



BP CANADA ENERGY GROUP ULC

EPHESUS PROSPECT ROV SURVEY (2019-2024)

EA AMENDMENT



MARCH 29, 2023



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BP CANADA ENERGY GROUP ULC

VERSION 2

PROJECT NO.: ME2382602.1000
DATE: MARCH 29, 2023

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1. Introduction

bp Canada Energy Group ULC (bp) is proposing to conduct an environmental survey and monitoring program in the Orphan Basin in the Newfoundland and Labrador offshore region on Exploration Licences (ELs) 1168 (formerly 1145 and 1146) and 1148. The Ephesus Prospect Remotely Operated Vehicle (ROV) Survey (2019-2024) environmental assessment (EA) (bp 2019) was planned, prepared, and submitted in compliance with EA requirements and regulatory agency processes of the *Canada – Newfoundland Atlantic Accord Implementation Act* and the *Canada – Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* (Accord Acts), including a project-specific EA Scoping Document. The EA was accepted by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) with the issuance of a letter of determination issued by the C-NLOPB on June 5, 2019. The C-NLOPB determined that the project “following the application of mitigation measures, is not likely to cause significant adverse environmental effects.” An EA Update was submitted to the board in June 2022 to satisfy the requirements outlined in the letter of determination. The EA Update provided details to confirm that planned activities were within the scope of the previously assessed program.

This document serves as the environmental assessment (EA) Amendment for the Ephesus Prospect ROV Survey (2019-2024). This EA Amendment provides an effects assessment of Project activities not included in the original EA (bp 2019). The Project activities assessed in this document include:

- The deployment and retrieval of transponders and marker buoys via remotely operated vehicle for positioning of an exploration drilling unit;
- The deployment and retrieval of moorings for physical environment monitoring using moored monitoring instruments;
- Seabed monitoring and sampling; and
- Environmental (Coral and Sponge) monitoring and sampling.

To accommodate environmental monitoring, bp is proposing to amend the temporal scope to include activities from March to October.

2. Project Description

bp may conduct ROV seabed surveys at potential drilling locations on EL 1168 and/or EL 1148 to confirm the presence/absence of coral and sponges from 2019-2024 (bp 2019). The objective of the surveys is to inform wellsite planning and mitigation measures for future proposed exploration drilling in the West Orphan Basin. Additional survey activities, environmental monitoring, and ROV support activities are now planned to fulfill the objective as well as assess the zone of influence of exploration drilling activities. This section provides details on Project activities not included in the original ROV EA and reviews the spatial and amended temporal boundaries of the Project.

2.1. Project Location

The Project would be conducted at potential drilling locations within EL 1168 and/or 1148 (Table 2-1, Figure 2-1). Project activities for 2023 are planned for the Ephesus F-94 well and the respud well site located within EL 1168 (formerly within EL 1145). All activities will have a relatively small spatial footprint and will be within the total acreage of these ELs.

Table 2-1 Updated Coordinates for Project Area Exploration Licences

WGS 84		NAD 83 UTM Zone 22N	
Latitude	Longitude	Easting	Northing
EL 1168			
-48.84890775	50.78324718	651636.3469	5627927.42
-48.84891142	50.64991212	652067.088	5613102.838
-48.87391176	50.64991527	650299.8865	5613052.157
-48.87391228	50.63324883	650353.0387	5611199.149
-48.89891266	50.63324666	648585.2198	5611148.468
-48.89891322	50.61658022	648637.7308	5609295.458
-48.94891403	50.61655988	645100.8696	5609194.096
-48.94891468	50.59989348	645152.1109	5607341.083
-48.9739151	50.5998753	643383.0686	5607290.403
-48.97391579	50.5832089	643433.6693	5605437.389
-48.99891623	50.5831854	641664.0097	5605386.708
-48.99891696	50.56651899	641713.9701	5603533.692
-49.04891769	50.56656314	638173.1239	5603444.246
-49.04891835	50.54989659	638221.8272	5601591.208
-49.07391871	50.54991056	636450.7976	5601546.475
-49.07391934	50.53324391	636498.8667	5599693.425
-49.09891969	50.53325247	634727.2252	5599648.682
-49.09892028	50.51658571	634774.6606	5597795.621
-49.14892092	50.51658662	631230.164	5597706.113
-49.14892233	50.44991985	631414.8639	5590293.908
-49.37392559	50.44992725	615441.8939	5589920.893
-49.37392912	50.31659377	615765.8255	5575096.388
-49.5239326	50.31655523	605087.0801	5574869.57
-49.52393314	50.28322202	605160.5182	5571163.462
-49.69893528	50.28324383	592693.0867	5570933.426
-49.69893491	50.31657733	592628.3497	5574639.615
-49.72393522	50.31655898	590848.5609	5574606.765
-49.72393505	50.33322568	590816.8024	5576459.865
-49.74893534	50.33320198	589037.6425	5576427.021
-49.74893477	50.36653625	588975.3624	5580133.34
-49.77393521	50.36656112	587197.3444	5580106.5
-49.77393463	50.39989517	587136.2805	5583812.821
-49.79893509	50.39991464	585359.5155	5583785.985
-49.79893452	50.43324846	585299.669	5587492.308
-49.823935	50.43326253	583524.1576	5587465.475
-49.82393442	50.46659614	583465.5297	5591171.801
-49.84893491	50.46660481	581691.2721	5591144.971
-49.84893463	50.48327153	581662.5715	5592998.136
-49.87393513	50.48327482	579888.9441	5592971.308
-49.87393484	50.49994148	579860.8607	5594824.474
-49.92393583	50.49993193	576314.8724	5594770.823
-49.92392938	50.64992921	576073.3391	5611449.306
-49.82392815	50.6499278	583142.7916	5611556.604
-49.82392674	50.68326053	583084.039	5615262.966
-49.79892646	50.68324679	584850.1657	5615289.787
-49.79892567	50.69991324	584820.1587	5617142.981
-49.77392539	50.69989413	586585.667	5617169.797
-49.77392459	50.71656052	586555.0276	5619022.987
-49.74892433	50.71653604	588319.9173	5619049.799
-49.74892351	50.73320237	588288.6453	5620902.984
-49.69892304	50.7332446	591816.9853	5620968.53
-49.69892222	50.74991088	591784.4534	5622821.708

WGS 84		NAD 83 UTM Zone 22N	
Latitude	Longitude	Easting	Northing
-49.67392196	50.74992395	593548.0076	5622854.477
-49.67392113	50.76659019	593514.8415	5624707.65
-49.12391321	50.76659031	632298.9446	5625547.366
-49.12391283	50.78325713	632251.9487	5627400.51
EL 1148			
-48.498923	50.2831813	678179.521	5573109.158
-48.498936	49.9998553	679234.6286	5541612.216
-48.748938	49.9998587	661320.3472	5541043.17
-48.748944	49.8331947	661877.11	5522515.39
-49.54895	49.8332499	604349.878	5521100.772
-49.548942	50.0165782	603955.4018	5541482.691
-49.24894	50.0165317	625446.9283	5541937.799
-49.248938	50.0665305	625316.8365	5547496.486
-49.198937	50.0665729	628894.8472	5547586.279
-49.198936	50.0999052	628805.5849	5551292.053
-49.148936	50.0999261	632381.1544	5551381.833
-49.148933	50.1499243	632243.4547	5556940.468
-49.123933	50.1499267	634029.3926	5556985.347
-49.123931	50.183259	633936.2938	5560691.143
-49.048931	50.183234	639290.4435	5560825.758
-49.048929	50.2165666	639193.5694	5564531.572
-49.023929	50.2165475	640977.0644	5564576.435
-49.023928	50.2332137	640927.988	5566429.336
-48.998928	50.2331892	642710.8723	5566474.194
-48.998926	50.2831876	642561.7054	5572032.878
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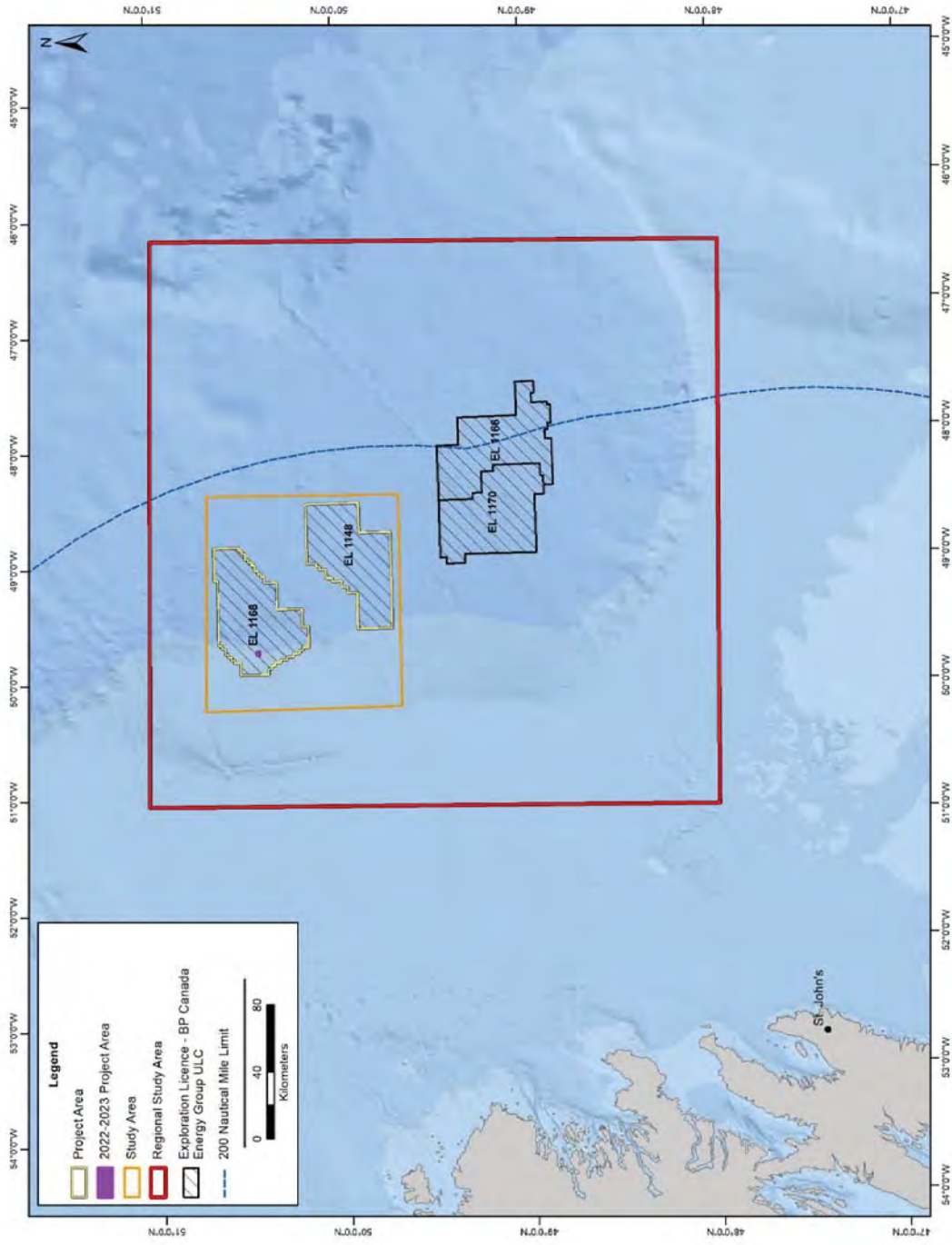


