

The Maltese Connection

Wave Energy and Aquaculture in the Mediterranean Basin



Project Overview

- ◆ A pathfinder project to provide an integrated offshore fish farm with onsite sustainable power
- ◆ Combination of cage based fish culture and wave energy power
- ◆ Main focus is offshore cage culture – the main future growth area
- ◆ Benefits of combined space use, infrastructure and resource
- ◆ Two partners combining experience of the region along with fish culture and wave energy





Albatern is based near Edinburgh in Scotland. Technology development has been carried out in Scotland with deployments of both models and prototype units in wave tanks and open water trials, mostly in Scottish waters..

The main team of consultants based in Scotland at **Albatern** number fifteen (15) personnel, all considered specialists in their relevant fields of work and are recruited from over twelve countries.

The current Series 6 units and arrays are suitable for higher cost diesel replacement and wave heights from 2m to 6m. Key markets being targeted are open sea aquaculture and remote communities where diesel generation is currently used, and links are already in place for European niche applications and the ASEAN countries.

The company has an established student program working with both undergraduate engineering students and also the International Doctorate Centre for Offshore Renewable Energy (IDCORE) program for researchers.





- ◆ Initial prototype deployed with full generating kit from April to November 2012
- ◆ Open water site demonstration on new site (pre fish) with Marine Harvest (Scotland) for 14 weeks in 2014
- ◆ Pathfinder project with Marine Harvest (Scotland) in stocked and operating salmon farm site being deployed now.

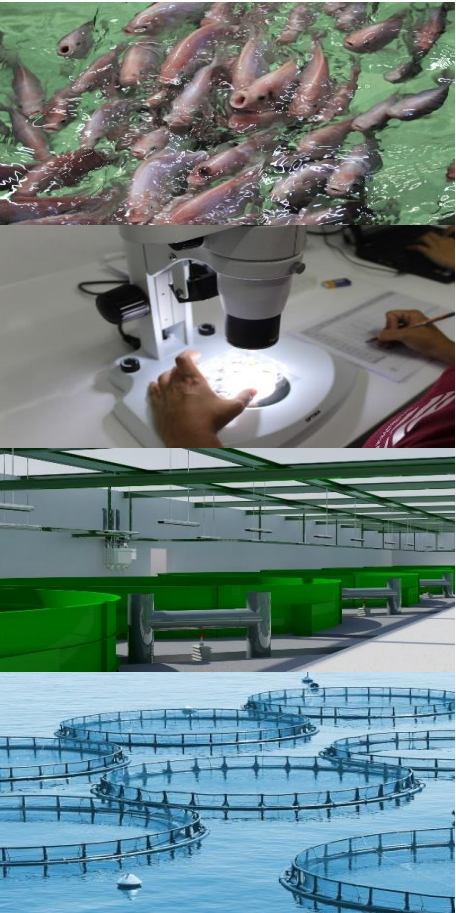


AquaBioTech Group is based in Malta, but with global experience initially focused across Europe, the Mediterranean & Middle East, although rapidly expanding its client base to include clients and projects in over fifty-five countries.

The main team of consultants based in Malta at the **AquaBioTech Group** number over thirty (30) personnel, all considered specialists in their relevant fields of work and are recruited from over twelve countries.

There is also a team of ten (10) staff based in key market countries and the company has also developed an extended network of experts all over the world.

The company has an established internship program operating for the past twelve years that has given over 100 individuals from fourteen countries training and experience in aquaculture technologies and marine sciences.



