SeaPerch International Challenge
SeaPerch West Asia 2026

United Arab Emirates
February 8-10, 2026

HANDBOOK

Version 1: November 2024

Introduction

Welcome to the West Asia SeaPerch Challenge!

This Team Handbook contains information that teams need to compete at the West Asia SeaPerch Challenge. It includes task descriptions, rules and requirements, and other guidance and specifications. Teams are encouraged to read this document for a thorough understanding of what is necessary to compete effectively.

What is SeaPerch Challenge?

The annual SeaPerch Challenge is an invitation-only event open to teams that excel at registered regional competitions and earn a slot to compete in the season's culminating event.

On land, teams show off their engineering skills through technical papers and presentations. In the pool, they navigate their SeaPerch remotely operated vehicle (ROV) through a series of obstacles inspired by the real world that test maneuverability, control, and utility. Each season has a new theme and a new set of competition tasks, challenging teams to expand on their original vehicle design.

Beyond the friendly rivalry, all competitions bring students together from different schools, states, and countries to form a supportive community.

Why compete in SeaPerch Challenge?

The goals of the RoboNation student competitions are to provide opportunities for students to experience real-world engineering challenges and to develop the skills needed to solve those challenges. The objective is to produce the people who will push the envelope in the future.

The nominal winners are those teams that have scored the most points. The real winners are all those participants who have learned something lasting about working together to create an autonomous system that accomplished a challenging mission in a complex environment.

International SeaPerch Challenge Organizer

West Asia SeaPerch Challenge Organizers

Table of Contents

2026 West Asia SeaPerch Challenge

Contents

SECTION 1: Competition Overview

2026 International SeaPerch Challenge

1.1. Dates & Venue

The 2026 West Asia SeaPerch Challenge will be conducted in February 8-10, 2026, at Sharjah Maritime Academy, UAE.

1.2. Competition Structure

The West Asia SeaPerch Challenge includes:

1. Pool Competition which demonstrates high-speed maneuverability, navigation, and object manipulation. It includes mission course and obstacle course.
2. Design Documentation that presents each team's work and vehicle design. It includes some items clarified in other sections.On-site Pitching for each team to present their work and experience and to practice their presentation skills.

1.3. 2026 Theme

Storm Response: Technology in Action for Recovery and Relief. Storm Response explores the power uncrewed systems play in recovery, resilience, and discovery in disaster relief efforts. Framed as an opportunity, not just to restore what was lost, but to rebuild smarter and reimagine the future; this season's challenges reflect the real-world role of robotics in helping communities respond to and recover from storms and other natural events. Through hands-on missions grounded in post-disaster scenarios, teams will apply technology with purpose – restoring harbor operations, assessing underwater infrastructure, supporting exploration, and unlocking new possibilities.

1.4. Season Schedule/Timeline

Date	Event
November 1, 2025	2026 SeaPerch West Asia Challenge registration starts
January 25, 2026	2026 SeaPerch West Asia Challenge registration ends
January 10, 2026	Design Documentation Submission
February 8-10, 2026	2026 West Asia SeaPerch Reginal Challenge In-Person Event
May 30-31, 2026	2026 International SeaPerch Challenge In-Person Event

1.5. Eligibility & Qualification

Elementary School, Middle School, and High School students are eligible to compete.

1.5.1. Qualifying at Regional Competitions

Compete and win in a regional competition to qualify for the International SeaPerch Challenge. Regional competitions are planned, hosted, and executed by local SeaPerch advocates, mentors, and regional coordinators. Each registered regional competition is allocated a set number of qualifier spaces for the International SeaPerch Challenge. SeaPerch competitions are hosted annually by volunteer coordinators around the world. These events range from local exposition events to regional competitions that allocate qualifying spaces for top teams to compete at the annual International SeaPerch Challenge.

1.5.2. Qualifying as a Wild Card Team

An alternative opportunity for teams to qualify for the International SeaPerch Challenge is to apply for a Wild Card invitation. This opportunity is open to any interested teams, including teams who compete in a regional competition. Priority for Wild Card spots will be given to teams who do not have access to a regional competition.
In the Wild Card application, teams must prepare:

- A brief overview of their SeaPerch ROV design
- A short statement about what participation at the International Challenge means to them
- A non-refundable $10 application fee

The Wild Card application will open December 1, 2025, and close on February 1, 2026. Teams that have been awarded an invitation will be notified by February 11, 2026. The Wild Card application link can be found on the SeaPerch Season website.

1.6. Team Registration

1.6.1. Competition Classes

The 2026 International and regional SeaPerch Challenge will include three (3) competition classes.

1.6.2. SeaPerch West Asia Registration

All teams SeaPerch West Asia teams' registration is through SeaPerch West Asia official website.
Registration has 2 important steps to go through

- The initial registration form includes team data and payment.
- Team Dashboard in which you can complete all members data. (you can access dashboard by clicking on login button here and enter the team account data you registered with)

Make sure to understand registration instructions before starting to register.

1.6.3. International registration (For qualified teams)

All teams who receive an invitation to compete at the 2026 International SeaPerch Challenge will be required to register by April 8, 2026. Registration will open January 15, 2026. Refer to the Registration Template for the information needed to complete the registration process.
Regional Competition Winners: Eligible teams receive registration instructions within 1 week after their regional competition. If your team has not received instructions, please check your junk/spam folder and notify us at support@robonation.org
Teams are encouraged to start registration as soon as possible after receiving instructions as it is a multi-step process; the registration deadline of April 8, 2026 is firm. Each team must register and bring a unique chaperone to adhere to the Chaperone Policy. A single chaperone cannot bring multiple teams to the International Challenge.

1.6.4. Registration Fees

To complete the West Asia SeaPerch Challenge registration, teams must pay the registration fees and register each competitor. Teams are limited to 4 students and 1 Supervisor.

- SeaPerch West Asia Full Package Registration Fee: $530 USD per team including registration and full kit.

1.6.5. Chaperone Policy (For International qualified teams)

All teams with registered minors must have at least one designated chaperone, but RoboNation recommends that teams have two designated chaperones.

- Each team must register a unique chaperone to adhere to the Chaperone Policy. Each team must have a designated primary chaperone who is assigned exclusively to that team. A primary chaperone may not serve as the primary chaperone for more than one team.
- A primary chaperone may also serve as a secondary chaperone for another team, provided both teams are part of the same organization.
- Teams with five (5) or fewer youth team members may have one chaperone, although two chaperones are strongly recommended for safety and flexibility.
- Any group of six (6) or more youth team members must have a minimum of two (2) adult chaperones registered and present.
- Chaperones must actively supervise minors at all times during the competition.
- Please refer to RoboNation's Youth Protection Policy for the full policy. Previ

1.7. Challenge Classes

Middle School Stock Class:

- Teams include students in 8th grade and below
- The total cost of modifications to the final ROV must be $25 or less
- Frame built using only PVC, CPVC, PEX or other plastic pipe and fittings. Any size pipes and pipe fittings may be used. Pipes and pipe fittings may be modified using hand and power tools, but may not be machined using CNCor other automated process.
- Must only use simple on/off switches for thruster controls
- May use a fixed or variable resistor to reduce voltage
- May not use buck converters or any other electronic circuit to reduce or increase voltage
- May use PWM, microcontrollers, or other devices for non-thruster controls

High School Stock Class:

- Teams that include any students in 9th grade and above
- The total cost of modifications to the final ROV must be $25 or less
- Frame built using only PVC, CPVC, PEX, or other plastic pipe and fittings. Any size pipes 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 process.
- Must only use simple on/off switches for thruster controls
- May use a fixed or variable resistor to reduce voltage
- May not use buck converters or any other electronic circuit to reduce or increase voltage
- May use PWM, microcontrollers, or other devices for non-thruster controls

Open Class:

- Teams can include students of any grade
- Open Class must have at least one of the following qualifiers:

- The cost of modifications may exceed $25
- Frame may include 3D printed or additive manufactured parts as well as other materials, and may be made using CNC machinery or other automated process.
- May include more than 3 thrusters (i.e., motor and propeller assembly)
- May use power conditioning or pulse-width modulation (PWM) controls for thruster controls

1.8. Spectator Tickets (For international Challenge)

Spectator tickets are required to access team village, pool competition viewing areas, and presentation rooms. Note: Spectators will not have access to the pool deck.

- Tickets for adults and children over 13 are $10.

- Children 13 and under receive free admission, but still must have a spectator ticket to attend.

Spectator tickets can be purchased here: Spectator Tickets (Opening early in 2026!)

1.9. Communications

1.9.1. 2026 SeaPerch Challenge Website

The official competition website is the 2026 SeaPerch West Asia . This website includes all official documents and a detailed list of the registered Challenge teams. Helpful resources, past competition results, and other engagementopportunities can be found on this website. Information and documents are updated regularly, and it is the team's responsibility to check the website for updates.

1.9.2. Points of Contact

SeaPerch Questions:

info@seaperchwestasia.org

1.10. RoboNation Code of Conduct

All team members must abide by the RoboNation Code of Conduct while participating in the Competition. Failure to abide by this Code of Conduct at any point during the competition season may result in the disqualification of the team and/or participants from the Competition, components of the competition, the full competition, and/or future competitions.

