

The Norwegian Clean Seas Association for Operating Companies (NOFO) Oil Spill Contingency through Co-operation

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Abstract

Oil Spill Response on the Norwegian Continental Shelf basically falls into two regimes. In case of oil spill from ships, the Norwegian Government, through the Norwegian Coastal Administration (NCA), has the responsibility for all aspects of an operation. If an oil spill occurs as a result of petroleum activity on the Shelf, the operator has the responsibility for the operation.

The Norwegian Clean Seas Association for Operating Companies (NOFO) is established as a co-operation of the operating companies on the Norwegian Shelf. The main aim is to establish and maintain oil spill emergency preparedness.

As a result of enlarged responsibility, NOFO has developed an Agreement Regime, whereby agreements of co-operation between organisations and agencies – both private, governmental and municipal – involved in oil spill response has been drawn and sign.

This paper will elaborate on the Agreement Regime, showing how this forms a fundament for co-operation hence creating an efficient and cost-effective oil spill contingency preparedness in Norway.

Introduction

The activities on the Norwegian Shelf comprises more than 2.500 exploration and development wells, more than a hundred sub-sea installations and production platforms and close to 8.000 km of oil and gas pipelines.

Conditions

The natural conditions affecting the Norwegian Shelf are enormous, with more than 56.000 km of shoreline, a tremendous large sea area and meteorological, oceanographic, environmental and economical conditions influencing the offshore activities.

When talking about environmental conditions, many species need to be considered when planning for offshore activities, as well as the different - and sometimes difficult - shoreline habitats. These conditions, together with other activities on and along the Norwegian coast, have created the basis for the Norwegian Regulations on offshore activities.

Norwegian Law

According to Norwegian Law, any industry with a potential for polluting the environment must have an emergency preparedness, proportional to the probability and consequence of the event.

This regulation makes it necessary to provide studies on assessments, and submit to the Government applications for permit including risk analysis, Oil Spill Contingency analysis and specific Oil Spill Response Plans.

These laws and regulations lead to the organisation of the Norwegian oil spill response, which basically falls into two regimes.

In the case of oil spill from ships, The Norwegian Coastal Administration has the responsibility for oil spill combat, cleanup and restoration. As a governmental organisation, they can draw upon all available resources in Norway, if needed, including of course NOFO.

The other regime covers the case of oil spill from offshore installations. In this case the operator of the installation is responsible for oil spill combat, cleanup and restoration.

Regime

Bearing in mind all the operators on the Norwegian Shelf - all with a responsibility for oil spill preparedness and contingency planning - there must be a cost-effective way to meet the Laws and Regulations. And it is NOFO.

The Norwegian Clean Seas Association for Operating Companies

The Norwegian Clean Seas Association For Operating Companies (NOFO) is an organisation for oil spill recovery established by the operating companies on the Norwegian continental shelf. NOFO ensures that the authorities oil spill recovery requirements are followed. This is undertaken on behalf of and together with, the operating companies and comprises a regime that includes personnel, equipment and vessels.

NOFO is also to arrange training and education of operational- and maintenance personnel, and to develop exercise plans together with the members. NOFO is closely monitoring the technological development within the field of oil spill. Research and developments and the development of budgets for investments and Operations & Maintenance, is also vested in NOFO. (Fig 1)

The General Assembly is NOFO's governing body in which all member companies are represented.

Five representatives are elected annually by the General Assembly to form NOFOs' Board.

The Board is responsible for organisational policy, whilst day-to-day activities are handled by NOFO's Administrational Headquarters located in Stavanger.

The Headquarters are run by the Managing Director and contains three main sections covering Environmental Services, Technical Equipment and Services and Readiness & Operations. In addition, the HQ covers secretarial functions and the Office for Finance & Administration.

NOFO, being in existence for more than 25 years, has during the last three years evolved from being an organisation solely for mechanical recovery offshore, into an organisation with the responsibility for Operation Management and oil spill recovery from the source offshore to the beaches. (Fig 2)

Mobilisation

In case of an oil spill event, NOFO will mobilise its organisation - or rather - the Oil Spill Combat Regime.

The operator, who is responsible for the activity that causes the oil spill, will, amongst other, make an emergency call to NOFO Operation Centre. This Centre covers a 24 hours readiness with a Duty Officer from the NOFO Administration.

