

- EU research project in FP6 (6th Framework Programme, Contract No. FPS6-516360)
- Total budget €3.2m
- Total EC funding €1.8m
- Eight participants, from four different European countries
- Project duration 36 months
- More information can be found at [www.difis.eu](http://www.difis.eu)



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# MARIN leads EU project for the prevention of environmental disasters

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**MARIN is project coordinator of the European research project Double Inverted Funnel for the Intervention on Shipwrecks (DIFIS), which aims to develop a cheap and flexible system to remove oil from shipwrecks - even if they are in very deep waters. The DIFIS system could have helped prevent major environmental disasters such as the Prestige and Erika cases. Report outlines this pollution-busting system.**

In the DIFIS system any fuel leaking from a wreck is captured in the Dome and it flows up through the Riser Tube to the Buffer Bell, which is located approximately 30-50 m below the sea surface.

After installation, the DIFIS system remains in place until all of the wreck's tanks are emptied and the pollution threat is eliminated. The DIFIS system prevents pollutants from spreading in the sea and from reaching the sea surface. A shuttle tanker offloads any fuel collected in the Buffer Bell. For this reason, the Buffer Bell is provided with standard offshore offloading equipment.

### **Eight-strong consortium**

The DIFIS project includes numerical simulations, hydrodynamic scale model tests and deployment simulations, as well as an analysis of the system costs and planning. The project is being carried out by an eight-strong consortium (SENER and Consultrans of Spain, IFREMER, C.E.A.-List, Cybernetix and Sirehna of France, I.S.I of Greece

and MARIN). In addition, the European Commission's Joint Research Centre (JRC) is involved as a scientific and technical advisor. Dr Fivos Andritsos of the JRC actually came up with the original idea for the system and initiated the DIFIS project.



Recently, MARIN has carried out two series of model tests to investigate the feasibility of the system. The system's behaviour was tested at model-scale in MARIN's Offshore Basin in various environments including combined wind, waves and current, as well as heavy storm conditions.

In the first series of model tests carried out in March 2007, the system's behaviour was investigated in survival and operational conditions. Using a DP shuttle tanker, offloading the Buffer Bell was also investigated. The second series of model tests in January 2008, focused on system deployment. Several stages of the installation were investigated, including unfolding the Dome above the shipwreck.

The preliminary system designs are ready and results of the model tests have now been implemented in the final design. During the remainder of the project the DIFIS consortium will further develop procedures for the installation and inspection of the system. In addition, the system cost and planning will be assessed in detail.

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