

Incident information sheet of ERIKA 1999

Table of Contents

The incident.....	2
Pollution and response at sea.....	2
Key dates.....	3
Characteristics and behaviour of the products.....	6
Pollution and oil arrivals on land.....	8
Response at sea.....	8
Previsions for slick drifts and observations.....	10
Response on land.....	12
Human resources.....	14
Summary for Finistère.....	15
Summary for Morbihan.....	18
.....	21
Summary for Loire-Atlantique.....	23
Site of Pen Bron.....	29
Summary for Vendée.....	30
Volunteers.....	35
Waste management.....	37
State of the wrecks.....	38
Pumping of the fuel from the wrecks.....	38
Intervention from the European Commission.....	40
Sycopol and pollution from the Erika: an eventful year 2000.....	42
CEDRE actions.....	44
Effects of the pollution.....	45
Trial of the Erika.....	47
Appeal trial of the Erika.....	48
Maritime safety after the Erika. What changed?.....	50



Erika wreck ©FRENCH NAVY

The incident

On 11 December 1999, the Maltese oil tanker, Erika, laden with 31,000 tonnes of heavy fuel oil (n°2), was en route from Dunkirk (France) to Livorno (Italy) when it was caught in very rough sea conditions (westerly wind, force 8 to 9, with 6 m swell). After sending out an alert message, then proceeding to transfer cargo from tank to tank, the captain informed the French authorities that the situation was under control and that he was heading to the port of Donges, at reduced speed.

On 12 December, at 6 h 05, he sent out a Mayday: the ship was breaking in two. At 8 h 15, about thirty miles off Penmarc'h, south Finistère (in international waters), the French Navy, with support from the Royal Navy, launched a rescue operation by helicopter and evacuated the crew while the vessel was breaking in two. At that time, the estimated amount of oil spilled was between 7,000 and 10,000 tonnes.

The bow section sank the following night, a small distance from where the ship had broken up. The stern was taken in tow by the salvage tug Abeille Flandre on 12 December, at 14 h 15, to prevent it from drifting towards the French island of Belle-Ile. The two parts of the wreck ended up 10 km apart from each other, 120 m deep.

Pollution and response at sea

The Polmar Sea Plan was activated on 12 December 1999 at 18 h 00 by the [maritime prefect for the Atlantic](#). The following day, the [French Navy](#) placed two deep sea support vessels equipped for pollution response on stand-by, to intervene as soon as the weather conditions would allow. They also opened discussions to mobilise the resources of [Bonn Agreement](#) Member States.

Initial aerial survey missions carried out by [French Customs](#) and Navy planes reported slicks drifting at sea, one of which was 15 km long and estimated at 3,000 tonnes. The slicks were moving eastwards at a speed of about 1.2 knots. On the following days, aerial observations identified a series of slicks made up of thick patches (5 to 8 cm thick) which tended to split up while continuing to drift parallel to the coast. On 16 December, small slicks of approximately 100 m in diameter gathered in a 25 km long and 5 km wide zone. As of 17 December, they showed a tendency to sink a few centimetres underneath the sea surface.

The Biscay Plan, a bi-lateral agreement for mutual assistance between France and Spain (signed on 7 December 1999), was activated on 19 December at 16 h 00.

Key dates

Chronology

Pollution of the Erika: from the incident to the trial.

08/12/1999	<i>Erika</i> leaves Dunkirk (France) for Livorno (Italy), laded with heavy fuel oil from the refinery in Flanders
11/12/1999	Mayday from the captain of the <i>Erika</i> , which was then cancelled
12/12/1999	• New Mayday with request for evacuation • Evacuation of the crew by the air • Breaking of the vessel in two, towing of the stern • Sinking of the bow off Penmarc'h • Activation of the Polmar Sea plan by the maritime prefect for the Atlantic
13/12/1999	• Sinking of the stern • Mobilisation of European response vessels through the Bonn Agreement
22/12/1999	Polmar-Land Plan activated in Vendée and Charente-Maritime
23/12/1999	• First traces of pollution on the coastline of Finistère • Polmar-Land Plan activated in Loire-Atlantique
24/12/1999	• First traces of pollution on the coastline of Morbihan • Polmar-Land Plan activated in Finistère and Morbihan
26/12/1999	First traces of pollution on the coastline of Loire-Atlantique
27/12/1999	First traces of pollution on the coastline of Vendée
30/12/1999	Total gets involved in pollution response: creation of the Loire Atlantique Mission
31/12/1999	• First traces of pollution on the coastline of Charente-Maritime • First ROV (Remote Operated Vehicle) explorations of the wrecks
12/01/2000	The State provides 300 million Francs
08/02/2000	The prime minister invites all representatives of areas impacted by the oil slick to present his government action plan

28/02/2000	Session of the CIADT (French Cross-ministry land use and development committee) for the reinforcement of response capacity in the event of oil slicks, decision to create a <u>scientific monitoring programme for the ecological and ecotoxicological consequences of the oil slick, co-handled by INERIS and IFREMER</u>
21/03/2000	Presentation by the European Commission of the " <u>Erika I package</u> "
Beginning of April 2000	End of the general cleaning operations, beginning of fine cleaning operations
05/06/2000	Beginning of treatment for the wrecks
End of June 2000	Progressive withdrawal of army and fire brigades
04/09/2000	2,150 birds cleaned and rehabilitated
05/09/2000	End of treatment for the wrecks
Mid-September 2000	End of military withdrawal
06/12/2000	Presentation by the European Commission of the " <u>Erika II package</u> "
06/11/2001	Conference on the first results of the national impact monitoring programmes
Summer 2002	End of cleaning work
2003	Consequences of the Erika II package: • Creation in 2002 of the <u>European Maritime Safety Agency</u>, operational in 2003 • Adoption of the creation of a complementary fund for compensation for damages caused by oil pollution, operational in 2005
22/07/2003	Implementation of the " <u>Erika I package</u> "
01/09/2003	Consequences of the Erika I package, progressive change of single hull tanker ships for double hull tanker ships

End of 2004	• End of waste treatment • Closing of the Atlantic Coastline Mission
Beginning of 2005	Publication of the work from the Ministry for Ecology " <u>Marées noires et environnement</u> " (Oil slicks and the environment)
December 2005	Presentation by the European Commission of the " <u>Erika III package</u> "
12/02/2007	Beginning of the trial in the criminal court of Paris (7 years of trial, more than 70 plaintiffs, about 15 defendants)
16/01/2008	Regional Court of Paris gave its verdict, Total was found guilty of pollution. The notion of ecological prejudice was recognised.
25/01/2008	Multiple plaintiffs, including Total, contested the verdict
01/08/2008	Regulation of 01/08/2008: <u>The Regulation on environmental responsibility</u> is a French equivalent of the European directive of 21 April 2004
10/03/2009	Presentation by the European Commission of the " <u>Erika III package</u> "
05/10/2009	Beginning of the trial in the court of appeal in Paris
30/03/2010	The court of appeal in Paris gave its verdict and confirmed the condemnations of the RINA classification organisation, of G. Savarese, of A. Pollara, and of Total. It also confirmed the ecological prejudice
06/04/2010	Total filed an appeal with the Court of Cassation in the following days, accompanied by the charterer (G. Savarese), the classification organisation (RINA), the manager (A. Pollara), as well as numerous local communities and civil plaintiffs
25/09/2012	The Court of Cassation, after 13 years of procedure, confirmed all sentences pronounced

Characteristics and behaviour of the products

The oil transported by the Erika was a heavy fuel oil, a product used in two situations: industrial combustion (thermal power stations, furnaces, cement factories...) and as propulsion fuel for slow and powerful thermal energy vessels.

Density	1.0025
Pour point	3°C
Viscosity	38 cSt (100°C) 555 cSt (50°C) 20,000 cSt (10°C)
Sulphur	2.28 %
Vanadium	82.7 ppm
Nickel	45 ppm
Asphaltenes	3.78 %

Fuel analysis report for the Erika – Source: TotalFina

It was a mixture of 10 % of light diluents, 30 % of heavy diluents, and 60 % of vacuum distillation product. This fuel oil had a density very close to that of sea water. Heated for transport, it had an elevated viscosity at room temperature (20,000 cSt at 10°C). It was therefore not chemically dispersible: response at sea by spraying dispersants, whether from aircrafts or from ships, was therefore out of the question. On the day of the incident, CEDRE received about 100 kg of the n°2 fuel, same as the one on board of the Erika, from the TotalFina refinery in Dunkirk. Once set up in the Polludrome® in CEDRE's facility, on 13 December, the product did not seem to naturally disperse in water, it stayed afloat and showed low fragmentation. Its viscosity rose during the day to 70,000 cSt, while it formed an emulsion containing 30 % water. The emulsion reached a stable level of 50 % water (viscosity: 350,000 cSt) after two days. At sea, the product also formed an emulsion but the water rate stayed around 30 %. The analyses carried out on the samples collected on the coast showed water rates around 50 %.

