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ANNEX 5: APPLICATION OF UNDERWATER VIDEO FOR ASSESSMENT OF MACROZOOBENTHIC COLONIZATION AND SEDIMENT STRUCTURE IN GERMAN BALTIC WATERS[1)]

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As known from several studies, the use of underwater cameras extends the range of possibilities offered by traditional benthos sampling (grab, corer, and dredge). The additional information obtained, e.g., on sediment structure, epibenthic fauna, and typical tracks of some endobenthic species will be helpful for the assessment of benthic communities and their changes. Therefore, two years ago a study was started aiming to develop an underwater video system for later application in a monitoring programme, e.g., within the frame of HELCOM. The underwater video system used consists of a security camera (Hitachi, VK-C78ES) protected by a water-resistant case and mounted on a sledge. The camera was installed on a pan and tilt head. Scaling was accomplished by four crossed laser beams projected into the screen. The sledge was towed over the bottom by a drifting vessel at lowest possible speed (< 1 knot). During the whole tow information on geographical position, water depth, date and time of video recording was visible on the screen, allowing the later assignment of the video material to the different areas investigated. During the study, about 78 sites were visited once or twice, with special emphasis on Mecklenburg Bight and Arkona Basin (Figure A5.1). During these cruises the underwater video system was used about 100 times in depths between 6 m and 90 m and over 20 hours of video material were recorded. For the later calibration of the video pictures, bottom samples were taken using van Veen grabs and dredges. In total, 194 macrozoobenthic species were found (Figure A5.2). We were able to determine approximately 16 % of these species with the video method. 7 % are exclusively detectable (qualitatively) when using the underwater video system. The quantifying of a small number of the latter group (adults of 7 species) was only possible by means of video technique. Some rare, epibenthic species (e.g., the seastar *Asterias rubens* or the brittle star *Ophiura albida*) belong to this group as well as endobenthic species with typical tracks such as the lugworm *Arenicola marina* or the boring bivalve *Barnea candida*. The knowledge of sediment structure allows estimation of the regularity or patchiness of habitats and their colonization by macrozoobenthic species. In conclusion we recommend the use of underwater video as an additional monitoring tool in order to follow and better understand the structure and changes within macrozoobenthic communities relative to environmental changes.

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Figure A5.1. Investigation area with stations which were visited between 1998 and 2000. At each station three Van Veen grabs, one dredge, and one video survey were carried out.

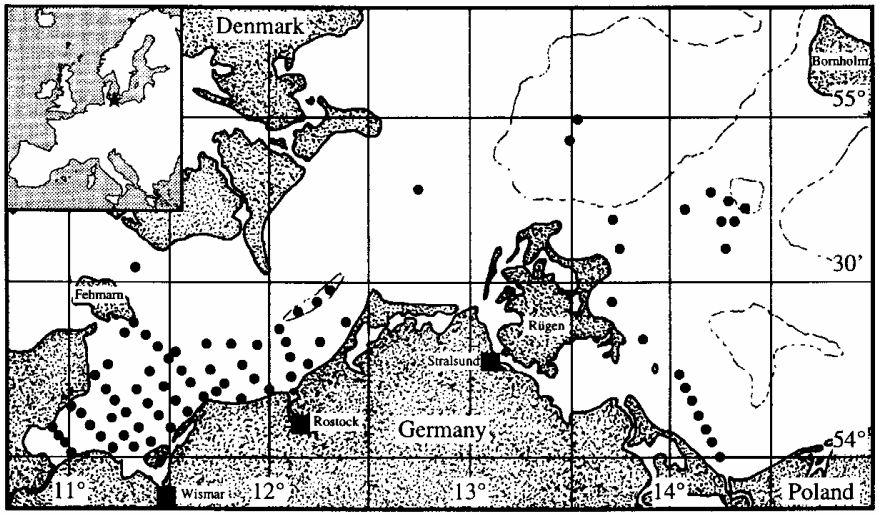

Figure A5.2. Comparison of species records determined by different methods.