in changes to marine mammal behavior (i.e., behavioral disturbance). Specific in-water activities covered in the IHA with the potential to result in incidental Level-A or Level-B harassment of marine mammals included removal of the existing pier, preparation of the new pier site, and pile driving and anode installation associated with construction of the new pier. All relevant reporting conditions outlined in the IHA, *Section 6 Reporting*, in accordance with MMPA regulations, are addressed herein.

The Palmer Station Pier Construction Project (PALPIER) was conducted under the United States Antarctic Program (USAP), for which NSF contracted Leidos to provide logistical and maintenance services. Smultea Environmental Sciences, LLC (Smultea Sciences) was a subcontract to Leidos for marine mammal monitoring and mitigation during in-water construction components of PALPIER, as described in and required by the IHA (NMFS 2021a, Appendix A). Leidos contracted with Pacific Pile and Marine (Pacific Pile) for removal of the existing pier and construction of the new pier at Palmer Station.

Smultea Sciences provided a senior Protected Species Observer (Lead PSO) at Palmer Station to facilitate implementation of all IHA conditions and assigned a US-based PSO Project Manager to provide regulatory and related support. The Lead PSO and PSO Project

Manager trained a team of approximately two dozen Support PSOs prior to commencement of in-water construction activities to work directly with the Lead PSO to coordinate marine mammal monitoring and mitigation efforts. Support PSOs consisted of Palmer Station personnel with non-PSO responsibilities who rotated on/off PSO watch, as needed and determined by the PALPIER construction schedule. Support PSOs had no other responsibilities while on dedicated PSO watch.

PSOs conducted nearly all marine mammal monitoring and mitigation from inside a custom-built, three-sided structure located on the rooftop (i.e., crow's nest) of the Garage Warehouse Recreation (GWR) building. Monitoring was conducted immediately prior to, during, and immediately after all in-water construction activities by two on-watch PSOs using mounted Oberwerk "Big Eye" binoculars and handheld Fujinon 7 X 50 marine reticle binoculars. PSOs and construction operators coordinated and communicated directly using very high frequency (VHF) radios.

This report presents comprehensive information on all in-water construction activities conducted under the IHA, PSO monitoring and mitigation methods, all sightings of marine mammals documented by PSOs, and related information as required in the IHA (NMFS 2021a, Appendix A) provisions and the ESA Section 7 Biological Opinion issued by NMFS (NMFS 2021b).

Table 1. Number of authorized marine mammal incidental takes from the IHA (NMFS 2021a) for PALPIER in-water construction at Palmer Station, 23 January–14 June 2022.

| Common name | Scientific name | Level A harassment | Level B harassment |
|---------------------------|-----------------------------------------|--------------------|--------------------|
| Antarctic Minke Whale | <i>Balaenoptera bonaerensis</i> | 15 | 312 |
| Arnoux's Beaked Whale | <i>Berardius arnuxii</i> | 0 | 12 |
| Blue Whale | <i>B. musculus musculus</i> | 0 | 2 |
| Fin Whale | <i>B. physalus quoyi</i> | 14 | 282 |
| Hourglass Dolphin | <i>Lagenorhynchus cruciger</i> | 0 | 25 |
| Humpback Whale | <i>Megaptera novaeangliae australis</i> | 15 | 302 |
| Killer Whale | <i>Orcinus orca</i> | 0 | 112 |
| Long-finned Pilot Whale | <i>Globicephala melas edwardii</i> | 0 | 28 |
| Southern Bottlenose Whale | <i>Hyperoodon planifrons</i> | 0 | 24 |
| Sei Whale | <i>Balaenoptera borealis</i> | 0 | 6 |
| Southern Right Whale | <i>Eubalaena australis</i> | 0 | 20 |
| Sperm Whale | <i>Physeter macrocephalus</i> | 0 | 17 |
| Antarctic Fur Seal | <i>Arctocephalus gazella</i> | 134 | 1,201 |
| Crabeater Seal | <i>Lobodon carcinophaga</i> | 120 | 6,129 |
| Southern Elephant Seal | <i>Mirounga leonina</i> | 94 | 841 |
| Leopard Seal | <i>Hydrurga leptonyx</i> | 14 | 120 |
| Weddell Seal | <i>Leptonychotes weddellii</i> | 27 | 240 |

1.2 Summary of Construction Activities

PALPIER construction activities were conducted at Palmer Station, located on the southern coast of Anvers Island, Antarctica at the entrance of Hero Inlet (Figures 1 and 2). PALPIER construction consisted of both terrestrial and in-water operations. The IHA issued to NSF assessed and authorized incidental harassment of small numbers of marine mammals for *in-water activities* with the potential to generate underwater noise at levels exceeding NMFS acoustic thresholds for take (NMFS 2018). Specifically, the in-water construction activities covered by the IHA – and therefore, the specific operations monitored and mitigated by PSOs – consisted of the following:

- Removal of existing sheet piles;
- Rock chipping and floor preparation;
- Pile driving, defined in the IHA (NMFS 2021a, Appendix A) as, “both pile installation (including DTH [down-the-hole] pile installation) and pile removal,” and;
- Anode installation (use of pneumatic hydrogrinders or needle scalers).

Additional details surrounding activities authorized by the NSF IHA can be found in the IHA application (NSF 2020). For the purpose of this report, the specific activities noted above and in Tables 2 and 3 of the IHA (NMFS 2021a, Appendix A) are referred to collectively as *in-water construction*.

In-water construction at Palmer Station occurred intermittently from 23 January–14 June 2022 (Table 2). This in-water construction period was comprised of two primary activity types: 1) pile driving (removal and installation of piles, including surface preparation), and 2) anode installation. In-water construction commenced when Pacific Pile began pile driving on 23 January 2022 and completed installation of the new pier’s final pile on 29 March 2022; there were 37 days within this period when in-water pile driving operations occurred (Table 2). Following a pause in in-water construction during April and most of May, anode installation was conducted for approximately two weeks from 29 May–14 June 2022, although use of regulated sources (e.g., hydrogrinders) only occurred on three different days during the anode installation period. PALPIER in-water construction altogether spanned 143 days during the first half of 2022; however, operation of regulated sound sources requiring PSO monitoring and mitigation occurred on only 40 days within the period (Table 2).

Table 2. Summary of in-water construction activity periods during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Activity Type | Activity Period | In-water Construction Days |
|---------------------|-----------------------------|----------------------------|
| Pile Driving | 23 January – 29 March | 37 |
| Anode Installation* | 29 May – 14 June | 3 |
| Totals | 23 January – 14 June | 40 |

*Anode Installation refers specifically to underwater use of a hydrogrinder.

PALPIER pile driving operations consisted of different pile diameters and methods used to install or remove them. Table 3 summarizes the installation and removal dates for each individual pile, the piling method(s) used to remove or install it, duration and type of piling activity for each pile, number of blows with the impact hammer, and related requirements

from the IHA (NMFS 2021a, Appendix A). Table 4 presents specific pile driving equipment information.

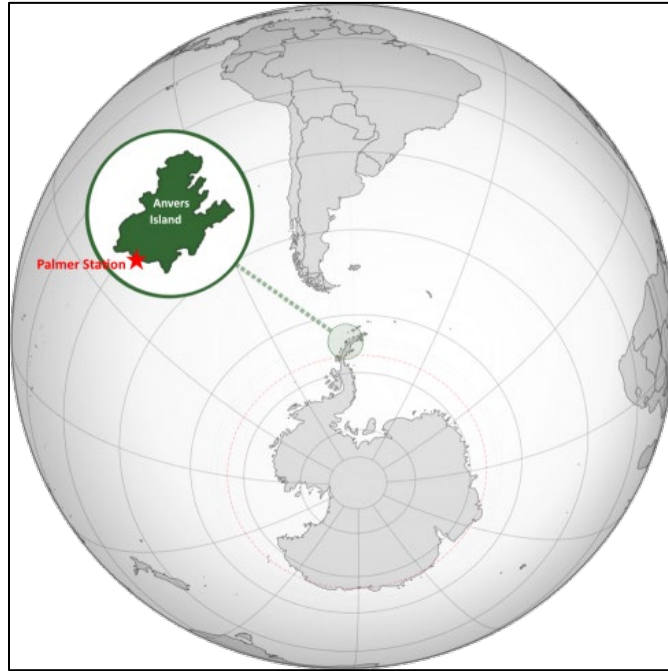


Figure 1. Location of Palmer Station on Anvers Island, Antarctica, the site of PALPIER in-water construction activities from 23 January–14 June 2022.

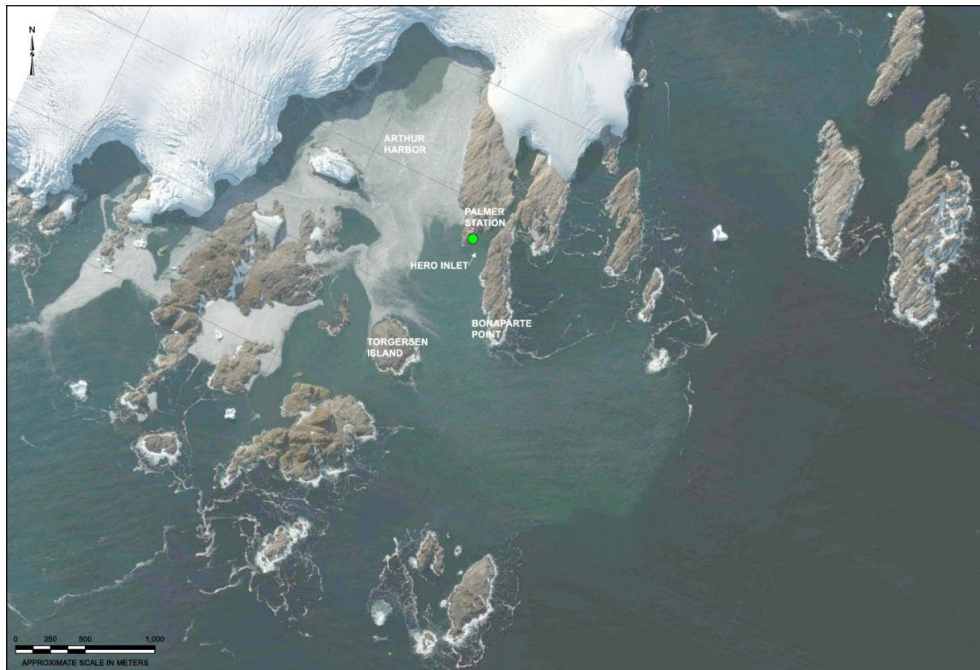


Figure 2. Location of Palmer Station on Anvers Island, Antarctica, the site of PALPIER in-water construction activities from 23 January–14 June 2022. Source: NSF 2020.

Table 3. Individual pile identifiers, diameters, and associated activity information from PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Pile ID | Drilling Date | Seating Date | Casing Diameter (in) | Pile Diameter (in) | Non-pulse Drilling (min) | Impulsive Drilling (min) | Vibratory Piling (min) | Impact Blows |
|--------------------------|---------------|---------------------|----------------------|--------------------|--------------------------|--------------------------|------------------------|--------------|
| 1-B | 29-Jan | 4-Feb | 36 | 32 | 24 | 441 | 18 | 9 |
| 1-C | 30-Jan | 4-Feb | 36 | 32 | 32 | 356 | 6 | 18 |
| 1-D | 1-Feb | 4-Feb | 36 | 32 | 26 | 446 | 27 | 211 |
| 1-E | 3-Feb | 4-Feb | 36 | 32 | 7 | 408 | 17 | 154 |
| 2-B | 29-Jan | 4-Feb | N/A | 36 | 29 | 229 | N/A | 22 |
| 2-C | 1-Feb | 4-Feb | N/A | 36 | 27 | 236 | 5 | 100 |
| 2-D | 27-Jan | 4-Feb | N/A | 36 | 24 | 130 | N/A | 18 |
| 2-E | 30-Jan | 4-Feb | N/A | 36 | 24 | 210 | N/A | 11 |
| 3-A | 19-Feb | 25-Feb | N/A | 36 | 200 | 280 | 1 | N/A |
| 3-B | 18-Feb | 25-Feb | N/A | 36 | 233 | 242 | 1 | N/A |
| 3-C | 17-Feb | 25-Feb | N/A | 36 | 77 | 253 | 16 | N/A |
| 3-D | 16-Feb | 25-Feb | N/A | 36 | 75 | 174 | 4 | N/A |
| 3-E | 23-Feb | 25-Feb | N/A | 36 | 108 | 222 | 1 | N/A |
| 3-F | 24-Feb | 25-Feb | N/A | 36 | 60 | 152 | 20 | 234 |
| 4-A | 6-Mar | 10-Mar | N/A | 36 | 85 | 169 | N/A | 5 |
| 4-B | 7-Mar | 10-Mar | N/A | 36 | 30 | 180 | N/A | 422 |
| 4-C | 4-Mar | 10-Mar | N/A | 36 | 83 | 165 | N/A | 5 |
| 4-D | 4-Mar | 10-Mar | N/A | 36 | 128 | 69 | N/A | 5 |
| 4-E | 8-Mar | 10-Mar | N/A | 36 | 17 | 106 | N/A | 40 |
| 4-F | 6-Mar | 10-Mar | N/A | 36 | 77 | 59 | N/A | 40 |
| WRW-NW ¹ | 22-Jan | 24-Jan | 24 | 24 | N/A | N/A | N/A | N/A |
| WRW-MID | 23-Jan | 24-Jan | 24 | 24 | 44 | 45 | N/A | N/A |
| ERW-N ¹ | 15-Mar | 15-Mar | 24 | 24 | N/A | N/A | N/A | N/A |
| ERW-MID | 16-Mar | 17-Mar | 24 | 24 | 25 | 82 | 56 | 3 |
| ERW-S | 18-Mar | 18-Mar | 24 | 24 | 20 | 50 | 17 | 135 |
| East Corner ¹ | 14-Mar | 14-Mar | 24 | 24 | N/A | N/A | N/A | N/A |
| West Corner ¹ | 23-Jan | 24-Jan | 24 | 24 | N/A | N/A | 25 | N/A |
| WA-N | 19-Mar | 29-Mar | N/A | 24 | 73 | 80 | 2 | N/A |
| WA-S | 20-Mar | 29-Mar | N/A | 24 | 8 | 48 | 1 | N/A |
| RHIB-N | 27-Mar | 27-Mar | N/A | 24 | 43 | 23 | 15 | 458 |
| RHIB-MID | 28-Mar | 29-Mar | N/A | 24 | 22 | 76 | 1 | N/A |
| RHIB-S | 29-Mar | 29-Mar | N/A | 24 | 110 | 15 | 1 | N/A |
| 2-Temp-W ² | 25-Jan | 4-Feb ² | N/A | 36 | 29 | 48 | 1 | N/A |
| 3-Temp-E ² | 14-Feb | 27-Feb ² | N/A | 36 | 31 | 75 | 1 | N/A |
| 3-Temp-W ² | 14-Feb | 27-Feb ² | N/A | 36 | 6 | 49 | 1 | N/A |
| 4-Temp-E ² | 3-Mar | 10-Mar ² | N/A | 36 | 45 | 25 | 1 | N/A |
| 4-Temp-W ² | 2-Mar | 10-Mar ² | N/A | 36 | 25 | 70 | 1 | N/A |

¹Indicates no in-water work for pile installation/removal
²Indicates temporary piles, which were not seated in bedrock; "Seating Date" indicates "Removal Date"

Table 4. Pile driving equipment from PALPIER operations at Palmer Station, 23 January–14 June 2022.**Primary Pile Driving Equipment**

Numa Drill System: Patriot 180 and 240, including Down Hole Hammer and Button Bits (24- and 36-inch diameter)

ICE Model 44B Hydraulic Vibratory Driver/Extractor, with Model 595E Power Unit (i.e. Vibe Hammer)

ICE Model I-36 Single Action Diesel Pile Hammer (i.e., impact hammer)

2 Monitoring, Mitigation, and PSO Data

Marine mammal monitoring and mitigation procedures followed conditions outlined in Sections 4 and 5 of the IHA issued to NSF by NMFS in October 2021 (NMFS 2021a, Appendix A). To reduce the potential for acoustic disturbance from in-water construction activities regulated by NMFS (based on NMFS exposure threshold guidelines [NMFS 2018]), and to minimize the risk of a vessel strike, the PALPIER monitoring and mitigation program consisted of the following components, including training required by IHA Section 3.(d).:

- 1) Comprehensive, PALPIER-specific, two-day PSO Training program for all PSOs;
- 2) Simulations of in-water construction and implementation of mitigation measures prior to commencement of operations;
- 3) Two PSOs on watch during all in-water construction;
- 4) Activity-specific marine mammal Shutdown Zones, including pre-clearances;
- 5) Pile driving only during daylight with favorable environmental conditions;
- 6) Routine communication between PSOs and construction operators, and;
- 7) Vessel strike avoidance watches during transits to, from, and within the PALPIER project area.

2.1 Shutdown and Harassment Zones

The Shutdown, Level-A, and Level-B Harassment Zones designated by NMFS for PALPIER in-water construction activities are listed in Tables 5 and 6 (NMFS 2021a, Appendix A). Shutdown Zones for non-simultaneous and simultaneous in-water construction activities are shown in Figures 3 and 4, respectively. These activity-specific zones were identified and implemented in the field by PSOs based on whether a single or two concurrent activities were occurring. Zones were established based on the radial distance from a sound source (i.e., the location of the new pier). Zones were further distinguished by marine mammal functional hearing group (e.g., NMFS 2018). PSOs created "Activity Codes" to standardize in-water construction activities covered by the IHA, and to streamline data collection and communication with the construction team.

Several distance estimation tools were available to PSOs to ensure quick, accurate determination of a given animal's distance from a regulated sound source. Distance estimation tools included reticle binoculars, numerous schematics with local landmarks and the corresponding distance to the PSO observation station, and a novel "plexiglass" tool for quick reference and manual calibration (Figure 5).

A marine mammal observed within, or on a course to enter the relevant Shutdown Zone, before (i.e., during pre-clearance) or during active in-water construction, was to result in the immediate implementation of mitigation measures (e.g., shutdown of sound source, pre-clearance extension/construction delay, etc.) as specified in the IHA (NMFS 2021a, Appendix A); however, there were no such detections of marine mammals relative to Shutdown Zones immediately prior to or during in-water construction.

The IHA specified the marine mammal species and total number of individuals of each species authorized to be taken incidental to in-water construction by Level-A and Level-B harassment only. The presence of individual marine mammals observed within the relevant Level-A and Level-B Harassment Zones was recorded by PSOs and served as a proxy for tracking “take” totals across the project. There were numerous observations of marine mammals within Harassment Zones, although the total of observed exposures within Harassment Zones was well below the number of takes authorized in the IHA for each species. See Section 3.6, *Estimates of Marine Mammal Exposures*, for details.

Table 5. Shutdown, Level-A, and Level-B Harassment Zones for Non-Simultaneous PALPIER in-water construction activities at Palmer Station, 23 January–14 June 2022. Level-A Harassment Zone is indicated in parentheses where different from Shutdown Zone. Source: NMFS 2021a. PSO Activity Codes were created by the PSO Team for standardization and to streamline data collection and communication with the construction team. Functional hearing groups for Cetaceans: LF=low-frequency; MF=mid-frequency; HF=high-frequency; and for Pinnipeds: PW=phocid seal in water; OW=otariid seal in water.

| PSO Activity Code | Pile size, type, and method | Cetaceans | | | Pinnipeds | | Level B Harassment Zone |
|-------------------|---------------------------------------------------------------------------------------------|--------------------------|-----------|--------------------------|--------------------------|--------------------|-------------------------|
| | | LF | MF | HF | PW | OW | |
| 2A | Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day (DTH) | 1,000 (1,981) | 70 | 1,000 (2,253) | 1,000 (1,012) | 50 (74) | 11,659 |
| 2B | Dock Abutment, 36-in Dia. Pile Installation, 30' Socket Depth - 1 pile/day (DTH) | 1,000 (2,475) | 90 | 1,000 (2,951) | 1,000 (1,326) | 50 (97) | |
| 2C | RHIB Fender Piles, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 410 | 15 | 485 | 220 | 50 | |
| 2D | 24-in Dia. Template Piles, 10' Socket Depth 2 piles/day | | | | | | |
| 2E | 24-in Dia Wave Attenuator Piles, 20' Socket Depth - 1 pile/day | | | | | | |
| 2F | Retaining Wall HP Pile inserted in Drilled 24-in Dia Sockets, 20' Socket Depth - 1 pile/day | | | | | | |
| 2G | Removal of 24-in Dia. Template Piles - 16 piles | 55 | 10 | 75 | 35 | 50 | 10,000 |
| 2H | Removal of Sheet Piles | 25 | 10 | 35 | 15 | 50 | 4,642 |
| 2I | Rock Chipping/Floor Preparation | 405 | 50 | 720 | 205 | 50 | 123 |
| 2J | Anode Installation | 10 | 10 | 10 | 10 | 50 | 200 |

Table 6. Shutdown, Level-A, and Level-B Harassment Zones for Simultaneous PALPIER in-water construction activities at Palmer Station, 23 January–14 June 2022. Level-A Harassment Zone is indicated in parentheses where different from Shutdown Zone. Source: NMFS 2021a. PSO Activity Codes were created by the PSO Team for standardization and to streamline data collection and communication with the construction team. Functional hearing groups for Cetaceans: LF=low-frequency; MF=mid-frequency; HF=high-frequency; and for Pinnipeds: PW=phocid seal in water; OW=otariid seal in water.

| PSO Activity Code | Daily Scenario Activity | Cetaceans | | | Pinnipeds | | Level B Harassment Zone | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------|--------------------------------|---------------------------|-------------------------|---------------|
| | | LF | MF | HF | PW | OW | | |
| 3A | Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 2 pile/day | 1,000 (3,002) | 110 | 1,000 (3,576) | 1,000 (1,607) | 50 (117) | 18,478 | |
| 3B | Dock Abutment, 36-in Dia. Pile Installation, 30' Socket Depth and 36-in Dia. Pile 20' Socket Depth | 1,000 (3,484) | 125 | 1,000 (4,149) | 1,000 (1,864) | 50 (136) | | |
| 3C | RHIB Fender Piles, 24- in Dia. Pile Installation, 20' Socket - 2 pile/day | 650 | 25 | 770 | 350 | 50 | | |
| 3D | 24-in Dia. Template Piles, 10' Socket Depth 4 piles/day | | | | | | | |
| 3E | 24-in Dia Wave Attenuator Piles, 20' Socket Depth - 2 pile/day | | | | | | | |
| 3F | Retaining Wall - HP Pile inserted in Drilled 24-in Dia Sockets, 20' Socket Depth - 2 piles/day | | | | | | | |
| 3G | Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day and Wave Attenuator, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 1,000 (2,011) | 75 | 1,000 (2,395) | 1,000 (1,076) | 50 (78) | | |
| 3H | Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day and Wave Attenuator, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 1,000 (2,885) | 105 | 1,000 (3,436) | 1,000 (1,644) | 50 (133) | | |
| 3I | 36-in Dock 20' socket x 2 Dock Abutment | 45 | 10 | 65 | 30 | 50 | | 34,146 |
| 3J | RHIB Fender Piles 24-in x 2 | 20 | 10 | 30 | 15 | 50 | | 15,849 |
| 3K | 24-in template 10'socket x 4 | | | | | | | |
| 3L | 24-in wave attenuator piles-10'socket x 2 | 35 | 10 | 50 | 20 | 50 | | |
| 3M | 24-in wave attenuator piles-20'socket x 2 | | | | | | | |

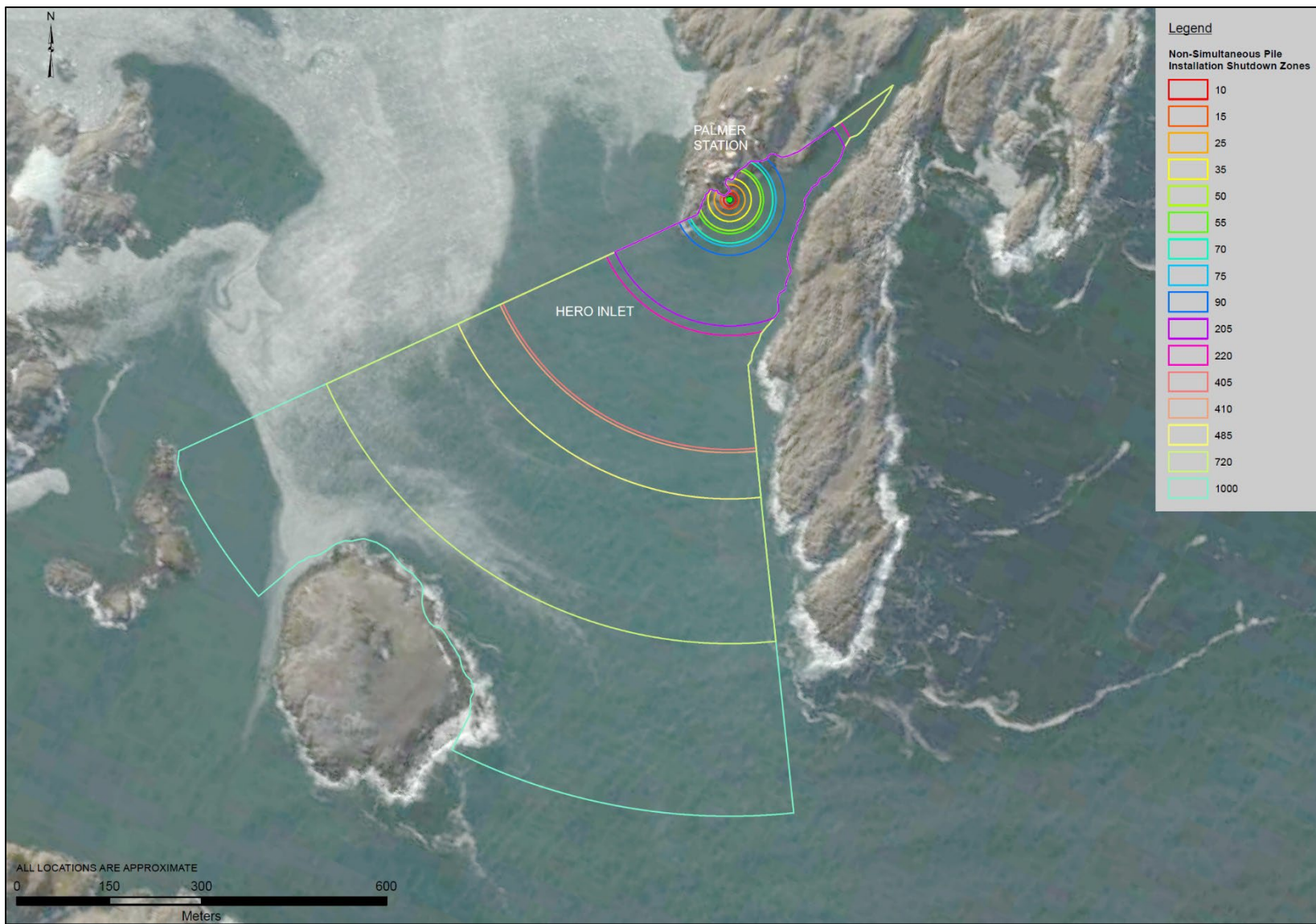


Figure 3. Shutdown Zones for Non-Simultaneous PALPIER in-water construction activities at Palmer Station, 23 January–14 June 2022. Source: R&M Consultants, November 2021.