The emulsification led to a rise in the volume of product drifting at sea and made it even more sticky. This was proof for the French Navy that the heavy fuel of the Erika would be hard to recover and could only be pumped if mixed with more water. This technique was therefore implemented and response at sea helped collect more than 1,200 m³ of emulsions.

A complete analysis of the chemical composition of the product was carried out by the French oil Institute and other institutions: LASEM (Analysis, monitoring and expertise laboratory for the French Navy), CEDRE, MNHN (National Museum of Natural History), Ifremer, Bordeaux University.

Saturated oil	22 – 30 %
Aromatic oil	42 – 50 %
Resins and asphaltenes	21 – 36 %

Chemical composition of the fuel oil of the Erika

The results from fragmentations depended on operation protocols. Depending on the nature and polarity of the solvents used, the parts can differ slightly, which impacts their relative proportions. The product on board of the Erika contained around 235 % of heavy products (resins and asphaltenes) and around 50 % of aromatic oil. The aromatic oil category contains oil composites which present a certain potential for toxicity, whether as direct toxicity (intoxication), or due to mutagen or carcinogenic effect.

The effect of this toxic potential on the habitat depends on exposure conditions (solubility of the components, exposition duration) or on transfer potential to the food chain.

Vaporisation of the product

Vaporisation depends firstly on the nature of the product spilled, but also on external factors. It can be very high for light crude oils (30 to 40 % during the pollution caused by the Amoco Cadiz). Heavy products, such as the one from the Erika, are much less influenced by vaporisation, which only impacts less than 10 % of their mass.

Heavy fuel oils are considered non soluble in water. However, the heavy fuel oil from the Erika contained mono-aromatic (6.6 %) and di-aromatic (5.9 %) fractions which were partly soluble in water. The contamination of sea water could also be a result from fragmentation due to waves and water turbulence, which led to the production of droplets and tar balls, which drifted with the ocean movements. Following this hypothesis, the presence of numerous small oil fragments regularly found stranded on beaches must be noted. The fact that this oil product was considered as not soluble does not mean it did not contaminate the water.



Weathering of the fuel oil in the Polludrome ©FRENCH NAVY

Pollution and oil arrivals on land

The first arrivals on the coast were observed in South Finistère on 23 December, 11 days after the incident. Discontinued arrivals were noted in the following days, in the islands of Morbihan (Groix and Belle-Ile) on 25 December, and in Vendée, north of Noirmoutiers, on 27 December. Due to poor weather, (winds stronger than 100 km/h, perpendicular to the coast) and high tide coefficients, the pollution was projected very high on the Estuary, reaching the top of 10 m-high cliffs.

The Polmar-Land plans were activated in Vendée and Charente-Maritime on 22 December. Both departments will only be impacted by pollution starting respectively on 27 and 31 December. The Polmar-Land plan was activated for Loire-Atlantique on 23 December, 3 days before the oil reached the coast.

The Polmar-Land plans for Finistère (impacted on 23 December) and Morbihan (Impacted on 24 December) were both activated on 24 December. In total, five departments activated their Polmar-Land plans.

On 26 December, 14 days after the incident, the Isle of Groix, near Lorient, was heavily impacted and most of the pollution had reached Loire-Atlantique to the North and South of the Loire river. A viscous layer of 5 to 30 cm in thickness covered some areas of the coastline, wide of multiple metres.

Response at sea

As the fuel oil of the Erika was not dispersible, the only response option at sea was containment and recovery.

Trying to regroup the pollutant and make it consistent enough for recovery using surface trawlers brought a multitude of technical issues. This would have made operations at sea even more tenuous, from the transport and spraying of necessary products to trawling operations and recovery of the oil. Pumping was therefore the chosen technique. The operations were complicated due to the viscosity of the product and the bad ocean conditions, but was “easier” due to the thickness of the slicks.

The incident of the oil tanker the [Sea Empress](#) in Wales in 1996 had already showed that mutual assistance agreements in Europe could help bring vessels from neighbouring countries on the site of a major incident for response operations. After the Erika, the French Navy took the decision of launching response at sea with the two French vessels available, Alcyon and Ailette, a Dutch vessel, Arca, a German vessel, Neuwerk, a British vessel, British Shield, and two Spanish vessels, Ibaizadal II and Alonso de Chaves. The last two were sadly not equipped yet with the recovery equipment they should have had.



Response operations at sea – Ailette ©FRENCH NAVY

On 15 December, in a rough sea, the French Navy vessel Ailette failed to launch the TRANSREC skimmer. Other pumping attempts, carried out on 16 December, finally led to a replacement of the TRANSREC skimmer by the FOILEX skimmer. The rough sea made it impossible to carry out recovery operations, as material damage was reported on 18 December. The company TotalFina provided the French Navy with a bitumen carrier to recover the product pumped. On 20 December, 60 m³ of fuel oil were recovered, which confirmed the feasibility of the operation. On 21 December, the volume collected at sea reached 500 m³. On 22 December, despite poor meteorological conditions, it was close to 1,000 m³. After the operations, on 23 December, the amount of recovered emulsified product reached 1,200 m³. On 30 December, the favourable meteorological conditions allowed for small pumping operations by the Élan (DACAMA system and FOILEX pump), as well as trawling by fishing boats (8 m³ collected) off the coast of Vendée. In particularly rough conditions, response at sea helped extract 1,200 tonnes of fuel oil, saving thousands of sea birds, sparing the coastline from major pollution and avoiding the effort and costs of collecting and treating 11,000 to 12,000 tonnes of algae, sand, pebbles, and soiled waste.

Starting on 16 February, a research tool for oil slicks drifting at sea or resting on the sea floor was implemented near the wreck and close to the coasts. A team of bomb disposal divers carried out underwater observations along the coastline of Loire-Atlantique and Morbihan. From 21 February, two Ifremer vessels equipped with dredges investigated the 10 m bathymetry line. A hydrographic vessel from the French Navy carried out research on the 50 m line, equipped with a rig dragged from surface to bottom to try and find slicks under the surface. None of these detection tools could detect anything in the water column.



The Neuwerk ©FRENCH NAVY



The Arca ©FRENCH NAVY



The Alonso de Chaves ©FRENCH NAVY

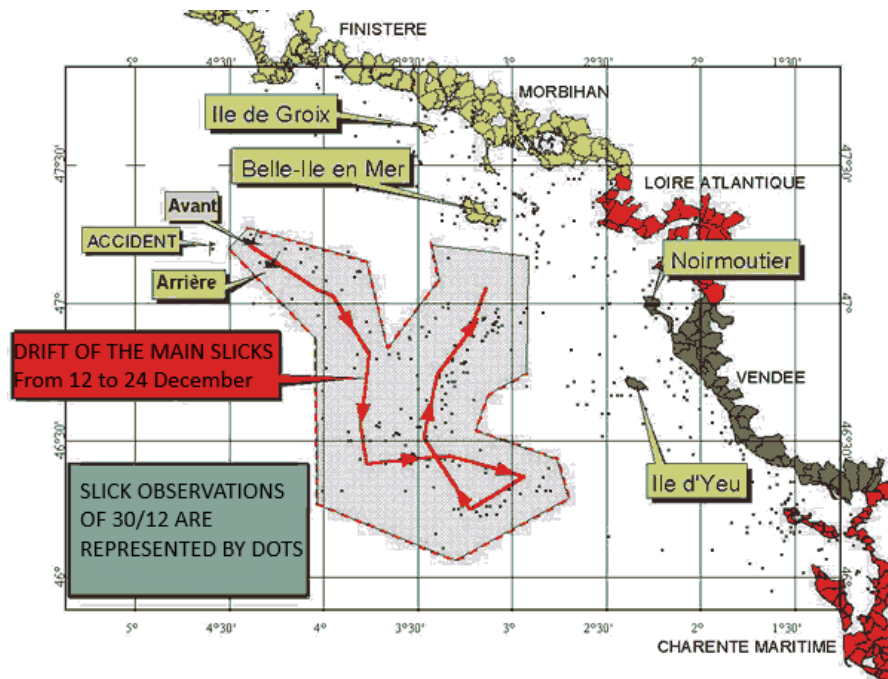


The British Shield ©FRENCH NAVY

Previsions for slick drifts and observations

From 12 December, the maritime prefect for the Atlantic launched a daily aerial monitoring programme by the POLMAR I and II aircrafts and French Navy aircrafts. Moreover, multiple prevision models for the drift of slicks at sea were activated. First, the MOTHY model, developed by Météo France as part of a collaboration with CEDRE the last four years, at the initiative of the General Secretary for the Sea. The model was previously tested in incidental pollution in the Channel. The second model was the English OSIS. The third one was the American OILMAP, licensed by the OSRL response cooperative and implemented by TotalFina, a member of said cooperative. The previsions from these various models on the day of the incident were worrisome. The slicks would have passed Île d'Yeu (Vendée) on 17 December according to OILMAP. They would reach the island on the same day according to OSIS. However, according to MOTHY, the slicks were still way off the coast; this last prevision was closest to aerial observations.