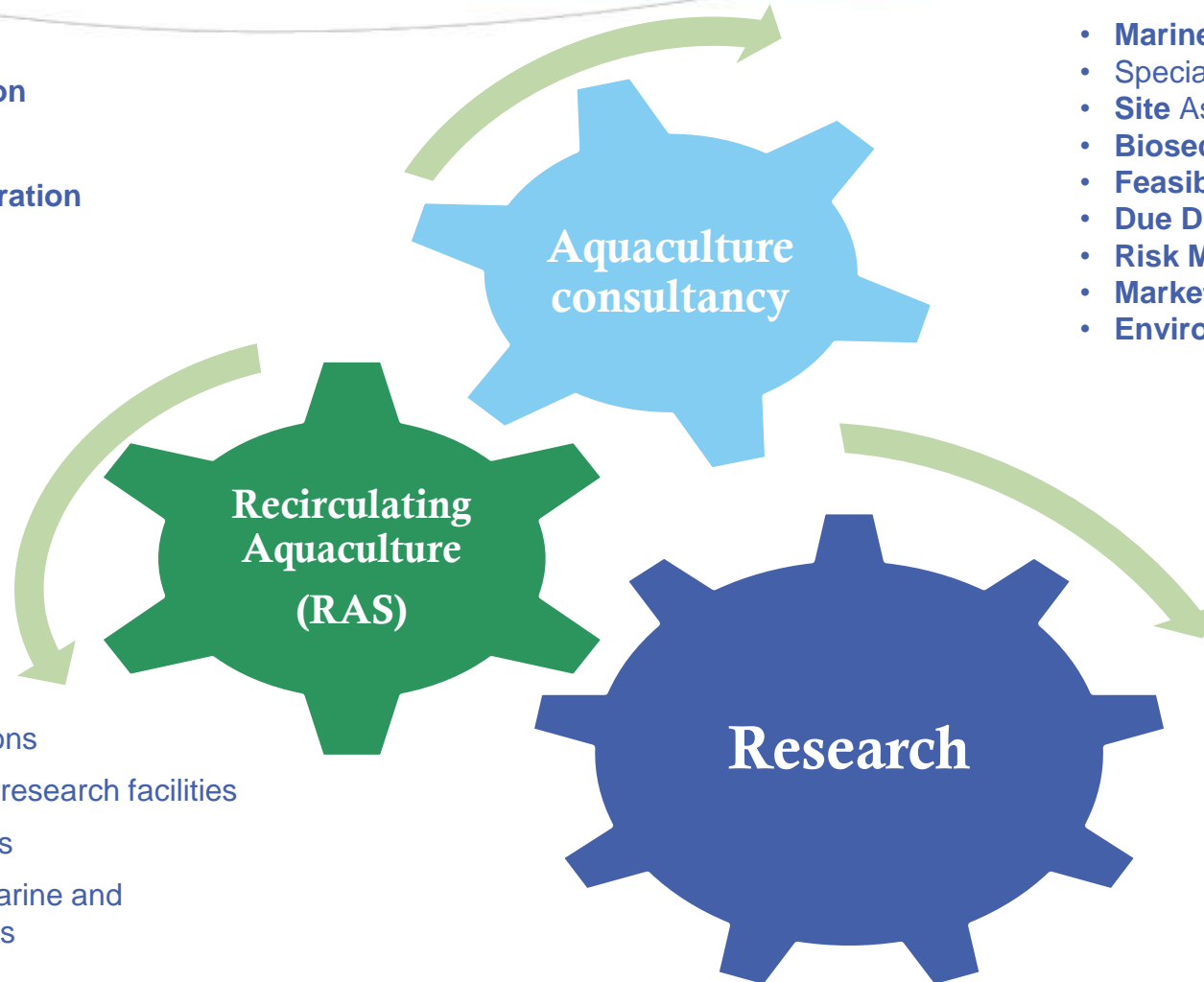
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AquaBioTech - main activities

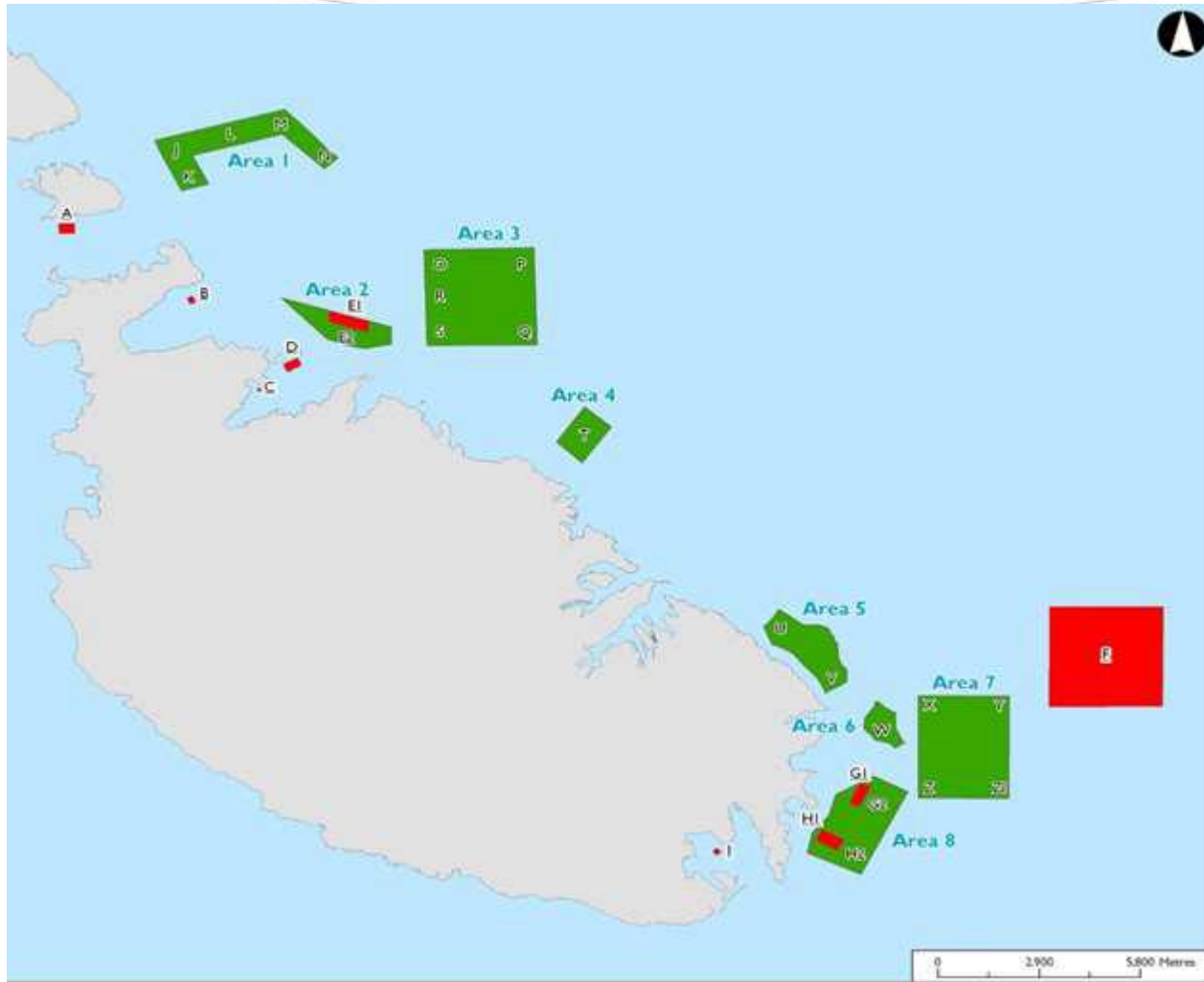
- **Trainings & education**
- **Internship** program
- Technology **demonstration**



