

International Council for  
the Exploration of the Sea

C.M.1977/E:59  
Fisheries Improvement Committee  
Ref. Gear and Behaviour Cttee

Effects on Norwegian fisheries of sea floor littering  
and the physical presence of the petroleum industry

By

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The North Sea fishermen had the fishing banks much to themselves until the search for oil started in 1963 when the first bore was drilled in the German sector. Then followed drilling operations in the U.K. sector in 1964 and in the Norwegian sector in 1966. In later years the oil exploration has been intensified. By the end of 1976 the total number of bores drilled in the North Sea north of the 54th parallel was 781, of which 512 were in the British sector, 100 in the Danish-Dutch-German sectors and 169 in the Norwegian sector. The drilling activity has to a great extent been concentrated in the central parts of the North Sea, on both sides of the median line between the British and Norwegian sectors where the fishing activity is considerable. The North Sea plateau with fishing grounds between the 54th and 62nd parallels and east of Greenwich-meridian cover an area of 32 000 square nautical miles. About one fourth of this area has, over the last 10 years, gradually become an unsafe area for the trawler fleet due to damage to fishing gear by litter from the oil industry.

The oil activity on the Norwegian continental shelf is regulated by special legislation. The basic rules for protection of the fisheries are laid down in the Royal decree of 1975 relating to safe practice in exploration for submarine petroleum resources, and the Royal decree of 1972 relating to

the exploration and exploitation for petroleum on the Norwegian shelf. According to these regulations the interested oil companies must apply for a concession to carry out seismic work on the continental shelf, and a production license for exploiting oil. The license documents contain rules and conditions regulating the activity.

Already in the early 1960's there was conflicts between the fishermen and the oil industry. The oil search on the continental shelf started off with seismic investigations. Dynamite or ammonium nitrate was for a number of years used as a source of seismic impulse, and the explosions could have a damaging effect on shoals of fish. Unexploded charges would also impose a hazard to fishing.

Today air or gas guns of various types are used as seismic shock sources, and these have little or no damaging effect on fish. In the rules relating to safe practice in exploration work it is required that the seismic vessels should be acquainted with international and Norwegian regulations concerning navigation. The vessels shall furthermore be acquainted with the Norwegian rules for marking of floating and stationary fishing gear and be acquainted with the light signals carried out by trawlers and other fishing vessels. The seismic vessels must keep a safe distance from those engaged in fishing and from floating stationary fishing gear. Seismic work must not be carried out near vessels engaged in fishing or if shoals of fish are detected under or in the vicinity of the seismic vessels. A public inspector may at any time go onboard the seismic vessel to check that the work is carried out in accordance with the rules and regulations. The Directorate of Fisheries is kept informed about planned seismic work by the oil companies. A representative from the Directorate then inspects the vessel when it calls at a Norwegian port. If considered necessary, the inspector also stays onboard during the work at sea.

The Director of Fisheries informs the local fishery inspectors beforehand about the plans for seismic work, the dates and area concerned and the name of the vessel. This information is forwarded to the local fishermen's unions and to the local press. Before starting the seismic work, the officer in charge of the vessel must contact the local fishery

inspector to be informed about the fishing activity in the area. The Norwegian continental shelf north of the 62nd parallel is not open to general seismic work, which is carried out by leased vessels in charge of the Norwegian Oil Directorate.

The exploration for, and exploitation of petroleum must be carried out in a safe manner and in accordance with the regulations in force at all times. The oil industry must not, for instance, interfere with fishing to an unreasonable degree. Before provisional or permanent installations are placed on the seabed, the oil company must have written consent from the Oil Directorate. The Oil Directorate shall also be notified of removal of such installations and towing of platforms to new locations. A notice concerning an approved location for an oil platform is inserted by the licensee in the "Norwegian notices to mariners" and likewise announced the Norwegian Broadcasting fisheries service.

The Department of Industry shall through the Oil Directorate, be informed in good time about the plans for any exploitation. Drilling can not start before the licensee has obtained written consent from the authorities. When an application for drilling has been received, the Oil Directorate asks the Directorate of Fisheries for information concerning the types of fisheries carried out in the area, which nations are fishing there, and what special precautions should be carried out. Any special requirements will then be stated in the consent.

