Section 2: Pool Competition

This section includes the following sections:

- 2.1 Obstacle Course
- 2.2 Mission Course
- 2.3 Pool Competition Rules
- 2.4 Compliance Checklist

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.

Compliance Check

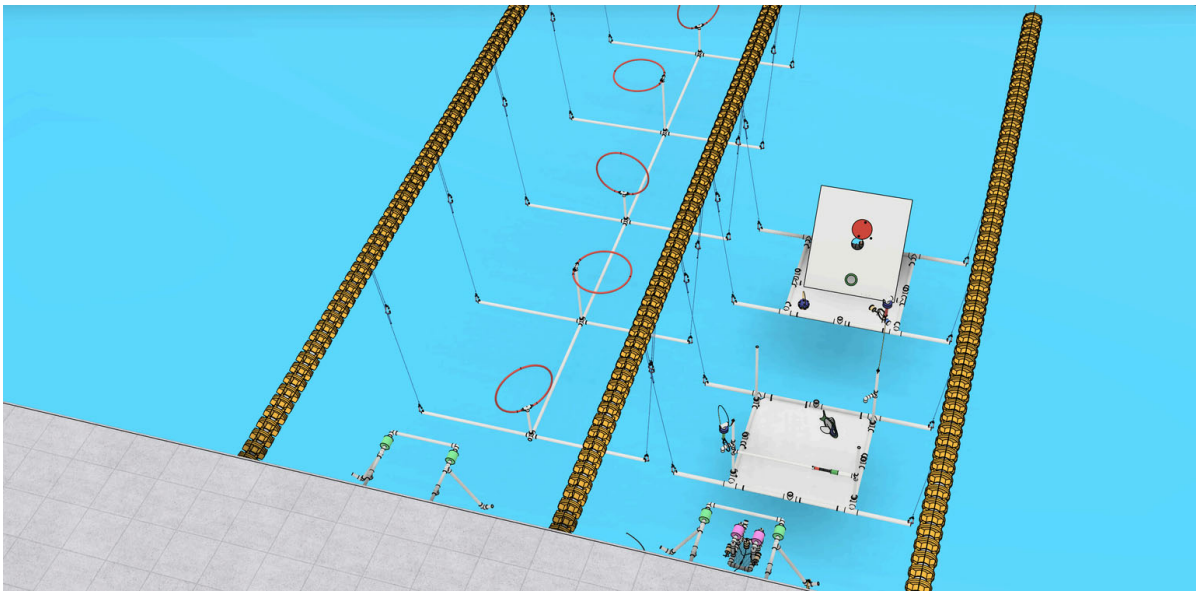
All SeaPerch ROVs must meet vehicle safety requirements during the on-site Compliance Checks before the ROV can be permitted on the courses.

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.

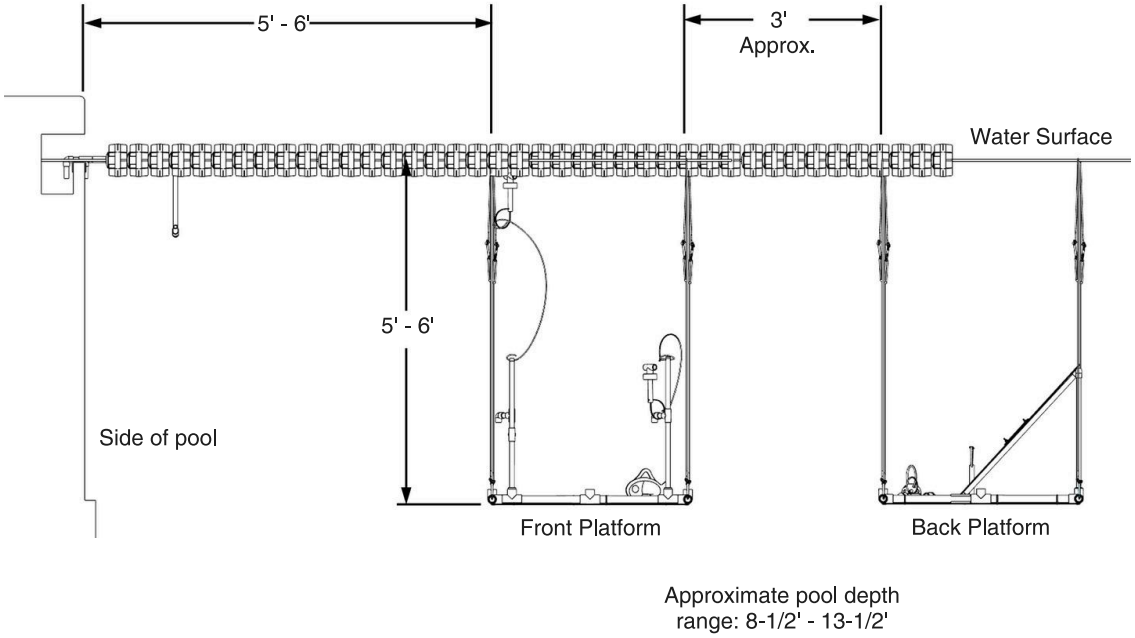
Lane Setup

The obstacle course and mission courses will be suspended from the pool's lane dividers with the lower course frames approximately 5-6 feet below the water surface and 5-6 feet from the side of the pool.

The obstacle course and mission course will be arranged beside each other and considered a single competition lane. The pool will include eight (8) competition lanes to 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

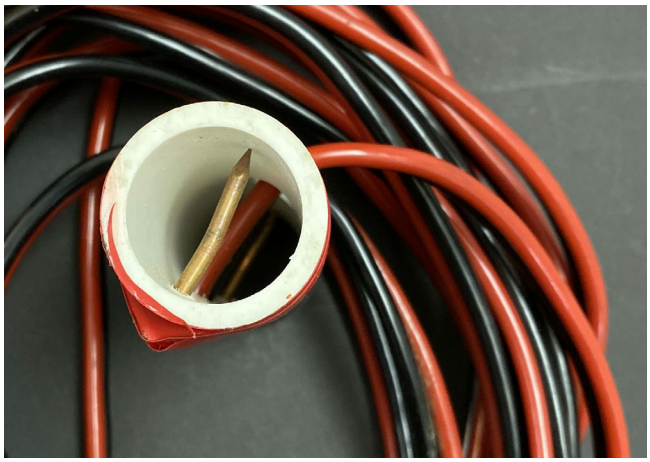


Course Layout Diagram

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 2.3.2. Auxiliary Equipment, Batteries, and Power Supplies for more information.

