

**Board of Directors' Report
2018**



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Foreword

NOFO celebrated its 40th anniversary in 2018. For the past four decades, the organisation has fulfilled an essential role, providing oil spill preparedness along the Norwegian coast. In the course of the numerous drills and training sessions held in 2018, NOFO has once again demonstrated its ability to meet its members' needs for robust oil spill preparedness on the Norwegian continental shelf. NOFO has carried out risk assessments for a number of activities and has focused on successful execution of HSE. All activities have been completed without major incident.

The follow-up and implementation of the strategy and action plan, adopted by the General Meeting in 2015, have again been a guiding issue also in 2018.

The planning work previously initiated has been implemented in 2018. This work lays strong foundations for a uniform understanding of the basis for preparedness and capacity.

In 2017, the General Meeting adopted the implementation of a major material procurement involving oil spill response equipment, booms and collectors. This procurement was carried out in 2018, allowing NOFO to provide preparedness in connection with the planned increase in activities in 2018, in which as many as 36 wildcat drilling projects relied on NOFO's preparedness system.

The formulated Strategic Investment Plan (SIP) has been a valuable tool in identifying needs and subsequent procurements.

In 2018, an impact assessment was conducted in relation to the possible merger of jointly financed activities. This has involved the Norwegian Oil and Gas Association, EPIM, GTO and NOFO. The impact assessment was presented to the Board of Directors of the Norwegian Oil and Gas Association in November, and the conclusion was that NOFO shall remain an independent organisation. This decision was also in line with the conclusion reached by NOFO's Board of Directors.

Follow-up, cost control and reporting routines have been successfully implemented, in close contact with the Board of Directors.

In 2018, NOFO has fulfilled its activity plan and the expectations of the Board of Directors.

Forus, 6 March 2019

Richard Miller (Styreleder)
Aker BP ASA

Summary

2018 was another year of numerous wildcat drilling operations and developing preparedness for NOFO. It was also a year to celebrate for NOFO, marking 40 years of operations For the Sake of the Sea, described in more detail in chapter 6.2. NOFO's tasks, responsibilities and priorities are governed by the strategy adopted for the years 2016-2020.

The main objectives of NOFO's strategy are:

1. **Efficient and robust oil spill response**
2. **Cooperation**
3. **Development**

This strategy also laid the foundations for activities in 2018.

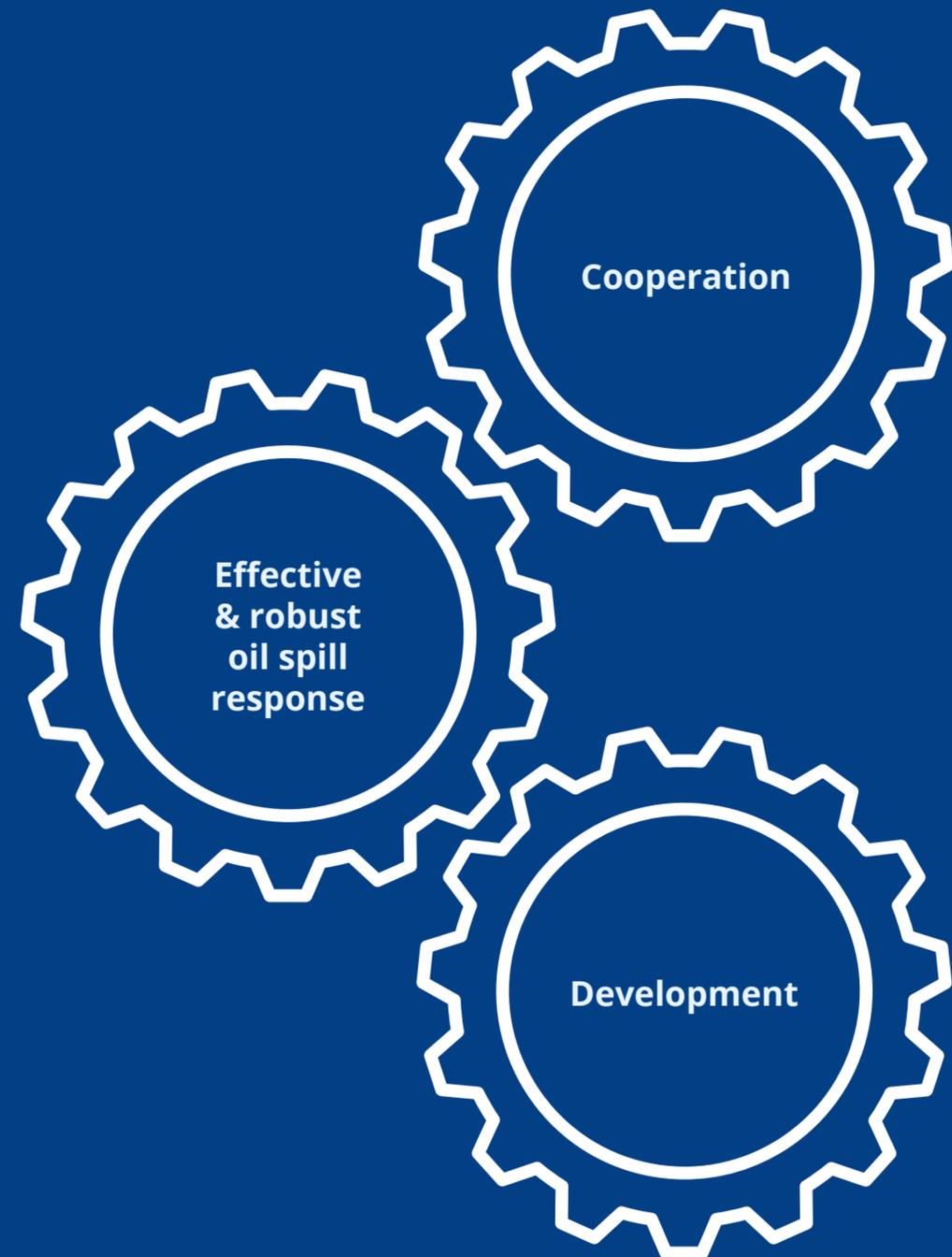
One major boost in 2018 was the execution of the material procurement – booms and collectors – adopted by the General Meeting in the autumn of 2017. This major procurement has been instrumental in reinforcing NOFO's capacity and strength, and thus also the capacity to provide oil spill preparedness for NOFO's members – including during wildcat drilling projects in the Barents Sea.

The implementation of NOFO's planning work in early 2018 was welcomed by both NOFO's members and the authorities. The planning work lays the foundations for more integrated and robust planning of preparedness, with a joint understanding of factors relating to capacity and efficiency. This contributes towards a uniform understanding of oil spill preparedness and related capacity.

Preparedness has been provided in 2018, with major drills executed, including oil on water (OoW).