The space occupied by a platform including the safety zone of 500 metres, is a circular area with a radius of about 600 metres. According to the Norwegian safety regulations, a drilling platform should have at least four buoys placed around it at a distance of 500 metres. These buoys should be supplied with lights, sound signals and radar reflectors. However, in later years drilling platforms have operated in deeper and deeper waters, and these require anchor chains going far outside the safety zone with the anchors placed up to 1 000 metres out from the platform. This means an additional danger area for the fishermen and their gear.

When a well is abandoned, casing strings and other installations protruding from the seabed must be removed to such a depth that no

obstruction remains which may cause danger or impediment to fishing or shipping. Before final abandonment of the well, the licensee must make sure that no such obstructions remain on the seabed. If a well is abandoned temporarily due to bad weather or other reasons, the drilling bore should be plugged in a safe manner and a buoy laid out to mark the wellhead. Temporary abandonment is generally limited to 6 months.

The licensees are further instructed not to throw overboard from the platform or from the supply vessels any debris of iron, empty barrels or other obstacles that interfere with fishing operations. The licensee must carry out an inspection of the seabed by divers or by other means and certify that such an inspection has been undertaken.

Dumping of scrap material from the drilling platforms and from supply vessels appears still to be taking place. The fishermen complain that they get empty oil drums, pieces of chain and wire and various other iron articles in their trawls, even iron shavings from oil pipes and pieces of mud hose. A general complaint is also that the supply vessels throw overboard various pieces of hardware on the trips to and from the drilling platforms. Complaints of this type appear in the fisheries press, but it has been very difficult to get concrete proof with samples of the debris, exact geographical position, dates etc.

The fishermen want to strengthen control of the oil activity, especially in regards to dumping. Refuse and other waste matters are now supposed to be delivered ashore in a closed container and a receipt obtained.

Another obstacle to fishing may arise when pipelines are laid on the sea bottom from the oilfields to the shore. The fishermen fear that entanglement between their fishing gear and a pipeline may cause damage to the gear and possibly to the pipeline.

The safety zone of 500 metres, which according to the Geneva convention applies to platforms and other installations on the sea bottom, does not apply to pipelines. They come within the same scope as telegraph and telephone cables on the sea bottom. To reduce the problem of interference with fisheries, the Norwegian Authorities require that oil and

gas pipelines on the Norwegian continental shelf or having their starting point there, shall be buried as far as their points of destination. This has been done with the oil pipeline laid from the Ekofisk field to Teeside in England, and likewise with the gas pipeline from Ekofisk to Emden in Germany. These pipelines are buried between 1 and 3 metres under the sea bottom, except for a few stretches of the Emden pipe where sandbags are used for cover.

A temporary compensation fund was established in June 1976 to cover damages incurred by Norwegian fishermen due to the activities of the oil industry. An advisory committee has, since September 1976, thoroughly examined reported damages and claims, and recommended compensation in cases which in all probability or certainty were caused by littering of the sea floor by the oil industry. The final decision as to whether or not compensation is warranted is made by the Director of Fisheries. Compensation is applicable to Norwegian fishermen irrespective of the sector in which the damage occurred. Up to 18 August 1977 about 1 700 claims for damages to fishing gear and catch losses have been registered with the Directorate of Fisheries, and 1 379 have so far been handled. Compensation has so far been paid to 1 050 of these claims, about one half each from the British and Norwegian sectors, and less than one per cent from the Danish (Fig.1).

In most cases it has been difficult to identify those responsible and settle the question of blame and reclaim from the offender. Another problem is that littering and dumping in the North Sea is of course not done by the oil industry alone. There is also considerable traffic by merchant and cargo vessels from a large number of countries, and this shipping is almost certainly partially responsible for the problem.

This paper is based on a lecture given by Dr. Birger Rasmussen, the contents of which have been updated by Alfred Frøland. The associated map has been worked out by Walter Løtvedt and Fernando Mora.