ROV Power Connection



Inside ROV Power Connection

Timing

Teams will 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 will be 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 will start when each run starts and records the official run times. Teams may start subsequent runs immediately after completing a prior run but must receive 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 when the 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.

Obstacle Course Timing

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

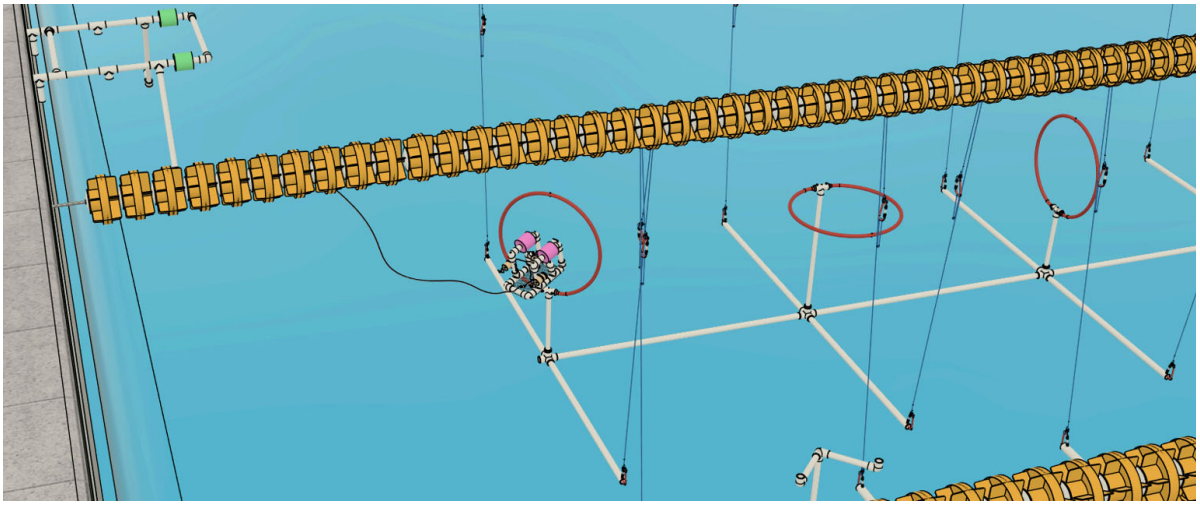
Mission Course Timing

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

2.1 Obstacle Course

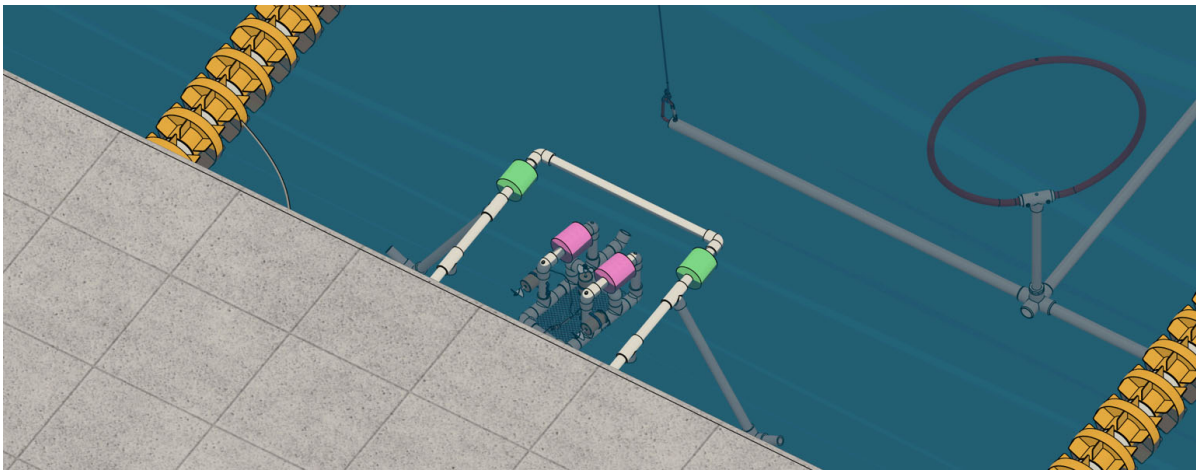
The Obstacle Course consists of five 18″ hoops oriented at different angles and suspended 5-6 feet below the water surface.

> *Please note that there is no guarantee of the position of the hoops when the course is deployed in the pool at the 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 of general high-speed maneuvers.



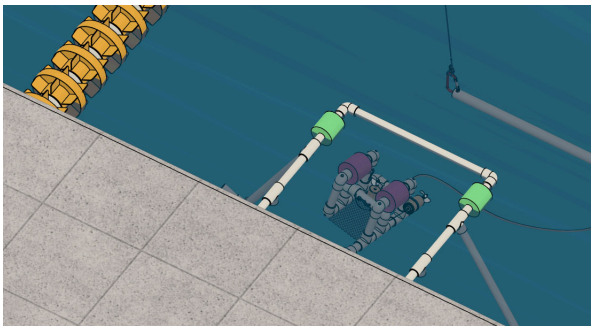
Suspended Obstacle Course

Navigation Overview

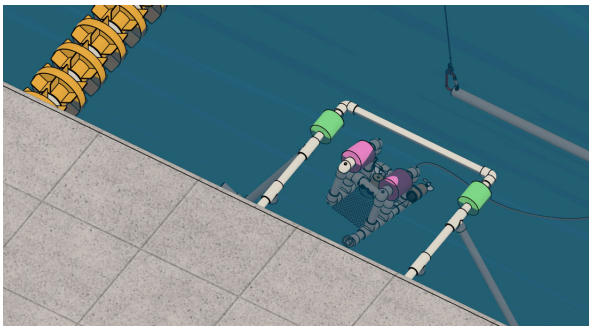


Start of Run

- *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 when 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.



Not Surfaced



End of Run - ROV Surfaced

Scoring Overview

Teams are ranked based on time.

Download the Obstacle Course Scoresheet in the Document Library.