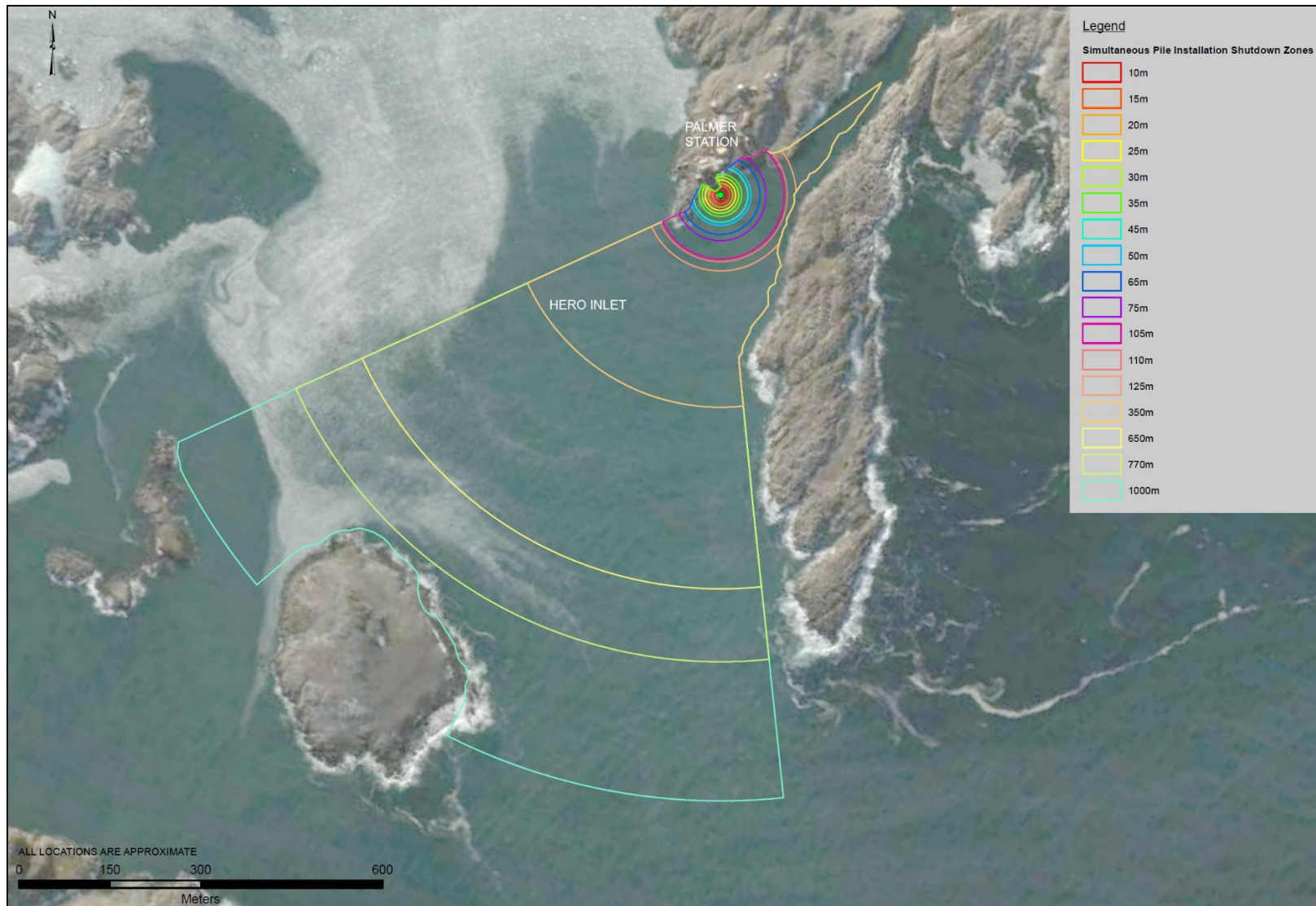


Figure 4. Shutdown Zones for Simultaneous PALPIER in-water construction activities at Palmer Station, 23 January–14 June 2022. Source: R&M Consultants, November 2021.

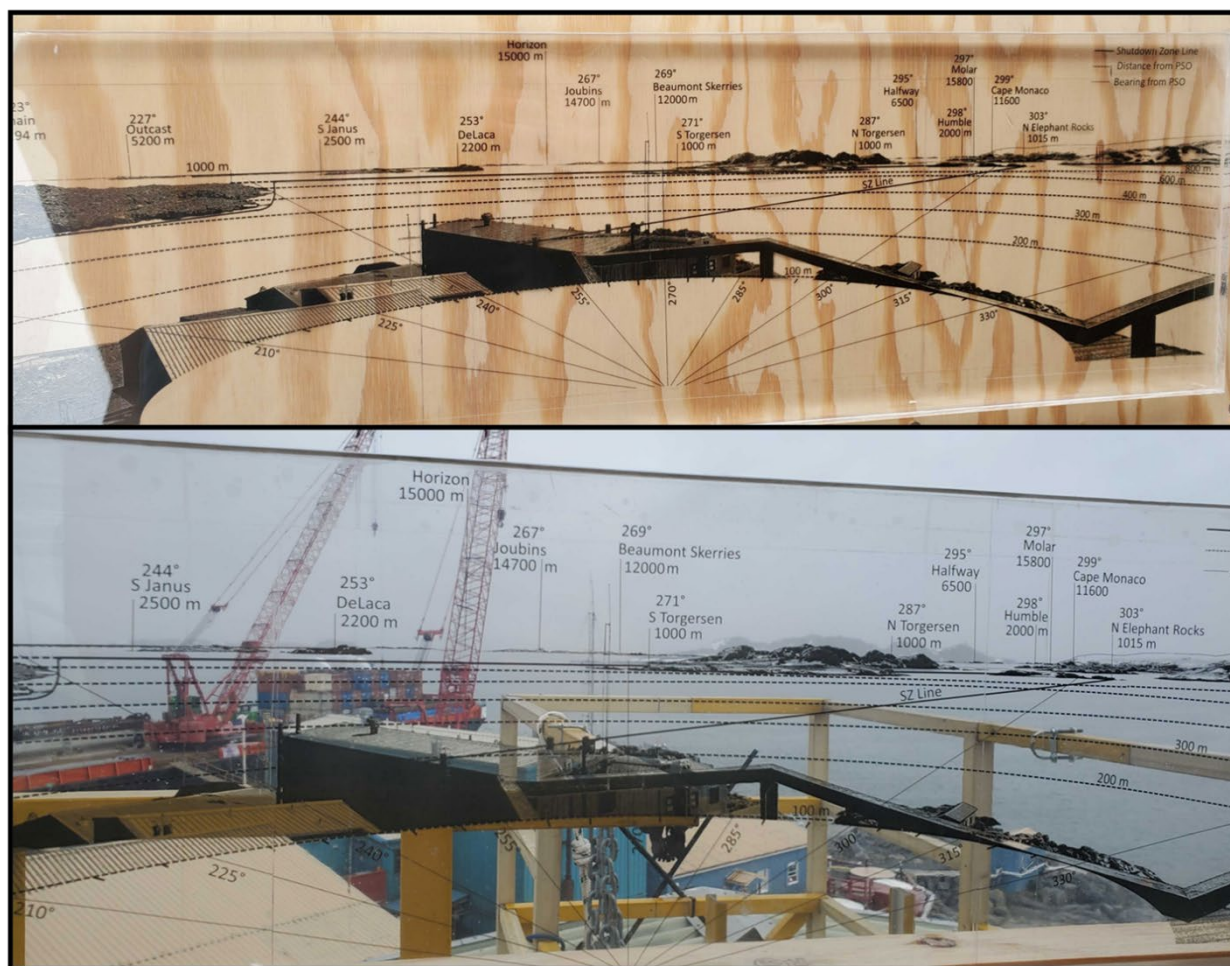


Figure 4. The “Plexiglass” distance estimation tool developed by PALPIER PSOs for quick reference and calibration during in-water construction activities at Palmer Station, 23 January–14 June 2022.

2.2 Protected Species Observers

Smultea Sciences provided a senior, NMFS-approved Lead PSO who met the requirements specified in the IHA. The Lead PSO possessed a diverse range of background knowledge, including extensive participation in other Antarctic field programs. Prior to the initiation of construction, 23 Support PSOs consisting of Palmer Station support personnel were identified and trained per IHA Sections 3.(d) and 5.(b)3. Support PSO training consisted of two, 4-hour (hr) modules facilitated by the PSO Project Manager and Lead PSO prior to deployment to Palmer Station, followed by refresher training and a “hands-on” module at Palmer Station with emphasis on observation protocols, use of monitoring equipment, marine mammal identification, distance estimation, and data entry.

Leidos and Smultea Sciences provided all PSO observation equipment in accordance with IHA equipment specifications (NMFS 2021a, Appendix A). Primary observation equipment consisted of Fujinon 7 X 50 handheld reticle binoculars, Oberwerk BT-100XL-ED “Big Eye” binoculars, and a Nikon HD SLR camera (D3300) with 70-300 millimeter zoom lens.

Mitigation measures identified in the IHA were facilitated by the two on-watch PSOs in coordination with the Pacific Pile construction crew. Prior to the commencement of in-water construction, several meetings were held involving PALPIER managers, onsite construction personnel from Pacific Pile, and the PSO team to review the mitigation measures to be implemented and to rehearse a variety of operational scenarios, including shutdowns of piling equipment, visibility delays, etc.

2.3 Visual Observation and Data Collection

The visual monitoring protocol implemented by PSOs during PALPIER in-water construction was designed to meet IHA requirements (NMFS 2021a, Appendix A). Protected species observations followed standard visual observer procedures and were consistent with the IHA data collection requirements, incorporating all necessary data variables, and all monitoring and mitigation conditions. Observers adhered to IHA-designated rotation limits with two PSOs on watch at any given time for a maximum 4 hr per watch rotation, with sufficient breaks and a maximum of 12 hr watch time per day per PSO. All in-water construction and associated PSO monitoring occurred during daylight periods only. Daylight observation by PSOs before, during, and after all in-water construction was conducted systematically using the naked (i.e., unaided) eye, reticle binoculars, and Big Eye binoculars. Particular attention was given to the Shutdown and Harassment Zones, which varied in size by the specific activity. PSOs also monitored at distances greater than these zones to assess the potential for marine mammals to approach the Shutdown Zone and maintain an overall high degree of situational awareness.

Visual monitoring was conducted from the PSO observation shelter above the GWR building at a height of approximately 17.2 meters (m) above mean sea level. At that floor height, plus an average observer eye height of 1.6 m, the horizon was ~15.4 kilometers (km) away. Visual effort was focused from the pier construction site outward in a pie-shaped wedge towards the horizon, as well as scans on all the surrounding islands and water in the vicinity of Palmer Station (Figures 6 and 7). PSOs monitored from the new pier and science office during anode installation to maximize communication with the dive team stationed on the pier and to more closely monitor the smaller Shutdown and Harassment Zones associated with this activity compared to pile driving.



Figure 5. Aerial view showing the locations of the pier site, PSO observation shelter, and primary areas monitored by PSOs during in-water construction activities at Palmer Station, 23 January–14 June 2022. Note: PSOs monitored from the new pier and science office during anode installation.



Figure 6. Aerial view showing the locations of the pier site and PSO observation shelter during in-water construction activities at Palmer Station, 23 January–14 June 2022. Note: PSOs monitored from the new pier and science office during anode installation.

Visual effort and sightings data were entered systematically by PSOs using *Mysticetus*TM software. The data collection template in *Mysticetus* was custom designed to meet all PALPIER conditions specified in the IHA (NMFS 2021a, Appendix A). Use of *Mysticetus* increased efficiency and accuracy of observations by instantly displaying positions and distances to marine mammal sightings when PSOs entered a binocular reticle value or an estimated distance of the sighting plus the “bearing to” the animal(s). The Lead PSO also developed several visual tools featuring local island landmarks labeled with distance and bearing from PSO observation shelter in an effort to increase accuracy of distance estimation and the overall quality of PSO data within a large team of observers. All data parameters required in the IHA were recorded systematically, along with supplemental data to aid in interpretation and analysis, including:

- **Monitoring Effort Data**, defined as any period when PSOs were on watch regardless of construction activity (i.e., included periods with and without active in-water construction): Date, time, names of PSOs on watch, in-water construction activity, associated Shutdown Zones for each marine mammal hearing group, environmental conditions (Beaufort sea state, visibility distance, glare, and cloud cover), etc. These data were recorded at least every 30 minutes (min), when a variable value changed, or when a sighting within a Shutdown or Harassment Zone occurred. PSO Monitoring Effort data are summarized in Report Section 3.1, Appendix C, and included in their entirety as a .xlsx file attachment to the report.
- **Sightings Data**: Recorded for every marine mammal observed during PSO watches; these data included the name of the PSO who sighted the animal(s), PSO location, in-water construction activity at time of sighting, time of sighting, identification of the animal(s; e.g., genus/species, lowest possible taxonomic level or hearing group), PSO confidence in identification, composition of the group if there was a mix of species, distance and bearing to each observed marine mammal relative to the pile being driven or anode being installed, estimated number of animals (low/high/best counts); estimated number of animals by age class (adults, juveniles, neonates, group composition, etc.), closest point of approach to the pier/sound source, estimated time spent within Level-A and Level-B Harassment Zones, description of observed behavior (e.g., feeding or traveling), behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, or breaching), detailed information about implementation of any mitigation (e.g., shutdowns or construction delays), and any other supporting context to aid in interpretation and analysis. PSO Sightings data are summarized in Report Section 3.2, Appendix D, and included in their entirety as a .xlsx file attachment to the report.

All PSO data underwent a series of quality assurance/quality control reviews, including by each PSO at the completion of their watch, by the Lead PSO at the completion of each day, by the onshore PSO Project Manager throughout the operational period, and lastly, by the PSO Project Manager prior to data aggregation and analysis for this report. All PSO data are included in their entirety as an attachment to this report.

2.4 Specific Mitigation Measures

All monitoring and mitigation protocols stipulated in the IHA (NMFS 2021a, Appendix A) were implemented by the PSO team. This suite of standardized measures included the following components:

- **Pre-clearance Watches:** Two PSOs observed systematically and continuously for a minimum of 30 min immediately prior to commencement of in-water construction activities. In-water construction did not begin until PSOs confirmed Shutdown Zones were clear of marine mammals for at least 30 min. If a marine mammal was observed within or about to enter its relevant Shutdown Zone during the pre-clearance period and could not subsequently be confirmed outside the Shutdown Zone, the in-water construction activity was not energized for at least 15 min **and** the entirety of the 30-min pre-clearance period had elapsed.
- **Soft Starts:** The IHA required that impact pile driving begin with an intermittent series of low-energy strikes and pauses to increase the amount of underwater noise gradually. All permanent piles needed to be “seated” to the bedrock, which in some cases could be done without impact pile driving (Table 7). The preferred method to seat piles involved a single, low-energy stroke of the piston with no fuel. When a series of blows with the impact hammer was required to seat a pile, the process began similarly with a soft start that involved a series of low-energy blows (without fuel) and pauses before piling commenced at full energy.
- **During In-water Construction:** Two PSOs continuously monitored the Shutdown, Level-A, and Level-B Harassment Zones, and surrounding areas. One PSO used handheld reticle binoculars and concentrated their focus on areas immediately adjacent to the pier (i.e., sound source) while the other on-watch PSO monitored at greater distances with “Big Eye” binoculars. All observations of marine mammals were recorded regardless of their position relative to Shutdown and Harassment Zones, including seals hauled out on ice floes or terrestrial habitats.
- **Marine Mammal Shutdowns:** If a protected species was observed within, entering, or approaching a Shutdown Zone, an immediate shutdown of the equipment was requested and implemented. If the animal(s) was then confirmed to have departed the Shutdown Zone, in-water work could resume. If the animal was no longer seen but had not been observed leaving the Shutdown Zone, an additional observation period of 15 min was required. Note: There were no observations of marine mammals during PALPIER in-water construction activities that required or resulted in a shutdown of pile driving or anode installation.
- **Environmental Delays/Pauses:** PSOs delayed or paused in-water construction activities when environmental conditions precluded their ability to reliably monitor the entirety of the largest applicable Shutdown Zone (e.g., dense fog, high sea state).
- **Post-construction Watches:** Two PSOs observed systematically and continuously for a minimum of 30 min immediately following cessation of in-water construction activities. There was no additional mitigation associated with post-construction watches, rather, these periods were designed to assess potential changes in marine mammal behavior and/or distribution after construction was paused during the day

(e.g., lunch break or construction preparation) or completed at the end of the workday.

- **Vessel Strike Avoidance:** Vessel operators maintained a watch for marine mammals during transits to, from, and near Palmer Station to reduce the risk of close encounters and vessel strike, per IHA conditions. Note: There were no observations of marine mammals from vessels within minimum separation distances or that otherwise required implementation of strike avoidance measures.

3 Monitoring and Mitigation Results & Discussion

3.1 PSO Monitoring Effort

PSOs visually monitored PALPIER in-water construction activities at Palmer Station from 23 January–14 June 2022. This operational period involved two primary phases: pile driving and anode installation. In-water pile driving was conducted on 37 different days from 23 January through 29 March, and anode installation occurred from 29 May until 14 June, although hydrogrinding to support anode installation occurred on only three different days. Appendix C provides a detailed summary of all PSO Monitoring Effort data. All PSO Monitoring Effort data are included as a .xlsx file attachment to this report.

PSO Monitoring Effort, defined as any time when two PSOs were on active watch, totaled approximately 267.5 hr across the in-water construction period (Table 7). The majority of PSO Monitoring Effort (63%) occurred during periods when no in-water construction activity was occurring. This resulted from the standardized practice of PSOs keeping a continuous watch throughout the operational day whenever the potential existed for conducting in-water construction activities covered by the IHA (NMFS 2021a, Appendix A). PSO Monitoring Effort during pile driving included extended periods when the construction team was either prepping an in-water pile driving activity or conducting operations exclusively on land. In the case of anode installation, PSOs maintained watch while divers were in the water; however, the majority of anode installation did not involve activities with the potential to rise to the level of marine mammal take (i.e., did not involve hydrogrinders or needle scalers).

Table 8. Summary of PSO Monitoring Effort by in-water construction activity type during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| In-water Construction Activity | In-water Construction Days | PSO Monitoring Effort (HH:MM) | Percent of PSO Monitoring Effort |
|--------------------------------|----------------------------|-------------------------------|----------------------------------|
| Pile Driving | 37 | 97:45 | 36.6% |
| Anode Installation* | 3 | 1:03 | 0.4% |
| None | N/A | 168:36 | 63.0% |
| Totals | 40 | 267:25 | 100.0% |

*Anode Installation refers specifically to underwater use of a hydrogrinder.

Each of the two on-watch PSOs conducted monitoring using one of three primary methods: handheld reticle binoculars, Big Eye binoculars, or the unaided eye. Handheld and Big Eye binoculars were used primarily in the PSO observation shelter during periods with in-water pile driving and when no in-water construction was occurring, whereas PSOs relied on the unaided eye to monitor anode installation due to the significantly smaller Shutdown and Harassment Zones by comparison to pile driving. PSO Monitoring Effort was split nearly equally between handheld reticle and Big Eye binoculars, with considerably less use of the unaided eye (Table 8) due to the relatively short duration of anode installation. PSOs

balanced their use of each binocular type with unaided eye scans of the area to reduce eye fatigue and to periodically expand their functional field of view.

Table 9. Summary of PSO Monitoring Effort by monitoring method during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Monitoring Method | PSO Monitoring Effort (HH:MM) | Percent of PSO Monitoring Effort |
|-----------------------------|-------------------------------|----------------------------------|
| Handheld Reticle Binoculars | 113:32 | 42.5% |
| Big Eye Binoculars | 128:32 | 48.1% |
| Unaided Eye | 25:20 | 9.5% |
| Totals | 267:25 | 100.0% |

PALPIER in-water construction activities in general were limited to periods with favorable weather conditions (i.e., Beaufort sea state). Conditions favorable to construction by default aligned well with minimum visibility requirements outlined in the IHA, which stipulated the entirety of Shutdown Zones had to be visible to PSOs such that they could be reliably monitored. There were approximately 2 hr in total when PSOs delayed or paused in-water construction activities covered in the IHA because fog and/or sea state precluded their ability to effectively monitor Shutdown Zones. Fog rarely inhibited visibility of Shutdown Zones, and nearly 90% of PSO Monitoring Effort was conducted during periods with Beaufort sea states between 0 and 3 (Figure 8).

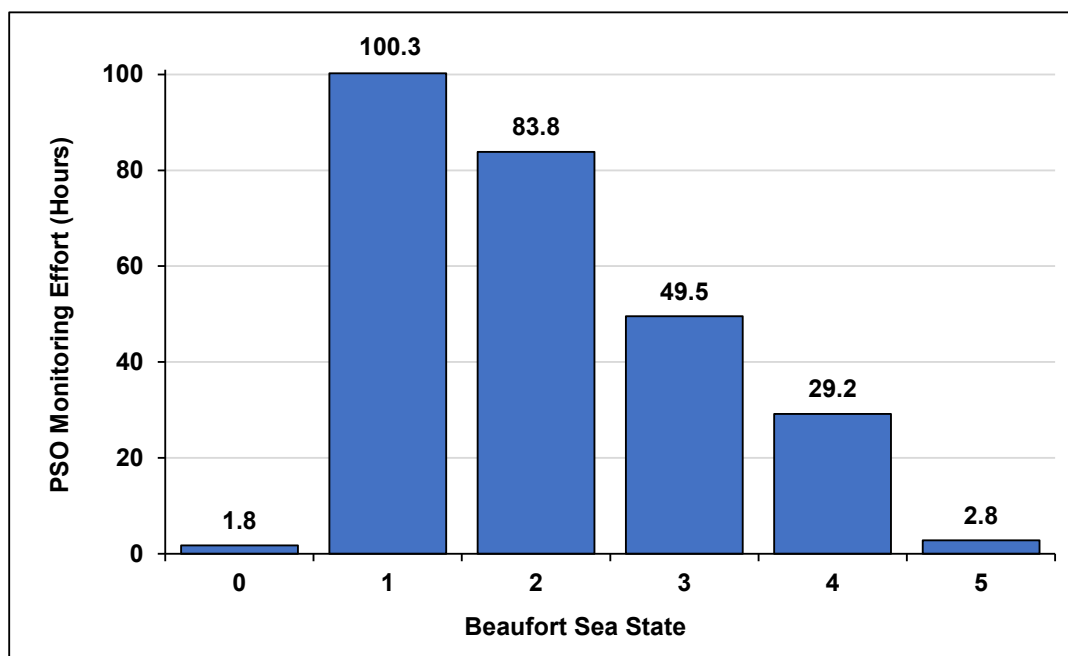


Figure 7. Summary of PSO Monitoring Effort by Beaufort sea state during PALPIER operations at Palmer Station, 23 January–14 June 2022.

3.2 Marine Mammal Sightings

A description of the expected occurrence, distribution, density, and natural history of marine mammal species in the PALPIER project area can be found in NSF's IHA application (NSF 2020). The species observed by PSOs from Palmer Station were consistent with this pre-construction assessment, although the relative abundance of species observed by PSOs varied somewhat from the IHA application and issued IHA. There were no species of marine mammals observed by PSOs at any time for which NMFS did not authorize incidental takes in the IHA (NMFS 2021a, Appendix A, Table 1), and there were no observations of ESA-listed marine mammal species during PALPIER operations.

PSOs observed a total of 333 different marine mammal groups consisting of an estimated 1,555 individual animals (Table 9). The most commonly observed species were Antarctic fur seals, four species of phocid seals, and humpback whales. The majority of sightings recorded by PSOs occurred during periods with no active in-water construction, which is consistent with the majority of PSO Monitoring Effort also having occurred during non-construction periods. Appendix D presents a detailed list of all marine mammal sightings made by PSOs.

Antarctic fur seals skewed sightings data to non-construction periods (Table 9) by increasing in abundance later in the project period, which coincided with PSOs spending several days on "standby" watch with minimal in-water construction activity. Furthermore, sightings data were "reset" at the beginning of each observation day when PSOs began their pre-clearance watch. This scenario led to large numbers of fur seals at onshore haulout sites being tallied daily during non-construction periods.