In line with the strategy and action plan, an in-house organisational development process has taken place in NOFO in 2018. The results of this process were finalised in December, and the organisational changes will be implemented during 2019. This has been a challenging process but has also benefited from the high level of commitment and involvement on the part of the employees, the trade union and the working environment committee.

NOFO has also been active internationally in 2018, including leading the Global Response Network.





1 Quality & HSE

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NOFO bases and offices



1. 1. Quality and HSE

NOFO's internal control system covers management, HSE, quality and operational aspects. The internal control system is an integrated part of NOFO's workday, and comprises features such as management of nonconformances, activity plan, risk assessments, steering documents, document management etc. NOFO retained its ISO9001:2015 certification in the follow-up audit at the start of 2018. Internal and external audits have been conducted according to plan. Throughout the year, all the departments at NOFO have worked actively to make continuous improvements to the internal control system. NOFO reported zero injuries to persons and zero serious incidents in 2018. Sick leave was approximately 4.8%. NOFO facilitates equal opportunities in its operations. As NOFO operates in a male-dominated industry, women are actively encouraged to apply for relevant vacancies.

NOFO has its head office in Forus and a regional office in Hammerfest. NOFO also has activities at five bases and two depots located along the coast, from Rogaland in the south to Finnmark in the north.

All NOFO's premises comply with prevailing requirements and are suitable for the activities performed at the individual locations.

Via its membership of the Norwegian Oil and Gas Association, NOFO is also a member of the Confederation of Norwegian Enterprise (NHO). NOFO has also established a safety representative function and a working environment committee, both of which are functioning well and in accordance with their objectives. Moreover, a local branch of the trade union for workers in industry and energy (IE) has been established in NOFO. Cooperation with the labour union is governed by legislation or agreements.

The year in review

January

Surveillance flight over Haltenbanken



March

Interspill, London



May

NOFO beach-cleaning day



July

Verification Stril Barents



September

Selbjørn drill together with Equinor



November

First drill with MOS Sweeper in connection with preparedness at Silfari



February

IGK drill in Repparfjord (emergency response task force – coast)



April

27 April 2018: NOFO 40 years



June

Oil-on-Water



August

Gathering for specialised task force



October

Delivery of MOS Sweeper



December

Professional forum 04/18



2 Governing bodies

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2. 1. The General Meeting

Two General Meetings were held in 2018. As of 31 December 2018, NOFO had 21 members, of which 18 are full members. The comparative figures for 2017 were 23 members and 19 full members. The decline in the number of members is attributed to both business combinations/acquisitions and the fact that companies without an active portfolio have cancelled their membership of NOFO. The member companies in NOFO at 31 December 2018 are:

Full members

- AS Norske Shell
- Aker BP ASA
- Spirit Energy Norway AS
- ConocoPhillips Skandinavia AS
- DEA Norge AS
- Neptune Energy Norge AS
- Vår Energi AS
- Faroe Petroleum Norge AS
- Lundin Norway AS
- MOL Norge AS
- OMV (Norge) AS
- Repsol Norge AS
- Equinor Energy AS
- TOTAL E&P NORGE AS
- Wellesley Petroleum AS
- Wintershall Norge AS
- OKEA AS
- Capricorn Norge AS

Associated members

- INEOS E&P Norge AS
- Edison Norge AS
- Suncor Energy Norge AS

2. 2. Board of Directors for NOFO

Six board meetings were held in 2018. At 31 December 2018, the composition of the Board of Directors was as follows:

COMPANY	REPRESENTATIVE	POSITION
Aker BP ASA	Richard Miller	Chairman of the Board
Spirit Energy Norway AS	Siri Nesbø	Deputy Chair
Lundin Norway AS	Tove Lie	Board member
Faroe Petroleum Norge AS	Stein Arild Tønning	Board member
Repsol Norge AS	Espen Enge	Board member
Equinor Energy AS	Philippe F. Mathieu	Board member
Wintershall AS	Janne Lea	Board member

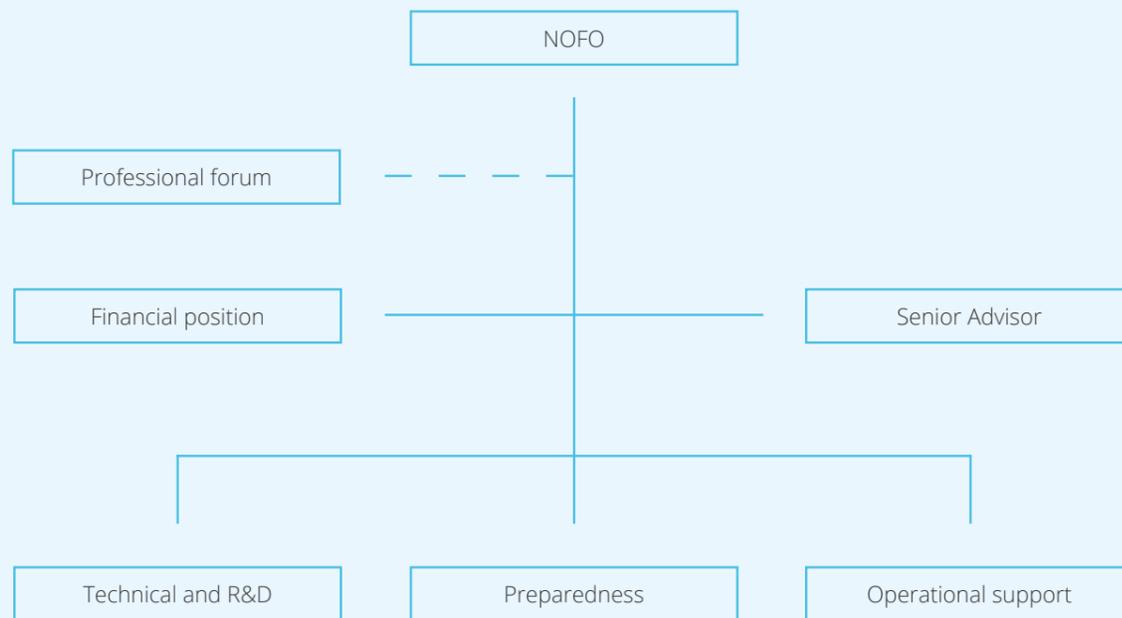




3 Organisation

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3. 1. Organisation



On 31 December 2018, NOFO had 32 full-time employees. NOFO's organisational chart is provided above.



3. 2. Professional forum

The professional forum is an advisory body comprising participants from the member organisations. Once again in 2018, the forum was found to be relevant, providing an important arena for discussion and exchange of experience.

Selected subjects for 2018 were:

- The OoW programme
- NOFO planning work and dialogue with the Norwegian Environment Agency
- The KSAT delivery
- Waste management
- Document management during actions
- Analyses of residual waste after burning trials OoW
- JIP – thin oil film
- Accessibility factors for OR vessels
- ISB
- Industrial hygiene, oil spill response action
- NOFO standard 2020
- Election of leader for the professional forum

The professional discussions within the forum are good, but participation from the community associated with the forum as an arena could be better.