Figure 2-1 Project Location

2.2. Schedule

Project activities may be conducted between March and October of 2019 to 2024. Project activities are planned to start in April 2023 pending authorization from the C-NLOPB. Due to the additional project activities, it is anticipated that each field program will take 7-15 days to complete, with operations occurring throughout a 24-hour period. This is an extension from the original temporal scope of May to October with 7-10 days per survey. Given the nature of monitoring exploration drilling programs, it is anticipated that there may be multiple deployments with a minimum of pre- and post-drilling monitoring surveys.

2.3. Project Components and Activities

Project activities described in the original EA include the operation of a survey vessel and ROV video surveys. Additional project activities are described below. Figure 2-2 reflects the planned layout of equipment associated with the additional activities.

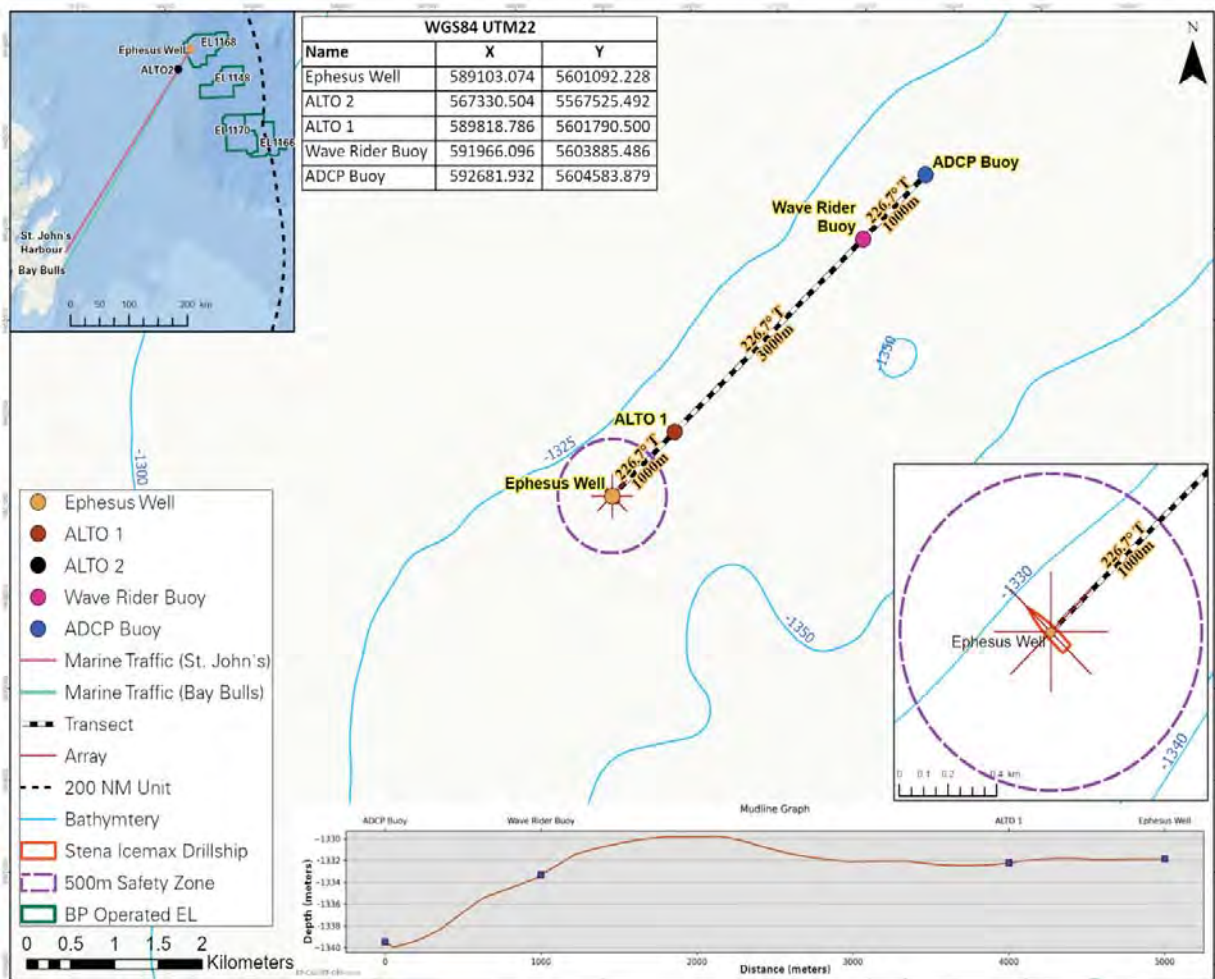


Figure 2-2 Planned Locations of ALTOs, Wave Rider Buoy and Current Meter Buoy

2.3.1. Transponder Placement

Transponders will be deployed from the vessel and positioned by the ROV. ROV support operations include the placement of five to seven transponders for setting up marker buoys at both the primary well site and the respud site. The placement of the marker buoy transponders

will be determined in the field, however the closest transponder to each site will be located approximately at 150 m and a single array will be formed around the two sites. These transponders will be recovered during the post drilling cruise for the environmental surveys. In addition, eight to ten dynamic positioning (DP) transponders will also be installed at the primary well site to provide the drilling unit with the data required to maintain safe positioning over the well. The DP transponders will be positioned approximately 233 m from the wellsite in an array as shown in Figure 2-3. The DP transponders will be calibrated by the drilling unit upon arrival and will remain in place until recovered during the post drilling cruise for the environmental surveys. The transponders are estimated to have a seabed footprint of <math><1\text{ m}^2</math>. All transponders will remain for the duration of the drilling activity and recovered following the cessation of the drilling program (150-200 days).

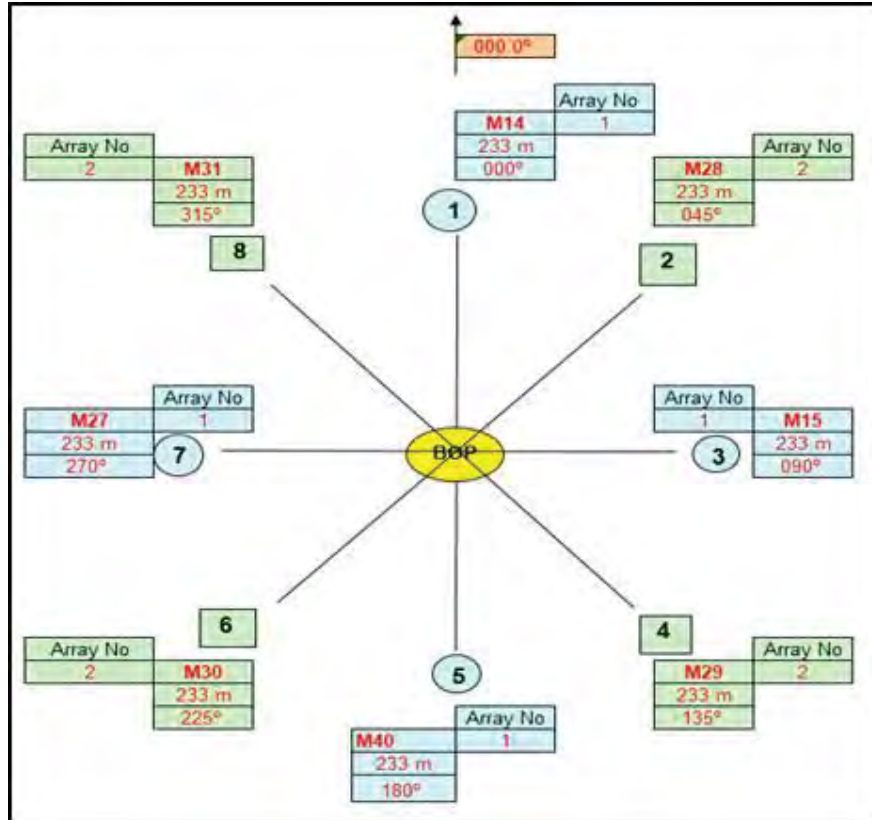


Figure 2-3 Planned Dynamic Positioning (DP) Transponder Placement

2.3.2. Environmental Monitoring Using Moored Instruments

The exploration drilling program will include environmental monitoring that consists of an acoustic monitoring and oceanography program. Acoustic monitoring requirements are described in the bp Marine Sound Monitoring Plan (CN002-EV-PLN-600-00014) and physical environment monitoring is described in the bp Physical Environment Program Description (CN002-EN-PLN-00020).

The oceanography program involves the deployment of two oceanographic monitoring moorings. The first mooring is equipped with a Datawell Wave Buoy, which collects wave measurements. The second mooring is equipped with Acoustic Doppler Current Profilers (ADCP) to record water column currents. The buoys will be attached to a single mooring and positioned approximately 4 and 5 km away from the well site respectively (Figure 2-2). The moorings will be deployed and retrieved from an offshore supply vessel. The moorings are

comprised of a weight (up to ~1,840 kg (~4,000 lbs)), amsteel rope, acoustic releases, floats, and monitoring devices (Figure 2-4).

