2026 SeaPerch NWFL Regional Competition Guidelines

All rules for the Regionals competition are adapted from the Internationals rules found on the SeaPerch official website, https://seaperch.org/2026-challenge/. While events and rules are similar to those of the International competition, this document may contain differences and will serve as the final authority for rule-related questions for this competition.

The 2026 NWFL Regional Competition is composed of three scoring events:

- Technical Design Report (Online Submittal)
- Obstacle Course (In-Person Pool Event)
- Mission Course (In-Person Pool Event)

Each event will be scored in accordance with the corresponding score card found at the end of this document. Scoring will be divided into Stock Middle School, Stock High School, and Open Class categories, with winners in each division. A team in one division may compete at the same time as a team in another division, but scores will be tallied separately for final judging.

Sportsmanship is always expected. Should a protest or dispute occur during the competition, grievance will be resolved by the lead judge, and their decision is final.

Unsportsmanlike conduct will be grounds for disqualification of a team. Team members and advisors are responsible for the conduct of all members and adults accompanying the team.

Course Change

The 2026 NWFL Regional Competition will have a main course difference.

Found at https://robonation.gitbook.io/seaperch-challenge-resources/2026-course-build-guide we are unable to suspend our courses like the international competition.

Vehicle Design Rules

Teams are encouraged to think outside the box and change the shape and configuration of their SeaPerch ROV, within the constraints of the following rules.

Stock Class

Vehicles shall consist of the parts and components contained within the equivalent of one Sea Perch Kit, with the following additional rules.

Budget

- ROV meets maximum $25, parts are evaluated at full value (not donated) budget limit for modifications. Proof of budget compliance ready upon request.
- Budget includes any modification that is made to the competing ROV and controller.
- 3D printed parts will be evaluated at $0.02 per gram, please have an image of the parts on a scale available.

Materials

- Frame built using only PVC, CPVC, PEX pipe and fittings. Any size pipe and pipe fittings may be used.
- Pipes and pipe fittings may be modified using hand and power tools, but may not be machined using CNC or other automated processes.
- Attachments and **non-frame** parts (i.e., hook, gripper, propeller shroud) may be made from various materials to include 3D printed or additive manufactured parts.
- Any part not made PVC, CPVC, PEX **must not** be structural to the frame. If the part is removed the frame should maintain structural integrity and not fall apart.

Power Supply

- Must design for and utilize a 12-volt power source.
- May utilize a second power source (no more than 12-volts) to power auxiliary equipment

Motors

- ALL motors must be waterproofed.
- Must use ONLY 3 stock SeaPerch motors for propulsion (Jameco Electronics 232022).
- Additional non-stock motors may be used for non-propulsion uses.

Controllers

- May ONLY use simple on/off switches for thruster motor controls.
- May use power conditioning or pulse-width modulation (PWM) controls for non-thruster controls.
- May use a fixed or variable resistor to reduce voltage

Open Class

Budget

- ROV modification costs may exceed $25.

Materials

- Frame may include 3D printed or additive manufactured parts as well as other materials, and may be made using CNC machinery or other automated processes.
- Attachments and non-frame parts (i.e., hook, gripper, propeller shroud) may be made from various materials to include 3D printed or additive manufactured parts.

Power Supply

- Must design for and utilize a 12-volt power source.
- May utilize a second power source (no more than 12-volts) to power auxiliary equipment

Motors

- All motors must be waterproofed.
- Must use ONLY stock SeaPerch motors for propulsion (Jameco Electronics 232022).
- Additional non-stock motors may be used for non-propulsion uses.
- May include more than 3 thrusters (i.e., motor and propeller assembly)

Controllers

- May use power conditioning or pulse-width modulation (PWM) controls for thruster motor controls.
- May use power conditioning or pulse-width modulation (PWM) controls for non-thruster controls.
- May use a fixed or variable resistor to reduce voltage

Competition Events

The competition will consist of three different events (two in the pool and one online submittal):

1. Technical Design Report (Online Submittal)
2. Obstacle Course
3. Mission Course "Coral Restoration"

After registration, teams will be assigned competition time slots for the in-pool challenges. Teams are expected to arrive no later than 30 minutes before their first assigned competition time to sign in and have compliance checks completed.

A campus map and more details of the locations will be sent out before the competition. It is important that while on campus grounds, all students and teachers remain respectful of the university classes occurring and stay quiet (especially in classroom halls).

Upon arrival on competition day, all teams must report to the registration desk to check in and complete compliance checks. Each team's vehicle will be checked for design rules and will be issued two pool pass wristbands upon passing inspection. Without wristbands you will not be allowed to compete in the pool events. If your team wishes to change ROV operators/cable handlers, you must return to compliance prior to your competition time to switch wristbands to the new operators.

Teams shall bring all the components necessary for their ROV to function: the ROV, controller, battery, tether, etc. No spares will be available! Ensure the battery is fully charged prior to competition day – availability of power outlets will be limited. There will be a Triage booth available with soldering stations and some parts, but it is advisable to bring your own spare parts in case demand exceeds supply.

General Pool Event Rules

All team members must wear shoes with rubber soles on the pool deck. No running, and obey all lifeguard instructions.

Each pool event will have a different assigned time slot, and it is important to check in at the designated area 10 minutes prior to your listed start time. Only team members with wristbands will be allowed on the pool deck, and each team will only have two wristbands at a time. Wristbands can be exchanged at the compliance booth if a new team member wishes to compete for your second event.

During either event, if the vehicle's tether becomes entangled on the course structure, or the vehicle is otherwise unable to move under its own power, teams may notify their lane judge that they require diver assistance. The lane judge will pause the timer, and a diver will free the ROV and return it to the same position it was in before becoming stuck.