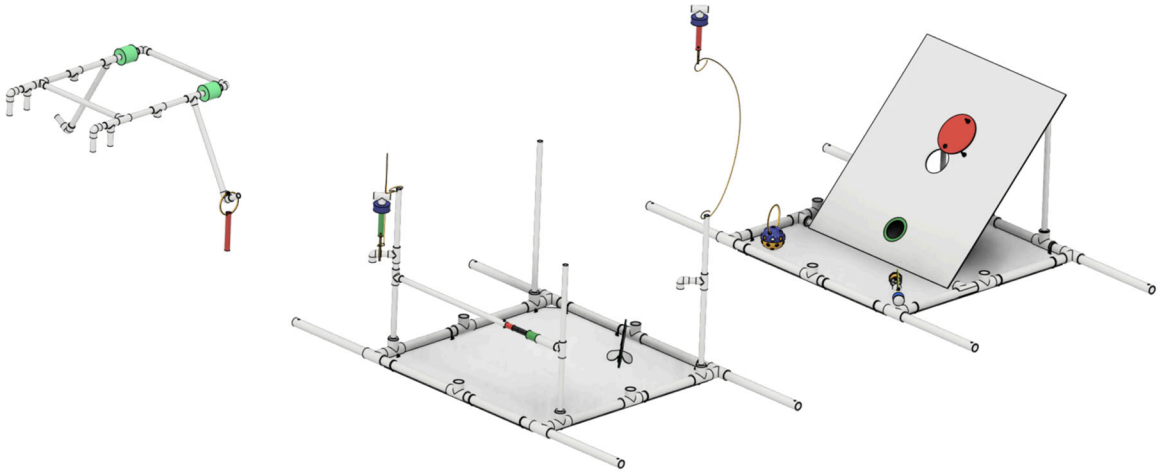
2.2 Mission Course

This section includes the following sections:

- 2.2.1 Course Layout
- 2.2.2 Navigation Overview
- 2.2.3 Task Descriptions

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:



The Mission Course tasks include:

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.

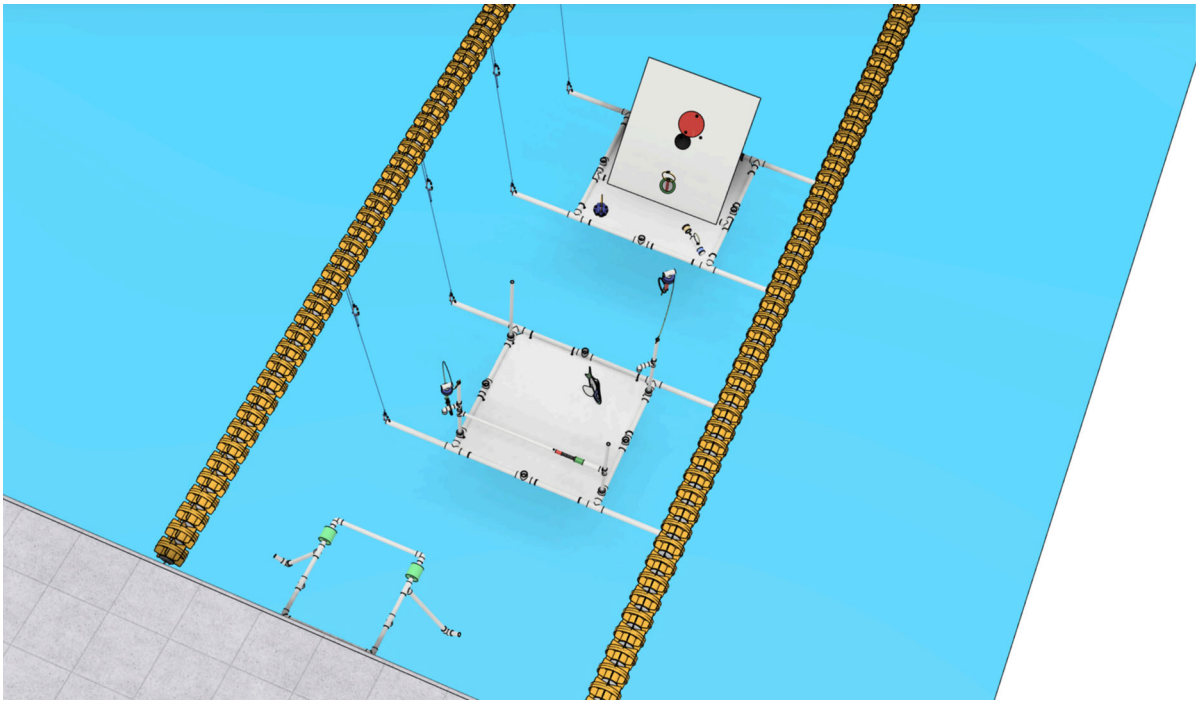
Task 4: Sample Water Quality

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.

2.2.1 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 ↗.

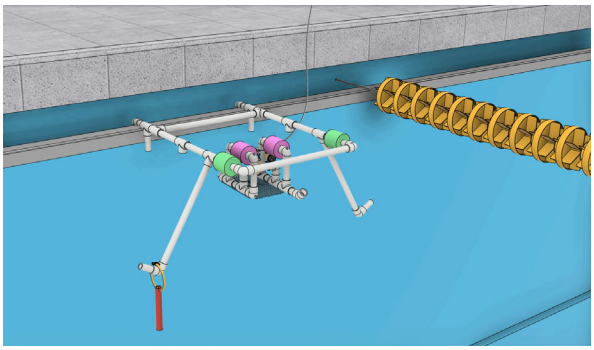
The following section covers the details for the Surface Vessel, Front Platform, and Back Platform.

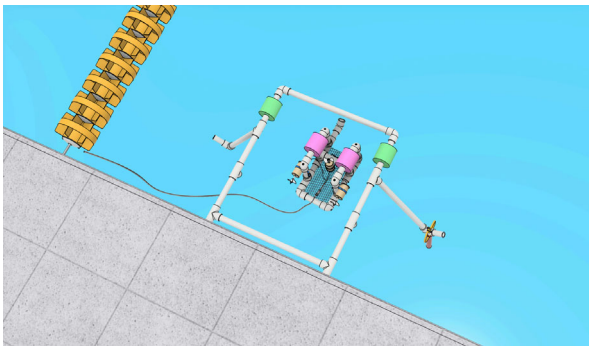


Surface Vessel

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.

