2026 INTERNATIONAL SEAPERCH CHALLENGE

PRESENTATION SCHEDULE | SATURDAY, MAY 30, 2026

Date	Time	Location	Team ID & Team Name
Saturday, May 30, 2025	**1:00 PM**	Room A Room 1100 | Cambridge Community Center	111 | Orcas | Andover High School
			411 | Darkstar Disaster Relief | Civil Air Patrol - Milwaukee Composite Squadron
			520 | Reef Renegades | Lake Castle Slidell Private School
			567 | Storm Crusaders | Lake Castle Slidell Private School
		Room B Room 1111 | Cambridge Community Center	405 | Oasis | Unity Junior High School
			522 | The Gummy Sharks | Calcasieu Parish School Board
			523 | Riptide Raiders | River City Science Academy Southeast
			707 | ASA-SEANATION | West Mesa High School
		Room C Room 1205 | Cambridge Community Center	014 | Team Dream Rong Zhen | Beijing Bayi School
			310 | Sea Turtles | Loudoun County High School NJROTC
			402 | OceanPerch | Clinton High School
			Tech Talk | Susan L. Morrow, Ph.D. | The Learning Center
	2:00 PM	Room A Room 1100 | Cambridge Community Center	311 | USS Amphibian | Loudoun County High School NJROTC
			406 | Phoenix | Unity Junior High School
			514 | The Oranges | Buddy Taylor Middle School
			564 | O.C.E.A.N. | Long Beach High School, Long Beach School District
		Room B Room 1111 | Cambridge Community Center	309 | Sea Breachers | Chesapeake Science Point High School/Middle
			566 | Wave Warriors | Oak Grove High School Robotics Club
			580 | Exo-Aquanauts | Randall Middle School/Hillsborough County Public Schools
		Room C Room 1205 | Cambridge Community Center	016 | Wise Submariner | Beijing Bayi School & Quanzhou No. 5 High School & Huangchenggen Primary School
			524 | Storm Chasers | River City Science Academy Southeast
			710 | Team Stingray | West Mesa High School
			733 | Bearracudas | Palmer Elementary
	3:00 PM	Room A Room 1100 | Cambridge Community Center	004 | Pink Fluffy Unicorns NZ | Lynmore Primary School
			216 | The Clique | Lacey Township High School
			312 | Red October | Loudoun County High School NJROTC
			410 | Chicken on a Chain | St. Mary School
		Room B Room 1111 | Cambridge Community Center	211 | Katrina – Seabots | Mt. Laurel Schools
			212 | Salvataras – SeaBots | Mt. Laurel Schools
			573 | Sustainable Cyclones | Carrollton School of the Sacred Heart
			708 | WMS-3 | Washington Middle School
		Room C Room 1205 | Cambridge Community Center	209 | Haddonfield Aquabotics | Haddonfield Memorial High School
			518 | Sea Searchers | Stuart Middle School, Engineering Club
			712 | Neptune's Sting | West Mesa High School
			734 | Oceanus Robotics Team C | Elkins High School, Clements High School, and Ridge Point High School

2025 INTERNATIONAL SEAPERCH CHALLENGE

PRESENTATION SCHEDULE | SUNDAY, MAY 31, 2026

Date	Time	Location	Team ID & Team Name
Sunday, May 31, 2026	**9:00 AM**	Room A Room 1100 | Cambridge Community Center	006 | Placeholders | Nelson Intermediate School
			013 | Deep Sea Nautilus | Guangdong Experimental High School & Beijing No. 35 High School & Guangdong Overseas Chinese High School
			586 | Lights Out | River City Science Academy Southeast
		Room B Room 1111 | Cambridge Community Center	020 | DeltaY | Pui Ching Middle School Macau
			024 | DEEPWAVE | Esc. Lysander Borrrero Terry
			129 | Subatomic Submarines | Naperville Seaperch
			213 | Enforcers | PAL of Egg Harbor Twp & Atlantic County
		Room C Room 1205 | Cambridge Community Center	108 | Fish at Ease | Fujian Collaborative Center
			318 | Here Comes the Boom | SCGSSM
			517 | Flying Fish | Mayport Coastal Sciences Middle School
	10:00 AM	Room A Room 1100 | Cambridge Community Center	102 | Team Delta | The Pennfield School
			403 | Made in China | Clinton High School
			704 | Anglerfish | Mayport Coastal Sciences Middle School
		Room B Room 1111 | Cambridge Community Center	010 | Nomadic Guardians | Bibigul Tulegenova Creative School
			022 | AquaPR | Escuela Isabel Alvarado Alvarado
			141 | Defenestration | Naperville Seaperch
		Room C Room 1205 | Cambridge Community Center	019 | DeltaX | Pui Ching Middle School Macau
			735 | Oceanus Robotics - Team A | Clements, Elkins, Ridgepoint HS
			914 | ProtoKnights 1 | Castle High School
	11:00 AM	Room A Room 1100 | Cambridge Community Center	401 | DANDRUFF | Clinton High School
			407 | Hurricanes | Washington Island School District
			701 | PB & Jellyfish | Manvel Junior High Warriors SeaPerch
		Room B Room 1111 | Cambridge Community Center	028 | Ocean Crew | i-STEMer Academy
			579 | Mecha Makos A | MAST Academy
			901 | Reef Hearted | Eureka Academy
		Room C Room 1205 | Cambridge Community Center	015 | Zhicheng Dreamers | Beijing No.35 High School
			023 | NAIADES | CROEV
			511 | The Sharknadoes | Apollo Middle School