It is highly likely that many of the same individual marine mammals, Antarctic fur seals in particular, were counted repeatedly on different days. PSOs observed groups of humpback whales on many successive days that likely were comprised of at least some of the same individual whales documented on previous days. It was not feasible to accurately quantify the degree to which individual marine mammals were double counted by PSOs; however, this dynamic likely was significant and the total number of individual marine mammals present almost certainly was less than the sum of daily tallies.

Table 10. Summary of marine mammal sightings (number of individuals) by in-water construction activity during PALPIER operations at Palmer Station, 23 January–14 June 2022. See Appendix D for a list of all sightings.

| Species | Pile Driving | Anode Installation | No In-water Construction | Totals |
|--------------------------|-----------------|--------------------|--------------------------|--------------------|
| Antarctic Minke Whale | 0 | 0 | 1 (1) | 1 (1) |
| Humpback Whale | 22 (61) | 0 | 17 (57) | 39 (118) |
| Antarctic Fur Seal | 24 (39) | 0 | 158 (1,110) | 182 (1,149) |
| Crabeater Seal | 3 (6) | 0 | 15 (33) | 18 (39) |
| Southern Elephant Seal | 0 | 0 | 25 (164) | 25 (164) |
| Leopard Seal | 5 (5) | 0 | 20 (20) | 25 (25) |
| Weddell Seal | 4 (6) | 0 | 24 (35) | 28 (41) |
| Unidentified LF Whale | 2 (5) | 0 | 2 (2) | 4 (7) |
| Unidentified Phocid Seal | 5 (5) | 0 | 5 (5) | 10 (10) |
| Unidentified Seal | 0 | 1 (1) | 0 | 1 (1) |
| Totals | 65 (127) | 1 (1) | 267 (1,427) | 333 (1,555) |

As noted above, many of the fur seals observed by PSOs were hauled out of the water. This also was true for other seal species. Over 72% of seal sightings and nearly 92% of the total estimated number of individual seals documented by PSOs were hauled out of the water on either ice floes or land. As discussed below, the high concentration of seals observed out of the water resulted in relatively few individuals being exposed to underwater noise at or above Level-A and Level-B harassment thresholds.

Table 11. Summary of seal sightings (number of individuals) by habitat type during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Species | Water | Ice or Land | Totals |
|--------------------------|-----------------|--------------------|--------------------|
| Antarctic Fur Seal | 44 (74) | 138 (1,075) | 182 (1,149) |
| Crabeater Seal | 6 (13) | 12 (26) | 18 (39) |
| Southern Elephant Seal | 1 (1) | 24 (163) | 25 (164) |
| Leopard Seal | 18 (18) | 7 (7) | 25 (25) |
| Weddell Seal | 2 (2) | 26 (39) | 28 (41) |
| Unidentified Phocid Seal | 7 (7) | 3 (3) | 10 (10) |
| Unidentified Seal | 1 (1) | 0 | 1 (1) |
| Totals | 79 (116) | 210 (1,313) | 289 (1,429) |

3.2.1 Sightings by Initial Detection Method

PSOs documented their initial detection method – handheld binoculars, Big Eye binoculars, or unaided eye – for each marine mammal sighting. Approximately half of seal sightings and 61% of whale sightings were initially detected by PSOs with their unaided eye (Table 11), demonstrating the value of blending unaided eye scans with the use of binoculars. The remaining ~40% of whale sightings were initially detected equally through use of handheld

and Big Eye binoculars. PSOs conducted systematic Big Eye scans of areas with known seal haulouts, which led to nearly three times more seal detections with Big Eyes compared to handheld binoculars.

Table 12. Percentage of total seal and whale sightings by initial detection method during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Species Group | Unaided Eye | Big Eyes | Handheld Binoculars | Other** |
|---------------|-------------|----------|---------------------|---------|
| Seals (n=289) | 48.4% | 40.5% | 11.1% | 0% |
| Whales (n=44) | 61.4% | 18.2% | 18.2% | 2.3% |

**Indicates initial detection method was "another human" alerting PSO to presence of an individual whale

3.3 Marine Mammal Behavior, Reaction, and Closest Observed Point of Approach

Shore-based assessment of marine mammal behavior often is difficult unless obvious evidence of distinct behaviors is observed (e.g., prey being consumed, surface-active displays, etc.). Nonetheless, PSOs categorized the behavior and perceived reactions to in-water construction for all observed marine mammals to the best of their ability, including indirect measures of behavior like closest observed point of approach (CPA) to an underwater sound source.

By comparing the proportion of observed behaviors and average CPAs between periods with and without in-water construction, assuming sufficient sampling (i.e., PSO Monitoring Effort) and sighting sample sizes, it is possible to examine potential differences in marine mammal behavior and distribution patterns during different construction activity periods. Such analyses, however, require caution when interpreting results because often it is assumed "all else is equal" except the activity state. This assumption almost always oversimplifies the nature of environmental and operational covariates that commonly cannot be controlled for and inevitably bias results (e.g., environmental and oceanographic conditions, distribution of prey, seasonality, etc.).

3.3.1 Marine Mammal Behavior and Reaction

The most commonly observed seal behaviors during PALPIER project operations were "rest" and "swim" (Figure 9), accounting for nearly 90% of all seal behavior documented by PSOs. There were apparent differences in the relative proportion of these two common seal behaviors observed during periods when in-water construction was and was not occurring (Figure 9); however, the most likely explanations for these differences are not related to true, meaningful differences in seal behavior during different construction activity periods. Likely reasons for the apparent differences in seal behaviors include large numbers of Antarctic fur seals documented resting on, and swimming directly adjacent to, nearby beaches while PSOs were conducting pre-clearance watches prior to commencement of in-water construction. Additionally, and despite efforts to standardize behavioral interpretation across the entire PSO team, behavioral data are subjective and vary in interpretation by individual PSOs.

PSOs perceived no discernible reactions by seals to in-water construction or other anthropogenic activities during PALPIER operations. Connecting an observed behavior as a direct reaction to a specific human activity is difficult unless such a reaction behavior is dramatic or unquestionable, which was not observed for any seals documented by PSOs.

Whale behavior arguably is even more difficult to decipher by shore-based observers compared to seals due to individuals tending to spend long periods beneath the water surface. The most commonly observed whale behaviors were “swim,” “travel,” and “mill” (Figure 10), which are consistent with whale behavior during surfacing events. Although whale sighting sample sizes were limited for periods both with and without in-water construction (n= 20 and 24, respectively), the proportions of observed whale behaviors were relatively consistent across the two construction activity states.

As was the case with seals, PSOs also did not perceive any discernible reactions by whales to in-water construction or other anthropogenic activities during PALPIER operations.

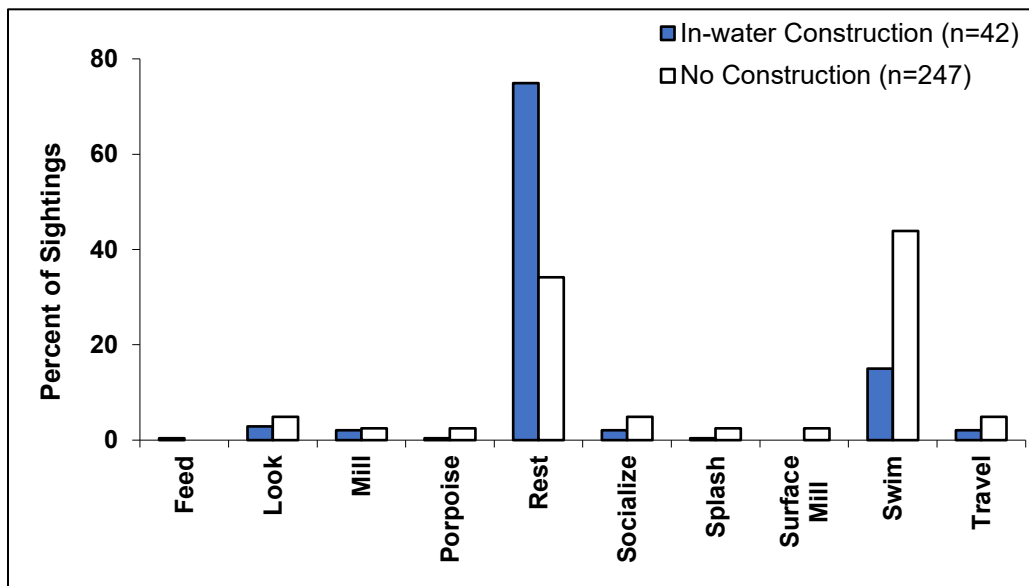


Figure 8. Proportion of observed seal behaviors by in-water construction state during PALPIER operations at Palmer Station, 23 January–14 June 2022.

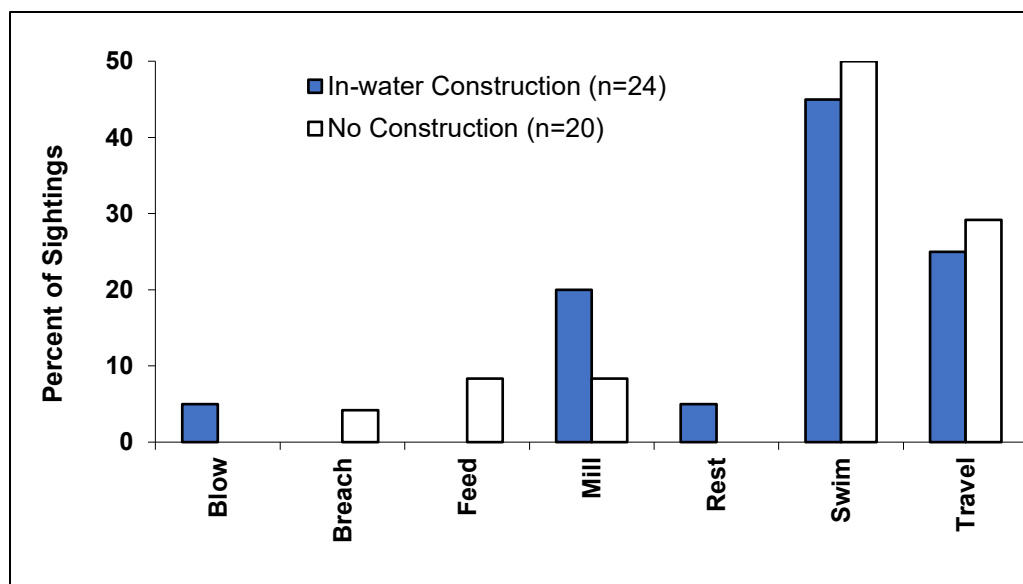


Figure 9. Proportion of observed large whale behaviors by in-water construction state during PALPIER operations at Palmer Station, 23 January–14 June 2022.

3.3.2 Marine Mammal CPAs

PSOs recorded the CPA for each marine mammal sighting to the center of the new pier, regardless of whether in-water construction was occurring. The center of the new pier served as a proxy for the location of underwater sound sources associated with construction of the new pier. By comparing the average CPA of marine mammals to the new pier during periods when in-water construction was and was not occurring, a general inference can be made as to whether they potentially demonstrated a localized avoidance of active in-water sound sources.

An unpaired t-test was conducted to compare average CPA values between periods with and without active in-water construction. This is a statistical test that compares two averages from independent groups to determine if a difference between the two is significant. If the average CPA values for seals or whales differed significantly between the two construction activity states, it suggests in-water construction operations may have affected seal distribution, assuming all other factors remained consistent across both activity states (i.e., prey distribution, observation conditions, etc.).

There was not a significant difference in average seal CPA to the pier between periods without in-water construction (Mean=700 m, Standard Deviation [DV]=602) and periods with active in-water construction (Mean=621 m, SD=838); $t(287)=0.8395$, $p=0.4019$ (Figure 11). This result suggests seal distribution immediately adjacent to Palmer Station was not significantly affected by whether in-water construction activities were or were not occurring. Given the abundance of seals observed hauled out on ice or land regardless of construction activity, it is likely these localized habitat preferences influenced seal distribution more than PALPIER operations.

Whales on average remained more than 1,100 m farther from the pier while in-water construction was occurring compared to periods without pile driving (Figure 12). Despite this difference in average CPA values, it was not statistically significant: (no construction: Mean=2,560 m, SD=2,106); (in-water construction: Mean=3,661 m, SD=2,703); $t(42)=1.4834$, $p=0.1454$ (Figure 12). It is still possible whales demonstrated some degree of localized avoidance of pile driving operations; however, it is just as likely whales did not avoid active in-water construction, and there are many other factors known to influence whale distribution that cannot easily be controlled for, including the presence/absence of food and seasonality. Additionally, whale sighting sample sizes for the two construction activity states ($n=20$ and 24) were relatively small to support robust statistical analyses and related conclusions.

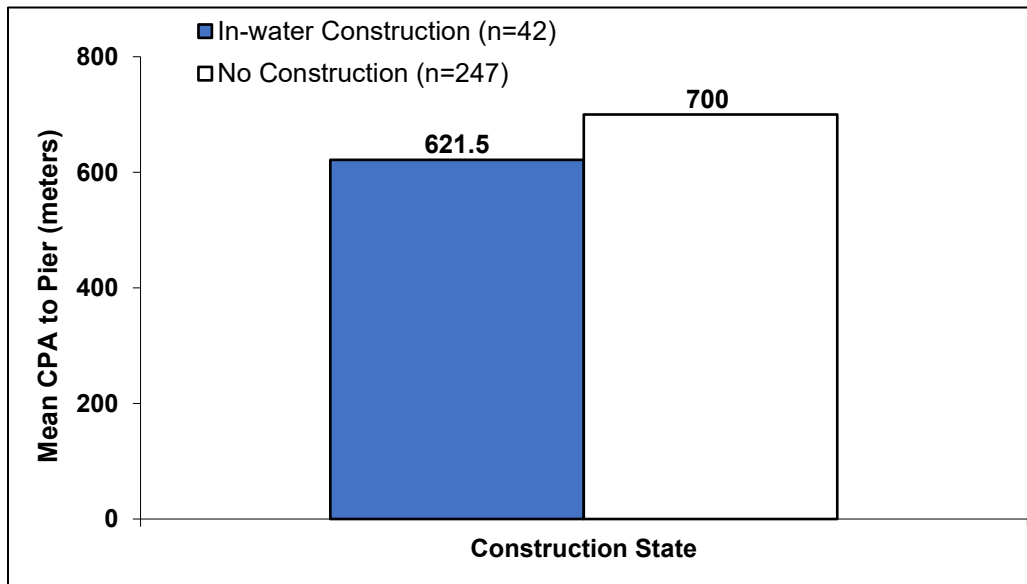


Figure 10. Average seal closest point of approach (CPA) to the pier by in-water construction state during PALPIER operations at Palmer Station, 23 January–14 June 2022. There was no significant difference between these two average CPA values.

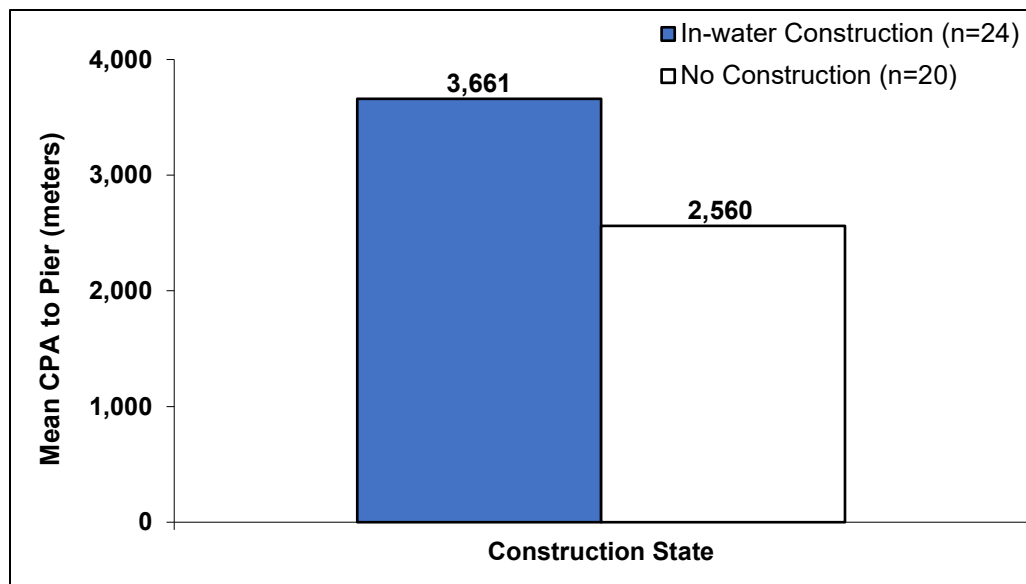


Figure 11. Average whale closest point of approach (CPA) to the pier by in-water construction state during PALPIER operations at Palmer Station, 23 January–14 June 2022. There was no significant difference between these two average CPA values.

3.4 Marine Mammal Mitigation Measures Implemented

PSOs and construction personnel remained vigilant during all PALPIER in-water construction periods, anticipating the potential need to facilitate IHA-prescribed mitigation measures to reduce the risk of acoustic take of marine mammals. Vessel operators also maintained a watch for marine mammals to minimize close encounters and reduce the risk of a ship strike. Mitigation measures implemented included pre-construction clearance watches by PSOs and delays to commencement of in-water construction due to reduced visibility within IHA Shutdown Zones (NMFS 2021a, Appendix A, Table 5 and Table 6).

There were no marine mammals observed by PSOs within Shutdown Zones at any time, including within 10 m of any construction activity, and therefore, there were no shutdowns of in-water construction equipment during PALPIER operations. There also were no marine mammals observed from vessels within distances requiring implementation of vessel strike avoidance measures.

There was a total of approximately 2 hr of in-water construction delays resulting from PSOs being unable to maintain visibility of the 1,000-m Shutdown Zone due to fog. These delays occurred during PSO pre-clearance watches on 25 January and 3 February 2022. There were other periods when fog within Shutdown Zones would have precluded in-water construction activities; however, these other periods coincided with adverse weather and/or other instances when the construction team was not technically able or planning to conduct in-water operations. The relatively sheltered site of Palmer Station within Hero Inlet (Figure 2) minimized sea states compared to more exposed areas outside the inlet, and large storm events with sustained high winds and seas in Hero Inlet resulted in “weather days” due to unsafe operational conditions. These weather days by default coincided with periods when

PSOs would have been unable to reliably monitor Shutdown Zones due to high sea states and breaking waves.

3.5 Estimates of Marine Mammal Exposures

Each individual marine mammal observed during PALPIER in-water construction periods was assessed with respect to activity-specific Level-A and Level-B Harassment Zones stipulated in NSF's IHA (NMFS 2021a, Appendix A, Table 5 and Table 6). These assessments by PSOs included an estimated duration within any Harassment Zone to the best of an observer's ability. Seals hauled out on ice or land within a Harassment Zone were not tallied as "exposed" unless they entered the water, which happened on numerous occasions within the Level-B Harassment Zones in particular. The number of individual marine mammals observed within Harassment Zones served as an estimate of Level-A and Level-B exposures, and ultimately as a proxy for "take." These exposure estimates were compared daily against the numbers of authorized incidental takes in the PALPIER IHA to ensure observed exposures were not approaching/exceeding the level of authorized marine mammal take.

A total of 128 individual marine mammals were documented by PSOs during in-water construction activities (Table 9). Of these, an estimated 67 individuals were observed within the Level-B Harassment Zone, and 5 of these 67 individuals also were observed within the Level-A Harassment Zone (Table 12). The majority of individual marine mammals observed within Harassment Zones were humpback whales (n=47 of 67), most of which occurred in the Level-B Harassment Zone. The only potential Level-A exposures observed by PSOs were five individual humpback whales.

Estimating the duration of an exposure is difficult due to the amount of time marine mammals are beneath the water surface and unobservable. Based on PSO estimates, humpback whale exposures within Level-B and Level-A Harassment Zones were approximately 35 and 28 min, respectively (Table 12). Seals on average were observed for shorter durations within Harassment Zones; however, this likely is the result of smaller sample sizes and the difficulty of tracking individual seals at greater distances. There was also the possibility humpback whales were feeding within Harassment Zones, thereby potentially leading to longer exposure durations.

Table 13. Summary of individual marine mammals observed by PSOs within Level-A and Level-B Harassment Zones during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Species | Individual Level-B Exposures | Individual Level-A Exposures | Average Level-B Exposure Duration (seconds) | Average Level-A Exposure Duration (seconds) |
|------------------------|------------------------------|------------------------------|---------------------------------------------|---------------------------------------------|
| Humpback Whale | 47 | 5 | 2,071 | 1,693 |
| Antarctic Fur Seal | 16 | 0 | 344 | N/A |
| Crabeater Seal | 3 | 0 | 60 | N/A |
| Unidentified Seal | 1 | 0 | 25 | N/A |
| Totals/Averages | 67 | 5 | 1,371 | 1,693 |

The estimated numbers of individuals of each marine mammal species potentially exposed to Level-A and Level-B sounds during in-water construction activities and the numbers of authorized acoustic harassments (i.e., takes) are shown in Table 13. Most of the 17 marine mammal species for which NMFS authorized incidental take during PALPIER activities were not observed within their respective Level-A and Level-B Harassment Zones. For the three positively identified species and a single unidentified seal observed within Harassment Zones, the associated numbers of individuals were considerably less than the numbers of takes authorized in the NMFS IHA (Table 13).

It is likely PSOs did not observe 100% of the marine mammals present within Harassment Zones due to individuals below the water surface and unavailable for visual detection. It is also challenging to estimate with confidence how many marine mammals may have been present but went undetected in Harassment Zones; however, based on the overall marine mammal sightings data, it is unlikely that PSOs missed a species altogether, or that even if all individuals had been detected, that the numbers of observed exposures would have met or exceeded the numbers of authorized incidental takes. PSOs observed five humpback whales within the Level-A Harassment Zone, representing 33% of the total authorized Level-A takes issued in the IHA. For all other species, the numbers of observed exposures were significantly lower than the numbers of authorized takes, often by 100%.

Table 14. Summary of individual marine mammals observed by PSOs within Level-A and Level-B Harassment Zones compared to the numbers of authorized incidental takes during PALPIER operations at Palmer Station, 23 January–14 June 2022.

| Species | Observed Level-B Exposures | Authorized Level-B Harassments | Observed Level-A Exposures | Authorized Level-A Harassments |
|---------------------------|-------------------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------------|
| Antarctic Minke Whale | 0 | 312 | 0 | 15 |
| Arnoux's Beaked Whale | 0 | 12 | 0 | 0 |
| Blue Whale | 0 | 2 | 0 | 0 |
| Fin Whale | 0 | 282 | 0 | 14 |
| Hourglass Dolphin | 0 | 25 | 0 | 0 |
| Humpback Whale | 47 | 302 | 5 | 15 |
| Killer Whale | 0 | 112 | 0 | 0 |
| Long-finned Pilot Whale | 0 | 28 | 0 | 0 |
| Southern Bottlenose Whale | 0 | 24 | 0 | 0 |
| Sei Whale | 0 | 6 | 0 | 0 |
| Southern Right Whale | 0 | 20 | 0 | 0 |
| Sperm Whale | 0 | 17 | 0 | 0 |
| Antarctic Fur Seal | 16 | 1,201 | 0 | 134 |
| Crabeater Seal | 3 | 6,129 | 0 | 120 |
| Southern Elephant Seal | 0 | 841 | 0 | 94 |
| Leopard Seal | 0 | 120 | 0 | 14 |
| Weddell Seal | 0 | 240 | 0 | 27 |
| <i>Unidentified Seal</i> | 1 | N/A | 0 | N/A |

3.6 Marine Mammal Incident Reporting

There were no dead or injured marine mammals observed by PSOs at any point during PALPIER project operations. There also were no observations of marine mammals in distress or any evidence to suggest a direct impact on marine mammals from project operations.

3.7 Summary of PSO Monitoring and Mitigation Results

The 2022 PSO team conducted a total of ~267 hr of monitoring from 23 January through 14 June (Table 7). Regulated sound sources were active within this period during in-water construction operations on 37 and 3 days for pile driving and anode installation, respectively. The majority of PSO Monitoring Effort, ~168 hr, occurred during periods without active in-water construction while the construction team was in between or

prepping for in-water operations. Most PSO Monitoring Effort was split evenly between handheld reticle and Big Eye binoculars, with each of the two on-watch observers assigned to one of these binocular types (Table 8). Fog and high sea states rarely inhibited visibility of Shutdown Zones, and nearly 90% of PSO Monitoring Effort was conducted during periods with Beaufort sea states between 0 and 3 (Figure 8).

PSOs observed a total of 333 different marine mammal groups consisting of an estimated 1,555 individual animals (Table 9). Over 72% of the individual marine mammals observed were Antarctic fur seals, of which over 90% were hauled out on ice or land (Table 10). Four species of phocid seals were documented routinely across the operational period, although in much smaller numbers than fur seals. Nearly all cetacean sightings were humpback whales, and the only other cetacean identified to species was a single Antarctic minke whale (Table 9). Approximately half of all marine mammal sightings by PSOs were initially detected with unaided eyes, with smaller percentages of sightings first made using handheld and Big Eye binoculars (Table 11).

There were no meaningful differences in observed marine mammal behaviors between periods with and without in-water construction activities (Figures 9 and 10). This may have been due to challenges inherent to shore-based observation of marine mammals and the overall difficulty of determining marine mammal behavior regardless of vantage point. There also were no discernible reactions by marine mammals to in-water construction or other anthropogenic activities. Connecting an observed behavior as a direct reaction to a specific human activity is difficult unless such a reaction behavior is dramatic or unquestionable, which was not observed at any time by the PSOs.

There was no significant difference in the average seal CPA to the pier (i.e., the sound source) between periods with and without in-water construction. Given the abundance of seals observed hauled out on ice or land regardless of construction activity, it is likely these localized habitat preferences influenced seal distribution more than PALPIER operations.

There was also no significant difference between average whale CPAs to the pier for periods with and without in-water construction activities, despite whales remaining on average more than 1,100 m farther from the pier while pile driving was occurring compared to periods without pile driving. It is possible pile driving may have affected whale distribution to a small degree, but limited sample sizes and a lack of statistical significance preclude making any definitive conclusion about the potential effects of in-water construction activities at Palmer Station on localized whale distribution.

