

## CEESCOPE™ Guides MV Pacific Link through Uncharted Rivers in Papua New Guinea

*How the CEESCOPE™ was used by YWAM volunteers in Papua New Guinea to guide the Medical Ship MV Pacific Link up uncharted rivers, and even allowed YWAM volunteer medical staff to prevent the death of a new born baby!*

YWAM Medical Ships Australia (YWAM MSA) operates a Medical Ship that visits remote villages in Papua New Guinea, helping communities gain access to potentially life-saving medical and dental services. The volunteer organization operated the MV Pacific Link out of Townsville, Australia between 2010 and 2014, before acquiring a new larger ship, MV YWAM PNG in 2015. The village locations are accessed by river, and while often there is adequate tide information to help navigate there are no available charts or bathymetry data for the passages up river. Without a navigable route to follow, the Pacific Link or MV YWAM PNG simply could not travel to many of the locations where help is needed the most.



To solve this problem, YWAM decided to make their own charts with help from CEE HydroSystems. Using a small fast launch equipped with a CEESCOPE™ single beam echo sounder and GPS hydrographic survey system, YWAM volunteer and master mariner Jeremy

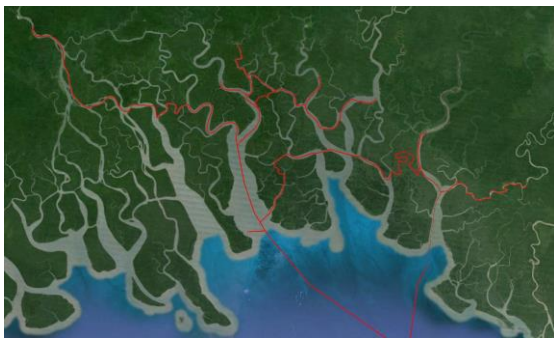
Schierer set out to find safe routes through vast river deltas ahead of the medical ship. While surveying at high speed to maximize the area covered, Jeremy executed reconnaissance patterns along the river while continuously updating the hydrographic survey plan based on the results seen. Survey data gathered and processed in HYPACK® acquisition software were exported to the navigation system of the ship to provide waypoints marking the safe passage route along the river. Used with available and observed tide data, the navigator of the vessel could confidently travel up river without the risk of grounding.



The CEESCOPE was an ideal choice for the YWAM surveys; the one-box survey system was easy to swap between the two available 4.2m and 5.2m boats. It could be used without an acquisition PC on the survey launch if needed - all data recorded on the internal memory, and could run on its own battery power for an

extended duration. With operation in remote areas on small boats, reliability and usability were the key requirements. YWAM also used the CEESCOPE with HYPACK from the wheelhouse to navigate the ship along the surveyed routes on custom electronic charts.

In the third year of YWAM's operation in PNG, Jeremy recorded a staggering 3400 Km (2000 miles) of bathymetry to help navigate the MV Pacific Link, through regions including this river system below.



All of the rivers were uncharted before the ship traveled upstream. With incomplete tide station coverage, determining the ship's path was a complex calculation. Despite this, and complicated by a bore tide, YWAM were able to take their vessel 75 km upstream in the Bamu River, Western Province with no published charts. However the most startling example of the benefit of the YWAM hydrographic survey approach took place in the second year of operation. Jeremy described the events:

*"Baimuru is up the Pie River from Port Romilly in the Gulf Province. The only previous known route took us about 4 hours through the rivers and required high tide and daylight. With the ship's schedule if we were to use the known route we would have had to depart Baimuru on Thursday at 1700. Knowing this on Tuesday morning we went out with the CEESCOPE to see if we could find an alternate and more direct route to the*

*open sea. We left the ship just before sunrise and went as far as 8nm off the coast to confirm a good passage – and we found one that was deep enough. So instead of departing Thursday at 1700 we planned to depart Friday at 0600.*

*Thursday evening we were concluding post-outreach debriefings aboard when we got a call from the medical centre about 300m away on the shore (where there is no electricity or running water). A lady had just given birth and they were requesting attendance by our doctor and midwife. Evidently the baby was born in the canoe on the way to the medical centre and for some time the baby lay in the bottom of the canoe. By the time we unsecured our small boat and got the medical team ashore the baby was 35C and not warming up. Our medical team was able to assist in warming the baby and reported that if we had not been there they were quite certain that the baby would not have survived the night. The only reason we were still there was because we had the CEESCOPE and had been able to find another route. We've done over 1200km with the CEESCOPE so far and it is making a huge difference."*

CEE HydroSystems are delighted to continue to support the work of YWAM Medical Ships operating in a relatively unknown location very much in need of assistance. Please visit the YWAM MSA website: <http://ywamships.org.au/>

Photos: J. Schierer. Copyright YWAM Medical Ships.