Each competitor will have up to 10 minutes to complete their runs. When time is called, teams must recover their ROV as quickly as possible. The tether may be pulled, and diver assistance may be used to recover vehicles at this time. No penalties will be incurred after time is called. Students will have up to 2 attempts at the obstacle course in this 10-minute period, ending a run early will count as an attempt.

ROV, Spare Parts, and Adjustments

- The team must use the same ROV presented at compliance for both pool events.
- Each team must have their own ROV, they may not share.
- Teams are not allowed to share attachments.
- Spare Parts are allowed, spare ROV's are not.
- Adjustments to buoyancy during a run is allowed, but the timer will not be paused.
- Any changes made to the ROV (other than what is fixed at the triage station) must be cleared at the compliance booth.

Auxiliary Equipment, Batteries, Power Supplies

- Teams must provide their own battery for the ROV, battery limited to one 12VDC, 9Ah max battery no larger than standard SeaPerch battery.
- All battery alligator clips MUST be covered with their red and black plastic covers. If they are not covered, this represents a serious safety hazard and will result in the team's disqualification.

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Diver Assistance and ROV Tether Handling

- The ROV must only move under its own power, teams will incur a 2-minute penalty if they pull or otherwise maneuver the ROV by the tether.
- If the ROV or tether becomes tangled on the course structure or is otherwise unable to move on its own power. A team member may notify the lane judge that they would like to request diver assistance to free the ROV. The diver will untangle the ROV and return it to the same position, a 2-minute penalty will be added to the run. Divers can also untangle to ROV and return it to the pool deck to end the current run.

On Deck

- Only two student team members wearing wristbands are allowed on deck at a time. No others are allowed in the competition area unless prior arrangements have been made to accommodate special needs.
- During their run, teams may switch drivers between the two members with wristbands at any time and as many times as they choose.
- All team members must be wearing shoes with rubber soles while on the pool deck.
- Teams are not allowed to move their ROV into other lanes for any purpose.

Technical Design Review (Online Submittal)

The Technical Design Report requires the team to describe the intentional design process the team used for the SeaPerch ROV. It should cover (at a minimum) the following within 5 pages (excluding Acknowledgments, References, and Appendices).

This must be submitted to the judges 1 week before competition.

Abstract

- Limited to ½ page.
- Includes a robust overview of the report.
- Robust discussion of unique design and processes used.

Task Overview

- Limited to ½ page.
- Robust discussion of all tasks for both courses.
- Robust, detailed discussion of design justification.

Design Approach

- Limited to 2 pages.
- Robust discussion of team's strategy of the Engineering Design Process.
- Robust discussion and analysis of the teams design iterations.
- Includes high-quality graphics with context and labels that enhance the report.
- Robust discussion of final design features and decisions with supporting justification.
- Robust discussion and analysis of novelty of ROV design and approach.
- Includes 5+ "engineering terms" in the text that include context and enhance the report.

Experimental Results

- Limited to 1 page.
- Robust discussion and analysis of testing.
- Robust discussion and thorough analysis of testing impacts on design iterations.
- Robust analysis of test results supported by graphs/charts/mathematical analysis.

Reflection and Next Steps

- Limited to 1 page
- Robust/Thoughtful reflection and analysis of the design process.
- Robust overview of detailed future plans for ROV and team.

Acknowledgments

- Supporters recognized in the report.

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References

- Follows APA format.
- At least 4 references are cited in the report text.

Budget

- Section included in report.

Writing Skill

- Report is concise, cohesive, and easy to understand.
- No spelling/grammatical errors.

Paper Format

- Meets all formatting guidelines.

Obstacle Course (Pool Event)

The Obstacle Course Consists of five 18" hoops oriented at different angles and tests high-speed maneuverability and requires your SeaPerch to navigate the course as quickly as possible. Please note, there is no guarantee of the position of the hoops when the course is deployed in the pool.

Teams are required to traverse each of the hoops, surface, and return through the hoops in the reverse order. The fastest elapsed time wins.

Rules and Scoring

1. Teams will be given up to two run attempts during a 10-minute competition period.
2. Teams may start their second run immediately after completing their first run but must wait for the judge to reset the stop watch and give the start signal.
3. Teams may abort their first run at any time without completing the course if they are experiencing problems and want to ensure they have enough time for a second run.
4. **Course Navigation**
    a. *Start of run:* The ROV must be surfaced, within 6" of the wall, and under its own power. Team members are not allowed to touch the ROV after the lane judge starts the countdown to start the run.
    b. The ROV is required to pass through each of the five obstacle course hoops in order, starting at the hoop closest to the pool wall. The ROV must surface after clearing the hoop furthest from the pool wall. Surfacing is considered complete when any part of the ROV breaks the water surface. The ROV must then pass through each of the five hoops in reverse order heading back to the pool wall.
    c. *End of run:* Time is stopped when the ROV touches the pool wall while surfaced. The run will be aborted if the allotted 10 minutes expires even if the ROV has not completed the course.
5. **Scoring**
    a. The total run time, including any incurred time penalties, will be used to determine final rankings.
    b. Any ties will be broken by the faster time in the team's secondary run.

Mission Course (Pool Event)

The 2026 Mission is based on the following scenario. A powerful storm swept through, leaving behind damaged infrastructure, disrupted communications, and environmental hazards. Vehicles are deployed to demonstrate how coordinated action can turn disaster into resiliencePlanting nursery-grown corals back onto reefs.

