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DAIMON Project

Report from work in Skagerrak in 2017

In July 2017 Polish survey vessel IMOR took part in DAIMON project on area of Skagerrak. Polish crew and Norwegian scientist made works as below:

Work Package 3 – Case studies on marine munitions – exchange of experience in identifying demand for personnel and hardware necessary to perform the task, preparing of equipment necessary for making surveys in Skagerrak.

WP No. 3.2 – Case studies on wrecks with chemical munitions – the Norwegian Defence Research Establishment (*FFI*) – analysis of data from measurements and analyses performed with AUV helping to achieve objectives of the project i.e. selection of 3 wrecks to be subjected to research. (**Michał Niemkiewicz, Sitarz Mirosław, Hac Benedykt, Romanowski Andrzej, Nowak Jarosław, Malottki Andrzej, Kwella Krzysztof**)

Results of work:

1. Three wrecks containing CW were selected for the DAIMON project. The wrecks are fairly well known (wreck no. 13) or unknown before (no. 5 and 12); no sediment samples have been collected for chemical testing before. Wrecks chosen for the study are large commercial vessels with chemical munition and sunk intentionally after the World War II. Selected wrecks are heavily damaged; munitions fill their holds and cover the bottom near the wrecks.
2. Preparation of equipment necessary for biological sampling,
3. Redevelopment of existing ground sampling equipment for working on depth of 560-700 meters,
4. Preparation (replenishing) of IMOR vessel for a large-scale sampling (planned 150 to 450 samples)
5. Preparation (replenishing) of IMOR vessel for a biological sampling (16 samples).
6. Preparation of IMOR vessel for a biological sampling (16 samples).

Cruise report of Skagerrak:

It was planned that the investigation at each wreck should consist of the following parts:

- ROV camera recordings to show the placement of the biota sampling rig,
- Sampling of biota (hagfish) at four different locations close to wreck no. 13 and two different locations close to wreck no. 5 (and wreck no. 12 if time permits) – each biota rig should be deployed for 12 hours
- Video recording of the wreck(s) to document the condition of the wreck(s) and the ammunition – it contains - record condition of the wreck(s), record type of ammunition inside and around the wreck(s), Record condition of ammunition

- Sampling of sediments close to each wreck and in a transect out from each wreck

Cruise execution

The first two days of the cruise was spent on adjusting and testing the biota sampling rig, the first day at harbour in Arendal and the second day at sea.

For reasons independent of the Maritime Institute, the ordered ROV did not arrive at the time of the wrecked video inspection. Therefore, the inspection of the selected facilities was postponed to April 2018 when the second part of the Skagerrak wreck survey is planned.

The construction and final testing of the sediment sampler in Poland was delayed. The complete sediment sampler was therefore onboard R/V IMOR during the first week of the cruise. The final parts of the sampler arrived Arendal harbour on Saturday 17th June 2017 and it would have taken a couple of days to assemble the sampler, test and evaluate it and get it ready for work. Because of the early completion of this operation, no ground samples were taken from the bottom around the wreckage. This action was postponed to April 2018 when the second part of the Skagerrak wreck survey is planned.

The five days at sea was used to collect biota samples from the reference position and from positions close to Wreck no. 13. The bait traps used had to be deployed for 6-12 hours before they could be retrieved. The construction and final testing of biota samplers was changing but not tested earlier and performance was much lower than expected. After 2 days of testing and full performance, by next 3 days biological samples were taken only on wreck 13. Unfavorable weather conditions - high waves and strong winds - ended this part of the action.

Weather conditions

The weather for the last week of the planned cruise duration was not good, with increasing wind for the period 17th to 20th June. R/V IMOR would therefore have had to stay in Arendal port during this period since she does not tolerate much wind or waves. Only about 2-3 days at the end of the last week could possibly have been used for more biota and sediment sampling. It was therefore decided to abort the cruise on 17th June 2017 and save the rest of the cruise days for later – proposed continuation – April 2018.

WP 3.2 - Case studies on wrecks filled with chemical munitions – Norwegian Defence Research Establishment (FFI)

Cruise execution (by John Aa Tørnes):

- Some adjustments had to be done to the FFI-made biota sampler during the first days at sea. This took some extra time and caused slow deployment
- Hagfish and amphipods were collected at a reference position and five positions close to wreck no. 13
- Biological samples were sent to FFI, Chalmers, SYKE and Johann Heinrich von Thünen-Institut for analysis after the cruise
- No ROV was available for the cruise
- The “revolving” sediment sampler was not ready when the cruise started. The sampler arrived some days later

- Due to bad weather forecast for the last part of the time window, the cruise was aborted after five days at sea

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