

Meeting requirements for new types of on-demand survey campaigns

An article by ANDRES NICOLA and DANIEL ESSER

In March 2021, the newly founded Nicola Offshore GmbH started its work. The company specialises in services for marine survey campaigns. The fast workboats of the partner ProMarine BV guarantee the shortest transit times to the site. This means that the orders can be completed quickly.

Nicola Offshore | workboat | offshore wind farm | UXO
Nicola Offshore | Arbeitsboot | Offshore-Windpark | Kampfmittelaltlasten

Im März 2021 hat die neu gegründete Nicola Offshore GmbH ihre Arbeit aufgenommen. Das Unternehmen ist auf Dienstleistungen für maritime Vermessungskampagnen spezialisiert. Die schnellen Arbeitsboote des Partners ProMarine BV garantieren kürzeste Transitzeiten zum Einsatzort. So können die Aufträge rasch erledigt werden.

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We are all well aware that hydrography is a technical process requiring highly trained professionals operating complex, expensive equipment with a common goal: to measure what lies below the surface of the water for industrial, commercial and scientific purposes. We can create high-resolution maps of the seafloor to centimetre accuracy, quantify rates of erosion around underwater infrastructure and pinpoint the smallest hazards or features on the seafloor.

With the ability to capture such precise data efficiently and from diverse environments, the subsea survey industry in Germany and globally is well-positioned to guide energy and marine construction companies to develop infrastructure projects that are both safe and sustainable. New technologies and cloud-based workflow innovations continue to provide an even stronger foundation for improvements in data and finished product quality.

The survey industry is an essential and well-oiled machine, certainly. But as the expansion of offshore renewable energy continues globally, there are still some areas that the industry is playing catch-up. This is most noticeable in how marine contractors and survey companies optimise their services for offshore working, especially for projects where the actual survey time is minimal, but the time it takes to organise and transit to site is anything but.

While not new applications at all, there are certain types of survey jobs that are becoming more commonplace because of the upturn in the construction of offshore wind farms, which over the last two decades have seen a steady increase in the distance from shore, with new installations regularly happening between 30 to 40 kilometres out.

In just 20 years, the average distance from shore of a wind farm has increased circa 700 % and be-

cause of this, the transit time and cost of service vessels has become a major consideration in relation to the wind farm operations and maintenance (O&M) budget.

It's also why new, Hamburg-based marine survey company Nicola Offshore has chosen to provide specialist survey services with focus on using fast workboats as an operational platform. The company, which opened for business in March 2021 and has already completed multiple contracts, was founded by Nicola Engineering GmbH, a German marine survey company operating for 50 years, and ProMarine BV, a highly regarded Dutch manufacturer of fast workboats.

The founders formed Nicola Offshore to act like an »emergency responder« for organisations needing fast access to expert offshore survey capabilities. With support from exclusive hydroacoustic technology partner Subsea Europe Services GmbH, Nicola Offshore has placed the spotlight on its capabilities for specific survey types that are becoming more in demand in the North Sea and Baltic sea as new wind farms are built or existing installations expanded.

Specialist survey services

Pre and post dredging reports and cable depth surveys are of course a staple of its work with offshore contractors and energy companies, but Nicola Offshore also specialises in object search and surveys covering very specific targets. This comes from the growing number of incidents during offshore construction when tools, equipment or components are lost over the side of workboats. If the lost item is integral to the project, it can cause significant delays and non-productive time of assets mounts up quickly. Checking data anomalies prior to starting a project also falls into this category.

Unexploded ordnance, aka UXO, is another key work stream for Nicola Offshore. UXO is a very real issue as more infrastructure gets built offshore in northern Europe. There are an estimated 1.6 million tons of conventional UXO still on the seafloor of the North Sea and Baltic Sea region, which is causing significant issues for Germany's expanding offshore wind ambitions.

UXO already creates challenges within the tourism industry, with many WWII relics known to be close to busy tourist areas. These need to be detected and cleaned to ensure safety, especially for larger cruise ships with thousands of people on board. Nicola Offshore's sister company Nicola Engineering has been heavily involved in this activity and is now providing a foundation of expertise for similar work, only further offshore at new wind farm locations.

While the Nicola Offshore team – which has already grown to 17 marine survey experts and support staff – will use AUV and/or ROV systems when appropriate, the company has introduced innovative vessel systems to ensure safety and performance on UXO jobs. Operating on a no-risk policy and leveraging the appropriate technologies, Nicola Offshore is employing cutting-edge new solutions, such as a unique UXO detection frame, on its vessel *Nautical Explorer* (Fig. 1).



Fig. 1: Workboat *Nautical Explorer*

projects and collect high-quality data while meeting strict deadlines, often under extreme offshore conditions. And with transit times to the survey site being much shorter due to the speed of Nicola Offshore's survey boats, costs can be lowered.

A job that may require a day's transit to the site, a day on site and a day travelling back to port for a standard survey vessel can easily be completed in a single day, with a faster vessel. *Nautical Explorer* for instance, can cover 30 kilometres in less than 30 minutes, with its top speed of 44 knots. It's a simple approach, but as it is already permanently fitted with a high-performance multibeam package, Nicola Offshore can be on site next day and, in many cases, even have the needed data in the client's hand on the same day.

The benefits to the efficiency of offshore wind construction projects are very clear. Should an issue halt work, the assets and professionals in place could get back to work much sooner if the data needed to overcome an issue can be delivered quickly.

The concept of agility that drives Nicola Offshore is already proven. The partners saw the rise in demand for unplanned, short surveys with long transit times growing and together they completed several successful »on-demand« campaigns in 2020. This ultimately led to Nicola Offshore opening as a full-time provider of agile survey services for offshore oil & gas installations and wind farms.

Close cooperation with Offshore Energy companies, vessel providers and technology leaders is helping the new firm to achieve the best results based on the latest technologies and professionally educated staff, while at the same time respecting the fragile marine environment, preventing pollution and committing to continuous improvement in order to increase efficiency.

Nicola Offshore has started its business in its home market, the North- and Baltic Sea, with the aim to expand in-line with the offshore renewable business and to approach new emerging markets within the Asia Pacific and North America region. Since its official opening, the fledgling survey company has already secured contracts in its home market and has received significant interest in the European offshore wind markets. //

Speed matters

While Nicola Offshore's UXO work highlights its specialist approach, it's the choice to build a fleet of high-speed vessels which gives the team a unique ability in the market to optimise the time and cost of transiting to offshore wind farms for ad-hoc or on-demand surveys.

Nicola Offshore's ability to respond to requests for urgent and challenging surveys quickly – the company's goal is to get the job done in days rather than weeks while still retaining the highest safety standards, professionalism and efficiency – comes in part from its advanced marine data acquisition platform based on ProMarine fast vessels fitted with flexible and easily configured integrated hydroacoustic packages.

In addition to the 12.5 metre *Nautical Explorer*, the fleet includes *Nautical Surveyor*, a 14 metre survey catamaran with a still very respectable top speed of 27 knots. Two further vessels will join the fleet in 2021, one of the PROCAT 1200 OBC design used by *Nautical Explorer* and a 14.5 metre aluminium boat with an integral A-Frame. As part-owner of Nicola Offshore, there are also three Fast Workboats in different models on standby at ProMarine in Holland. These are ready to be deployed as survey platforms should the Nicola Offshore team need them.

Integrated hydroacoustic technology and fast boats allow Nicola Offshore's experienced team of hydrographers to tackle the toughest survey