From 14 December, it was clear that the prevision from Météo France was the most accurate one. A crisis centre was set up in the marine prevision centre of Météo France in Toulouse, to recalculate the drift previsions daily using the aerial observations. After each time, the previsions from Météo France were more and more accurate. Relayed to the authorities on land by the maritime prefecture and CEDRE, they became the reference.



Drift of the slicks at sea and situation on 31 December 1999
©CEDRE

Observations

The satellites had a low chance of noticing the slicks from the Erika. Those equipped with night and day "vision" (ex.: Radarsat, ERS), which were able to notice the difference between surface roughness on water due to an oil slick, were rendered useless by rough ocean conditions such as the ones at that time. Those with infra-red "vision" (ex.: SPOT) were blind at night and during storms. They were only useful during clear sky conditions and were impacted by the swell disrupting the slicks. As they were in polar orbit, they only passed over the area once every ten days. Therefore, no useful satellite imaging could be obtained, as opposed to the incident of the [Sea Empress](#) in Wales in 1996.

All the observation work therefore rested on aerial monitoring by the Customs or the Navy, in rough meteorological conditions for the personnel and the equipment.

Limit to the previsions

As polished as they were, the previsions were not 100 % accurate. The position of the slicks and the drift model were always uncertain. The position of the slicks, the sea state, and the characteristics of the pollutant made the work harder for the personnel on board of the aircrafts. Some slicks were lost, found, then lost again, throughout their drift and degradation. The drift model integrated progressively more uncertainty when getting close to the coast, where winds, and local currents added interferences which were hard to predicts.

From 15 December, an aerial survey was dedicated to looking for oil slicks in front of the known slicks. This survey and ulterior observations did not reveal anything. The first unexpected pollution on 23 December, on the southern coast of Finistère, brought questions as to their origin. On 24 December, analyses showed that it came from the Erika. Part of the pollution therefore flew under the radar, which led to a wave of

criticism regarding the drift models. It might have come from the vessel before the incident, or from the wrecks.

Most of the pollution did arrive, between 24 and 27 December, in the area predicted by the model. But smaller slicks polluted the coastline of Morbihan, West of Belle-Ile, and were also missed by the drift model. It was only on 30 December, once the swell caused by the storm had finally died down, that the maritime prefect could send 44 aircrafts for a comprehensive inventory off the polluted coastline. This inventory showed hundreds of slicks (1 to 5 m), patties (less than 1 m) and a multitude of tar balls. The oil which did not reach land was there, not sunken, not lost, but fragmented in a multitude of small units invisible in rough conditions. It was still too early to draw conclusions from what was seen and predicted and to improve knowledge and procedures. Multiple reflection axes were however already explored:

- regarding on-board sensors for aircrafts and satellites: when faced with a product showing very low “slick” appearance, during harsh weather, infra-red sensors in aircrafts were more effective than radar sensors in aircrafts or satellites;
- regarding the detection of half-submerged slicks, from a few centimetres to a couple of meters;
- Regarding the improvement of provisions near the coastline, where the need for precision is highest as disturbing phenomena multiply;
- Regarding the ways to speed up communication of reliable, clear and complete information between observers, analysts, forecasters, decision-makers, the media and the public.

Response on land



Large-scale oilings in Loire-Atlantique ©CEDRE

In anticipation of the slicks reaching the shore, booms were deployed at most of the sensitive sites along the threatened coastline. This equipment was from the POLMAR stockpiles and the oil cooperative FOST, mobilised by TotalFina. Initial clean-up operations were organised on beaches, rocks and riprap as soon as the slicks reached the coast. More than 5,000 professionals and volunteers worked on the coast in often very harsh conditions. Once the initial clean-up operations were complete, the final clean-up phase could begin. Unfortunately, in many places, new stranding on the coast ruined the work already done. Furthermore, particularly in Loire-Atlantique and Vendée, very harsh weather conditions, connected to high tidal coefficients, caused oil slicks to

be buried under several dozen centimetres of sand, leading to the formation of multiple alternate layers of oil and sand, which subsequently underwent erosion and accretion phases with successive tides. Many products and devices were tried out. Few of them proved to be particularly effective, due to the very high viscosity of the fuel oil, and manual collection was the only solution in the initial stages. For riprap, high-pressure washing with effluent recovery using sorbents was the chosen technique. On beaches, beach cleaners were used to recover patties and tar balls deposited on the sediment.



Cleaning riprap with high-pressure cleaners ©CEDRE

This equipment was from the POLMAR stockpiles and the oil cooperative FOST, mobilised by TotalFina.

Various new or improved tools and techniques were successfully tested and information was disseminated by CEDRE to the various operational incident command posts, including:

- recovering splashes of oil using non-woven polypropylene overwintering fabric during high-pressure washing of heterogeneous riprap;
- filtering effluents from rock washing and natural washing of pebbles at the bottom of the beach using elver nets and construction site nets;
- alternating ploughing (or deep tilling) and screening to recover tar balls buried up to 25-30 cm deep in the beach sediment;
- ploughing of beaches in the tidal zone to allow buried tar balls to be reclaimed by the sea and then deposited at the top of the beach.



Laying nets to recover cleaning effluent ©CEDRE

ACP, OCP and FCP

FCP

The FCP (Fixed Command Post) is the central command centre at Prefecture-level. Its missions are to centralise information, coordinate clean-up operations (assessment of needs, distribution of resources, accommodation, etc.) and organise communication operations.

ACP

The ACP (Advanced Command Post) is the onsite command post based within the areas affected by the spill. It is in charge of applying the strategic decisions made by the FCP. It reports back on actions conducted in the field and informs the FCP of needs in terms of equipment and operators.

OCP

The OCP (Operational Command Post) is the command post which functions at an intermediate level between the FCP and the ACP.

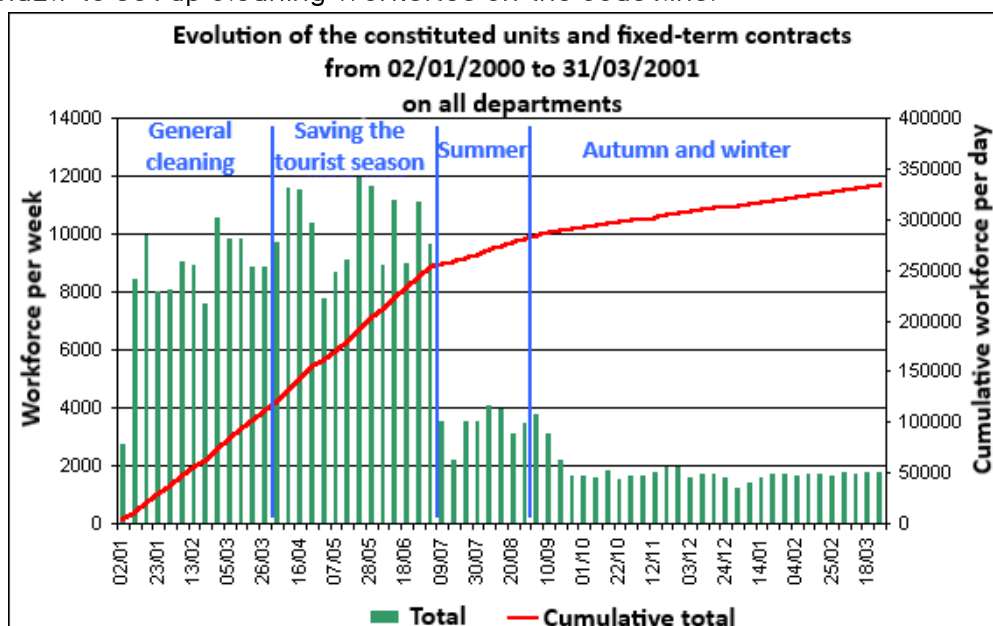
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Human resources

Summary of the human resources deployed on the 4 departments

To give an overview of the human resources deployed, a table was drawn up on the evolution of the man power in the various units and the Polmar contracts, from 2 January 2000 to 31 March 2001.

However, this table does not account for the volunteers, state personnel and services (Equipment, Maritime affairs, Sanitary and Social affairs, National Forest service...), the community personnel, and the service provides contracted by the State and TotalFinaElf to set up cleaning worksites on the coastline.



Evolution of the manpower in the various units and Polmar contracts ©CEDRE

Summary for Finistère

Mobilisation (December 1999 – January 2000)

The first arrivals reached the southern coast of Finistère on 24 December, the Pointe de la Torche to the Laita estuary (Clohars-Carnoët), appearing as tar balls and patties which could reach 50 cm in diameter. The Polmar-Land plan was activated the same day by the prefect. On the 26, helicopter survey showed no large accumulation areas along the coast. On 27 December, an aerial survey showed spread out patties on all of the Glénan archipelago, as well as two slicks, one of 150 m in diameter, the other of 300 x 80 metres. On 29 December, another aerial survey showed some slicks in the tide mark and some oiled vegetation in Glénans.

