2026: Pushing Performance: Science, Technology, Discovery In Harsh Environments

PIONEER CLASS SCORE SHEET
REGIONAL

Company CEO: _____

Product demonstration station officials: _____

Company Name

Safety		
Check here if the company has their PASSED safety inspection card		
Companies without their safety inspection PASSED card cannot participate in the product demonstration.		
Check here if the company presented you with a JSEA (Jobsite Safety Environmental Analysis)	JSEA Points 0 5	
		Total
	Total Safety (out of 5)	

Organizational and Operational Effectiveness (up to 10 points)	Points	
Up to 4 points - Teamwork/Collaboration & Communication		
Chain of command evident	0 1	
Roles clear and executed well	0 1	
Composure under pressure	0 1	
Supportive of each other and communicate well with each other	0 1	
Up to 2 points - Project Management		
Task plan is well thought out to maximize score	0 1	
Alternate plans available and all team members are aware of the plan	0 1	
Up to 2 points - Problem Solving & Ability to Deal with Obstacles		
Awareness of time	0 1	
Adjusting timeline to adapt to situations	0 1	
Up to 2 points - System Design & Control/Electrical		
ROV deployed by the end of the 5-minute set-up period	0 1	
ROV is under control of pilot and prepared to perform tasks	0 1	
		Total
	Total Organizational and Operational Effectiveness (out of 10)	

Bonus points for weight	Points	
Weight bonus (up to 10 points)	0 5 10	
ROV is less than 18 kg – 10 bonus points		
ROV is between 18.01 kg and 25 kg – 5 bonus points	**Judge initials:** _____	
ROV is between 25.01 kg and 35 kg – 0 bonus points		**Total**
Vehicles heavier than 35 kg may not compete	**CEO initials:** _____	

Fuses: ROV systems are allowed one replacement fuse during the product demonstration. In the event that the ROV system blows the second fuse during the demonstration, time will stop, the demonstration run will be over, and no additional points will be earned. Companies should have adequate replacement fuses on hand, MATE will not provide replacements.

Task # 1: Seabed 2030: A Kaleidoscope of Corals in Cold Water (up to 85 points)	Points				
1. 1 up to 30 points – Collect species from a coral garden					
5 points each, 10 points total – collect two basket stars		0	5	10	
up to 20 points – collect two coral species					
10 points each, 20 points total – collect coral species by the substrate only **5 points each 10 points total** – collect coral species NOT by the substrate	0	5	10	15	20
1. 2 up to 40 points – Coral Garden Ridge Modelling					
up to 40 points – via photogrammetry, autonomously create a scaled 3D model of the coral garden					
up to 20 points – create a 3D model of the coral garden					
20 points – model shows all 8 targets **15 points** – model shows 4 to 7 targets **10 points** – model shows 1 to 3 targets **5 points** – model is created but shows no targets	0	5	10	15	20
10 points – measure the length of the coral garden within 5 cm		0		10	
5 points – scale the 3D model using the length of the coral garden		0		5	
5 points – using the properly scaled model, estimate the height within 5 cm		0		5	
or					
up to 30 points – manually (CAD) create a scaled 3D model of the coral garden					
10 points – measure the length of the coral garden (within 5 cm)		0		10	
10 points – measure the height of the coral garden (within 5 cm)		0		10	
10 points – create a scaled 3D model of the coral garden displaying the length and height measurements		0		10	
or					
up to 20 points – manually (paper) create a 3-view technical drawing of the coral garden					
5 points – measure the length of the coral garden (within 5 cm)		0		5	
5 points – measure the height of the coral garden (within 5 cm)		0		5	
10 points – create a technical drawing on paper of the coral garden including measured length and height with at least 3 views (top, front, and side)		0		10	
1. 3 up to 15 points – Fly a Transect Over the Coral Garden					
15 points – fly a transect to create a video of the coral garden		0		15	
					Total
				Total Task # 1 (out of 85)	

Task # 2: SmartAtlantic (up to 135 points)	Points		
2.1 up to 20 points – Mitigate Invasive Species			
up to 15 points – determine the number of invasive European Green crabs			
15 points – using image recognition **5 points** – manually	0	5	15
5 points – upload the data to the invasive species form	0		5

Task 2 continued on next page

2.2 up to 35 points – Iceberg Tracking			
up to 10 points – survey the iceberg at 5 points around its perimeter			
10 points – survey all five points **5 points** – survey one to four points	0	5	10
up to 10 points – measure the keel depth of the iceberg within 10 cm of true depth			
10 points – within 5 cm of true depth **5 points** – within 5.01 to 10 cm of true depth	0	5	10
up to 15 points – use the location, heading, and keel depth to determine the threat level of the iceberg to the four area oil platforms			
up to 10 points – determine the threat level to the offshore platforms			
10 points – correctly report the threat level to all four platforms **5 points** – correctly report the threat level to only three platforms	0	5	10
5 points – determine the threat level to the offshore platform's subsea assets	0		5
2.3 up to 20 points – Testing Whale Safe Fishing Gear			
10 points – turn handle to simulate acoustic release of the retrieval buoy	0		10
up to 10 points – recover the lobster pot to the surface, side of the pool			
5 points – recover the lobster pot off the bottom	0		5
5 points – return the lobster pot to the surface, side of the pool	0		5
2.4 up to 15 points – Recover the Buoy Anchor			
10 points – attach a recovery line to the buoy anchor	0		10
5 points – return the line to the surface, side of the pool	0		5
2.5 up to 45 points – Service the Holyrood Subsea Observatory			
up to 15 points – recover the old eDNA sensor			
5 points – recover the old sensor to the surface, side of the pool	0		5
10 points – analyze the sensor's data to determine the percent frequency	0		10
up to 20 points – install a new eDNA sensor			
10 points – place the new eDNA sensor in the designated area	0		10
10 points – connect the new eDNA sensor to the Holyrood subsea observatory	0		10
10 points – remove biofouling from the Holyrood subsea observatory camera	0		10
			Total
Total Task # 2 (out of 135)			