- Assessment & Discovery: Vehicles are deployed to inspect bridges, dams, and communication nodes, gathering the critical information needed to understand the scope of damage.
- Recovery & Repair: Vehicles work to reconnect power and communication lines, stabilize dam structures, and clear debris to restore safety and functionality. Yet recovery is not only about rebuilding what was lost; it's also about protecting the future.
- Environmental & Public Safety: Vehicles conduct water sampling to ensure safe drinking supplies and rescue displaced wildlife, underscoring the responsibility to restore balance for both communities and ecosystems. The Mission includes the following tasks:

The course this year involves using your SeaPerch ROV to simulate the tasks and environment that an ROV might encounter when working in disaster situations. Specific tasks include:

1. **Inspect the Bridge**: Due to floodwaters, the bridge supports could be damaged, creating unseen underwater hazards that need inspection. The ROV must navigate bridge supports, retrieve the red marker float, repair the support beam, and release the green marker float.

2. **Survey the Dam**: To prevent any further flooding or damage, the dam needs to be surveyed and repaired to identify any cracks or failures. The ROV must move the plug to the hole in the dam, and rotate the cover to close the flood gate.

3. **Clear the Debris Field:** Floodwaters bring hazardous debris that can obstruct waterways and ecosystems. The debris needs to be cleared to allow for safe navigation and environmental recovery. The ROV must relocate the displaced marine life, and remove the heavy submerged debris.

4. **Sample Water Quality:** The flooding may have contaminated the water supply and needs to be tested before normal activities can resume. The ROV must retrieve the water sampler and return it to the Surface Vessel.

Task 1: Inspect the Bridge (26 Points Possible)

Task 1.1: Retrieve the red marker float, and hook on the back right bridge pillar.

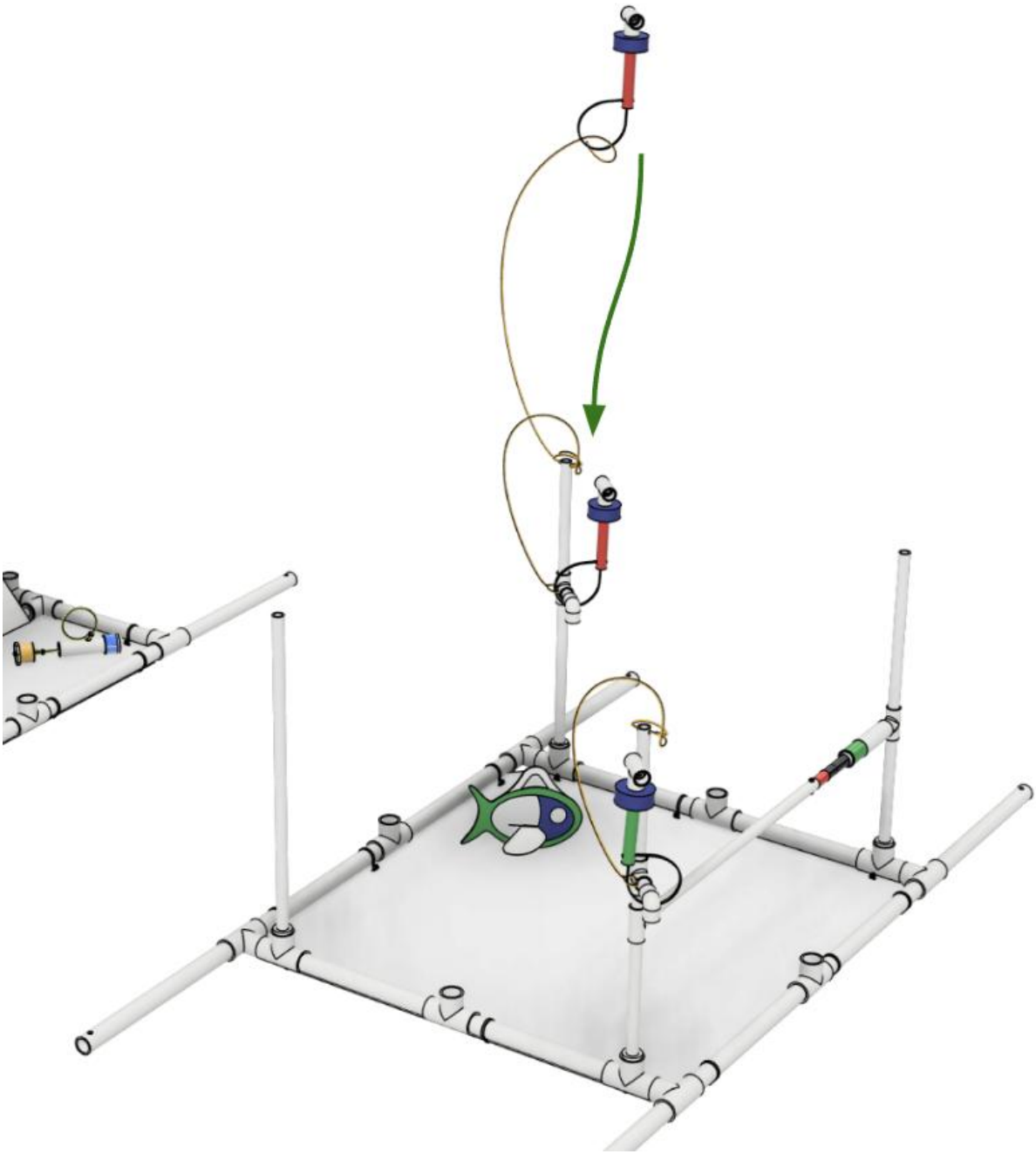


Figure 1: Task 1.1

Task 1.2: Slide the cover pipe to the left to fix the support beam.