As a way to avoid oil penetration in waterways, the floating booms were positioned on 25 December in the Merrien estuary, on the 26 in the Aven, on the 27 in the Belon, on the 28 in the Doélan, on the 29 in the Brigneau, and on the 30 in the Loctudy. One last boom was implemented on 10 January in Port-la-Forêt.



Oiled barges in Doélan sur Mer ©CEDRE

Organisation

Following the activation of the Polmar-Land plan on 24 December, the fixed command post was activated in Quimper in the prefecture's office. Two ACP were set up in Concarneau and Pont l'Abbé on 26 December.

Human resources

On 28 December, 52 firefighters from the department responded on oiled beaches to start general cleaning operations. On 29 December, 48 military personnel came for support. The maximum was reached on 30 December: 150 people were active on worksites in Finistère (not including community personnel, DDE and volunteers). The number progressively went down due to the decrease in pollution in January.

Material resources

Floating booms were installed in priority in the Abers harbouring shellfish growing areas to protect the resources. This work was carried out by personnel from the DDE, with support from professional fishing boats and the SNSM. Their maintenance was handled from small boats and required constant efforts since the equipment was subjected to particularly harsh weather conditions.

During the first days following the incident, the port of Guilvinec was the main focus for the authorities in Pont l'Abbé. Their aim was to keep it operational for the fish market, so the fishermen could carry on working during the holidays. The company TotalFinaElf handled cleaning operations on all of the coastline within the community of Moëlan-sur-Mer and on the rocky shores of Clohars-Carnoët. The

operations started in January and were long-lasting as the worksites were still active in September.

Technical and environmental advice

A monitoring committee met for the first time on 15 February, presided by the prefect for Finistère. This meeting was a reminder of the operational resources implemented since the incident, of the ecological impact and of the compensations. Two other meetings were held on 2 and 29 June.

The polluted sites were analysed to best prepare the fine cleaning operations by defining the most appropriate techniques. The first visits were carried out in mid-January by CEDRE, the DIREN, IOPC Funds experts, and ACP managers.



Polluted rocks in Clohars-Carnoët ©CEDRE

Saving the tourist season (February – June 2000)

Choosing priority sites

The pollution on all of the South coast of Finistère led to a reworking of the priorities initially defined.

The cleaning operations were programmed in priority on beaches where tourism was important during the summer.

The evolution of worksites and manpower

The manpower increased again at the beginning of February since work had to be more important to treat the second wave of pollution. It stabilised to about 60 people from mid-February to the end of March, time period during which a superior level was reached with 100 people working. This second rise was due to the intervention of personnel employed for fixed term contracts by communities using the Polmar funds and does not reflect actual new arrivals of oil.

Fine cleaning

The fine cleaning phase, namely the collection of oil on the high parts of beaches, started at the end of March. It was carried out simultaneously with cleaning operations for hard substrates using high-pressure water cleaners.

A few tests using screening machine were carried out but did not yield the expected results, sometimes even making the situation worse by fragmenting the tar balls. Most of the fine cleaning on sand was therefore carried out manually.

The receptions of private worksites in the communities of Clohars-Carnoët and Moëlan-sur-Mer, financed by TotalFinaElf, started during the month of June.

All this work allowed the opening of all swimming areas for the public, after analyses of sand and water by the DDASS, by the end of June.

Summer operations (July – August 2000)

Reduction of the workforce

The tourist season was marked by a reduction of workforce and a lightening of the Polmar plan. The section of military personnel on duty from 22 February was relieved on 29 June. This was accompanied by the interruption of interventions from the marine firefighters from the department. Therefore, during the months of July and August, only employed personnel worked on the sites (150 Months of work allocated throughout the department). Their number varied between 25 and 33 during the first half of July and reached 59 until the end of August.

Evolution of the worksites

Once the largest cleaning phase was over, the areas to treat were only located on high ground and did not represent major pollutant amounts.

The booms deployed were maintained and those recovered were ready for re-deployment.

Autumn operations

The autumn operations focused on areas where residual pollution had not been treated yet and were carried out by operators on fixed-term contracts.

From the month of September, the worksites activated were focused on rocky areas which were hard to reach in the communities of Moëlan-sur-Mer and Clohars-Carnoët, they required 21 operators. They were closed between 19 September and 4 October. the 15 remaining operators employed by mid-October were working for the community of Concarneau to treat rocks on the Cabellou site. This worksite was closed at the end of November. From 27 November to 15 December, the community of Trégunc employed 14 operators.

Also, The communities of Trégunc and Fouesnant each recruited 5 operators for a duration of two weeks starting on 15 January 2001, for the cleaning of the remaining untreated rocky areas and vegetation.

On 24 November 2000, all of the floating booms were recovered and transferred to the Polmar centre in Brest.

Overview of the response

Coastline polluted

The area of Concarneau, namely the Eastern front, was more impacted than the area of Pont l'Abbé which suffered less from slick stranding.

Waste management

The waste collected from 3 to 27 January 2000 were transferred to the intermediary storage site of Caudan (Morbihan) before their transport to Loire-Atlantique in larger storage sites. This litter represented 1,390 m³. The site of Caudan was not used for waste from the Finistère area after 27 January and was closed on 3 February. On 4 March 2001, the total amount of waste reached 3,000 tonnes.

Summary for Morbihan

Mobilisation (December 1999 – February 2000)

On 24 December 1999 at 15 h 00, the Polmar-Land plan was activated by the prefecture for Morbihan. Crisis management started in urgency: the first slicks arrived in Belle-Ile on that day. A pollution survey on the island showed slicks at sea next to multiple sites. Slicks were also detected off Groix and Ploemeur. On 25 December, in Belle-Ile, slicks were detected on the West and South coasts, the isles of Groix (South) and Hoëdic (South-West) were impacted. On the mainland, the first signs of pollution were noted from the Laita estuary to Quiberon.

The implementation of a 4 km-long floating boom on Pénerf river was immediately requested; this area was used for oyster farming and seemed at risk due to its proximity to Loire-Atlantique, which was already heavily impacted. This measure helped protect the oyster farms by stopping tonnes of oil.

Organisation

In Morbihan, the fixed command post also took on the role of OCP. It was implemented in the prefecture for Vannes upon activation of the Polmar plan. On 25 December, 3 ACP were activated:

Belle-Ile, Groix and Quiberon. On 26 December, an ACP was activated in Hoëdic. The situation worsened during the night of 25-26 December as a storm led to considerable arrivals. On 26 December, pollution was generalised all over Houat island and the southern part of the department (from Sarzeau to Pénerf). On 27 December, the South-East of the department, from Damgan to Pénestin, was also impacted. The ACPs in Fort-Bloqué, Etel, Sarzeau and Muzillac were activated. The system was fully operational for all polluted sites on 28 December, following the activation of an ACP in Houat. Regarding one-off cleaning operations, 2 other ACPs were activated: in Carnac on 13 January and the "Gulf" command post on 3 February. Their management was ensured by marine firefighters and personnel from the Equipment department.

Human resources

The Polmar personnel was deployed upon activation of the plans. 103 men from the UIISC were deployed in Belle-Ile and Ploemeur on 25 December. On 26 December, a company of 95 military personnel was sent to Quiberon. The marine firefighters from the department, some of them deployed since 24 December, had the support from one departmental unit and 3 West units (Centre, Loire-Atlantique, Poitou-Charentes), totalling 310 men deployed in Morbihan on 27 December, added to personnel from the Equipment departments, deployed on all command posts. Aside from human resources deployed by the Polmar plans, the technical personnel from most communities impacted by the oil spill were also contributing, adding up to 140 per day on each command post.

Volunteers were also deployed, since the beginning, and were numerous until mid-January. On 28 December 1999, in partnership with the prefecture, the general Council implemented a management unit for organisation of the volunteers. On 30 December,

more than 1,500 volunteers were spread out on the various command posts, mainly in islands (Belle-Ile and Hoëdic) and on the mainland (from Ploemeur to Quiberon). Belle-Ile still saw more than 150 Volunteers deployed until the end of March.



Volunteers in Belle-Ile ©CEDRE

General cleaning

The actions implemented at the beginning included manual collection, scraping and mechanical collection of the pollutant. This general cleaning was necessary before using finer cleaning equipment (screening machines, high-pressure washers), and also helped avoid remobilisation of the pollutants by the sea.

In parallel, a plan for continuous cleaning was elaborated, January, to operate on hard-to-reach areas and adapt cleaning techniques to the state of the worksites. On 20 January, specialised intervention teams (Grimp) were requested by the prefecture, they were deployed on 2 February for the cleaning of difficult sites in Quiberon.

TotalFinaElf made a commitment to operate on the mainland (in Etel) and on priority areas in islands, as well as on hard-to-reach areas such as caves, cliffs or faults. Although they were low tourist areas, these sites required particular techniques, adapted equipment and the intervention of specialised teams (work on ropes). These worksites would be operational for months.