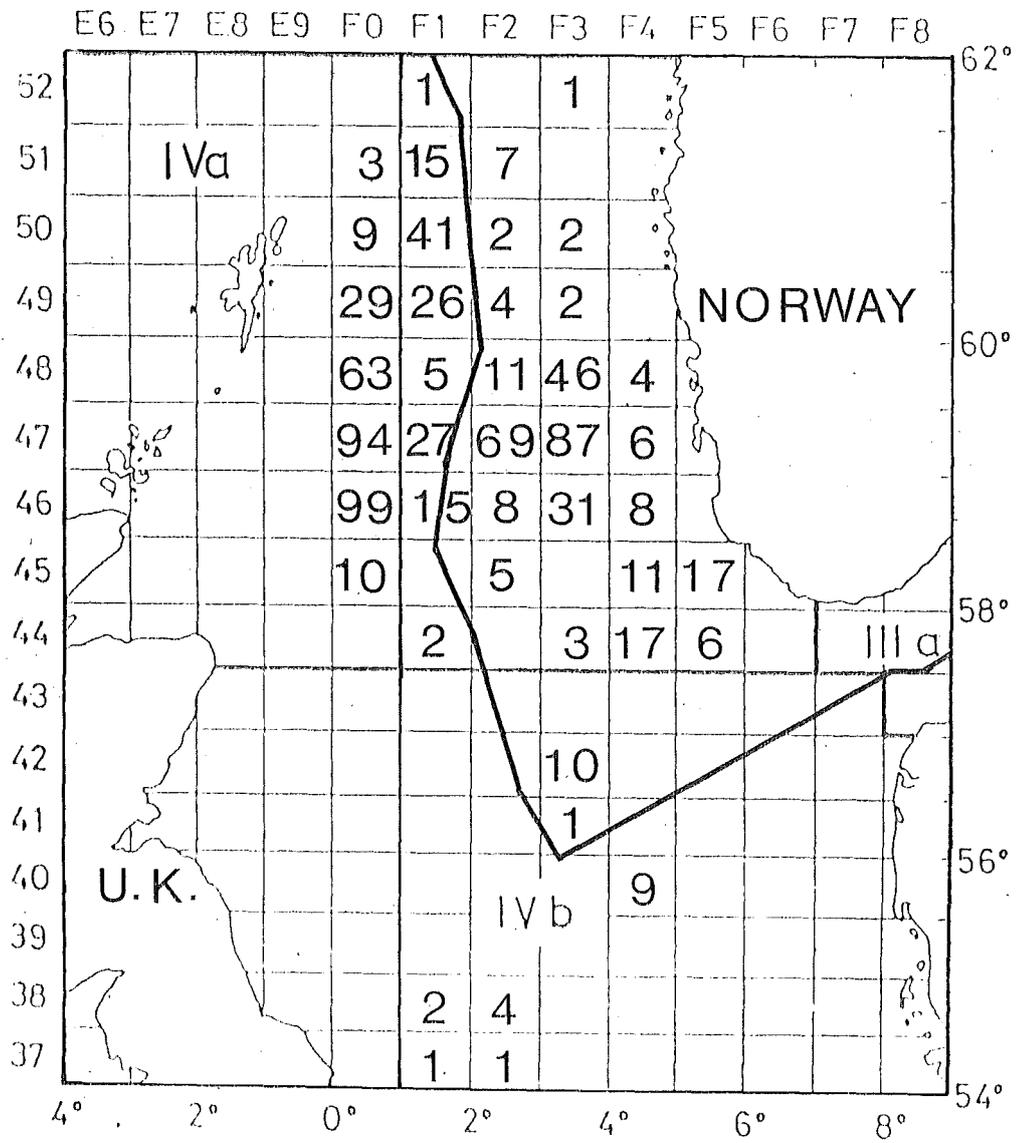


Fig. 1. Incidences of damage to Norwegian fishing gear resulting from littering of the sea floor by the petroleum industry. Of the 1050 claims granted compensation, 784 are plotted on the ICES ocean grid system.

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Appendix to:

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Damage and loss of fishing gear

Up to 15 September 1977, 1353 claims for damages to fishing gear and catch losses have been granted compensation by the Fisheries Directorate. The positions of these incidents in relation to the major fishing areas are shown in Table 1.

The first 500 and the latter 853 incidents are grouped separately to demonstrate the tendency of the fishermen to avoid areas which have increasingly become known to be hazardous to fishing gear

Table 1. Incidents of damage and loss of gear on North Sea fishing banks.

Area	Percentage of first 500 cases	Percentage of next 853 cases	Percentage of all 1353 cases
Fladen Ground	24.4	13.2	17.4
Bressay Shoal	18.2	8.1	11.8
Bressay East Ground	4.4	7.5	6.4
Patch Bank	13.6	7.5	9.8
Revkanten	13.8	18.3	16.6
Other fishing banks	25.6	45.4	38.1

The reported positions show a distribution pattern which is conspicuous in its relation to the off-shore oil activities, in so far as the heaviest concentrations are clustered around the drilling sites, along the pipe lines and in the sea lanes of the supply vessels.