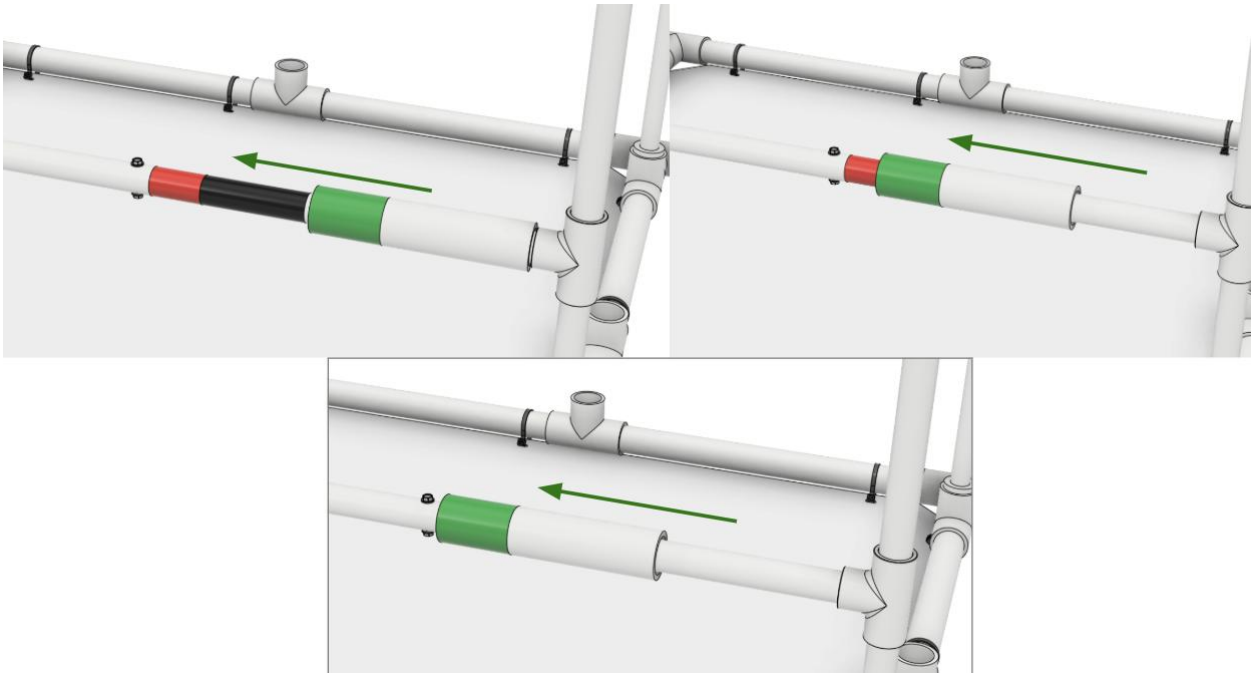


Figure 2: Task 1.2

Task 1.3: Release the green marker float at the front left bridge pillar.

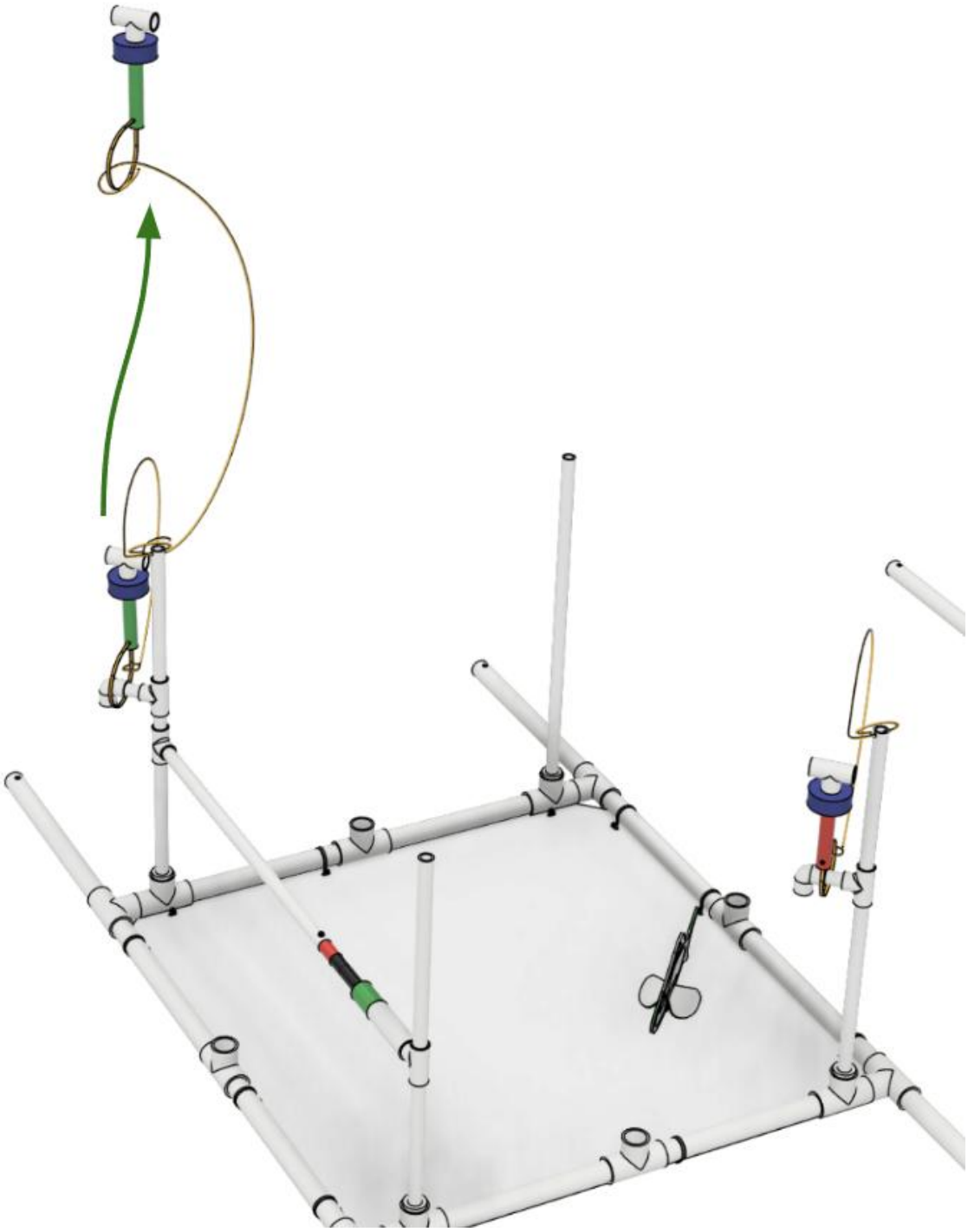


Figure 3: Task 1.3

Task 1 Scoring:

- Ten (10) points: Hook red marker float on the right rear bridge pillar
- Two (2) points: Partially slide cover pipe onto red stripe (2)
- Six (6) points: Fully slide cover pipe completely covering red stripe (6)
- Eight (8) points: Release green marker float (8)

Task 2: Survey the Dam (24 Points Possible)

Task 2.1: Lift and place the plug in the hole on the slanted dam wall.

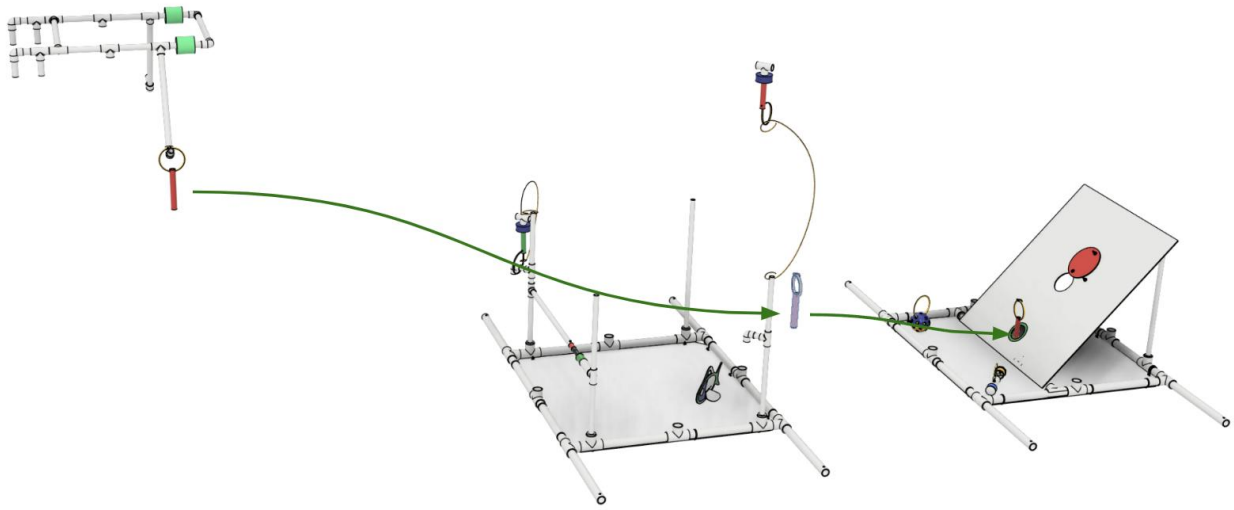


Figure 4: Task 2.1

Task 2.2: Rotate the flood gate cover to close the flood gate.



Figure 5: Task 2.2

Task 2 Scoring:

- Four (4) points: Remove plug from Surface Vessel
- Twelve (12) points: Place plug in hole on slanted dam wall
- Eight (8) points: Rotate flood gate cover closed

Task 3: Clear the Debris Field (38 Points Possible)

Task 3.1: Retrieve and place marine life on the Back Platform.