Intermediary storage site in Caudan ©CEDRE

Saving the tourist season (March – June 2000)

The worksites

A situational analysis carried out on 24 March, following a meeting of the environmental assessment unit, showed that the general cleaning phase was almost over, as only a few sites were still being handled. The main remaining work to carry out at the end of March was regarding islands. In Belle-Ile, a survey of the pollution showed 26 areas still heavily polluted and requiring quick treatment to avoid remobilisation by the sea.

Priority sites

From March, one of the main preoccupations of the department was to save the tourist season. To do so, the actions carried out on site mainly focused on priority sites for the communities: beaches and tourist areas.

Fine cleaning

From mid-January, the cleaning of rocks using high-pressure water, a widespread technique for some command posts (Quiberon, Fort Bloqué and Hoëdic), was generalised.

The screening operations were implemented on beaches starting in March.

Opening of the beaches

On 30 March, the General Health Directorate transmitted to all interested prefectures instructions regarding the sanitary state of beaches.

The prefect was asked to call upon the Departmental Directorate for Health and Social Affairs to assess the state of beaches in the department according to a list of criteria. These instructions changed on 30 May through a communication reducing to two categories the assessment of polluted sites:

- Satisfying sanitary state;
- Unsatisfying sanitary state.

Before summer, all 153 beaches polluted in Morbihan were opened following assessment, the last to being deemed in satisfying sanitary state on 30 June 2000.



Treatment of a submerged slick in Belle-Ile en mer ©CEDRE

Summer operations (July – August 2000)

In some communities, the worksites could not be operated during the tourist season. Some ACPs were interrupted and the Polmar personnel decreased during the summer. The depollution activity was reduced, or even interrupted, in some areas. A military section and a UIISC section were however maintained in Belle-Ile. The marine

firefighters in Morbihan and their support teams were demobilised at the end of June. As part of the seasonal organisation, the creation of a Polmar quick intervention unit (the GIRP) help ensure a continuous monitoring of the coastline. Made of about 15 marine firefighters, the GIRP was tasked with monitoring the arrivals and carry out depollution interventions if needed.

The TotalFinaElf worksites were still active on the isles of Groix, Hoëdic and Belle-Ile, as well as in Saint-Gildas-de-Rhuys.

The Polmar contracted personnel were in charge of ensuring cleanliness on tourist beaches, they also operated on vegetation areas.



Access to coves with ropes in Belle-Ile en Mer ©CEDRE

Autumn of 2000

The demobilisation of Polmar support

After the tourist season, Morbihan, same as other departments, saw a progressive demobilisation of Polmar personnel. The available resources were also largely inferior to what was required by the communities. The UIISC left the department on 8 September and returned to Belle-Ile from the beginning of November to mid-December. On 11 September, military personnel was definitely demobilised. Their departure was compensated with the arrival of a support team of marine firefighters which remained on site until March 2001.

Private contractors

To compensate the progressive demobilisation of Polmar personnel, 186 months of fixed-term contracts were attributed to the communities in October, then 105 in 2001. Aware that this cleaning phase requires more technique, the prefecture turned towards private companies, which were more effective in this kind of situations. A call for tender to specialised companies was sent out regarding Belle-Ile, Quiberon, Houat, and

Ploemeur. The companies selected operated in Belle-Ile starting in February 2001, and on Houat and the mainland from April 2001. In parallel to the worksites funded by the State, TotalFinaElf carried on cleaning in Groix, Hoëdic and Belle-Ile, as well as on the mainland (St-Gildas-de-Rhuys).

Buried oil, new arrivals of pollution, and remobilisations

Following the spring tides and the return of poor weather, the arrivals of oil and remobilisations started once again, recontaminating sites which had previously been cleaned in Ploemeur, Quiberon or Belle-Ile.

At the start of October, These phenomena intensified, in particular in Belle-Ile, which led to assume the presence of unnoticed submerged slicks. Two of these slicks (Apothicaire and Port Blanc/Baluden) were handled by TotalFinaElf and treated from September to December by divers from the Laminaria company. Moreover, the cleaning of beaches in the autumn showed buried pollution under sand or pebbles, making cleaning operations necessary once more in these areas. These new worksites were usually contracted out to private specialised companies, namely in Belle-Ile and Houat.

However, the Grimp firefighting teams kept on operating on multiple complicated sites.

Overview of the response



Erika ©Julien Fortin

Morbihan was largely polluted by the oil from the Erika. The characteristics of the polluted coastline, constituted partly of coves, cliffs, islands, and peninsulas, made the depollution work harder. On 15 May 2001, more than 350 worksites, spread on 49 communities, had been opened since the incident.

Waste management

Waste management was handled and funded by TotalFinaElf, while the Departmental Directorate for the Equipment handled transportation to Donges. The prefecture quickly anticipated the saturation of the site in Donges, opened by TotalFinaElf, where the waste of the four departments was stored. They decided to open an additional site in Caudan. On the islands, intermediary storage sites were created when needed. These sites were then handled by TotalFinaElf. On 4 May 2001, the overall amount of waste collected on the coastline of the department equalled 23,000 tonnes.

Summary for Loire-Atlantique



Mobilisation (December 1999 – March 2000)

The Polmar-Land plan for Loire-Atlantique was activated by the prefect on 24 December.

On 25 December, a survey of the area from Pouliguen to La Baule showed no significant trace of pollution but still alerted to hundreds of oiled birds.

On 26 December, pollution reached the coastline of the department, which ended up being the most impacted out of the four. The pollutant appeared as slicks covering the estuary, rocks, pebbles, as well as projections on cliffs and coastal roads due to the storm hitting at that time. From Castelli's head to Pouliguen, a viscous layer of 5 to 30 cm in thickness covered the coast. Estimates mentioned hundreds of tonnes between Pouliguen and Batz-sur-Mer, each cove containing 2 to 10 tonnes of pollutant. Booms were deployed on land to protect salt marshes. Oysters in farms North of the bay of Bourgneuf were harvested by professionals.

Buoys were set up for the eventual deployment of floating booms. Only the port of Pornichet, the marina of Turballe and the creek in Pouliguen were actually equipped with booms. The autonomous port of Nantes-Saint-Nazaire activated its Minipol plan after pollution was detected near the Loire estuary. Products limiting the sorption of pollutants in the substrate were sprayed but their effectiveness was limited due to winds up to 100 Km/h.

From 26 December, teams from the municipality, civil security and volunteers started cleaning. About 500 people quickly arrived as support.

The following strandings were due to remobilisation more than to new pollutions. Some slicks threatened to enter the Croisic strait, the main creeks of the marshes in Guérande were therefore protected by clay booms or straw filtration booms.



Response on land in Loire-Atlantique ©CEDRE

Organisation

A fixed command post was activated in the prefecture in Nantes following the activation of the Polmar plan. A OCP was installed in the sub-prefecture of Saint-Nazaire and two ACPs were installed in La Baule to handle worksites in the North Loire area and in Pornic for the area located South of the estuary.

Human resources

The personnel operating in depollution worksites rapidly gained power. By the end of December, 600 People were present, by the end of January, they were 950. For the first month, the military personnel, marine firefighters and members of civil security remained between these two values. Added to those were volunteers and community personnel.

General cleaning

The first worksites aimed to collect as much oil as possible to avoid remobilisation. This included manual and mechanical recovery using shovels which required little technical knowledge since the pollutant was easy to access. The rocks were subject to manual scraping when the oil was thick enough.

Due to the high viscosity of the oil, the slicks could be removed using grapples from hard-to-reach areas at high tide, or sometimes towed using inflatable boats towards accessible areas.



First arrivals North of the Loire ©CEDRE



Response on land North of the Loire ©CEDRE

Saving the tourist season (March – June 2000)

Choosing priority sites

During the first weeks, the effort was focused on the area between Pouliguen and Croisic, heavily impacted by the pollution. The amount of small rocky coves was a source of easily remobilisable pollutant for tides and it was necessary to treat these areas first to limit the transfers that could recontaminate cleaned or spared sites.

Fine cleaning

The fine cleaning included screening on beaches, cleaning of hard substrates and vegetation. Operations were also carried out for the treatment of buried slicks. It required major resources.

From March, the sandy beaches were cleaned to be accessible for swimming, as were hard substrates (artificial rip rap, rocks, dykes).

These fine cleaning operations started on the second week of March South of the Loire. Each community was equipped with high-pressure/hot water cleaners, operated by military personnel for the cleaning of hard substrates. Impact hoses were used starting in mid-April. The remaining weeks before summer were dedicated to cleaning ripraps close to beaches, regarding the Polmar worksites.

North of the Loire, the first worksites in the rocky Estuary started in April. Some sand beaches North of the Loire were subject, aside from screening, to movement of sand down the beach to separate smaller balls from the sediment. This was the case in Pornichet, La Baule, La Turballe, Bats-Sur-Mer, where the area to treat was 14 km long.