There were no marine mammals observed by PSOs within Shutdown Zones at any time, including within 10 m of any construction activity; therefore, there were no shutdowns of in-water construction equipment during PALPIER operations. There also were no marine mammals observed from vessels within distances requiring implementation of vessel strike avoidance measures. There was a total of approximately 2 hr of in-water construction delays resulting from PSOs being unable to maintain visibility of the 1,000-m Shutdown Zone due to fog. There were no other scenarios requiring PSOs to facilitate implementation of mitigation measures beyond the standard pre-clearance watches prior to commencement of in-water construction.

A total of 128 individual marine mammals were documented by PSOs during in-water construction activities (Table 9). Of these, an estimated 67 individuals were observed within the Level-B Harassment Zone, and 5 of these 67 individuals also were observed within the Level-A Harassment Zone (Table 12). Most of the observed potential exposures were humpback whales, which were documented on average for approximately 30 min within Harassment Zones. Fewer seals were observed within Harassment Zones and for shorter durations by comparison to cetaceans.

The observed potential Level-A and Level-B exposures were significantly less than those authorized in NSF's IHA (Table 12). It is likely PSOs did not detect 100% of individual marine mammals within Harassment zones; however, based on the overall marine mammal sightings data, it is unlikely that PSOs missed a species altogether, or that even if all individuals had been detected that the numbers of observed exposures would have met or exceeded the numbers of authorized incidental takes. There were no dead or injured marine mammals observed by PSOs at any point during PALPIER project operations.

PSO monitoring and mitigation at Palmer Station was conducted without incident. This is a testament to the combination and alignment of the following:

- Extensive project planning for years in advance;
- Thorough vetting and review of project contractors;
- Comprehensive project training, including PSO classroom and field modules;
- Rehearsal and anticipation of operational scenarios with emphasis on mitigation;
- Routine review of IHA conditions, including numerous PSO "cheat sheets" and placards;
- Consistent, real-time communication between field personnel at Palmer Station and US-based project managers, and;
- Dedication and commitment to maintaining regulatory compliance without exception, including tireless efforts by the Lead PSO and their team of Support PSOs in a challenging field environment.

4 Literature Cited

National Marine Fisheries Service (NMFS). 2018. 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Dept. of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-59, 167 p. <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>

----- 2021a. Incidental Take Authorization: National Science Foundation Palmer Station Pier Replacement Project in Anvers Island, Antarctica, 27 October 2021. Office of Protected Resources. https://media.fisheries.noaa.gov/2021-11/NSF%20Pier_2021%20IHA_Issued_OPR1.pdf

----- 2021b. Biological Opinion on the National Science Foundation's Pier Replacement at Palmer Station, Antarctica, and the National Marine Fisheries Service Permits and Conservation Division's Issuance of a Marine Mammal Protection Act Incidental Harassment Authorization, 25 October 2021. https://media.fisheries.noaa.gov/2021-11/NSF%20Pier_2021%20IHA_BiOp_OPR1_0.pdf

National Science Foundation (NSF). 2021. Request for Incidental Harassment Authorization, Palmer Station Pier Replacement, Anvers Island, Antarctica. Submitted December 2020, Revised July 2021. https://media.fisheries.noaa.gov/2021-08/NSFPalmer_2021IHA_App_OPR1.pdf

Appendix A Incidental Harassment Authorization



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 1315 East-West Highway
 Silver Spring, Maryland 20910



INCIDENTAL HARASSMENT AUTHORIZATION

The National Science Foundation (NSF) and their designees are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to incidentally harass marine mammals, under the following conditions:

1. This incidental harassment authorization (IHA) is valid for one year from date of issuance.
2. This IHA authorizes take incidental to construction activities, as specified in NSF's July 15, 2021 IHA application associated with Palmer Station Pier Replacement at Anvers Island, Antarctica. Hereafter (unless otherwise specified) the term "pile driving" is used to refer to both pile installation (including DTH pile installation) and pile removal.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of the Holder of the Authorization (Holder), supervisory construction personnel, lead protected species observers (PSOs), and any other relevant designees of the Holder operating under the authority of this IHA at all times that activities subject to this IHA are being conducted.
 - (b) The species and/or stocks authorized for taking are listed in Table 1. Authorized take, by Level A and Level B harassment only, is limited to the species and numbers listed in Table 1.
 - (c) The taking by serious injury or death of any of the species listed in Table 1 or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (d) The Holder must ensure that construction supervisors and crews, the monitoring team, and relevant NSF staff are trained prior to the start of activities subject to this IHA, so that responsibilities, communication procedures, monitoring

protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work.

- (e) The Holder also must abide by the terms and conditions (attached) of the October 25, 2021 Biological Opinion issued by NMFS pursuant to section 7 of the Endangered Species Act.

4. Mitigation Requirements

- (a) The Holder must employ PSOs and establish monitoring locations as described in section 5 of this IHA. The Holder must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions.
- (b) Monitoring must take place from 30 minutes prior to initiation of pile driving activity (i.e., pre-start clearance monitoring) through 30 minutes post-completion of pile driving activity.
- (c) If a marine mammal is observed entering or within the shutdown zones indicated in Table 2 and Table 3, pile driving activity must be delayed or halted. Pile driving must be commenced or resumed as described in condition 4(e) of this IHA.
- (d) Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 2 and Table 3 are clear of marine mammals. Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals.
- (e) If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zones indicated in Table 2 and Table 3 or 15 minutes have passed without re-detection of the animal for pinnipeds.
- (f) The Holder must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile

driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.

- (g) Pile driving activity must be halted (as described in condition 4(c) of this IHA) upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the Level A or Level B harassment zones (as shown in Table 2 and Table 3).
- (h) The Holder, construction supervisors and crews, PSOs, and relevant NSF staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease to avoid direct physical interaction.
- (i) When transiting to or from the construction site, marine mammal watches must be conducted by those navigating the vessel or crew.
- (j) When in the Project Area, if a whale is sighted in the path of a support vessel or within 92 m (300 feet) from the vessel, the Holder must reduce speed and must not engage the engines until the animals are clear of the area.
- (k) If a whale is sighted farther than 300 feet from the vessel, the Holder must maintain a distance of 92 m (300 feet) or greater between the whale and the vessel and reduce speed to 10 knots or less.
- (l) Vessels must not be operated in such a way as to separate members of a group of whales from other members of the group. A group is defined as being three or more whales observed within a 500 m area and displaying behaviors of directed or coordinated activity (e.g., group feeding).
- (m) If the Shutdown zones defined in Table 2 and Table 3 are not visible due to poor environmental conditions (e.g., excessive wind or fog, high Beaufort state), pile driving would cease.

5. Monitoring Requirements

- (a) Marine mammal monitoring must be conducted in accordance with the conditions in this section and this IHA.
- (b) Monitoring must be conducted by qualified PSOs in accordance with the following conditions:

- (i) PSOs must be independent (i.e., not construction personnel) and have no other assigned tasks during monitoring periods.
- (ii) The Lead PSO must be approved by NMFS and must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
- (iii) Prior to the initiation of construction at least three PSOs, other than the Lead PSO must undergo training /refresher session that includes the following objectives:
 - A. Review of the mitigation, monitoring, and reporting requirements provided in this application, including any amendments specified by NMFS in the authorization;
 - B. Review of marine mammal sighting, identification, and distance estimation methods;
 - C. Review of operation of specialized equipment (reticle binoculars, GPS); and
 - D. Review of, and classroom practice with, data recording and data entry systems, including procedures for recording data on marine mammal sightings, monitoring operations, environmental conditions, and entry error control.
- (c) Two PSOs must be on duty at all times during in-water construction.
- (d) PSOs must be on duty in shifts of 4 hours duration, with sufficient breaks and a maximum of 12 hours watch time per day per PSO.
- (e) Mounted big eye binoculars must be provided to PSOs.
- (f) The Holder must establish a monitoring station on the roof of the Garage Warehouse Recreation Building. PSOs must be able to monitor the entire shutdown zone.
- (g) PSOs must record all observations of marine mammals, regardless of distance from the pile being driven, as well as the additional data indicated in section 6 of this IHA.

6. Reporting

- (a) The Holder must submit its draft report(s) on all monitoring conducted under this IHA within 90 calendar days after completion of all in-water pile driving activities or 60 calendar days prior to the requested issuance of any subsequent IHA for construction activity at the same location, whichever comes first. A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final.
- (b) All draft and final monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *itp.pauline@noaa.gov*.
- (c) The marine mammal report must include:
 - (i) Dates and times (begin and end) of all marine mammal monitoring;
 - (ii) Construction activities occurring during each daily observation period, including:
 - A. The number and type of piles that were driven and the method (e.g., impact, vibratory, down-the-hole);
 - B. Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and
 - C. For down-the-hole drilling, duration of operation for both impulsive and non-pulse components.
 - (iii) PSO locations during marine mammal monitoring;
 - (iv) Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
 - (v) Upon observation of a marine mammal, the following information:

- A. Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
 - B. Time of sighting;
 - C. Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
 - D. Distance and location of each observed marine mammal relative to the pile being driven for each sighting;
 - E. Estimated number of animals (min/max/best estimate);
 - F. Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
 - G. Animal's closest point of approach and estimated time spent within the harassment zone;
 - H. Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- (vi) The number of marine mammals detected within each of the Level A harassment and Level B harassment zones, by species; and
 - (vii) Detailed information about implementation of any mitigation (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.
- (d) The Holder must submit all PSO datasheets and/or raw sighting data with the draft report, as specified in condition 6(b) of this IHA.
 - (e) Reporting injured or dead marine mammals:

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Holder must report the incident to the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov*)

and *Robert.pauline@noaa.gov*) as soon as feasible. If the death or injury was clearly caused by the specified activity, the Holder must immediately cease the activities until NMFS OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of this IHA. The Holder must not resume their activities until notified by NMFS.

The report must include the following information:

- (i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
 - (ii) Species identification (if known) or description of the animal(s) involved;
 - (iii) Condition of the animal(s) (including carcass condition if the animal is dead);
 - (iv) Observed behaviors of the animal(s), if alive;
 - (v) If available, photographs or video footage of the animal(s); and
 - (vi) General circumstances under which the animal was discovered.
7. This Authorization may be modified, suspended or revoked if the Holder fails to abide by the conditions prescribed herein (including, but not limited to, failure to comply with monitoring or reporting requirements), or if NMFS determines: (1) the authorized taking is likely to have or is having more than a negligible impact on the species or stocks of affected marine mammals, (2) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

8. Renewals

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities (or a subset of those activities) are planned or (2) the specified activities will not be completed by the time the IHA expires and a Renewal would allow for completion of the activities, provided all of the following conditions are met:

- (a) A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (note a Renewal IHA expiration date cannot extend beyond one year from expiration of this IHA).

- (b) The request for renewal must include the following:
- (i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed for this IHA, are a subset of the activities, or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).
 - (ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.
- (c) Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings made in support of this IHA remain valid.

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Kimberly Damon-Randall,
Director, Office of Protected Resources
National Marine Fisheries Service

Table 1. Authorized Incidental Take.

| Common name | Scientific name | Level A harassment | Level B harassment |
|---------------------------|-----------------------------------------|--------------------|--------------------|
| Antarctic Minke Whale | <i>Balaenoptera bonaerensis</i> | 15 | 312 |
| Arnoux's Beaked Whale | <i>Berardius armuxii</i> | 0 | 12 |
| Blue Whale | <i>B. musculus musculus</i> | 0 | 2 |
| Fin Whale | <i>B. physalus quoyi</i> | 14 | 282 |
| Hourglass Dolphin | <i>Lagenorhynchus cruciger</i> | 0 | 25 |
| Humpback Whale | <i>Megaptera novaeangliae australis</i> | 15 | 302 |
| Killer Whale | <i>Orcinus orca</i> | 0 | 112 |
| Long-finned Pilot Whale | <i>Globicephala melas edwardii</i> | 0 | 28 |
| Southern Bottlenose Whale | <i>Hyperoodon planifrons</i> | 0 | 24 |
| Sei Whale | <i>Balaenoptera borealis</i> | 0 | 6 |
| Southern Right Whale | <i>Eubalaena australis</i> | 0 | 20 |
| Sperm Whale | <i>Physeter macrocephalus</i> | 0 | 17 |
| Antarctic Fur Seal | <i>Arctocephalus gazella</i> | 134 | 1,201 |
| Crabeater Seal | <i>Lobodon carcinophaga</i> | 120 | 6,129 |
| Southern Elephant Seal | <i>Mirounga leonina</i> | 94 | 841 |
| Leopard Seal | <i>Hydrurga leptonyx</i> | 14 | 120 |
| Weddell Seal | <i>Leptonychotes weddellii</i> | 27 | 240 |

Table 2. Shutdown and Harassment Zones (meters) for Non-Simultaneous Pile Installation Activities ((Level A harassment zone indicated in parentheses where different from shutdown zone)

| Pile size, type, and method | Cetaceans | | | Pinnipeds | | Level B Harassment Zone |
|----------------------------------------------------------------------------------|---------------|----|---------------|---------------|---------|-------------------------|
| | LF | MF | HF | PW | OW | |
| Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day (DTH) | 1,000 (1,981) | 70 | 1,000 (2,253) | 1,000 (1,012) | 50 (74) | 11,659 |
| Dock Abutment, 36-in Dia. Pile Installation, 30' Socket Depth - 1 pile/day (DTH) | 1,000 (2,475) | 90 | 1,000 (2,951) | 1,000 (1,326) | 50 (97) | |
| RHIB Fender Piles, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 410 | 15 | 485 | 220 | 50 | |
| 24-in Dia. Template Piles, 10' Socket Depth - 2 piles/day | | | | | | |

| | | | | | | |
|---------------------------------------------------------------------------------------------|-----|----|-----|-----|----|--------|
| 24-in Dia Wave Attenuator Piles, 20' Socket Depth - 1 pile/day | | | | | | |
| Retaining Wall HP Pile inserted in Drilled 24-in Dia Sockets, 20' Socket Depth - 1 pile/day | | | | | | |
| Removal of 24-in Dia. Template Piles - 16 piles | 55 | 10 | 75 | 35 | 50 | 10,000 |
| Removal of Sheet Piles | 25 | 10 | 35 | 15 | 50 | 4,642 |
| Rock Chipping/Floor Preparation | 405 | 50 | 720 | 205 | 50 | 123 |
| Anode Installation | 10 | 10 | 10 | 10 | 50 | 200 |

Table 3. Shutdown and Harassment Zones (meters) for Simultaneous Pile Installation Activities (Shutdown Zone (Level A harassment zone indicated in parentheses where different from shutdown zone))

| Daily Scenario Activity | Cetaceans | | | Pinnipeds | | Level B Harassment Zone |
|----------------------------------------------------------------------------------------------------|------------------|-----|------------------|------------------|-------------|-------------------------|
| | LF | MF | HF | PW | OW | |
| Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 2 pile/day | 1,000 (3,002) | 110 | 1,000 (3,576) | 1,000 (1,607) | 50 (117) | 18,478 |
| Dock Abutment, 36-in Dia. Pile Installation, 30' Socket Depth and 36-in Dia. Pile 20' Socket Depth | 1,000 (3,484) | 125 | 1,000 (4,149) | 1,000 (1,864) | 50 (136) | |
| RHIB Fender Piles, 24-in Dia. Pile Installation, 20' Socket - 2 pile/day | | | | | | |
| 24-in Dia. Template Piles, 10' Socket Depth - 4 piles/day | | | | | | |
| 24-in Dia Wave Attenuator Piles, 20' Socket Depth - 2 pile/day | 650 | 25 | 770 | 350 | 50 | |
| Retaining Wall - HP Pile inserted in Drilled 24-in Dia Sockets, 20' Socket Depth - 2 piles/day | | | | | | |

| | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----|------------------|------------------|-------------|--------|
| Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day and Wave Attenuator, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 1,000 (2,011) | 75 | 1,000 (2,395) | 1,000 (1,076) | 50 (78) | |
| Dock, 36-in Dia. Pile Installation, 20' Socket Depth - 1 pile/day and Wave Attenuator, 24-in Dia. Pile Installation, 20' Socket - 1 pile/day | 1,000 (2,885) | 105 | 1,000 (3,436) | 1,000 (1,644) | 50 (133) | |
| 36-in Dock 20' socket x 2 Dock Abutment | 45 | 10 | 65 | 30 | 50 | 34,146 |
| RHIB Fender Piles 24-in x 2 | 20 | 10 | 30 | 15 | 50 | 15,849 |
| 24-in template 10' socket x 4 | | | | | | |
| 24-in wave attenuator piles-10' socket x 2 | 35 | 10 | 50 | 20 | 50 | |
| 24-in wave attenuator piles-20' socket x 2 | | | | | | |

Appendix B Incidental Take Statement

Biological Opinion on Palmer Station Pier Replacement

Tracking No. OPR-2021-03692

ranges. Low-level localized displacement would not be expected to reduce the long-term fitness of any individual ESA-listed whales. As such, we do not expect the action to have adverse consequences on the viability of the populations those individuals represent or the species those populations comprise. No adverse effects are anticipated to annual rates of recruitment or survival of the affected ESA-listed whale species.

Considering the status of ESA-listed species, the environmental baseline and the effects of the action, we do not expect the proposed Palmer Station pier construction activities and the Permits Division's issuance of an IHA will result in a reduction in numbers or reproduction of these ESA-listed cetaceans or a change in the distribution of their populations or their geographic range. Thus, the proposed action is not likely to appreciably reduce the survival of these ESA-listed cetaceans.

Common recovery goals for these ESA-listed cetaceans include achieving sufficient and viable populations in all ocean basins and ensuring significant threats are addressed. We do not anticipate the proposed action will deter recovery objectives for these whales and is not likely to result in an appreciable reduction in the likelihood of recovery of these species in the wild. In conclusion, we believe the takes resulting from the proposed actions are not expected to appreciably reduce the likelihood of survival and recovery of ESA-listed blue, fin, sei, Southern right, and sperm whales in the wild.

12 CONCLUSION

After reviewing the current status of the ESA-listed species, the environmental baseline within the action area, the effects of the proposed action, and cumulative effects, it is NMFS's biological opinion that the proposed action is not likely to jeopardize the continued existence of endangered blue whales, fin whales, sei whales, Southern right whales, or sperm whales.

13 INCIDENTAL TAKE STATEMENT

Definitions of take, harm and harass are provided in Section 9.3.1 of this opinion. Incidental take is take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Section 7(o)(2) of the ESA provides that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this incidental take statement (ITS).

ESA section 7(b)(4)(C) states that take of ESA-listed marine mammals must be authorized under MMPA section 101(a)(5) before the Secretary can issue an ITS for ESA-listed marine mammals. NMFS' implementing regulations for MMPA section 101(a)(5)(D) specify the requirements for the issuance of an IHA to conduct specified activities that will "take" marine mammals. Once NMFS has authorized the incidental take of marine mammals through an IHA (which is valid for a period of one year from the date of issuance) under the MMPA, the incidental take of ESA-listed marine mammals is exempt from the ESA take prohibitions as stated in this incidental take statement pursuant to ESA sections 7(b)(4) and 7(o)(2).

13.1 Amount or Extent of Take

Section 7 regulations require NMFS to specify the impact of any incidental take of endangered or threatened species; that is, the amount or extent, of such incidental taking on the species (50 C.F.R. §402.14(i)(1)(i)). The amount of take represents the number of individuals that are expected to be taken by actions, while the extent of take specifies the impact, i.e., the amount or extent, of such incidental taking on the species and may be used if we cannot assign numerical limits of animals that could be incidentally taken during the course of an action (see 80 FR 26832).

We and the Permits Division anticipate the incidental take of ESA-listed cetaceans by harassment as a likely result of the proposed Palmer Station pier replacement project in Antarctica. Exposure to project related noise at acoustic thresholds for ESA behavioral harassment (MMPA Level B harassment) is expected to occur for ESA endangered blue whales, fin whales, sei whales, Southern right whales, and sperm whales. There is some anticipated exposure to project sound for endangered fin whales that could be at the acoustic threshold level for ESA harm (MMPA Level A harassment). We have reviewed and accepted the take estimates provided by NSF (see Table 5).

13.2 Reasonable and Prudent Measures

“Reasonable and prudent measures” are measures that are necessary or appropriate to minimize the impacts, i.e. the amount or extent, of incidental take (50 C.F.R. §402.02).

Mitigation measures were included in the proposed actions by the NSF and the Permits Division, such as soft starts and a shutdown zone (see Section 3.7 for more details), and we believe these will reduce potential ESA harm and harassment of the ESA-listed cetaceans in the action area. The following two statements proposed by the Permits Division, relating to vessel strike avoidance may cause confusion as they do not seem compatible:

1. “NSF must avoid direct physical interaction with marine mammals during construction activities, if a marine mammal comes within 10 m of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions.”
2. “When in the Project Area, if a whale is sighted in the path of a support vessel or within 92 m (300 feet) from the vessel, NSF must reduce speed and must not engage the engines until the animals are clear of the area. If a whale is sighted farther than 92 m (300 feet) from the vessel, NSF must maintain a distance of 92 m (300 feet) or greater between the whale and the vessel and reduce speed to 10 knots or less.”

We are including a measure below to help clarify that the vessel avoidance of ESA-listed whales should be a minimum distance of 92 m (300 ft) because 10 m is not a sufficient avoidance distance for this project in addition to other measures to minimize take of ESA-listed cetaceans as a result of the proposed action.

We believe the reasonable and prudent measures described below are necessary and appropriate to minimize the impacts of incidental take on threatened and endangered species:

- The Permits Division must ensure that the NSF implements a program to mitigate and report the potential effects of the Palmer Station pier replacement project, as well as the effectiveness of mitigation measures incorporated as part of the proposed IHA for the incidental taking of blue, fin, sei, Southern right whales and sperm whales pursuant to section 101(a)(5)(D) of the MMPA. In addition, the Permits Division must ensure that the provisions of the IHA are carried out, and to inform us if take is exceeded.
- The Permits Division must ensure that the NSF implements a program to monitor and report any potential interactions between Palmer Station pier replacement project activities and threatened or endangered marine species.
- Project support vessel speed should be limited to 5-10 knots for maneuvering in the vicinity of the project area. Any support vessel will maintain a distance of 92 m (300 feet) or greater between any ESA-listed whale and the vessel at all times. If the distance between the support vessel and an ESA-listed whale is ever less than 92 m, the vessel will reduce speed and shift the engine to neutral until the whale clears the area.

13.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the NSF and Permits Division must comply with the terms and conditions provided below. These include the take minimization, monitoring and reporting measures required by the section 7 regulations (50 C.F.R. §402.14(i)). If the NSF and the Permits Division fail to ensure compliance with these terms and conditions to implement the reasonable and prudent measures, the protective coverage of section 7(o)(2) may lapse.

To implement the reasonable and prudent measures, the NSF and the Permits Division shall implement the following terms and conditions:

1. A copy of the draft comprehensive report on Palmer Station pier replacement project activities and monitoring results must be provided to the ESA Interagency Cooperation Division within 90 days of the completion of the pier project, or expiration of the IHA, whichever comes sooner.
2. In addition to other reporting requirements for dead and stranded animals, any reports of injured or dead ESA-listed species must be provided to the ESA Interagency Cooperation Division within 24 hours to Cathy Tortorici, Chief, ESA Interagency Cooperation Division by e-mail at cathy.tortorici@noaa.gov.

14 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary agency activities to

Appendix C Daily PSO Monitoring Effort Details

An all-inclusive PSO monitoring effort data table is included as a .xlsx file attachment to this report. A truncated version of the monitoring effort data table is shown here for summary purposes.