Participation rates from members in 2018 were between 32% and 70% compared with 46% in 2017, with a positive development towards the end of the year.





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Financial position

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4. 1. Financial position

NOFO's revenue originates entirely from its members and amounted to NOK 477.5 million in 2018.

Revenue 2018:

- Membership fees: NOK 384.6 million
- Registration fees: NOK 20.6 million
- Other revenue: NOK 72.3 million

The profit of NOK 81.7 million has been transferred to equity.

Based on the preparedness requirements reported by the operating companies, investments totalling NOK 156 million were made in oil spill response equipment in 2018. These investments were made in part to meet an increased demand for oil spill preparedness and in part to replace outdated equipment. The investments have been financed by a loan of NOK 125 million, while other investments were covered by equity.

In 2018, NOFO has had a continuous focus on efficiency improvements and cost-saving measures. All planned activities were completed. There has been an emphasis in 2018 on phasing in new equipment for preparedness. NOFO can see the effect of replacing outdated equipment and is already noticing that the frequency and scope of repair work is lower when compared with the previous year.

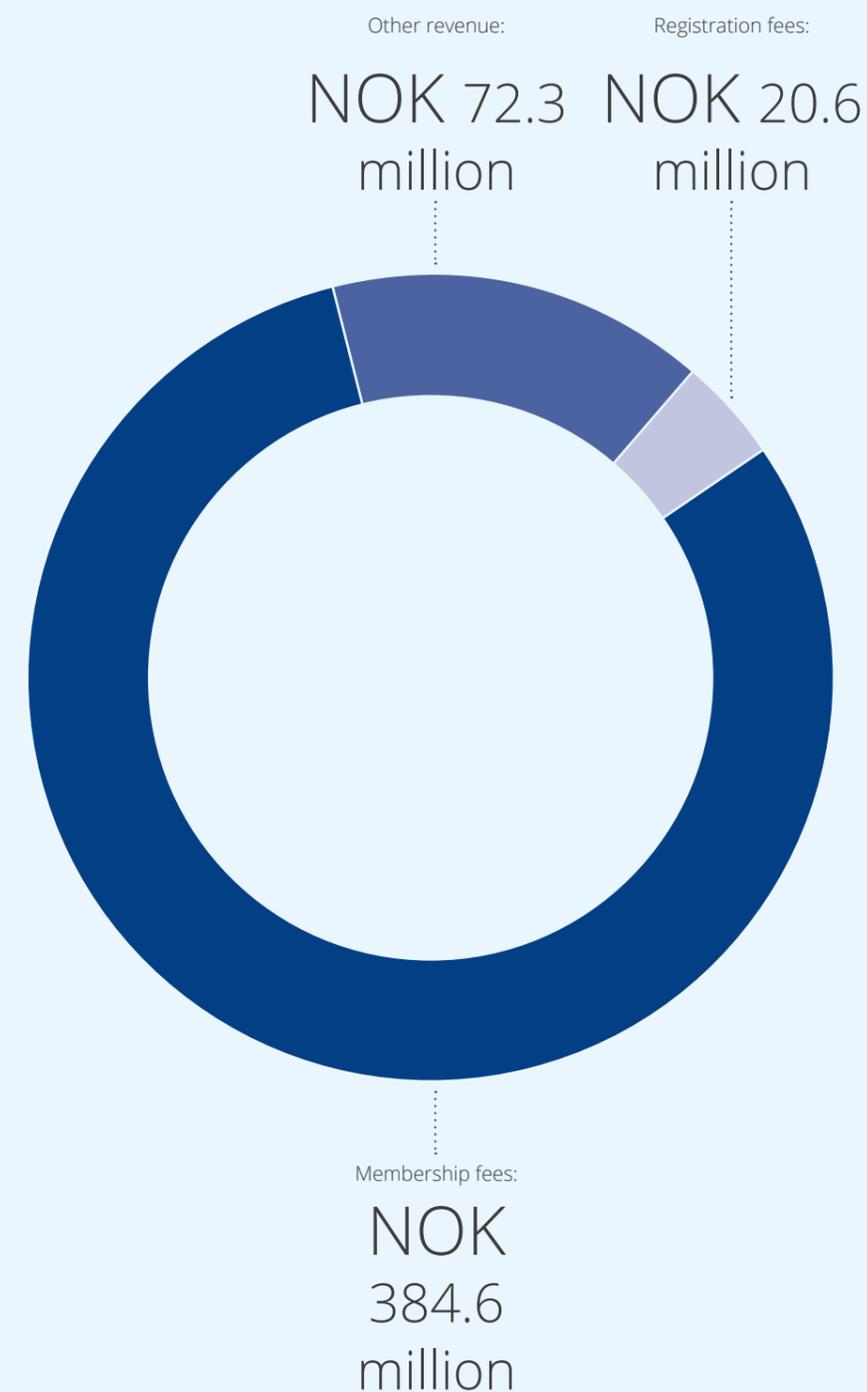
The association has prepared a long-term investment plan (SIP), approved by the Board of Directors and the General Meeting, to demonstrate and provide an early warning of investment requirements.

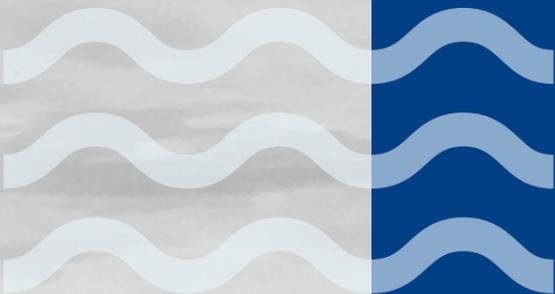
On 31 December 2018, NOFO had loan obligations totalling NOK 246 million. These comprise loans to finance oil spill response equipment and depots. The repayment profile is adapted to suit the estimated technical/economic life of the operating assets. NOFO's liquidity is robust with cash and cash equivalents at 31 December 2018 of NOK 89 million.

Activities are financed by membership fees. Financial risk is deemed to be low. NOFO's exposure to market risk, credit risk and liquidity risk is also deemed low, although the association makes some purchases in USD and EUR. The financial statements have been prepared on the assumption of a going concern, and provide a fair illustration of activities and profit/loss.

At the end of 2018, total assets amounted to NOK 635 million, compared with NOK 423 million at the end of 2017. The equity ratio was 41.0% in 2018 and 42.2% in 2017.

Revenue 2018:





5

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5.1. NOFO's strategy for the period 2016-2020

The prevailing strategy for 2016-2020 was adopted by NOFO's General Meeting in February 2015.