Based on the situation and the requirements of the operator, NOFO will alert or mobilise necessary Oil Recovery Vessels (OR) and the NOFO Contingency Groups. Furthermore, the NOFO Mobilisation Centre will be alerted in order to call upon the NOFO bases, On Scene Commanders Sea (OSC) and the necessary units from the NOFO pool of towing vessels. (Fig3)

The Contingency Groups

The NOFO Contingency Groups forms our “Fire Brigade”. (Fig 4)

Each of the 6 groups consists of at least 6 highly qualified and trained people from NOFO and NOFO-members, and covers

- Operation Manager, or Director of Operations, to use a military term
- On-scene Commanders at Sea to deploy to one of the OR-vessels mobilised. Personnel from this group will also act as Maritime Co-ordinators in order to assist the land-based organisation as Maritime adviser to the Operation Manager
- Coastal Co-ordinators will act as main co-ordinator between NOFO’s own organisation and other land based organisations and agencies
- Environmental advisors who will advise on concentration of forces and combat strategy
- Experts on resources and logistics, knowing the industry, companies and availability of resources
- Communications and logging of events, recording any events and actions and ensuring communications do not fail!

This Fire Brigade will be made available for any member of NOFO regardless of his origin or belonging, when needed. This is a unique situation where personnel who normally are involved in business competition, units and work together for each other for a common goal!

Inventory

As part of our inventory, NOFO has a number of systems and resources stored at different bases along the coast, from Stavanger in the south to Hammerfest in the north.

The number of systems available at any of the five NOFO bases is based on the activity and therefore the potential risk in the area. (Fig 5)

In addition, one system is deployed afloat at Haltenbanken and one at the Troll area, forming Area Preparedness.

The equipment NOFO uses is developed in co-operation with producers and suppliers and is amongst the most effective on the market.

NOFO has standardised the oil spill recovery equipment so that it is identical at all oil spill recovery bases.

NOFO has a total of 14 oil spill recovery systems shared between the bases. Each system consists of

- 1 Transrec 350 with weir skimmer
- 400 meters boom lengths
- 1 designated oil recovery vessel
- 1 towing vessel
- 1 spare parts container.

In addition, NOFO has nine Hi-Wax skimmers shared between bases in areas where oil with a high wax content is produced. This is the skimmer employed during the Prestige operation.

NOFO System

The recovery equipment **and** the vessels are designated a “NOFO System”. (Fig 6)
Designated Oil Recovery Vessels are supply vessels classified as such and equipped according to NOFO’s standard for oil recovery vessels.

Vessels

The vessels are adapted in accordance with NOFO’s standardised oil recovery equipment and have about 1000 m³ loading capacity for recovered oil. The standardisation of oil recovery vessels contributes greatly to reducing response times and makes more flexible access to vessels.

In addition there are certain minimum requirements related to towing vessels.

The designated oil recovery vessels have ample deck space for heavy oil spill equipment. In the NOFO pool there are 16 of these OR-vessels, all operated by the member companies.

In order to form the systems, a sufficient number of towing vessels are available at all time forming a pool. These vessels are, however, not permanently dedicated to this task, but through an agreement they will break off any other tasks and be made available for combat missions if called upon.

Equipment

The Standard NOFO Ro Boom 3500 is 400 meters long, and weights 23 tons.

NOFO’s Transrec skimmer is equipped with a lifting arrangement that simplifies launching of the skimmer head. The skimmer capacity is 350 m³ per hour. The skimmer weights 19 tons.

Transrec is a combination of Transfer and Recovery, which indicates that the equipment is designed in order to recover oil from the boom formation and transfer the oil to another vessel. The equipment is operational in up to 4 meters significant waves.

The ”standard” skimmer in NOFO inventory is the traditional weir skimmer. We will always deploy one of these as a part of the NOFO system.

The Hi-Wax skimmer is 3.4 meters long, 2.8 meters wide, holds a weight of approximately 1.500 KGs and has a capacity of 180 m³ per hour.

The Hi-Wax skimmer head was developed as a result of the so-called Norne oil having too high a wax content for the ordinary skimmer.

The Ro Boom 3500, being 400 meters long, are inflated by air produced by a compressor attached to the OR-ships hydraulic system. The inflation and deployment of this boom takes approximately 45 minutes under normal conditions.

Agreements and co-operation

Even if the individual OR-vessels have the capacity to store 1.000 m³ themselves, this storage will soon be filled in case of a large-scale operation.

In order to ensure temporary storage for recovered oil offshore, NOFO has an agreement with the company Navion in order to mobilise and use tankers within their offshore loading pool. This agreement ensures availability for storage of recovered oil spill in the area of 100.000 – 200.000 m³ within a relatively short time.