Saturday, May 30 | 1:00 PM
Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-1A

111 | Orcas
Andover High School| Andover, Massachusetts, USA

We chose to make our ROV's frame is almost entirely out of custom, 3D printed parts. We have a uniquely streamlined, lightweight, and modular SeaPerch optimized for this year's challenge. For example, after joining the Open Class, we were able to use 4 motors, 2 providing powerful vertical motion without tipping the robot in any direction. This is paired with thrust tunnels, which enable easy water flow. Additionally, rather than using the ubiquitous round cables to tether our SeaPerch, which are prone to tangling and causing excessive drag, we use a flat and lightweight cable, improving manuverability.

411| Darkstar Disaster Relief
Civil Air Patrol - Milwaukee Composite Squadron| Oak Creek, Wisconsin, USA

Our ROV features many unique designs that separate us from others. Our ROV has a foldable arm that retracts into the robot during the obstacle course to shorten our ROV. It then extends out for the mission course to accomplish tasks using our specially designed 3D printed claw. This foldable arm is something we have only seen on a few other ROVs this year.

520 | Reef Renegades
Lake Castle Slidell Private School | Slidell, Louisiana, USA

The Mission Course represents how storms damage structures, disrupt wildlife, and create environmental hazards. Our team made structural adjustments to our ROV to accomplish the course objectives. During the initial stages of testing, we faced mechanical setbacks. We adjusted our design, testing resumed, and data collection improved. Modifications we made included reducing the size of the ROV as well as situating the motors in different places to maximize the stability of the ROV. One of the features that makes our ROV unique is the use of spray foam on the inside of the PVC frame to completely seal it.

567 | Storm Crusaders
Lake Castle Slidell Private School| Slidell, Louisiana, USA

After a catastrophic storm, underwater areas can be polluted with debris and damaged structures that are unsafe for people to explore. The real-world connection is that storm recovery teams rely on underwater technology to assess conditions without putting people in danger. The team built our ROV to complete this course by utilizing the engineering design process steps: ask, imagine, plan, create, test, and improve. The team worked collaboratively on various solutions before planning a design and creating ROV Triton, a pentagonal-based shape to assist with water dynamics.

Saturday, May 30 | 1:00 PM
Room B | Room 1111 | Cambridge Community Center

Team ID | Team Name School/Organization | Location	Session P-1B

405 | Oasis
Unity Junior High School | Cicero, Illinois, USA

Snowstorm's unique top and bottom frame are stretched hexagons, creating a symmetrical, balanced, hydrodynamic shape. A 4" peg board hook with flex seal for added friction carries objects easily. We built 4 v-wing and 5 utility iterations to test lift, speed, and propellers with steeper pitches and longer diameters. Data impacted our final design decision. The tether is 22-AWG instead of 24-AWG so voltage is maximized to the motors, and it has a mesh cover to reduce drag. We used ¼" PVC pipes to make the frame lightweight and faster. Heated, bent pipes replace 45° connectors and maximize hydrodynamics.

522 | The Gummy Sharks
Calcasieu Parish School Board | Lake Charles, Louisiana, USA

Our Seaperch ROV is unique because of its design. It has dynamic ballasting which allows it to rise or sink quickly in the water while supporting stability. Our real-life inspiration is the puffer shark because it rapidly inflates to triple in size by swallowing air as a defense mechanism. The swell of the shark is like our robots dynamic ballasting system. This helps the ROV maneuver more efficiently and carry heavier objects during mission tasks. Intro video: https://youtu.be/TjfmmKpzTmc?si=ZqUOnDcPQkIjCaDA

523 | Riptide Raiders
River City Science Academy Southeast | Jacksonville, Florida, USA

Our team, Riptide Raiders, has a unique ROV because of the materials we chose, the way we designed it, and the teamwork behind it. We built our ROV using a combination of CPVC and PVC to reduce weight while keeping it strong and durable. Its compact size helps it move faster and create less drag in the water. Even though we started with little experience, we worked through challenges, built several prototypes, and chose the best design for competition. Along the way, we developed strong teamwork, communication, and engineering skills that helped us reach internationals.

707 | ASA-SEANATION
West Mesa High School | Albuquerque, New Mexico, USA

Our Seaperch is a fully custom-designed ROV that combines many advanced manufacturing processes like 3D printing and laser cutting. The chassis combines vapor-smoothed 3D-printed components with precision laser-cut acrylic for a sleek, durable design. Our tool is able to rotate or move around our frame for an adaptable design. Our left/right propellers have three blades and are oppositely pitched to rotate in opposite directions which eliminates torque issues. This ROV uses syringes for buoyancy, Plasti Dipped motors with hydrodynamic caps, and a custom 3D printed tether spool. With a low drag profile, it's optimized for performance.