Evolution of the workforce

The finer cleaning phase ended with a rapid growth in workforce at the beginning of March, with the arrival of fixed-term workers, to support the already constituted teams. The workforce reached a maximum of 1,300 people on 27 April, after that, the number fell slowly until the end of June when most of the teams were demobilised.



Screening test before opening the beaches ©CEDRE

Summer operations (July – August 2000)

Organisation of the Polmar plan

The Polmar plan was lightened during the summer. Most of the activity planned by the ACP consisted in monitoring and ensuring the good state of beaches by communal services, fixed-term operators, and other constituted units. The worksites handled by private companies were also integrated in this monitoring. The constituted units acted as reinforcement for communal services and fixed-term operators when the pollution surpassed their resources during occasional pollution events (remobilisation, polluted goémons, tar patties).

Nature of the worksites and involved personnel

Military personnel worked on the cleaning of ripraps below cliffs and rocky areas. Teams from the civil security carried out fine screening in beaches open to the public to ensure a satisfying cleanliness level, as well as cleaning of ripraps and bottoms of cliffs. The fixed-term operators managed by the communities carried out various missions depending on the type of sites and the range of pollution (monitoring, collection of small amounts of pollutants, cleaning at the bottom of cliffs, high-pressure cleaning). The private companies carried out cleaning of ripraps, cliffs, and vegetation.

Opening of the beaches

On 11 July, these efforts led to the confirmation of a satisfying sanitary state for 65 of the 86 beaches visited by the survey group from the DDASS. On 28 July, 71 beaches were open for swimming and 15 remained in an unsatisfying condition, including 6 in very poor state.

Evolution of the workforce

The tourist season saw a sudden decrease in manpower, going from 930 people to 230 after demobilisation of military personnel and marine firefighter support teams. The tendency reversed during the second half of July (400 people at the end of the month) after the recruitment of 150 fixed-term contract operators. In August, the number varied between 290 and 400 people.



Cleaning of the Turballe ©CEDRE



Cleaning of ripraps in Moutiers ©CEDRE

Operations in autumn

The operations in autumn focused on finer work carried out by private companies or fixed-term contract operators, as well as heavier operations such as treating the submerged oil or heavily contaminated ripraps.

The system after the tourist season

The system was limited to 3300 people in autumn and, starting on 18 September, only made up of fixed-term contract workers (not including privately contracted worksites). At the beginning of October, 184 months of fixed-term contracts were attributed to the communities, including 132 North of the Loire and 52 to the South. 130 more months in the North and 156 months in the South were attributed in November.

A Polmar equipment lending system was created for the communities. Each community filled out a "technical support request" (nature of the work and equipment required). The site was then surveyed by ACP, DIREN and CEDRE officials. The equipment was lent and the worksites were managed by ACP site managers.

TotalFinaElf was mobilised on some sites, in particular where the pollution was heavier or where access was limited, from the coast of Pouliguen to Batz-sur-Mer. The State published calls for tender for pollution response companies to operate in the most polluted areas where the necessary techniques were above the qualification level of contracted operators. Five companies operated North of the Loire and four South of the Loire.

Depollution of ripraps

In Autumn, three riprap areas were still heavily polluted, the decision was therefore taken to deconstruct them as it was impossible to remove the oil on site. The concerned the sites of:

- Sissable (deconstruction, cleaning on site, reconstruction);
- Pornichet;
- Pen Bron (deconstruction, reconstruction using 70,000 tonnes of new material). Small polluted blocks were sent to Donges. Larger, less polluted, blocks were sent to quarries for destruction.

Overview of the response

Coastline polluted

As 70 % of its coastline was polluted, the Loire-Atlantique department was by far the most impacted one. Within the department, the situation was not homogeneous as the North was more impacted than the South. More precisely speaking, the area from Pouliguen to Croisic was 5 to 10 times more polluted than the rest of the coastline in terms of quantities (estimate from a helicopter survey on 28 December 1999).

Salt marshes

The convergence of oil slicks towards Loire-Atlantique required protection actions for the salt marshes of Guérande and Mès. The intrusion of oil in these marshes would have had heavy economic, ecological and sanitary consequences. Which is why the salt workers, in relation to the Polmar plan, closed the floodgates and created dams with soil and straw filtering booms to stop the pollutant, starting on 26 December. On 3 March, a prefectorial decree forbade the collection of water from salt marshes in Loire-Atlantique until 31 March. This ban was then extended for 15 additional days. The decision was taken after samples were analysed by the DDASS and after noting that the buried slick under the beach in Pen Bron was a source of remobilisation towards the straits.

On 28 May, the salt workers and the deputy prefect for Saint-Nazaire signed an agreement of on-production of salt for 2000, as they would rather sacrifice a year than have doubts about the quality of a high-end food product. It was however necessary to keep the salt marshes submerged so they would not deteriorate. Which led to a decree, on 21 May, authorising the watering of salt marshes, provided that the filtration systems respected certain conditions (namely a concentration in polycyclic aromatic oils below 200 ng/l).

Waste collected

On 4 May 2001, 144,000 tonnes of waste were collected on the coastline of the department.

Site of Pen Bron

The treatment of the slick buried in Pen Bron was a large-scale operation in two steps:

Land operations

The land in the area was successively treated by a hundred of salt workers and military personnel, during the third week of April, then by 330 military personnel, on 3 and 4 May, according to the following plan:

- scraping of the sand;
- manual and/or mechanical collection of the pollutant;
- screening of the removed sand;
- evacuation.

more than 8,000 m² were treated that way.



Evacuation of the pollutant ©CEDRE



Manual collection of the pollutant ©CEDRE

Submerged part

The submerged part was made of two areas and cleaned between March and April 2001. The main area, 1,000 m² heavily polluted, was treated using an industrial shovel installed on a barge and equipped with a screening bucket during the first week of March. The high tides of 9 March had put a deadline on the operations to allow the salt workers to fill the marshes through filtration systems.

The peripheral area (2.5 ha) was dredged from 14 March to 16 April. The polluted sediment and water mixture was evacuated in a trench of 5 000 m³. The oil was collected on the surface and evacuated towards the heavy storage area Arceau 2. The sediment was replaced on the beach of Turballe for natural cleaning, after the

implementation of recovery nets, if its oil concentration did not exceed 1,000 ppm. The water was filtered on site and rejected in the sea.



Separation trenches for the collected waste ©CEDRE



Collection of the submerged slick ©CEDRE

Summary for Vendée

Mobilisation (December 1999 – January 2000)

On 17 December, a meeting of the involved services (DDAM, DDAF, DDE, DRIRE, DDASS), initiated by the deputy-prefect of Les Sables d'Olonne, provided a general understanding of the risks for pollution and an organisation of the resources and how to implement them. On 19 December, the buoy boat from the Departmental directorate for the Equipment positioned two buoys in front of the port in Les Sables d'Olonne to install a floating boom. The ports of Saint-Gilles-Croix-de-Vie, Bourgenay and le Payré were equipped the following day. The protection of the Briton Perthuis was organised by trawling boats from Saint-Gilles-Croix-de-Vie. On 22 December, the buoy boat Charles Babin positioned the mooring buoys and delivered the booms in Port Joinville to protect it and the port of La Meule.

Due to the imminent risk for pollution, the Polmar-Land plan was activated by the prefect for Vendée on 22 December at midday. On the same day, the first traces of oil were noted on Ile d'Yeu in the form of tar patties from 2 to 5 cm in diameter. Samples were taken and analysed by LASEM (the Analysis, monitoring and expertise laboratory for the French Navy). As the analyses were carried out to determine if the oil came from the Erika, the predictions for the potentially polluted areas were still uncertain. The risk of seeing the coastline polluted was greater as the models showed that the department would be heavily impacted.

On 25 December, four floating booms were deployed in front of the ports of l'Herbaudière in Noirmoutier and the Brochets, Champs and Bec at the end of the bay in

Bourgneuf.

From 27 December, the amounts of oil reaching the coast were more important, namely regarding the isle of Noirmoutier and the mainland area of the bay of Bourgneuf (hundreds of tonnes). The pollution seemed to spread to the South of the department, as at the beginning of January, tar balls and slicks were noted in the areas of Jard-sur-Mer and la Tranche-sur-Mer.

Organisation

On the same day as the activation of the Polmar-Land plan, the fixed command post was activated in La Roche-sur-Yon, as well as a OCP in Les Sables d'Olonne, which gathered all services under the command of the deputy prefect starting on 23 December. On 5 January, the PC was deactivated and went to reinforce the OCP. The first three ACPs were activated in Ile d'Yeu, Beauvoir-sur-Mer and Saint-Jean-de-Monts on 23 December. Indeed, Ile d'Yeu and the northern part of the department were the most at risk and would be the most impacted by pollution. A fourth ACP was activated in Jard-sur-Mer on 24 December, and a fifth in la Tranche-sur-Mer on 29 December. These two merged on 14 January.

The system was complete on 29 December. At that time, there were 35 ACPs, including 22 in the area of Beauvoir-sur-Mer.

