

# LAKE WEED EXTRACTION PROJECT

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Our team has chosen invasive lake weeds as the focus for this project. We have chosen this problem because lake weeds affect the habitats of freshwater fish and native plant species. Current solutions cost over \$500,000 a year and that doesn't cover all the lakes and some solutions can also harm the environment. This project is important because lakes are nationally significant to New Zealanders and are a taonga (treasure) to Maori.

## Motivation



## Methodology

We approached the project using the engineering design process. This process was really useful to help us organise all of the things we had to do and get our design to be what we wanted it to be. While doing this we listened to each other's ideas, opinions and took into consideration each other's designs.

Our team did three main tests, the first was creating a claw out of LEGO - this was too time consuming and overly complicated. This was surprising for us because we thought it would be more effective than our second trial which was trying out a cardboard hydraulic claw. Our second test was the housing and positions of our flashlights. Initially we had one flashlight on one side of the ROV. We found that by putting one flashlight on either side of the ROV it would increase the sweep of light, and would balance out the buoyancy.

## Results



## Conclusion

Our objective for the project was to design a SeaPerch ROV that would be capable of pulling invasive lake weeds out of lake beds so that the Rotorua Lakes would just have native aquatic plants. By making this project a citizen science project, it would allow the people of Rotorua help care for the nation's taonga by keeping it clear and clean for the community's enjoyment. This project impacted us by making us think more about the effects of invasive lake weeds in our lakes and the quality of them. Throughout this project we learnt about the engineering design process, APA referencing, the amount of work we can pull together when we're working hard together as a team.

Questions this project provoked were, how could we make this ROV more autonomous, like could create a system that would send us an alert when there was invasive lake weed in front of the ROV and then we could control the claws or could we program the ROV so that it would become completely autonomous? Then what would be involved to do these improvements and what would we need to store these elements underwater?

## Next Steps



## Acknowledgements

Thank you to Jessica Cathro who is our amazing Mentor and Coach.  
Thank you to Kylie Holmes for teaching us about APA referencing.  
Thank you to our families for their ongoing support

### References

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## Abstract

Our project is centred around the extraction of lake weed from our local waterways. To get to this project idea we first brainstormed issues in our community waterways until we decided on the extraction of lake weed. To do this task we would need a ROV to pull up the lake weed and bring it back to the surface. We aimed to design a SeaPerch ROV that will accomplish the task.