Saturday, May 30 | 1:00 PM
Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-1C

014 | Team Dream Rong Zhen
Beijing Bayi School | Beijing, China

We followed the Engineering Design Process to iteratively refine our ROV. In the "Imagine" phase, we designed for both speed and stability. Using Tinkercad, we created and built the design, tested it in water, and improved it based on observations. For 2026, we enhanced buoyancy, stability on all axes, and replaced the hook with a claw for better grip and control.

310 | Sea Turtles
Loudoun County High School NJROTC | Leesburg, Virginia, USA

This report details how Team Sea Turtles optimized their remotely operated vehicle (ROV) through five prototypes, culminating in a final design. The vehicle was refined to achieve neutral buoyancy and enhance stability and velocity. Between September 2025 and April 2026, Team Sea Turtles applied the Engineering Design Process (EDP) for iterative testing to maximize buoyancy and efficiency, and to apply basic scientific principles.

402 | OceanPerch
Clinton High School | Clinton, Michigan, USA

Our ROV is unique compared to others in the competition because of its innovative design and efficiency. It features a fully 3D-printed frame that helps minimize the drag for navigation underwater. Our ROV also has a custom Arduino controller that uses pulse width modulation, making movements more responsive and allowing for a gradual increase and decrease of speed. Additionally, a wire harness ensures neutral buoyancy, which prevents the cord from interfering with the ROV's mobility. These features maximize performance to compete in both the Mission and Obstacle courses.

TECH TALK | The Classic Learning Test
Susan L. Morrow, Ph.D. | Director of Testing and Service Academy Partnerships | The Learning Center

Dr. Morrow will provide an overview of the college admissions testing landscape, helping students and families better understand today's testing options and strategies. She will also explore the critical role standardized testing can play in the U.S. Service Academy application process.

Saturday, May 30 | 2:00 PM
Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-2A

311 | USS Amphibian
Loudoun County High School NJROTC | Leesburg, Virginia, USA

This technical design report will detail how team USS Amphibian constructed their remotely operated vehicle (ROV). This report will show the steps team USS Amphibian took to optimize their ROV to perform at the highest possible level and work specifically in the water. Team USS Amphibian did this in many ways; those ways include buoyancy, speed, unique design and color.

406 | Phoenix
Unity Junior High School | Cicero, Illinois, USA

Five unique frame iterations led to Reflectified: a bottom-netted pentagon ROV, an ROV with no holes to use air as buoyancy, a submarine-shaped ROV, and a hanging pentagon. We tested speed, balance, and stability to pick Reflectified. Its elongated hexagon frame with a half-octagon shaped top-arch is hydrodynamic both forwards and backwards. Heated and bent ¼" frame pipes replace 45° connectors. A 22-AWG tether with lightweight mesh maximizes voltage to the motors. Cable gland strain relief provides tether stabilization. A flex-seal covered 4-inch pegboard hook, curved at the tip, is attached to the ROV's nose to easily grab items.

514 | The Oranges
Buddy Taylor Middle School | Palm Coast, Florida, USA

Our SeaPerch is unique because it is simple, compact, and effective. The 4-inch PVC pipe arm allows it to complete mission tasks efficiently. Adjustable bottles provide better control compared to standard pool floats, and the high-visibility color scheme makes navigation easier for the driver.

Being part of SeaPerch has helped me connect engineering to the real world. Designing, building, and piloting our ROV has strengthened skills like teamwork, problem-solving, precision, and tool use. I've also learned how ROVs are used to explore hard-to-reach areas, collect water samples, and inspect structures such as piers and ships.

564 | O.C.E.A.N.
Long Beach High School, Long Beach School District | Long Beach, Florida, USA

OCEAN is unique because it utilizes multiple arms instead of one to maximize efficiency. It takes the standard design and blends optimal weight, size, and balance to configure the best ROV possible. We also took advantage of the resources at our disposal for the PLA materials like the arm and VPerch for testing and experimental research.

Saturday, May 30 | 2:00 PM
Room B | Room 1111 – Cambridge Community Center

Team ID | Team Name School/Organization | Location	Session P-2B

309 | Sea Breachers
Chesapeake Science Point High School/Middle | Hanover, Maryland, USA

Our ROV is unique from our competitors because of our research and brainstorming. Throughout our work, we reached out to the community, allowing us to spread word of our mission and request their help. As for the build itself, our ROV has 3 arms in the front rather than the usual 2. The PVC arm is stronger, and useful for tasks that require heavy lifting or strength, while the metal arms are thinner and more precise. This lets our robot complete a wide variety of tasks, while some other robots may only be able to complete certain tasks.

566 | Wave Warriors
Oak Grove High School Robotics Club | Hattiesburg, Mississippi, USA

Our SeaPerch team at Oak Grove High School stands out as an emerging player in STEM education in Mississippi through the underwater robotics competition and usage of technology such as 3D printing. We empower students like us and future students within our community with hands-on engineering experience, experience with underwater robotics, teamwork, and problem-solving skills. Our commitment to excellence has positioned us as a competitive force in SeaPerch challenges in Mississippi, preparing students for future careers in STEM fields. Through collaboration and creativity, we continue to push the boundaries for what students in Mississippi can do in STEM.