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 23 Jan 2022 Begin | 1/23/2022 9:52:02 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 10:22:31 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 10:30:59 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 11:00:20 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 11:30:01 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 12 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 12:01:29 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 12:06:15 | GWR | GWR | Non-PSO Shutdown | N/A | 14 | 4 | 4 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 12:32:22 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 3 | Light Rain | 100 | 0 | None |
| On Watch | 1/23/2022 12:56:01 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/23/2022 13:15:40 | GWR | GWR | N/A | N/A | 15 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/23/2022 13:29:20 | GWR | GWR | N/A | N/A | 15 | 4 | 2 | Overcast | 100 | 0 | None |
| 23 Jan 2022 End | 1/23/2022 13:47:16 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 24 Jan 2022 Begin | 1/24/2022 13:30:31 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/24/2022 14:06:55 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/24/2022 14:31:00 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|----------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/24/2022 14:58:55 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/24/2022 15:30:01 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/24/2022 16:00:20 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/24/2022 16:30:17 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 1/24/2022 17:01:53 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 10 | None |
| 24 Jan 2022 End | 1/24/2022 17:04:39 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 25 Jan 2022 Begin | 1/25/2022 7:00:01 | GWR | GWR | Construction Prep | N/A | 0.5-1 | 0.5-1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 7:27:06 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:00:51 | GWR | GWR | Construction Prep | N/A | 2 | 2 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:14:16 | GWR | GWR | Construction Prep | N/A | 4 | 3 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:20:19 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:23:22 | GWR | GWR | PSO Delay | N/A | 0.5-1 | 0.5-1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:30:10 | GWR | GWR | PSO Delay | N/A | 0-0.5 | 0-0.5 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 8:45:50 | GWR | GWR | PSO Delay | N/A | 0.5-1 | 0.5-1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 9:01:50 | GWR | GWR | PSO Delay | N/A | 0.5-1 | 0.5-1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 9:15:48 | GWR | GWR | PSO Delay | N/A | 1 | 1 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 9:30:25 | GWR | GWR | PSO Delay | N/A | 0.5-1 | 0-0.5 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 10:00:21 | GWR | GWR | PSO Delay | N/A | 0.5-1 | 0-0.5 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 1/25/2022 10:13:50 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 1 | Light Fog | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/25/2022 10:32:16 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 1/25/2022 10:48:39 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 1 | 1 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 1/25/2022 11:00:52 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 1 | 1 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 1/25/2022 11:30:55 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 4 | 4 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 1/25/2022 12:00:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/25/2022 12:17:44 | GWR | GWR | Construction Prep | N/A | 12 | 6 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/25/2022 12:34:12 | GWR | GWR | Construction Break | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| 25 Jan 2022 End | 1/25/2022 12:48:44 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 26 Jan 2022 Begin | 1/26/2022 6:55:31 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 1/26/2022 7:27:54 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 1/26/2022 7:59:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 1/26/2022 8:28:22 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 1/26/2022 8:59:46 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 1/26/2022 9:29:51 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 50 | 0 | None |
| On Watch | 1/26/2022 10:00:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 50 | 0 | None |
| On Watch | 1/26/2022 10:30:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 90 | 0 | None |
| On Watch | 1/26/2022 11:00:08 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 90 | 0 | None |
| On Watch | 1/26/2022 11:30:56 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 90 | 0 | None |
| On Watch | 1/26/2022 12:01:34 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/26/2022 12:31:12 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/26/2022 13:01:53 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 30 | None |
| On Watch | 1/26/2022 13:27:37 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 30 | None |
| On Watch | 1/26/2022 14:00:00 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 1/26/2022 14:29:12 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/26/2022 14:58:16 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/26/2022 15:30:38 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/26/2022 15:59:46 | GWR | GWR | Construction Prep | N/A | 13 | 4 | 3 | Snow | 100 | 0 | None |
| On Watch | 1/26/2022 16:32:50 | GWR | GWR | Construction Prep | N/A | 12 | 4 | 3 | Snow | 100 | 0 | None |
| On Watch | 1/26/2022 17:01:01 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 2 | Snow | 100 | 0 | None |
| On Watch | 1/26/2022 17:33:35 | GWR | GWR | 2I - Rock Chipping/Floor Prep | N/A | 3 | 2 | 2 | Snow | 100 | 0 | None |
| On Watch | 1/26/2022 17:50:04 | GWR | GWR | Construction Prep | N/A | 8 | 4 | 2 | Snow | 100 | 0 | None |
| 26 Jan 2022 End | 1/26/2022 18:20:47 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 27 Jan 2022 Begin | 1/27/2022 6:55:30 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 7:27:22 | GWR | GWR | Construction Prep | N/A | 7 | 3 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 7:59:20 | GWR | GWR | Construction Prep | N/A | 13 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 8:22:09 | GWR | GWR | Construction Prep | N/A | 7 | 3 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 8:38:30 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 8:58:05 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 3 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|----------------------------------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/27/2022 9:27:37 | GWR | GWR | Other (add notes) | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 9:58:55 | GWR | GWR | Other (add notes) | N/A | 13 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 10:28:59 | GWR | GWR | Other (add notes) | N/A | 13 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 10:59:12 | GWR | GWR | Other (add notes) | N/A | 13 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 11:29:14 | GWR | GWR | Other (add notes) | N/A | 12 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 11:59:23 | GWR | GWR | Other (add notes) | N/A | 12 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 12:29:34 | GWR | GWR | Other (add notes) | N/A | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 13:05:46 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 80 | 0 | None |
| On Watch | 1/27/2022 13:29:51 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 90 | 0 | None |
| On Watch | 1/27/2022 14:00:02 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 90 | 0 | None |
| On Watch | 1/27/2022 14:30:07 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 15:00:02 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 15:30:02 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 15:41:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 16:00:38 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 16:13:39 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 16:33:24 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 17:05:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 17:26:24 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/27/2022 18:01:54 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/27/2022 18:09:09 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| 27 Jan 2022 End | 1/27/2022 18:39:10 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 28 Jan 2022 Begin | 1/28/2022 6:58:11 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 7:31:30 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 8:00:46 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 8:31:10 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 8:58:49 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 9:33:20 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 10:01:05 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 10:30:55 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 11:01:22 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 11:31:15 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 12:01:07 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 1/28/2022 12:30:20 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| 28 Jan 2022 End | 1/28/2022 13:01:13 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 29 Jan 2022 Begin | 1/29/2022 13:30:33 | GWR | GWR | On-land Construction | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 14:00:05 | GWR | GWR | On-land Construction | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 14:30:06 | GWR | GWR | On-land Construction | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 1/29/2022 14:59:06 | GWR | GWR | On-land Construction | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 15:10:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 15:29:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 15:59:18 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 16:32:26 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 16:59:52 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | Construction Prep | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 17:33:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | Construction Prep | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 18:03:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | Construction Prep | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 18:30:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | Construction Prep | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 19:00:34 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | Construction Prep | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 1/29/2022 19:05:49 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| 29 Jan 2022 End | 1/29/2022 19:35:59 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 30 Jan 2022 Begin | 1/30/2022 8:32:50 | GWR | GWR | Construction Prep | N/A | 8 | 4 | 1 | Light Rain | 100 | 0 | None |
| On Watch | 1/30/2022 9:02:31 | GWR | GWR | Construction Prep | N/A | 8 | 4 | 1 | Light Rain | 100 | 0 | None |
| On Watch | 1/30/2022 9:30:37 | GWR | GWR | Construction Prep | N/A | 13 | 6 | 1 | Light Rain | 100 | 0 | None |
| On Watch | 1/30/2022 10:00:36 | GWR | GWR | On-land Construction | N/A | 13 | 6 | 1 | Light Rain | 100 | 10 | None |
| On Watch | 1/30/2022 10:25:26 | GWR | GWR | On-land Construction | N/A | 13 | 5 | 1 | Overcast | 100 | 30 | None |
| On Watch | 1/30/2022 10:34:26 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 13 | 5 | 1 | Overcast | 100 | 30 | None |
| On Watch | 1/30/2022 11:05:45 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 13 | 6 | 2 | Overcast | 100 | 50 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|--------|
| On Watch | 1/30/2022 11:34:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 6 | 2 | Overcast | 100 | 30 | Slight |
| On Watch | 1/30/2022 12:07:08 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 6 | 2 | Overcast | 100 | 20 | Slight |
| On Watch | 1/30/2022 12:30:47 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 6 | 2 | Overcast | 100 | 20 | Slight |
| On Watch | 1/30/2022 13:01:09 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | On-land Construction | 14 | 6 | 2 | Overcast | 100 | 20 | Slight |
| On Watch | 1/30/2022 13:08:41 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 100 | 10 | Slight |
| On Watch | 1/30/2022 13:30:47 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 90 | 30 | Slight |
| On Watch | 1/30/2022 14:00:18 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 90 | 40 | Slight |
| On Watch | 1/30/2022 14:30:36 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 90 | 40 | Slight |
| On Watch | 1/30/2022 15:01:53 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 100 | 30 | Slight |
| On Watch | 1/30/2022 15:31:14 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 2 | Overcast | 100 | 20 | Slight |
| On Watch | 1/30/2022 16:00:51 | GWR | GWR | On-land Construction | N/A | 14 | 6 | 3 | Overcast | 90 | 20 | Slight |
| On Watch | 1/30/2022 16:31:27 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 3 | Overcast | 100 | 20 | Slight |
| On Watch | 1/30/2022 16:58:58 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 6 | 3 | Overcast | 100 | 10 | None |
| On Watch | 1/30/2022 17:02:39 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 3 | Overcast | 100 | 10 | None |
| 30 Jan 2022 End | 1/30/2022 17:33:09 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1 Feb 2022 Begin | 2/1/2022 6:57:34 | GWR | GWR | Construction Prep | N/A | 3 | 2 | 1 | Heavy Fog | 100 | 0 | None |
| On Watch | 2/1/2022 7:30:39 | GWR | GWR | Construction Prep | N/A | 4 | 3 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 2/1/2022 7:43:01 | GWR | GWR | Construction Prep | N/A | 5 | 4 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 2/1/2022 7:59:51 | GWR | GWR | Construction Prep | N/A | 6 | 5 | 1 | Light Fog | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|----------------------------------------------------|-------------------------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/1/2022 8:28:30 | GWR | GWR | Construction Prep | N/A | 7 | 5 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 2/1/2022 8:37:40 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 2/1/2022 8:45:16 | GWR | GWR | Construction Prep | N/A | 11 | 5 | 1 | Light Fog | 100 | 0 | None |
| On Watch | 2/1/2022 8:59:14 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Light Rain | 100 | 0 | None |
| On Watch | 2/1/2022 9:10:53 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 9:31:13 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 9:59:29 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 10:30:50 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 11:00:32 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 11:10:09 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 2A - Dock, 36-in Pile Install 20-ft Depth | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 11:30:58 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 2A - Dock, 36-in Pile Install 20-ft Depth | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 12:01:06 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 2A - Dock, 36-in Pile Install 20-ft Depth | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 12:29:46 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | 2A - Dock, 36-in Pile Install 20-ft Depth | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 13:08:21 | GWR | GWR | On-land Construction | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 13:28:52 | GWR | GWR | On-land Construction | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/1/2022 13:40:53 | GWR | GWR | On-land Construction | N/A | 14 | 5 | 1 | Overcast | 100 | 0 | None |
| 1 Feb 2022 End | 2/1/2022 14:10:07 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 2 Feb 2022 Begin | 2/2/2022 6:59:42 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 7:05:14 | GWR | GWR | Construction Prep | N/A | 0.5-1 | 0.5-1 | 3 | Heavy Fog | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|----------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/2/2022 7:15:30 | GWR | GWR | Construction Prep | N/A | 2 | 1 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 7:28:49 | GWR | GWR | Construction Prep | N/A | 2 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 7:46:28 | GWR | GWR | Construction Prep | N/A | 4 | 3 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:02:29 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 2 | 2 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:09:10 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 1 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:17:53 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 3 | 2 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:26:47 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 2 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:37:45 | GWR | GWR | Construction Prep | N/A | 3 | 2 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:46:53 | GWR | GWR | Construction Prep | N/A | 1 | 0.5-1 | 4 | Heavy Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:48:46 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 8:52:57 | GWR | GWR | Construction Prep | N/A | 2 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:02:06 | GWR | GWR | Construction Prep | N/A | 2 | 1 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:17:55 | GWR | GWR | Construction Prep | N/A | 1 | 0.5-1 | 4 | Heavy Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:29:54 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:42:13 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:51:12 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 2 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:53:49 | GWR | GWR | Construction Prep | N/A | 2 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/2/2022 9:59:59 | GWR | GWR | Construction Prep | N/A | 1 | 0.5-1 | 4 | Heavy Fog | 100 | 0 | None |
| 2 Feb 2022 End | 2/2/2022 10:30:00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|----------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 3 Feb 2022 Begin | 2/3/2022 7:28:40 | GWR | GWR | Construction Prep | N/A | 0-0.5 | 0-0.5 | 4 | Heavy Fog | 100 | 0 | None |
| On Watch | 2/3/2022 7:30:00 | GWR | GWR | Construction Prep | N/A | 1 | 1 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/3/2022 7:35:38 | GWR | GWR | Construction Prep | N/A | 4 | 2 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/3/2022 7:48:45 | GWR | GWR | Construction Prep | N/A | 12 | 3 | 4 | Light Fog | 100 | 0 | None |
| On Watch | 2/3/2022 8:02:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 8:05:30 | GWR | GWR | Construction Prep | N/A | 14 | 3 | 4 | Snow | 100 | 0 | None |
| On Watch | 2/3/2022 8:23:35 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 8:30:01 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 4 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 9:00:09 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 9:31:23 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 10:00:12 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 4 | 2 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 10:29:44 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 6 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 10:58:35 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 5 | 4 | Snow | 100 | 0 | None |
| On Watch | 2/3/2022 11:27:38 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 11:57:19 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 10 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 12:29:21 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 10 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/3/2022 12:42:17 | GWR | GWR | 2B - Dock Abutment, 36-in Pile Install 30-ft Depth | N/A | 14 | 5 | 4 | Overcast | 100 | 0 | None |
| 3 Feb 2022 End | 2/3/2022 13:12:31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 4 Feb 2022 Begin | 2/4/2022 8:58:00 | GWR | GWR | Construction Prep | N/A | 9 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 9:31:46 | GWR | GWR | Construction Prep | N/A | 9 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 10:00:12 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 10:29:57 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 10:41:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 11:00:26 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 11:28:55 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 11:46:28 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 2/4/2022 12:00:41 | GWR | GWR | N/A | N/A | 12 | 5 | 1 | Overcast | 100 | 0 | None |
| 4 Feb 2022 End | 2/4/2022 12:26:24 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 Feb 2022 Begin | 2/5/2022 10:41:01 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 60 | None |
| On Watch | 2/5/2022 10:58:34 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 60 | None |
| On Watch | 2/5/2022 11:11:27 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 60 | None |
| On Watch | 2/5/2022 11:20:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 50 | None |
| 5 Feb 2022 Pause | 2/5/2022 11:50:49 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 Feb 2022 Resume | 2/5/2022 12:15:11 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 30 | None |
| On Watch | 2/5/2022 12:30:07 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 30 | None |
| On Watch | 2/5/2022 13:00:43 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 20 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/5/2022 13:21:45 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| On Watch | 2/5/2022 13:26:05 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| 5 Feb 2022 End | 2/5/2022 13:56:28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 14 Feb 2022 Begin | 2/14/2022 6:57:06 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 2/14/2022 7:29:51 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 2/14/2022 8:00:16 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 2/14/2022 8:29:52 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| On Watch | 2/14/2022 8:40:14 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 20 | None |
| On Watch | 2/14/2022 8:49:41 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 30 | None |
| On Watch | 2/14/2022 8:57:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 40 | None |
| On Watch | 2/14/2022 9:01:34 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 50 | None |
| On Watch | 2/14/2022 9:29:23 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 50 | None |
| On Watch | 2/14/2022 9:59:16 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 80 | 50 | None |
| On Watch | 2/14/2022 10:18:19 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 80 | 50 | None |
| On Watch | 2/14/2022 10:30:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 50 | None |
| On Watch | 2/14/2022 11:00:11 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 50 | None |
| On Watch | 2/14/2022 11:30:27 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/14/2022 12:00:29 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/14/2022 12:30:19 | GWR | GWR | Construction Prep | N/A | 13 | 5 | 1 | Overcast | 100 | 30 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/14/2022 13:04:12 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 5 | 3 | 1 | Snow | 100 | 30 | None |
| On Watch | 2/14/2022 13:33:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 13 | 4 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/14/2022 13:52:05 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/14/2022 14:00:01 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 1 | Overcast | 100 | 40 | None |
| 14 Feb 2022 End | 2/14/2022 14:22:37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 16 Feb 2022 Begin | 2/16/2022 7:29:32 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 0 | None |
| On Watch | 2/16/2022 7:59:50 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 0 | None |
| On Watch | 2/16/2022 8:33:04 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 10 | None |
| On Watch | 2/16/2022 9:02:31 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 20 | None |
| On Watch | 2/16/2022 9:29:55 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 80 | 20 | None |
| On Watch | 2/16/2022 9:59:35 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 90 | 40 | None |
| On Watch | 2/16/2022 10:29:55 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/16/2022 10:59:55 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 30 | None |
| On Watch | 2/16/2022 11:02:33 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 30 | None |
| On Watch | 2/16/2022 11:29:50 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 30 | None |
| On Watch | 2/16/2022 11:59:59 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 20 | None |
| On Watch | 2/16/2022 12:26:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| On Watch | 2/16/2022 13:00:36 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| On Watch | 2/16/2022 13:29:38 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/16/2022 14:00:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 10 | None |
| On Watch | 2/16/2022 14:30:21 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 2/16/2022 15:00:34 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 2/16/2022 15:11:00 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 2/16/2022 15:31:17 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| 16 Feb 2022 End | 2/16/2022 15:41:01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 17 Feb 2022 Begin | 2/17/2022 6:59:06 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 5 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 7:30:19 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 5 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 7:59:17 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 8:29:17 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 8:45:08 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 3 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 8:59:14 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 9:31:43 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 9:57:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 10:30:05 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 11:00:07 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 11:30:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 12:00:21 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 12:30:57 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/17/2022 13:00:44 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 13:21:15 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/17/2022 13:30:01 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 4 | Overcast | 100 | 0 | None |
| 17 Feb 2022 End | 2/17/2022 13:51:20 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 18 Feb 2022 Begin | 2/18/2022 7:57:21 | GWR | GWR | Construction Prep | N/A | 13 | 4 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 8:33:38 | GWR | GWR | Construction Prep | N/A | 13 | 4 | 2 | Hazy | 90 | 0 | None |
| On Watch | 2/18/2022 9:00:00 | GWR | GWR | Construction Prep | N/A | 13 | 4 | 2 | Hazy | 90 | 0 | None |
| On Watch | 2/18/2022 9:16:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 13 | 5 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 9:30:47 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 13 | 5 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 10:00:33 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 13 | 5 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 10:30:36 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 10:51:51 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 80 | 0 | None |
| On Watch | 2/18/2022 11:01:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 70 | 0 | None |
| On Watch | 2/18/2022 11:24:11 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 90 | 0 | None |
| On Watch | 2/18/2022 11:31:05 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 12:00:09 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 2 | Hazy | 100 | 0 | None |
| On Watch | 2/18/2022 12:28:40 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 6 | 3 | Hazy | 90 | 0 | None |
| On Watch | 2/18/2022 13:00:46 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 6 | 3 | Overcast | 80 | 0 | None |
| On Watch | 2/18/2022 13:31:14 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 80 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-----------|
| On Watch | 2/18/2022 14:01:21 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 2/18/2022 14:31:21 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 60 | 0 | None |
| On Watch | 2/18/2022 15:01:34 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 90 | 0 | None |
| On Watch | 2/18/2022 15:31:58 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 80 | 0 | Slight |
| On Watch | 2/18/2022 16:02:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 90 | 0 | None |
| On Watch | 2/18/2022 16:30:48 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 2 | Overcast | 90 | 0 | Slight |
| On Watch | 2/18/2022 17:02:27 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 3 | Overcast | 80 | 0 | Mode rate |
| On Watch | 2/18/2022 17:29:45 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Partly Cloudy | 70 | 0 | Mode rate |
| On Watch | 2/18/2022 17:59:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Partly Cloudy | 70 | 0 | Mode rate |
| On Watch | 2/18/2022 18:13:09 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 4 | Partly Cloudy | 70 | 0 | Mode rate |
| On Watch | 2/18/2022 18:30:28 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 4 | Partly Cloudy | 70 | 0 | Mode rate |
| 18 Feb 2022 End | 2/18/2022 18:43:11 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 19 Feb 2022 Begin | 2/19/2022 10:59:05 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 4 | Overcast | 90 | 0 | None |
| On Watch | 2/19/2022 11:29:04 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 4 | Overcast | 80 | 0 | None |
| On Watch | 2/19/2022 11:55:33 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Partly Cloudy | 70 | 0 | None |
| On Watch | 2/19/2022 11:59:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Partly Cloudy | 70 | 0 | None |
| On Watch | 2/19/2022 12:28:12 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 80 | 0 | None |
| On Watch | 2/19/2022 12:59:49 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 13:29:50 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/19/2022 14:00:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 14:30:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 15:00:15 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 15:30:37 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 16:00:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 16:30:59 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 17:01:18 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 13 | 5 | 4 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 17:33:43 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 3 | Snow | 100 | 0 | None |
| On Watch | 2/19/2022 17:39:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 5 | 4 | 3 | Snow | 100 | 0 | None |
| On Watch | 2/19/2022 17:50:09 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 3 | Snow | 100 | 0 | None |
| On Watch | 2/19/2022 17:57:39 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 5 | 3 | Snow | 100 | 0 | None |
| On Watch | 2/19/2022 18:02:18 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 18:30:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 19:00:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 19:29:14 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 19:41:59 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 2/19/2022 20:00:38 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| 19 Feb 2022 End | 2/19/2022 20:12:24 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 23 Feb 2022 Begin | 2/23/2022 7:28:58 | GWR | GWR | Construction Prep | N/A | 6 | 4 | 2 | Light Fog | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/23/2022 7:59:14 | GWR | GWR | Construction Prep | N/A | 8 | 4 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 8:28:22 | GWR | GWR | Construction Prep | N/A | 10 | 4 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 8:45:05 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 4 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 8:59:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 9:29:38 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 9:59:36 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 10:29:34 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 11:00:56 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 11:30:59 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 11:59:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/23/2022 12:10:26 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 6 | 4 | 2 | Snow | 100 | 0 | None |
| On Watch | 2/23/2022 12:27:06 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 12:59:53 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 13:28:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 13:59:43 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 14:18:00 | GWR | GWR | Construction Prep | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| On Watch | 2/23/2022 14:30:13 | GWR | GWR | Construction Prep | N/A | 4 | 3 | 2 | Light Fog | 100 | 0 | None |
| 23 Feb 2022 End | 2/23/2022 14:48:00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 24 Feb 2022 Begin | 2/24/2022 9:57:15 | GWR | GWR | Construction Prep | N/A | 6 | 5 | 1 | Overcast | 100 | 20 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/24/2022 10:29:05 | GWR | GWR | Construction Prep | N/A | 6 | 5 | 1 | Overcast | 100 | 20 | None |
| On Watch | 2/24/2022 10:59:50 | GWR | GWR | Construction Prep | N/A | 6 | 5 | 1 | Overcast | 100 | 20 | None |
| On Watch | 2/24/2022 11:18:56 | GWR | GWR | Construction Prep | N/A | 7 | 5 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/24/2022 11:29:49 | GWR | GWR | Construction Prep | N/A | 8 | 5 | 1 | Overcast | 80 | 50 | None |
| On Watch | 2/24/2022 11:54:06 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 1 | Overcast | 90 | 60 | None |
| On Watch | 2/24/2022 11:59:56 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 8 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/24/2022 12:30:35 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 9 | 4 | 1 | Overcast | 100 | 60 | None |
| On Watch | 2/24/2022 13:00:15 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 12 | 5 | 1 | Overcast | 100 | 70 | None |
| On Watch | 2/24/2022 13:30:31 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/24/2022 14:00:05 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/24/2022 14:30:59 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 60 | None |
| On Watch | 2/24/2022 15:00:00 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/24/2022 15:28:00 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 20 | None |
| 24 Feb 2022 End | 2/24/2022 15:58:27 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 25 Feb 2022 Begin | 2/25/2022 6:57:25 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 2/25/2022 7:29:21 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 2/25/2022 7:54:31 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 10 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 2/25/2022 7:58:18 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 1 | Overcast | 100 | 20 | None |
| On Watch | 2/25/2022 8:15:58 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 40 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/25/2022 8:32:50 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 60 | None |
| On Watch | 2/25/2022 8:59:16 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/25/2022 9:01:30 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/25/2022 9:04:41 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 1 | Overcast | 100 | 80 | None |
| On Watch | 2/25/2022 9:20:24 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 70 | None |
| On Watch | 2/25/2022 9:25:01 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 1 | Overcast | 100 | 70 | None |
| On Watch | 2/25/2022 9:30:00 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 70 | None |
| On Watch | 2/25/2022 10:00:26 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 50 | None |
| On Watch | 2/25/2022 10:09:23 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 1 | Overcast | 100 | 30 | None |
| On Watch | 2/25/2022 10:30:51 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 1 | Overcast | 100 | 20 | None |
| On Watch | 2/25/2022 10:35:10 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 20 | None |
| 25 Feb 2022 Pause | 2/25/2022 11:05:56 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 25 Feb 2022 Resume | 2/25/2022 12:00:20 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 20 | None |
| On Watch | 2/25/2022 12:27:51 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 1 | Overcast | 100 | 30 | None |