- Give your best effort. Display honesty, integrity, and sportsmanship while engaging in friendly competition. Compete fairly. Team products are solely the creation of student participants' own efforts, ideas, and designs with supporting mentors providing only verbal advice.
- Respect others. All participants and guests will display courtesy and respect toward officials, volunteers, other teams, and guests of the Competition.
- Act with integrity. All participants and guests will behave in a responsible manner and follow the rules of the competition and host organization. Support each other. All participants will embody the spirit of RoboNation and endeavor to engage with, learn from, and support one another.

SECTION 2: Pool Competition

2026 International SeaPerch Challenge

2.1. Pool Course Events Overview

The competition will include two in-pool courses:

- **The Obstacle Course** tests high-speed maneuverability and requires the SeaPerch ROV to navigate the course as quickly as possible.
- **The Mission Course** incorporates a mission that teams must complete related to storm response.

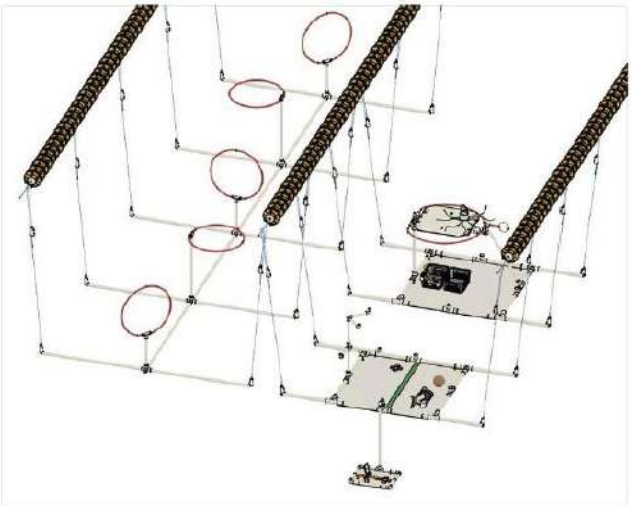
2.2. Compliance Check

All SeaPerch ROVs must meet vehicle safety requirements during the on-site Compliance Checks before the ROV can be permitted on the courses.
No parts or attachments (except buoyancy material) may be removed or added after the compliance check, but attachments may be repositioned. Teams that arrive at the competition failing to meet the vehicle requirements will not be permitted on the course, until the vehicle is modified to meet all requirements.

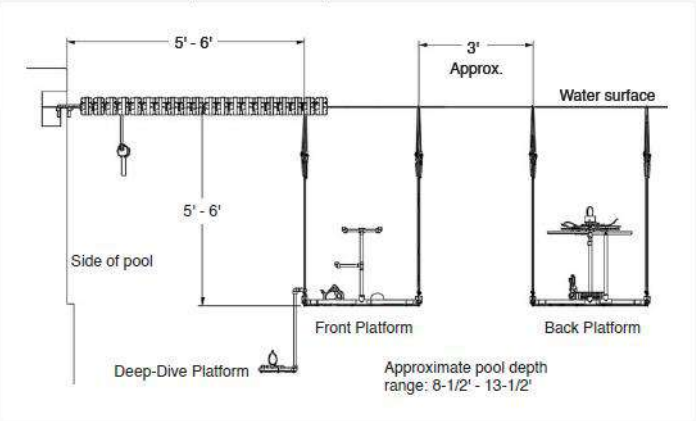
2.3. Lane Setup

Courses will be suspended from the pool'slane dividers with the lower course framesapproximately 5-6 feet below the water surface and 5-6 feet from the side of the pool.

The obstacle course and mission course willbe arranged beside each other and considered a single competition lane. The pool will include eight (8) competition lanesto accommodate eight (8) teams simultaneously. Competition lanes will be separated by a vacant pool lane (i.e. no course). Each team will have sole use of their assigned competition lane for their allotted time slot.



Competition Lane Setup (Surface Vessel not shown)



Course Layout Diagram

2.4. ROV Power

12-volt direct current (VDC) power connections for the standard SeaPerch power cable alligator clips will be supplied for each competition lane. See 2.8.2. Auxiliary Equipment, Batteries, and Power Supplies for more information.

ROV Power Connection

Inside ROV Power Connection

2.5. Timing

Teams have 20 minutes to complete Pool Course runs. After the course judge verifies the team and provides instructions, a 20-minute course timer will start. Teams are responsible for managing their time and may take as much time as needed for setup and reset within the twenty minutes allocated. When the course timer expires and reaches zero, the team must depart the Pool Course.

Runs will be timed using a run timer (stopwatch). The run timer starts when the run starts and records the official run times. Teams may start subsequent runs immediately after completing a prior run but much receiving a start signal from the judge to ensure the run will be scored. Teams may abort runs at any time without completing the course if they are experiencing problems and want to ensure they have enough time for subsequent runs. A run ends whenthe run time expires, the team has aborted the run, or the team has completed the course (whichever comes first). Guidelines for obstacle course and mission course runs are below.

2.5.1. Obstacle Course Timing

- Teams may attempt up to two (2) runs.
- Each run is limited to four (4) minutes maximum.

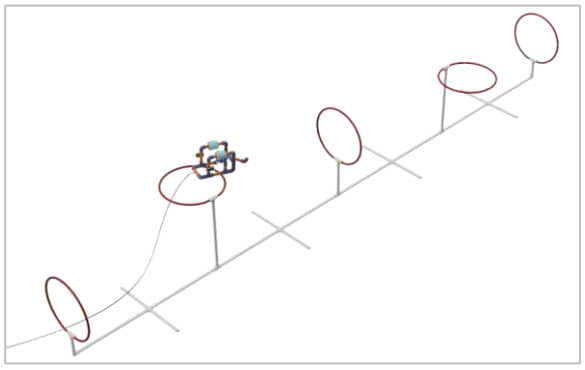
2.5.2. Mission Course Timing

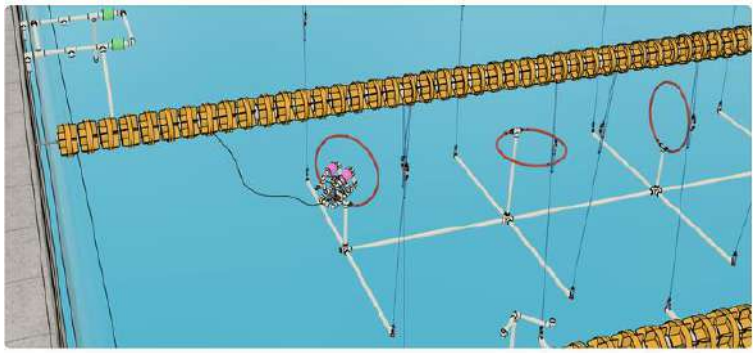
- Teams may attempt one (1) run on the mission course.
- The mission course time limit is eight (8) minutes maximum.

2.6. Obstacle Course

The Obstacle Course consists of five 18” hoops oriented at different angles and suspended 5-6 feet below the water surface.

Please note that there is no guarantee of theposition of the hoops when the course is deployed in the pool at the regional or International SeaPerch Challenge and may not appear as pictured below. Operators should not try to memorize actions such as in playing a video game but should instead practice a variety ofgeneral high-speed maneuvers.

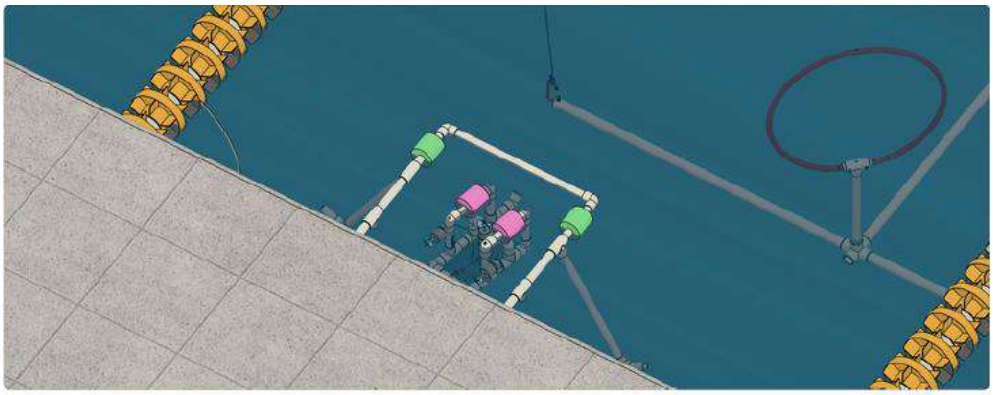




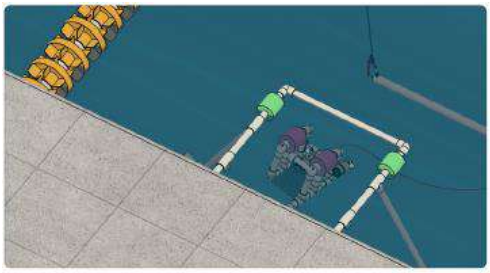
Suspended Obstacle Course

2.6.1. Navigation Overview

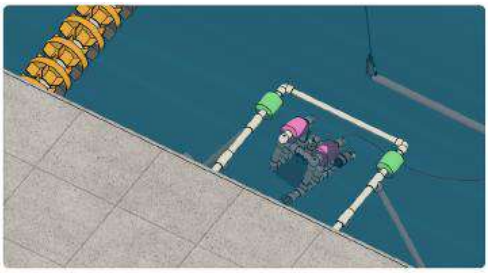
- Start of run: The ROV must be under its own power and surfaced within the outline of the surface vehicle. Team members are not allowed to touch the ROV after the lane judge begins the countdown to start the run.
- The ROV is required to pass through each of the five obstacle course hoops in order starting 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 surface of the water.
- The ROV must re-submerge and head back to the pool wall by passing through each of the five hoops in reverse order.
- End of run: The run is complete with the ROV surfaces (any part of the ROV breaks the surface of the water) within the outline of the surface vehicle located next to the pool wall. The run will end if the allotted time expires even if the ROV has not completed the course.