580 | Exo-Aquanauts
Randall Middle School/Hillsborough County Public Schools | Lithia, Florida, USA

This is our first year competing in SeaPerch, using stock kit designs with a focus on cleaning and protecting Florida's coastal waters after hurricanes. Initial horse-trough testing showed buoyancy and pitch could be controlled by trimming stock floats and securing them with zip-ties. Pool practice revealed an upward pitch during acceleration, which we corrected with front ballast and improved weight distribution. After observing motor mount and propeller failures at regionals, we redesigned our mounts and used Loctite for reliability. These improvements support future missions removing storm debris and trash from near-shore Florida waters.

Saturday, May 30 | 2:00 PM
Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-2C

016 | Wise Submariner
Beijing Bayi School & Quanzhou No.5 High School & Huangchenggen Primary School Affiliated Experimental School | Beijing, China

It balances speed (1:45 obstacle time) and stability, addresses prior versions' flaws, and effectively completes all competition tasks, with rigorous testing validating its reliable performance.

524 | Storm Chasers
River City Science Academy Southeast | Jacksonville, Florida, USA

Every SeaPerch ROV is unique because each team makes design choices based on its own preferences, testing, and problem-solving process. Our team chose to redesign our original V-Wing into a smaller utility frame because we wanted better maneuverability, balance, and control. What makes our ROV stand out is its compact design, careful buoyancy adjustments, and thruster placement, which help it stay stable, move efficiently, and complete both obstacle and mission tasks. Our ROV reflects the specific improvements our team made through repeated testing and teamwork.

710 | Team Stingray
West Mesa High School | Albuquerque, New Mexico, USA

Team Stingray's SeaPerch is unique because it is designed in the shape of a stingray, giving it a natural appearance as it would look in an ocean environment. Its acrylic frame and flotation top made from R-3312 foam make it very stable, balanced, and effective during operation. This design has been a work in progress for several years, with continued improvements to strengthen performance, control, and reliability. After a strong showing at the local regional qualifier, we hope this is the year our design does exactly what it was built to do and performs at its highest level.

733 | Bearracudas
Palmer Elementary | Missouri City, Texas, USA

Topic #2 -We live in the Houston, Texas area and we get a lot of rain during hurricane season. Search and rescue use ROVs to test water quality for the population and if certain areas are safe for divers to enter to perform search and rescue. Our area has over 2million people living in it and we believe that ROVs can make a huge impact in the speed of recovery during heavy storms. ROVs can also explore areas under water to help navigate divers unclog drainage and help the water levels go down quickly.

Saturday, May 30 | 3:00 PM
Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-3A

004 | Pink Fluffy Unicorns NZ
Lynmore Primary School | Rotorua, Bay of Plenty, New Zealand

The Pink Fluffy Unicorns' ROV, representing Lynmore Te Kura o Owhatiura, features a specialised design focused on precision and efficiency. Our unique "Noodle Balance" achieves neutral buoyancy without heavy metal weights, utilising only the upward push of pool noodles against the natural mass of our PVC frame. We innovated propulsion with the flip trick, mounting our vertical motor upside down to maximise surfacing power. By integrating custom 3D-printed parts and a repurposed garden peg for retrieval, we minimised drag and maximised functionality. High-visibility paint ensures peak performance in low-light environments.

216 | The Clique
Lacey Township High School | Lanoka Harbor, New Jersey, USA

Our design starts with the main frame. A standard Seaperch but we personalize it a bit. Using many different sizes of PVC, we created a lightweight and quick ROV with a melted PVC pipe for a customized hook. Piece of pool noodles were put around and inside the PVC to allow for proper buoyancy, especially for assistance in lifting heavy objects. This design was optimized as we progressed through building and testing it. Our biggest takeaway this season is that when something is not working sometimes the best course of action is to scrap the idea entirely.

312 | Red October
Loudoun County High School NJROTC| Leesburg, Virginia, USA

This report expands upon how our team optimized our ROV's efficiency and outlines our approach to the Engineering Design Process (EDP). This report goes into detail about the obstacle course, mission course, and its tasks and how the challenges influenced our team's design choices. The Red October ROV went through two major iterations over the course of its lifespan. The Red October ROV was first built in September of 2024 and was put through extensive testing to ensure optimal buoyancy and efficiency. Some features of our ROV are: Hydrodynamic design, modular frame, and lightweight.

410 | Chicken on a Chain
St. Mary School | Richland Center, Wisconsin, USA

Our community in rural Richland Center, Wisconsin, United States, has many members who have assisted in the Jamaican Mission Project over the past 20 years. Last year, many of our Jamaican friends suffered horrible loss and destruction from Hurricane Melissa. We created a conceptual model for our ROV that we based our Real-World Poster presentation on. Our goal is to use new technologies in underwater robotics to assist in the recovery and rebuilding of infrastructures and habitat areas near the affected areas.

Saturday, May 30 | 3:00 PM
Room B | Room 1111 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-3B

211 | Katrina - Seabots
Mt. Laurel Schools| Mt. Laurel Township, New Jersey, USA

Our ROV includes a box like shaped figure, with a rectangular back, top and bottom. We have two motors in the back positioned horizontally inside the ROV and another motor placed upside down on the top of the ROV. We have 2 floats on the side and the back of the ROV to help us stay neutrally buoyant in the water. Lastly we have 2 hooks, a U-shaped hook on the front, and a L-Shaped hook on the bottom of the ROV.