Material resources

Floating booms were deployed in sensitive areas (ports, creeks, oyster parks) to avoid damage caused by the oil. On 5 January, 4,500 m were deployed or ready to be deployed (positioning of mooring buoys) on the coastline. To recover oil slicks on booms, three Egmond barges were sent to the ports of Herbaudière, Saint-Gilles-Croix-de-Vie and Les Sables d'Olonne. On 31 December and 3 January, dredging operations at sea, using Seynip nets from the French Navy, helped collect 8 tonnes of pollutant. The dams of most ports in the North were covered with a protective product in January. This product reduced the adherence of the oil on the substrate and eased the cleaning operations. On the coastline, heavy machinery such as shovels, tractors, and dumpers, were deployed. They helped face major pollution in some areas. The first screening tests were carried out on 3 January and were satisfying. Artificial dams and rocks were mainly cleaned manually.



Manual screening of Luzeronde beach in Noirmoutier-en-Île
©CEDRE

Saving the tourist season (February – June 2000)

Evolution of the worksites

Numerous worksites were quickly set up to respond to the major pollution impacting the coastline. In parallel, as part of the Polmar plan, operations were carried out for depollution by private companies. The company CDES operated on the riprap in Guérinière starting in March. The companies Foselev/SIS and DJET started working in the second week of March on the island of Noirmoutier and in Les Sables d'Olonne/ Le Château d'Olonne. TotalFinaElf funded the final cleaning operations for the area of Sion (carried out by DJET), the isle of Pilier (carried out by LeFloch Dépollution and Bataille) and the dam of La Parisienne. It also provided screening and small screening machines, Norclean vacuums and pressure washers.

Choosing priority sites

As the tourist season approached, the question of priorities arose. Worksites on dams were interrupted in mid-May to redirect efforts towards beaches which would be subject to sanitary control by DDASS. The first areas which benefited from these actions were in Noirmoutiers and La Barre-des-Monts. A team of marine firefighters was also deployed on the rocky areas of Brétignolles-sur-Mer et Saint-Gilles-Croix-de-Vie.

The results from visits by the DDASS, carried out from 6 to 15 June, gave the OK for 110 beaches out of 113 regarding swimming. The three remaining beaches represented 1 km of coastline out of the 120 km of the department and were located in Ile d'Yeu and Noirmoutier (clean sand by high level of pollution on ripraps).

Fine cleaning

There was no fine cleaning phase per se after the general cleaning phase in Vendée. Indeed, fine cleaning had started in some areas as general cleaning was still being carried out in others. On beaches, mainly in Noirmoutier and Pays de Monts, screening machines started being used, from February, to treat residual pollution, small arrivals of oil and buried pollution. 15 screening machines and 24 small screening machines were deployed. The communities of Saint-Hilaire-de-Riez, l'Epine, la Guérinière, La Faute-sur-Mer and la Tranche-sur-Mer benefited from three screening machines provided by the communities of Fouras, Canet-Plage and Hendaye. This loan was part of a search for screening machines owned by communities not impacted by the oil spill, carried out by the defense prefecture for the West.

Directed by the national office for forests, the bases of dunes were manually screened using masonry sieves, to avoid major perturbation of the environment. By mid-March, a major cleaning phase started on the beach of Luzeronde (community of Noirmoutier).



Oil buried under clean sand ©CEDRE

Summer operations (July – August 2000)

Reduction of the workforce

The tourist season was marked by a reduction of workforce at the beginning of July. There were only an average of four marine firefighters and, 56 fixed-term contract operators and a company of military personnel remaining on worksites of the bay of Bourgneuf. They operated using high pressure washers and “impact” jets.

Evolution of the number of worksites

The number of worksites were also reduced. In areas managed by ACPs of Beauvoir-sur-Mer and Ile d'Yeu, a couple of fixed-term operators went on beaches each day to keep going with the finer cleaning of beaches. Most of the tourist activity was therefore concentrated in the bay of Bourgneuf. Private worksites were also activated during this period. The company ENCI started working in July on dams of the bay of Bourgneuf, while the company Foselev/SIS kept working on the community of Épine. The company DJET finished cleaning the creek of Sion on 13 July.



Autumn operations

In autumn, the work focused on:

- buried pollution which might resurface after storms;
- depolluting of dams in the bay of Bourgneuf;
- protecting the water inlets in oyster farms.

The fate of some spartina fields in the bay of Bourgneuf was also a priority as they were a risk for notable remobilisations of pollutant. Regarding manpower, no military support was organised after 12 September to replace the company of the 12th RA, which had operated on numerous worksites of the bay of Bourgneuf and destroyed the dams which were too polluted and rendered unusable.

Treating the buried pollution

A monitoring of the state of beaches was carried out by various stakeholders: CDD Polmar, ONF, CEDRE, DIREN, DDASS in the bay of Bourgneuf. If pollution was detected, a worksite was deployed. This was the case in Noirmoutier-en-l'Île and la Guérinière, where major erosion revealed pollution during the second week of October; this was handled by the fixed-term workers from the Polmar plans.

Depollution of dams and ripraps

Faced with the impossibility of reaching a satisfying cleanliness level, a programme was launched for the refection of dams in la Coutant, la Coupelasse, la Coussière, Paracaud (community of Bouin), Rouches (community of Beauvoir-sur-mer), as well as multiple ripraps of the Island of Noirmoutier. The deconstructed blocks were sent to the quarry of Saint-Paul-Mont-Penit or Arceau depending on their size and level of pollution. In parallel, the bases of dams were manually cleaned by fixed-term workers or by the company Piveteau, contracted by TotalFinaElf.

Water inlets

Water inlets for oyster parks in the area of Coupelasse were elongated for 25 metres to remove them from an area where remobilisation of oil was frequent due to worksites and tides. This work was completed during the second week of October. Filters, designed by CEDRE, were installed in canals of the oyster farms to avoid the intrusion of oil which might contaminate the products.

Lightening of the POLMAR plan

From 2 October, the Polmar plan was lightened with the interruption of heavy work (not including dam refection work) but still kept a high level of monitoring. The ACPs were transferred towards permanent structures.

The monitoring committee:

The environmental assessment unit implemented a monitoring committee at the end of October, tasked with the organisation of monitoring on the coastline during the winter. Coordinated by CEDRE, it aimed to precisely map the state of pollution in the bay of Bourgneuf to identify priority cleaning areas and assess the situation regarding the level of oil in sediments and the degree of contamination of shells, which were monitored by Ifremer.

Overview of the response

Coastline polluted

Almost all of the coastline was impacted by the oil slick. However, the situation was widely different depending on the areas. The bay of Bourgneuf and the Island of Noirmoutiers were the worst off. The consequences were even more important as part of the coastline was made of dams and artificial ripraps which had a tendency to trap the oil.

Waste collected

On 4 May 2001, the overall amount of waste collected equalled 43,000 tonnes.

Volunteers

The Erika volunteers attracted considerable media attention and were sometimes presented as the saviours of a situation that the marine pollution response mechanism was unable to control. On the other hand, they are far less visible in the archives: their numbers, their motivations, their presence on the coast, the work they did and the problems they encountered remain poorly documented to this day. CEDRE was keen to find out more, in order to better advise those in charge of organising and supervising volunteers in the event of a future oil spill. We therefore sought out information on the associations' websites, however very little detail is given of the volunteers' work, and very few volunteers recounted what they had done and experienced.

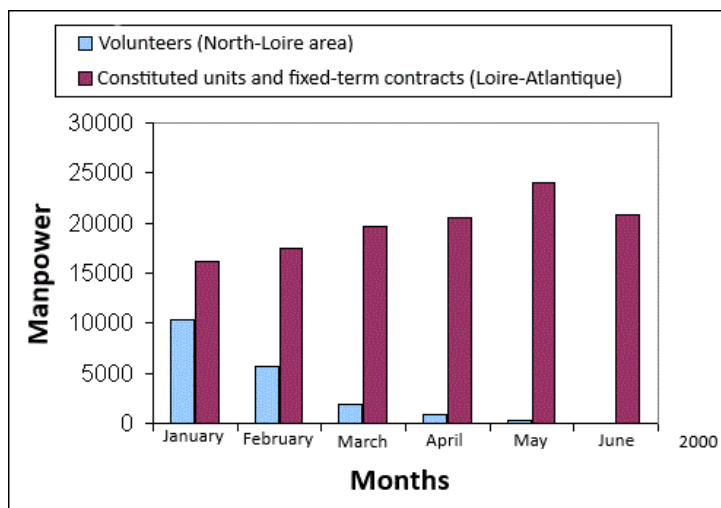
Faced with this lack of information, in June and July 2002, one of CEDRE's interns who was a surfer and himself a former Erika volunteer, to find out about the work carried out by volunteers during clean-up operations. an online survey, targeting the surfing community, an analysis of daily reports by the onsite command posts, a press review and interviews with leaders of volunteer groups identified through this press review.