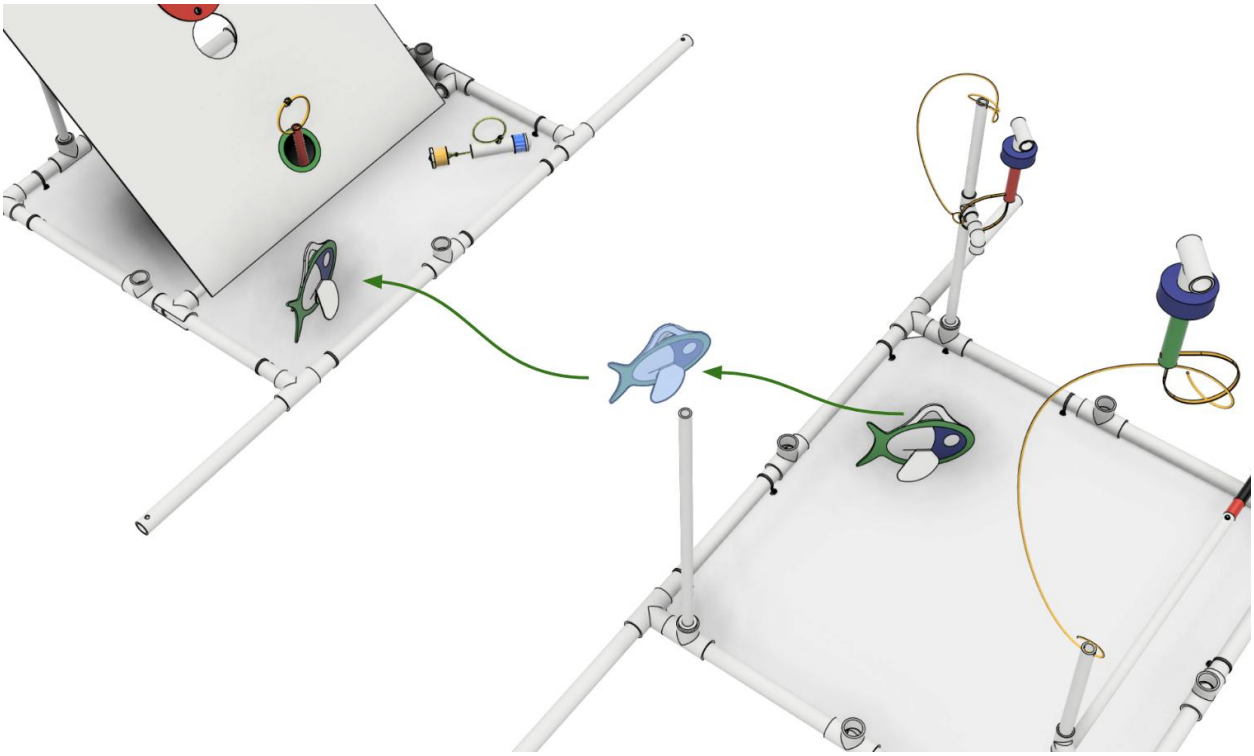


Figure 6: Task 3.1

Task 3.2: Lift heavy piece of submerged debris.

Task 3.3: Place heavy piece of submerged debris on a hook on the Surface Vessel.

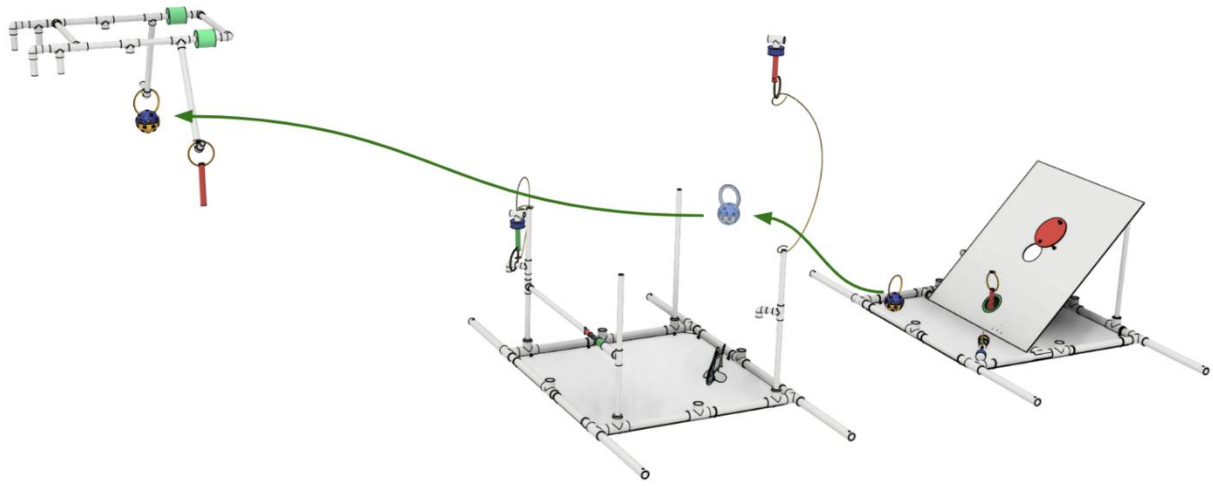


Figure 7: Task 3.2 and 3.3

Task 3 Scoring:

- Four (4) points: Remove marine life from platform
- Eight (8) points: Place marine life on back platform
- Six (6) points: Remove heavy piece of submerged debris from back platform
- Twenty (20) points: Place heavy piece of submerged debris on hook on surface vessel

Task 4: Sample Water Quality (12 Points Possible)

