

From mountain to table: zenon sets the conditions for sustainable prawn farming

White Panther: Succulent prawns from the Austrian Alps

Far from any ocean, White Panther is growing prawns in the middle of the Austrian Alps. The company practices sustainable production methods, using electricity and heat generated by its own hydroelectric and biomass power plants, and ships its products fresh, not deep-frozen. Grown using the purest water from mountain streams and without any antibiotics, hormones or chemicals, White Panther uses zenon to precisely control the living conditions in its breeding tanks. The resulting mountain prawns are a delicacy that is as healthy as it is delectable.

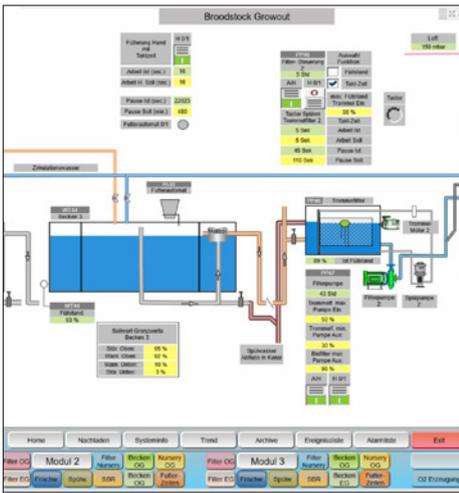


Prawns are a culinary specialty appreciated around the world. Whether on the grill or in a wok, in a creamy sauce on pasta, as a risotto or in a salad: their firm, aromatic flesh needs little to unfold its flavor.

For the procurement of prawns, scampi and other crustaceans, most are either fished from the oceans or farmed in aquaculture operations, primarily in lochs or ocean bays. As transport routes are often very long, they reach retailers and, ultimately, consumers in frozen form. Unfortunately, this production method and the associated logistics are very damaging to the environment, not least because many pollutants are released during the production process. The environmental footprint is large.

ENVIRONMENTALLY SUSTAINABLE PRAWN FARMING

There is another way: aquacultures for prawn farming in the Alps far from the coasts. White Panther Produktion GmbH is one of the largest farming facilities in Europe. In Rottenmann in Austria's Upper Styria, the company grows white tiger shrimp (*Litopenaeus Vannamei*) and blue mountain shrimp (*Litopenaeus Stylirostris*), delicacies particularly valued by gourmets. After the completion of the facility, some 60 tons of the delicacies will leave the breeding tanks every year. As the only hatchery in Europe, White Panther not only uses postlarvae for its own breeding but also supplies 48 indoor prawn farms in and around Europe.



White Panther implemented the zenon software platform from COPA-DATA as the process control technology for its prawn farm. zenon also controls the company’s power plants.

In the 56 prawn tanks, many parameters must be kept constant and the flow and feed quantities must be controlled precisely.

“They are grown stress-free in fresh, saline spring water with species-appropriate feed without antibiotics, hormones and chemicals and are, therefore, suitable to be eaten raw,” explains Eva Keferböck, CEO of White Panther Produktion GmbH. “Since most of the flavor is in the head and shell, we deliver the crustaceans whole and because of the short transport routes they reach our customers fresh instead of frozen.” In addition to retailers and restaurants, customers include consumers who buy in the local mountain prawn shop or order online.

CIRCULAR ECONOMY AS A FOUNDING PRINCIPLE

With a self-sufficient energy and heat supply, the company is focused on sustainability. With prawn farming, the owner of the parent company, FKF Forst und Gutsverwaltung GmbH, sought and found a way to use available natural resources in an environmentally sustainable, circular economy.

This includes several streams, where five of the company’s own small hydroelectric power plants supply 30 GWh of electricity per year. This is the equivalent of supplying the electricity needs of the entire town of Rottenmann. In addition, a biomass power plant produces electricity and heat from wood from the company’s forests. It also produces activated carbon used in the production process. The heat and power are used to keep the 2,500 cubic meters of water sourced from the Almbach river at a constant 28°C in the 56 prawn tanks. The tanks are located in the 90 meter by 30 meter hall. Thanks to the fully self-sufficient energy supply, the prawn farming operations can run without interruption – even in the event of a major blackout.

PIONEERING PROCESS ENGINEERING

To ensure the mountain prawns grow healthily, the temperature, salinity, oxygen content, concentration of ammonium, nitrate, redox, and the pH value must be kept constant. The flow rates must be regulated precisely. Equally tricky is supplying the changing amounts of feed, which are dosed using automatic feeders above the tank.

White Panther is one of only two companies in Europe that work with fresh water. All others use Biofloc technology, where microorganisms in the water form the basis of nutrition for the broodstock. “We were unable to rely on existing knowledge or industry standards and had to do pioneering work in many areas,” states Richard Pichlmaier, Technical Manager at White Panther Production GmbH. “The process control technology based on zenon supports us in these activities.”

SELF-IMPLEMENTED PROCESS CONTROL SYSTEM

Thanks to his many years of professional experience, Pichlmaier has been familiar with the zenon software platform from COPA-DATA for more than 30 years. This gives him valuable experience when using zenon to manage White Panther’s hydroelectric power plants. The software platform enables all five hydropower plants to run automatically via a common control room and allows both remote access and local operation and monitoring of individual systems. The original installations of the discontinued SICAM 230 control system, based on zenon, have now been replaced with zenon by the consulting company. The wood power plant is also equipped with a process control system based on zenon.

“When it comes to gradually optimizing the settings, zenon provides us with a clear advantage because we can make the adjustments without any programming effort, simply by setting parameters.”

**RICHARD PICHLMAIER, TECHNICAL MANAGER,
WHITE PANTHER PRODUKTION GMBH**

White Panther’s internal team implemented the process control and management technology for the prawn farming operations. “With less than two months of net effort, I prepared the process control system for operation and monitoring, including all the screens, without any outside help,” explains Pichlmaier. “The only part of the process that I outsourced to an external service provider was programming the PLC at the interface between zenon and the measuring technology components.”

NO-CODE SYSTEM MAKES CUSTOMIZATION A CINCH

In order to achieve the right rate of nitrate removal and keep the water circulating efficiently, the controls for the system have to be adjusted frequently during operation. Pichlmaier emphasizes that many settings still have to be gradually optimized to achieve the target of producing 60 tons of prawns per year. In this regard, zenon offers a clear advantage because adjustments can be made simply by setting parameters, without any programming.

zenon helps to display online and historical values of variables in curve formats. The zenon Extended Trend application enables users to display any number of curves at the same time, with different scaling and a freely configurable y-axis for each curve. This feature can help users to quickly identify the correct values as parameters for a detailed process analysis.

One of the next planned measures is to use the zenon Report Engine for central cockpit functionalities. “We are constantly developing our systems,” states Pichlmaier. “With zenon as the basis for our process control system, we have the certainty that the system can be adapted easily to new requirements at any time.”

HIGHLIGHTS:

- ▶ White Panther Produktion GmbH grows sustainable prawns in the Austrian Alps.
- ▶ Its hydroelectric and biomass power plants ensure a self-sufficient energy and heat supply.
- ▶ Process control technology in use for power generation is based on zenon from COPA-DATA.
- ▶ Control and management technology for prawn farming implemented inhouse thanks to no-code zenon software platform.
- ▶ Scalability and expansion options.