The acoustic monitoring program will consist of deployment of two Autonomous Long-Term Observatory (ALTO) landers (Figure 2-5). The landers will be deployed at two stations to measure near-field and far-field underwater sound. The landers are 2 m high and 1.7 m wide and weigh 800 kg with the anchor. The moorings are comprised of an anchor (350 kg), ultra-deep battery pack, frame and weights, acoustic releases, floats, and hydrophones. For the 2023 program, the acoustic moorings are located approximately 1 km NE and 40 km SSW away from the primary well site respectively.

All moorings for the environmental monitoring will have a limited seabed footprint (<5 m²), will be deployed for the duration of the exploration drilling program, and recovered following cessation of the drilling program (150-200 days).

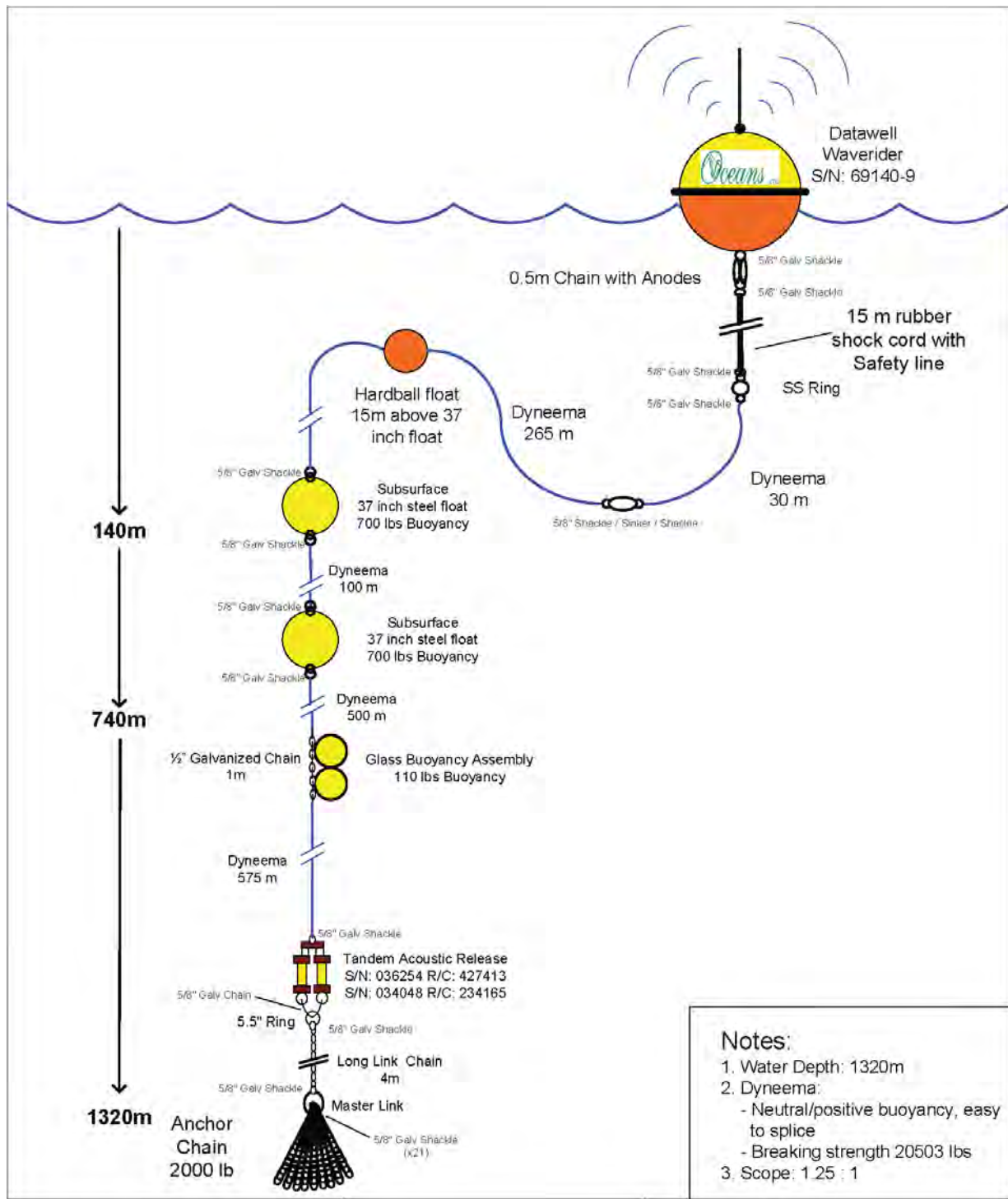


Figure 2-4 Wave Rider Buoy and Mooring Assembly

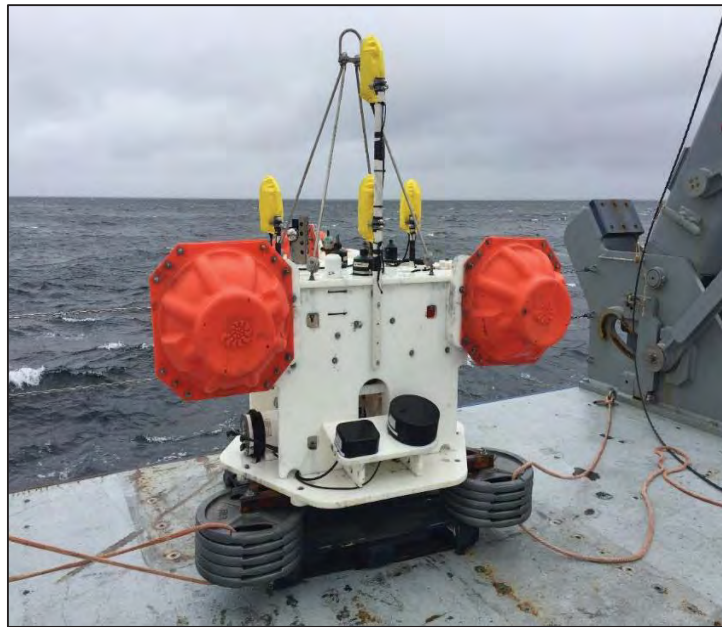


Figure 2-5 Autonomous Long-term Observatory (ALTO) Lander (JASCO Applied Sciences)

2.3.3. Seabed Monitoring and Sampling

As part of both the pre- and post-drilling surveys at the primary wellsite, seabed monitoring and sampling activities are planned to take place. This monitoring and sampling are intended to enable a comparison of pre-drilling baseline sediment chemistry to post-drilling sediment chemistry after cuttings deposition. Sediments will be collected by a ROV using a push core sampling device and/or multi-corer and will be conducted in a manner which minimizes interaction with surrounding corals and sponges if present. Samples will be sent for chemical analysis, including the tracer metal barium.

ROV Push Cores: An ROV will be used to collect sediment cores of the seabed at varying distances within 1 km from the well centre. The collected sediment would be analyzed for barium concentration (a marker for drill cuttings) and other parameters. Core samples will be collected by ROV and placed in a storage rack and, once all cores in the rack have been used, the ROV will surface and return as needed (Figure 2-6). During the deployment of push cores, the ROV would be set down on the bottom for stability and potentially disturb an area of approximately 4 m² (estimate for a Magnum Plus Heavy Work Class ROV). Up to 20 cores will be taken resulting in a projected sampling area footprint of 80 m². The area for each core would be inspected before sampling to avoid rocks, corals, and sponges, where possible. A detailed sampling plan is presently in a draft form and will be provided to the C-NLOPB and DFO for review well in advance of departure.



Figure 2-6 Rack of Push Cores (Oceaneering Limited)

Multicorer: A multicorer is a frame that contains several cores allowing for multiple samples per deployment. This device would be deployed at the same predetermined positions and deployed by a winch onboard the vessel. Collected sediment samples can be measured for barium concentration. Multicorers can vary in size and footprint, but generally have several flat feet and cores in the centre. The multicorer footprint on the seafloor would likely be between 1-2 m². Up to 20 cores would be taken, leading to a projected sampling area footprint of 20-40 m². To increase the probability of obtaining samples successfully and to minimize interaction with corals and sponges, the use of a camera on the multicore can be considered.

The usage of push cores and multicorers would not overlap each other therefore the total area potential sampling footprint per deployment ranges from 20 m² to 80 m². Two deployments of these devices (pre- and post-drilling) may occur for each wellsite.

2.3.4. Environmental (Coral and Sponge) Monitoring and Sampling

As part of the Department of Fisheries and Oceans (DFO) regional guidance on measures to protect corals and sponges during exploration drilling, DFO recommends one sample of the dominant species for each of the functional/morphological coral and sponge groups that are prevalent throughout the survey to be collected during the pre-drill survey in the immediate vicinity of the proposed wellhead, with the exception of black corals. Samples will be collected using the ROVs manipulator arms and placed into collection containers and brought to the surface. Samples will be bagged and placed in cold storage and provided to DFO upon return to shore.

Samples collected will be representative of the corals and sponges present at a given site and would likely include 1-2 samples from each coral functional group and sponge morphological group. Overall, fewer than 20 samples would be collected per program. Similar to the collection of ROV push cores (refer to Section 2.3.3), sample collection would require the ROV to set down on the sea floor for the duration of biological sampling. This would disturb an area of approximately 4 m² per sample, for a total projected footprint of 80 m² and result in the direct removal of corals and sponges.

2.4. Project Logistics and Personnel

Project personnel are described in Section 2.5 of the original EA (bp 2019). bp is in the process of procuring a qualified contractor to supply the survey vessel, and a contract is in place for the supply of an ROV. In addition to the vessel crew, up to 25 personnel will be onboard to complete the planned scope of work.

3. Indigenous and Stakeholder Consultation

bp has continued to provide updates on planned activities through email notifications and newsletters issued to Indigenous and fishing industry groups. A newsletter was also posted to the bp website and issued to the groups in November 2022. As of February 23, 2023, bp has not received any comments or concerns.