Task 4.1: Lift and close the water sampler, positioned on the Back Platform

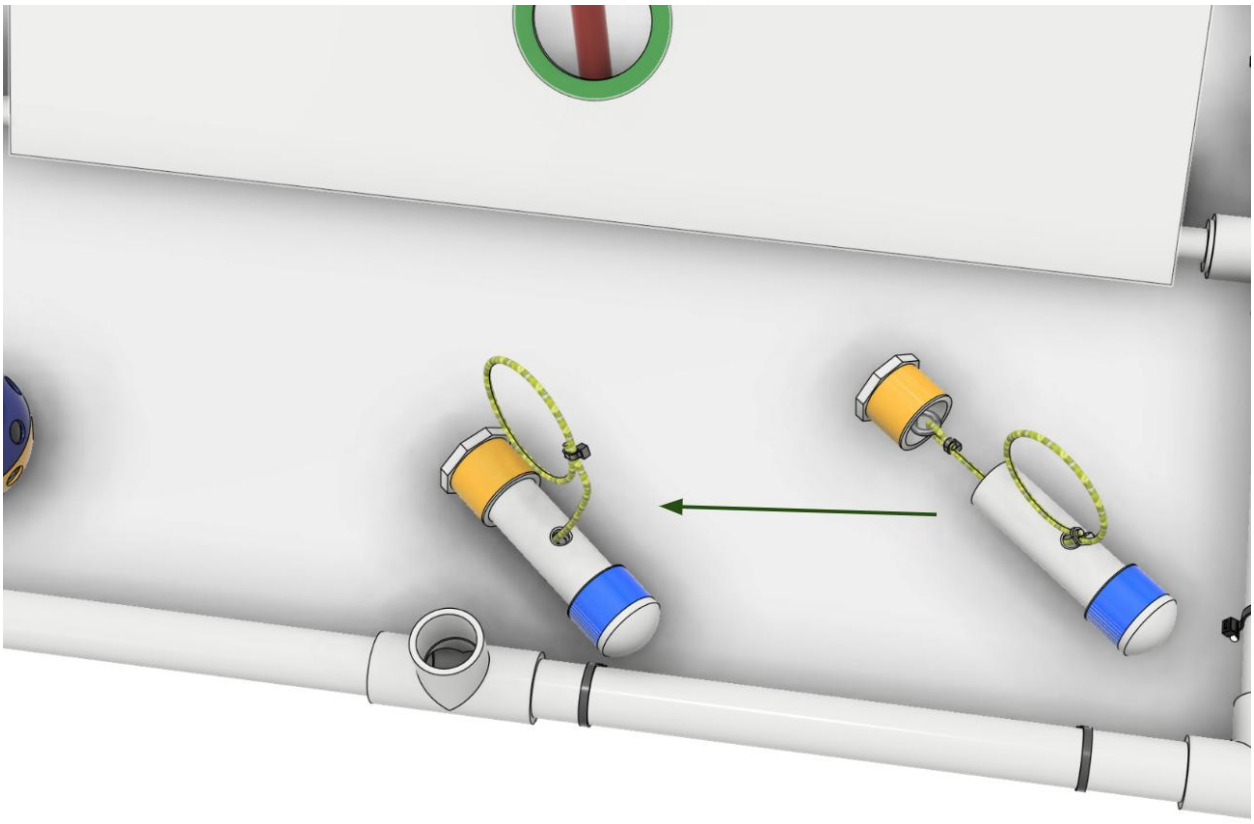


Figure 8: Task 4.1

Task 4.2: Place water sampler on a hook on the Surface Vessel

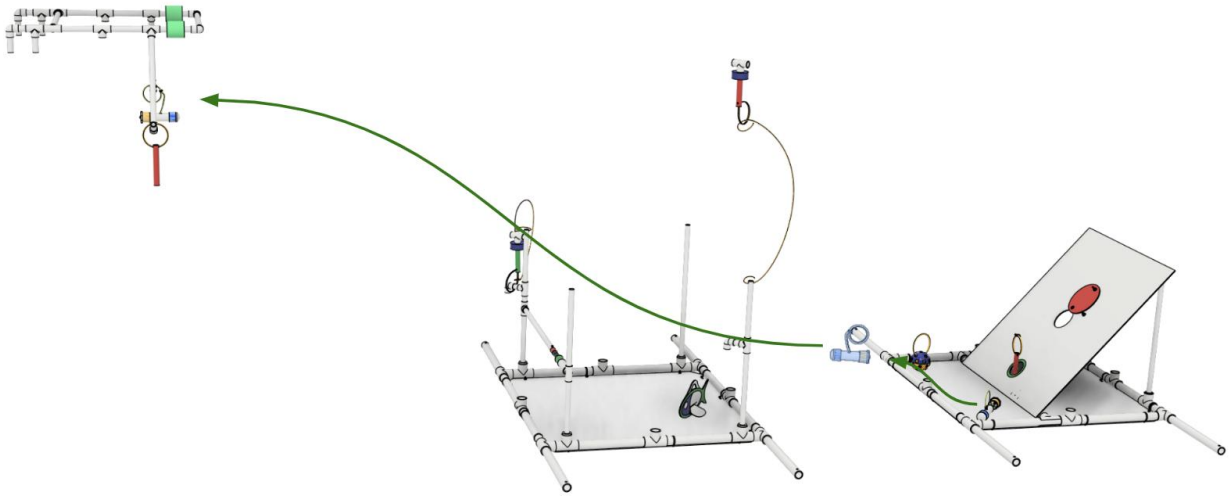


Figure 9: Task 4.2

Task 4 Scoring:

- Four (4) Remove water sampler from back platform
- Eight (8) points: Place water sampler on hook on surface vessel

Rubrics

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Technical Design Report – Scoring Rubric (2026 Season)

Technical Design Report Scoring Rubric

2026 International SeaPerch Challenge https://seaperch.org/

Scoring Guidelines:
Missing Components *(0 points)* Requirements missing does not meet minimum requirements.
BASIC ***(2 points)*** Meets basic requirements. Average. (60-75%)
SATISFACTORY ***(3 points)*** Meets all requirements with additional content. (85%) Above Average.
ROBUST ***(4 points)*** Exceeds requirements with additional content, material, formatting. Superior (95%)

TOTAL SCORE: _____

TEAM: _____

JUDGE: _____

1. Abstract	0	1	2	3	4	Points
Limited to ½ page	Exceeds page limit.		Within page limit.			
Report summarization	Does not summarize main points of the report.		Includes a basic overview of the report.		Includes a robust overview of the report.	
Unique ROV design and/or design process	No discussion of ROV design or process.		Basic overview of design and/or process with some focus on unique traits.		Robust discussion of unique design and process.	
					TOTAL **ABSTRACT** SCORE (10 POINTS MAX (of 100)):	

2. Task Overview	0	1	2	3	4	Points
Limited to ½ page	Exceeds page limit.		Within page limit.			
Overview of the competition tasks	No overview of competition tasks.		Basic overview of obstacle or mission course.		Robust discussion of all tasks for both courses.	
Design approach justification	No discussion of task influence on design.		Basic discussion of how tasks impacted design.		Robust, detailed discussion of design justification.	
					TOTAL **TASK OVERVIEW** SCORE (10 POINTS MAX (of 100)):	

3. Design Approach	0	1	2	3	4	Points
Limited to 2 pages	Exceeds page limit.		Within page limit.			
Team's approach to the engineering design process (EDP)	No overview of team approach to EDP.		Basic discussion of team's approach to EDP.		Robust discussion of team's strategy to EDP.	
Design iterations	No discussion of design iterations.		Basic discussion of design iterations.		Robust discussion and analysis of design iterations.	
Conceptual drawings and/or graphics	No drawings or graphics.		Includes graphic(s) with basic context within report.		Includes high-quality graphics with context and labels that enhance the report.	