212 | Salvataras - SeaBots
Mt. Laurel Schools| Mt. Laurel Township, New Jersey, USA

Team Salvataras' ROV has many novel elements to differentiate themselves from the rest of the competition. Firstly, the design is open and hydrodynamic allowing the ROV's weight to decrease. Also, the team decided to hot glue our motors rather than waxing them as the wax is too heavy. The skeleton hook is one of the King Crab's novel features as the X pattern increases stability while also keeping the inside hollow, making it lighter than a traditional hook.

573 | Sustainable Cyclones
Carrollton School of the Sacred Heart | Miami, Florida, USA

Our ROV, "Zippy", is uniquely designed as we used XPS polystyrene rigid foam for floatation instead of pool float. This material provides the same amount of buoyancy while requiring less material. We also removed the original tether tubing and replaced it with a lightweight mesh tubing. Our school is located on Biscayne Bay, which connects to the Atlantic Ocean. This unique location allows us to understand the after-effects of hurricanes and pollution. When designing our ROV, we colored it to be visible in rough ocean conditions and designed our hook to be thin enough to handle small debris.

708 | WMS-3
Washington Middle School| Albuquerque, New Mexico, USA

Our ROV is unique from others because we used Formular NGX for buoyancy this already puts us at 20 percent of competitors have. we also used one quarter pex pipe which only 1 percent of competitors will have. we also used waterproofing method only 1 percent of competitors have. to top it all off our color is bright put everything together and no other competitor will have the same ROV as ours.

Saturday, May 30 | 3:00 PM
Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-3C

209 | Haddonfield Aquabotics
Haddonfield Memorial High School | Haddonfield, New Jersey, USA

Our ROV is unique due to our many novel design choices. The most innovative portion of our ROV is the use of PEX for the frame, which decreased mass and drag, and we opted for specific colors to improve the visibility. We also chose a liquid elastomeric sealant for the waterproofing of the motors instead of traditional wax, reducing mass and improving performance. Lastly, we internally mounted the motors using a Dremel, which required trial-and-error but helped eliminate unwanted rotation of the motors. These decisions contributed to a unique ROV optimized to effectively complete all aspects of the competition.

518 | Sea Searchers
Stuart Middle School, Engineering Club | Stuart, Florida, USA

Our SeaPerch ROV is unique because it has three tools. Most SeaPerch ROVs have a hook and that is it, our ROV has a rear hook, a pick, and a bumper. The rear hook is for the heavy object, the pick is for the light things like the fish and floating object, the bumper is for the dam door, and the sheath. All of these things were tested and proven helpful.

712 | NEPTUNE'S STING
West Mesa High School | Albuquerque, New Mexido, USA

Our ROV is unique because it uses four independently controlled motors and a custom-built control box that allows each motor to operate on its own. While many teams use three motors, and even some four-motor systems are wired in parallel, our design gives us greater maneuverability, precision, and responsiveness underwater. All teams have worked extremely hard to reach this stage, and we respect that effort. With our modifications, we hope to separate our team from the others by creating an ROV with greater control and stronger overall performance.

734 | Oceanus Robotics Team C
Elkins High School, Clements High School, and Ridge Point High School| Sugar Land, Texas, USA

Our ROV, Maelstrom, stands out due to its novel syringe-based buoyancy system, replacing standard foam or noodles for precise stability without sacrificing hydrodynamics. Lightweight ¼-inch PVC and custom 3D-printed components, including dual-ring syringe holders and TPU motor casings, reduce drag while protecting critical parts. The centralized, angled hook allows for precise object manipulation during the Mission Course. Inspired by natural fluid dynamics, Maelstrom mimics rotational forces and drag like a whirlpool, enhancing maneuverability and speed. These design features combine to create a stable, efficient, and high-performing ROV that balances innovative engineering with practical functionality, making it unique among competitors.

Sunday, May 31 | 9:00 AM

Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-4A

006 | Placeholders

Nelson Intermediate School | Nelson, New Zealand

Representing the spirit of Aotearoa, our ROV embodies Kiwi ingenuity through a sleek, "scaled-down" design engineered for speed and agility. To navigate the demands of the pool missions, we've prioritised a compact design, integrated with custom motor shrouds that maximise hydrodynamic efficiency.

In a nation bound by the Pacific and Tasman Sea, our ROV offers a design for monitoring Nelson's pioneering restorative multi-species sea farms. By facilitating the study of underwater farming structures that cultivate scallops, oysters, and seaweed, our design could be the technology to monitor such ecological innovations.

013 | Deep Sea Nautilus

Guangdong Experimental High School & Beijing No. 35 High School & Guangdong Overseas Chinese High School | Guangdong, Guangzhou, China

Our SeaPerch adopts a thinner rectangular frame structure, which can reduce the drag area and lower the drag during operation. We use empty water bottles as buoyancy materials to mitigate the impact of changes in water density under different environments. We utilize 3D-printed propellers to better harness the power of the motor.

