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The Profile of Polish Oil Spill Fighting System

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ABSTRACT: Article presents the profile of polish oil spill fighting system along the polish coast. Its antipollution equipment and readiness for pollution fighting. Moreover the responsibilities and information flow are also presented. In the end authors give the reader conclusions after many of simulations performed in the Potential Incident Simulation, Control and Evaluation System (PISCES II) simulator which is installed in the Maritime University of Szczecin.

1 POLISH SAR BASES AND ITS SPILLAGE FIGHTING EQUIPMENT

Polish oil spill lighting system based on the same structure as SAR system. The main headquarter is located in Gdynia. The auxiliary one is situated in Świnoujście. Along the polish coast there are twelve regional SAR centres which are equipped with oil spill fighting means (Fig. 1). Depending on the oil spill area and its kind the proper centre or centres are designated to handle the situation.

Fig. 1. Deployment of polish SAR centres.
Source: www.sar.gov.pl

Spillage fighting equipment is distributed in SAR bases along the polish coast. At present (2010), the best equipped base is auxilliary base in Świnoujście, where the biggest polish rescue vessel m/v Kapitan Poinc is moored (Fig. 2). The readiness time for taking part in antispillage action is about 120 minutes. Moreover, there are other ships which are able to fight with oil pollution, ie.:

- SAR vessel type SAR – 1500 m/v Cyklon (Fig. 3),
- SAR vessel designated for oil spill fighting m/v Czesław II.

The equipment consists of many barriers and oil collectors, like:

- Barrier Expandi 4300 – 600 metres long,
- Barrier Seapack 80 – 450 metres long,
- Barrier Trellboom – 450 metres long,
- Oil collector Seaskimmer 50 – efficiency 50 m^3/h,
- Oil collector Walosep W2 – efficiency 45 m^3/h,
- Oil collector for heavy oil Scantrawl A.

In the rest of polish SAR bases the spillage fighting equipment is similar to that presented above. The main difference lay in another kind of ships and their worthiness against pollution. The

detailed plan of its distribution is published in the Internet (http://www.sar.gov.pl).

Fig. 2. SAR vessel m/v „Kapitan Poinc". Photo: Andrzej Bąk.

As a basis of oil spill fighting action is to immediate countertact oil spillage, which in effect leads to water pollution. Every incident, no mater the origin (vessel, underwater pipeline, etc.), should be reported to Marine Pollution National Contact Point (MPNCP) located in SAR Centre Gdynia with no delay. Ports incidents should be reported to Harbour Master. Breakdowns of inland industrial installations, which can affect marine environment, have to be reported to Maritime Office.

Fig. 3. SAR vessel m/v „Cyklon". Photo: Andrzej Bąk.

MPNCP officer on duty establishes the following details:
- The nature of incident,
- Numbers of people onboard,
- Determine the threat for people and equipment,
- Type, dimensions and name of the vessel or any other installationtypu,
- Identification of owner or operator,
- Identification of position, course, speed, vessels in vicinity,
- Information about coastal installation, distances to shallow water and the coast,
- Cargo information, amount of bunker and indicate which of them are dangerous for marine environment,
- Constructional and mechanical integrity of vessel,
- Weather conditions and sea state,
- Required assistance,
- Making the attempt to avoid water pollution.

MPNCP officer on duty pass on the report to adequate Maritime Office. Its director makes a decision regarding incident in accordance with the rules. Whoever notices any water pollution or any threat to marine environment should inform MPNCP, by means of:
- Captain report, which was responsible for pollution,
- Captain report, which spotted the pollution,
- Airplane report, which was making patrol flight,
- Vessel pilot report,
- Report form any other airplane,
- Any person report, which spotted the pollution from the land,
- Coastal installation manger report,
- Harbour Master officer on duty report.

In case of small local oil spillage, adequate environmental protection inspector designated by Maritime Office director is taking command and checks if the action is performed according to regional antipollution plan. In the event of spillage which require to use national antipollution forces the director of Maritime Office is making decision of using SAR service. It is needed also to inform Ministry of Infrastructure and in danger of coast pollution the proper governor and provincial environmental protection inspector.

In the moment of beginning antipollution action the director of Maritime Office should inform the following entities:
- Ministry of Maritime Economy,
- Proper governor and provincial environmental protection inspector,
- Helsinki Commission Secretary,
- States the signatory of Helsinki Convention, if pollution can reach their coast,
- International Maritime Organization in case of very serious pollution.

Head of Operation cooperates with Polish Coastguard and SAR Coordination Centre. In order to have the overall view of the incident and to take proper decisions it is crucial to obtain actual data regarding pollution. The best way to do so is taking the observation and monitoring area affected by flying means. Thanks to that it is possible to search bigger area and indicate any other dangerous like additional spillage stains, possibility of laying down the oil substances ashore and threat of another

country coast. Using airplanes have advantage of taking pictures and making photography documentation of polluted area. The person who is responsible for such a monitoring is Director of the Maritime Office in Gdynia who has at command TURBOLET airplane which can be supported by Navy planes [1].

2 SIMULATIONS AND CONCLUSIONS

In order to estimate the cost of antipollution action and optimal equipment distribution among all polish SAR bases authors made many simulations in the Potential Incident Simulation, Control and Evaluation System (PISCES II) simulator which is installed in the Maritime University of Szczecin. That simulator is often use for estimating the polluter and for monitoring the spillage [2]. As the result the following conclusions can be set:

- Proper choice of antipollution equipment speeds up the action itself,
- Heavy and light oil removing duration is comparable,
- Bed weather conditions like high sea, strong wind and current make the action very difficult and prolong the time of pollution fighting,
- Very often the bed weather conditions affects the laying down the oil substances ashore,
- In some cases at the Zatoka Gdańska it is necessary to use SAR vessel moored in Świnoujście as the best equipped in Poland nowaday,
- Duration of action can be many time long in bed weather which makes the cost of action very high,
- High sea (3 metres wave height or more) makes the action completely impossible, because the equipment is not designed for such a weather conditions,
- Cost of action can be reduced by equipping SAR bases with more efficient oil collectors and barriers. Also readiness time should be reduced as much as possible (at present it is 120 minutes).

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