To ensure professional ownership and close follow-up of the strategy, NOFO has organised the sub-targets as projects and appointed a supervisor for each of them. These supervisors are responsible for professional follow-up throughout the strategy period. They will cooperate with other professionals from within NOFO, our members and other partners as required. This ensures successful collaboration, exchange of experience and the correct focus in relation to the strategy. Follow-up by management is provided for at quarterly status meetings, and by means of six-monthly reports to NOFO's Board of Directors.

In 2018, NOFO's activities have been guided by Strategy 2016-2020 and the related action plan. The activities have been carried out according to the plan.

The process related to the strategy and action plan is considered a success factor in NOFO.

5.2. Communication and public relations

In 2018, NOFO took part as exhibitor at three conferences:

- Interspill in London
- The Barents Sea conference in Hammerfest
- The preparedness conference in Stavanger

Public relations have been successful in 2018, establishing new lines of contact and increasing knowledge of Norwegian oil spill response. NOFO has met with operating companies, cabinet ministers, politicians and other stakeholders.

In general, all activities performed in 2018 have contributed to increased knowledge of Norwegian oil spill preparedness and provided awareness of the field among numerous target groups.



Leif J. Kvamme, Robert Limb and Carmine Dulisse at Interspill London March 2018



NOFO's beach-cleaning day was a major success. People of all ages took part in the action to clean the beach at Grødaland in Hå.



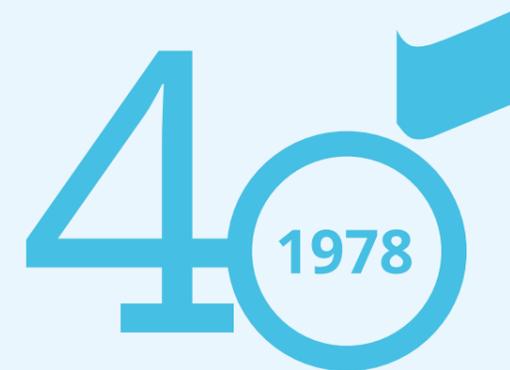
5.3. NOFO 40 years

Throughout 2018, one of NOFO's focus areas in its communication strategy has been the celebrations for its 40th anniversary.

The year started with a special 40th anniversary logo, which we implemented in email signatures and on document templates so as to create awareness of NOFO.

A number of activities were carried out, including scanning and submitting several thousand images to the archives of the Norwegian Oil and Gas Association held by the National Archives of Norway. These images are now accessible to the general public.

On the actual anniversary day, 27 April, NOFO held an open house event, serving lunch and birthday cake. The event was very successful, with great feedback. CEO Leif J. Kvamme wrote an article on the history of Norwegian oil spill preparedness, which was printed in the newspaper, Stavanger Aftenblad, on 28 April 2018.





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Preparedness

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6.1. Preparedness

The preparedness and operations department is responsible for preparedness and operational activities at NOFO and for operating routines and maintenance of agreements signed for access to resources. The department is also responsible for training and drills with the operating companies, joint training with authorities and other agreement partners, guidelines for qualification of oil spill response personnel, and training and administration of the preparedness groups.

NOFO has developed a procedure for operational management that is a continuation of the ICS model and simultaneously covers other types of action management. The role descriptions in the procedure provide the basis for a



The tugboat Lise Beate on a drill in Kristiansund

new competency plan for NOFO's preparedness groups.

NOFO COP (Common Operating Picture) – a mapping system specially adapted to NOFO's need to formulate a joint situation overview prior to, during and after oil spill response actions – has been completed for phase 1, in cooperation with the Norwegian Coastal Administration. The mapping tool went live in 2018 and covers the fundamental needs relating to maintaining an overview of a situation for the operational management. The system can also be shared with the operating companies, thereby reinforcing the capacity for a shared understanding of a situation, in that several parties have the same overview.

MIMIR – NOFO's decision-making tool – has been developed according to a process for operational management, and now supports this process within the areas where development has been finalised. MIMIR has replaced the former system, NORA. This provides good support for decision-making, and experience-based action lists afford good and coordinated support. MIMIR is integrated with NOFO COP.

In 2018, there were six standby teams with 10 persons on each team. The standby teams provide NOFO's 24/7 preparedness on behalf of the operating companies.

6.2. Oil spill response actions

In 2018, NOFO mobilised resources on four occasions, all triggered by observations of oil where the volume or extent called for further follow-up. On each occasion, resource mobilisation involved use of satellite and aerial surveillance. In addition, several incidents requiring follow-up were monitored but without action. Most of these were triggered by satellite observations.

When KNM Helge Ingstad ran aground, NOFO was notified on the evening of the incident and requested to be on standby to contribute equipment or personnel. NOFO closely monitored the action for the initial hours then once per 24-hour period until it became clear that the Norwegian Coastal Administration did not require assistance.

6.3. Planning work

NOFO's planning work was launched online (www.nof.no/planverk) in 2018. The planning work provides a uniform and quality-assured basis for analyses and plans. The working group comprised members from Aker BP, CoPNo, Equinor, the professional forum, NOFO and Akvaplan-niva. Feedback from the users is constructive and positive. The Norwegian Environment Agency has been informed of the contents of the planning work in separate meetings with the above-mentioned working group, at which the Norwegian Oil and Gas Association also participated in the role of observer.

6.4. Oil spill preparedness – wildcat drilling

In 2018, preparedness was developed for 36 exploration wells, compared with 29 in 2017.

In addition, 14 table-top meetings were held with individual members to provide operative status in relation to the requirements in the relevant oil spill response plans.

6.5. The Barents Sea

The Barents Sea coordination team continued to hold its regular quarterly meetings in 2018. This has provided positive synergy effects for NOFO's members regarding activity coordination. The impression is that this coordination team is fully integrated and actively used by those of our members with activities in the Barents Sea.

6.6. NOFO's standby fleet

NOFO's standby fleet is a common term to denote the vessels to which NOFO has access by agreement.

In 2018, NOFO's standby fleet comprised:

1. 27 OR (Oil Recovery) vessels, of which 12 on permanent standby
2. 20 oil spill response vessels, barrier 1-2 (at 31.12.2018 – awaiting contract, 2 newbuildings ready in the spring of 2019)
3. 22 oil spill response vessels barrier 3-4 north (at 31.12.2018 – 2 awaiting contract, 4 subject to certification)
4. 26 oil spill response vessels barrier 3-4 south
5. 9 oil spill response vessels from the Norwegian Society for Sea Rescue

The vessels and crew have carried out drills, training and verification in accordance with the programme, completing a total of 55 drills.

In addition, NOFO has carried out drills and training with five vessels, completing a total of 10 drills involving temporary mobilisations. All the oil spill response vessels in NOFO's standby fleet have carried out drills and training together with the OR fleet.

In addition to the drills mentioned above, six vessel drills were performed to phase in new equipment in 2018.