586 | Lights Out

River City Science Academy Southeast | Jacksonville, Florida, USA

Team Lights Out's ROV is unique because we used CPVC fittings and PEX throughout the design, which made it lightweight, durable, and efficient in the water. We also redesigned our ROV to be smaller, helping it move more smoothly and quickly through the course. One of its most important features is the copper hook strategically placed at the front of the ROV, which helped us complete tasks with better control and precision. Our design shows how creativity, problem solving, and teamwork helped us build an ROV that improved with every competition.

Sunday, May 31 | 9:00 AM
Room B | Room 1111 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-4B

020 | DeltaY
Pui Ching Middle School Macau | Macau, China

First, our L-shaped frame (8 mm PVC) keeps the center of mass low for stability while reducing weight. Second, when the lower hook carries a heavy load, the center of mass shifts rearward, tilting the bow upward – this lets both side motors assist the vertical motor during ascent, saving battery power. Third, we use black foam rollers for buoyancy that resist shrinking. Fourth, blue grease seals our electronics better than standard lubricants. Fifth, we have two hooks: an upper hook for light tasks and a lower hook for heavy objects. Three motors with differential thrust give tight turns.

024 | DEEPWAVE
Esc. Lysander Borrrero Terry | Villalba, Puerto Rico, USA

KEPO stands out thanks to its lightweight CPVC frame and precisely cut pool-noodle flotation, achieving stable, nearly neutral buoyancy. The design is optimized for speedy obstacle-course navigation, using two motors primarily for forward movement with tight turning control. A simple CPVC front guard guides and secures objects during mission tasks. Through extensive testing, we fine-tuned balance, flotation placement, and cable routing for consistent, level performance. The build remains affordable and easy to repair, relying on accessible parts and straightforward joints, enabling quick replacement of damaged components and ensuring reliability throughout each run.

129 | Subatomic Submarines
Naperville Seaperch | Naperville, Illinois, USA

Our ROV stands out through its fully integrated Venturi tube propulsion system, modular torpedo-inspired design, and dynamic stability control. Unlike traditional SeaPerch ROVs that rely on exposed propellers, our design uses optimized Venturi geometries to accelerate water flow, increasing thrust efficiency and reducing drag. The streamlined hemispherical nose cone with an internal camera improves both hydrodynamics and pilot visibility. Additionally, a linear actuator allows real-time adjustment of the center of mass, enhancing stability during complex tasks. Combined with a three-section modular structure for rapid iteration and repair, our ROV emphasizes data-driven engineering, efficiency, and precise control beyond standard designs.

213 | Enforcers
PAL of Egg Harbor Twp & Atlantic County | Egg Harbor Township, New Jersey, USA

This Technical Design Report outlines the Engineering Design Process (EDP) employed by the Enforcers to create our Remotely Operate d Vehicle (ROV) and highlights its successful design features. This report examines the challenge course and obstacle course, and how they influenced the team's engineering design approach. Furthermore, this report presents an analysis of our experimental results, demonstrating how thorough testing led to the final design. The report also includes the team's reflections on the SeaPerch journey up to this point, as well as future plans for the Enforcers team. Our ROV has several innovative features that make it stand out against other SeaPerch teams, including but not limited to: (1) Adjustable Non-compressable Displacement Buoyancy (ANCDB), (2) Lightweight, Streamlined design, and (3) It swims like a fish

Sunday, May 31 | 9:00 AM
Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-4C

108 | Fish at Ease
Fujian Collaborative Center| Fujian, Fuzhou, China

For the Obstacle Course and Mission Challenge, the Fish At Ease Team finalized its ROV scheme after four prototype iterations, featuring a compact frame, syringe buoyancy control, 3D-printed gripper and rear metal hook, balancing maneuverability, controllability and operability. The team completed R&D and testing under cross-regional collaboration and limited materials, proposing improvements and envisioning cross-medium unmanned vehicle R&D goals.

318 | Here Comes the Boom
SCGSSM| Hartsville, South Carolina, USA

Our SeaPerch ROV is unique as it features a medical syringe connected to a tube to the surface that we can use to push or remove air and water to modify our buoyancy mid-run. By doing this, we are able to control the buoyancy to negate the weight of the heavy debris object, while also having the ability to be heavy enough to quickly dive and retrieve objects like the floating marker. This device is similar to and inspired by buoyancy compensator devices that scuba divers wear, and ballast tanks that submarines use to surface, sink, and maintain buoyancy.

517 | Flying Fish
Mayport Coastal Sciences Middle School| Jacksonville, Florida, USA

This abstract outlines the key discussion points that Team Flying Fish plans to present if chosen for the International Seaperch competition. The team will begin by detailing each member's responsibilities and contributions to the group's overall success. Following this, they will address various aspects of their ROV.

Ultralightweight Frame
3D Components
Creative Hook Designs
Innovative ROV Buoyancy
Cable Buoyancy
Improved Cable Sheathing
No Circuit Board Controller
Counter Rotating Propellers
Standard Testing Procedures

Lastly, the team will describe their biggest challenges and most important lessons learned before opening it up to participants' questions.

Sunday, May 31 | 10:00 AM

Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-5A

102 | Team Delta

The Pennfield School | Portsmouth, Rhode Island, USA

Team Delta presents the evolution of our ROV from a competition winning model to Storm Response innovations that allows us to support our community on Aquidneck Island. We designed a prototype for inspecting and fixing minor damage to undersea power cables following major storms. Key features include staggered buoyancy, a H-beam, and proposed upgrades like AI-driven damage detection and high-torque propulsion along with a robotic arm. By integrating lessons from our second-place regional finish with advanced engineering concepts like buoyancy, mechanics, and control, we will demonstrate how accessible ROV technology can be adapted for critical infrastructure repair and disaster recovery.