| On Watch | 2/25/2022 12:53:16 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:02:57 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:07:24 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 1 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:31:18 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:38:16 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 2/25/2022 13:39:13 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:42:19 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:42:31 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 13:43:51 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 14:01:16 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 14:09:37 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 14:25:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 14:30:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| On Watch | 2/25/2022 14:34:11 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 40 | None |
| 25 Feb 2022 End | 2/25/2022 15:04:00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 27 Feb 2022 Begin | 2/27/2022 7:28:30 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/27/2022 8:02:24 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/27/2022 8:33:34 | GWR | GWR | Construction Prep | N/A | 15 | 3 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/27/2022 9:04:51 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 3 | 2 | Overcast | 90 | 0 | None |
| On Watch | 2/27/2022 9:10:20 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 2/27/2022 9:22:23 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/27/2022 9:24:10 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 2/27/2022 9:30:27 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| 27 Feb 2022 End | 2/27/2022 9:54:17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 2 Mar 2022 Begin | 3/2/2022 7:28:02 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/2/2022 8:02:10 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/2/2022 8:28:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/2/2022 8:39:50 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 20 | 70 | None |
| On Watch | 3/2/2022 8:46:29 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 10 | 70 | None |
| On Watch | 3/2/2022 9:02:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 10 | 70 | None |
| On Watch | 3/2/2022 9:25:24 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 10 | 80 | None |
| On Watch | 3/2/2022 9:43:02 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 80 | None |
| On Watch | 3/2/2022 9:58:58 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 80 | None |
| On Watch | 3/2/2022 10:29:40 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 90 | None |
| On Watch | 3/2/2022 10:43:38 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 0 | 90 | None |
| On Watch | 3/2/2022 10:59:47 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 0 | 90 | None |
| On Watch | 3/2/2022 11:29:55 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 0 | 90 | None |
| On Watch | 3/2/2022 11:55:56 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 90 | None |
| On Watch | 3/2/2022 12:30:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 80 | None |
| On Watch | 3/2/2022 13:00:24 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 80 | None |
| On Watch | 3/2/2022 13:29:55 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 80 | None |
| 2 Mar 2022 End | 3/2/2022 13:41:34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 3 Mar 2022 Begin | 3/3/2022 6:57:47 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 1 | Overcast | 90 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/3/2022 7:33:05 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/3/2022 7:59:54 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/3/2022 8:29:50 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 4 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/3/2022 8:46:16 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 3 | Overcast | 90 | 0 | None |
| On Watch | 3/3/2022 9:00:51 | GWR | GWR | Construction Prep | N/A | 14 | 4 | 4 | Overcast | 90 | 10 | None |
| 3 Mar 2022 End | 3/3/2022 9:16:01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 4 Mar 2022 Begin | 3/4/2022 6:57:07 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 7:28:39 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 7:59:47 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 8:26:05 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 9:00:12 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 9:11:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 9:30:48 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 9:59:30 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 10:29:43 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 10:59:41 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 11:29:48 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 11:41:39 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 11:59:51 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/4/2022 12:29:33 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 12:59:41 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 13:07:08 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 13:29:51 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 14:00:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 14:30:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | None |
| On Watch | 3/4/2022 15:00:10 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/4/2022 15:20:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 0 | None |
| On Watch | 3/4/2022 15:33:59 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 80 | 0 | None |
| On Watch | 3/4/2022 16:01:21 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 16:29:16 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 17:01:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 17:16:21 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/4/2022 17:29:42 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| 4 Mar 2022 End | 3/4/2022 17:46:44 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 5 Mar 2022 Begin | 3/5/2022 9:29:00 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/5/2022 10:00:09 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 10:28:41 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 11:00:52 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 2 | Overcast | 100 | 10 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|--------|
| On Watch | 3/5/2022 11:28:59 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 11:35:19 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 12:00:26 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 12:29:05 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 12:59:15 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 13:09:44 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| On Watch | 3/5/2022 13:29:40 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Overcast | 100 | 10 | None |
| 5 Mar 2022 End | 3/5/2022 13:39:51 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 6 Mar 2022 Begin | 3/6/2022 8:20:11 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 0 | 30 | None |
| On Watch | 3/6/2022 8:54:31 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 0 | 30 | None |
| On Watch | 3/6/2022 9:00:31 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 0 | 40 | None |
| On Watch | 3/6/2022 9:29:52 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 10 | 60 | None |
| On Watch | 3/6/2022 10:00:22 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 10 | 60 | Slight |
| On Watch | 3/6/2022 10:29:11 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 10 | 50 | Slight |
| On Watch | 3/6/2022 10:58:25 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Clear | 10 | 30 | Slight |
| On Watch | 3/6/2022 11:12:12 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 10 | 30 | Slight |
| On Watch | 3/6/2022 11:30:37 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 10 | 30 | Slight |
| 6 Mar 2022 Pause | 3/6/2022 11:42:56 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|--------|
| 6 Mar 2022 Resume | 3/6/2022 13:29:52 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 30 | None |
| On Watch | 3/6/2022 14:01:01 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 30 | None |
| On Watch | 3/6/2022 14:29:03 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 30 | None |
| On Watch | 3/6/2022 15:00:30 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 10 | None |
| On Watch | 3/6/2022 15:24:58 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/6/2022 15:31:12 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 16:01:16 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 16:31:23 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 17:01:37 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 17:31:46 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 18:01:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 3/6/2022 18:30:09 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 90 | 0 | Slight |
| On Watch | 3/6/2022 19:01:58 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 4 | 2 | Overcast | 80 | 0 | Slight |
| On Watch | 3/6/2022 19:34:14 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 0 | Slight |
| 6 Mar 2022 End | 3/6/2022 20:04:14 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 7 Mar 2022 Begin | 3/7/2022 9:27:21 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 10:00:36 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 10:30:40 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 11:00:45 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|--------|
| On Watch | 3/7/2022 11:30:42 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 12:00:57 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 12:35:04 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 13:01:28 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 13:31:29 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 14:00:00 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 14:31:42 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 15:02:40 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 15:32:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 16:00:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 16:31:28 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 17:06:16 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| On Watch | 3/7/2022 17:31:29 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 100 | 0 | None |
| 7 Mar 2022 End | 3/7/2022 17:36:17 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 8 Mar 2022 Begin | 3/8/2022 9:35:08 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 1 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/8/2022 10:00:45 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 1 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/8/2022 10:31:07 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 1 | Partly Cloudy | 50 | 0 | Slight |
| On Watch | 3/8/2022 10:52:41 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 1 | Partly Cloudy | 30 | 0 | Slight |
| On Watch | 3/8/2022 11:00:17 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 0 | Clear | 20 | 0 | Slight |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-----------|
| On Watch | 3/8/2022 11:30:43 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 0 | Clear | 10 | 0 | Slight |
| On Watch | 3/8/2022 11:59:56 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 14 | 6 | 0 | Clear | 20 | 0 | Slight |
| On Watch | 3/8/2022 12:15:50 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 0 | Clear | 20 | 0 | Slight |
| On Watch | 3/8/2022 12:29:10 | GWR | GWR | Construction Prep | N/A | 14 | 6 | 0 | Clear | 20 | 0 | Slight |
| 8 Mar 2022 Pause | 3/8/2022 12:46:43 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 8 Mar 2022 Resume | 3/8/2022 15:10:08 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Partly Cloudy | 50 | 0 | Slight |
| On Watch | 3/8/2022 15:30:51 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Partly Cloudy | 50 | 0 | Slight |
| On Watch | 3/8/2022 16:00:07 | GWR | GWR | Construction Prep | N/A | 14 | 5 | 1 | Partly Cloudy | 30 | 10 | Slight |
| On Watch | 3/8/2022 16:30:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 20 | 10 | Slight |
| On Watch | 3/8/2022 17:00:04 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 20 | 10 | Slight |
| On Watch | 3/8/2022 17:20:18 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 30 | 10 | Mode rate |
| On Watch | 3/8/2022 17:29:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 30 | 10 | Mode rate |
| 8 Mar 2022 End | 3/8/2022 17:50:47 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10 Mar 2022 Begin | 3/10/2022 6:55:52 | GWR | GWR | Construction Prep | N/A | 6 | 4 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 3/10/2022 7:27:52 | GWR | GWR | Construction Prep | N/A | 6 | 4 | 3 | Light Fog | 90 | 0 | None |
| On Watch | 3/10/2022 7:42:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 6 | 4 | 3 | Light Fog | 90 | 0 | None |
| On Watch | 3/10/2022 7:57:27 | GWR | GWR | Construction Prep | N/A | 6 | 4 | 3 | Light Fog | 90 | 0 | None |
| 10 Mar 2022 Pause | 3/10/2022 8:27:37 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 10 Mar 2022 Resume | 3/10/2022 12:45:17 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 3/10/2022 13:01:14 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 3/10/2022 13:30:32 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 80 | 0 | None |
| On Watch | 3/10/2022 13:49:01 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 5 | 3 | 3 | Light Fog | 70 | 0 | None |
| On Watch | 3/10/2022 14:00:00 | GWR | GWR | 2A - Dock, 36-in Pile Install 20-ft Depth | N/A | 5 | 3 | 3 | Light Fog | 60 | 0 | None |
| On Watch | 3/10/2022 14:23:15 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 60 | 0 | None |
| On Watch | 3/10/2022 14:29:55 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 60 | 0 | None |
| On Watch | 3/10/2022 15:00:56 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 80 | 0 | None |
| On Watch | 3/10/2022 15:16:05 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 5 | 3 | 3 | Light Fog | 100 | 0 | None |
| On Watch | 3/10/2022 15:28:10 | GWR | GWR | Construction Prep | N/A | 5 | 3 | 3 | Light Fog | 100 | 0 | None |
| 10 Mar 2022 End | 3/10/2022 15:58:32 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 16 Mar 2022 Begin | 3/16/2022 12:52:00 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 60 | None |
| On Watch | 3/16/2022 13:01:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 50 | 60 | None |
| On Watch | 3/16/2022 13:32:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/16/2022 13:48:59 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/16/2022 14:03:24 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/16/2022 14:30:06 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/16/2022 14:59:22 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 70 | None |
| On Watch | 3/16/2022 15:09:36 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 70 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/16/2022 15:31:45 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 70 | None |
| 16 Mar 2022 End | 3/16/2022 15:40:00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 17 Mar 2022 Begin | 3/17/2022 6:55:31 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 40 | None |
| On Watch | 3/17/2022 7:27:21 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 50 | None |
| On Watch | 3/17/2022 7:34:01 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 60 | None |
| On Watch | 3/17/2022 7:45:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 60 | None |
| On Watch | 3/17/2022 7:57:16 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 30 | 70 | None |
| On Watch | 3/17/2022 8:28:49 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/17/2022 8:39:40 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 70 | None |
| On Watch | 3/17/2022 9:03:10 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 30 | 80 | None |
| On Watch | 3/17/2022 9:06:57 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 20 | 90 | None |
| On Watch | 3/17/2022 9:29:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Clear | 20 | 90 | None |
| On Watch | 3/17/2022 10:00:29 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 90 | None |
| On Watch | 3/17/2022 10:30:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 90 | None |
| On Watch | 3/17/2022 10:39:11 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 90 | None |
| On Watch | 3/17/2022 11:00:26 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 80 | None |
| On Watch | 3/17/2022 11:10:19 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 80 | None |
| On Watch | 3/17/2022 11:30:34 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 80 | None |
| On Watch | 3/17/2022 12:00:38 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-----------|
| On Watch | 3/17/2022 12:26:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/17/2022 12:44:41 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/17/2022 12:46:13 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/17/2022 13:00:56 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 70 | None |
| On Watch | 3/17/2022 13:19:08 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 60 | None |
| On Watch | 3/17/2022 13:29:33 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 50 | None |
| On Watch | 3/17/2022 14:00:07 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 80 | 40 | None |
| On Watch | 3/17/2022 14:05:00 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 80 | 40 | None |
| 17 Mar 2022 Pause | 3/17/2022 14:35:09 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 17 Mar 2022 Resume | 3/17/2022 15:30:12 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 20 | Slight |
| On Watch | 3/17/2022 16:00:01 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 20 | Slight |
| On Watch | 3/17/2022 16:11:24 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 10 | Slight |
| On Watch | 3/17/2022 16:11:34 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 10 | Mode rate |
| On Watch | 3/17/2022 16:28:03 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 40 | 10 | Mode rate |
| 17 Mar 2022 End | 3/17/2022 16:41:46 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 18 Mar 2022 Begin | 3/18/2022 10:23:17 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 4 | Partly Cloudy | 40 | 0 | None |
| On Watch | 3/18/2022 10:30:22 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 4 | Partly Cloudy | 40 | 0 | None |
| On Watch | 3/18/2022 11:00:26 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 4 | Partly Cloudy | 40 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/18/2022 11:30:10 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 30 | 0 | None |
| On Watch | 3/18/2022 11:53:27 | GWR | GWR | Construction Prep | N/A | 15 | 4 | 4 | Partly Cloudy | 40 | 0 | None |
| On Watch | 3/18/2022 12:00:40 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 30 | 0 | None |
| On Watch | 3/18/2022 12:20:51 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 20 | 0 | None |
| On Watch | 3/18/2022 12:30:49 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 20 | 0 | None |
| On Watch | 3/18/2022 12:34:10 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 20 | 0 | None |
| On Watch | 3/18/2022 12:59:16 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 20 | 0 | None |
| On Watch | 3/18/2022 13:13:32 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 40 | 0 | None |
| On Watch | 3/18/2022 13:31:03 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 60 | 0 | None |
| 18 Mar 2022 Pause | 3/18/2022 13:48:35 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 18 Mar 2022 Resume | 3/18/2022 14:27:39 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 14:58:03 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 15:28:51 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 15:41:06 | GWR | GWR | 2G - Removal 24-in Template Pile | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 15:43:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 15:58:06 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 16:15:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 16:23:42 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 16:30:18 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|----------------------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/18/2022 16:40:18 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 16:59:52 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:20:26 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:24:56 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:30:10 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:37:10 | GWR | GWR | 2F - Retaining Wall HP Pile Insert into 24-in Pile 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:40:42 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| On Watch | 3/18/2022 17:59:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 0 | None |
| 18 Mar 2022 End | 3/18/2022 18:10:43 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 19 Mar 2022 Begin | 3/19/2022 13:26:20 | GWR | GWR | Construction Prep | N/A | 7 | 4 | 1 | Light Fog | 100 | 70 | None |
| On Watch | 3/19/2022 13:59:54 | GWR | GWR | Construction Prep | N/A | 7 | 4 | 1 | Light Fog | 100 | 70 | None |
| On Watch | 3/19/2022 14:28:36 | GWR | GWR | Construction Prep | N/A | 7 | 4 | 1 | Light Fog | 100 | 70 | None |
| On Watch | 3/19/2022 14:59:44 | GWR | GWR | Construction Prep | N/A | 7 | 4 | 1 | Light Fog | 100 | 50 | None |
| On Watch | 3/19/2022 15:28:49 | GWR | GWR | Construction Prep | N/A | 7 | 4 | 1 | Light Fog | 100 | 40 | None |
| On Watch | 3/19/2022 15:52:11 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 7 | 4 | 1 | Light Fog | 100 | 40 | None |
| On Watch | 3/19/2022 15:59:07 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 7 | 4 | 1 | Light Fog | 100 | 30 | None |
| On Watch | 3/19/2022 16:03:26 | GWR | GWR | Construction Delay | N/A | 6 | 4 | 2 | Light Fog | 100 | 20 | None |
| On Watch | 3/19/2022 16:19:16 | GWR | GWR | Construction Delay | N/A | 5 | 3 | 1 | Snow | 100 | 20 | None |
| On Watch | 3/19/2022 16:29:35 | GWR | GWR | Construction Delay | N/A | 6 | 3 | 1 | Snow | 100 | 20 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-----------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/19/2022 16:57:03 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 8 | 3 | 2 | Light Fog | 100 | 30 | None |
| On Watch | 3/19/2022 17:26:22 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 12 | 4 | 3 | Light Rain | 100 | 50 | None |
| On Watch | 3/19/2022 17:58:43 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 14 | 5 | 4 | Light Rain | 100 | 40 | None |
| On Watch | 3/19/2022 18:17:20 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 12 | 5 | 4 | Overcast | 100 | 30 | None |
| On Watch | 3/19/2022 18:23:29 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 4 | Overcast | 100 | 30 | None |
| On Watch | 3/19/2022 18:30:07 | GWR | GWR | Construction Prep | N/A | 12 | 5 | 4 | Overcast | 100 | 20 | None |
| 19 Mar 2022 End | 3/19/2022 18:53:31 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 20 Mar 2022 Begin | 3/20/2022 13:27:07 | GWR | GWR | Construction Prep | N/A | 6 | 3 | 2 | Light Fog | 100 | 10 | None |
| On Watch | 3/20/2022 13:57:55 | GWR | GWR | Construction Prep | N/A | 8 | 4 | 2 | Overcast | 80 | 10 | None |
| On Watch | 3/20/2022 14:28:57 | GWR | GWR | Construction Prep | N/A | 10 | 4 | 2 | Partly Cloudy | 60 | 10 | None |
| On Watch | 3/20/2022 14:38:53 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 12 | 4 | 2 | Partly Cloudy | 40 | 10 | None |
| On Watch | 3/20/2022 14:59:27 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 12 | 4 | 2 | Partly Cloudy | 60 | 10 | None |
| On Watch | 3/20/2022 15:29:56 | GWR | GWR | 2E - 24-in Wave Attenuator Pile Install 20-ft Depth | N/A | 12 | 4 | 3 | Partly Cloudy | 70 | 10 | None |
| On Watch | 3/20/2022 15:43:28 | GWR | GWR | Construction Prep | N/A | 12 | 4 | 3 | Partly Cloudy | 60 | 10 | None |
| On Watch | 3/20/2022 15:59:11 | GWR | GWR | Construction Prep | N/A | 12 | 4 | 3 | Partly Cloudy | 60 | 10 | None |
| 20 Mar 2022 End | 3/20/2022 16:13:29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 27 Mar 2022 Begin | 3/27/2022 10:14:31 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 10 | None |
| On Watch | 3/27/2022 10:31:21 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 10 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|-------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-----------|
| On Watch | 3/27/2022 10:59:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 10 | None |
| On Watch | 3/27/2022 11:29:47 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Overcast | 90 | 10 | None |
| On Watch | 3/27/2022 11:46:21 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 10 | None |
| On Watch | 3/27/2022 11:59:51 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 90 | 10 | None |
| On Watch | 3/27/2022 12:27:26 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Overcast | 80 | 10 | None |
| On Watch | 3/27/2022 12:58:19 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 10 | None |
| On Watch | 3/27/2022 13:30:09 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 10 | None |
| On Watch | 3/27/2022 14:00:13 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 50 | 10 | None |
| On Watch | 3/27/2022 14:33:09 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 60 | 10 | None |
| 27 Mar 2022 Pause | 3/27/2022 15:03:10 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 27 Mar 2022 Resume | 3/27/2022 15:28:01 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/27/2022 16:00:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/27/2022 16:30:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/27/2022 17:00:28 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/27/2022 17:23:45 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 1 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/27/2022 17:35:50 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 3/27/2022 18:00:53 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 80 | 0 | None |
| On Watch | 3/27/2022 18:30:21 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Partly Cloudy | 70 | 0 | Mode rate |
| On Watch | 3/27/2022 18:42:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 70 | 0 | Mode rate |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-----------|
| On Watch | 3/27/2022 19:01:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 70 | 0 | Mode rate |
| 27 Mar 2022 End | 3/27/2022 19:12:53 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 28 Mar 2022 Begin | 3/28/2022 10:25:41 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 0 | None |
| On Watch | 3/28/2022 11:02:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 0 | None |
| On Watch | 3/28/2022 11:32:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Partly Cloudy | 60 | 0 | None |
| On Watch | 3/28/2022 12:03:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 60 | 0 | None |
| On Watch | 3/28/2022 12:31:48 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | None |
| On Watch | 3/28/2022 13:03:42 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/28/2022 13:31:09 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/28/2022 14:01:19 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/28/2022 14:09:40 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | Slight |
| On Watch | 3/28/2022 14:30:09 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 3 | Partly Cloudy | 70 | 0 | Slight |
| 28 Mar 2022 End | 3/28/2022 14:39:42 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 29 Mar 2022 Begin | 3/29/2022 8:04:24 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |
| On Watch | 3/29/2022 8:27:58 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |
| On Watch | 3/29/2022 9:01:26 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |
| On Watch | 3/29/2022 9:30:23 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |
| On Watch | 3/29/2022 9:39:30 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|-------------------------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 3/29/2022 9:59:25 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Clear | 10 | 10 | None |
| 29 Mar 2022 Pause | 3/29/2022 10:30:16 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 29 Mar 2022 Resume | 3/29/2022 11:57:36 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/29/2022 12:29:50 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/29/2022 13:00:44 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/29/2022 13:06:05 | GWR | GWR | 2C - RHIB 24-in Fender Pile Install 20-ft Depth | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/29/2022 13:14:20 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| On Watch | 3/29/2022 13:30:54 | GWR | GWR | Construction Prep | N/A | 15 | 5 | 2 | Overcast | 100 | 10 | None |
| 29 Mar 2022 End | 3/29/2022 13:44:33 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 29 May Begin | 5/29/2022 15:46:14 | Pier | Science Office | Construction Prep | N/A | 10 | 10 | 1 | Partly Cloudy | 40 | 90 | None |
| On Watch | 5/29/2022 16:00:11 | Pier | Science Office | Construction Prep | N/A | 10 | 10 | 1 | Partly Cloudy | 40 | 90 | None |
| On Watch | 5/29/2022 16:17:02 | Pier | Science Office | 2J - Anode Install - Grinding | N/A | 8 | 3 | 1 | Partly Cloudy | 70 | 90 | None |
| On Watch | 5/29/2022 16:30:29 | Pier | Science Office | 2J - Anode Install - Grinding | N/A | 2 | 1 | 1 | Partly Cloudy | 70 | 90 | None |
| On Watch | 5/29/2022 16:37:42 | Pier | Science Office | N/A | N/A | 2 | 0.5-1 | 1 | Partly Cloudy | 70 | 70 | None |
| On Watch | 5/29/2022 16:51:00 | Pier | Science Office | N/A | N/A | 1 | 0-0.5 | 1 | Partly Cloudy | 50 | 70 | None |
| 29 May 2022 End | 5/29/2022 17:02:16 | N/A | N/A | N/A | N/A | 0.5-1 | 0-0.5 | 1 | Partly Cloudy | 30 | 70 | None |
| 31 May 2022 Begin | 5/31/2022 9:40:05 | Pier | Science Office | N/A | N/A | 0.5-1 | 0-0.5 | 1 | Clear | 20 | 60 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 5/31/2022 9:57:58 | Pier | Science Office | N/A | N/A | 1 | 0.5-1 | 1 | Clear | 20 | 80 | None |
| On Watch | 5/31/2022 10:28:47 | Pier | Science Office | N/A | N/A | 3 | 1 | 1 | Partly Cloudy | 50 | 80 | None |
| On Watch | 5/31/2022 10:58:17 | Pier | Science Office | N/A | N/A | 3 | 2 | 1 | Partly Cloudy | 50 | 80 | None |
| On Watch | 5/31/2022 11:29:50 | Pier | Science Office | N/A | N/A | 3 | 2 | 1 | Partly Cloudy | 60 | 90 | None |
| 31 May 2022 Pause | 5/31/2022 11:50:09 | N/A | N/A | N/A | N/A | 3 | 2 | 1 | Partly Cloudy | 60 | 90 | None |
| 31 May 2022 Resume | 5/31/2022 13:05:46 | Pier | Science Office | N/A | N/A | 3 | 2 | 1 | Overcast | 100 | 90 | None |
| On Watch | 5/31/2022 13:30:37 | Pier | Science Office | N/A | N/A | 3 | 2 | 1 | Overcast | 100 | 90 | None |
| On Watch | 5/31/2022 14:00:59 | Pier | Science Office | N/A | N/A | 3 | 2 | 1 | Overcast | 90 | 90 | None |
| On Watch | 5/31/2022 14:28:39 | Pier | Science Office | N/A | N/A | 2 | 2 | 1 | Overcast | 90 | 80 | None |
| On Watch | 5/31/2022 14:59:12 | Pier | Science Office | N/A | N/A | 2 | 2 | 1 | Overcast | 90 | 80 | None |
| On Watch | 5/31/2022 15:33:13 | Pier | Science Office | N/A | N/A | 1 | 1 | 1 | Partly Cloudy | 70 | 90 | None |
| 31 May 2022 End | 5/31/2022 15:57:28 | N/A | N/A | N/A | N/A | 1 | 0.5-1 | 1 | Overcast | 100 | 90 | None |
| 1 Jun 2022 Begin | 6/1/2022 9:45:00 | Pier | Science Office | N/A | N/A | 0.5-1 | 0-0.5 | 2 | Partly Cloudy | 40 | 20 | None |
| On Watch | 6/1/2022 10:00:39 | Pier | Science Office | N/A | N/A | 1 | 0.5-1 | 2 | Partly Cloudy | 70 | 20 | None |
| On Watch | 6/1/2022 10:28:27 | Pier | Science Office | N/A | N/A | 2 | 1 | 2 | Partly Cloudy | 40 | 20 | None |
| On Watch | 6/1/2022 10:57:42 | Pier | Science Office | N/A | N/A | 3 | 3 | 2 | Partly Cloudy | 60 | 20 | None |
| On Watch | 6/1/2022 11:29:07 | Pier | Science Office | N/A | N/A | 4 | 4 | 2 | Overcast | 90 | 20 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 1 Jun 2022 Pause | 6/1/2022 11:53:21 | N/A | N/A | N/A | N/A | 3 | 3 | 2 | Overcast | 100 | 20 | None |
| 1 Jun 2022 Resume | 6/1/2022 12:59:01 | Pier | Science Office | N/A | N/A | 4 | 4 | 2 | Partly Cloudy | 40 | 10 | None |
| On Watch | 6/1/2022 13:30:00 | Pier | Science Office | N/A | N/A | 3 | 3 | 2 | Overcast | 100 | 20 | None |
| On Watch | 6/1/2022 13:57:30 | Pier | Science Office | N/A | N/A | 3 | 3 | 3 | Overcast | 100 | 20 | None |
| On Watch | 6/1/2022 14:27:47 | Pier | Science Office | N/A | N/A | 2 | 2 | 3 | Overcast | 100 | 20 | None |
| On Watch | 6/1/2022 15:00:15 | Pier | Science Office | N/A | N/A | 2 | 2 | 3 | Overcast | 100 | 20 | None |
| On Watch | 6/1/2022 15:29:43 | Pier | Science Office | N/A | N/A | 2 | 1 | 3 | Overcast | 100 | 20 | None |
| 1 Jun 2022 End | 6/1/2022 15:54:25 | N/A | N/A | N/A | N/A | 1 | 1 | 3 | Overcast | 100 | 20 | None |
| 2 Jun 2022 Begin | 6/2/2022 10:00:21 | Pier | Science Office | N/A | N/A | 0.5-1 | 0-0.5 | 5 | Snow | 100 | 60 | None |
| On Watch | 6/2/2022 10:28:59 | Pier | Science Office | N/A | N/A | 0.5-1 | 0-0.5 | 5 | Snow | 100 | 60 | None |
| On Watch | 6/2/2022 11:00:09 | Pier | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 5 | Snow | 100 | 50 | None |
| On Watch | 6/2/2022 11:30:23 | Pier | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 5 | Snow | 100 | 50 | None |
| 2 Jun 2022 End | 6/2/2022 11:49:50 | N/A | N/A | N/A | N/A | 0-0.5 | 0-0.5 | 5 | Snow | 100 | 50 | None |
| 3 Jun 2022 Begin | 6/3/2022 9:54:17 | Pier | Science Office | Construction Prep | N/A | 0-0.5 | 0-0.5 | 2 | Overcast | 90 | 50 | None |
| On Watch | 6/3/2022 10:28:21 | Pier | Science Office | 2J - Anode Install - Grinding | N/A | 2 | 1 | 3 | Overcast | 80 | 60 | None |
| On Watch | 6/3/2022 10:59:58 | Pier | Science Office | 2J - Anode Install - Grinding | N/A | 1 | 1 | 3 | Overcast | 100 | 50 | None |
| On Watch | 6/3/2022 11:07:33 | Pier | Science Office | N/A | N/A | 2 | 2 | 3 | Overcast | 90 | 50 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|-------------------|--------------------|----------------|----------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 6/3/2022 11:28:22 | Pier | Science Office | N/A | N/A | 3 | 3 | 3 | Partly Cloudy | 50 | 50 | None |
| 3 Jun 2022 End | 6/3/2022 11:49:49 | N/A | N/A | N/A | N/A | 2 | 2 | 4 | Overcast | 90 | 50 | None |
| 7 Jun 2022 Begin | 6/7/2022 10:20:05 | Science Office | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| On Watch | 6/7/2022 10:30:49 | Pier | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| On Watch | 6/7/2022 10:50:10 | Science Office | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| On Watch | 6/7/2022 11:00:10 | Pier | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| On Watch | 6/7/2022 11:31:55 | Science Office | Science Office | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| 7 Jun 2022 End | 6/7/2022 11:55:36 | N/A | N/A | N/A | N/A | 0-0.5 | 0-0.5 | 4 | Snow | 100 | 10 | None |
| 9 Jun 2022 Begin | 6/9/2022 10:00:12 | Pier | Science Office | N/A | N/A | 1 | 0.5-1 | 2 | Partly Cloudy | 30 | 20 | None |
| On Watch | 6/9/2022 10:31:25 | Pier | Science Office | N/A | N/A | 3 | 2 | 2 | Partly Cloudy | 30 | 20 | None |
| On Watch | 6/9/2022 10:58:18 | Pier | Science Office | N/A | N/A | 3 | 3 | 2 | Clear | 20 | 20 | None |
| On Watch | 6/9/2022 11:32:10 | Pier | Science Office | N/A | N/A | 4 | 3 | 2 | Partly Cloudy | 50 | 10 | None |
| 9 Jun 2022 Pause | 6/9/2022 11:45:00 | N/A | N/A | N/A | N/A | 4 | 4 | 2 | Partly Cloudy | 40 | 10 | None |
| 9 Jun 2022 Resume | 6/9/2022 13:40:11 | Pier | Science Office | N/A | N/A | 4 | 4 | 2 | Partly Cloudy | 30 | 10 | None |
| On Watch | 6/9/2022 14:01:11 | Pier | Science Office | N/A | N/A | 4 | 3 | 2 | Overcast | 80 | 10 | None |
| 9 Jun 2022 End | 6/9/2022 14:30:20 | N/A | N/A | N/A | N/A | 3 | 3 | 3 | Overcast | 90 | 10 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|--------------------|--------------------|----------------|----------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| 10 Jun 2022 Begin | 6/10/2022 10:27:27 | Pier | Science Office | N/A | N/A | 1 | 0.5-1 | 4 | Overcast | 100 | 10 | None |
| On Watch | 6/10/2022 11:00:40 | Pier | Science Office | N/A | N/A | 3 | 2 | 4 | Overcast | 100 | 10 | None |
| 10 Jun 2022 End | 6/10/2022 11:20:00 | N/A | N/A | N/A | N/A | 3 | 2 | 4 | Overcast | 100 | 10 | None |
| 11 Jun 2022 Begin | 6/11/2022 10:20:20 | Pier | Science Office | N/A | N/A | 0.5-1 | 0.5-1 | 3 | Snow | 80 | 0 | None |
| On Watch | 6/11/2022 10:30:42 | Pier | Science Office | N/A | N/A | 0.5-1 | 0.5-1 | 3 | Overcast | 100 | 0 | None |
| On Watch | 6/11/2022 10:57:22 | Pier | Science Office | N/A | N/A | 1 | 1 | 3 | Snow | 100 | 0 | None |
| On Watch | 6/11/2022 11:30:24 | Pier | Science Office | N/A | N/A | 2 | 1 | 4 | Overcast | 100 | 0 | None |
| 11 Jun 2022 End | 6/11/2022 11:41:03 | N/A | N/A | N/A | N/A | 1 | 1 | 4 | Overcast | 100 | 0 | None |
| 14 Jun 2022 Begin | 6/14/2022 10:15:15 | Pier | Science Office | N/A | N/A | 0.5-1 | 0-0.5 | 2 | Overcast | 90 | 0 | None |
| On Watch | 6/14/2022 10:32:20 | Pier | Science Office | N/A | N/A | 1 | 1 | 2 | Overcast | 100 | 0 | None |
| On Watch | 6/14/2022 10:57:04 | Pier | Science Office | N/A | N/A | 3 | 2 | 3 | Overcast | 100 | 0 | None |
| On Watch | 6/14/2022 11:28:53 | Pier | Science Office | N/A | N/A | 3 | 3 | 3 | Overcast | 100 | 0 | None |
| 14 Jun 2022 Pause | 6/14/2022 11:55:00 | N/A | N/A | N/A | N/A | 3 | 3 | 3 | Overcast | 100 | 0 | None |
| 14 Jun 2022 Resume | 6/14/2022 13:15:00 | Pier | Science Office | N/A | N/A | 4 | 4 | 2 | Overcast | 90 | 0 | None |
| On Watch | 6/14/2022 13:28:52 | Pier | Science Office | N/A | N/A | 4 | 3 | 3 | Overcast | 90 | 0 | None |
| On Watch | 6/14/2022 14:00:37 | Pier | Science Office | Construction Prep | N/A | 4 | 3 | 3 | Partly Cloudy | 70 | 0 | None |

