Eric Vial
Président d'Ecoceane

By Corinne Hirzel

Ecoceane, the French specialist in open-water oil spill response, has chosen CATIA, DELMIA and 3DVIA to accelerate its performance in designing and manufacturing ships and position itself as the global market leader.

DS PLM helps Ecoceane deliver oil-spill-cleaning ships

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As sea-lovers concerned about environmental quality, Ecoceane founders Robert Gastaldi and Eric Vial have invested more than 10 million Euros in R&D to design, manufacture and market oil-spill-response vessels based on a unique and innovative concept.

During an oil spill pumping operation, traditional ships recover 75% water and just 25% hydrocarbons. Ecoceane, based in Paimpol, France, has invented an ingenious system that separates the water from the hydrocarbons at the very start of the operation to completely prevent emulsion. The Catamar is the first oil spill response vessel capable of recovering more than 100 cubic meters of hydrocarbons per hour at sea or collecting 2,000 cubic meters of floating refuse per day. This capacity, which is ten times higher than that of traditional water-cleaning boats, represents a revolution in anti-pollution operations at sea. The Breton company, which was created in 2003, has already sold 60 clean-up ships worldwide to service providers, ports, marinas and oil companies. The company exports 85% of its sales.

Ecoceane uses its technological lead to assist regions that have suffered ecological disasters. As part of the operations to contain the oil spill in the Gulf of Mexico that followed the explosion of the Deepwater Horizon platform in late April 2010, for example, Ecoceane sent anti-pollution ships to Florida. The French Government proposed Ecoceane as « The Solution » to recover oil drifting at sea. An independent service company ordered ten oil-spill-response vessels.

OPTIMIZED DESIGN LEAD TIMES

As it developed a new vessel, the Workglop 128, Ecoceane sought a new solution to reduce lead times for design, plate production preparation and assembly, the three main areas the company identified as critical to transforming its processes. "We were conscious that we wasted a phenomenal amount of time creating assembly and cutting plans because of the lack of automation between the 3D models and the 2D plans, so we wanted a design solution that had functionalities to deal with the metal structures of ships," explains Benjamin Lerondeau, one of Ecoceane's naval R&D architects. "We also needed to improve our processes for preparing plate for cutting and formalize the assembly instruction specification sheets for the workshop." The production objective for the Workglop 128, a 12-meter aluminum vessel entirely designed using CATIA, was fixed at six months, compared to nine months previously. Its official launch is planned for early 2011.

CROSS-FUNCTIONAL VALIDATION

"With CATIA's metallic shipbuilding structure module, we created our prototype in just one month, where three months of studies would have been necessary before we had this solution," Lerondeau says. "We can now update the shape of the hull automatically at each stage of development, whereas previously four or five projects would have been necessary to finalize the design. The 3D models and mass breakdown update automatically, which saves a significant amount of time. Previously, we had to manually work through about 100 lines in Excel to obtain the mass breakdown for the preliminary project. Today, we have tools integrated into the digital model that give us a complete calculation in real time without any errors or omissions. We can also measure the tool's performance by the precision it produces in cutting the plate, especially the shaped shell plate."

33%

The production cycle for the Workglop 128, a 12-meter aluminum vessel entirely designed with CATIA, was reduced from nine months to six months, a 33% time savings.

"DELMIA produces flat plans instantly from the 3D structure," Lerondeau explains. "It was therefore easy for us to generate plate-cutting plans including all the necessary information, such as the bonding and welding data for the German shipyard. In return, we receive a plate kit in 'puzzle' format. At Paimpol, meanwhile, the naval architects prepared the assembly instructions using 3DVIA Composer, which now replaces the traditional 2D assembly plans. Just two days, compared to three weeks previously, are now required to produce the 3D assembly views without dimensions, which the workshop can access on a PC."

"We are delighted with how easy it is to make modifications, especially in the structure, because until now there was no link between design and manufacture. The CATIA naval construction solution offers a true environment for multi-disciplinary validation, which is easy to implement in a small company like ours," the naval architect says.

INNOVATE PERMANENTLY

"We have halved the number of assembly plans," Lerondeau says. "CATIA has allowed us to save a considerable amount of time both in design and in the deployment of complex mechanical studies. Also, we create marketing presentations for our products using 3DVIA Composer, and we can see the amazing impact these have on potential clients."

Keonys – a French Dassault Systèmes Value Added Reseller – carried out specific on-site studies and developed new methodologies to make R&D operational rapidly. "We are currently renewing part of our range," Ecoceane President Eric Vial adds. "This integrated solution allows us to complete the whole process from design to production of a ship in three to four months, saving us a month."

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Benjamin Lerondeau
Naval R&D Architect

By choosing Dassault Systèmes' PLM solutions, Ecoceane has achieved an outstanding level of innovation, quality and control over costs and lead times to market, which are real growth levers to drive the Breton company to the rank of global leader in marine pollution response.

For more information:
www.ecoceane.com
www.keonys.com