Through agreements, NOFO can conduct aerial surveillance. NOFO has, as part of the inventory, an aerostat and a number of aerial cameras, including FLIR. Cameras can be mounted on the aerostat or carried by helicopters through an existing agreement. This agreement ensures availability of surveillance assets within 10 hours after notification. In addition, the NCA has a dedicated surveillance aircraft, LN-SFT, equipped with cameras, IR and UV sensors.

As a part of the Combat Strategy, NOFO can conduct dispersion from helicopters. This is an addition to the main combat strategy - mechanical recovery.

NOFO has tested a new dispersing bucket for helicopters, the Response 3000D.

The Response 3000D has a bucket of 3 m³, and a double spray system with a capacity of 900 litres/minute (high dosage for tick oil) or 150 litres/minute (low dosage for thin oil).

The bucket - and helicopter - is deployed as a part of the Area Preparedness at Haltenbanken.

Another main aspect of the enlarged responsibility, is the development of an Agreement Regime, whereby agreements of co-operation between organisations and agencies involved in oil spill response and oil pollution countermeasures, are drawn and signed. (Fig 7)

This regime give NOFO access to an enormous amount of resources, all fit for oil spill combat, clean up and restoration.

One of the resources NOFO can draw upon as a part of the agreements, is the Coast Guard.

Other units available are local oil spill combat groups formed by the individual municipalities being trained for beach cleaning, too.

Some of the main actors involved in the network ought to be mentioned.

NOFO has signed agreements with Inter-municipal Oil Spill Combat Groups (IUA) covering the area from Southern Norway all along the coast to Kirkenes in the north. These agreements give NOFO access to the land-based oil spill combat equipment, the local personnel and the in-place organisation in order to fight oil spill in the coastal waters and on shore.

The agreement with the Norwegian Coastal Administration grants NOFO access to all available governmental oil spill resources, including personnel. Within this agreement is co-operation on training and exercises, which of course gives a mutual benefit.

Mutual agreements are also signed between NOFO and some of the major industrial complexes in Western Norway.

Finally, I will mention the agreement with the Oil Spill Response Limited, OSRL, based in the UK, whereby NOFO is granted access to 50 % of their resources available at any given time, if - heaven forbid - this should ever be needed.

All in all, the resources made available comprise NOFO's own resources, governmental resources such as the Coast Guard and NCA, helicopters and land based resources belonging to the municipalities in Norway.

Conclusion

By utilising different actors, training them and conduct joint exercises together, we believe that NOFO has created a regime were all actors, both the private sector (the industry), the municipalities and the governmental agency can work together and form an efficient oil spill response mechanism through co-operation. (Fig 8)

Acknowledgements:

A number of figures used in this paper and pictures shown in the following presentation are used by kind permission of Mr Geir M. Skeie of Alpha Environment.

References:

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3. Norwegian Petroleum Directorate, Production Figures from the Norwegian Continental Shelf
4. Skeie, G.M., Rødal, J. et al. A Web based system for regional oil spill contingency and emergency response planning. SPE Conference in Stavanger, Norway, 26 – 28 June 2000