Planning is underway for 2023 surveys and Indigenous groups, NL Fishers and other stakeholders will be consulted through existing communication channels in parallel with the regulatory review of this EA Amendment. A communication is planned to be sent out in early March after which a brief report on the consultations will be prepared and submitted to the C-NLOPB which reflects those consulted, any issues or concerns presented, as well as how the issues or concerns were addressed by bp.

4. Existing Environment

Description of the existing physical and biological environment is described in Section 4 of the original EA (bp 2019) and in Section 3 of the EA Update (bp 2022a). The additional project activities remain within the footprint of the original EA and the existing environmental information remains valid. The following presents information regarding updated marine environment information available from pre-drilling surveys for EL 1168 (formerly 1145) and status updates to species at risk (SAR).

4.1. Marine Fish and Shellfish

A description of marine fish and shellfish in the regional area is described in Section 4.2 of the original EA (bp 2019). The following presents updated site-specific information for the Ephesus F-94 survey area that is the focus of 2023 project activities.

4.1.1. 2022 Ephesus Coral and Sponge Survey

In June of 2022, bp surveyed potential wellsite locations within EL 1168 using a remotely operated vehicle (ROV) for benthic fauna and habitat, including corals and sponges (bp 2022b, 2023). bp reported on the presence of corals, sponges, invertebrates, and fish species, as well as the surficial geology around the proposed Ephesus F-94 wellsite, the respud site, the alternate well site and two relief well sites. This survey covered approximately 56 km of linear distance around well sites including the predicted cuttings deposition area.

Macrofauna species were identified to the lowest taxonomic level possible. Coral species and sponge species were grouped into functional groups as described in Kenchington et al. (2015). Overall, sea pens were the dominant coral species present within the site, with over 60,000 individuals counted (Figure 4-1). The majority of sea pens present at the site belonged to the genus *Pennatulula*, with a small number of individuals from the genera *Anthoptilum*, *Balticina* (formerly *Halipterus*), and whip-like sea pens. The maximum abundance for sea pens overall was 139 individuals (density: 0.92 ind./m²) in a single 50 m transect section. Sea pen abundances were generally highest in the western portion of the survey area. Other corals observed within the survey area were at much lower abundances overall and included

branching corals (over 2,000 individuals), soft corals (over 200 individuals) and black corals (4 individuals) (Figure 4-2).

Sponges were found at lower abundances compared to corals and were largely associated with a hard substrate (Figure 4-2). Overall, thin-walled complex glass sponges (*Asconema* spp.) were the most common functional group, with 208 recorded individuals. Round with projections sponges (*Craniella* spp. and *Polymastia* spp.) were the next most common, with 54 individuals. Small numbers of solid/massive and other sponges were observed, though many individuals were not able to be identified to the functional group level.

Coral and sponge condition were assessed as being either good, damaged (coral) / covered (sponge), or dead / buried. In a subsampled area, over 75% of corals and sponges observed had good condition overall, with approximately 2% dead and 21% unknown. Over 99% of sea pens had good condition overall.

A variety of fish species were recorded throughout the survey area. Grenadiers, blue hake, and longnose eels were common throughout. Northern wolffish, a schedule 1 SARA-listed species, were found in several survey lines. Invertebrates noted during the survey include various sea star and brittle star species, porcupine crabs, octopus and squid, and shrimp.

Surficial substrate throughout the survey area was visually assessed. The area was predominantly fine substrate (mud and sand), with intermittent medium (gravel or cobble) and coarse (rubble and boulders) substrate distributed throughout.

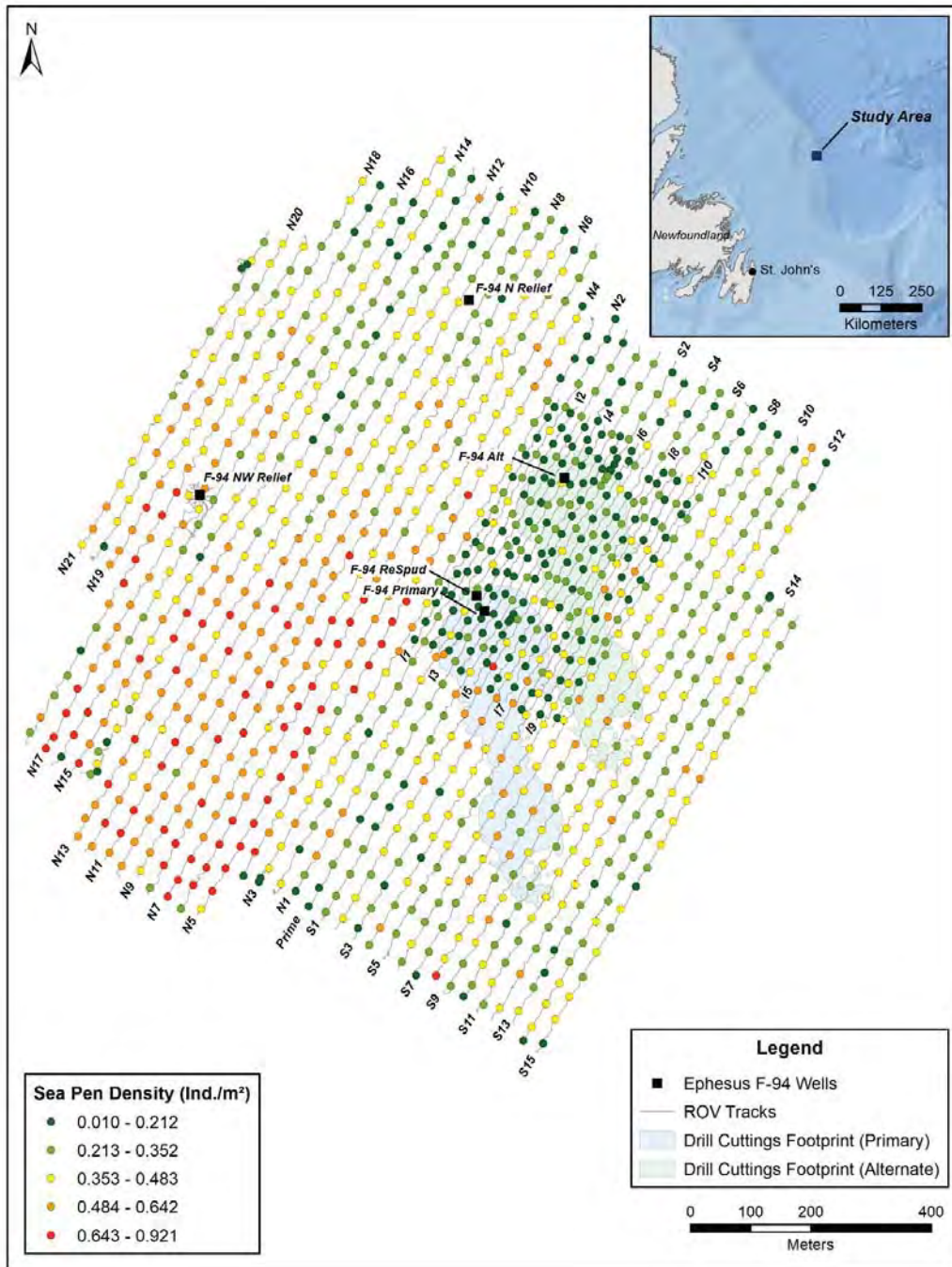


Figure 4-1 Total Sea Pen Density Across All 50 m Transects (bp Canada 2023)

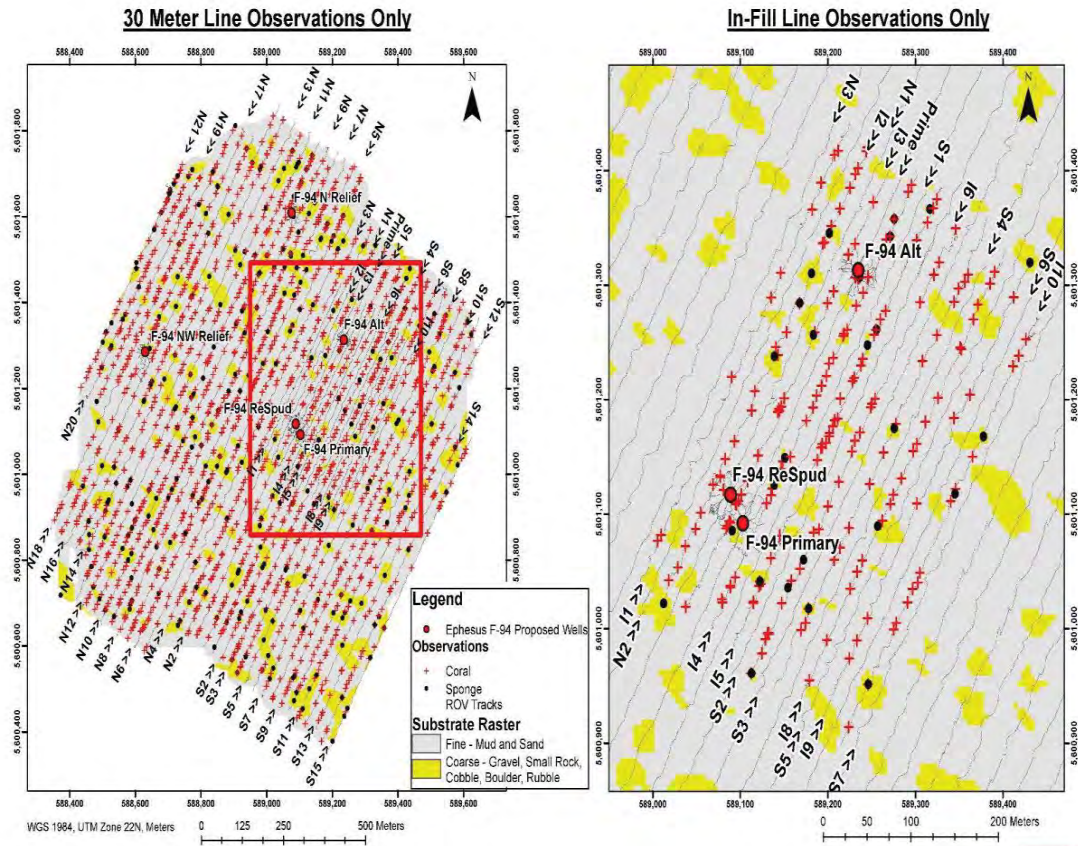


Figure 4-2 Coral and Sponge Distribution Over Substrate Categories (bp Canada 2022b)

4.2. Marine and Migratory Birds

A description of marine and migratory birds in the regional area is described in Section 4.3 of the original EA (bp 2019). The following presents updated site-specific information for the Ephesus F-94 survey area that is the focus of 2023 project activities.