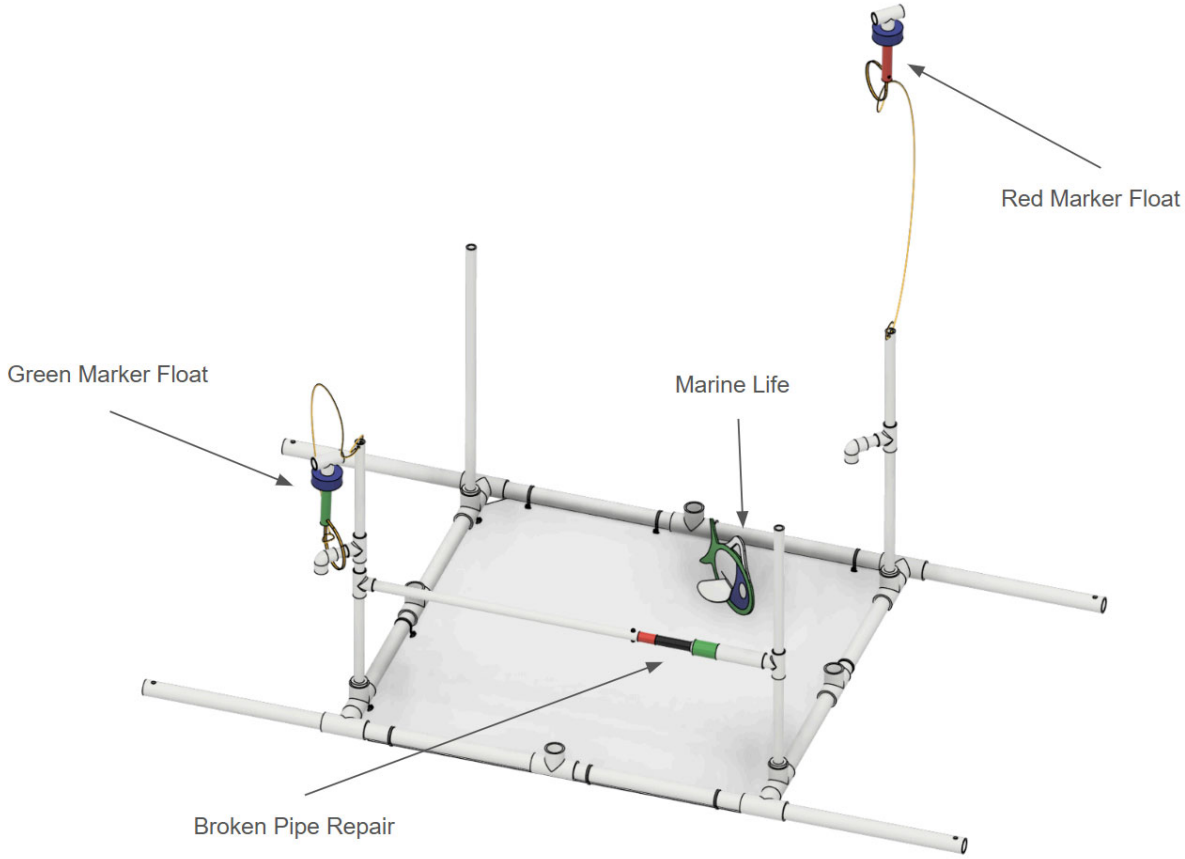
One plug (Task 2) will hang below the surface vehicle structure.





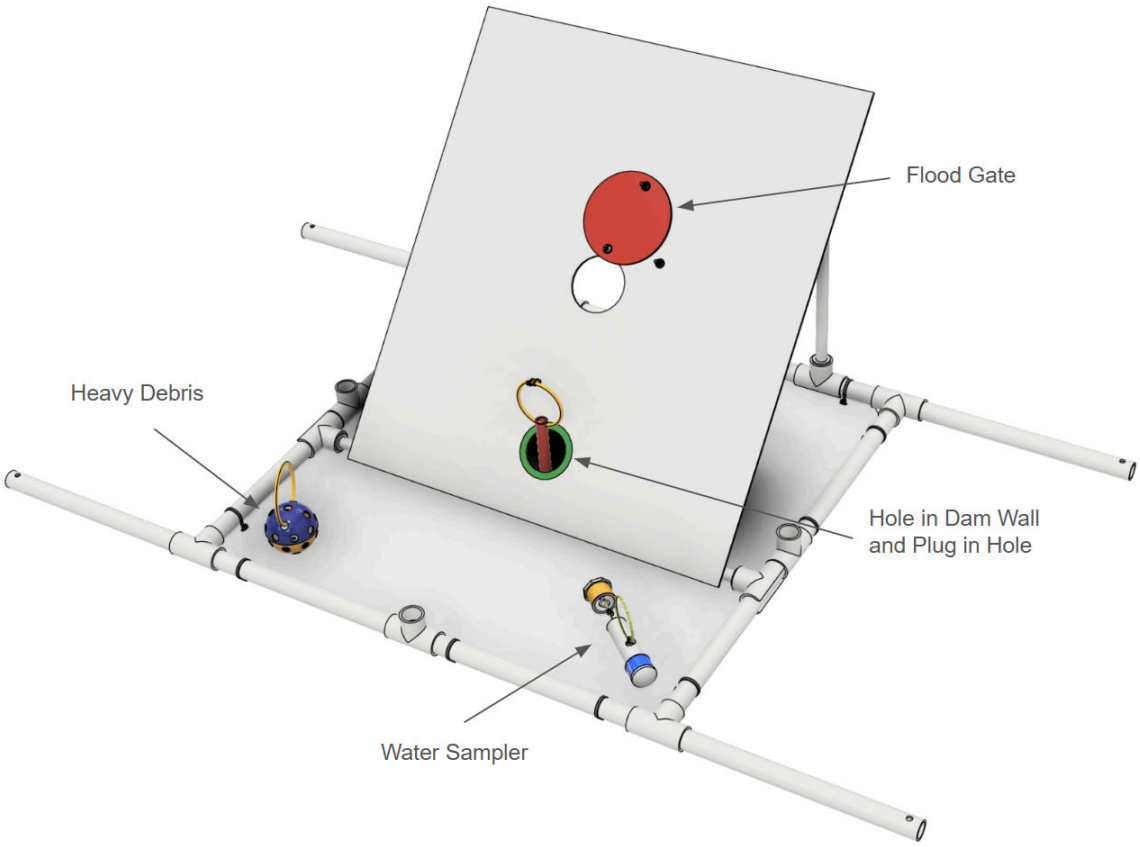
Front Platform

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

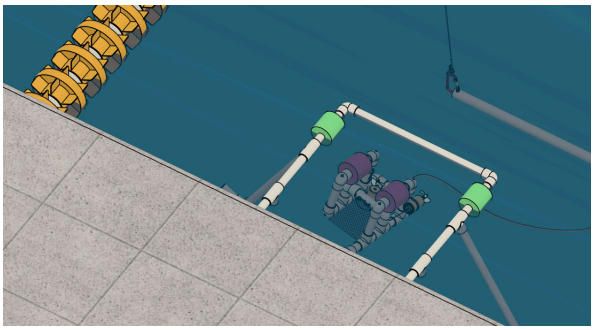
The back platform includes the wall of a dam (Task 2), the heavy submerged debris (Task 3), and Water Sampler (Task 4).