During the "Selbjørn" drill – a coordinated drill with Equinor in mid-September – three OR vessels and three oil spill response vessels were mobilised at the same time. The purpose was to provide an exercise for the vessels, operating companies, task force leader offshore, and communication between the task force leader offshore and onshore, vessels and aircraft.



Arnt Helge Knutsen, depot manager in Havøysund



6.6.1. Maritime forum

NOFO is currently in the process of establishing a maritime forum. This is a forum where the members who provide vessels to the OR fleet meet to discuss professional issues and challenges related to drills and training with the vessels. One meeting was held in 2018. The forum will continue in 2019.

6.7. Coast and shore

The focus for coast and shore activities in 2018 has been on planning and execution of major IGK drills. The drill in Hammerfest involved 18 vessels and one terminal vessel. This type of drill with so many vessels was new, and NOFO gained a lot of useful experience and lessons from the drill.

The purpose of multiple vessel drills is to practise management coordination, remote measurement, collection and transmission, locking, skimming and intermediate storage of freely floating oil, and communication and coordination with NOFO's preparedness centre in Forus outside Stavanger.

6.7.1. IUA – intermunicipal committee against acute pollution

To ensure documentable access to personnel and equipment for actions in the littoral zone, NOFO has signed an agreement with 21 IUAs along the coast, from Vest-Agder in the south to Finnmark in the north.

In 2018, two IUAs – Bergen and Haugesund regions – have taken part in full-scale drills. The drill involved both staff and field.

NOFO has taken part in a staff drill with the Sogn and Sunnfjord IUA. Participants from NOFO's specialised task force also took part in the drill, focusing on/specialising in contributing towards operational management. Moreover, NOFO held a coordination drill between NOFO IGK (task force – coast) and IUA Nordmøre, also involving vessels from IUA Romsdal.

NOFO has participated in the annual meeting of IUA Midt and Nord Troms, which included a field exercise.

NOFO took part at the IUA management gathering organised by the IUAs in Norway, and the Norwegian Coastal Administration's preparedness seminar, at which all IUAs are present and hold individual meetings.

6.7.2. IGSA – emergency shoreline task force

At year-end 2018, the IGSA team had 46 members, with 15 new members recruited during the year. A total of three drills were held involving the IGSA in 2018. The focus area in all three drills was exercises in the cold and dark, and cooperation with other NOFO oil spill preparedness resources (IGK task force – coast). The company Vacuumkjempen Nord-Norge AS took part in two drills in 2018. These were conducted in week 15 (beginning 9 April), week 23 (beginning 4 June) and week 43 (beginning 22 October) in Havøysund and Forsøl.

Furthermore, a course for 11 persons from the IGSA (oil spill response in icy and cold conditions) was held at the Norwegian Fire Protection Training Institute in week 9 (beginning 26 February).

Resources from both depots were mobilised during the drills, in coordination with other contractual resources such as the IGSA, Vacuumkjempen, the IGK, ILK and logistics.

The depots in Hasvik and Havøysund have provided equipment for all the IGSA and IGK drills in a satisfactory manner.

Based on experience gained from drills throughout the different seasons, the clothing matrix requires adaptation. This is an ongoing process, with the clothing matrix improving from year to year.

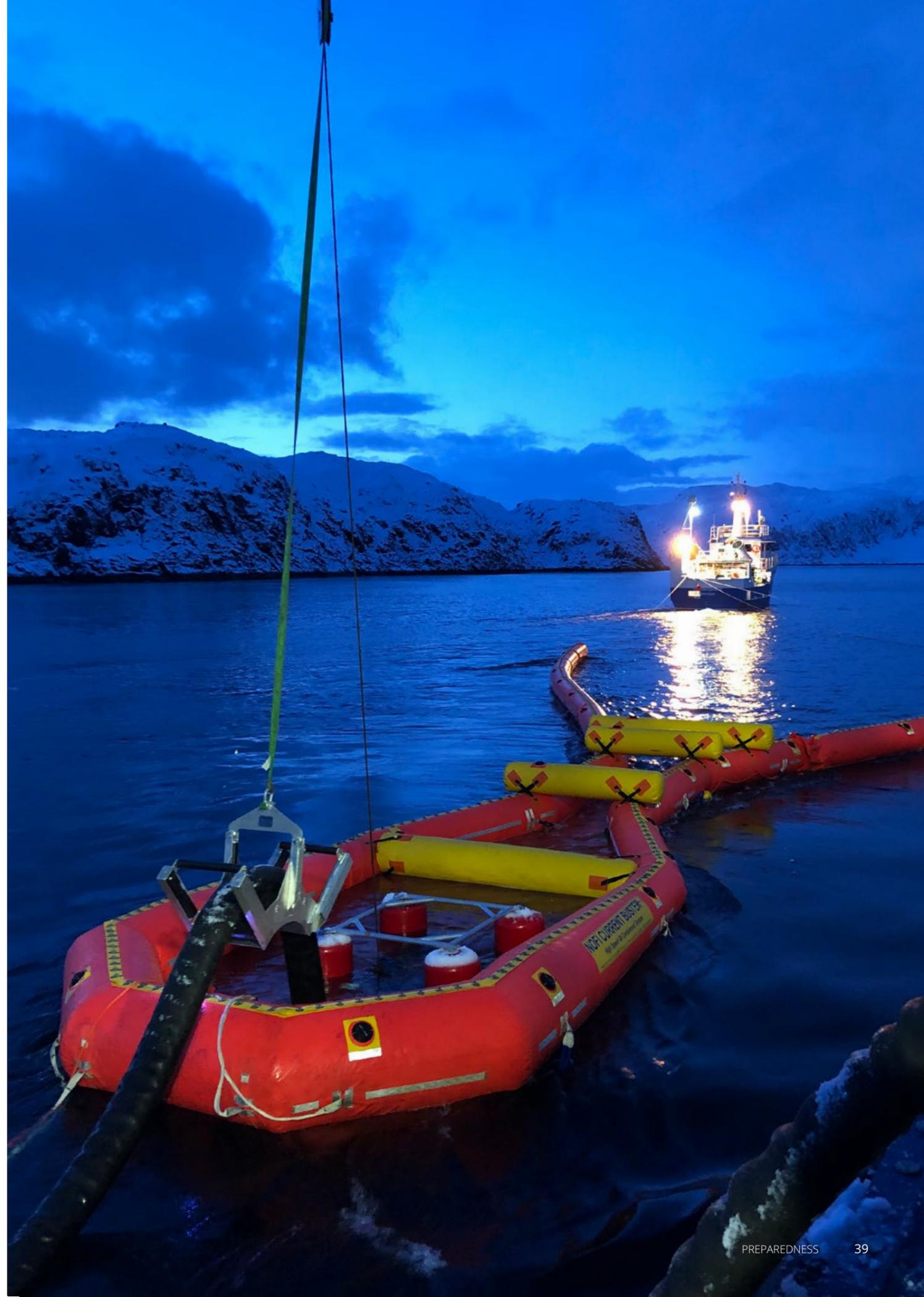
6.7.3. Task force – coast (IGK) Finnmark

At year-end 2018, the IGK fleet in Finnmark had 23 vessels. These vessels have been recruited from the municipalities of Hasvik, Hammerfest, Måsøy and Nordkapp. There is a relatively high “turnover” in vessels, such that recruitment to the IGK fleet is a continuous process for NOFO.

