

# **JPI Oceans action Munitions in the Sea**

Brussels - 20 February 2019

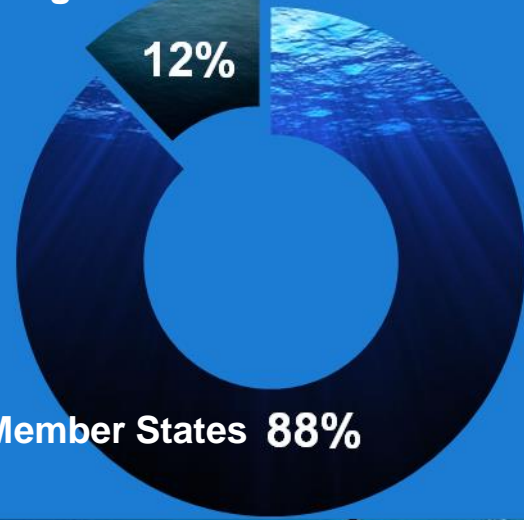
Pier Francesco Moretti

*JPIO Secretariat - CNR*

*Colloquium*

*“The challenges of Unexploded Munitions”*

Intergov+EU Commissions



## What is JPI Oceans?

A Member State-driven initiative adopted by the Council:  
a **strategic platform** for long-term  
alignment and cooperation in marine and maritime  
research & innovation funding  
to increase impact of investments

A concept to tackle  
challenges that can not  
be solved solely at  
national level





**21 Participating** countries (+ Outermost regions)  
with **different ministries**

## ADDED VALUES

- Long term perspective & capacity building
- High-level commitment
- **Different typologies of actions**
- **Variable geometry** (*“menu a la carte”*)
- Stakeholders participation (*multi-sectorial*)
- Research to policy mechanism
- Common strategic agenda



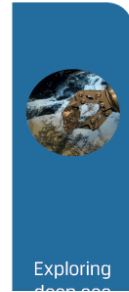
## HOW:

**Different typologies of activities/instruments**

**Variable geometry and fit-to-purpose/adaptive approach:**

# The SRIA and joint actions

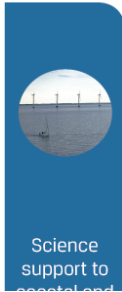
## A common Strategic and Innovation Agenda



Exploring deep-sea



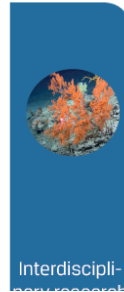
Technology and innovation



Science support to coastal and marine



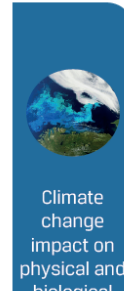
Linking oceans,



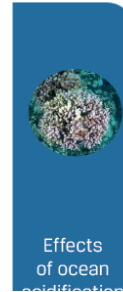
Interdisciplinary research



Observing, modelling and predicting



Climate change impact on physical and biological



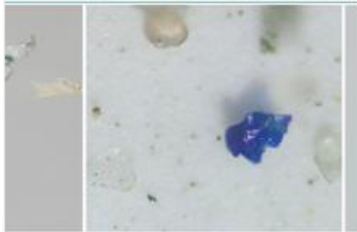
Effects of ocean acidification



Food security and safety driving innovation in a changing world



Use of marine biological resources through development and application of biotechnology



ECOLOGICAL ASPECTS OF MICROPLASTICS



ECOLOGICAL ASPECTS OF DEEP-SEA MINING



MUNITIONS IN THE SEA



INTERCALIBRATION FOR THE EU WFD



MULTI-USE OF INFRASTRUCTURE FOR



MARTERA ERA-NET COFUND ON MARINE TECHNOLOGIES



EUROPEAN MARINE SENSORS CALIBRATION NETWORK

Joint Actions with a variable geometry and fit-to-purpose approach

Unexploded Ordnance (UXO) in the oceans (conventional explosive and chemical weapons (CW) dumped at sea during /after conflicts ) are not only an undesirable legacy of the past but a

## **low-ranked RISKS calling for an urgent STRATEGY**

- **EXPLOSIONS**
- **LEAKAGE of CWA**  
*(chemical warfare agents)*
- **INTERVENTION (safe and efficient)**
- **MONITORING & FORECASTING**