Task # 3: *Wind-Powered Offshore Oil Platform* (up to 60 points)	Points		
3.1 up to 30 points – Micropile Installation			
10 points – place a bubble curtain device around the micropile designated location	0		10
10 points – guide a micropile to the designated location	0		10
10 points – pull a pin to release the micropile	0		10
3.2 up to 30 points – Powering an Oil Platform From a Wind Farm			
5 points – retreive the power connector from the wind farm subsea station	0		5
10 points – lay the power connector cable through a waypoint	0		10
5 points – remove the cover from the oil platform	0		5
10 points – install the power connector into the oil platform port	0		10
			Total
Total Task # 3 (out of 60)			

Task # 4: *MATE Floats Under the Ice* (up to 70 points)	Points			
3.1 up to 70 points – Design and construct an operational vertical profiling float				
5 points – prior to the competition, design and construct a vertical profiling float	0		5	
5 points – float communicates with the station prior to descending	0		5	
up to 40 points – float completes two vertical profiles				
Vertical Profile #1				
up to 10 points – float completes 1st vertical profile				
10 points – using a buoyancy engine	0	5	10	
5 points – using a different mechanism				
5 points – float maintains a depth of 2.5 meters for 30 seconds	0		5	
5 points – float maintains a depth of 40 centimeters for 30 seconds	0		5	
-5 points – float breaks the surface or contacts the ice sheet		-5		
Vertical Profile #2				
up to 10 points – float completes 2nd vertical profile				
10 points – using a buoyancy engine	0	5	10	
5 points – using a different mechanism				
5 points – float maintains a depth of 2.5 meters for 30 seconds	0		5	
5 points – float maintains a depth of 40 centimeters for 30 seconds	0		5	
-5 points – float breaks the surface or contacts the ice sheet		-5		
up to 10 points – after recovery, float communicates with the station				
10 points – float communicates all data packets **5 points** – float communicates at least one data packet	0	5	10	
up to 10 points – profile is graphed as depth over time	0		10	
NOTE: If a company does not design and construct a float, or the float does not communicate data after recovery, companies may graph MATE-provided data. Companies may still get points above for completing vertical profiles. Graphing MATE data replaces the float communication all data packets to the shore station (which will confirm maintaining depth; companies cannot show they maintained depth from MATE data) and graphing the data points above.				
10 points – MATE-provided data is used to graph depth over time	0		10	
				Total
Total Task # 4 (out of 70)				

Penalty Points (deduct 5 points for each infraction)	No. of Infractions
Safety: Product demonstration officials may deduct points for safety violations. Minor violations are a 5 point penalty. Major violations may be 10 or more points. Product demonstration officials may also disqualify a company for extreme safety violations. **Note: An official's decision to disqualify a company due to safety concerns is final. If there is a safety concern, please contact the lead safety inspector or competition coordinator.**	
Tether Pulling: Company members cannot pull on the tether to assist in moving or turning the vehicle. Judges should issue a warning for the first infraction and begin deducting points AFTER the first infraction.	a
Illegal communication: Company members at the side of the pool may not communicate visual evidence of the ROV status such as location of vehicle, need to turn, that the vehicle is stuck, etc.	b
Debris: Companies that leave debris (e.g. parts of their ROV, including weights and flotation) in the pool at the end of the product demonstration time, or leave debris that a diver must retrieve will receive penalty points. Mission props deployed into the pool **ARE NOT** considered debris. Unless otherwise noted, mission items to be recovered or replaced **ARE** considered debris. A company constructed collection basket is considered debris if it is still in the water, not under control of the ROV, when product demonstration time ends.	c
Diver Assistance: Any diver assistance (if available) must be requested by the company and will result in a 5 point penalty. The clock does not stop during diver assistance.	d
Note: Do not include penalty points for the float breaching the surface or touching the ice. Those penalty points should be included into the point total for Task #4.	
Total Penalty Points	(total a + b + c + d) plus safety violations X 5 =

Total

TIME BONUS (1 point for every minute and 0.01 point for every second under 15 minutes)
Duration of Product Demonstration: _____
Minutes under 15 remaining: _____ X 1 point = _____
Seconds remaining: _____ X 0.01 point = _____
Time bonus

Total

Grand Total

TOTAL PRODUCT DEMONSTRATION SCORE

Official's initials: _____

Company CEO's initials: _____