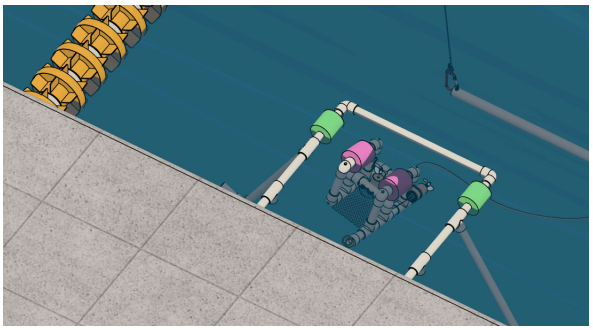
2.2.2 Navigation Overview

- *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.

> ⓘ 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.)

2.2.3 Task Descriptions

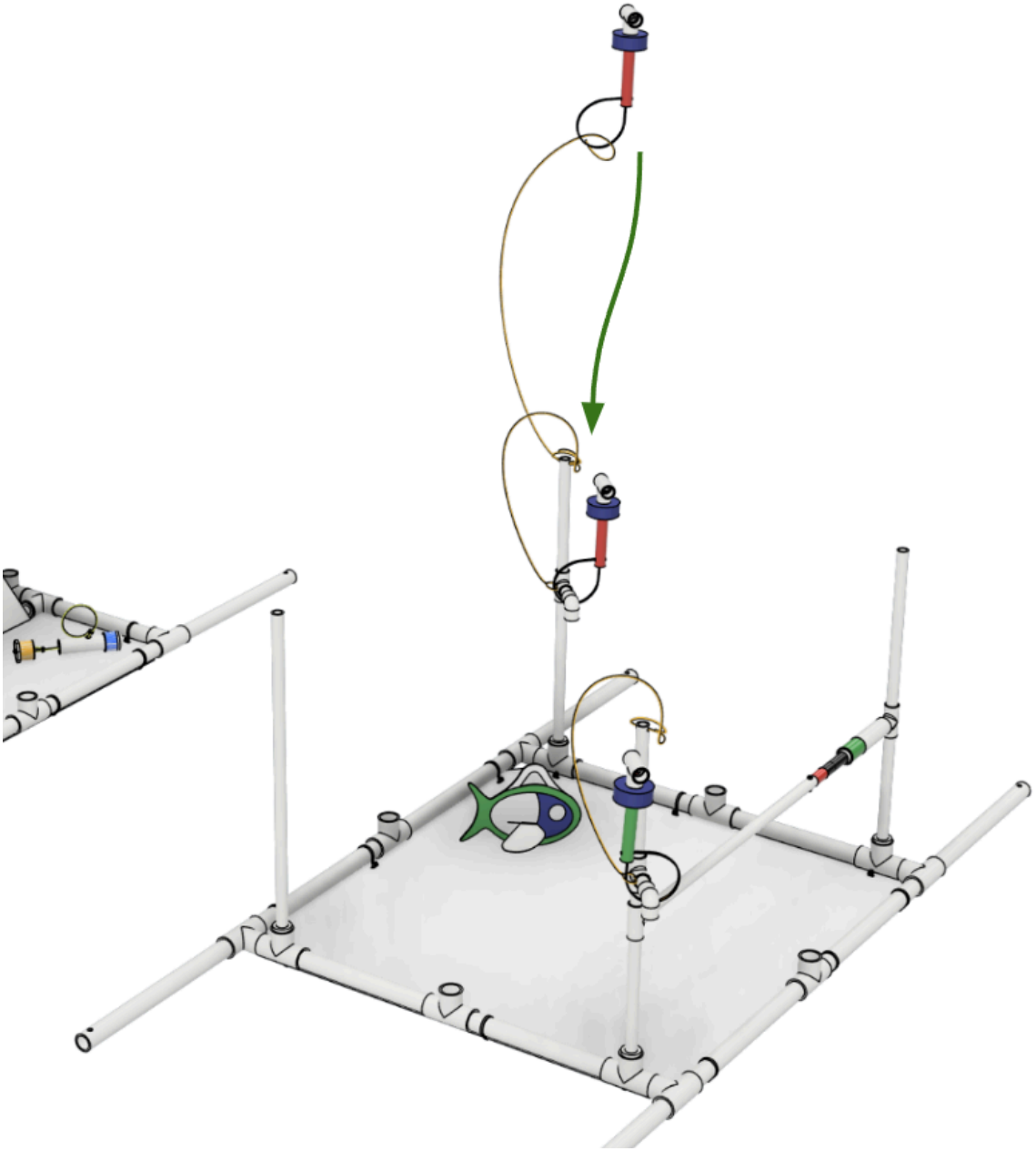
Task 1: Inspect the Bridge

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.

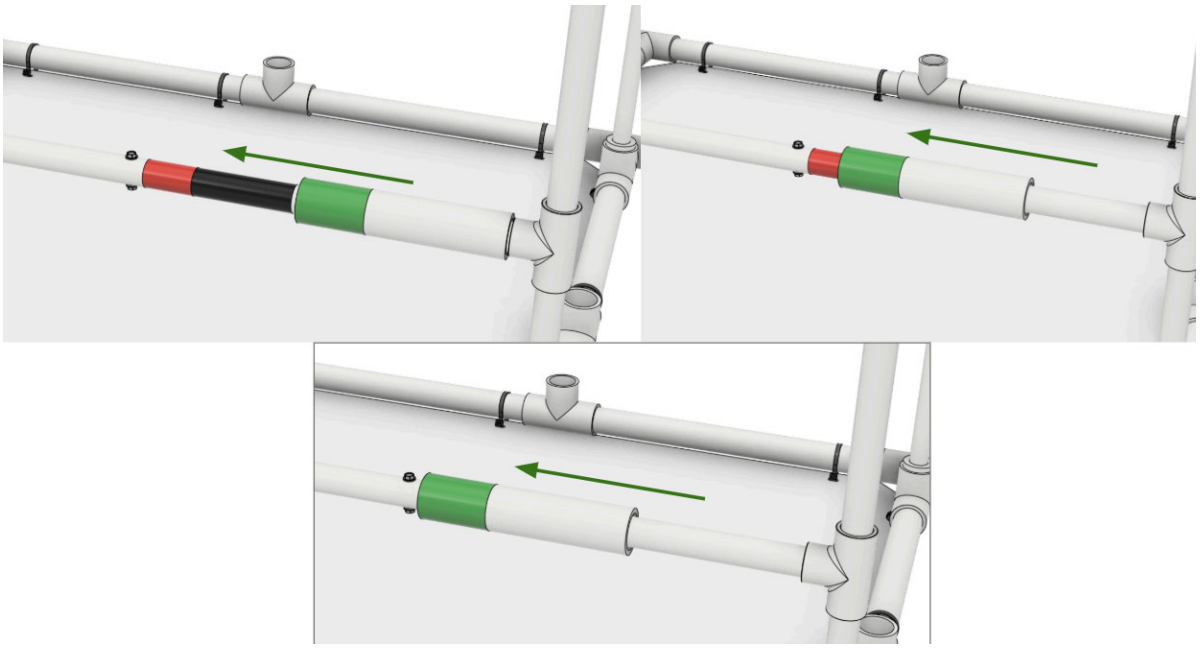
Task 1.1: Retrieve the red marker float, and hook on the back right bridge pillar.