➤ **SOCIETAL CHALLENGE** for Good Environmental Status...but a cross-cutting issue

➤ **PRODUCTIVE CHALLENGE**, remove MUNITIONS in the SEA means fostering activities:

- oil and gas operations
- placing pipelines and cables on the seabed
- offshore fish-farming and demersal fisheries
- wind farm installation

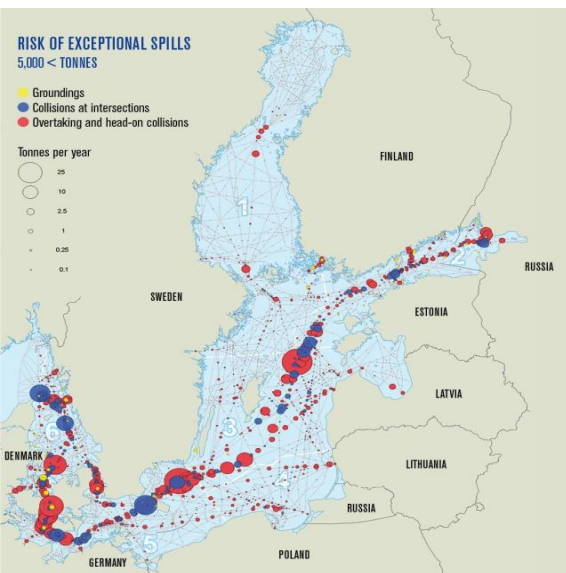


# Munitions in the Sea in a nutshell

ADOPTED in November 2015

12 participating countries: BE, DE, ES, GR, IE, IT, PL, PT, NL, NO, SE, UK

**Aim: SUPPORT TO POLICY/ANTICIPATE EMERGENCIES** through a **MAP OF THE RISKS**, including time-scales for intervention, impacts (people, environment, human activities), options (before and after emergencies).



**S**afety of people  
(operators/citizens)



**S**upport to policy  
(integrated option-assessments)



**S**couting/  
Testing/Providing  
solutions



For further information: <http://www.jpi-oceans.eu/munitions-sea>

# JPIO Munitions in the Sea: from the adoption to 2017

- JPI Oceans presented the action at the **NATO Research workshops** “Sea Dumped Munitions and Environmental Risk” AVT-269 -RWS-027 (Varna, Bulgaria, 11-13 October 2016) and AVT-ET180 (Utrecht, The Netherlands, 10 Oct 2017), at the **Baltic Clean Technology Conference** (HanseMesse Rostock, Germany , 29 Sep 2017)
- JPIO has been invited to **join large scale exercise at sea in 2016 and 2017, in cooperation with the Portuguese Navy**
- A list of **END-USERS’ PRIORITIES** has been completed in 2016 to guide the activities in the near future
- A list of **NATIONAL OFFERS** (IT+DE+NO+BE+PT) has been completed in 2017, for joint activities with and without additional funding/effort
- Munitions referred in a COFUND ERANET for maritime technologies (Martera)

# The approach and the implementation plan [2018]

## *TYPOLOGY of ACTIVITIES*

### 1. Science Support:

- to operators
- to simulations of

impacts

### 2. Technology

### 3. Exchange Practices & Knowledge

## *ACTIVITIES*

Workshop on best practices “Pipelines and Cables”: Oslo on 6-8 June 2018

Workshop on scientific gaps and solutions: Rome in December 2018

Open access to sites/projects

Analysis/promotion of technologies

Communication, dissemination and productive interactions

Exercise at sea



# The added value/intervention logic from JPI Oceans

## Added value in carrying out the work at EU level

UXO is mainly a European problem since most of the unexploded munitions lie in the North and Baltic sea, and in the Mediterranean area. Since part of UXO are located in international waters or along the borders of national waters, it is therefore mandatory for **EU member states to provide a common effort to detect and remove munitions**

Introducing/structuring a “EU” scientific cooperation (counterfactual + avoiding duplications )