| PSO Watch Status | Local Time (UTC-3) | PSO Location 1 | PSO Location 2 | Construction Activity 1 | Construction Activity 2 | Visibility Distance (km) | Observable Distance (km) | Beaufort Sea State | Atmospheric Conditions | Cloud Cover (%) | Ice Cover (%) | Glare |
|------------------|--------------------|----------------|----------------|-------------------------------|-------------------------|--------------------------|--------------------------|--------------------|------------------------|-----------------|---------------|-------|
| On Watch | 6/14/2022 14:28:33 | Pier | Science Office | Construction Prep | N/A | 3 | 3 | 2 | Overcast | 80 | 0 | None |
| On Watch | 6/14/2022 14:49:00 | Pier | Science Office | 2J - Anode Install - Grinding | N/A | 3 | 2 | 2 | Partly Cloudy | 70 | 0 | None |
| On Watch | 6/14/2022 14:52:54 | Pier | Science Office | N/A | N/A | 3 | 2 | 2 | Partly Cloudy | 70 | 0 | None |
| On Watch | 6/14/2022 15:00:25 | Pier | Science Office | N/A | N/A | 3 | 2 | 2 | Partly Cloudy | 70 | 0 | None |
| 14 Jun 2022 End | 6/14/2022 15:25:06 | N/A | N/A | N/A | N/A | 3 | 2 | 2 | Partly Cloudy | 60 | 0 | None |