Start of Run



Not Surfaced



End of Run - ROV Surfaced

2.6.2. Scoring Overview

Teams are ranked based on time.
The obstacle course scoresheet is available in Appendix A: Competition Scoresheets and Rubrics

2.7. Mission Course

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 resilience:

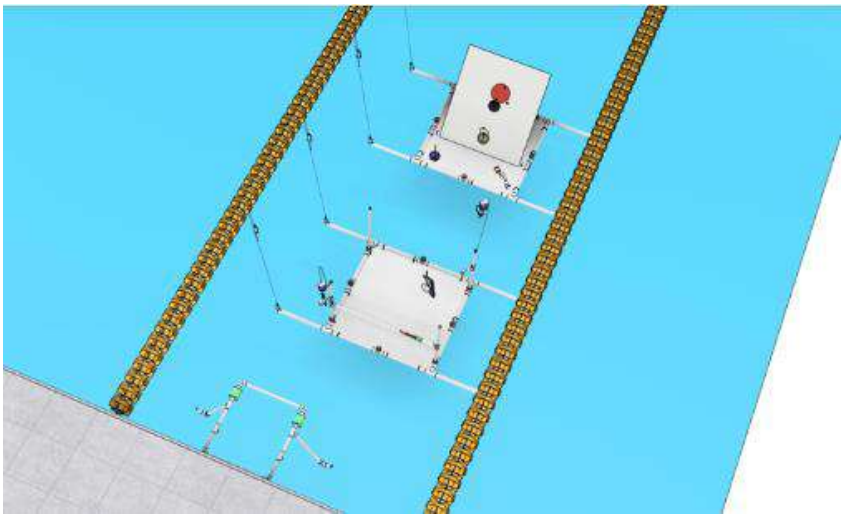
- Assessment & Discovery: Vehicles are deployed to inspect bridges, dams, and communication nodes, gathering the critical information needed to understand the scope of damage.
- Recovery & Repair: Vehicles work to reconnect power and communication lines, stabilize dam

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:
- **Task 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.
- **Task 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.
- **Task 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.
- **Task 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.

2.7.1. Course Layout

The Mission Course consists of a surface vehicle located next to the pool wall, two task frames that will be suspended 5-6 feet below the water surface.
A full breakdown of how the course is built can be found in the Pool Course Build Guide.

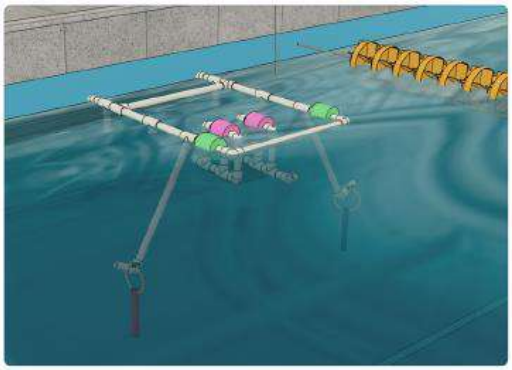


The following section covers the details for the Surface Vessel, Front Platform, and Back Platform.

Surface Vehicle

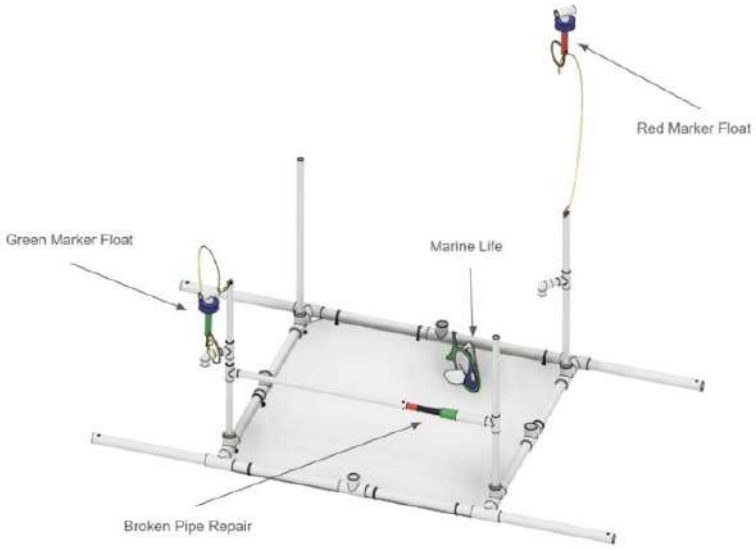
A PVC structure representing a Surface Vessel will be placed by the pool wall where team members and judges are positioned. This structure will serve as the start and end point of Mission Course runs.

One plug (Task 2) will hang below the surface vehicle structure.



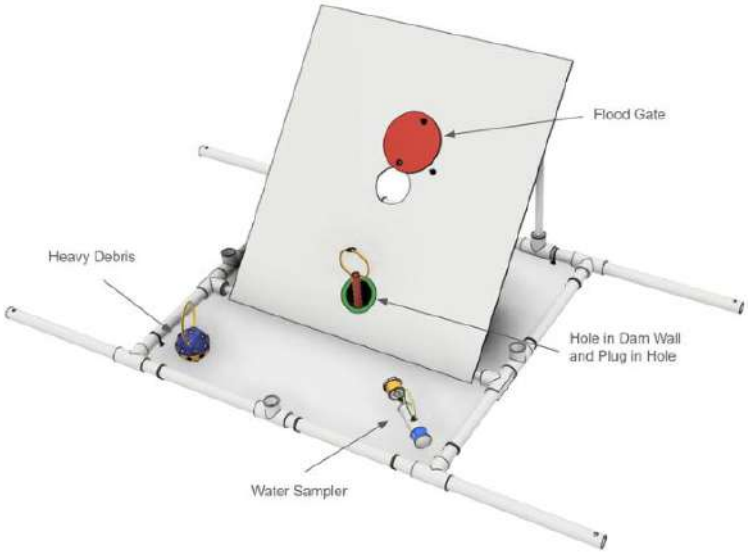
Front Platform

The front platform is the platform closest to the pool wall. This platform includes the broken bridge pillars and the broken pipe (Task 1). At the start of the run, marine life will be positioned on the platform (Task 3).



Back Platform

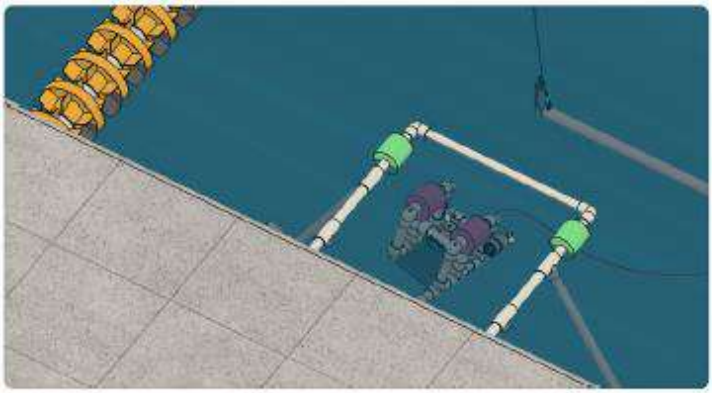
The back platform includes the wall of a dam (Task 2), the heavy submerged debris (Task 3), and Water Sampler (Task 4).



2.7.2. Navigation Overview

- Start of run: The ROV must be under its own power and surfaced within the outline of the Surface Vessel. Team members are not allowed to touch the ROV after the lane judge begins the countdown to start the run. The tether cable does not have to go through the open area of the Surface Vessel. Teams are allowed to position the Surface Vessel along the wall within the lane.
- End of run: The run is complete with the ROV surfaces (any part of the ROV breaks the surface of the water) within the outline of the surface vehicle located next to the pool wall. The run will end if the allotted time expires even if the ROV has not completed the course.

Note: Objects falling past the suspended task frames are out of play and the ROV is not allowed to attempt to retrieve them.



ROV Not Surfaced

End of Run - ROV Surfaced

The ROV may transport multiple objects simultaneously. Objects may be moved between platforms for staging without completing the task. (For example, the plug can be moved to the front platform before moving to the dam after completing other tasks.)

