The 9th Annual SeaPerch Challenge will bring together more than 200 teams that earned the right to compete against their peers with their Remotely Operated Vehicles (ROVs) by winning at registered regional qualifiers (see www.seaperch.org/regionals).

The rules included below apply to the 2019 SeaPerch Challenge and are recommended for Regional Qualifying Competitions.

2019 SeaPerch Challenge Divisions:
As in past years of competition, there will be three divisions for competition: Middle School Stock Class; High School Stock Class; and Open Class.

The following rules apply to SeaPerch ROVs competing in all divisions:
- All ROVs must include waterproofed motors;
- Parts connected to the ROV may be adjusted between the two pool events. However, no parts or materials may be added or removed to the ROV after compliance checks are completed with the exception of buoyancy and magnet/holder designed to be left on the Beacon (see next bullets and the 2019 Pool Event Rules for further clarification);
- Adjustments to buoyancy, including adding or removing buoyancy materials, may be made between pool events and during competition;
- The same ROV that was presented at compliance must be used for both pool events.
- ROVs must fit through an 18" diameter hoop.
- Teams may only utilize stock SeaPerch motors for propulsion (Jameco Electronics P/N 232022).
- Teams may not bring anything to the pool deck that requires 110 volt power.

Stock Class (High School and Middle School)
In instances where teams are comprised of a mix of middle and high school students, the team should compete in the class of the oldest student on the team. For example, a team of 7th, 8th, and 9th grade students must be registered in the High School Class.

Each SeaPerch ROV must be presented for a compliance check during check-in and approved prior to the team competing in the pool events.

The actual value of any modifications to the final competition ROV must be $25 or less. *Please note that this is an increase of $5 from 2018.* Budget guidelines include:
- Donated material will be assessed at what the cost would be to procure the material.
- Spare parts and tools are not included in this budget.
- Materials used on earlier prototypes are not included in this budget. Only materials and supplies used on the competition ROV that are not part of the standard SeaPerch ROV kit should be included.
- Proof of budget compliance should be made available to the judges upon request.

- 3D printed parts will be costed out at $0.05 per gram.

Additional NON-stock motors may be utilized for actuation or other non-propulsion uses.

ROVs may only utilize three (3) thrusters. A thruster is defined as a means of propulsion for the SeaPerch, normally but not limited to a motor and propeller assembly.

Teams will design for and utilize a 12-volt power source. A power source other than the included kit battery or venue supplied power is not permitted.

ROV thruster controls shall use simple on/off switches only, no power conditioning or pulse-width modulation (PWM) controls are allowed in Stock Class. Use of a fixed or variable resistor to reduce voltage is acceptable. Use of microcontrollers such as Arduino or Raspberry Pi are not permitted in Stock Class.

Open Class
Each SeaPerch ROV must be presented for a compliance check during check-in and approved prior to the team competing in the pool events.

Open Class is not separated by grade. Teams should register as Open Class if one or more of the following applies:
- The cost of the competition vehicle is more than $25. Research and development costs and tools do not count toward this $25 limit - only what you bring to the competition lane.
- The ROV includes more than three (3) thrusters. A thruster is defined as a means of propulsion for the SeaPerch, normally but not limited to a motor and propeller assembly.
- ROV thruster controls are not simple switches.
- Teams use power conditioning or pulse-width modulation (PWM) thruster controls including Arduino, Raspberry Pi, or other microcontrollers.

Open Class teams will design for and utilize a 12-volt power source. A separate power source is allowed to power auxiliary equipment such as cameras, however the additional power source must have a capacity of no more than 12-volts DC and may be no larger in physical size than the standard battery included in the SeaPerch ROV kit. No more than two (2) power sources are permitted.

2019 SeaPerch Challenge Registration Process:
Upon completion of a Qualifying Competition, the Competition Coordinator will

a. Provide adult leaders of **winning teams** with the "Qualifying Team Preparation Checklist" (provided by the RoboNation in advance of the Qualifying Competition), which contains all the necessary registration links for teams to complete the final registration of their teams and ROVs as well as the

housing/meal plan registrations for all participants.

b. Within five (5) business days after the competition, submit a list of the winning teams, along with the name of the school/organization the team represents as well as coaches' names and contact information, to the SeaPerch Challenge organizers for verification of team registrations.

c. Oversee team registrations to ensure they are completed on a timely basis. Team leaders will be responsible for registering their respective teams and paying the registration fees, bearing in mind that a team registration will be considered incomplete until payment has been received and verified.

Failure to provide this information within the allotted time frame will result in spaces being released to the waitlist or reallocated to other properly registered events.

All students and chaperones must sign the "Liability Waiver/Photographic Release/Code of Conduct Form" form. *Instructions will be provided upon completing team registration.* Minor students (under 18 years) must have their parent's signature in order to compete.

All chaperones registered with a team are required to submit to a background check and agree to abide by the Youth Protection Policy prior to arriving on-site. *Once team registration is completed*, adult chaperones will be sent a link from to complete the background check and sign the Youth Protection Policy.

Team Registration for 2019 SeaPerch Challenge
Team and housing registration will open on 1 February 2019. Additional details regarding fees and package options will be released at this time.

Eligible teams may register for the SeaPerch Challenge once they receive the Team Preparation Checklist from their Competition Coordinator at the conclusion of their Qualifying Competition.

On campus housing and meal packages will be offered only to teams and registered chaperones. Spectators are not eligible to stay in on-campus accommodations.

Definitions
Team: A team is comprised of a minimum of one (1) student and one (1) adult chaperone. Each team must have at least one (1) and no more than four (4) registered adult chaperones. Chaperones **may not** be registered with multiple teams. Students **may not** be on multiple teams**.**

Middle School: Defined as less than and including eighth (8th) grade. All students participating must be in eighth grade (including homeschool equivalent) or lower.

High School: Defined as ninth through twelfth (9th-12th) grades, including homeschool equivalent.

Stay Tuned for 2019 SeaPerch Challenge Updates

Please continue to monitor the SeaPerch Challenge webpages for the latest Event Schedule, Team Entry Rules, Competition Rules and Events, and Scoring Rubrics.
https://www.seaperch.org/challenge

For questions not covered on our website, please post to our Forum at:
https://www.seaperch.org/challenge_blog