Appendix D All Marine Mammal Sightings From PSO Watch Periods

An all-inclusive sightings data table is included as a .xlsx file attachment to this report: A truncated version of the sightings data table is shown here for summary purposes.

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 1 | 2022-01-23 11:48:00.0 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 220 | Pile Driving | None |
| 2 | 2022-01-23 12:23:04.7 | Humpback Whale | 2 | 2500 | Water | Swim | 1950 | None | None |
| 3 | 2022-01-23 12:39:27.2 | Southern Elephant Seal | 1 | 500 | Water | Look | 450 | None | None |
| 4 | 2022-01-24 13:30:47.2 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 228 | None | None |
| 5 | 2022-01-25 07:37:48.4 | Leopard Seal | 1 | 160 | Water | Swim | 90 | None | None |
| 6 | 2022-01-25 11:05:00.5 | Unidentified Phocid Seal | 1 | 100 | Water | Swim | 100 | Pile Driving | None |
| 7 | 2022-01-26 06:56:26.0 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 228 | None | None |
| 8 | 2022-01-26 06:57:00.1 | Humpback Whale | 4 | 2500 | Water | Swim | 2435 | None | None |
| 9 | 2022-01-26 10:36:20.1 | Humpback Whale | 2 | 3500 | Water | Swim | 439 | None | None |
| 10 | 2022-01-26 14:03:29.5 | Leopard Seal | 1 | 85 | Water | Swim | 90 | None | None |
| 11 | 2022-01-26 15:48:38.8 | Unidentified Phocid Seal | 1 | 200 | Water | Swim | 285 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 12 | 2022-01-26 17:14:01.9 | Humpback Whale | 2 | 3200 | Water | Swim | 3100 | None | None |
| 13 | 2022-01-26 18:10:30.4 | Unidentified Phocid Seal | 1 | 65 | Water | Swim | 104 | None | None |
| 14 | 2022-01-27 06:56:38.0 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 228 | None | None |
| 15 | 2022-01-27 07:51:06.8 | Humpback Whale | 1 | 2700 | Water | Swim | 2675 | None | None |
| 16 | 2022-01-27 08:34:46.7 | Antarctic Fur Seal | 1 | 300 | Ice/Land | Rest | 345 | None | None |
| 17 | 2022-01-27 09:03:36.1 | Southern Elephant Seal | 19 | 540 | Ice/Land | Rest | 581 | None | None |
| 18 | 2022-01-27 12:20:29.4 | Crabeater Seal | 1 | 200 | Ice/Land | Rest | 228 | None | None |
| 19 | 2022-01-27 12:22:14.7 | Humpback Whale | 3 | 1569 | Water | Travel | 1456 | Pile Driving | 1 Level-A/B |
| 20 | 2022-01-27 15:57:47.9 | Humpback Whale | 2 | 2100 | Water | Swim | 1050 | Pile Driving | None |
| 21 | 2022-01-27 17:09:17.3 | Humpback Whale | 3 | 1100 | Water | Swim | 1008 | Pile Driving | 2 Level-A/B |
| 22 | 2022-01-28 06:59:57.2 | Antarctic Fur Seal | 1 | 130 | Ice/Land | Look | 241 | None | None |
| 23 | 2022-01-28 07:00:49.8 | Southern Elephant Seal | 19 | 500 | Ice/Land | Rest | 538 | None | None |
| 24 | 2022-01-28 07:02:31.2 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 228 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 25 | 2022-01-28 07:15:30.1 | Humpback Whale | 4 | 1000 | Water | Swim | 537 | None | None |
| 26 | 2022-01-28 08:21:24.8 | Antarctic Fur Seal | 1 | 300 | Ice/Land | Look | 400 | None | None |
| 27 | 2022-01-28 08:28:56.0 | Leopard Seal | 1 | 50 | Water | Swim | 100 | None | None |
| 28 | 2022-01-29 13:31:34.7 | Weddell Seal | 2 | 200 | Ice/Land | Rest | 228 | None | None |
| 29 | 2022-01-29 13:32:36.8 | Southern Elephant Seal | 16 | 550 | Ice/Land | Rest | 591 | None | None |
| 30 | 2022-01-29 13:58:58.8 | Weddell Seal | 1 | 800 | Water | Rest | 697 | None | None |
| 31 | 2022-01-29 16:03:20.8 | Humpback Whale | 6 | 3000 | Water | Swim | 1350 | Pile Driving | None |
| 32 | 2022-01-29 16:18:20.0 | Humpback Whale | 1 | 3389 | Water | Travel | 3291 | Pile Driving | 1 Level-B |
| 33 | 2022-01-29 16:37:33.9 | Humpback Whale | 1 | 4000 | Water | Travel | 3895 | Pile Driving | None |
| 34 | 2022-01-29 17:12:48.2 | Humpback Whale | 14 | 4160 | Water | Travel | 6893 | Pile Driving | 14 Level-B |
| 35 | 2022-01-29 17:45:34.4 | Humpback Whale | 3 | 2665 | Water | Travel | 2564 | Pile Driving | 3 Level-B |
| 36 | 2022-01-30 08:49:24.1 | Southern Elephant Seal | 13 | 575 | Ice/Land | Rest | 627 | None | None |
| 37 | 2022-01-30 10:46:45.4 | Humpback Whale | 3 | 2900 | Water | Swim | 2800 | Pile Driving | 3 Level-B |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 38 | 2022-01-30 10:57:52.9 | Humpback Whale | 3 | 5600 | Water | Swim | 5500 | Pile Driving | 3 Level-B |
| 39 | 2022-01-30 11:44:50.4 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 244 | Pile Driving | None |
| 40 | 2022-01-30 14:26:52.5 | Leopard Seal | 1 | 160 | Ice/Land | Rest | 240 | None | None |
| 41 | 2022-01-30 14:32:41.9 | Humpback Whale | 15 | 3000 | Ice/Land | Travel | 2943 | None | None |
| 42 | 2022-01-30 14:41:18.8 | Leopard Seal | 1 | 375 | Ice/Land | Rest | 340 | None | None |
| 43 | 2022-01-30 14:46:16.8 | Unidentified Phocid Seal | 1 | 150 | Water | Swim | 136 | None | None |
| 44 | 2022-01-30 15:22:22.9 | Unidentified LF Whale | 1 | 2665 | Water | Swim | 2540 | None | None |
| 45 | 2022-01-30 17:31:04.4 | Leopard Seal | 1 | 85 | Water | Swim | 69 | None | None |
| 46 | 2022-02-01 06:59:34.0 | Southern Elephant Seal | 12 | 575 | Ice/Land | Rest | 603 | None | None |
| 47 | 2022-02-01 07:17:45.7 | Antarctic Fur Seal | 1 | 575 | Ice/Land | Look | 603 | None | None |
| 48 | 2022-02-01 08:05:05.3 | Leopard Seal | 1 | 370 | Water | Mill | 136 | None | None |
| 49 | 2022-02-01 08:34:29.2 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 50 | 2022-02-01 08:52:03.3 | Antarctic Fur Seal | 2 | 880 | Ice/Land | Rest | 727 | Pile Driving | 1 Level-B |
| 51 | 2022-02-01 09:26:11.6 | Antarctic Fur Seal | 1 | 5200 | Ice/Land | Rest | 5100 | Pile Driving | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|-----------|-----------------|--------------------------------|--------------------------------|
| 52 | 2022-02-01 09:41:12.7 | Antarctic Fur Seal | 2 | 500 | Ice/Land | Socialize | 399 | Pile Driving | 1 Level-B |
| 53 | 2022-02-01 10:47:03.6 | Humpback Whale | 2 | 1973 | Water | Travel | 648 | Pile Driving | 2 Level-A/B |
| 54 | 2022-02-01 12:58:20.8 | Antarctic Fur Seal | 1 | 1619 | Ice/Land | Rest | 1539 | Pile Driving | None |
| 55 | 2022-02-02 07:23:45.6 | Southern Elephant Seal | 2 | 575 | Ice/Land | Rest | 603 | None | None |
| 56 | 2022-02-02 08:00:00.4 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 57 | 2022-02-02 08:57:43.7 | Unidentified Phocid Seal | 1 | 85 | Water | Swim | 180 | None | None |
| 58 | 2022-02-03 08:20:32.4 | Southern Elephant Seal | 9 | 575 | Ice/Land | Rest | 603 | None | None |
| 59 | 2022-02-03 09:00:02.6 | Antarctic Fur Seal | 1 | 265 | Ice/Land | Travel | 295 | Pile Driving | None |
| 60 | 2022-02-03 09:09:57.3 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | Pile Driving | None |
| 61 | 2022-02-04 09:00:08.4 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 62 | 2022-02-04 09:16:52.3 | Southern Elephant Seal | 12 | 575 | Ice/Land | Rest | 603 | None | None |
| 63 | 2022-02-04 09:22:54.9 | Weddell Seal | 1 | 1150 | Ice/Land | Rest | 1078 | None | None |
| 64 | 2022-02-04 09:32:48.4 | Antarctic Fur Seal | 1 | 100 | Water | Travel | 60 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 65 | 2022-02-04 09:44:20.3 | Antarctic Fur Seal | 1 | 380 | Ice/Land | Rest | 413 | None | None |
| 66 | 2022-02-04 10:26:01.9 | Antarctic Fur Seal | 1 | 235 | Ice/Land | Travel | 250 | None | None |
| 67 | 2022-02-04 10:41:57.5 | Antarctic Fur Seal | 1 | 900 | Ice/Land | Rest | 855 | Pile Driving | None |
| 68 | 2022-02-04 10:56:08.8 | Unidentified Phocid Seal | 1 | 950 | Ice/Land | Rest | 1054 | Pile Driving | None |
| 69 | 2022-02-04 11:05:56.5 | Unidentified Phocid Seal | 1 | 1100 | Ice/Land | Rest | 1212 | Pile Driving | None |
| 70 | 2022-02-05 10:42:09.0 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 71 | 2022-02-05 10:45:36.7 | Southern Elephant Seal | 16 | 575 | Ice/Land | Rest | 603 | None | None |
| 72 | 2022-02-14 07:00:22.1 | Antarctic Fur Seal | 5 | 255 | Ice/Land | Rest | 286 | None | None |
| 73 | 2022-02-14 07:00:31.7 | Southern Elephant Seal | 6 | 575 | Ice/Land | Rest | 603 | None | None |
| 74 | 2022-02-14 07:31:08.7 | Antarctic Fur Seal | 8 | 905 | Ice/Land | Rest | 810 | None | None |
| 75 | 2022-02-14 07:46:05.4 | Humpback Whale | 1 | 1690 | Water | Travel | 1585 | None | None |
| 76 | 2022-02-14 09:17:36.7 | Antarctic Fur Seal | 1 | 500 | Water | Swim | 100 | Pile Driving | None |
| 77 | 2022-02-14 09:28:57.6 | Unidentified Phocid Seal | 1 | 475 | Ice/Land | Rest | 584 | Pile Driving | None |
| 78 | 2022-02-14 10:10:09.5 | Antarctic Fur Seal | 1 | 80 | Water | Travel | 73 | Pile Driving | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 79 | 2022-02-14 12:07:35.0 | Humpback Whale | 3 | 6520 | Water | Travel | 6449 | None | None |
| 80 | 2022-02-14 12:16:06.9 | Humpback Whale | 1 | 1500 | Water | Travel | 1391 | None | None |
| 81 | 2022-02-14 13:53:50.6 | Humpback Whale | 1 | 1750 | Water | Swim | 1645 | None | None |
| 82 | 2022-02-16 07:30:20.1 | Southern Elephant Seal | 5 | 575 | Ice/Land | Rest | 603 | None | None |
| 83 | 2022-02-16 07:30:24.6 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 84 | 2022-02-16 07:45:46.8 | Antarctic Fur Seal | 11 | 255 | Ice/Land | Rest | 286 | None | None |
| 85 | 2022-02-16 07:50:49.9 | Antarctic Fur Seal | 28 | 900 | Ice/Land | Rest | 805 | None | None |
| 86 | 2022-02-16 07:55:01.2 | Antarctic Fur Seal | 4 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 87 | 2022-02-16 08:05:54.1 | Leopard Seal | 1 | 900 | Ice/Land | Rest | 600 | None | None |
| 88 | 2022-02-16 08:19:17.4 | Leopard Seal | 1 | 250 | Water | Swim | 100 | None | None |
| 89 | 2022-02-16 08:39:04.3 | Antarctic Fur Seal | 2 | 350 | Water | Swim | 247 | None | None |
| 90 | 2022-02-16 08:45:25.0 | Antarctic Fur Seal | 1 | 60 | Water | Swim | 75 | None | None |
| 91 | 2022-02-16 13:13:19.2 | Humpback Whale | 2 | 1500 | Water | Swim | 1482 | Pile Driving | None |
| 92 | 2022-02-16 14:05:00.9 | Antarctic Fur Seal | 1 | 120 | Water | Swim | 72 | Pile Driving | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 93 | 2022-02-16 14:26:00.5 | Crabeater Seal | 3 | 600 | Water | Swim | 520 | Pile Driving | 3 Level-B |
| 94 | 2022-02-16 14:50:00.5 | Antarctic Fur Seal | 2 | 600 | Water | Swim | 536 | Pile Driving | 2 Level-B |
| 95 | 2022-02-17 07:02:55.8 | Southern Elephant Seal | 5 | 575 | Ice/Land | Rest | 603 | None | None |
| 96 | 2022-02-17 07:05:06.8 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 97 | 2022-02-17 07:10:00.9 | Antarctic Fur Seal | 6 | 900 | Ice/Land | Rest | 805 | None | None |
| 98 | 2022-02-17 07:21:17.6 | Antarctic Fur Seal | 18 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 99 | 2022-02-17 07:21:46.1 | Antarctic Fur Seal | 1 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 100 | 2022-02-17 07:23:43.8 | Antarctic Fur Seal | 1 | 1780 | Ice/Land | Rest | 1722 | None | None |
| 101 | 2022-02-17 08:07:49.5 | Leopard Seal | 1 | 700 | Water | Swim | 200 | None | None |
| 102 | 2022-02-17 12:39:31.2 | Humpback Whale | 1 | 2700 | Water | Feed | 2587 | Pile Driving | 1 Level-B |
| 103 | 2022-02-17 12:41:59.5 | Humpback Whale | 1 | 2200 | Water | Feed | 2089 | Pile Driving | 1 Level-B |
| 104 | 2022-02-18 07:57:29.8 | Southern Elephant Seal | 5 | 575 | Ice/Land | Rest | 603 | None | None |
| 105 | 2022-02-18 07:57:37.4 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|---------------------|-----------------|--------------------------------|--------------------------------|
| 106 | 2022-02-18 07:58:57.9 | Antarctic Fur Seal | 2 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 107 | 2022-02-18 07:59:12.7 | Antarctic Fur Seal | 6 | 900 | Ice/Land | Rest | 805 | None | None |
| 108 | 2022-02-18 08:00:20.2 | Antarctic Fur Seal | 28 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 109 | 2022-02-18 08:07:44.6 | Antarctic Fur Seal | 4 | 1050 | Ice/Land | Rest | 1083 | None | None |
| 110 | 2022-02-18 08:10:37.3 | Weddell Seal | 1 | 575 | Ice/Land | Rest | 603 | None | None |
| 111 | 2022-02-18 08:26:58.2 | Antarctic Fur Seal | 1 | 160 | Water | Swim | 67 | None | None |
| 112 | 2022-02-18 09:06:13.4 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 113 | 2022-02-18 12:08:00.8 | Antarctic Fur Seal | 5 | 850 | Ice/Land | Surface-active Mill | 755 | Pile Driving | 5 Level-B |
| 114 | 2022-02-18 14:24:20.8 | Antarctic Fur Seal | 1 | 80 | Water | Swim | 73 | Pile Driving | None |
| 115 | 2022-02-18 17:35:18.9 | Unidentified LF Whale | 2 | 6000 | Water | Swim | 5970 | Pile Driving | None |
| 116 | 2022-02-19 11:01:03.8 | Southern Elephant Seal | 5 | 575 | Ice/Land | Rest | 603 | None | None |
| 117 | 2022-02-19 11:02:36.1 | Antarctic Fur Seal | 5 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 118 | 2022-02-19 11:03:48.8 | Antarctic Fur Seal | 14 | 900 | Ice/Land | Rest | 280 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|-----------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 119 | 2022-02-19 11:04:56.0 | Antarctic Fur Seal | 14 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 120 | 2022-02-19 11:45:04.0 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 121 | 2022-02-19 12:31:00.0 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 160 | Pile Driving | None |
| 122 | 2022-02-19 17:25:11.7 | Unidentified LF Whale | 3 | 6500 | Water | Travel | 6397 | Pile Driving | None |
| 123 | 2022-02-19 17:56:04.5 | Humpback Whale | 1 | 2500 | Water | Breach | 2395 | Pile Driving | 1 Level-B |
| 124 | 2022-02-19 18:39:05.9 | Leopard Seal | 1 | 150 | Water | Mill | 155 | Pile Driving | None |
| 125 | 2022-02-23 07:31:13.2 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 126 | 2022-02-23 07:33:15.6 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 127 | 2022-02-23 07:35:24.5 | Antarctic Fur Seal | 46 | 900 | Ice/Land | Rest | 805 | None | None |
| 128 | 2022-02-23 07:37:31.1 | Antarctic Fur Seal | 21 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 129 | 2022-02-23 07:38:12.9 | Antarctic Fur Seal | 10 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 130 | 2022-02-23 07:39:38.8 | Antarctic Fur Seal | 16 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 131 | 2022-02-23 08:38:01.0 | Leopard Seal | 1 | 300 | Water | Look | 100 | None | None |
| 132 | 2022-02-23 12:17:28.0 | Antarctic Fur Seal | 1 | 195 | Water | Porpoise | 223 | Pile Driving | 1 Level-B |
| 133 | 2022-02-24 09:57:22.1 | Antarctic Fur Seal | 1 | 255 | Ice/Land | Rest | 286 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 134 | 2022-02-24 10:24:42.7 | Antarctic Fur Seal | 1 | 70 | Ice/Land | Rest | 99 | None | None |
| 135 | 2022-02-24 10:41:57.2 | Antarctic Fur Seal | 1 | 1315 | Ice/Land | Rest | 1279 | None | None |
| 136 | 2022-02-24 10:51:10.8 | Leopard Seal | 1 | 1870 | Ice/Land | Rest | 850 | None | None |
| 137 | 2022-02-24 10:57:39.8 | Antarctic Fur Seal | 3 | 900 | Ice/Land | Rest | 805 | None | None |
| 138 | 2022-02-24 11:03:40.3 | Antarctic Fur Seal | 3 | 1100 | Ice/Land | Rest | 1123 | None | None |
| 139 | 2022-02-24 11:13:09.2 | Leopard Seal | 1 | 800 | Water | Travel | 744 | None | None |
| 140 | 2022-02-24 12:37:56.5 | Leopard Seal | 1 | 400 | Water | Swim | 349 | Pile Driving | None |
| 141 | 2022-02-24 12:53:03.4 | Crabeater Seal | 1 | 900 | Ice/Land | Rest | 871 | Pile Driving | None |
| 142 | 2022-02-25 06:58:02.8 | Antarctic Fur Seal | 1 | 1000 | Ice/Land | Rest | 887 | None | None |
| 143 | 2022-02-25 07:01:32.0 | Antarctic Fur Seal | 4 | 5200 | Ice/Land | Rest | 5095 | None | None |
| 144 | 2022-02-25 07:03:01.5 | Antarctic Fur Seal | 1 | 120 | Water | Swim | 72 | None | None |
| 145 | 2022-02-25 07:03:49.4 | Antarctic Fur Seal | 5 | 255 | Ice/Land | Rest | 286 | None | None |
| 146 | 2022-02-25 07:04:16.2 | Antarctic Fur Seal | 4 | 900 | Ice/Land | Rest | 805 | None | None |
| 147 | 2022-02-25 07:04:49.7 | Southern Elephant Seal | 1 | 880 | Ice/Land | Rest | 785 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|-----------|-----------------|--------------------------------|--------------------------------|
| 148 | 2022-02-25 07:05:24.8 | Antarctic Fur Seal | 8 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 149 | 2022-02-25 07:10:54.2 | Antarctic Fur Seal | 21 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 150 | 2022-02-25 07:34:32.5 | Antarctic Fur Seal | 3 | 850 | Water | Splash | 759 | None | None |
| 151 | 2022-02-25 08:00:14.9 | Leopard Seal | 1 | 200 | Water | Socialize | 118 | None | None |
| 152 | 2022-02-25 08:27:25.7 | Antarctic Fur Seal | 4 | 500 | Ice/Land | Rest | 397 | None | None |
| 153 | 2022-02-25 08:35:16.2 | Antarctic Fur Seal | 55 | 3100 | Ice/Land | Rest | 3147 | None | None |
| 154 | 2022-02-25 08:40:42.0 | Antarctic Fur Seal | 2 | 1000 | Ice/Land | Socialize | 922 | None | None |
| 155 | 2022-02-25 09:10:29.6 | Antarctic Fur Seal | 3 | 2200 | Water | Swim | 2102 | Pile Driving | 3 Level-B |
| 156 | 2022-02-25 09:22:36.9 | Antarctic Fur Seal | 1 | 1100 | Ice/Land | Rest | 988 | None | None |
| 157 | 2022-02-25 09:35:45.4 | Antarctic Fur Seal | 1 | 200 | Water | Swim | 130 | None | None |
| 158 | 2022-02-25 10:00:53.3 | Antarctic Fur Seal | 1 | 300 | Water | Swim | 190 | None | None |
| 159 | 2022-02-25 10:16:01.5 | Antarctic Fur Seal | 1 | 900 | Water | Swim | 833 | Pile Driving | 1 Level-B |
| 160 | 2022-02-25 10:24:13.1 | Antarctic Fur Seal | 1 | 380 | Water | Swim | 270 | Pile Driving | 1 Level-B |
| 161 | 2022-02-25 11:00:57.2 | Leopard Seal | 1 | 250 | Water | Swim | 163 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|-----------|-----------------|--------------------------------|--------------------------------|
| 162 | 2022-02-25 12:10:21.3 | Antarctic Fur Seal | 1 | 200 | Water | Swim | 127 | None | None |
| 163 | 2022-02-25 14:32:04.5 | Antarctic Fur Seal | 3 | 1030 | Water | Socialize | 989 | Pile Driving | None |
| 164 | 2022-02-27 07:33:26.8 | Antarctic Fur Seal | 10 | 900 | Ice/Land | Rest | 805 | None | None |
| 165 | 2022-02-27 07:43:28.8 | Southern Elephant Seal | 2 | 575 | Ice/Land | Rest | 603 | None | None |
| 166 | 2022-02-27 07:48:45.4 | Antarctic Fur Seal | 2 | 400 | Ice/Land | Rest | 306 | None | None |
| 167 | 2022-02-27 07:50:14.6 | Antarctic Fur Seal | 2 | 255 | Ice/Land | Rest | 286 | None | None |
| 168 | 2022-02-27 07:57:01.9 | Antarctic Fur Seal | 18 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 169 | 2022-02-27 08:01:47.6 | Antarctic Fur Seal | 6 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 170 | 2022-02-27 09:34:58.7 | Southern Elephant Seal | 1 | 1100 | Ice/Land | Rest | 1032 | None | None |
| 171 | 2022-02-27 09:36:03.0 | Antarctic Fur Seal | 14 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 172 | 2022-03-02 07:36:40.7 | Antarctic Fur Seal | 2 | 1040 | Water | Porpoise | 933 | None | None |
| 173 | 2022-03-02 07:41:43.3 | Antarctic Fur Seal | 2 | 255 | Ice/Land | Rest | 286 | None | None |
| 174 | 2022-03-02 07:42:53.5 | Southern Elephant Seal | 4 | 575 | Ice/Land | Rest | 603 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 175 | 2022-03-02 07:43:01.1 | Antarctic Fur Seal | 13 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 176 | 2022-03-02 07:44:43.6 | Antarctic Fur Seal | 7 | 900 | Ice/Land | Rest | 805 | None | None |
| 177 | 2022-03-02 07:45:49.7 | Antarctic Fur Seal | 21 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 178 | 2022-03-02 07:46:11.3 | Antarctic Fur Seal | 5 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 179 | 2022-03-02 09:29:08.3 | Antarctic Fur Seal | 2 | 1150 | Water | Travel | 1038 | None | None |
| 180 | 2022-03-02 10:33:06.6 | Humpback Whale | 2 | 5000 | Water | Rest | 4925 | None | None |
| 181 | 2022-03-02 12:03:23.8 | Antarctic Fur Seal | 2 | 1615 | Water | Swim | 1535 | None | None |
| 182 | 2022-03-03 07:01:44.1 | Antarctic Fur Seal | 5 | 255 | Ice/Land | Rest | 286 | None | None |
| 183 | 2022-03-03 07:02:33.5 | Southern Elephant Seal | 2 | 575 | Ice/Land | Rest | 603 | None | None |
| 184 | 2022-03-03 07:03:15.5 | Antarctic Fur Seal | 10 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 185 | 2022-03-03 07:04:41.3 | Antarctic Fur Seal | 9 | 900 | Ice/Land | Rest | 805 | None | None |
| 186 | 2022-03-03 07:05:17.5 | Antarctic Fur Seal | 13 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 187 | 2022-03-04 06:58:19.5 | Leopard Seal | 1 | 200 | Water | Swim | 196 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 188 | 2022-03-04 07:00:28.2 | Southern Elephant Seal | 3 | 575 | Ice/Land | Rest | 603 | None | None |
| 189 | 2022-03-04 07:01:38.5 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 190 | 2022-03-04 07:02:40.5 | Antarctic Fur Seal | 11 | 900 | Ice/Land | Rest | 805 | None | None |
| 191 | 2022-03-04 07:03:42.3 | Antarctic Fur Seal | 12 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 192 | 2022-03-04 07:05:21.9 | Antarctic Fur Seal | 4 | 950 | Ice/Land | Rest | 932 | None | None |
| 193 | 2022-03-04 07:07:24.2 | Antarctic Fur Seal | 3 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 194 | 2022-03-04 07:25:31.5 | Antarctic Fur Seal | 1 | 1150 | Water | Swim | 1037 | None | None |
| 195 | 2022-03-04 08:40:04.6 | Antarctic Fur Seal | 1 | 475 | Water | Swim | 445 | None | None |
| 196 | 2022-03-04 09:05:00.4 | Antarctic Fur Seal | 2 | 750 | Water | Travel | 664 | None | None |
| 197 | 2022-03-04 09:29:23.8 | Leopard Seal | 1 | 700 | Water | Swim | 643 | Pile Driving | None |
| 198 | 2022-03-04 15:29:30.6 | Antarctic Fur Seal | 1 | 420 | Water | Swim | 524 | None | None |
| 199 | 2022-03-04 15:55:19.6 | Antarctic Fur Seal | 1 | 120 | Water | Swim | 96 | None | None |
| 200 | 2022-03-04 16:32:11.4 | Leopard Seal | 1 | 300 | Water | Swim | 264 | Pile Driving | None |
| 201 | 2022-03-05 09:31:36.3 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 202 | 2022-03-05 09:32:29.4 | Southern Elephant Seal | 3 | 575 | Ice/Land | Rest | 603 | None | None |
| 203 | 2022-03-05 09:33:55.3 | Antarctic Fur Seal | 4 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 204 | 2022-03-05 09:35:36.9 | Antarctic Fur Seal | 33 | 3000 | Ice/Land | Rest | 3019 | None | None |
| 205 | 2022-03-05 09:40:15.0 | Antarctic Fur Seal | 5 | 900 | Ice/Land | Rest | 805 | None | None |
| 206 | 2022-03-05 10:12:18.8 | Antarctic Fur Seal | 10 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 207 | 2022-03-05 10:21:17.5 | Antarctic Fur Seal | 1 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 208 | 2022-03-05 11:50:20.6 | Antarctic Fur Seal | 1 | 300 | Water | Swim | 254 | Pile Driving | None |
| 209 | 2022-03-05 11:52:47.6 | Antarctic Fur Seal | 1 | 600 | Water | Splash | 490 | Pile Driving | 1 Level-B |
| 210 | 2022-03-06 08:33:40.0 | Weddell Seal | 1 | 870 | Ice/Land | Rest | 776 | None | None |
| 211 | 2022-03-06 08:35:00.5 | Antarctic Fur Seal | 5 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 212 | 2022-03-06 08:37:44.1 | Antarctic Fur Seal | 2 | 255 | Ice/Land | Rest | 286 | None | None |
| 213 | 2022-03-06 08:39:56.1 | Antarctic Fur Seal | 13 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 214 | 2022-03-06 08:43:05.6 | Southern Elephant Seal | 1 | 575 | Ice/Land | Rest | 603 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 215 | 2022-03-06 08:47:45.7 | Antarctic Fur Seal | 9 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 216 | 2022-03-06 08:50:13.8 | Antarctic Fur Seal | 3 | 900 | Ice/Land | Rest | 807 | None | None |
| 217 | 2022-03-06 19:43:32.6 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 218 | 2022-03-06 19:58:07.8 | Antarctic Minke Whale | 1 | 400 | Water | Swim | 426 | None | None |
| 219 | 2022-03-06 20:02:19.8 | Antarctic Fur Seal | 1 | 175 | Water | Mill | 250 | None | None |
| 220 | 2022-03-07 09:29:47.7 | Southern Elephant Seal | 1 | 575 | Ice/Land | Rest | 603 | None | None |
| 221 | 2022-03-07 09:37:02.5 | Antarctic Fur Seal | 4 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 222 | 2022-03-07 09:39:14.0 | Antarctic Fur Seal | 4 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 223 | 2022-03-07 09:45:29.7 | Antarctic Fur Seal | 5 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 224 | 2022-03-07 09:48:18.7 | Antarctic Fur Seal | 6 | 3100 | Ice/Land | Rest | 3119 | None | None |
| 225 | 2022-03-07 09:54:04.3 | Antarctic Fur Seal | 1 | 255 | Ice/Land | Rest | 286 | None | None |
| 226 | 2022-03-07 13:27:57.3 | Antarctic Fur Seal | 1 | 100 | Water | Swim | 66 | Pile Driving | None |
| 227 | 2022-03-08 09:48:01.7 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 228 | 2022-03-08 09:53:31.7 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 229 | 2022-03-08 09:59:10.1 | Antarctic Fur Seal | 2 | 900 | Ice/Land | Rest | 805 | None | None |
| 230 | 2022-03-08 11:05:56.9 | Leopard Seal | 1 | 400 | Water | Swim | 150 | Pile Driving | None |
| 231 | 2022-03-08 11:17:14.7 | Antarctic Fur Seal | 1 | 1100 | Ice/Land | Rest | 1031 | Pile Driving | None |
| 232 | 2022-03-08 11:27:05.2 | Antarctic Fur Seal | 1 | 400 | Water | Swim | 423 | Pile Driving | None |
| 233 | 2022-03-08 12:10:40.2 | Unidentified Phocid Seal | 1 | 200 | Water | Swim | 185 | Pile Driving | None |
| 234 | 2022-03-08 15:59:53.4 | Antarctic Fur Seal | 1 | 1150 | Ice/Land | Rest | 1067 | None | None |
| 235 | 2022-03-08 16:22:00.2 | Humpback Whale | 2 | 9000 | Water | Mill | 8894 | None | None |
| 236 | 2022-03-10 07:00:21.6 | Antarctic Fur Seal | 2 | 255 | Ice/Land | Rest | 286 | None | None |
| 237 | 2022-03-10 07:02:34.8 | Antarctic Fur Seal | 9 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 238 | 2022-03-10 07:04:48.2 | Antarctic Fur Seal | 3 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 239 | 2022-03-10 07:06:17.6 | Antarctic Fur Seal | 6 | 900 | Ice/Land | Rest | 805 | None | None |
| 240 | 2022-03-10 07:08:53.7 | Antarctic Fur Seal | 10 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 241 | 2022-03-10 07:53:01.0 | Antarctic Fur Seal | 1 | 600 | Ice/Land | Look | 497 | Pile Driving | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 242 | 2022-03-10 12:52:37.2 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 243 | 2022-03-10 13:20:07.8 | Crabeater Seal | 1 | 75 | Water | Swim | 130 | None | None |
| 244 | 2022-03-16 12:55:53.5 | Crabeater Seal | 3 | 125 | Ice/Land | Rest | 131 | None | None |
| 245 | 2022-03-16 12:56:31.3 | Leopard Seal | 1 | 125 | Ice/Land | Rest | 132 | None | None |
| 246 | 2022-03-16 12:57:48.7 | Crabeater Seal | 2 | 250 | Ice/Land | Rest | 247 | None | None |
| 247 | 2022-03-16 12:58:30.2 | Weddell Seal | 1 | 205 | Ice/Land | Rest | 232 | None | None |
| 248 | 2022-03-16 13:01:36.7 | Antarctic Fur Seal | 6 | 255 | Ice/Land | Rest | 286 | None | None |
| 249 | 2022-03-16 13:02:38.0 | Antarctic Fur Seal | 12 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 250 | 2022-03-16 13:04:12.9 | Antarctic Fur Seal | 2 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 251 | 2022-03-16 13:06:35.9 | Antarctic Fur Seal | 11 | 900 | Ice/Land | Rest | 805 | None | None |
| 252 | 2022-03-16 13:08:40.2 | Antarctic Fur Seal | 15 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 253 | 2022-03-16 14:31:00.4 | Crabeater Seal | 2 | 125 | Water | Look | 169 | Pile Driving | None |
| 254 | 2022-03-16 15:37:40.7 | Leopard Seal | 1 | 700 | Ice/Land | Rest | 720 | None | None |
| 255 | 2022-03-17 07:00:43.4 | Antarctic Fur Seal | 6 | 255 | Ice/Land | Rest | 286 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 256 | 2022-03-17 07:02:35.5 | Antarctic Fur Seal | 18 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 257 | 2022-03-17 07:04:36.7 | Antarctic Fur Seal | 11 | 900 | Ice/Land | Rest | 805 | None | None |
| 258 | 2022-03-17 07:06:49.2 | Antarctic Fur Seal | 2 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 259 | 2022-03-17 07:08:26.7 | Crabeater Seal | 5 | 140 | Ice/Land | Rest | 247 | None | None |
| 260 | 2022-03-17 07:29:55.9 | Humpback Whale | 6 | 2500 | Water | Mill | 1944 | None | None |
| 261 | 2022-03-17 07:55:13.3 | Antarctic Fur Seal | 3 | 1200 | Water | Swim | 1095 | None | None |
| 262 | 2022-03-17 10:02:35.4 | Crabeater Seal | 1 | 400 | Ice/Land | Swim | 417 | None | None |
| 263 | 2022-03-17 11:42:35.7 | Crabeater Seal | 4 | 800 | Ice/Land | Rest | 799 | None | None |
| 264 | 2022-03-18 10:27:48.2 | Antarctic Fur Seal | 6 | 255 | Ice/Land | Rest | 286 | None | None |
| 265 | 2022-03-18 10:33:56.8 | Antarctic Fur Seal | 4 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 266 | 2022-03-18 10:40:44.0 | Antarctic Fur Seal | 37 | 900 | Ice/Land | Rest | 805 | None | None |
| 267 | 2022-03-18 10:50:27.4 | Antarctic Fur Seal | 2 | 1150 | Ice/Land | Look | 1108 | None | None |
| 268 | 2022-03-18 11:12:57.1 | Antarctic Fur Seal | 1 | 85 | Water | Swim | 75 | None | None |
| 269 | 2022-03-18 11:36:06.8 | Humpback Whale | 4 | 1500 | Water | Mill | 1387 | Pile Driving | 4 Level-B |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 270 | 2022-03-18 12:28:20.7 | Humpback Whale | 4 | 1100 | Water | Mill | 1008 | Pile Driving | None |
| 271 | 2022-03-18 17:05:41.0 | Antarctic Fur Seal | 8 | 1500 | Water | Mill | 1402 | None | None |
| 272 | 2022-03-18 17:06:02.7 | Antarctic Fur Seal | 24 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 273 | 2022-03-19 13:30:13.9 | Crabeater Seal | 1 | 200 | Ice/Land | Rest | 275 | None | None |
| 274 | 2022-03-19 13:32:12.8 | Crabeater Seal | 5 | 1000 | Ice/Land | Rest | 300 | None | None |
| 275 | 2022-03-19 13:32:40.6 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 276 | 2022-03-19 13:33:05.7 | Antarctic Fur Seal | 8 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 277 | 2022-03-19 13:34:02.0 | Antarctic Fur Seal | 8 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 278 | 2022-03-19 13:35:20.1 | Antarctic Fur Seal | 27 | 900 | Ice/Land | Rest | 805 | None | None |
| 279 | 2022-03-19 13:36:27.7 | Antarctic Fur Seal | 7 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 280 | 2022-03-19 13:37:46.9 | Antarctic Fur Seal | 1 | 800 | Water | Swim | 718 | None | None |
| 281 | 2022-03-19 13:39:01.7 | Humpback Whale | 4 | 3500 | Water | Mill | 3480 | None | None |
| 282 | 2022-03-19 14:10:00.6 | Antarctic Fur Seal | 1 | 80 | Water | Swim | 73 | None | None |
| 283 | 2022-03-19 14:35:51.4 | Antarctic Fur Seal | 2 | 380 | Ice/Land | Rest | 299 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 284 | 2022-03-19 14:42:00.8 | Leopard Seal | 1 | 100 | Water | Feed | 123 | None | None |
| 285 | 2022-03-19 14:49:47.9 | Crabeater Seal | 2 | 100 | Water | Swim | 123 | None | None |
| 286 | 2022-03-19 15:31:54.6 | Unidentified Phocid Seal | 1 | 500 | Water | Swim | 407 | None | None |
| 287 | 2022-03-19 16:37:09.9 | Antarctic Fur Seal | 1 | 80 | Water | Swim | 80 | None | None |
| 288 | 2022-03-19 16:53:29.5 | Crabeater Seal | 4 | 400 | Water | Swim | 444 | None | None |
| 289 | 2022-03-19 17:16:05.2 | Humpback Whale | 4 | 4000 | Water | Swim | 3893 | Pile Driving | 4 Level-B |
| 290 | 2022-03-19 17:20:50.7 | Antarctic Fur Seal | 2 | 1300 | Water | Swim | 1100 | Pile Driving | None |
| 291 | 2022-03-20 13:27:23.2 | Southern Elephant Seal | 1 | 1100 | Ice/Land | Rest | 1029 | None | None |
| 292 | 2022-03-20 13:42:21.2 | Antarctic Fur Seal | 3 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 293 | 2022-03-20 13:45:34.7 | Antarctic Fur Seal | 24 | 900 | Ice/Land | Rest | 805 | None | None |
| 294 | 2022-03-20 13:47:31.8 | Antarctic Fur Seal | 2 | 1620 | Ice/Land | Rest | 1542 | None | None |
| 295 | 2022-03-20 13:55:51.2 | Crabeater Seal | 1 | 70 | Ice/Land | Rest | 172 | None | None |
| 296 | 2022-03-20 15:07:47.7 | Antarctic Fur Seal | 5 | 255 | Ice/Land | Rest | 294 | Pile Driving | None |
| 297 | 2022-03-20 15:21:42.6 | Humpback Whale | 2 | 2000 | Water | Swim | 800 | Pile Driving | 2 Level-B |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 298 | 2022-03-20 15:38:49.7 | Humpback Whale | 1 | 3900 | Water | Swim | 3788 | Pile Driving | 1 Level-B |
| 299 | 2022-03-27 10:19:04.9 | Antarctic Fur Seal | 1 | 45 | Water | Look | 60 | None | None |
| 300 | 2022-03-27 10:20:16.6 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 301 | 2022-03-27 10:22:18.0 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 302 | 2022-03-27 10:24:38.1 | Antarctic Fur Seal | 11 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 303 | 2022-03-27 10:26:55.7 | Leopard Seal | 1 | 700 | Ice/Land | Rest | 720 | None | None |
| 304 | 2022-03-27 10:54:25.1 | Crabeater Seal | 1 | 170 | Ice/Land | Swim | 76 | None | None |
| 305 | 2022-03-27 10:55:06.4 | Antarctic Fur Seal | 11 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 306 | 2022-03-27 10:57:57.4 | Antarctic Fur Seal | 10 | 900 | Ice/Land | Rest | 805 | None | None |
| 307 | 2022-03-27 10:58:32.3 | Antarctic Fur Seal | 21 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 308 | 2022-03-27 12:38:46.9 | Humpback Whale | 3 | 6300 | Water | Mill | 6217 | Pile Driving | 3 Level-B |
| 309 | 2022-03-27 12:54:53.1 | Humpback Whale | 1 | 3500 | Water | Swim | 3389 | Pile Driving | 1 Level-B |
| 310 | 2022-03-27 13:13:17.9 | Humpback Whale | 2 | 7000 | Water | Travel | 6901 | Pile Driving | None |
| 311 | 2022-03-28 10:37:59.0 | Antarctic Fur Seal | 4 | 1100 | Ice/Land | Rest | 1030 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|--------------------|------------|--------------------------------|----------|-----------|-----------------|--------------------------------|--------------------------------|
| 312 | 2022-03-28 10:41:53.4 | Antarctic Fur Seal | 6 | 900 | Ice/Land | Rest | 805 | None | None |
| 313 | 2022-03-28 10:42:53.5 | Antarctic Fur Seal | 8 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 314 | 2022-03-28 10:44:18.0 | Antarctic Fur Seal | 3 | 255 | Ice/Land | Rest | 286 | None | None |
| 315 | 2022-03-28 12:04:05.6 | Antarctic Fur Seal | 6 | 1075 | Ice/Land | Rest | 1107 | None | None |
| 316 | 2022-03-28 12:06:19.8 | Antarctic Fur Seal | 1 | 40 | Ice/Land | Rest | 129 | None | None |
| 317 | 2022-03-28 13:00:10.8 | Humpback Whale | 1 | 12000 | Water | Swim | 11942 | Pile Driving | None |
| 318 | 2022-03-29 08:06:09.9 | Weddell Seal | 2 | 205 | Ice/Land | Rest | 232 | None | None |
| 319 | 2022-03-29 08:08:10.9 | Antarctic Fur Seal | 12 | 1600 | Ice/Land | Rest | 1501 | None | None |
| 320 | 2022-03-29 08:10:42.2 | Antarctic Fur Seal | 6 | 1700 | Ice/Land | Socialize | 1639 | None | None |
| 321 | 2022-03-29 08:12:46.5 | Antarctic Fur Seal | 3 | 1100 | Ice/Land | Rest | 1030 | None | None |
| 322 | 2022-03-29 08:14:19.4 | Crabeater Seal | 1 | 1100 | Ice/Land | Rest | 1035 | None | None |
| 323 | 2022-03-29 08:33:53.6 | Antarctic Fur Seal | 5 | 255 | Ice/Land | Socialize | 286 | None | None |
| 324 | 2022-03-29 08:36:26.3 | Antarctic Fur Seal | 4 | 900 | Ice/Land | Socialize | 805 | None | None |
| 325 | 2022-03-29 08:42:47.1 | Antarctic Fur Seal | 1 | 100 | Water | Swim | 80 | None | None |

| Detection ID | Local Time (UTC-3:00) | Species | Best Count | Initial Detection Distance (m) | Habitat | Behavior | CPA to Pier (m) | In-water Construction Activity | Potential Individual Exposures |
|--------------|--------------------------|-----------------------|------------|--------------------------------|----------|----------|-----------------|--------------------------------|--------------------------------|
| 326 | 2022-03-29 12:16:25.6 | Antarctic Fur Seal | 10 | 2500 | Ice/Land | Rest | 2387 | None | None |
| 327 | 2022-05-31 15:12:08.8 | Antarctic Fur Seal | 4 | 35 | Water | Swim | 35 | None | None |
| 328 | 2022-06-01 11:21:30.0 | Antarctic Fur Seal | 2 | 120 | Water | Mill | 120 | None | None |
| 329 | 2022-06-01 12:59:00.1 | Antarctic Fur Seal | 5 | 135 | Water | Mill | 135 | None | None |
| 330 | 2022-06-10 10:52:52.1 | Weddell Seal | 1 | 40 | Water | Rest | 40 | None | None |
| 331 | 2022-06-14 13:32:00.5 | Unidentified LF Whale | 1 | 1000 | Water | Blow | 1000 | None | None |
| 332 | 2022-06-14 14:48:39.1 | Unidentified Seal | 1 | 140 | Water | Rest | 140 | Anode Installation | 1 Level-B |
| 333 | 2022-06-14 15:17:42.8 | Crabeater Seal | 1 | 50 | Water | Rest | 50 | None | None |

Appendix E Selected Marine Mammal Photographs



An elephant seal looks in the direction of an off-duty PSO near Palmer Station (Photo Credit: Jessica Ackerman)



Crabeater seals swimming past Palmer Station in the morning (Photo Credit: Jessica Ackerman)



A leopard seal drifting atop an ice floe in front of Palmer Station (Photo Credit: Jessica Ackerman)



Humpback whales in the distance from Palmer Station (Photo Credit: Jessica Ackerman)

Attachments: *PALPIER PSO All Monitoring Effort Data.xlsx*
PALPIER PSO All Sightings Data.xlsx