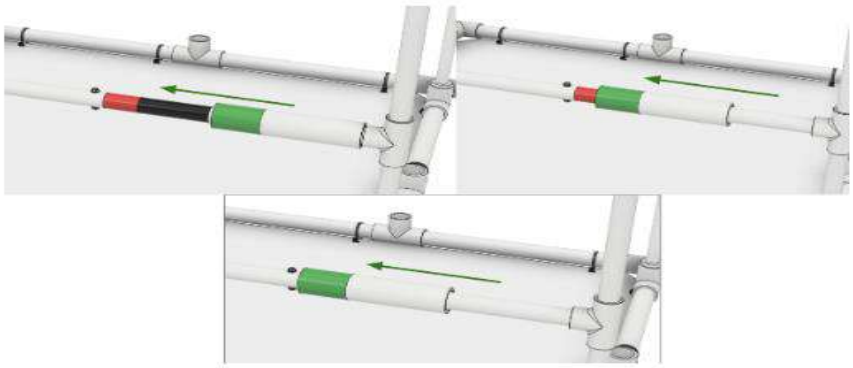
Tasks may be completed in any order with the following exceptions:

- To receive points for opening the hatch door (Task 1), it must be opened before removing or placing objects in the bio-basket. If a team fails to open the hatch, objects may still be removed from or place in the basket; however, points will not be awarded for opening the hatch.

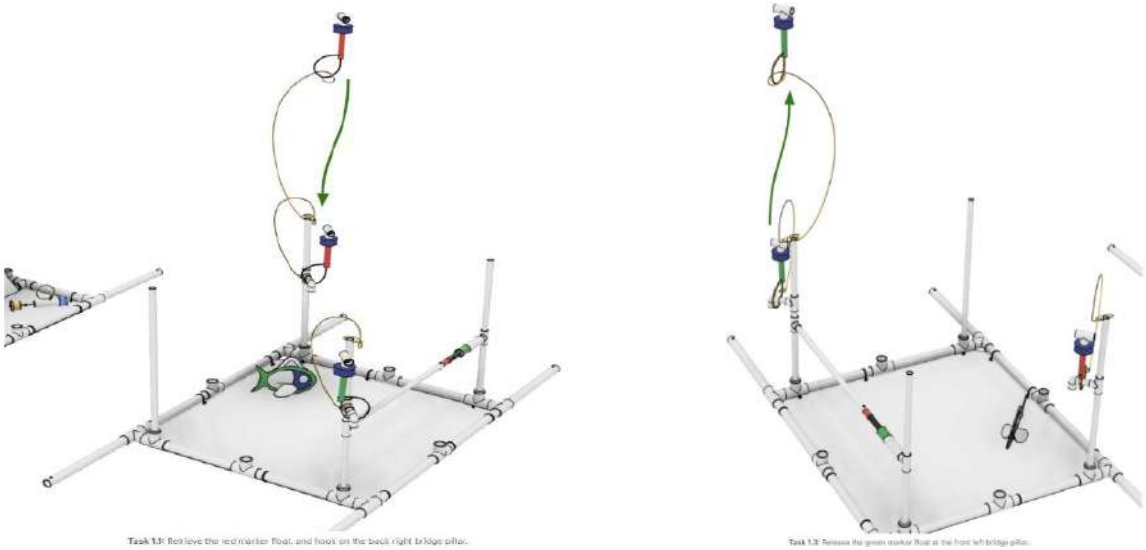
- To receive points for moving the marine life from the hatch (Task 2), it must be removed from the hatch prior to opening the hatch. If a team fails to move the marine life, the hatch may be opened; however, points will not be awarded for moving the marine life.

2.7.3. Tasks Description

Task 1: Inspect The Bridge
The ROV must navigate bridge supports, retrieve the red marker float, fix the broken pipe, and release the green marker float. At the start of the run, the red marker float will be floating above the back right bridge pillar, the green marker float will be hooked on the front left bridge pillar, and the broken pipe will be uncovered. All Task 1 elements are located on the Front Platform.
Task 1.1: Retrieve the red marker float, and hook on the back right bridge pillar.
Task 1.2: Slide the cover pipe to the left to fix the support beam.
Task 1.3: Release the green marker float at the front left bridge pillar.



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

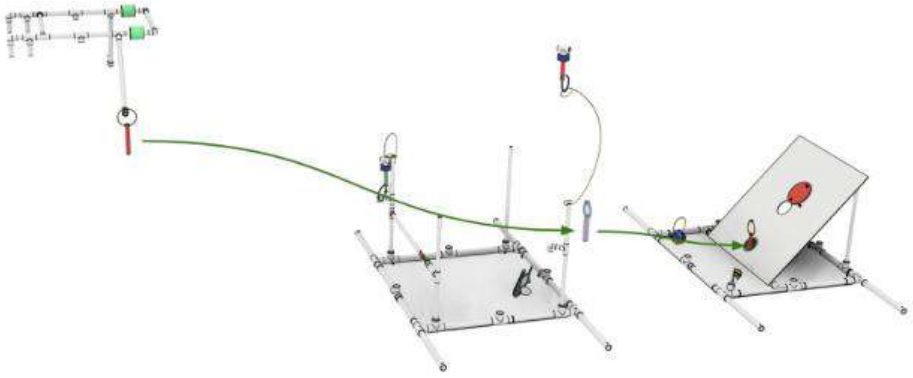


Task 2: Survey the Dam

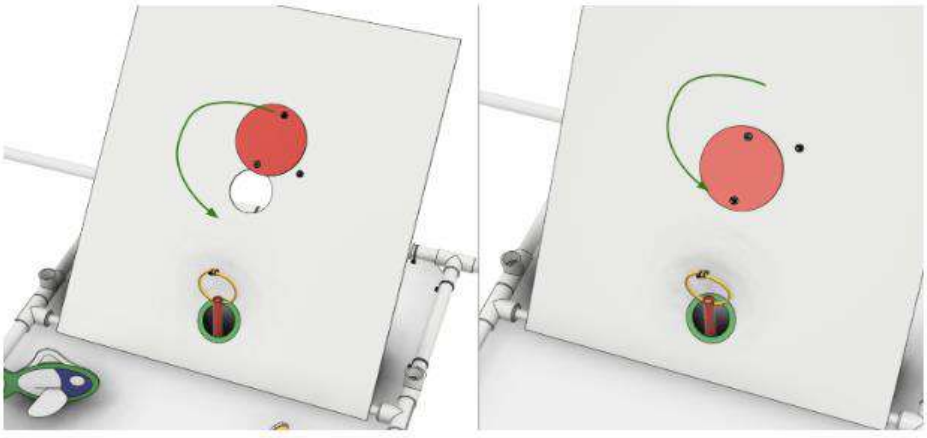
The ROV must move the plug to the hole in the dam, and rotate the cover to close the flood gate. At the start of the run, the red plug will be located on a hook on the Surface Vessel, and the red flood gate will be located on the slanted dam wall on the Back Platform.

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

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



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



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

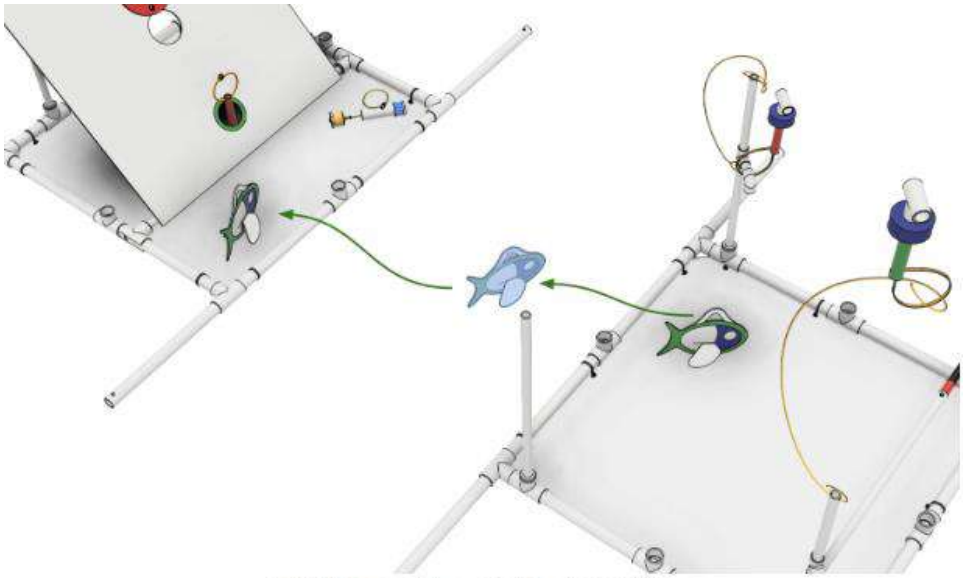
Task 3: Clear the Debris Field

The ROV must relocate the displaced marine life (SeaPerch fish) and remove the heavy submerged debris (weighted object). At the start of the run, the marine life will be located on the Front Platform, and the debris will be located on the Back Platform.