A number of boats are in the process of joining the IGK pool in the first quarter of 2019. NOFO has conducted seven IGK drills in 2018, one of which was a major drill involving 18 vessels conducted in week 35 (beginning 27 August) in Hammerfest. The targets for the IGK drills in 2018 have been execution of planned activities in the cold and dark, and coordination between the IGSA, IGK and Vacuumkjempen Nord-Norge AS.



Images from the IGK drill in 2018



6.7.4. Task force – coast (IGK) South

On 31 December 2018, the IGK South numbered 28 oil spill response vessels. The vessels are located from Lofoten in the north to Måløy in the south. All but one of the contracted vessels took part in drills in 2018.

One new development in 2018 was that 13 of the above-mentioned oil spill response vessels took part in a specially agreed provisional preparedness project related to exploration activities in the waters surrounding the island communities of Frøya and Froan.

6.7.5. The specialised task force

The specialised task force is made up of 57 persons as of 31 December 2018, recruited from e.g. the IUAs. The members of the specialised task force shall provide assistance in shoreline actions, in roles such as staff consultant, on-scene commander and field commander.

The task force held a meeting and drill in Harstad/Fjelldal on 27- 30 August 2018. The main purpose of the event was to boost understanding of the different roles in the task force.

The sub-targets were:

1. Use of NOFO COP and Strand app (shore coordination course)
2. Training and deployment of volunteers for beach-cleaning operations
3. Increased knowledge of oil spill response materials

Close to 50 lower-secondary school pupils from two schools in Fjelldal municipality were invited as “volunteers” and received training from the professional drill participants. This covered HSE and beach-cleaning operations, after which the pupils were provided with the correct clothing and set to work on the beaches. Feedback from the pupils included the following:

1. HSE is important
2. You can use bark to absorb oil
3. Clean and dirty zones – important not to mix them up
4. Removing any oil spills is a lot of work.
We learned how to remove oil from nature. The people who work with this must be very patient and the work took a lot of time.

All the targets for the event were met. NOFO and the working committee (three persons from the specialised task force) received very positive feedback from the participants regarding professional content and organisation. Some of the participants stated that this was the best and most educational professional gathering to date.

Several of the members also took part in courses and other minor drills throughout the year.



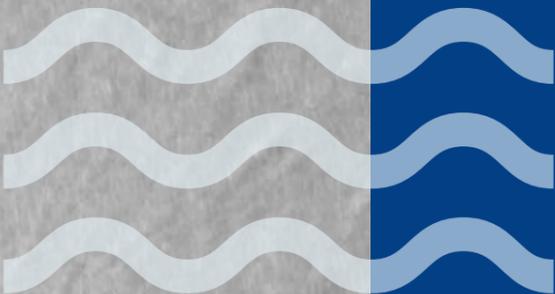
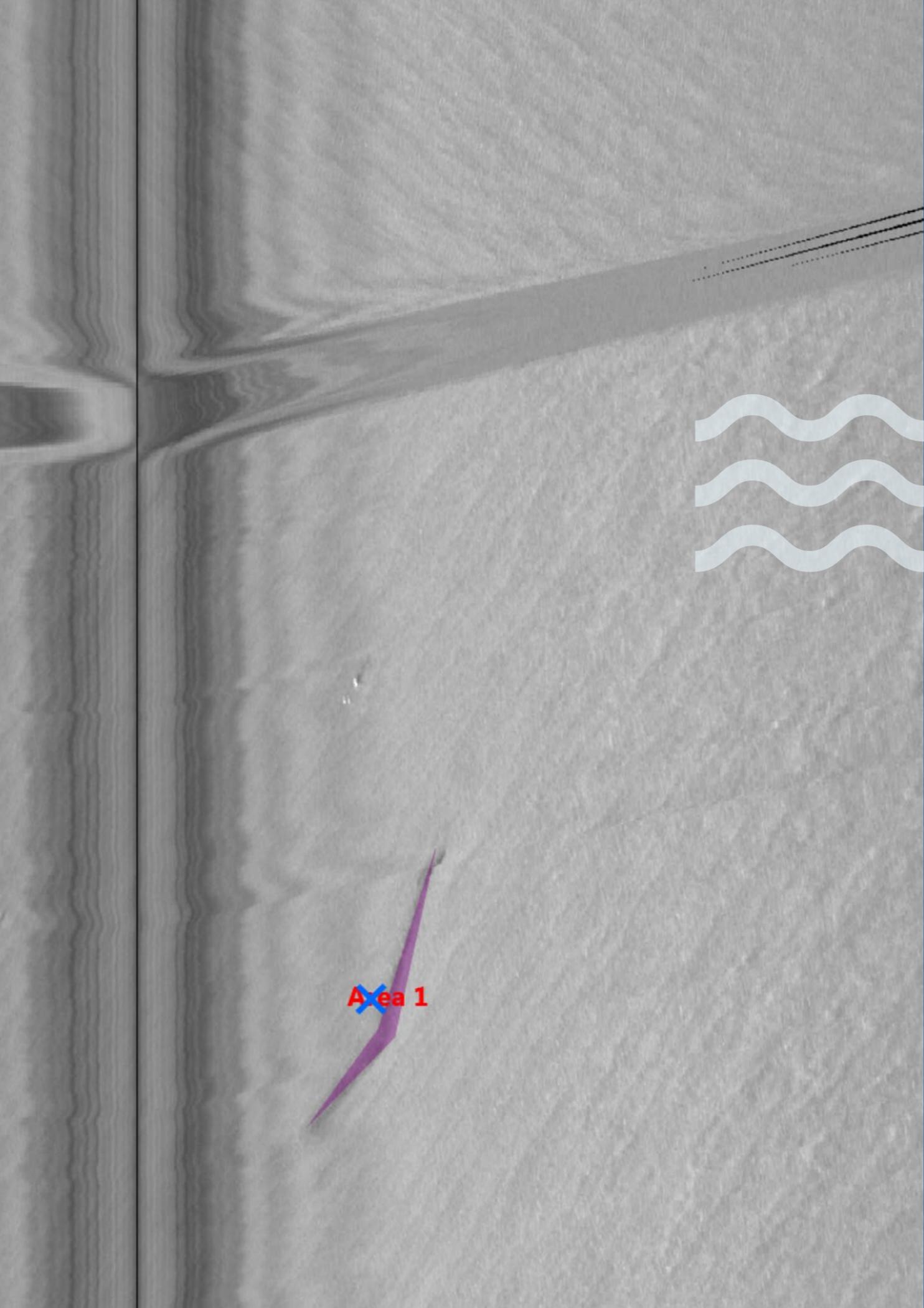
Special task force gathering – beach restoration Fjelldal, August 2018.

