

# **MIREMAR: Minimizing Risks for the Environment in Marine Ammunition Removal in the Baltic and North Sea**

**NABU, GRD, GSM: Conference Neumünster, Germany, 16. - 18. November 2010**

## **Workshops MIREMAR**

### **Databases**

Good environmental information of a site has a large influence on search success, information on condition of shells and critical substances and influence on the marine environment. Site chemistry (and changes thereof) and substances involved are an important factor in monitoring operations. Databases can provide such information. Further, data on protected areas or species can be included into databases. How does existing position data have to be preprocessed? How can existing databases be combined? What can be achieved by filtering of data? How can environmental issues be integrated into existing priority systems? These and other questions can be addressed during the workshop.

### **Funding of joint projects**

Many UXO and DMM sites have the potential to be dangerous for human health or the marine environment. Funding of authorities dealing with these risks is limited and thus, cheap action may be favoured over extensive examination, risk assessment and best available treatment technique which may require multidisciplinary engagement. The aim of this workshop is to identify and discuss funding options for pilot projects and to establish a network of actors in order to initiate research, development or trials of new technologies.

### **Combination of Technical Solutions, from Detection to Removal**

Best available treatment technique may require concerted action by a number of actors. Off-the-shelf techniques barely exist. Underwater vehicles, sensors, cutting, recovery, destruction and/or remediation techniques must be compatible in order to get the best results. This workshop provides the opportunity to meet and discuss technical details of how different systems could be integrated into one strategy.

### **Nature conservation and ammunition**

Blasting of marine ammunition or leakage from deteriorating shells can affect protected areas or species. How do NGOs and nature conservation agencies deal with ammunition today and what has to be improved in the future? What impact may be acceptable? These and other questions can be addressed during the workshop.

## **Mitigation of Shock Waves from Detonations**

Shock waves from underwater blasts are a danger for marine mammals, diving birds and fish. However, in some cases it may for safety reasons not be possible to avoid detonations. One method to reduce the shock wave of detonations is the use of bubble curtains. How can the efficiency of a bubble curtain be improved? Are there other methods such as directing the energy? Can the elasticity of the sea-floor surface or structural modifications on an electrochemical basis be used as a damping element? - If you have an interest in physics of underwater detonations, this may be your workshop.

## **Chemical DMM – Still a WMD Threat?**

Due to their toxic fillings DMM do not become inert as time passes by. But is there any realistic threat as these compositions are of special interest to certain organisations?

Do really old sea-dumped DMM's retain the capability to act as WMD? Are they still applicable to smaller targets or even single event point attacks? As the combination with conventional IED's is feasible, what is to be anticipated as a result? What knowledge is available?

What are the requirements for clandestine recovery, reclamation and use of chemical DMM payloads? What is the political impact with respect to critical infrastructures, high value targets and reconnaissance and countermeasures?