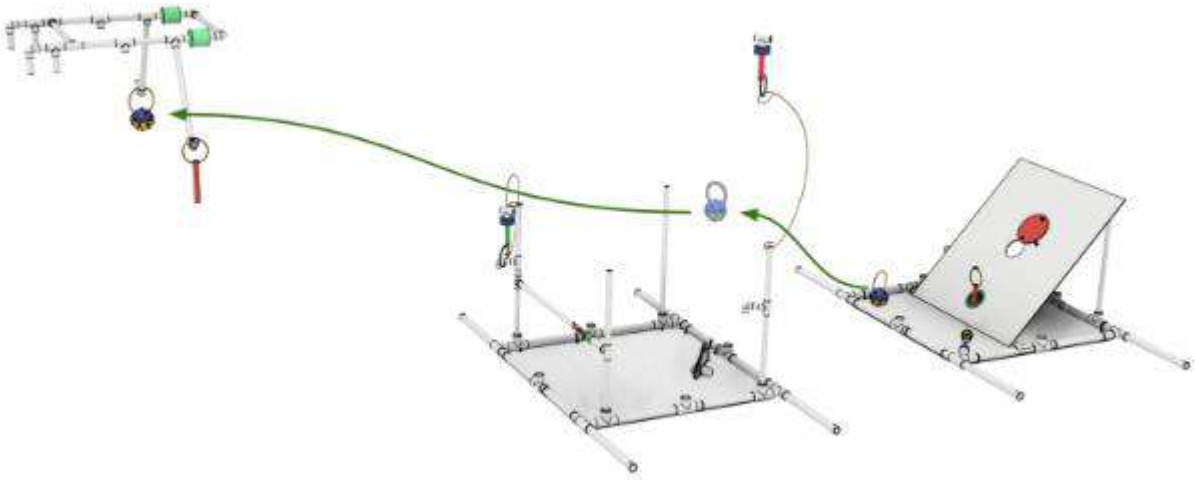
Task 3.1: Retrieve and place marine life on the Back Platform.

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.



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



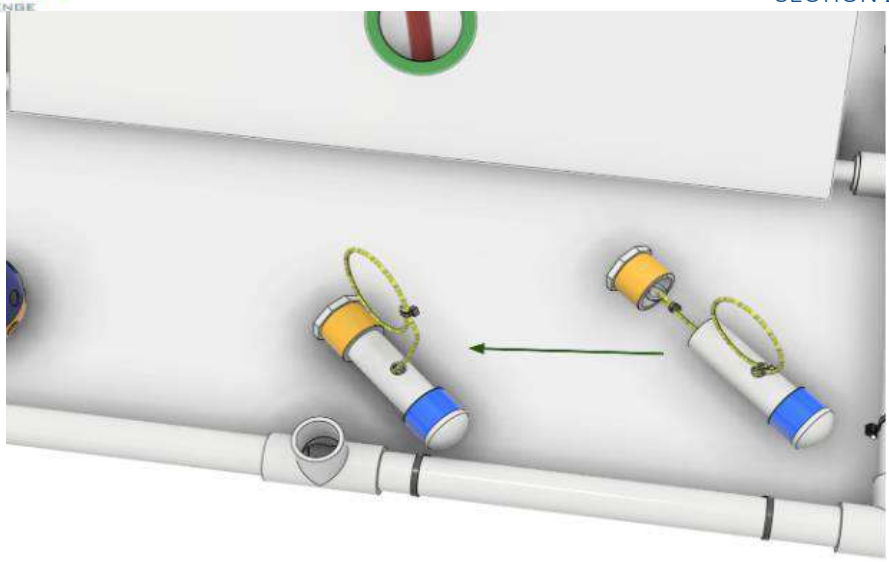
Task 3.2 and 3.3: Lift and place heavy piece of submerged debris on a hook on the Surface Vessel.

Task 4: Clear the Debris Field

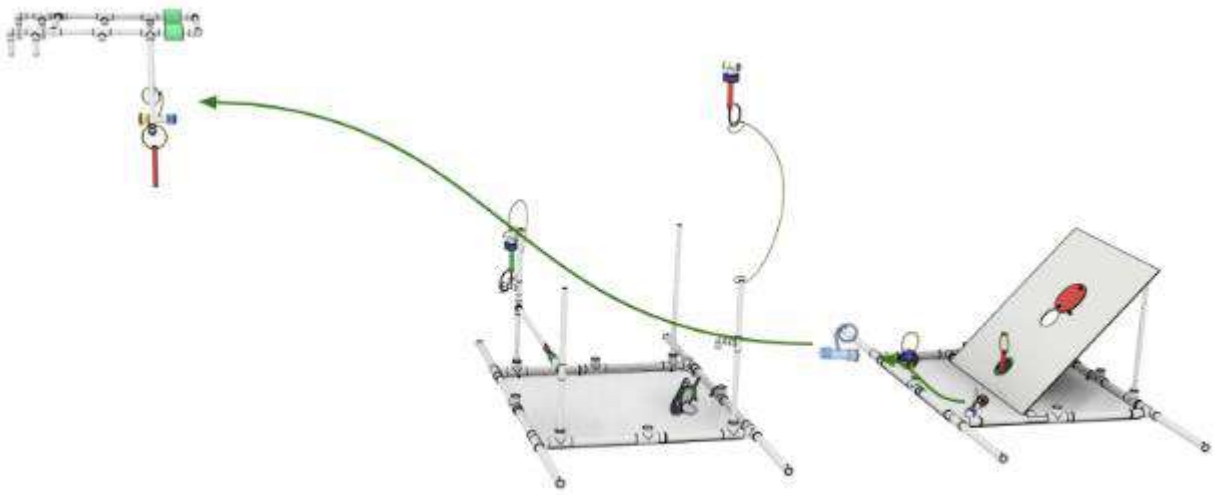
The ROV must retrieve the water sampler and return it to the Surface Vessel. At the start of the run, the water sampler will be open and located on the Back Platform.

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

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



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



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

Teams are scored and ranked based on completion of tasks and time.

2.7.4. Scoring Overview

Mission Course Scoring
A maximum of 110 points can be earned on the Mission Course through successfully completing tasks with bonus points awarded for completion of the course under a time limit. Points are not official until verified by master scorekeeper.
Points will be earned at completion of each task action. If tasks are disturbed in subsequent actions, teams will still earn points for completion.
Task pints and detailed scoring are explained in Course Scoring Section.
The Mission course scoresheet is available in Appendix A: Competition Scoresheets and Rubrics

2.8. General Pool Events Rules

These rules are preliminary for Regional and International SeaPerch Challenge and may be updated prior to the competition. Any updates will be posted.

2.8.1. ROV, Spare Parts, and Adjustments

1. The team must use the same ROV that was presented at compliance for both pool events.
2. Each team must have their own ROV – teams are not allowed to share an ROV.
3. Teams are not allowed to share ROV attachments or devices.
4. Spare parts are allowed; however, spare ROVs are not allowed.
5. Any design or structural modifications made to the ROV after a compliance check requires the team to re-submit the ROV for a compliance check.
6. No parts or materials, except as noted in this section, may be added to or removed from the ROV between pool events. The ROV must compete in both pool events with the same attachments and parts connected. Violations will result in disqualification.
7. Attachments and parts may be *repositioned* (I.e., rotated or swiveled) between the two pool events. Attachments or parts may not be disconnected and relocated; they must remain connected to the same point on the ROV when they are repositioned.
8. The ROV may be worked on or adjusted during competition. This may include adjusting buoyancy by adding or removing buoyancy materials or adding materials like tape or cable ties necessary to secure parts. However, the run timer will continue.
9. Replacement of failed or damaged parts is permitted. Teams replacing failed or damaged parts must re-submit their ROV for a compliance check conducted by staff at the Triage or ROV Poolside First Aid Station.
10. Passing compliance checks does not guarantee the right to compete. Lead judges in the competition area have the final say on safety and compliance issues and may require teams that have already passed the compliance check to fix issues prior to competing.

2.8.2. Auxiliary Equipment, Batteries, and Power Supply

1. Lithium batteries larger than coin cell size are strictly prohibited at the event.
2. 12-volt direct current (VDC) power connections for the standard SeaPerch power cable alligator clips will be supplied for each competition lane. This power connection is for the ROV only and is limited to 10 amps; no auxiliary equipment may be connected to this power connection.
3. Teams may provide their own battery for the ROV.
4. Teams may provide an additional battery for auxiliary equipment such as cameras, advanced controllers, and electromechanical ROV attachments.
5. Team supplied batteries must not be larger than 8” long x 4” wide x 7” high and must be 12 VDC maximum with a 12-amp hour maximum rating.
6. Teams may not bring anything to the pool deck that requires 110-volt or any other alternating current (AC) power. Laptop computers are allowed if they are battery powered and do not need to be plugged into 110-volt power.

2.8.3. Diver Assistance and ROV Tether Handling

1. The ROV must move only under its own power. The tether may not be pulled to expedite the ROV’s navigation of the course.
2. If the ROV or tether becomes tangled on the course structure or is otherwise unable to move on its own power, a

team member must notify the judge that they would like to try to free the ROV by pulling on the tether. Under this circumstance teams may gently pull on the tether; however, the run timer will continue. If the ROV is pulled by the tether, the ROV must be returned (driven) to the location that it was moved from before it may continue competing.

3. The team may ask the judge for diver assistance. If diver assistance is requested the judge will pause the run timer and call for a diver. The judge will restart the run timer when the diver arrives at the lane and begins assisting. There is no longer a two-minute diver assistance penalty. If the ROV is moved, it must be returned to the location that it was moved from before it may continue competing.

