

Barging in South America with safety of prime importance

River transport generally enjoys a low-profile existence in the marine world, despite the vast quantities of cargoes involved, writes Richard Knight, managing director of JP Knight (Paranam Ltd). When that cargo is bauxite (the 'ore' from which aluminium is made) and the location a series of obscure rivers in a little-known republic in South America, the image that springs to mind is of the *African Queen* dragged resolutely through impenetrable leech-infested creeks. This picture is in some respects uncomfortably close to the truth. It is often only by the sheer determination and will of the tug captain that a tide is caught, a grounding overcome, a close-quarter situation with native canoes averted. And of course there are the piranha.

The republic in question is Suriname, which gained independence from the Netherlands in 1975 and lies on the North East coast of South America bordering Guyana, French Guiana and, at its interior, also Brazil. Bauxite has been mined in the coastal lowlands region (to make the important distinction from rain forest) at Moengo since the early part of the last century; and a network of four rivers has provided a natural artery over that time.

So why, after nearly a century's history of river transport, does delivering large tonnages reliably continue to provide such a challenge?

The towage and marine transport group JP Knight has been carrying out barging operations in Suriname for over a decade, to date recording 2.8 billion cargo miles for Suralco, the long established in-country joint venture of Alcoa, the world's premier aluminium company and the Government of Suriname. JP Knight, itself founded in 1892, is the UK's oldest tug and barge company, better known for its harbour towage heritage and its fierce independence as the only surviving family-owned tug company in Britain.

Bauxite barging between the mining operation at Coerमतibo and the refinery at Paranam is carried out by a fleet of four push tugs and ten barges over a distance of 110 nautical miles, delivering in the order of two million tonnes of 'wet' bauxite per annum. The bauxite is refined in-country and exported as alumina, though for many years the alumina was smelted at Paranam too. Each convoy of paired barges carries approximately five to over seven thousand tonnes of bauxite in an overall length including the push tug of almost 500ft (152 metres). Given a beam of 50ft (15.24 metres), this is an unforgiving chisel travelling at 6 knots in extremely confined, unmarked channels. Bends, of which there are many, have to be committed to before



JP Knight's tug masters navigate a distance equivalent to four times round the Earth each year.

the point of entry. Even a slight error, a few metres out of position, will result in contact with the bush at the very least. It is, in part, this need for relentless concentration over almost the entire length of the system, half of which will be in complete darkness with no navigation marks, that makes reliability such a challenge. JP Knight approaches the problem from two perspectives. What can we do safely and how can we still meet targets?

The safety aspect is addressed through ISM Code compliance. Ten years ago JP Knight (Paranam) Ltd became the world's first tug and barge company to be certified to the International Management Code for the safe operation of ships and for pollution prevention. Though much is written about ISM, when applied in JP Knight's case voluntarily, the parameters within which an operation may be undertaken safely actually extend outwards, allowing not only a safer operation but also a more efficient one. The achievement of targets, the second aspect, is met through this greater efficiency but is not sufficient in isolation. A further aspect must be considered, that of durability. For consistent tonnages, a measure of over-capacity is essential. Efficiency will often give a false sense of comfort and will inevitably 'over-stress' the operation. Therefore a relief tug ensures that for all but the most extreme circumstances there will be three fully operational tugs. Barge capacity is similarly critical though less so as cargo is always discharged to shore on arrival and no 'floating storage' is required. A mention should be made here about the reasons for loss of reliability. Firstly, there is the continuous operating of machinery in extremely high ambient temperatures under heavy load. Secondly, underwater damage caused by shifting sand-banks and submerged trees is no respecter of the newness of the tug or barge. So efficiency is not necessarily a function of financial or technical investment.

As so many of JP Knight's master mariners confirm, river transport of this order remains the ultimate test of ship-handling ability.