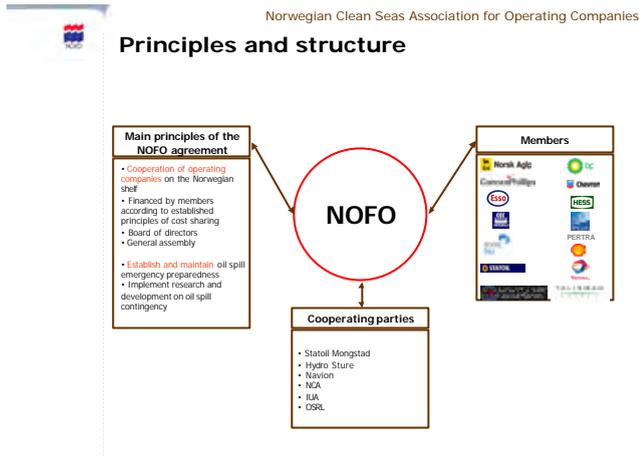


Figure 1: NOFO Principles and Structure

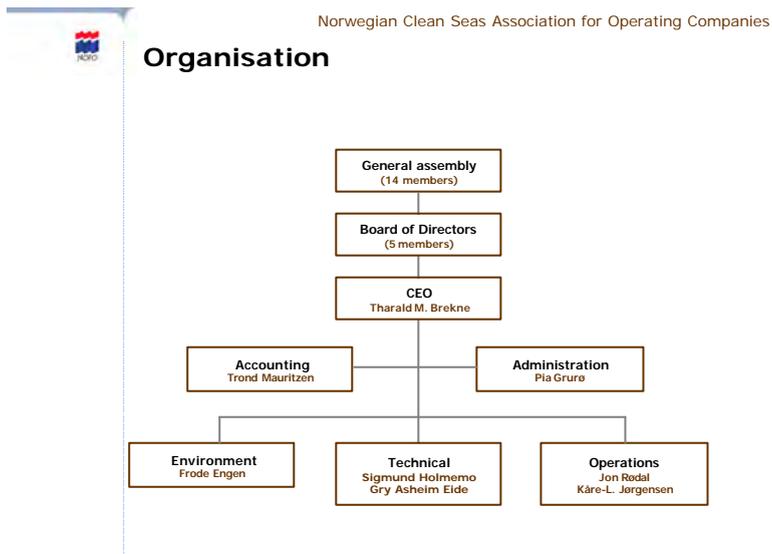


Figure 2: NOFO Organisation

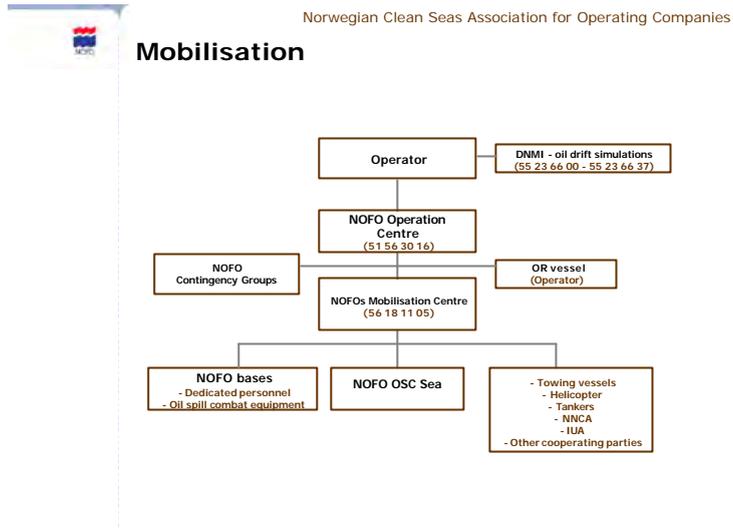


Figure 3: NOFO Mobilisation System

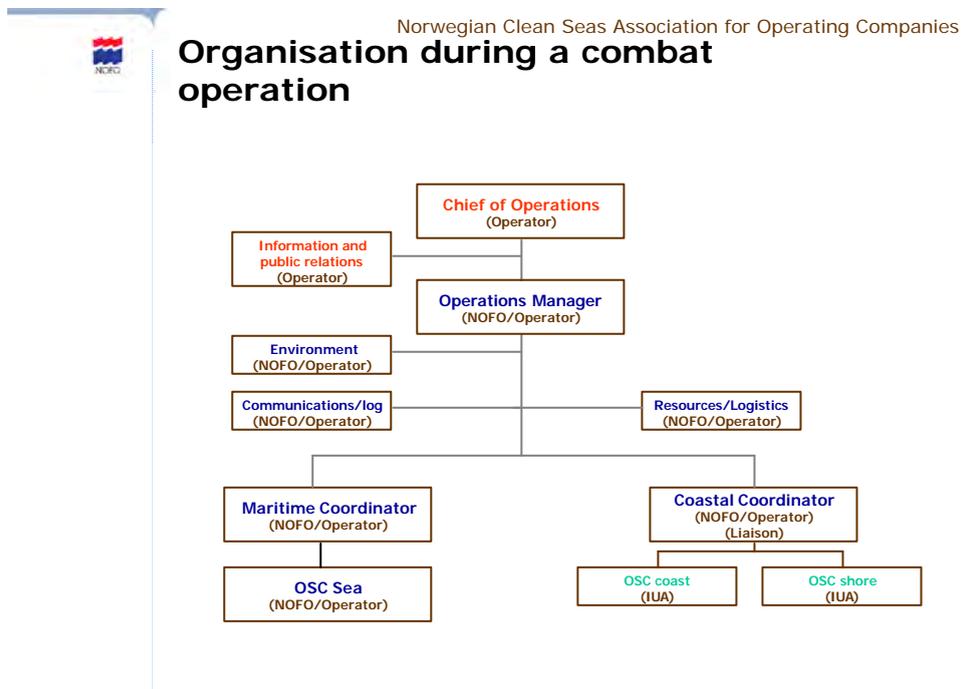


Figure 4: NOFO Oil Spill Response Organisation