2.8.4. On Deck

1. Prior arrangements are required for waivers to any of the following rules to accommodate students' special needs. Any special accommodations must be made in advance of the starting date of the International SeaPerch Challenge by contacting competitions@robonation.org.
2. All team members and spectators are expected to be respectful of other competitors, spectators, volunteers, judges, and staff.
3. Instructions from judges, volunteers, and event staff must be followed at all times on the pool deck. Those not complying with instructions from judges, volunteers, or event staff will be asked to leave the pool area and may risk disqualification of their team from the event.
4. Pool passes are required to enter the pool area.
5. A maximum of six (6) pool passes will be issued for each team. Any team with more than six members in the pool area without special accommodations risks disqualification from the event.
6. Only four (4) student team members are allowed at the competition lane. Only two (2) team members are allowed to participate in the ROV operation at one time. These two (2) team members are considered the competing team members.
7. Only competing team members are allowed to communicate with the judges.
8. The four team members at the competition lane may switch drivers at any time and as many times as they choose. The lane judge will not stop the timers.
9. The remaining two passes are for pool area spectators and can be used by other students (competing later in either the obstacle or mission course), parents, coaches, teachers, or chaperones.
10. Once a pool event run starts the pool area team spectator may not enter the competition lane.
11. The pool area team spectators must sit or stand behind the designated barrier ribbon.
12. Any student team members who are pool area team spectators may switch with the team members at the competition lane between the pool event runs (obstacle and mission course).
13. All team members must wear shoes with rubber soles while on the pool deck.
14. All team members may help with setup but must exit to their assigned spots before the course run starts. During this set-up period, teams should adjust the ROV's buoyancy and make any other necessary adjustments.

2.8.5. Equipment Failure

1. In the event of equipment failure between pool events, a team will be allowed to work on their ROV at an ROV First Aid Station or at Triage.
   - The ROV First Aid Station is intended for *quick repairs* that can be accomplished in 15 minutes or less. The station will not be equipped with electrical power, so soldering is not allowed.
   - After successful repairs, the team will re-enter the competition queue in the front of the line.
   - If repairs are not accomplished within the 15-minute time limit, the team must proceed to the pool check-in station and notify the staff that they require Triage. Teams completing repairs in Triage will check-in at the pool check-in station and enter the staging area.
2. While competition staff will attempt to accommodate all participants, teams not completing repairs by the last

pool event time slots may not be able to compete.

3. If an ROV or equipment malfunctions before attempting any mission task or passing the first obstacle course hoop, the team may elect to stop their run without incurring a time penalty. The team will be allowed to make repairs as described in item 1 of this section.
4. If an ROV or equipment malfunctions after attempting the first mission task or passing through the first obstacle course hoop, the team may elect to stop their run. The judge will record the current run time and notify the lead judge. The lead judge or technical director will evaluate the issue and decide a course of action. If the team is allowed to make repairs and restart their run, they may incur a time penalty equal to their initial run time at the time they stopped their initial run.

2.8.6. Disputes, Challenges, and Redress Request

1. Sportsmanship is always expected.
2. Team members and advisors are responsible for the conduct of all members and adults accompanying the team. Unsportsmanlike conduct of registered student team members or chaperones is grounds for the disqualification of a team.
3. Teams may not raise questions concerning other competing vehicles or other teams' scores.
4. Only the two competing team members may approach or speak to lane judges. Exceptions to this rule are only allowed if prior arrangements have been made to accommodate special needs.
5. Team members, chaperones, or spectators may not speak to the divers.
6. Team members will verify the time on the scoresheet reflects the time on the stopwatch. If there is a discrepancy, a team member may ask the lane judge for a second opinion. Timing disputes such as a team member claiming the judge did not start or stop the stopwatch at the correct time are not allowable disputes.
7. Disputes should be resolved at the time the alleged grievance occurs. However, if students are not able to articulate the alleged grievance, they may ask to speak to the lead course judge. The lead course judge will provide a redress request card that will allow the student and adult team members to meet with the technical director or lead judge to resolve the dispute. *Decisions of the technical director or lead judge are final, and the same dispute will not be heard again.*
8. If an ROV or the course is inadvertently interfered with during the competition, the competing team members should alert the lane judge and ask for a ruling by the lead judge or technical director. These situations will be addressed on a case-by-case basis.

2.9. Compliance Checklist

All SeaPerch ROVs must meet vehicle requirements for (1) design, (2) safety and (3) construction during the Compliance Checks before the ROV can be permitted on the courses. A Compliance Checklist will be included in each team's registration packet at the SeaPerch Challenge.
No parts or attachments (except buoyancy material) may be removed or added after the compliance check, but attachments may be repositioned.
Design must follow Competition Classes and Design Rules.

2.9.1. Design Compliance

Stock and Open Classes

- Requires only one standard power source for propulsion. Battery limited to one 12VDC, 9Ah max battery no larger than standard SeaPerch battery.
- Uses no more than one additional external battery of 12VDC, 9Ah max no larger than standard SeaPerch battery for auxiliary equipment

- Uses only standard SeaPerch kit motors or exact replacement for propulsion

Stock Class Specific

- Maximum of 3 standard motors for propulsion
- ROV meets maximum $25 (value) budget limit for modifications

2.9.2. Safety

- No exposed live wires on controllers, SeaPerch ROV or tether cable
- No sharp edges or potentially hazardous parts
- Motors are sealed (waterproofed)
- Power cable has insulated covers on alligator clips or terminals

2.9.3. Construction

- No loose parts that could potentially fall off during competition
- Tether cable is secured to ROV

The team's captain or coach must sign off on the Compliance Checklist and and assure that the team will not make modifications to the ROV system after the compliance check.

SECTION 3: Design Documentation

2026 International SeaPerch Challenge

The design documentation for 2026 West Asia Regional Competition is delivered before **10 January, 2026**

Required Documentation:

- Technical Design Report
- Meet The Team

Optional Documentation

- Real-world Innovation Poster
- Community Outreach Project

3.1. Technical Design Report

A Technical Design Report (TDR) succinctly describes your unique SeaPerch ROV and the engineering design process, providing insight into the iterative design process and allowing for data analysis that supports the final ROV design.

3.1.1. Overview

The TDR consists of seven mandatory sections and two mandatory appendices. The format of the written paper shall adhere to the following guidelines:

- 5 page limit (excluding Acknowledgements, References, and Appendices)
- 8.5 x 11 in. page size
- Margins ≥ 0.8 in.
- Font: Times New Roman 12pt.
- Header on every page including Team Id, Team Name, and Page Number
- Submitted in pdf format

***PRO TIP**: Teams are encouraged to start and keep an Engineering Notebook at the beginning of their SeaPerch build. Submitting an Engineering Notebook is not required for participation in the International SeaPerch Challenge but does help form the basis for creating a well-written TDR.*
Need some inspiration? Visit https://seaperch.org/resources/design-process/ for a few helpful resources.

3.1.2. Report Contents

Abstract

A well-written abstract should concisely explain the key points or essence of your paper and quickly explain to the reader what the paper is about.

Task Overview

This section should include an overview of the task(s) your ROV will attempt and should discuss the characteristics and features of the tasks that affected the final design. Avoid directly quoting course descriptions

or problem statements for real-world applications and instead use your own words to describe what your ROV will/would do within the application

Design Approach

Given the tasks described in the previous section, describe your team's strategy and approach to developing a novel SeaPerch design. Novelty may occur at various levels of the design and build process including specific components, collections of components, or even team approaches to the process. Focus attention on the creative aspects of your system and how your team conceived of, refined, and implemented these ideas. Describe your experience in making design decisions and how prospective ideas were considered among the team. Include engineering and scientific terms and concepts to demonstrate the team's understanding of the challenges of constructing and operating an underwater ROV.

Experimental Results

This section should describe various tests accomplished in-water and/or in simulation. What were your results? How did these tests impact your team's subsequent design(s)? Include images, charts, and figures to demonstrate your results.

Reflection & Next Steps

Reflect on this season's experience. What did you learn? Were there aspects of the project that you particularly enjoyed or that challenged you? How do you think that your new knowledge or experience will assist you in future endeavors? Include a discussion of next steps for the team and/or the team's ROV.

Acknowledgements

Participating in the competition involves identifying resources and support beyond the efforts of individual team members. This support can take many forms, such as technical advice, labor, equipment, facilities, and monetary contributions. Acknowledging those who have supported your efforts is important

References

As with any technical publication, original ideas and content not generated by the paper's authors should be properly cited. While there are many citation styles, the American Psychological Association (APA) style guide should be used. Use in-text citations, where appropriate

Budget

Include all components included in your SeaPerch design and their costs. This budget does not need to include components included in a standard SeaPerch ROV kit. Add as many rows as necessary to complete your budget. This information may be utilized during compliance checks to determine appropriate competition class and should reflect the total materials cost of your ROV. Costs for 3D printed parts should be priced at $0.02 per gram.

Component	Vendor	How was component used?	Cost (in USD)
		TOTAL COST OF SEAPERCH COMPONENTS	$

3.1.3. Scoring

This submission is worth 100 points. Guidelines are available in Appendix A: Competition Scoresheets and Rubrics
The detailed scoring are explained in Design Documentation Scoring Section.

3.2. Meet the team& ROV Fact Sheet

The Team & ROV Fact Sheet is a required submission of the International SeaPerch Challenge. Connecting with your community is important. We want to get to know you! This is your chance to introduce us to your team and team's personality.