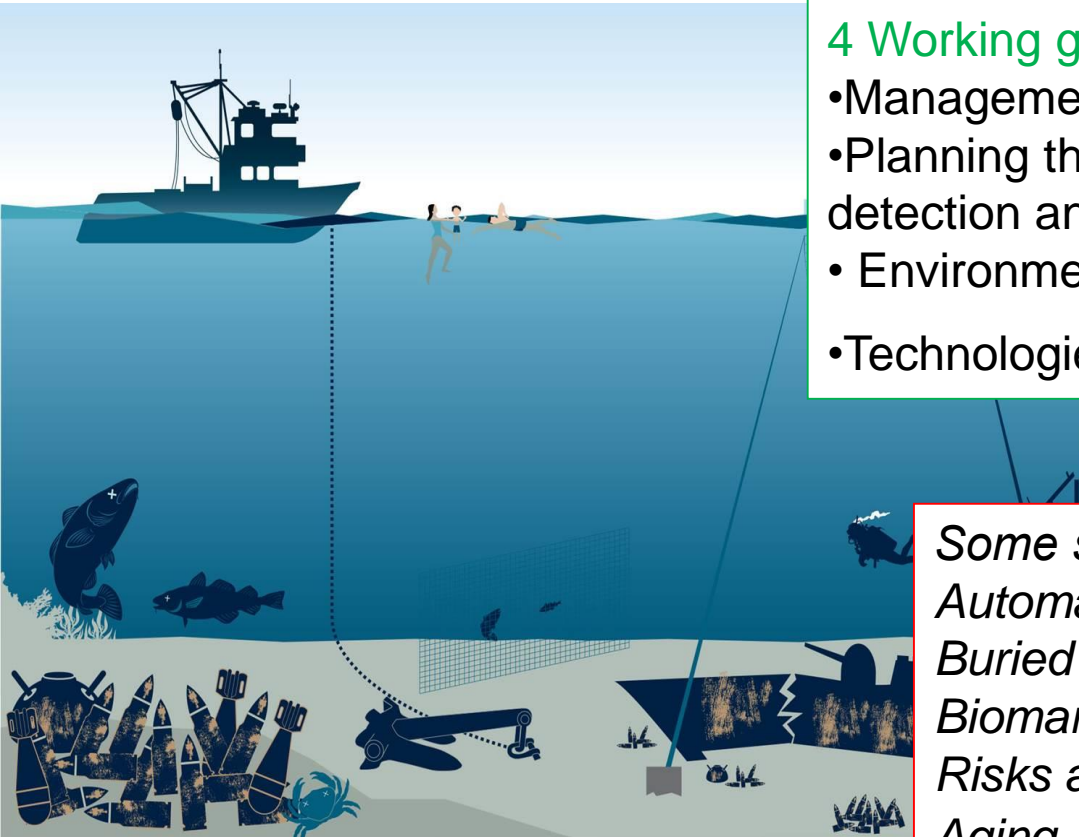
Structuring a EU bridge with operators (soft table)

Contributing to cost/time efficiency for solutions

- priorities/topics driven by end-users
- interdisciplinary approach
- support to emergency
- support to decisions
- close link with operators, authorities etc.
- cross-sector industrial involvement

# What outputs from Oslo in June 2018

## A scenario (cables/infra) workshop to identify gaps



### 4 Working groups

- Management and organization of authority
- Planning the cable trajectory - technologies for detection and classification
- Environmental risk and human safety
- Technologies for demolition/remediation

### *Some scientific gaps...*

*Automated/accurate Recognition*

*Buried unexploded ordnance*

*Biomarkers, propagation of shocks,*

*Risks assessment/decision aid tools*

*Aging, migration, leakage, bubble curtains...*

# What in Rome in December 2018

## Identification of clues/solutions/needs [in research and technology]

### 4 Sessions

- A) Decision tools
- B) Recognition/classification (AI)
- C) Chemical s' affairs
- D) Cost efficient explosions' remediation

- |  |   |  |
|--|---|--|
| A1) Information are crucial to interpret and standardize | B1) Despite technologies exist, false positives increase costs          |  |
| A2) Algo   | C1) Detection, degradation, transportation/diffusion of chemicals need  |  |
| A3) info   | D1) <b>A toolbox for listing and evaluating options</b> for explosions' |  |
| what   | C2) T remediation, including pros/cons, situations and sources.         |  |
| serv   | B2) are p   | D2) <b>Theoretical work</b> is needed to investigate different options     |
| A4) data   | asses   | (including those not addressing bubble curtains), <b>with experimental</b> |
| atte   | C3) T   | <b>validations</b> that should monitor also the chemical impacts.          |
| A5) B3)  | but al  | D3) <b>Some infrastructures can be provided for open access to</b>         |
|  | impac   | <b>experiments.</b>  |



## Reflections

1) Despite this “perceived” limited territorial challenge, such a challenge has involved the scientific community, industry, authorities and civil society in a very complex process addressing a diversity of aspects also in terms of legislation, planning, knowledge-based support to decisions and much wider environmental aspects.

