

Metal detectors

In the depths of the ocean, there is treasure to be found – if you know where to look, and have the means to recover it. That’s the message from Subsea Resources, a British firm that specialises in locating deep-sea shipwrecks and remotely salvaging their cargoes of non-ferrous metals.

Subsea scored its first big win in early August when it found a wreck off the coast of northern Spain – codenamed Celia – and began to retrieve its 5,500-tonne cargo of copper cathode and wire bar.

It is expected that at least 80% of the Celia cargo will be brought up from the seabed by the end of this month, to be sold at or very close to the spot price for copper. Seven hundred tonnes of zinc aboard the sunken vessel are also expected to be recovered. With the metals markets booming, the incentive for salvage is certainly there: it’s estimated that the haul will be worth \$40 million.

“What we’ve done is something that’s never been done before – we’ve recovered large quantities of material from deep water,” says Subsea’s managing director Mark Gleave. The company is hoping to profit from the fact that deep-sea salvage has proved technologically and financially impossible until recent times. Traditionally, salvage has not taken place at depths greater than 300m but Subsea claims it can go to a potential depth of 6,000m.

The company combines technology from the offshore oil and gas industry, such as remotely operated vehicles, winches and grabs, with a proprietary database that lists details of more than 14,000 wrecks. So why has nobody done this before?

“It’s simply proved to be too expensive,” explains Gleave. “The cost of the technology has fallen now, but you still need to be able to mix and match it. Our unique selling point is the combination of the database, our offshore skills and our engineering.”

Most of Subsea’s 60 staff are

The high price of metals makes salvage of valuable cargoes from sunken ships a lucrative operation.

Ben Hargeaves talks to a company that hopes to make a fortune from finding treasures of the deep



Recovery ship: The Geomaster had to be modified for its special new role before it went to work retrieving copper from the Celia wreck (opposite)

drawn from the oil and gas industry. As Gleave puts it: “It would have been possible for an oil and gas company to do what we’re doing, but it would have to become a different animal. The skills we have are purchasable elsewhere, but you have to pull them together, and that combination is what makes the company interesting to potential investors.”

Subsea acquired several other salvage and survey-related companies before listing on London’s Alternative Investment Market in November 2004, which

raised £10.4 million, allowing the firm to finance the purchase of equipment and begin salvage operations. Subsea collaborated with oil and gas specialist Saipem’s team of Marseilles-based engineers to produce a cargo recovery system.

Saipem’s team had previously developed equipment used to recover oil from the tanker Prestige at a depth of 3,850m.

Some roller bearings for Subsea’s system had to be specially made by SKF in the UK, which caused a slight delay to the company’s plans, but by March 2006 it was ready to

lease its recovery ship, the Geomaster. “Getting hold of a ship was very, very difficult,” says Gleave. “Most ship owners didn’t believe that what we were doing was real.”

Modifications had to be made to the vessel, including removing an upper deck and strengthening the hull and main deck, before the Geomaster could set sail with the newly built recovery equipment.

Following an equipment test phase, Geomaster is now stationed above the Celia wreck and is concentrating on bringing the vessel’s long-submerged bounty to the surface.

The stock market reacted immediately when Celia was found, with Subsea’s share price doubling. “There’s been a lot of interest in the company,” says Gleave. “When Celia came online the share price went from 25p to 45p. But I don’t think the market has understood the value of what we’re doing yet. We now have a business with proven processes in place for us to start long-term revenue generation. The copper is on deck and we can sell it. But I don’t think the company will be understood until a couple of years’ time when we are producing £20-40 million a year in profit.”

It’s a bold claim, but the business model is compelling. For each cargo recovered, Subsea will typically take 90% of the revenue, with the owner receiving the remaining 10% under the terms of the salvage deal.

Although costs at the moment are high, with a lot of expensive short-term contracts in place for essential equipment such as the Geomaster and crew, Gleave expects these overheads to fall to \$500 per tonne of material recovered. As *PE* went to press, the spot price for a tonne of copper was \$7,415.

Subsea has identified more than 150 high-value wrecks on its database, and has plans to explore several more in the next couple of years (see left). Cargoes to be recovered could include tin, aluminium, nickel and semi-refined materials such as high-grade ores of tungsten, antimony and vanadium.

SHIPWRECKS ON SUBSEA'S TARGET LIST

Codename: Vanilla

Value: \$67.5 million
Recovery: First quarter, 2007
The ship was on a voyage for the US government’s Strategic Metals Reserve Corporation and sank in international waters off Panama. The cargo was more than 9,000 tonnes of copper, antimony, tungsten, tin and vanadium.

Codename: Miranda

Value: \$46.1 million
Recovery: Third quarter, 2007
A freighter that was sunk in the North Atlantic and lies at a depth of 3,600m. The cargo is nickel.

Codename: Jennifer

Value: Not known
Recovery: Fourth quarter, 2007
This freighter under contract to the

British government was sunk in the Second World War in the western Atlantic and lies at a depth of 3,200m. Jennifer was carrying a cargo of copper, tin and cobalt.

Codename: Diana

Value: \$44.9 million
Recovery: Second quarter, 2008
A freighter sunk in the Second World War, with a cargo of tin and wolfram.

Codenames: Gina and Ella

Value: \$20.5 million
Recovery: 2006
The John Lethbridge survey ship is expected to make recoveries from these two wrecks this year. Ella contains 16,000oz of gold bullion and silver coins, while it is believed that Gina has at least 20,000oz of gold on board.



FIRST FIND YOUR SUNKEN VESSEL

Subsea's recovery operation has three phases.

RESEARCH: Gathering information on the shipwreck, including what it contains, how easy it will be to access, ownership, and so on. The company's database proves invaluable here.

SURVEY: Finding and identifying the vessel. The exact position of the wreck is found using a side-scan sonar. This resembles a torpedo and is pulled behind Subsea's survey ship - the John Lethbridge. It sweeps the seabed in the search zone. Once the wreck has been located, dynamic positioning technology is used to hold the John Lethbridge in an exact location. A remotely operated vehicle (ROV) is then used to identify the wreck. The ROV is a small, unmanned submarine. ROVs typically are fitted with lights, a sector-scanning sonar, manipulator arms, a video recorder and a stills camera. Identification of the wreck can be achieved by something as simple as reading the name.

EXTRACTION: The salvage ship, the Geomaster, has lots of deck space from which to conduct the recovery operation. The first step is to establish a fixed link to the wreck, using either wire or drill pipe. A grab system is then lowered to the seabed using a winch. Suspended just above the grab is a control pod containing hydraulic motors, sonar, lights, and equipment to measure how much the grab contains. The grab unloads cargo into 50- to 100-tonne skips positioned on the seabed next to the wreck. These skips are connected to a second pulley system - usually using an ROV - and pulled to the surface.

"The database took years and years of grubbing around in dusty archives to find evidence of wrecks of value," says Gleave. "Many of the high-value wrecks are not known of by anyone else - and never will be. Not having a database like ours is a barrier to entry to the industry. In theory someone could recreate it, but it would take 20 years and cost millions of dollars. Our database is unique as far as I'm aware."

As salvage work at Celia draws to a close, the other projects await. "If we move from proof of process to proof of commercialisation we might just see the share price double again," concludes Gleave.