3.2.1. Overview

Reach out and share your team or school's logo, an overview of what your team isall about, and social media information so we can share it with the SeaPerch community.

3.2.2. Content

Teams will be asked to submit the following information:

- Team Name, organization, and location
- Team/School/Organization logo/icon (submitted as PNG image)
- One paragraph (100 words max) team bio/overview
  NOTE: Team bios will not be edited to correct any spelling and/or grammatical errors before posting, so put your best foot forward and proofread your entry carefully.
- Fact Sheet (PowerPoint slide template, please save as PDF for registration):
- Image or drawing of the team's SeaPerch ROV design
- Competition Class (i.e., Middle School Stock Class, High School Stock Class, Open Class)
- Overview of SeaPerch Design: Provide a high-level explanation of your SeaPerch design
- Number of years your team has participated in the SeaPerch program (this should include years that you have been involved in building a SeaPerch and/or competed in a SeaPerch competition)
- Number of times your team has competed at the International SeaPerch Challenge including your anticipated participation at the 2026 Challenge (i.e., Put 1 year if this is your 1st year)
- Complete the statement "Our SeaPerch is unique because..."; highlight what you think makes your design innovative
- Complete the statement "Our biggest takeaway this season is..."; focus on your team's experience and what you learned from working together on your design
- Website link (optional)*
- Organization's social media link (Facebook, Twitter, Instagram, LinkedIn) (optional)*

*Acknowledgement certifying that photographs or videos given as part of this entry only include team members who have submitted a Photographic Release Form signed by a parent/guardian.

Fact Sheet template is available in Appendix A: Competition Scoresheets & Rubrics

3.2.3. Scoring

This is not a scored event. Meet the Team and Fact Sheet submissions will be published on the SeaPerch website

Optional Templates

3.3. Real-World Innovation Poster (Optional)

The Real-World Innovation Poster is an optional submission of the International SeaPerch Challenge. This submission challenges teams to explore real-world applications for underwater ROVs. Teams are invited to identify a real-world issue and design a SeaPerch ROV to address the issue.

3.3.1. Overview

Interested teams must submit a virtual PDF poster. These posters may include anything from a conceptual design to a full project conducted in the real world.
The poster must follow these rules:

- 4’ wide x 3’ tall
- submitted in PDF format
- no specific requirements for section headers or space allocated for each section
- teams are encouraged to create their own poster, however teams are welcome to use an optional template attached in Appendix A.

3.3.2. Content

Posters will be rated on the following areas:

- Project Overview: An overview of their project, approach, and findings
- Background & Rationale: The team’s motivations for conducting the project
- Approach: Justification for the team’s approach to the project
- Discussion & Reasoning: Evidence supporting the team’s approach and modifications to their project
- Next Steps: Thoughtful consideration of new questions and next steps for the team’s project
- Use of Graphics: Use of images, charts, and figures to support the poster’s text
- Organization: Content organization
- Creativity: The creativity of the project and innovative approach to a real-world issue
- Overall Quality: The poster effectively conveys the project and approach

Optional Poster template is available in Appendix A: Competition Scoresheets & Rubrics

3.3.3. Scoring

Top scoring posters will receive awards. Submitted posters will also be open for public voting and will be eligible for “Fan Favorites” awards.

3.4. Community Outreach Project (Optional)

The Community and Outreach event is an **optional** component of the International SeaPerch Challenge.

3.4.1. Overview

Giving back to your community can take many forms. Find a good fit between what you are passionate about (or good at) and how that can meet a need in your community. Increase awareness of a topic that you care about. Get others excited about your cause or unite them in support of a common goal.

3.4.2. Content

Share your special skills and interests with others who could benefit from them. In the process, you will hone your communication skills, deepen your own understanding and appreciation, and feel a personal sense of pride and accomplishment. You may even inspire others to join you!

STEM-Related Ideas:

- Serve as a near-peer virtual mentor or tutor to other students who are building SeaPerch ROVs or who need extra help in other STEM areas
- Volunteer to be a student assistant in a robotics or STEM enrichment club at your school
- Help develop an exhibit for a science museum or STEM center
- Create a website for people to learn more about ROVs and their real-world applications
- Volunteer to participate in the clean-up of a local waterway
- Write an article for your local newspaper highlighting your team and how you have made it to this year's International SeaPerch Challenge

General Ideas:

- Volunteer at a local animal shelter
- Collect canned/non-perishable goods for donation to a local food bank
- Send cards or letters to nursing home residents
- Contact your local community center and inquire about available volunteer opportunities
- Create a social media post or a team promo video to highlight your effort or get the word out

3.4.3. Submission Instructions

Teams that choose to participate in this optional give back event and outreach will be asked to submit the following resources:

- **Description of the team's activity** (one-page max, submitted as PDF):Tocapture important details, think about the 5 Ws as you write, explaining, at a minimum, the Who, What, When, Where, and Why of your outreach activity. What inspired you? Why was this important to you? You might also tell us about any future plans you have or share the impact of your efforts.
- (Optional) Document should include any supporting photos and reference links to videos, websites, articles, etc.

  Acknowledgement certifying that photographs or videos given as part of this entry only include team members who have submitted a Waiver/Photographic Release Form signed by a parent/guardian.

  This is not a scored event. Project submissions will be reviewed and eligible for awards. Project submissions will be published on the SeaPerch website.

3.4.4. Scoring

Submissions will not be scored but may be considered for special award.

SECTION 4: On-site Pitching

2026 International SeaPerch Challenge

Each team will be required to perform a 5-minute pitch presenting their work, the pitch will be followed by 10 minutes of Q&A for evaluation by the judging panel.

Overview

Each team will be asked to present a pitching to a judging panel within 5 minutes, and the judges have 10 minutes for questions and evaluation.

- The competition will provide a data show for presenting.
- The team can use any software or hardware requirements to help them in the purpose of the pitching.
- The team may present in Arabic or English with no additional score.

Content

- **Problem/ opportunity:** in which the team describes the problems that they solve in the competition
- **Your solution description:** in which the team gives an overall description of your solution
- **Solution features:** in which the team shows their vehicle features to solve the problem and how the solution is special.
- **Progress status:** in which the team shows the progress of their solution, vehicle,
- **Future plan:** in which the team give a brief on where they are going to forward in the development of the solution
- **The team:** by showing the team members, their field of experience and their roles in the team

Scoring

This submission is worth 20 points.
Guidelines are available in Appendix A: Competition Scoresheets and Rubric.

SECTION 5: Scoring & Awards

2026 International SeaPerch Challenge

5.1. Competition Awards

Awards will be given to top performers in each class as well as those who have demonstrated exemplary skills in special award categories.

Class Champions:

Top team in each class (1 per class) (3 total awards)

Competition Events (TDR/Mission/Obstacle):

TDR (1st, 2nd, 3rd for each competition class) (9 awards)
Mission Course (1st, 2nd, 3rd for each competition class) (9 awards)
Obstacle Course (1st, 2nd, 3rd for each competition class) (9 awards)

Real-World Innovation Poster:

Top teams in the Real-World Innovation event - First, second, third (3 total awards)
Fan Favorites - middle school and high school teams from public judging (2 total awards)

Community & Outreach

Top team in the Community and Outreach event – not related to class (1 total award)

5.2. Special Awards

Teams may be nominated for Special awards during pre-event submission judging and on-site at the competition. A nomination form will be available on-site for all participants, advisors, volunteers, staff, and spectators to nominate teams for these awards.

Sportsmanship Award

This award recognizes individuals or teams who demonstrate a commitment to fair play, ethical behavior and integrity, and general goodwill towards others. Recipients of this award may be coaches, team members, parents, officials or anyone else that tournament officials or directors feel exhibit these traits.

Resiliency and Grit Award

As the name implies, this award is given to an individual or team who displays the dynamic ability to recover quickly from challenges. Recipients maintain control of a difficult situation and devise new ways to tackle a problem, all while showing courage and resolve or strength of character.

Ingenuity

This award is given for a team's exceptional creativity, either through some aspect of their ROV, or an extraordinary idea beyond the standard build. This award acknowledges and encourages creative thinking and

risk-taking; recipients embody the principle of "thinking outside the box" to solve engineering problems.

5.3. Courses Scoring

Obstacle Course Scoring
Teams are ranked based on time.

Mission Course Scoring
A maximum of 110 points can be earned on the Mission Course through successfully completing tasks with bonus points awarded for completion of the course under a time limit. Points are not official until verified by master scorekeeper.
Points will be earned at completion of each task action. If tasks are disturbed in subsequent actions, teams will still earn the points for completion.

Task Points
Tasks can be completed for a total of 100 points divided across the tasks as follows:

Task 1: Inspect the Bridge has a max of twenty-six (26) points.
- 1A – Ten (10) points for hooking the red marker float on the right rear bridge pillar.
- 1B – Two (2) points for sliding the cover pipe partially onto the red stripe to fix the support beam.
- 1C – Six (6) points for fully sliding the cover pipe completely covering the red stripe to fix the support beam.
- 1D – Eight (8) points for releasing the green marker float.

Task 2: Survey the Dam has a max of twenty-four (24) points.
- 2A – Four (4) points for removing the plug from the surface vessel.
- 2B - Twelve (12) points for placing the plug in the hole on the slanted dam wall.
- 2C - Eight (8) points for rotating the flood gate cover to close the flood gate.