Final design	No discussion of final design.		Basic discussion of final design features.		Robust discussion of final design features and decisions with supporting reasons.	
Novelty of ROV design or approach	No discussion of design or approach novelty.		Basic discussion of design or approach mentions novelty.		Robust discussion and analysis of novelty of ROV design and approach.	
Scientific and engineering terms	No engineering terms.		Includes 2-4 engineering terms.		Includes 5+ engineering terms in text that include context and enhance the section.	
					TOTAL **DESIGN APPROACH** SCORE (26 POINTS MAX (of 100)):	

4. Experimental Results	0	1	2	3	4	Points
Limited to 1 page	Exceeds page limit.		Within page limit.			
In-water and/or simulated testing overview	No discussion of testing.		Basic overview and/or discussion of testing conducted.		Robust discussion and analysis of testing models utilized.	
Impact of testing on subsequent designs	No discussion of testing impact on design.		Basic discussion of how multiple designs were impacted by testing.		Robust discussion and thorough analysis of testing impact on multiple design iterations.	
Test results	No test results included.		Basic discussion of test results.		Robust analysis of test results supported by graphs and charts.	
					TOTAL **EXPERIMENTAL RESULTS** SCORE (14 POINTS MAX (of 100)):	

5. Reflection & Next Steps	0	1	2	3	4	Points
Limited to 1 page	Exceeds page limit.		Within page limit.			
Reflection on the design process	No reflection on the design process.		Basic reflection on the design process.		Robust/thoughtful reflection & analysis of the design process.	
Next Steps	No discussion of next steps.		Basic discussion of next steps for ROV and/or team.		Robust overview of detailed future plans for ROV and team.	
					TOTAL **REFLECTION & NEXT STEPS** SCORE (10 POINTS MAX (of 100)):	

6. Acknowledgements	0	1	2	3	4	Points
Acknowledgement of support	Not included in report.				Supporters recognized in report.	
					TOTAL ACKNOWLEDGEMENTS SCORE (4 POINTS MAX (of 100)):	

7. References	0	1	2	3	4	Points
References follow APA format	Does not follow APA format.				Follows APA format.	
Includes references to support report	No references or citations.		2 references are cited in the report text.		At least 4 references are cited in the report text.	
					TOTAL **REFERENCES** SCORE (8 POINTS MAX (of 100)):	

8. Budget	0	1	2	3	4	Points
Includes itemized budget	Section not included in report.				Section included in report.	
					TOTAL **BUDGET** SCORE (4 POINTS MAX (of 100)):	

9. Writing Skills	0	1	2	3	4	Points
Organization and Readability	Report is inconsistent and difficult to follow. Organization severely impacts readability.		Report is easy to follow with some graphics. Each section includes organized discussion.		Report is concise, cohesive, easy to understand and supported by context and graphics.	
Spelling and Grammar	Significant spelling or grammatical errors (5+)		Several spelling or grammatical errors (2-3)		No spelling or grammatical errors.	
					TOTAL **WRITING SKILLS** SCORE (8 POINTS MAX (of 100)):	

10. Paper Format	0		3		6	Points
Follows all formatting guidelines: 5 pages max (excluding sections 6-7 and appendices) Page size: 8.5"x11" Margins ≥ 0.8 in. Times New Roman 12pt Single Spaced Header or Footer with team name and page # on all pages	Does not meet all formatting guidelines. Exceeds 5 pages.		Meets most formatting guidelines.		Meets all formatting guidelines.	
					TOTAL **PAPER FORMAT** SCORE (6 POINTS MAX (of 100)):	

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Pool Course Scoresheet – Mission Course

2026 International SeaPerch Challenge https://seaperch.org/

TOTAL SCORE: _____

Maximum 110 points. Score is not official until verified by master scorekeeper

JUDGE NAME	_____	**TEAM #**	_____
LANE # / TIME:	_____	**TEAM NAME**	_____
REVIEW INITIALS	_____	**ORG / SCHOOL**	_____
Team member to initial after verifying times		**CLASS / DIVISION**	

Task Description & Scoring Guidelines	Points Earned
TASK 1: Inspect the Bridge	
☐ Hook red marker float on the right rear bridge pillar (10)	
☐ Partially slide cover pipe onto red stripe (2)	
☐ Fully slide cover pipe completely covering red stripe (6)	
☐ Release green marker float (8)	*Max. 26 points*
TASK 2: Survey the Dam	
☐ Remove plug from Surface Vessel (4)	
☐ Place plug in hole on slanted dam wall (12)	
☐ Rotate flood gate cover closed (8)	*Max. 24 points*
TASK 3: Clear the Debris Field	
☐ Remove marine life from front platform (4)	
☐ Place marine life on back platform (8)	
☐ Remove heavy piece of submerged debris from back platform (6)	
☐ Place heavy piece of submerged debris on hook on surface vessel (20)	*Max. 38 points*
TASK 4: Sample Water Quality	
☐ Remove water sampler from back platform (4)	
☐ Place water sampler on hook on surface vessel (8)	*Max. 12 points*
Finish Time: *(Enter actual stopwatch time)*	_____: _____:_____ (M) (S) (1/100)
Bonus Points *awarded* ***only if all tasks are completed.***	
Finish time less than: ☐ 4 minutes (10) ☐ 6 minutes (5)	*Max.10 points*

Notes: _____

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Pool Course Scoresheet – Obstacle Course

2026 International SeaPerch Challenge https://seaperch.org/

JUDGE NAME		**TEAM #**	
LANE # / TIME:		**TEAM NAME**	
REVIEW INITIALS		**ORG / SCHOOL**	
Team member to initial after verifying times		**CLASS / DIVISION**	

Run 1	**Run 2**
☐ **Course completed**	☐ **Course completed**
Finish Time: *(Enter actual stopwatch time)*	**Finish Time:** *(Enter actual stopwatch time)*
_____: _____:_____ (M) (S) (1/100)	_____: _____:_____ (M) (S) (1/100)
	Best Time: _____: _____:_____ (M) (S) (1/100)

Notes: _____

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