- **Marine** Surveying
- **Special Audits**
- **Site** Assessments
- **Biosecurity** Audits
- **Feasibility** Studies
- **Due Diligence** Audits
- **Risk Management** Audits
- **Market Research & Intelligence**
- **Environmental** Impact Assessment

- **Turn key** operations
- **ExperiRAS™** for research facilities
- **Grow out** facilities
- **Hatcheries** for marine and freshwater species

- **Contracted research** for companies
- **FP7 & H2020** projects
- **Internal research** and product testing and benchmarking



INDICATIVE ONLY - Not to be used for direct interpretation

- ◆ Areas zoned for aquaculture off the Maltese coast
- ◆ Target area is the red square 6km off the east side of the island
- ◆ Interest from commercial developer of a new site for sea bream and sea bass in this area
- ◆ Power supplied on site for farm requirements
- ◆ Colocation of power production with power requirement

- ◆ Pathfinder project for Malta farm site
- ◆ Second project to provide power for onshore fish processing and operations facility
- ◆ From pathfinder, roll out into further offshore sites in Mediterranean basin
- ◆ Explore additional power for island use in Malta where power is currently constrained
- ◆ Explore the option to directly provide potable water from wave energy for fish processing and island use

- ◆ Alternative to diesel power where costs have risen significantly over past 15 years
- ◆ Next largest cost for farming behind feed and staffing
- ◆ Offshore sites have more logistics challenges to operating with diesel
- ◆ Sustainable power important to supermarket customers for fish
- ◆ Maltese power and water limitations and costs of electricity

- ◆ Idea to develop a project in Malta has been in background as technology being developed since 2012
- ◆ Albatern and AquaBioTech worked previously on FP7 bid for offshore culture project with power requirement
- ◆ Supply chain opportunities identified for local manufacture of components and assembly.



- ◆ Provided a catalyst to take the project by the scruff of the neck and move it forward for development
- ◆ Provided a structured basis to develop the project plan
- ◆ Territory requirements and market requirement from AquaBioTech knowledge
- ◆ Wave climate and energy knowledge and deployment experience from Albatern
- ◆ Timing was appropriate to develop a plan towards financial close
- ◆ Increased project exposure and profile with Commission teams and investor group

- ◆ Independent expertise from MARIBE project partners to assess and identify further work required
- ◆ Access to investor interest and feedback on project readiness for investment
- ◆ MARIBE member feedback and consistent framework
- ◆ Identified areas to strengthen plan to achieve financial close
- ◆ Identified EC funding mechanisms to support project financing
- ◆ Networking with others working in the same space. Different learning and different perspectives

- ◆ Pursue BG 4 funding for project
- ◆ Local development of plan in Malta
- ◆ Development of local supply chain connections through existing networks
- ◆ Close funding
- ◆ Deliver project
- ◆ Progress the future milestones



Realising the vision - from Scotland to Malta and beyond