NOFO resources

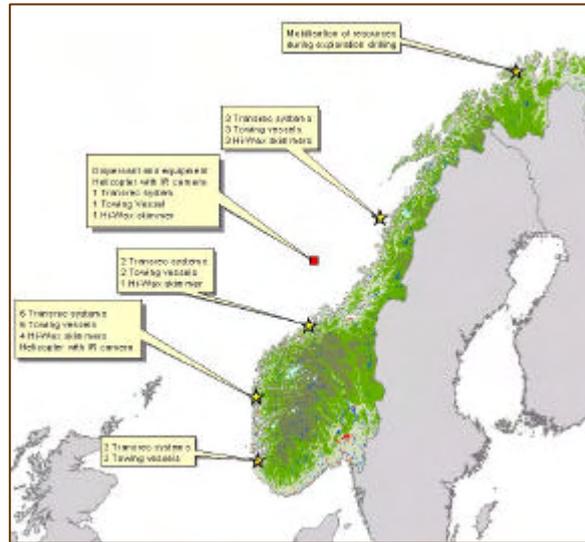


Figure 5: NOFO Bases



NOFO System

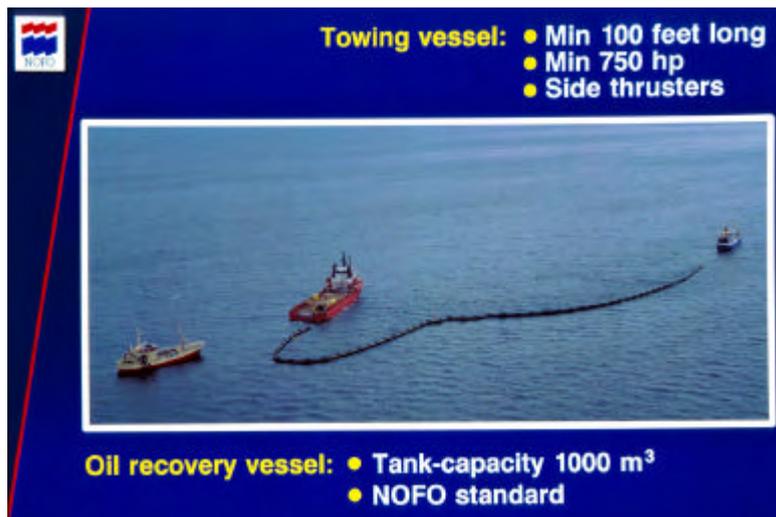


Figure 6: NOFO System



Agreements of cooperation

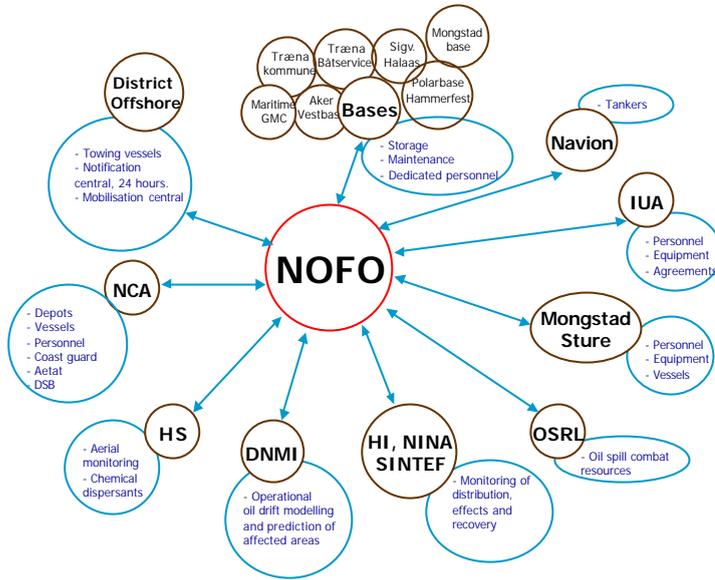


Figure 7: Agreements Network



Oil Spill Combat Resources



Figure 8: Co-operating resources