6.7.6. World Wildlife Fund (WWF)

In 2018, the WWF Ren Kyst! (clean coast organisation) carried out two oil spill response courses: one in Fjelldal at the Norwegian Fire Protection Training Institute and one in Sandnes at SASIRO (centre for civil protection in Rogaland), training a total of 42 new volunteers. The courses were carried out in cooperation with NOFO and the Norwegian Fire Protection Training Institute. In addition, WWF Ren Kyst! provided personnel during the “Selbjørn” drill in Austevoll and Bømlo.

In 2018, the WWF carried out a substantial project to chart all the volunteers who have received training via Ren Kyst! since its start-up in 2005, updating their lists of the number of persons who are operative as beach cleaners in drills/ actions.

At the end of 2018, these lists included 353 active volunteers. In 2018, the WWF also upgraded the computer system it uses to register volunteers.



7

Remote measurement

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7.1. Satellite surveillance

With effect from 1 October 2016, the frequency of this service was increased substantially to cover all fields once every 28 hours. The purpose of the agreement is to ensure detection and early notification of acute oil spills. If a spill is detected, NOFO notifies the operating company. In order to provide such coverage, KSAT must process approximately 2,400 images every year.

7.1.1. Oil & ice surveillance in the Barents Sea

In the autumn of 2018, a supplementary service was established for oil and ice surveillance in connection with exploration campaigns in the Barents Sea. This service provided oil and ice detection for the following wells: Gråspett (Dea), Scarecrow (Spirit Energy), Intrepid Eagle and Gjøkåsen (Equinor).

7.1.2. Other (research into produced water from Brage)

NOFO, KSAT and the Arctic University of Norway have held meetings during the year, with a focus on operationalising research results. For several years now, KSAT and the University have taken part in joint research and development projects with a focus on developing new methods for the detection, classification and characterisation of oil on water. Both organisations have taken part in oil-on-water drills (OoW), and data from these has played a central role in the University's R&D work. In 2018, the University has collected data from several satellite scenes for Brage (Wintershall). Personnel from Brage have also collected real-time data in the form of weather reports at the specific times when the satellite records images.

7.2. Aerial surveillance

Since 2011, NOFO has had a cooperation agreement with the Norwegian Coastal Administration and the Norwegian Coast Guard on the use of aerial surveillance. The service is provided by two aircraft, LN-KYV and LN-TRG, which are owned and operated by Sundt Air. The aircraft have the same technical equipment. In addition to routine assignments, the aircraft are also available for oil spill response actions.

In 2018, NOFO had more than 100 hours of flight available for own assignments. Tasks in which LN-KYV has participated include:

- General surveillance of the continental shelf
- Verification of Maritime Broadband Radio (MBR) on vessels
- Operative support for offshore task force leader (ILS) during IGK drills
- Operative support for task force leader during OoW
- Operative support for ISPAS test at Edvard Grieg
- Operative support in connection with incident at Snorre A
- Verification of satellite detection at Troll field
- Ice surveillance relating to exploration campaign in Barents Sea
- Operative support and verification of spotter procedure together with B727 dispersal aircraft from OSRL



AERIAL SURVEILLANCE

105

hours
aerial surveillance
in 2018 (approx.)

SATELLITE SURVEILLANCE
Number of detections in 2018
Green: 1,207 Yellow: 127 Red: 30



Surveillance aircraft LN-KYV

7.3. Maritime Broadband Radio (MBR)

MBR is a digital broadband, the use of which allows all participating units in an oil spill response action to share images, video, audio, polygons for measuring the volume of oil etc. This provides a shared "Common Operational Picture" (COP). This digital broadband can be compared to a modem. Anything that can be sent via the Internet can also be sent via radio, at a maximum transfer rate of 16 Mbits/s.

NOFO has 12 MBR systems onboard the local preparedness vessels, and these are verified at regular intervals by the surveillance aircraft LN-KYV. An additional MBR system was procured at the end of 2018.

7.4. Local surveillance – Aerostat

The aerostat is equipped with different types of cameras and is used for static surveillance of the relevant area. The aerostat is important from an operational point of view, allowing the task force leader to view the extent of oil slicks and areas in the oil slicks that indicate "combatable oil".

In 2018, the aerostat has been used as a tool for remote measurement in 13 drills.



8

Drills and training

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8.1. Drills and training

All planned drills in 2018 were executed, including standby team drills, full-scale drills and drills with individual groups.

8.2. Drills in weeks 37 and 43

A major drill was held in week 37 (beginning 10 September) in cooperation with Equinor, IUA Haugesund region and IUA Bergen region. The drill comprised all barriers, from installation to work on the beach.

NOFO focused on practising the process for operational management and coordination between NOFO, the operating company and the IUA. Training was also carried out with task forces and equipment in the field.

The drill demonstrated that the process document provides a sound basis for how NOFO operates within preparedness.

A major drill was held in week 43 (beginning 22 October) in cooperation with Aker BP and the Norwegian Coastal Administration. NOFO took part from their own preparedness centre, with exchange of liaisons with Aker BP and the presence of personnel from the Norwegian Coastal Administration in connection with government take-over. The targets for the drill were met, and the drill provided useful input for reviewing the procedure for government take-over of actions.

8.3. Oil spill response in cold climates

NOFO had no special projects in this area in 2018, but previous experience has been followed up by means of the year's drills and training with field equipment.

In 2018, NOFO took part in SARINOR 2, involving oil spill preparedness in the Barents Sea and off the coast of Svalbard.

8.4. Oil on Water

Oil on Water was carried out on the Frigg field in June (see image below). The trials included verification of NOFI Spill Raider, MOS sweeper pump system and drone for ignition of oil. Crude oil and Ultra Low Sulphur Fuel Oil (ULSFO) were also burned, and any residual oil after burning was collected.

As in previous years, remote measurement was also a key subject during OoW 2018. Trials were held using satellite, radars, remote measurement aircraft and drones. The Oil on Water activities are described in more detail in the final report, available on NOFO's website.

8.5. Courses

In 2018, NOFO held 16 courses with a total of 280 participants. This is an increase from 2017, when the corresponding figures were 14 courses and 245 participants. Our course portfolio comprises a basic course in oil spill response, a basic course in oil spill response for ship crews, remote measurement courses, dispersal courses and offshore task force leader courses. The last of these is run jointly by NOFO and the Norwegian Coastal Administration.