4.2.1. 2022 Ephesus Marine Bird Monitoring

Seabird surveys were conducted during the pre-drilling survey (June 2022) along the vessel transit route and in the ROV survey area in EL 1168 (bp 2022c). This included visual seabird surveys that closely followed the Eastern Canada Seabirds at Sea (ECSAS) Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms (Gjerdrum et al. 2012) and stranded seabird surveys in accordance with the Environment and Climate Change Canada-Canadian Wildlife Service (ECCC-CWS) Guidance for Developing Systematic Stranded Bird Survey Protocols for Vessels and Platforms (ECCC-CWS 2021).

Visual seabird surveys were conducted for a duration of 5 minutes per survey for a total of 155 minutes. Seabirds observed along the vessel transit route and ROV survey area included puffins, shearwaters, fulmars, gulls, and storm petrels (Table 4-1). No species of conservation concern were observed (bp 2022c).

Stranded seabird searches were conducted at least once per day during the ROV survey program. No stranded seabirds were found onboard the supply vessel during the survey (bp 2022c).

Table 4-1 Summary of Bird Sightings During the June 2022 ROV Survey

Species	Total number of Sightings	Total Number of Birds
Atlantic Puffin (<i>Fratercula artica</i>)	2	6
Great Shearwater (<i>Puffinus gravis</i>)	4	5
Manx Shearwater (<i>Puffinus puffinus</i>)	1	2
Northern Fulmar (<i>Fulmarus glacialis</i>)	39	471
Sooty Shearwater (<i>Puffinus griseus</i>)	1	2
Unknown Gull (Laridae)	6	18
Unknown Shearwater (<i>Puffinus</i> or <i>Calonectris</i>)	3	4
Unknown Storm-Petrel (Hydrobatidae)	2	4
Wilson's Storm-Petrel (<i>Oceanites oceanicus</i>)	1	3

4.3. Marine Mammals and Sea Turtles

A description of marine mammals and sea turtles in the regional area is described in Section 4.4 of the original EA (bp 2019). The following presents updated site-specific information for the Ephesus F-94 survey area that is the focus of 2023 project activities.

4.3.1. 2022 Ephesus Marine Mammal and Sea Turtle Monitoring

Marine mammal and sea turtle surveys were conducted during the pre-drilling survey (June 2022) along the vessel transit route and in the ROV survey area in EL 1168. Visual observations were conducted during daylight hours for a total of 97 hours and 30 minutes (bp 2022c). Long-finned Pilot Whales and Northern Bottlenose Whales (toothed whales) were observed during the survey program (Table 4-2).

Table 4-2 Summary of Marine Mammal Sightings During the June 2022 ROV Survey

Species	Total Number of Detection Records	Total Number of Animals
Long-finned Pilot Whales (<i>Globicephala melas</i>)	2	6
Northern Bottlenose Whales (<i>Hyperoodon ampullatus</i>)	2	2
Total	4	8

4.4. Species at Risk

Table 4-3 outlines species-at-risk (SAR) as designated by the *Species at Risk Act* (SARA) and/or the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) with the potential to occur in the Orphan Basin area. Changes that have occurred since the previous ROV EA Update (bp 2022a) are noted in grey in Table 4-3 and summarized below:

- Roughhead grenadier was downgraded from Special Concern to Not at Risk in 2018 (COSEWIC 2018) and,
- Ross's gull was elevated from Threatened to Endangered in 2021 by COSEWIC, and its Schedule 1 status may change in the future as well (COSEWIC 2021).

Several species are under consideration for inclusion under SARA Schedule 1, with consultations ongoing.

During the 2022 Ephesus Coral and Sponge survey (bp 2022b), northern wolffish, a Schedule 1 SARA-listed species, was found in several survey lines (see Section 4.1.1 for survey details). Two northern bottlenose whales (likely part of the Labrador population) were spotted during the Ephesus ROV survey in 2022 (bp 2022c).

Table 4-3 Species at Risk listed under SARA and/or COSEWIC with the Potential to Occur within the Study Area

Common Name (Population)	Scientific Name	SARA Schedule 1	COSEWIC	
Marine Fish				
Acadian redfish (Atlantic population)	<i>Sebastes fasciatus</i>	-	Threatened	
American eel	<i>Anguilla rostrata</i>	-	Threatened	
American plaice (NL population)	<i>Hippoglossoides platessoides</i>	-	Threatened	
Atlantic bluefin tuna	<i>Thunnus thynnus</i>	-	Endangered	
Atlantic cod (NL population)	<i>Gadus morhua</i>	-	Endangered	
Atlantic salmon (South Newfoundland population)	<i>Salmo salar</i>	-	Threatened	
Atlantic salmon (Gaspe-Southern Gulf of St. Lawrence)		-	Special Concern	
Atlantic salmon (Outer Bay of Fundy)		-	Endangered	
Atlantic salmon (Eastern Cape Breton)		-	Endangered	
Atlantic salmon (Nova Scotia Southern Upland)		-	Endangered	
Atlantic salmon (Quebec Eastern North Shore population)		-	Special Concern	
Atlantic salmon (Quebec Western North Shore population)		-	Special Concern	
Atlantic salmon (Anticosti Island population)		-	Endangered	
Atlantic wolffish		<i>Anarhichas lupus</i>	Special Concern	Special Concern
Basking shark (Atlantic population)		<i>Cetorhinus maximus</i>	-	Special Concern
Lumpfish	<i>Cyclopterus lumpus</i>	-	Threatened	
Cusk	<i>Brosme brosme</i>	-	Endangered	
Deepwater redfish (Northern population)	<i>Sebastes mentella</i>	-	Threatened	
Northern wolffish	<i>Anarhichas denticulatus</i>	Threatened	Threatened	
Porbeagle	<i>Lamna nasus</i>	-	Endangered	
Roughhead grenadier	<i>Macrourus berglax</i>	-	Not at Risk ¹	
Roundnose grenadier	<i>Coryphaenoides rupestris</i>	-	Endangered	

Common Name (Population)	Scientific Name	SARA Schedule 1	COSEWIC
Shortfin mako (Atlantic population)	<i>Isurus oxyrinchus</i>	-	Endangered
Smooth skate (Funk Island Deep Population)	<i>Malacoraja senta</i>	-	Endangered
Spiny dogfish (Atlantic population)	<i>Squalus acanthias</i>	-	Special Concern
Spotted wolffish	<i>Anarhichas minor</i>	Threatened	Threatened
Thorny skate	<i>Amblyraja radiata</i>	-	Special Concern
White hake (Atlantic and Northern Gulf of St. Lawrence population)	<i>Urophycis tenuis</i>	-	Threatened
White shark (Atlantic population)	<i>Carcharodon carcharias</i>	Endangered	Endangered
Winter skate (Eastern Scotian Shelf – Newfoundland population)	<i>Leucoraja ocellata</i>	-	Endangered
Marine Birds			
Red-necked phalarope	<i>Phalaropus lobatus</i>	Special Concern	Special Concern
Ivory gull	<i>Pagophila eburnea</i>	Endangered	Endangered
Ross's gull	<i>Rhodostethia rosea</i>	Threatened	Endangered ²
Leach's Storm-petrel (Atlantic population)	<i>Oceanodroma leucorhoa</i>	-	Threatened
Marine Mammals			
North Atlantic right whale	<i>Eubalaena glacialis</i>	Endangered	Endangered
Fin whale (Atlantic population)	<i>Balaenoptera physalus</i>	Special Concern	Special Concern
Blue whale (Atlantic population)	<i>Balaenoptera musculus</i>	Endangered	Endangered
Northern bottlenose whale (Scotian Shelf population)	<i>Hyperoodon ampullatus</i>	Endangered	Endangered
Northern bottlenose whale (Davis Strait-Baffin Bay-Labrador Sea population)		-	Special Concern
Sowerby's beaked whale	<i>Mesoplodon bidens</i>	Special Concern	Special Concern
Killer whale (Northwest Atlantic / Eastern Arctic population)	<i>Orcinus orca</i>	-	Special Concern
Harbour porpoise	<i>Phocoena phocoena</i>	-	Special Concern
Beluga Whale (Eastern Hudson Bay population)	<i>Delphinapterus leucas</i>	-	Threatened
Sea Turtles			
Leatherback sea turtle (Atlantic population)	<i>Dermochelys coriacea</i>	Endangered	Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Endangered	Endangered
¹ COSEWIC 2018			
² COSEWIC 2021			

4.4.1. Recovery Strategies and Plans

Since the release of the original EA and EA Update, several action plans and recovery strategies have been released for marine mammals and sea turtles. While no critical habitat has been identified, important areas have been recognized for blue whales and leatherback sea turtles that may inform future critical habitat decisions. Important areas for blue whales are in the Gulf of St. Lawrence, along southern Newfoundland, the slopes of the Scotian Shelf and the southern portion of the Grand Banks (DFO 2020a). Important feeding areas for leatherback sea

turtles have been identified near the Gulf of St. Lawrence, and from southern Newfoundland down to eastern Cape Breton (DFO 2020b). Neither of these areas is within the Project or Study Areas. As such, no new mitigation measures are required for these species beyond those already identified in the original EA and EA Update.

Additionally, since the original EA and EA Update a management plan has been proposed for Red-necked Phalarope (ECCC 2022). A review of the plan determined that no new or modified mitigation measures are required beyond those already identified in the original EA (bp 2019).

4.5. Special Areas

Since the original EA and EA Update, some special area boundaries have been modified. A list of special areas intersecting the Regional Area and their descriptions can be found in Table 4-4, and an updated map of special areas near or within the Regional Area can be found in Figure 4-3.

