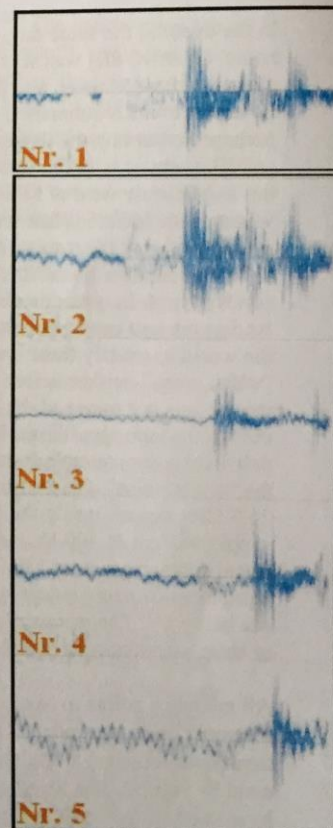


Mälsten and the five hydrophones (H1-H5) southeast of Mälsten and details of the five hydrophones with the exact positions of clicking sounds from hydraulic valves giving the exact position of the submarine.²³⁹

ly working pumps (as would have been the case with a nuclear submarine). This audio profile indicates a conventional submarine with very silent propellers. Accordingly, it is very likely a Western submarine, because the propellers of a Soviet submarine at the time were still very noisy, and the short periods of pump noise would indicate a conventional submarine, most likely a British Porpoise or Oberon class, because US submarines operating in European waters would almost certainly have used nuclear propulsion with continuously working pumps.²⁴⁰ This would exclude a US as well as a Soviet submarine. If we accept above arguments, this tape-recording does not reveal a Soviet or US submarine, but rather a Royal Navy Porpoise or Oberon class; both had silent propellers. One could argue that it might have been a West German 206 or a French Agosta or Daphné class, but the green VDS would indicate a British submarine. The green VDS and the 21.3 KHz signal are also evidence for a US or UK submarine, and the tape-recording exclude a US one. In the 1983 Defense Staff report, this tape-recording was replaced with the 3.47-minutes' recording that the sonar operator was unaware of.²⁴¹ He was never consulted afterwards.²⁴²

The sharp sounds, particularly the double click of the hydraulic valves allow us to plot the exact movement of the submarine after 18:00 less than 50 meters from the hydrophones. The difference in milliseconds of the click of a valve to the different hydrophones (see figure above) gives us its exact position. In the Stockholm archipelago, the speed of the sound in water is 1430 meters per second (or 1.43 meters per millisecond). At 18:07, one can hear a double click "Keke", from the closing of a valve. It is 90 meters from hydrophone no. 1; 84 meters from hydrophone no. 2; 179 meters from hydrophones no. 3; 298 meters from hydrophone no. 4; and 354 meters from hydrophone no. 5 (see the drawing above).²⁴³ Similarly, one can calculate the exact position of a sound at 18:08. The print-out (to the right) of the sound at 18:07 from the five hydrophones shows that the sound reaches hydrophone no. 1 and 2 with a difference of only 4 milliseconds. One can accordingly plot the valve's exact position (to the meter). Other sounds make it possible to plot its movement. There is definite evidence of a submarine at 18:00 on 12 October 1982.



Print-out of the double click "Keke-sound" reaching the five hydrophones at 18:07 with a difference of a few milliseconds. The Sound reaches no. 1 and 2 almost at the same time