

“Feasibility Study: Hydraulic Seagrass Platform”

Background

Seagrass requires high light availability for healthy growth, which usually limits its distribution to shallow coastal areas. For restoration and research activities, a technical platform is needed where seagrass can initially grow under optimal conditions. To enable this in deeper or variable waters, the platform must be held at a flexible water depth. A hydraulic height adjustment allows optimization of light conditions and compensates for fluctuations caused by waves or water levels.

Objective of thesis

The objective of this thesis is to conduct a feasibility study for a hydraulically adjustable seagrass platform. The study should evaluate under which technical, ecological, and operational conditions such a platform can be practically implemented. This includes analyzing suitable hydraulic concepts, relevant environmental parameters, and developing an initial system design.

Tasks

Depending on the type of thesis (Bachelor, Project, Master), individual focus areas may vary. The thesis can be written in German or English. Core tasks include:

- Analysis of biological and technical requirements for seagrass cultivation platforms
- Investigation of possible application scenarios (restoration, cultivation, research)
- Evaluation of suitable hydraulic lifting and positioning systems
- Derivation of relevant environmental conditions (light, currents, sediment, depth)
- Development of a conceptual platform design
- Technical feasibility assessment including opportunities, risks, and limitations
- Optional: Preliminary dimensioning or cost/energy estimation

Your Profile

- Studies in Mechanical Engineering, Mechatronics, Environmental Engineering, Marine Technology, or a related field
- Independent and structured working style
- Basic knowledge in CAD, fluid systems, or marine biology

We offer

- Work on a future-oriented topic in the field of marine robotics
- Close supervision by experts from research and industry
- Creative technical work in an exciting research environment
- Access to testing facilities and technical resources

Contact

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