Table 4-4 Special Areas that Overlap with the Regional Area

Special Area	Name	Map #	Description
Convention on Biological Diversity Identified EBSA	Orphan Knoll	1	Appears to have a distinctive fauna from the adjacent continental slopes, including corals and sponges.
	Slopes of the Flemish Cap and Grand Bank	2	Has a high biodiversity of marine taxa, and habitat for a number of threatened species.
	Seabird Foraging Zone in the Southern Labrador Sea	3	Important foraging area for seabirds, including black-legged kittiwakes, thick-billed murre, and Leach's storm-petrels.
NAFO Seamount Closures	Orphan Knoll	4	Appears to have a distinctive fauna from the adjacent continental slopes, including corals and sponges.
North Atlantic Fisheries Organization (NAFO) Sponge, Coral, and Sea Pen Closure	Sackville Spur 6 (NAFO)	5	Has large concentrations of sponges. Closed to bottom contact fishing.
Marine Refuge	Northeast Newfoundland Slope Closure	6	An area designated to protect corals and sponges and contribute to the long-term conservation of biodiversity.
EBSA (Ecologically and Biologically Significant Area)	Orphan Spur	7	High diversity of corals, fish, marine mammals, and seabirds, including rare or endangered species.
	Northeast Slope	8	
SiBA (Significant Benthic Area)	Large Gorgonian Coral Significant Benthic Areas from KDE Analyses	9	Areas identified using kernel density analysis containing significant concentrations of a given functional/morphological group.
	Small Gorgonian Coral Significant Benthic Areas from KDE Analyses	10	
	Sponge Significant Benthic Areas from KDE Analyses	11	
	Sea Pen Significant Benthic Areas from KDE Analyses	12	

Special Area	Name	Map #	Description
DFO Species at Risk Critical Habitat	Spotted Wolffish	13	Identified critical habitat for Northern/Spotted Wolffish that provides the functions and features necessary to support the species' life cycle processes.
	Northern Wolffish	14	

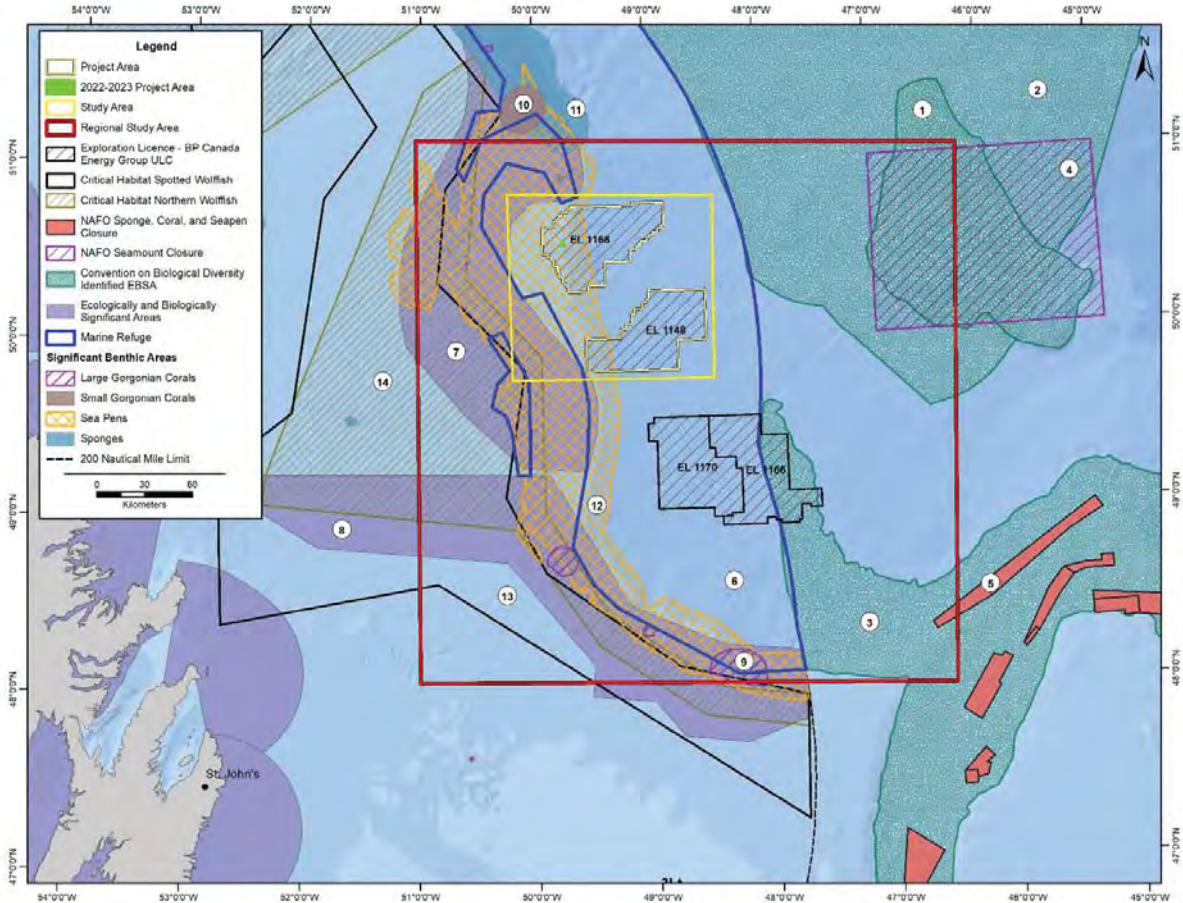


Figure 4-3 Special Areas Within and Adjacent to the Regional Area.

4.6. Commercial and Indigenous Fisheries and Other Ocean Users

No new commercial catch data is available since the 2022 ROV EA Update (bp 2022a), so no additional information is reported here. It should be noted that the planned activities are located in a marine refuge for which there is a prohibition on bottom contact fisheries activities.

5. Environmental Assessment Methods

The EA methodology for this EA Amendment including significance criteria is outlined in Section 5 of the original EA. Based on the scoping document (C-NLOPB 2019a), the following were selected as valued components that require assessment of potential environmental effects (refer to Table 5.1 of the original EA for rationale and scoping considerations):

- Marine Fish and Fish Habitat;

- Marine and/or Migratory Birds;
- Marine Mammals and Sea Turtles;
- Species at Risk;
- Special Areas; and
- Commercial and Indigenous Fisheries and Other Ocean Users.

5.1. Spatial Boundaries

The spatial boundaries of the Project are described in Section 2.1. Project activities will remain contained within each EL. Since the EA Update, in January of 2023 some lands in EL 1145 and 1146 were relinquished and the retained lands consolidated into a single new EL 1168. The boundaries of EL 1148 remain unchanged. While there are minor changes to the consolidated boundary, EL1168 is encompassed by the original combined boundaries of ELs 1145 and 1146 and within the original Study and Regional areas (Figure 2-1 and Figure 5-1).

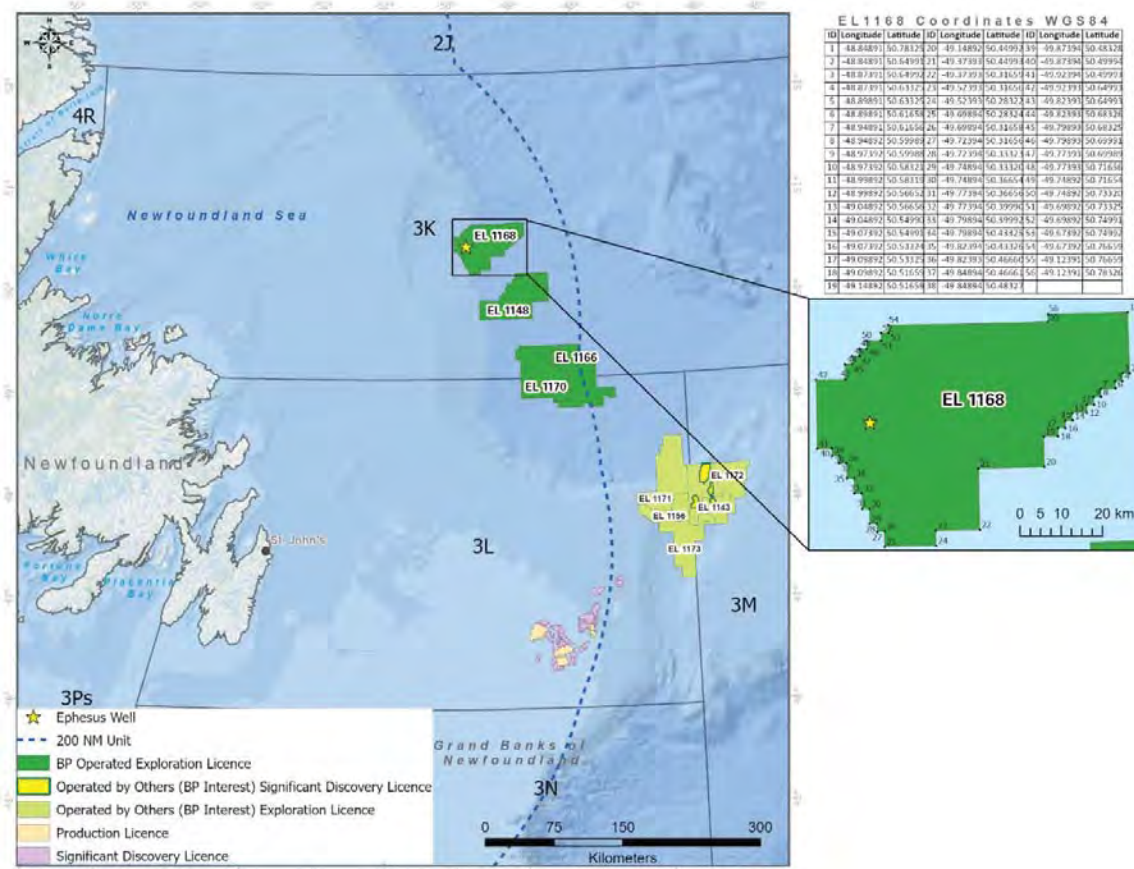


Figure 5-1 Ephesus Well Site Within EL 1168

5.2. Temporal Boundaries

Project activities are planned to be conducted between March and October, occurring between 2019 to 2024 with authorization from the C-NLOPB. Due to the additional project activities, it is anticipated that each field program would take 7-15 days to complete, with operations occurring throughout a 24-hour period. This is an extension from the original temporal scope of activities occurring from May to October with 7-10 days per survey. Given the nature of

monitoring required for drilling the first exploration well in an EL, it is anticipated there may be multiple deployments with a minimum of pre- and post-drilling monitoring surveys.

