Team Sea Turtles
LCHS NJROTC

Coral Gardening

Introduction

Coral Reefs are very important to genetic diversity in aquatic ecosystems. In addition, they also provide 50% of the worlds oxygen and are important for humans. However, due to global warming, coral bleaching is causing coral to die, forcing millions of species ot of their habitats. According to the National Ocean Service they offer flood protection benefits to the United States valued at $1.8 billion

What is coral bleaching?

Corals have a mutualistic relationship with a photosynthetic algae called zooxanthellae. Without the algae, the coral cannot live. However, it has a very narrow temperature range and, as ocean temperatures increase, it leaves the coral. This leads to coral bleaching

A solution to coral bleaching

Our SeaPerch ROV can assist with Coral gardening, a restoration process that works to regrow coral reef and advocates for increased conservation measures. The focus of the ROV would be a safe remote restoration tool

How Our Seaperch can help

Our ROV can help plant coral in these gardens. a ROV is much more useful for coral gardening due to its easy use with going to deep depths. It also has minimal sediment disruption and can blend in with its environment, causing minimal disruption. It will make the process much more easy and efficient, allowing more coral to be grown. It can also help with environmental monitoring with pH sensors or thermometers for precision. Our ROV can be used to detect algae blooms, which is linked to coral bleaching .

Our design/ current real world application

Because our team is currently unable to design a model capable of withstanding ocean conditions, we are showing our seaperches usefulness in research by attaching various measuring devices. We have attached a thermometer, salinity reader, and are developing remote controlled claws to add to our ROV.

Next Steps in Design

In order to modify our Seaperch to withstand strong ocean currents or any other hazards that may be faced while completing its mission, we will shorten the frame to make it more maneuverable. We will also build safe remote-controlled claws. We can also add a camera to the ROV to bring awareness of this issue and for conservation education. The engineering design process is an essential part of making sure our ROV can handle real-world conditions.