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

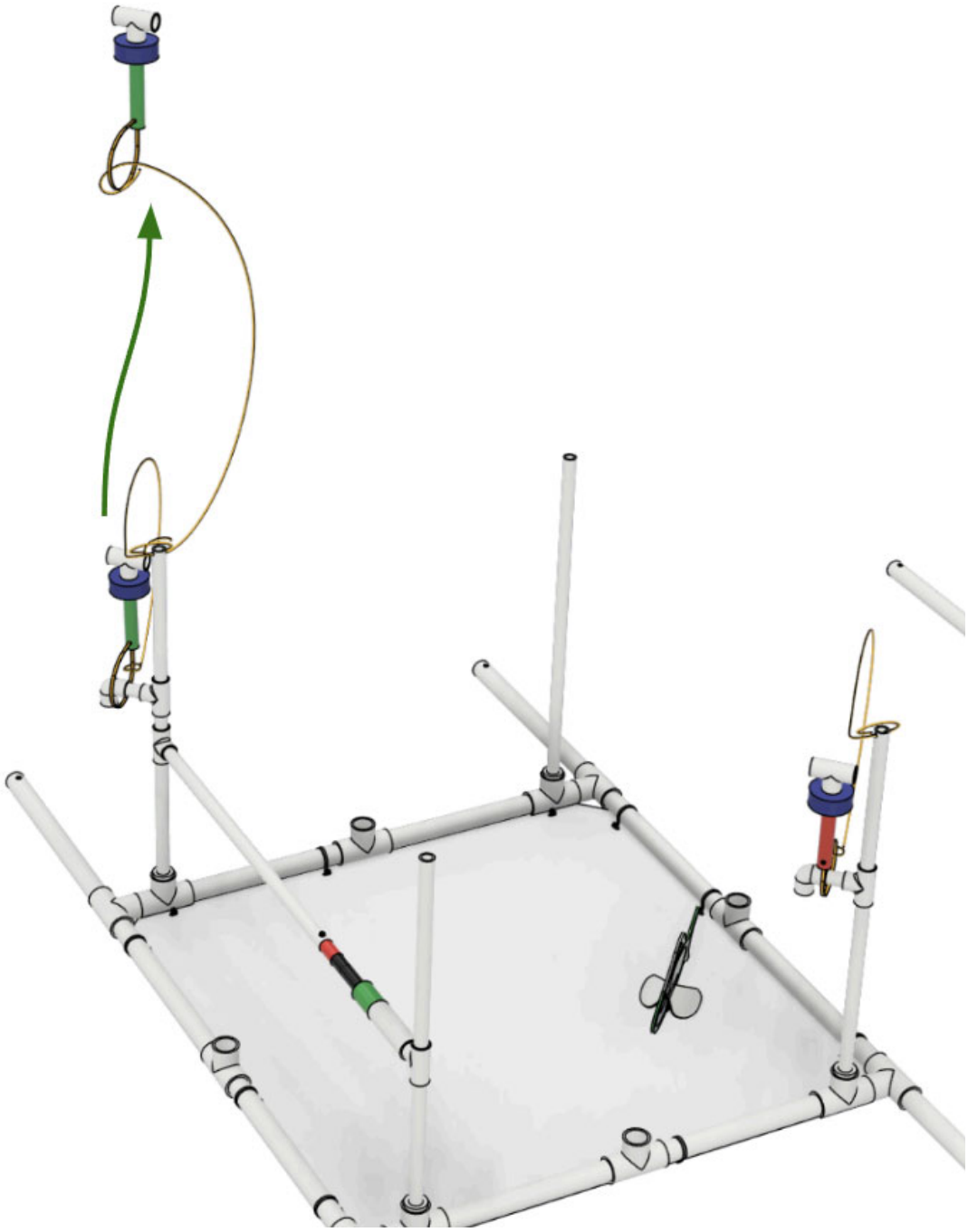
Task 1.3: Release the green marker float at the front left bridge pillar.



Task 1.1: 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.



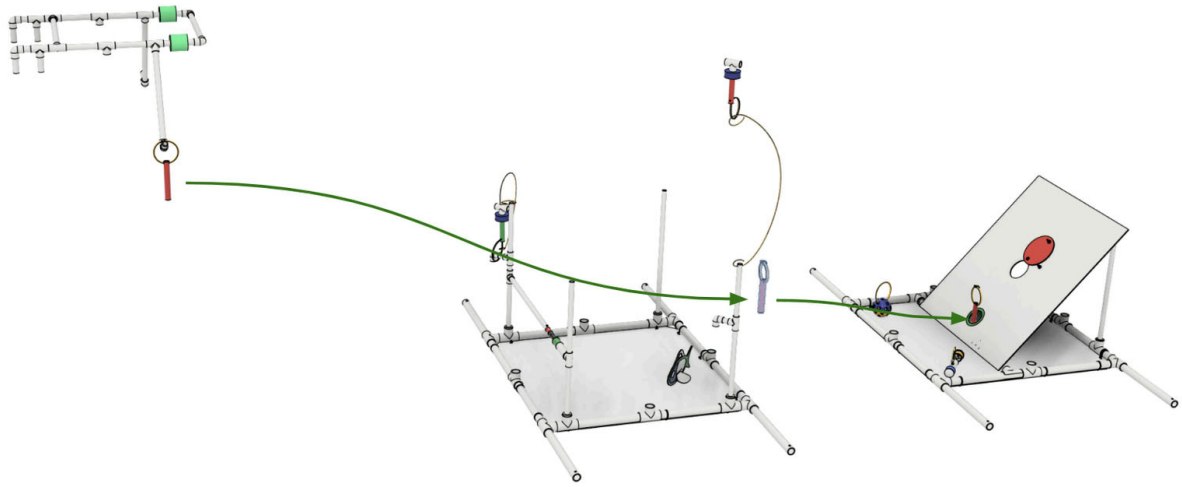
Task 1.3: Release the green marker float at the front left bridge pillar.