5.3. Project Interactions

bp is proposing to conduct survey activities, environmental monitoring, sampling, and ROV support activities from a supply vessel. The operation of the supply vessel, seabed video surveys, accidental hydrocarbon release from a survey vessel, and hydraulic fluid leak from the ROV were assessed in the original EA (refer to Section 6; bp 2019). The operation of the ROV during support activities, and physical environmental sampling would have similar minimal environmental interactions of underwater sound and lighting emissions as detailed in the original EA (refer to Section 6.1.2; bp 2019). Vessel operations associated with physical sampling and mooring deployment and retrieval would have the same interactions as described in the original EA. This would include underwater sound, light emissions and discharges from the survey vessel, travel through special areas, risk of collision of a marine mammal or sea turtle with the survey vessel, interaction with fisheries and other ocean users, and accidental spill of diesel fuel from the vessel (bp 2019). The key interactions associated with additional proposed activities would be minimal disturbance to the seabed and benthic fauna. Potential Project-Valued Component (VC) interactions are identified in Table 5-1.

Table 5-1 Predicted Project-VC interactions

Activity	Marine Fish and Fish Habitat	Marine and/or Migratory Birds	Marine Mammals and Sea Turtles	Species at Risk	Special Areas	Commercial and Indigenous Fisheries and Other Ocean Users
Operation of a Survey Vessel ¹	•		•	•	•	•
Seabed Video Survey ¹	•	-	•	•	•	-
Mooring Deployment and Retrieval	•	-	•	•	•	•
ROV operations and Transponder Placement	•	-	•	•	•	•
Biological and Physical sampling (vessel / ROV)	•	-	•	•	•	-
Accidental Hydrocarbon Release from Survey Vessel ¹	•	•	•	•	•	•
Notes:						
¹ Activity was previously assessed. Refer to Section 6 of the original EA (bp 2019).						

6. Environmental Effects Assessment

6.1. Routine Project Activities

6.1.1. Operation of a Survey Vessel

The operation of a survey vessel will generate underwater sound, light and air emissions, and effluent discharges that may result in short-term disturbance to marine animals, and localized water quality effects as assessed in the original EA (bp 2019). The additional proposed activities would be conducted from an offshore supply vessel and the vessel operation duration would be extended minimally (e.g., days to weeks) with frequency to occur prior to and post-exploration drilling activities. The number of personnel beyond vessel crew would be higher relative to the original EA (bp 2019) due to the expanded scope. Considering existing mitigations and adherence to vessel regulations and guidance, the additional wastewater effects on water quality would be negligible. The potential effects remain adverse, low

magnitude, within the Study Area, short term duration and reversible for all VCs with the implementation of mitigations (refer to Section 7). The potential effects of vessel operations would increase in frequency to multiple irregular events but remains low. The survey vessel operation residual environmental effects are predicted to be not significant on Marine Fish and Fish Habitat, Marine and/or Migratory Birds, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, and Fisheries and Other Ocean Users.

6.1.2. ROV Video Survey

Standard ROV operations are assessed in the original EA (bp 2019) and the 2022 EA Update (bp 2022a), including predicted effects and mitigations. The operation of an ROV will generate underwater sound and light emissions. The additional proposed activities using an ROV would extend the duration of activities minimally (e.g., days to weeks). No additional changes are predicted to occur to ROV operations from any of the activities described in this report, though these activities will lead to higher overall usage of ROVs to complete these tasks (e.g., sediment core sampling and coral/sponge collections). The assessment for these activities can be found in Section 6.1.2 of the original EA (bp 2019). The potential effects of ROV operations would be adverse, low magnitude, short term duration and reversible for Marine Fish and Fish Habitat, Marine Mammals and Sea Turtles, Species at Risk, and Special Areas considering the implementation of mitigations (refer to Section 7). The potential effects of vessel operations would increase in frequency to multiple irregular events but remains low. The ROV operation residual environmental effects are predicted to be not significant for these VCs and are not predicted to interact with Marine and/or Migratory Birds and Fisheries and Other Ocean Users.

6.1.3. Mooring Deployment and Retrieval

Four moorings will be deployed and retrieved from an offshore supply vessel as part of the environmental monitoring program. The potential effects of the operation of an offshore supply vessel are described in Section 6.1.1. The potential effects of mooring placement include disturbance of the seabed and the potential for entanglement with marine mammals and sea turtles.

The mooring for ALTO2 lander will be located 40 km SSW of the well site. The ALTO1 lander, the wave rider buoy, and the ADCP current mooring will be located at 1 km, 4 km, and 5 km respectively. The overall seabed footprint is limited at <math><20\text{ m}^2</math>. There will be direct injury and mortality to benthic organisms within the mooring footprint and highly localized suspension of sediments. Suspended sediment can potentially settle onto nearby fauna, disturbing feeding, engaging defence mechanisms, or burying them (Heery et al. 2017). However, sediment suspension would likely be low due to the small footprint of disturbed areas, minimizing potential effects on any single area. Fauna living at these depths are adapted to suspended sediment settling from the water column (Larsson and Purser 2011, Liefmann et al. 2018), and burial from these deployment and recovery activities is unlikely. The Project is located within a sea pen SiBA and marine refuge, however, predicted seabed and fauna disturbance would be negligible considering the small footprint of the mooring. Both DFO and the Department of National Defence (DND) will be notified of the moorings in advance of departure. Commercial fishers, including Indigenous fishers, will be notified of the location of the moorings through a "Notice to Mariners" and bp communication channels (e.g., newsletter, One Ocean). While there would be displacement of commercial fishers from the mooring areas, the area of avoidance would be small relative to available fishing areas. The well site is located within the Northeast Newfoundland slope marine refuge within which a prohibition on bottom contact fishing is in place.

Marine mammals and sea turtles have the potential to become entangled in the wave rider and ADCP moorings (Benjamins et al. 2014). The ALTO landers are deployed to the seafloor with no line or trailing objects and are unlikely to interact with marine mammals and sea turtles. The overall risk of marine mammals and sea turtles interacting with the moorings is low

considering the small number of deployed moorings. The wave and ADCP moorings are also designed to be heavy and taut which would further reduce the potential for entanglement. In the unlikely event that an animal is entangled, bp will contact the Canadian Coast Guard / DFO. Concurrent exploration drilling activities may also promote avoidance of the area by marine mammals and sea turtles (bp 2019).

Due to the limited geographic and temporal scope of this activity and implementation of mitigations (refer to Section 7), the potential effects of deployment and retrieval of moorings are predicted to be of negligible magnitude, short term, occurring as a single event, and be reversible for all VCs. The residual environmental effects are predicted to be not significant on Marine fish and Fish Habitat, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, and Fisheries and Other Ocean Users. This Project activity is not predicted to interact with Marine and/Migratory birds.

6.1.4. ROV Support Activities (Transponder Placement, Operation, and Retrieval)

The placement of transponders will be conducted using an ROV in advance of drilling activities. The transponders will freefall to the seafloor and be repositioned by the ROV. As described in Section 2.3.1, 13-17 transponders are planned to be deployed for the Ephesus exploration drilling project (bp 2018). The potential effects from transponder placement, operation, and retrieval are limited to localized disturbance of the seabed.

As described in Section 2.3.3, the footprint of the ROV while working on the seafloor combined with the footprint of each transponder is approximately 5 m². As 13-17 transponders will be deployed, the total footprint for this activity is less than 100 m². This activity can lead to direct injury or mortality of sessile marine species living within this footprint, as well as indirect effects through the suspension or resuspension of sediment (refer to Section 6.1.3). However, the potential effects of this activity would be highly localized. The Project activities will also occur within special area such as the Northeast Newfoundland Slope marine refuge and a sea pen SiBA. Considering the highly localized nature of potential effects relative to the overall size of the special areas, the potential effects on habitat features would be minimal. Mitigations for transponder placement and recovery include avoidance of fauna and experienced operators. ROV operators will avoid corals and sponges during the placement of transponders where possible to minimize the harm to seafloor fauna. ROV operators will be experienced in deployment and recovery activities to minimize seabed disturbance by making efficient use of the ROV. The operation of transponders associated with the exploration drilling program was previously assessed in the bp Exploration Drilling EIS (bp 2018).

Commercial fishers will be notified of the location of the transponders through a "Notice to Mariners" and bp communication channels (e.g., newsletter, One Ocean). While there would be displacement of commercial fishers from the transponder areas while the Stena IceMax is on site, the area of avoidance would be small relative to available fishing areas. The well site is located in a marine refuge for which a prohibition on bottom contact has been established as a biological conservation measure, therefore no bottom contact fishing should occur in the area.

Due to the limited geographic and temporal scope of the transponder activities, the potential effects are predicted to be of negligible magnitude, short term, occur as a single event, and are reversible for Marine fish and Fish Habitat, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, and Fisheries and Other Ocean Users. The residual environmental effects of these activities on these VCs are predicted to be not significant. Transponder placement and recovery is not predicted to have any interactions with marine and migratory birds.

6.1.5. Biological and Physical Sampling (Vessel / ROV)

As discussed in Section 2.3.3, coral, sponge, and sediment sampling will take place from an ROV or the vessel, depending on the methodology chosen. The potential effects of biological and physical sampling include direct injury and mortality to marine fish and invertebrates, localized suspended sediments, and disturbance to the seabed. A range of methodologies is considered with overall sampling footprints <100 m² per deployment. For comparison, the area surveyed visually by the ROV at the Ephesus wellsite is approximately 169,120 m² (approximately 56 km of video was collected in the pre-drilling survey with an estimated field of view of 3.02 m; see Section 4.1.1). The areas impacted by these methodologies are a small fraction of the overall wellsite area. Sampling during the post-drilling survey would also occur in disturbed areas where drill cuttings are distributed. In addition to direct injury or mortality of sessile species living within the sediment sampling footprint, these methods can also suspend or resuspend sediment (Section 6.1.3). For ROV sediment sampling methods, operators will avoid corals and sponges during sampling where possible to minimize the potential effects on seafloor fauna.

