

## **in the Studies on the Next Generation Cabled IMS Hydroacoustic Stations**

In 2016, a study on the design of the next generation cabled hydroacoustic (HA) stations was conducted with the objective of evaluating viable architectures for the sensor package of the underwater system (UWS). The goals of this project were to: (i) improve sustainability by reducing the impact of events that may negatively affect data availability, (ii) facilitate reparability through modular designs and (iii) develop options for non-interfering instrumentation able to improve the scientific value of International Monitoring System's (IMS) hydroacoustic data. The overriding requirements for all proposed concepts were the minimum 20-year design life and the fulfilment of all other CTBT operational manual specifications. Wet- and dry-mateable connector technologies which have a proven track record in ocean engineering, make it possible to introduce different levels of modularity in order to achieve the above goals. The range of technical solution options that emerged from the study are presented together with the trade-offs vis-à-vis technical/operational complexity and related risks. The successive steps envisaged for this effort are the down-selection of options to fully meet CTBT operational manual specifications and extensive prototype testing.

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**Track Classification:** Sustainability of modular ocean observation systems and maintainability challenges with focus on the use of Remotely Operated underwater Vehicles (ROV) and environmentally challenging locations