Maranatha Seaperch Team A  
Maranatha High School, Pasadena, CA  
High School Stock Class

Number of years in the SeaPerch program:  6 years (2018, 19, 20, 22, 23, 24)  
Number of times at the International SeaPerch Challenge:  4 years (2018, 22, 23, 24)

Our SeaPerch is unique because:
❖ 3D printing – all motors are inside 3D printed capsules, allowing ROV move faster and more hydrodynamic  
❖ Forklift hook – the hook in the back of ROV has two prongs allowing to easily pick up the objects  
❖ Convergent bow design – the bow converges to a singular point to improve hydrodynamics and reduce drag  
❖ Cable – removed the outer shell of the cable to decrease drag  
❖ Color – followed international aviation color code, colored the left side of ROV as red, and green on right side, which made it’s much easier to identify ROV’s orientation and operate it

Overview of SeaPerch Design
Our goal for this season was to create an agile, light, and maneuverable ROV. It has all motors inside special designed and 3D printed motor capsules, that allowed it to move faster and more hydrodynamic. The ROV’s lightweight frame is made from PEX pipes and has hollow in the center, decreasing surface area and weight. Since our ROV is so light, it has a high thrust-to-weight ratio, and extremely sensitive to inputs from the driver. Our convergent bow design reduces drag, and a small piece of foam in the back of the ROV to help with the buoyancy.

Our biggest takeaway this season is
We learned how practice makes progress and the importance of creativity. This season our drivers spent 250+ hours working with their respective courses. Their intense practice discipline increased speed and comfort with each course and minimized the likelihood of human error. Our TDR / video members used a Ziploc bag sealed cellphone to make a “underwater camcorder”, that helped the drivers better analyze their practice strategies. Additionally, our school leadership allowed us to share the school’s indoor swimming pool with the swimming team, which made us can continue our practice even during the downpour weather.