2) What was initiated in past decades as the short-term response to an **emergency** to be concentrated in some areas is now facing one of the most **complex long-term challenges at EU level**, where risk/option assessments, in its meaning of knowledge-based support to decisions, is advocating [as an example] **MSFD and MSP** too.

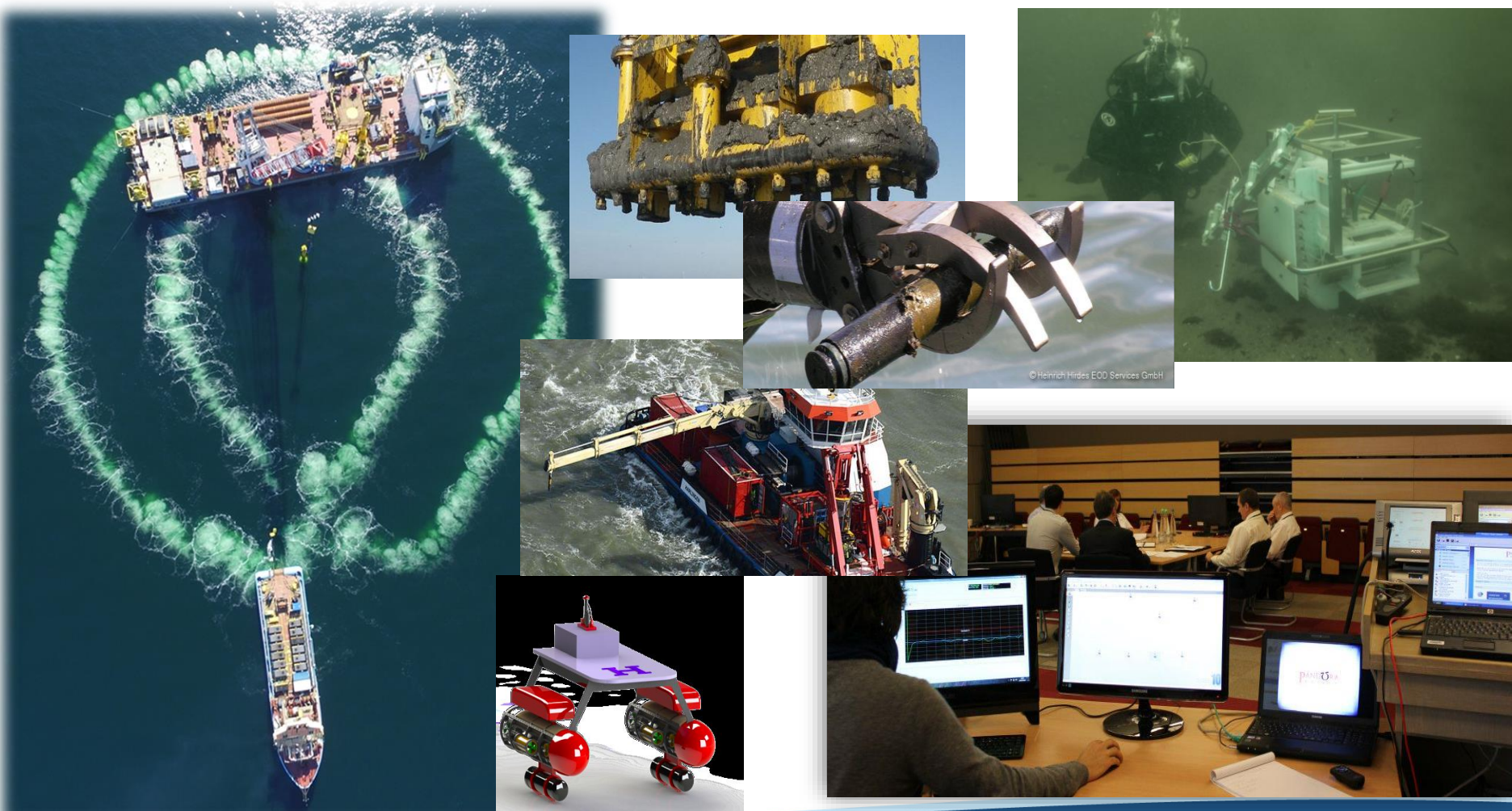
## **The way forward**

**A frame/programme for joint activities is close to be finalized (April 2019) to identify:**

- a) the appropriate instruments with EU added value (sharing data and/or