In Situ Burning trial OoW -18



9

Status oil spill response equipment

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9.1. Status of oil spill response equipment

The technical and R&D departments are responsible for maintenance and storage of all oil spill response equipment owned by NOFO, as well as NOFO's work on research and development related to oil spill response equipment. The oil spill response equipment is stored at five supply bases along the coast and two depots in Finnmark. Maintenance of the oil spill response equipment is carried out by contract personnel at the individual bases and depots. In addition, the technical and R&D manager is responsible for procurement, logistics and technical follow-up of NOFO's vessels on standby.

9.2. Bases and depots

NOFO's oil spill response equipment is stored at five bases along the coast from Stavanger to Hammerfest, and comprises oil spill response equipment for use offshore, close to oil fields and oil installations. NOFO also has two depots in Finnmark where oil spill response equipment is stored for use along the coast and in the littoral zone.

NOFO has agreements with third parties for the inspection and maintenance of the oil spill response equipment. These agreements also cover personnel for the standby teams and drills.

In 2018, NOFO has purchased a substantial volume of equipment, of various types. As a result, some of the bases have increased their storage area and have had in part high levels of activity when receiving new oil spill response equipment. In addition, all planned activities were executed according to plan.

9.3. Equipment

In 2018, NOFO increased its number of conventional oil spill response systems from 25 to 30 and procured four high-speed systems. The most important reason for these procurements is the need to increase the number of systems to cover the preparedness requirement. Another important reason is that NOFO wishes to implement high-speed systems that have been developed in recent years and that are more efficient in conditions with strong currents and spread of oil spills. These procurements enable NOFO to provide oil spill response actions in varying conditions and gain valuable experience of using multiple "tools" in the event of an oil spill response action.

9.4. Strategic Investment Plan (SIP) and procurements

The SIP is a plan for oil spill response equipment based on the preparedness requirement and the need to replace old equipment. When selecting new oil spill response equipment, the SIP also takes account of technological developments and NOFO's strategy. The procurements in 2018 were made in accordance with the SIP. Experience gained throughout 2018 has shown that such major procurements are demanding. The deliveries have taken longer than planned and technical challenges arose that had to be solved before the equipment could function as planned on board the vessels. Despite this, NOFO has managed to sustain a level of preparedness well within the requirements for preparedness. A SIP was also prepared in 2018. With the exception of replacing some old oil spill response equipment, the SIP shows that the requirement for preparedness equipment will remain stable at the current level.

9.5. Maintenance management and logistics

In 2018, NOFO continued to develop its management tool for maintenance and logistics. It is extremely important for NOFO to have a full overview of the location of oil spill response equipment at any given time. This will allow for better decision making when it comes to the choice of equipment, both during normal operations and in the event of an action. This information will also be available in NOFO's preparedness centre in Forus, and can be actively used in the management of drills and actions.

Bases and depots use the tool on an everyday basis, and the management system is continuously updated as work is performed. This allows for a full status report on all NOFO's oil spill response equipment when necessary.





10

Technological developments

10.1. Technological developments56

10.1. Technological developments

The final projects in the Oil Spill Response 2015 Programme were concluded in 2018, bringing the programme to an end.

One of the final projects involved the further development of the FoxTail skimmer to produce a version for winter use. The newly developed skimmer (Arctic FoxTail) has now been completed and is available on the market. The image below shows Arctic FoxTail being tested in cold weather on Svalbard.

A method has also been developed to ignite oil on water. This involves a drone that releases a can of jellified diesel and petrol into the oil. This mixture is ignited by a flare and in turn ignites the oil. The drone can also be utilised to add a hardening agent or dispersal agent and to release AIS buoys.

The images below show the drone with the ignition flare (left) and equipment for dispersal agent release and release of AIS buoys (right).

The procurements made by NOFO throughout the year have also required significant work on further development. This has resulted in e.g. a new collector and crane for the MOS sweeper, new and improved boom drums, and improved cleaning and tool containers.



Pyro drone



Arctic foxtail



11

Agreements

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11.1. Agreements

NOFO must have compliant and documentable access to correct and sufficient resources in order to meet the requirements for oil spill preparedness. To achieve this, NOFO has signed agreements with a large number of enterprises, ensuring access to expert and sufficient resources.

NOFO has developed its own agreement administration system, which provides a continuous status for the individual agreements. All agreements are assessed and evaluated according to a predetermined frequency.

The agreements cover everything from individual resources to major private and public partners. Most operative oil spill preparedness is local in nature, but also involves national and regional partners. NOFO is experiencing a high level of turnover in fishing vessels that are part of the coastal oil spill preparedness fleet. Constantly ensuring there is a sufficient number of vessels for preparedness is a challenge. NOFO has also signed agreements for development of coastal preparedness in relation to exploration wells.

In 2018, NOFO signed an agreement to use coastal tankers for intermediate storage of collected emulsion. NOFO also signed an agreement for receipt of collected emulsion and special waste. There is a continuous focus on the agreement portfolio to ensure optimal allocation of resources, both in terms of number and type.

11.2. The NOFO agreement and vessel agreement

The NOFO agreement and articles of association govern the cooperation and areas of responsibility between NOFO and the operating companies. Experience has shown that the NOFO agreement functions as intended. The current agreement and articles of association were adopted at NOFO's General Meeting in January 2017. The General Meeting in January 2018 unanimously adopted an addendum 1 to the agreement.

The vessel agreement functions as intended and provides NOFO with access to the number of OR vessels to be contributed by NOFO's members.



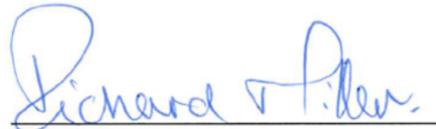
11.3. International cooperation

In 2018, NOFO has once again been involved in international activities. This applies in particular to the cooperation in GRN, which NOFO chairs. Under NOFO's leadership, the work in OT (Operational Teams – "Professional Forum") has been revitalised and intensified. GRN and OT have now been recognised and accepted for the professional expertise they represent. As a result, GRN/OT – under NOFO's management – has formed closer links with the IOGP/IPIECA (International Oil and Gas Producers Association/International Petroleum Industry Environmental Conservation Association) via professional contributions and follow-up (operationalisation) of the organisation's best practice guidelines/procedures post-Macondo.

In particular, the cooperation between NOFO and OSRL has developed, and on all levels. The agreement, comprising annual bilateral meetings at management level between NOFO and OSRL, is of value to both organisations.

Internationally, NOFO has also become a sought-after partner for discussions. NOFO has welcomed visitors from Australia and Brazil at the level of the Norwegian Petroleum Directorate (OD), Petroleum Safety Authority (PTil) and the Norwegian Environment Agency (MDir) to learn about how the industry ensures oil spill preparedness on the Norwegian continental shelf. All these visitors were extremely interested in the Strategy, the Norwegian model, and the collaboration between authorities, NOFO and operating companies.

Forus, 6 March 2019


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