Task 3: Clear the Debris Field has a max of thirty-eight (38) points.
- 3A – Four (4) points for removing the marine life from the Front Platform
- 3B – Eight (8) points for placing the marine life on the Back Platform.
- 3C – Six (6) points for removing the heavy piece of submerged debris from the Back Platform.
- 3D – Twenty (20) points for placing the heavy piece of submerged debris on a hook on the Surface Vessel.

Task 4: Sample Water Quality has a max of twelve (12) points.
- 4A – Four (4) points for removing the water sampler from the Back Platform.
- 4B – Eight (8) points for placing water sampler on a hook on the Surface Vessel.

Time Bonus Points

Teams may earn bonus points for successfully completing all tasks in less than 6 minutes. Bonus points are based on adjusted finished time including any time penalties incurred during the run. Bonus points are applied for:
- **Ten (10) points** for finish times less than 4 minutes
- **Five (5) points** for finish times less than 6 minutes

Scoresheet

The mission course scoresheet is available in Appendix A: Competition Scoresheets & Rubric-Mission Course Scoresheet

5.4. Technical Design Report Scoring

Points will be earned at completion of each task action. If tasks are disturbed in subsequent actions, teams will still earn the points for completion.

This submission is worth 100 points.:

- Abstract – 10 points max
- Task Overview – 10 points max
- Design Approach – 26 points max
- Experimental Results – 14 points max
- Reflection & Next Steps – 10 points max
- Acknowledgements – 4 points max
- References – 8 points max
- Budget – 4 points max
- Writing Skills – 8 points max
- Paper format – 6 points max

The following Scoring Guidelines are provided to evaluate the Technical Design Report.

- Mission 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. Above Average (85%)
- Robust (4 points): Exceeds requirements with additional content, material, formatting. Superior (95%)

5.5. On-site Pitching Scoring

This submission is worth 100 points.:

- Organizing – 2 points max
- Presenting – 2 points max
- Responding to questions – 5 points max
- Problem Statement and solution – 2 points max
- Describing technical and mechanical features and control system – 4 points max
- Progress status – 3 points max
- Future – 2 points max

Guidelines are available in Appendix A: Competition Scoresheets and Rubric.

SECTION 6: Appendices

2026 International SeaPerch Challenge

- **Appendix A: Competition Score Sheets & Rubrics**
- **Appendix B: Compliance Checklist**
- **Appendix C: Competition Classes Overview and budget directions**

6.1. Appendix A: Competition Scoresheets & Rubrics

Pool Course Scoresheets – Mission and Obstacle Course
Document Link

Onsite Pitching Scoresheets
Document Link

Meet The Team & SeaPerch Fact Sheet Template
Document Link

Technical Design Report Scoring Rubric
Document Link

Real-World Innovation Scoring Rubric
Document Link

Real-World poster optional Template
Document Link

6.2. Appendix B: Compliance Checklist

Design must follow Competition Classes and Design Rules.
All SeaPerch ROVs must meet vehicle requirements for (1) design, (2) safety and (3) construction during the Compliance Checks before the ROV can be permitted on the courses. A Compliance Checklist will be included in each team's registration packet at the SeaPerch Challenge.
No parts or attachments (except buoyancy material) may be removed or added after the compliance check, but attachments may be repositioned.

Design must follow Competition Classes and Design Rules.

- Compliance Checklist (Open Class)
- Compliance Checklist (Stock Class)

6.2.1. Design Compliance

Stock and Open Classes

- Requires only one standard power source for propulsion. Battery limited to one 12VDC, 9Ah max battery no

larger than standard SeaPerch battery.
- Uses no more than one additional external battery of 12VDC, 9Ah max no larger than standard SeaPerch battery for auxiliary equipment
- Uses only standard SeaPerch kit motors or exact replacement for propulsion

Stock Classes Specific

- Maximum of 3 standard motors for propulsion
- ROV meets maximum $25 (value) budget limit for modifications

Safety

- No exposed live wires on controllers, SeaPerch ROV or tether cable
- No sharp edges or potentially hazardous parts
- Motors are sealed (waterproofed)
- Power cable has insulated covers on alligator clips or terminals

Construction

- No loose parts that could potentially fall off during competition
- Tether cable is secured to ROV

The team's captain or coach must sign off on the Compliance Checklist and and assure that the team will not make modifications to the ROV system after the compliance check.

Team Captain or Coach's Name: _____
Signature: _____

6.3. Appendix C: Competition Classes Overview and Budget Directions

The 2025 International SeaPerch Challenge will include three (3) competition classes. These classes are updated from past years so please review the chart below carefully. **Please note**, **stock classes are limited to PVC, CPVC, and PEX pipe for the ROV frame and may not include 3D printed frames, or frame parts**. Frame parts are any parts that add structural integrity to the frame or connect frame parts together. For stock classes, 3D printed parts may not extend the frame to attach other 3D printed parts, this will be considered a frame part.

Rules	Middle School Stock Class	High School Stock Class	Open Class
BUDGET*			
The total cost of modifications to the final ROV must be $25 or less	X	X	
The cost of modifications may exceed $25			X
MATERIALS			
Frame built using only PVC, CPVC, PEX pipe and fittings. Any size pipes and pipe fittings may be used. Pipes and pipe fittings may be modified using hand and power tools.	X	X	
Frame parts may be modified using using CNC or other automated process.			X
Frame may include 3D printed or additive manufactured parts as well as other materials, and may be made using CNC machinery or other automated process.			X
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. For stock classes, the majority of the parts used must be pipes and pipe fittings. (i.e. a single pipe fitting used for the frame with 3D printed parts for motor mounts is not allowed).	X	X	X
POWER SUPPLY			
Must design for and utilize a 12-volt power source	X	X	X
May utilize a second power source (no more than 12-volts) to power auxiliary equipment	X	X	X
MOTORS			
All motors must be waterproofed	X	X	X
Must use ONLY stock SeaPerch motors (Jameco Electronics 232022) for propulsion**	X	X	X
Additional non-stock motors may be used for non-propulsion uses	X	X	X
May include more than 3 thrusters (i.e., motor and propeller assembly) for propulsion			X
May use custom propellers	X	X	X

Rules	Middle School Stock Class	High School Stock Class	Open Class
CONTROLLERS			
Must only use simple on/off switches for thruster controls	X	X	
May use power conditioning or pulse-width modulation (PWM) controls for thruster controls			X
May use PWM, microcontrollers, or other devices for non-propulsion** controls	X	X	X
May use a fixed or variable resistor to reduce voltage	X	X	X
STRUCTURE/SIZE			
Must fit in the Surface Vessel and must be capable of passing through the Obstacle Course hoops. (see Section Pool Competition section)	X	X	X
COMPETITION CRITERIA			
If ROV is modified after compliance check (except for adding/removing buoyancy), it must be presented for a re-compliance check.	X	X	X
The same ROV must be used for both pool events	X	X	X
Team may include a student in 8th grade or below	X	X	X
Team may include a student in 9th grade or above		X	X

** Propulsion - Force directly exerted against the water that causes the ROV to translate or rotate in any direction.

Budget Guidelines:

The budget covers only items installed on the competition ROV and its controller that are not included in the standard SeaPerch kit.

What to count in Budget?

- Non-kit parts and materials installed on the ROV or controller (electronics, hardware, buoyancy, wiring, connectors, fasteners, adhesives, coatings, enclosures, mounts, etc.).
- Substitutes for kit items (if you replace a kit part with a different part, the substitute counts).
- Custom parts made by the team (e.g., brackets, housings), valued per the rules below.
- Cameras mounted to the ROV, cabling, monitor, mobile device, computer, and any support equipment count toward the budget.
- Bulk purchases: Prorate only the portion actually used on the competition vehicle.

What not to count in Budget?

- Standard SeaPerch kit parts used as intended.
- Spares and tools (meters, soldering supplies, jigs, drill bits, blades, printers, etc.).
- Prototype-only materials/parts not installed on the competition vehicle.

- Consumables/incidentals used in manufacturing but not present on the final vehicle (support material removed, sandpaper, tape used only during assembly).

Pricing Rules?

- Retail/sale price basis: Use the lowest verifiable retail price available to the public. Attach a link, screenshot, or receipt.
- Donations / free items: Count at the same retail price you would otherwise have paid (documentation required).
- Bulk/pack items: Prorate by unit (e.g., 2 of 10 screws from a pack of 50; price = 2 × (pack price/50)).
- Shipping/tax: Exclude ordinary shipping and sales tax from the budget total.
- 3D-printed parts: Cost at $0.02 per gram of the final installed part(s) only (exclude supports and failed prints).

Rules for 3D Printed Parts:

- Please note, stock classes are limited to PVC, CPVC, PEX, and other plastic pipe and fittings for the ROV frame and may not include 3D printed frames, or frame parts.
- 3D printed parts that add structural integrity to the frame or connect to more than one frame part shall not be allowed in stock class.
- A 3D printer assembly that consists of more than one part and that connects to more than one frame part shall not be allowed in stock class.
- For stock classes, 3D printed parts may not extend the frame to attach other 3D printed parts, this will be considered a frame part.