Task 2: Survey the Dam

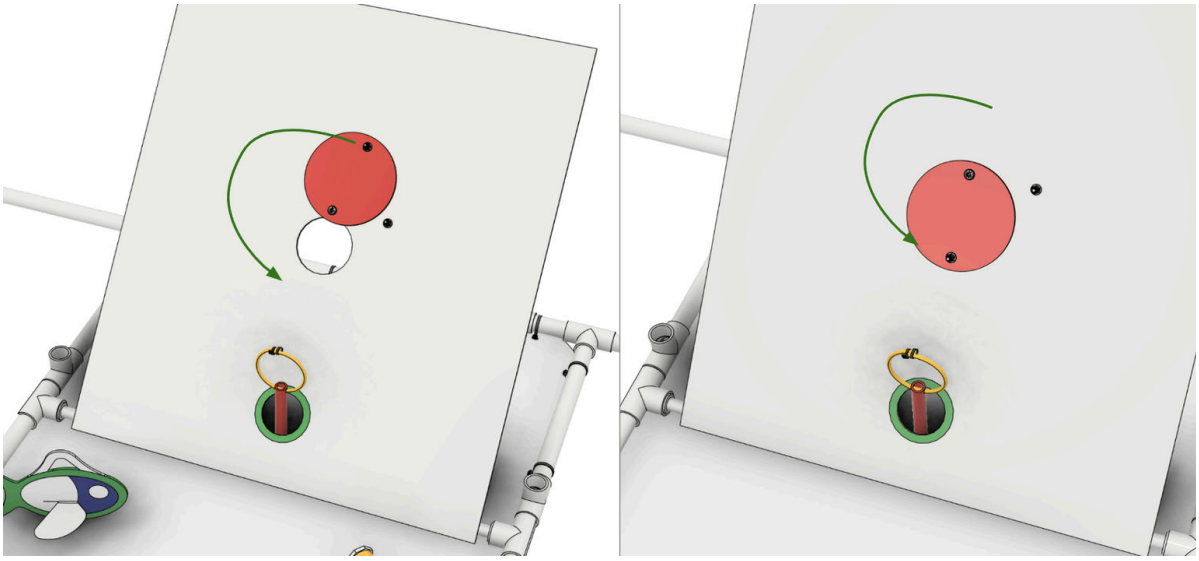
The ROV must move the plug to the hole in the dam, and rotate the cover to close the flood gate. At the start of the run, the red plug will be located on a hook on the Surface Vessel, and the red flood gate will be located on the slanted dam wall on the Back Platform.

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.

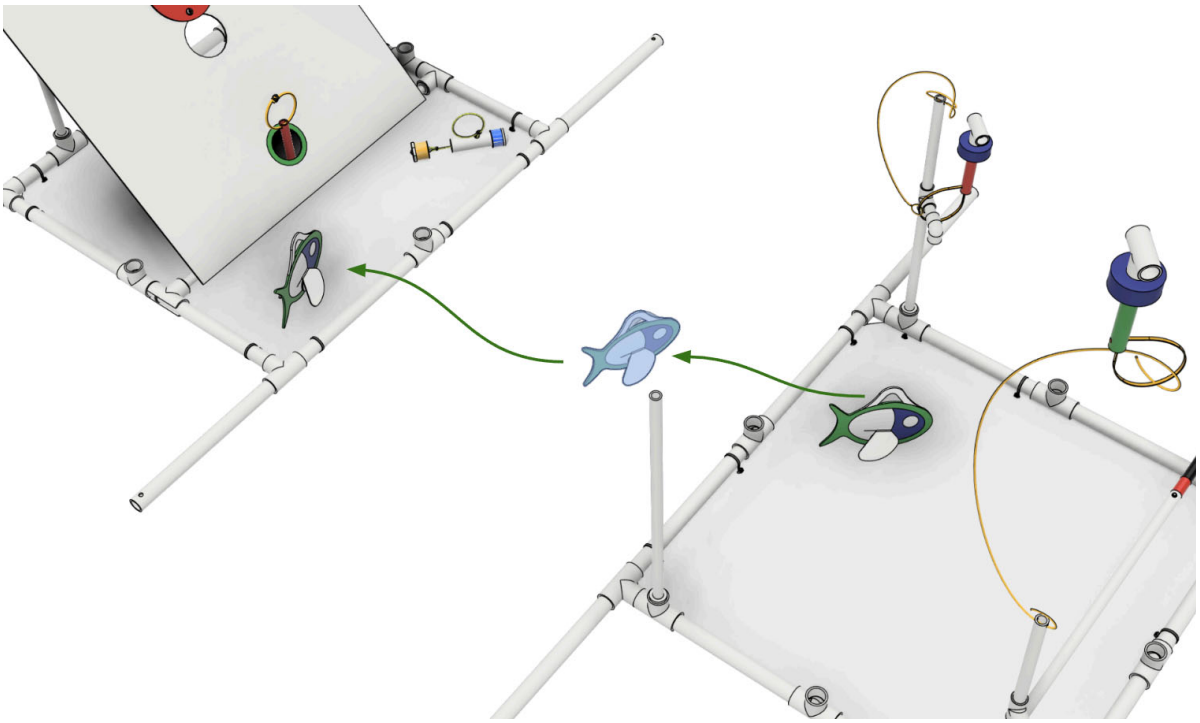
Task 3: Clear the Debris Field

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.