The collection of biological samples (e.g., corals and sponges) will result in the direct removal of the collected fauna and disturb the seabed as well. The deep water corals and sponges found in offshore Newfoundland and Labrador are slow growing, sometimes on the scale of decades, and the replacement of specimens will be a slow process (Sherwood and Edinger 2009, Cordes et al. 2016). Depending if the individual is on a soft bottom or rock, there is the possibility of sediment suspension or damage to adjacent individuals. Few biological samples will be taken, likely 1-2 individuals of each functional group or taxa present at a given site and will be discussed with DFO in advance. Considering the low quantities of sampled corals and sponges relative to the observed densities (refer to Section 4.1.1), direct removal is unlikely to have effects on the overall population or functioning of the special area. Operators will avoid sampling in high-density areas of corals and sponges where possible to minimize the potential effects on seafloor fauna.

Based on the characterization of potential project interactions with all of the VCs, taking into consideration the limited geographic and temporal scope of the sediment and biological sampling residual environmental effects of these activities are expected to be low in magnitude, limited to the Study Area, short term, occur as a single event, and be reversible for Marine Fish and Fish Habitat, Marine Mammals and Sea Turtles, Species at Risk, and Special Areas. The residual environmental effects of the ROV sediment and biological sample collection on these VCs are predicted to be not significant. This sampling is not predicted to result in any interactions with marine and migratory birds or fisheries and other ocean users.

6.2. Accidental Events

Accidental events from Project activities including accidental hydrocarbon release are covered in the original EA (bp 2019). The increased temporal scope described in this document may increase the risk of certain accidental events, such as ice collisions (see Section 6.3). The potential activities that may cause accidental events, such as on-deck spills or diesel fuel spills, have not changed, and the increased risk from the environment are described in Section 6.3. Storm events and ice collisions can be avoided, and plans are in place to prevent any accidental events. The response to any events that may take place has not changed since the original EA and is considered in an oil pollution emergency plan (bp 2019). As the vessel has a very limited amount of hydrocarbons on board and emergency plans for spills will minimize any potential effects, an accidental spill, including a diesel spill from the survey vessel, from these additional activities are not predicted to result in a significant adverse environmental effect on Marine Fish and Fish Habitat, Marine and/or Migratory Birds, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, or Fisheries and Other Users. No additional mitigations are required.

6.3. Effects of the Environment on the Project

To monitor and assess effects of the physical environment, bp has developed and is implementing the bp Physical Environment Program Description (CN002-EN-PLN-600-00020). The effects of the environment on the Project have not been updated since the original EA (bp 2019). However, the activities described in this document include an expanded temporal scope from March to October relative to the originally described scope of May to October (see Section 5.2). This expansion earlier into the season may carry additional risks related to ice management, and storm events. As described in the original EA (bp 2019), extra-tropical storms dominate the wave climate of the Regional Area from October to March, though can occur outside of these months. This may produce high winds and associated waves, with the maximum combined significant wave height for the spring season identified as 11.7 m (bp 2019). This value is lower than that for autumn, and as such was accounted for in the original assessment. bp will contract a vessel capable of working in harsh offshore conditions, and will have the necessary equipment, protocols, and procedures in place to comply with the *Canada Shipping Act*, MARPOL, and any other applicable standards for the prevention of pollution, including a shipboard oil pollution emergency plan. Operations will be delayed/suspended if wind or wave conditions reach operating limits that could potentially affect the safety of operations and/or the quality of data collection.

The Study Area is subject to seasonal incursions of sea ice and icebergs from January to July, with the peak month for sea ice identified as March, and for icebergs from March to May (bp 2019). Interactions with ice can be hazardous for the vessel, as well as the mobile offshore drilling unit (MODU) if on site. bp's Ice Management Plan (CN002-CM-PLN-600-00020) reflects mitigations of avoidance or removing ice if the Stena IceMax is on site. Though the expanded temporal scope may increase the risk, interactions with ice were planned and accounted for in the original EA and Ice Management Plan. For 2023 planned operations, bp is monitoring sea ice and icebergs now present west and northwest of the well site area.

6.4. Cumulative Environmental Effects

The residual effects from Project activities may potentially interact cumulatively with the effects from other past, present, or likely future projects and activities in the Regional Area. These activities include other environmental surveys, geophysical programs, exploration drilling, fisheries, and vessel traffic. bp exploration drilling activities will occur following ROV sampling and monitoring and transponder placement. The environmental and acoustic monitoring program, and transponder activities will occur concurrently with exploration drilling activities. After the cessation of the drilling program, the moorings and transponders will be recovered, and post-drilling visual surveys and sampling will occur. Potential environmental effects of other exploration activities would also be the dominant source of light emissions, underwater noise, discharges, and seabed disturbance relative to the additional Project scope described here.

There would be an incremental increase in light, underwater sound, discharges, and seabed disturbance from the operation of a survey vessel, ROV activities, and environmental monitoring and sampling. Seabed disturbance of sampling activities would also be minimal relative to the burial associated with the discharge of drill cuttings. The vessel will also follow applicable guidance and standards for waste management and prevention of pollution as detailed in the original EA (bp 2019). There would also be an incremental increase in the potential for vessel collision with marine mammals and sea turtles and the attraction of marine and migratory birds. Existing mitigations for the project including vessel speed management and stranded seabird surveys would reduce potential cumulative effects. The contribution of the additional Project activities to potential cumulative effects would be negligible considering the short temporal scope and small geographic scope.

bp will communicate with fisheries stakeholders and other ocean users to mitigate potential conflicts. The limited temporal and geographic nature of the additional Project activities would limit overlap with commercial fishing and cumulative effects would be limited.

The residual cumulative effects of Marine Fish and Fish Habitat, Marine and/or Migratory Birds, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, or Fisheries and Other Users are predicted to be not significant with the application of Project-related mitigation and limited temporal and geographic scope of activities. No additional mitigation measures are required to mitigate Project environmental effects for addressing potential cumulative effects.

7. Health, Safety, and Environment Management

bp's health, safety, security, and environment (HSSE) goals are no accidents, no harm to people, and no damage to the environment. Safety is at the heart of everything bp does as a company, driven by leadership and applied across all operations throughout the operating management system framework. Everyone who works for bp is responsible for his or her safety and helps to ensure the safety of colleagues, partners, suppliers, and local communities.

bp's ability to be a safe and responsible operator depends, in part, on the capability and performance of its contractors and suppliers. bp's contract for this work will include clear and consistent information and setting out specific details of bp's expectations. Contracts are awarded following a selection process that takes into account factors such as safety, technical quality, and cost. Contractors and subcontractors (where applicable) are required to demonstrate conformance with bp's requirements including HSSE standards and mitigation commitments.

Table 7.1 summarizes the additional mitigation and monitoring that will be implemented to reduce environmental effects associated with the Project. Project activities will also adhere to mitigation and monitoring commitments described in the original EA (2019), the EA Update (bp 2022a), and the Letter of Determination (C-NLOPB 2019b). A report on mitigation and monitoring identified in this EA Amendment and undertaken during fieldwork will be submitted to the C-NLOPB within six months of completion of the field work.

Table 7-1 Mitigations and Monitoring Commitments

Interaction / Effect	Mitigation / Monitoring Commitment
Operation of a Survey Vessel	Mitigations and monitoring commitments are described in bp 2019 and 2022. No additional mitigations or monitoring commitments associated with the activities are required.
ROV Video Survey	
Effects on Marine Fish and Fish Habitat from transponder placement	ROV operators will avoid corals and sponges where possible during the placement of transponders and minimize the harm to seafloor fauna. Operators will be experienced in deployment and recovery activities to minimize seabed disturbance by making efficient use of the ROV.
Risk of Marine Mammal and Sea Turtle entanglement from environmental monitoring using moored equipment	Moored equipment will be designed and deployed with a heavy anchor weight and no excess line to minimize the risk of marine mammal entanglement. In the unlikely event that an animal is entangled, bp will contact the Canadian Coast Guard / DFO.

Effects on Marine Fish and Fish Habitat from seabed monitoring and sampling	Mitigations for sediment sampling include avoidance of fauna, biologist guidance, and experienced ROV operators (for ROV-based sampling). ROV operators will avoid corals and sponges where possible during sampling. Operators will be experienced in deployment and recovery activities to minimize seabed disturbance by making efficient use of the ROV
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8. Summary and Conclusions

bp is proposing to conduct an exploration drilling program on ELs 1168 and 1148 in the Orphan Basin offshore Newfoundland and Labrador. An initial well is planned in EL 1168 for 2023. bp is planning sampling and monitoring activities at planned drilling locations to characterize benthic conditions and support planning, mitigation, and monitoring of the drilling program. This EA Amendment provides an assessment of potential additional activities including mooring deployment and recovery, ROV support activities, and sediment, coral, and sponge sampling. The activities are anticipated to occur between March and October and are expected to take 7-15 days to complete.

The key effects from these activities include injury and mortality of fish within the localized Project footprints, localized suspended solids and disturbance to the seabed. The nature of potential effects from these routine activities would be highly localized and short term in nature. Considering the implementation of planned mitigations, the predicted residual effects and cumulative effects from routine and accidental effects are not significant for Marine Fish and Fish Habitat, Marine and/or Migratory Birds, Marine Mammals and Sea Turtles, Species at Risk, Special Areas, or Commercial and Indigenous Fisheries and Other Ocean Users. There is no requirement for follow-up monitoring of these activities.

Planning is underway for 2023 surveys and Indigenous groups, NL Fishers and other stakeholders will be consulted through existing communication channels which is planned for early March 2023. These consultations and communications will build upon the engagement efforts for the planned exploration drilling program and bp will continue to address potential questions and concerns as they arise.

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