infrastructures, experts' time for preparatory documents or specific services, joint call (for A3,C,D2?), workshops, knowledge hubs, web interfaces etc.**
- b) the estimate of the needed and offered efforts,**
- c) the risks for the implementation and**
- d) the foreseen timescales for the deliverables.**

**Operational activities are close to come.**

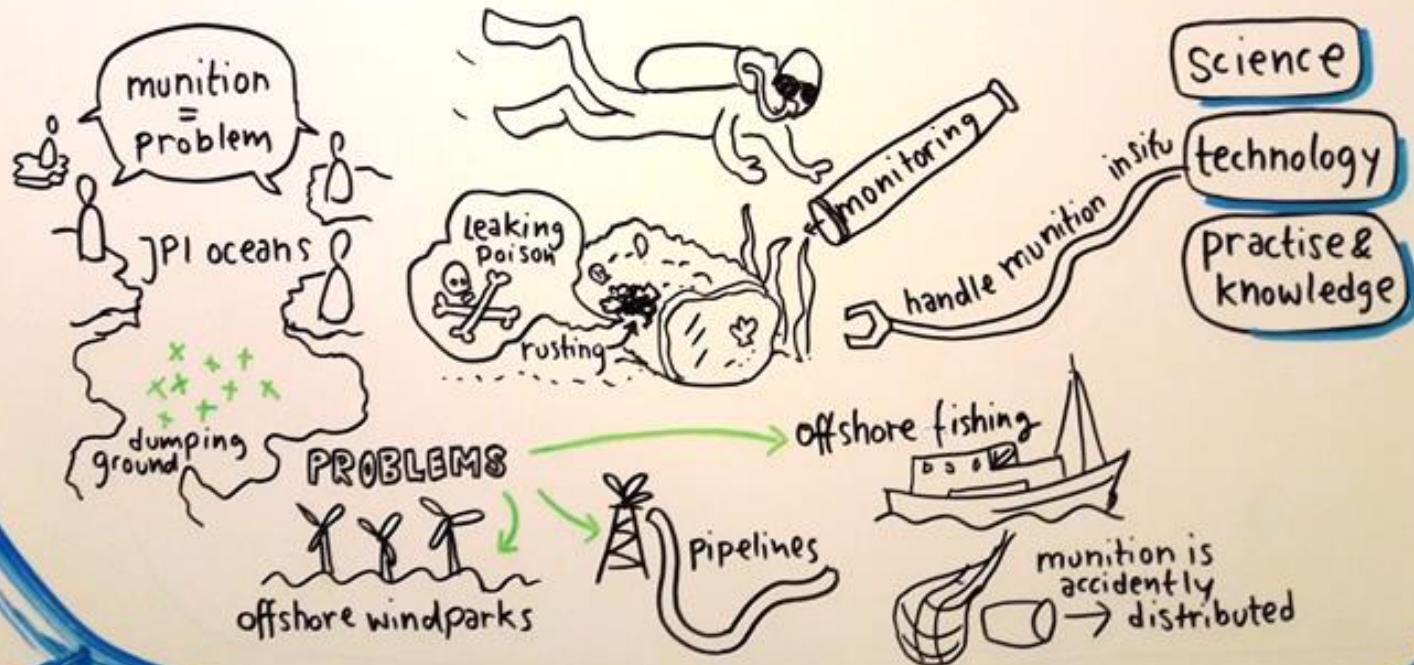
# From today...towards the future





Thank you for your attention

## Research and innovation to address munitions in the sea by JPI oceans



Courtesy of Claus Böttcher