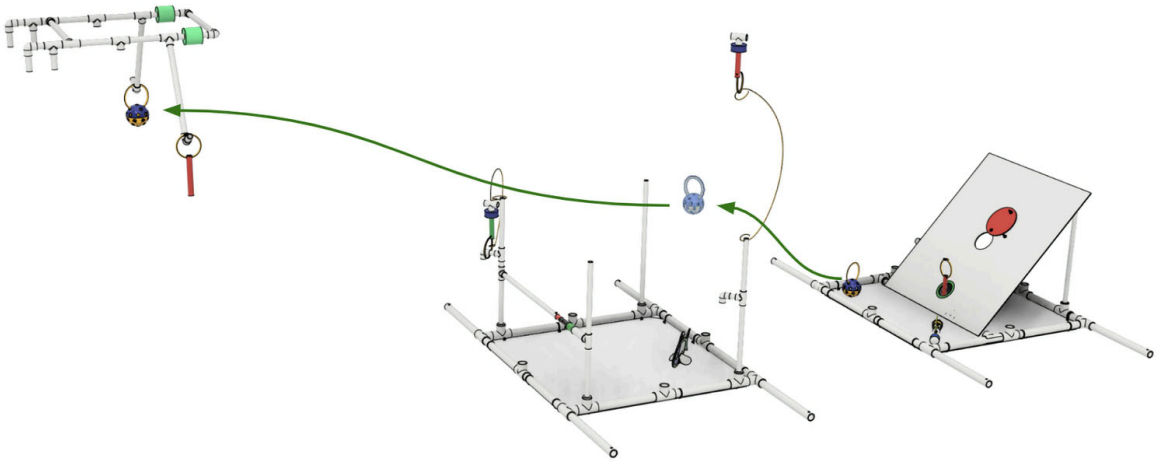
Task 3.1: Retrieve and place marine life on the Back Platform.

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.



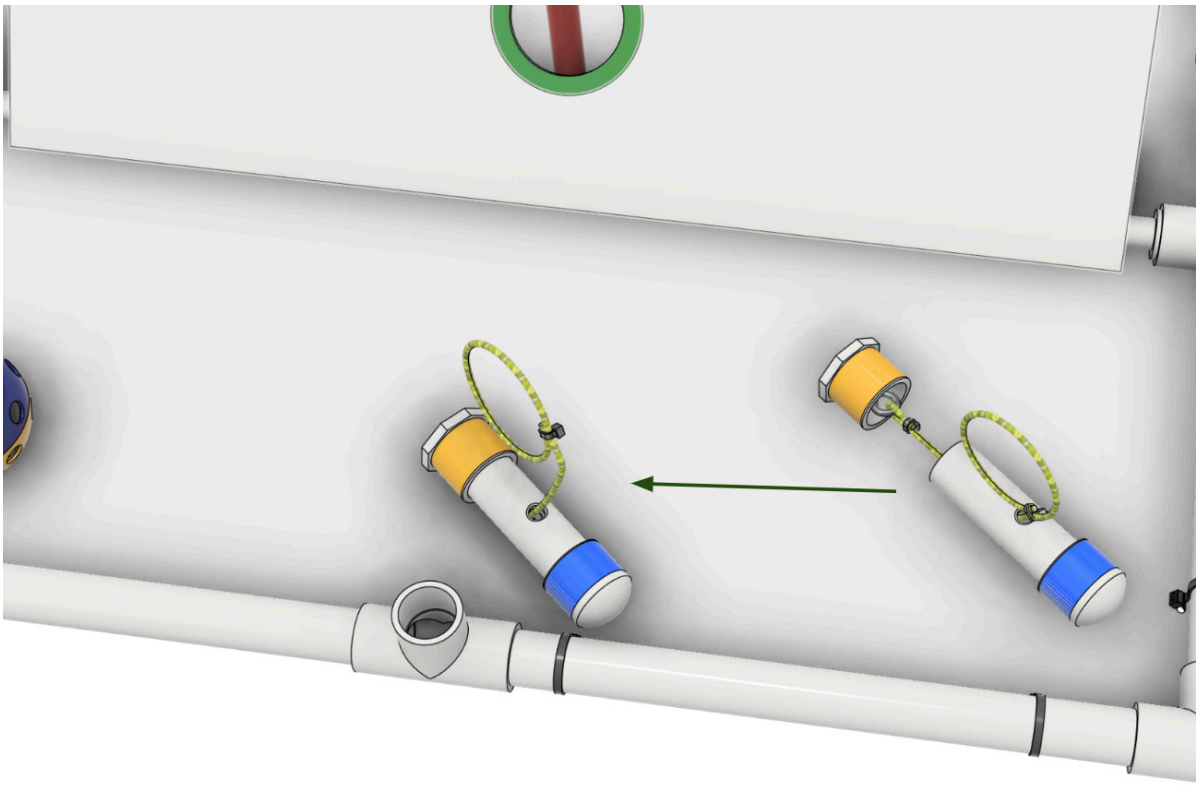
Task 3.2 and 3.3: Lift and place heavy piece of submerged debris on a hook on the Surface Vessel.

Task 4: Sample Water Quality

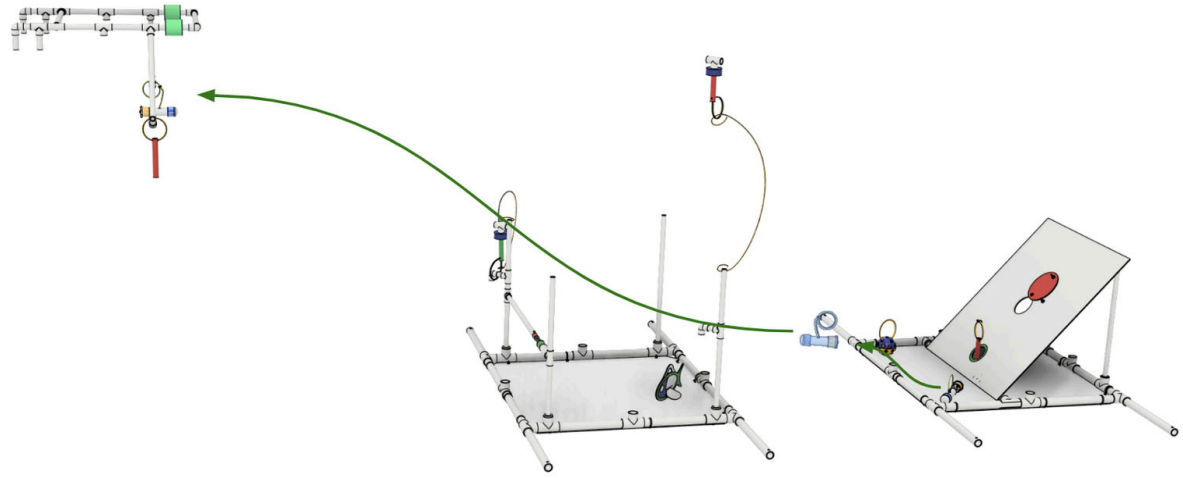
The ROV must retrieve the water sampler and return it to the Surface Vessel. At the start of the run, the water sampler will be open and located on the Back Platform.

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.

Scoring Overview

Teams are scored and ranked based on completion of tasks and time. A full scoring breakdown can be found in Section 4.1 Pool Competition Scoring.

Download the Mission Course Scoresheet in the Document Library.