403 | Made in China

Clinton High School | Clinton, Michigan, USA

Our team's SeaPerch design is unique because it focuses on control and reliability. We adjusted the buoyancy and weight so the ROV can move quickly without sacrificing control. The frame, although bulky, holds everything in place well. We placed the thrusters to give it strong forward power and fast turns, which is especially important in the obstacle course. The wiring and controls are neat and simple, so we can react quickly and make small adjustments before and after a run. Overall, our design simply makes the ROV easy to drive and one that can comfortably complete tasks.

704 | Anglerfish

Mayport Coastal Sciences Middle School | Atlantic Beach, Florida, USA

The Anglerfish ROV has an ultralight 3D-printed, hydrodynamic chassis, weighing only 0.85 ounces. This reduces drag and improves the response of the ROV. Its buoyancy system provides precise pitch control and is easily reconfigurable for different mission objectives. A variable power controller with an onboard buck converter ensures precise control and reliability by removing common failure points. Its propellers are counter-rotating, which improves straight-line stability and eliminates yaw. Its task-specific attachments also fold to reduce drag while maintaining functionality. All these innovations result in a highly maneuverable and efficient competition-ready ROV with precise results on all mission and obstacle tasks.

Sunday, May 31 | 10:00 AM
Room B | Room 1111 | Cambridge Community Center

Team ID | Team Name School/Organization | Location	Session P-5B

010 | Nomadic Guardians
Bibigul Tulegenova Creative School | Astana, Kazakhstan

Our SeaPerch is unique because it is designed to be lightweight and efficient. By reducing the ROV's weight and minimizing the surface area of its faces, we decreased drag and increased speed. We eliminated fittings to further reduce weight. To solve the issue of propellers slipping off, we created a custom 3D-printed protective case, making them secure yet easier to manage. Additionally, we introduced an adjustable inflatable lift system to raise heavy debris. Unlike foam, it allows controlled buoyancy without affecting descent. Finally, we used carbon-style vinyl wrapping to improve visibility and give the robot a sleek appearance.

022 | AquaPR
Escuela Isabel Alvarado Alvarado | Villalba, Puerto Rico, USA

This research aimed to develop and evaluate a low-cost method for detecting microplastics in river water samples. Samples were collected, filtered, and treated with Nile Red, a fluorescent dye that adheres to plastic particles. They were then exposed to ultraviolet light in a homemade detector, allowing visual identification using a smartphone. Results showed fluorescent particles consistent with microplastics. The method proved effective for visual detection. Future improvements include enhancing the observation system by adapting the smartphone lens and adding protective covers to improve image clarity and observation precision.

141 | Defenestration
Naperville Seaperch | Clarendon Hills, Illinois, USA

Our ROV is unique from others in the competition because it focuses heavily on flexibility and adaptability between the two courses. Our robot features easy to adjust compartments for buoyancy where we can quickly and easily tune our robot. In addition to that, we have a foldable claw that allows us to decrease the robot's cross section and increase its hydrodynamic ability. Overall, our robot is designed to both maximize speed and control for the obstacle course while also being extremely capable in the mission course.

Sunday, May 31 | 10:00 AM

Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-5C

019 | DeltaX

Pui Ching Middle School Macau | Macau, China

DeltaX presents a uniquely engineered ROV focused on lightweight agility and modular efficiency. Our frame uses a single piece of thin PVC pipe formed without joints, eliminating excess weight for faster movement. All motor and float mounts are 3D-printed for easy assembly and disassembly. A foldable 3D-printed hook allows quick switching between obstacle and mission tasks. Additionally, our custom 3D-printed controller box provides flexible, precise control. These innovations together deliver speed, adaptability, and serviceability in competition.

735 | Oceanus Robotics - Team A

Clements, Elkins, Ridgepoint HS | Sugar Land, Texas, USA

Our SeaPerch is unique because we used 3D printed parts to maximize the capabilities of our Fluxion ROV. We used an H-frame design using a specific PVC to ensure the ROV was light, increasing velocity. The ROV features a 3D-printed fin, propelling the ROV smoothly and giving precise control over maneuvers. 3D-printed fins were key to reducing the yaw rotation, helping improve maneuverability for the ROV. Printed holsters were used to secure the ballasts and distribute mass along the frame. The 3D-printed hooks secure and retrieve objects with a divot tip to ensure that no debris falls off the hook.

914 | ProtoKnights 1

Castle High School | Kaneohe, Hawaii, USA

This year our team designed and built a custom ROV with key design elements include a skeleton like frame, buoyant materials, V-shaped hook, neutral buoyant tether, clockwise and counter-clockwise propellers, adjustable motor mount, and an hybrid digital/analog controller. In addition, we used various new tools and concepts this year to help with data collection and understanding of new topics. One of these was computational fluid dynamics (CFD). Which we used to simulate water flow and evaluate hydrodynamic performance or our ROV. Another new addition is using flowrate sensors to accurately show us propellers efficiently, and speed.

