

AquaVIP success story #1

AquaYouth

Aquaculture Youth Career Development Offer



AquaYouth is one of the pillars of AquaVIP project. It is a complex service for students of aquaculture and related fields, future employees willing to make a career in the aquaculture market, and micro, SMEs and self-employed entrepreneurs willing to improve their skills.

We believe that skills gained through the AquaYouth offer facilitate career development and blue economy in the area.



Meet our third-year oceanography bachelor students from the University of Gdańsk, Poland, active participants of the AquaYouth service.

These young aquaculture enthusiasts, supervised by dr Aleksandra Zgrundo, have been engaged in the AquaVIP experimental research on shrimp and algae cultivation essential for further project demonstration activities: summer schools, study visits and student panels, which have added up to their education and skills development and shaped future career paths in aquaculture.



Karolina Czmajduch

*I study oceanography, and specialise in marine biology. My interests include ichthyology, sustainable fishing, aquaculture and aquaristics. I work on my bachelor's project: Cannibalism in white shrimps *Litopenaeus vannamei* under experimental conditions. I plan to continue research in the area of my bachelor's project in the future and continue with a master's degree.*



Olgierd Bogusławski

*I specialize in marine biology. I am working on my bachelor's project: "The use of algae as biofilters in *Litopenaeus vannamei* shrimp RAS aquaculture". In the future, I plan to continue my studies, write a master's thesis on the topic of shrimp and algae aquaculture, and work professionally in aquaculture.*



Hanna Gawrysiak

I study oceanography - my major is in marine biology. My main area of interest is algae and its potential use in our day-to-day life: whether as food source, biofilter or in 3D printing. I'm about to complete my Bachelor studies (fingers crossed!), my thesis is on the various effects of pharmaceuticals used in human therapy on marine benthic animals.



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Why is aquaculture interesting for you and the young people of your generation in the South Baltic region?

Most fisheries in the world are currently near or above sustainable exploitation limits, and global consumption of fish and other seafood is still rising. Therefore, aquaculture represents a growing contributor to the production of aquatic food already providing half of all the fish we eat. Still, in our region the sector is underdeveloped. But it holds a great potential for sustainable food, environmental protection, new "blue" products, and huge research and job opportunities. (Hanna)

What kind of aquaculture is most promising for the South Baltic region?

New knowledge and technologies bring promising solutions for the region. We are interested in the most innovative and promising solutions for the South Baltic region, that is land-based recirculating aquaculture systems, so called RAS systems, which have the advantage of isolating the aquaculture systems from natural aquatic systems thus having numerous managemental, environmental, welfare, economy and market related advantages. (Karolina)



*Institute of Oceanography, University of Gdańsk,
Research Vessel Oceanograf,
RAS - 500 systems*



How is your work in AquaVIP beneficial and applicable?

*The project is very beneficial for us, students. We took part in shrimp breeding experiments in land-based closed systems, thus learning the process of shrimps' cultivation in RAS conditions and performing feed and turbidity tests with the application of Baltic macroalgae in purifying *Litopenaeus vannamei* shrimp culture waters from excess nutrients, and their effect on the animal's condition. The research itself is applicable for aquaculture business, so in fact for entrepreneurs, investors and aquaculture consumers. (Olgierd)*

RAS-500, University of Gdańsk

RAS-500 systems designed by AquaMedic Poland located at the Institute of Oceanography, University of Gdansk were funded within a INTERREG InnoAquaTech project, and further developments (for experiments on algae cultivation in combination with shrimps) were funded within INTERREG AquaVIP project. Both RAS systems have 500 dm³ cultivation tanks and system operation is computer monitored and controlled. For algae cultivation, flow-through tanks (refugia) with a maximum volume of 125 dm³ equipped with Aqua Illumination Prime HD lamps are connected to the original systems.

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What kind of experimental research are you exactly engaged in AquaVIP project?

Within the project we are engaged in AquaVIP experiments on shrimps and algae. Algae have recently come into focus for their application potential in recirculating aquaculture systems due to the high levels of nutrient uptake, high photosynthesis level, and high growth rate. Therefore, algae can be used in RAS cultures as biofilters to purify the culture water of whiteleg shrimps for example. (Hanna)

*We performed two kinds of experiments on algae as water purification element in recirculating aquaculture systems with shrimps. In the first of our experiments the idea of "algae scrubber" on canvas as trickling filter was tested. In the second experiment, native filamentous green algae of the genus *Chaetomorpha* were used. Algae experiments series was based on Baltic Sea water, and *Litopenaeus vannamei* culturing water and the assumption that organisms and propagules included in the water develop into algal communities in experimental conditions. (Olgierd)*

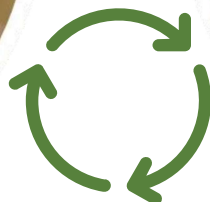


AquaVIP experiments carried out in partners' facilities are foreseen as core activities for the project service offer. AquaVIP experiments are focused on innovative solutions in the area of recirculating aquaculture systems, shrimps cultivation, artificial feed chains, aquaponics, and geothermal technology with the potential to be implemented into aquaculture business in the South Baltic area. AquaVIP research activities include:

artificial feed chains • aquaponics • microalgae • *Litopenaeus vannamei* • native Baltic Sea shrimps • RAS systems • technology optimization • shrimp tower RAS concept • brackish salinity in freshwater fish RAS • geothermal brine • *Daphnia sp.* as feed for fish

*White shrimp, *Litopenaeus vannamei* from land-based aquaculture RAS-500, University of Gdańsk*

*Algae: *Ulva prolifera* and *Spirogyra sp.* examined for applications in RAS shrimp production, University of Gdańsk*



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What AquaVIP activities influenced your skills and gave potential for future career in aquaculture?

AquaVIP study visits were of a great value for us. We took part in a study visit to the Klaipeda University and Klaipeda Science and Technology Park, where we learnt new techniques and methods for white shrimp and fish aquaculture in RAS systems, which is crucial for our further research. (Hanna)

The study visit gave us a unique opportunity of working with large-scale experimental shrimp and fish farms, not available at our home university. We gained information on advantages and disadvantages of the systems for future considerations, new aquaculture themes for further cooperation and professional knowledge and experience. (Karolina)

We also learnt a lot from AquaVIP virtual study visits in modern, innovative farms and partner facilities presenting technology and production processes, available during project events and as open-source materials on the project YouTube channel. I personally took part in one of the virtual study visits productions. We also gained skills in modern aquaculture biotechnology by participating in AquaVIP summer schools. The courses on aquaponics, RAS shrimp cultivation, microalgae cultivation and others provided us with practical hands-on experience on modern aquaculture technology and innovative blue biotechnology-based approaches and gave the opportunity for development of soft skills such as presenting during student panels. (Olgerd)



How did AquaVIP project change your perspective on aquaculture and shape your career?

AquaVIP has broadened our perspective on aquaculture, giving the opportunity of applicable research and cooperation with other universities, but also with practitioners in various aquaculture-related topics through different project activities. (Hanna)

We could experience the interdisciplinarity of aquaculture and decide about our path in the graduate studies as well and the future professional career. (Karolina)

Thank you for being part of AquaYouth and all the best in the aquaculture career!

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