Sunday, May 31 | 11:00 AM
Room A | Room 1100 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-6A

401 | DANDRUFF
Clinton High School | Clinton, Michigan, USA

This year, we designed and 3d printed a torpedo-like design that excels in both mission and obstacle courses. For the mission course, we engineered a pronged, thin hook for lifting the variety of items in the competition. For the obstacle course, speed and control are important, necessitating a focus on boundary conditions, hydrodynamics, center of mass, and center of buoyancy alignment. Blending innovation with testing, our rigorous iterative process leads us to continual quantitative gains, embodying the philosophy of Kaizen: continual incremental improvement.

407 | Hurricanes
Washington Island School District | Washington Island, Wisconsin, USA

We had many troubles during work time and during the actual competition; for example, the two wires connecting the ROV and the controller touched and melted together, which completely messed up our controller. We also had trouble when measuring buoyancy because it seemed that every time we put the calculated buoyancy on the ROV, it would be slightly too heavy or slightly too light.

701 | PB & Jellyfish
Manvel Junior High Warriors SeaPerch | Manvel, Texas, USA

Inspired by life on the Texas Gulf Coast, PB & Jellyfish designed an ROV system focused on storm preparedness and prevention. Because saltwater and competition bots are not exactly best friends, we built and deployed a separate inspection ROV, JellyStorm, for marina assessments in Galveston while preserving JellyBot 2.0 for International competition. Equipped with a camera and lights, JellyStorm helped inspect docks and identify weak points before hurricane season. We also created and shared digital engineering notebooks, data sheets, and testing checklists across our district because good engineering beats chaos, mostly. Our work connects student innovation to real community needs.

Sunday, May 31 | 11:00 AM
Room B | Room 1111 | Cambridge Community Center

Team ID | Team Name
School/Organization | Location

Session P-6B

028 | Ocean Crew
i-STEMer Academy | Cairo, Maadi, Egypt

This Technical Design Report presents the Engineering Design Process (EDP) used to develop the “Ocean Crew” ROV , highlighting its design features and performance. ROVs are remotely controlled underwater robots used for exploration, inspections, and rescue. The SeaPerch Competition includes an Obstacle Course for maneuverability and a Mission Course simulating real-world underwater tasks. The compact ROV design enhances speed and agility, while an integrated hook allows efficient object retrieval. Optimal balance was achieved through careful thruster placement, buoyancy, and hollow frame design, maximizing thrust-to-mass ratio and minimizing drag. Strategic thruster positioning ensures precise control, supporting swift and accurate mission completion.

579 | Mecha Makos A
MAST Academy | Miami, Florida, USA

While on paper our robot design is inspired by an example in the handbook, the changes we made have made our ROV arguably one of the most unique robots. Our ROV has a shrunken frame to make it lighter and more hydrodynamic. Another change we made was that we made the claw thinner using a heat gun. Our last special change was that we angled the motors towards the tip of the frame, this helps the ROV drive straighter and avoid the imbalanced in motor power that we experienced in earlier testing.

901 | Reef Hearted
Eureka Academy | Cheney, Washington, USA

Our goal this year was to design, build, and execute a lightweight, inexpensive ROV that can be adapted to execute different tasks with simple interchangeable parts. In this presentation we will deep dive into how we designed our ROV to address the different parts of the courses this year. Specifically, we will talk about lifting the heavy object, how to slide the "broken pipe", how we made our ROV fast, and our DIY controller.

Sunday, May 31 | 11:00 AM

Room C | Room 1205 | Cambridge Community Center

Team ID | Team Name School/Organization | Location	Session P-6C

015 | Zhicheng Dreamers

Beijing No.35 High School | Beijing, China

The unique feature of our Seaperch is its horizontally split gripper, which significantly improves both the accuracy and speed of grasping targets. Additionally, we designed a variable buoyancy system using air tubes, elongated balloons, and syringes. This allows the robot to maintain excellent balance and mobility when picking up and transporting heavy debris.

023 | NAIADES

CROEV | Villalba, Puerto Rico, USA

Microplastic pollution is a major environmental issue affecting aquatic ecosystems worldwide. These particles, smaller than 5 mm, are difficult to remove due to their buoyancy and varied shapes. This study developed a modular aquatic robot to evaluate how filter inclination affects particle capture efficiency. Tests were conducted in a controlled pool environment using 35 simulated microplastic particles per trial. Two configurations were compared: horizontal (0°) and inclined (45°). Results showed that the 45° system achieved 41–47% efficiency, while the horizontal system reached only 10–14%. The inclined design also showed greater consistency, highlighting the importance of geometric optimization in environmental robotic

511 | The Sharknadoes

Apollo Middle School | Hollywood, Florida, USA

Our project connects to the real-world environmental crisis caused by cyclonic events, which deposit millions of cubic yards of hazardous waste into coastal ecosystems. To overcome dangers posed to human divers by chemical run-off and sharp debris, we created a modular SeaPerch ROV for safe remediation. By integrating sifting nets and precision hooks, our ROV facilitates micro-debris removal and non-invasive restoration of endangered coral species. Since reefs block 97% of wave energy, our ROV helps keep our coast safe from future storms.