The survey

The survey was conducted in collaboration with Surfrider Foundation Europe. A short questionnaire for former Erika volunteers was posted at the end of June on the Cedre and Surfrider Foundation websites. The questions concerned the conditions in which the volunteers had worked, whether they would repeat the experience, and whether they would be interested in training for the next time. The survey was online for three months. Perhaps because the survey was conducted during the summer, and no doubt because the Erika spill was no longer making the headlines, the number of responses was surprisingly low: only 10 surveys were completed and returned to CEDRE. It was therefore not possible to analyse the results in a meaningful way, other than noting the very strong motivation of the respondents.

Daily records

Analysis of the daily records of equipment and human resources drawn up by the onsite command posts, as well as worksite log sheets in some cases, was limited to the northern Loire area in Loire-Atlantique, for the period from January to June 2000. The number of volunteers for each worksite and for each municipality was counted for each day. This count showed that the numbers and records needed to be handled with caution, as the volunteers had not always been recorded, especially at weekends. The evolution of the number of volunteers in the area covered by the northern Loire onsite command post, from January to June 2000, was plotted and compared to the evolution of the professional personnel for the whole of the Loire-Atlantique area, for the same period.



Number of volunteers and professional operators between June and January ©CEDRE

While the number of volunteers decreased steadily between January and June 2000 (northern Loire area), the number of professional operators increased throughout this period (except in June) across the whole of the Loire-Atlantique area.

The graph shows a very strong volunteer presence for the first two months of operations (10,388 volunteer days in January, 5,662 volunteer days in February). The number of volunteers then dropped sharply. Several factors appear to have contributed to this decrease:

- the discouragement volunteers may have felt faced with the scale of the clean-up work
- controversies over the toxicity of fuel oil
- the increasing number of professional operators.

Unlike the Nakhodka oil spill in Japan, where large numbers of volunteers came to help at weekends, most volunteers here came for the week. As in Japan, the majority came from beyond the immediate vicinity of the affected coastline.

Interviews

Interviews were conducted with volunteers in the municipalities of La Turballe, Le Pouliguen and Le Croisic. The people we met told us how they had felt during the disaster and their involvement in beach clean-up. These testimonials provided additional insight to the conclusions drawn simply from the analysis of the daily record sheets.



Volunteers in Belle-Ile ©CEDRE



Volunteers in Batz-Sur-Mer ©CEDRE

Waste management

As in the case of any major spill, the storage, transport and disposal of waste (oiled seaweed, sand, pebbles, debris) quickly became a serious issue.

Many storage areas were set up at the top of the beach as soon as operations began. Twenty or so intermediate storage sites were then created to pool the waste from a given area.

TotalFina quickly announced that they would take charge of this aspect of the response. The 1,200 tonnes of emulsified oil recovered at sea were taken to the Elf refinery in Donges for processing. This refinery then became the first final storage site for the collected waste. A 55,000-tonne capacity was created.

For the South Loire, an 18,000-tonne storage site was set up in Frossay. Thereafter, two additional final storage facilities were created outside Donges refinery: Arceau 1, with a total capacity of 70,000 tonnes then Arceau 2, with a capacity of 57,000 tonnes.

In January, more than 100 truck rotations per day transferred waste between temporary storage sites and final storage facilities. In February/March, around 50 truck rotations took place each day. By the end of July 2000, the intermediate storage sites were all empty and more than 50,000 tonnes of waste were sent to Arceau 2.

In total, around 200,000 tonnes of waste were collected.

Specifications for the processing of this waste were drawn up by TotalFina with help from a committee of experts. The firm Brézillon, selected from among 11 candidates, was allocated 2 years to process all the waste.



Evacuating waste from a cove at the foot of a cliff (inaccessible to heavy machinery): the buckets were emptied into a skip which was then crane-lifted. ©CEDRE

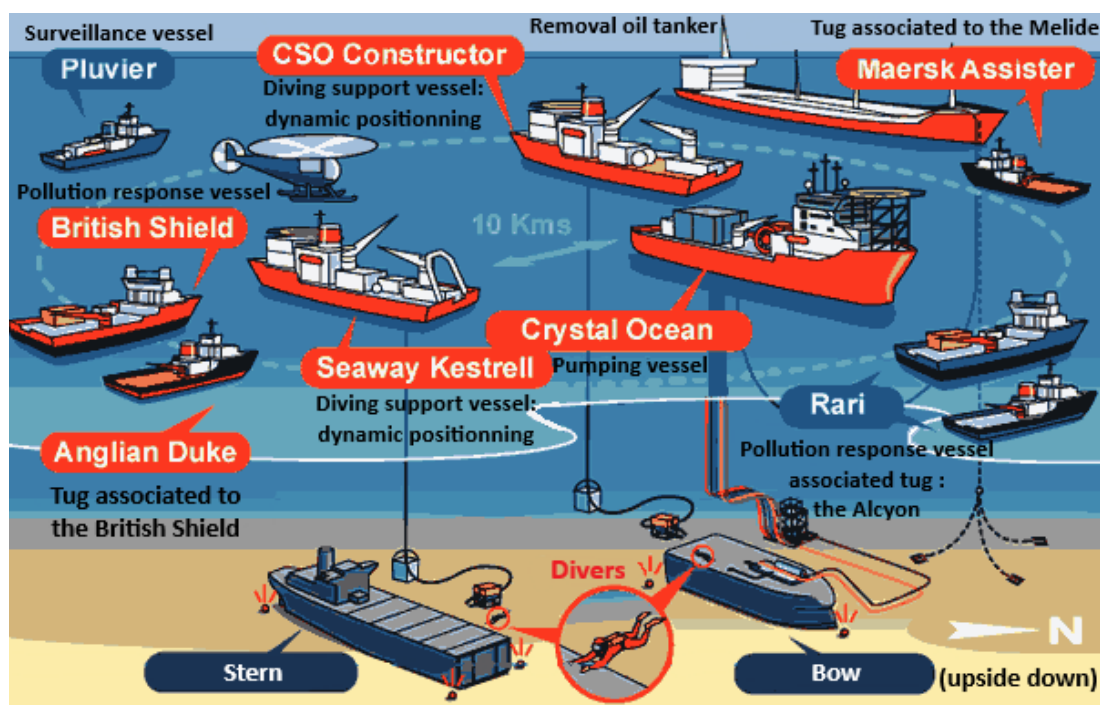
State of the wrecks

The sea floor where the wrecks rested, thirty miles south of Penmarc'h and about fifty miles west of Belle-Ile, was a wide muddy sand area. On site, the tide currents were moderate and did not surpass 0.8 knots. The bow rested 144 metres deep and the stern 128 metres deep. In January, the temperature, which was a determining factor of the state of oil, was measured at 9°C near the sea floor. In these waters, temperature did not exceed 12°C in summer. The bow rested entirely upside down and flat on the floor. Its general external state was relatively good. The deformations seemed superficial, aside from the breach. The stern rested on its keel. Numerous pieces of debris of equipment ripped from the oil tanker during the wreck were spread out in the area. The external structure of the stern and deck remained generally intact, aside from the breach. The after section seemed in good enough state and rose 30 metres above the sea floor. A first research mission for the wrecks was operated by the minehunter Pégase from the French Navy shortly after the incident.

The exact position of both parts were precisely noted. A PAP (remote operated robot equipped with a camera) brought back the first imaging of the bow of the wreck. The poor visibility and the size of the wreck compared to the capacities of the robots made the analysis of these images very delicate. Another vessel, the supply Abeille-Supporter, could operate its exploration ROV Abyssub in the evening of 31 December on the stern of the wreck. A first mission was carried out on 1 and 2 January 2000 for the official identification of the wreck, as well as to determine its exact position. A fine investigation of the wreck was then carried out by the Marianos, a research vessel chartered by TotalFina, which provided precise information to establish the neutralisation techniques for the oil remaining in the wreck.

Pumping of the fuel from the wrecks

TotalFina undertook, for the French State, to neutralise the risk that the oil contained within the wrecks represented. An inventory of the main techniques for the neutralisation of the oils (bunker and cargo) was carried out. The analysis of various methods showed that pumping of the bunker and cargo was the most advantageous one, in particular regarding safety and environmental conservation.



Positioning of the vessels around the wrecks ©TOTAL

As the general pumping method was chosen, various implementation techniques were suggested by underwater response companies. The technique chosen by TotalFina was validated by the piloting committee and the experts from the State. It consisted in extracting the oil by means of a difference in hydrostatic pressure between the wreck and an intermediary tank positioned on the sea floor and maintained at a controlled relative depression. Directly after being extracted from the wreck and before it reached the intermediary tank, the oil was fluidified, to make transport easier, by mixing it with a diluent (Colza methyl ester) which was harmless for the environment. Once it reached the tank, the mixture was continuously sent to the surface using infinite screw mechanisms. A fine cleaning phase of the wreck, which aimed to eliminate as much residual oil as possible after pumping, was planned using diluent.

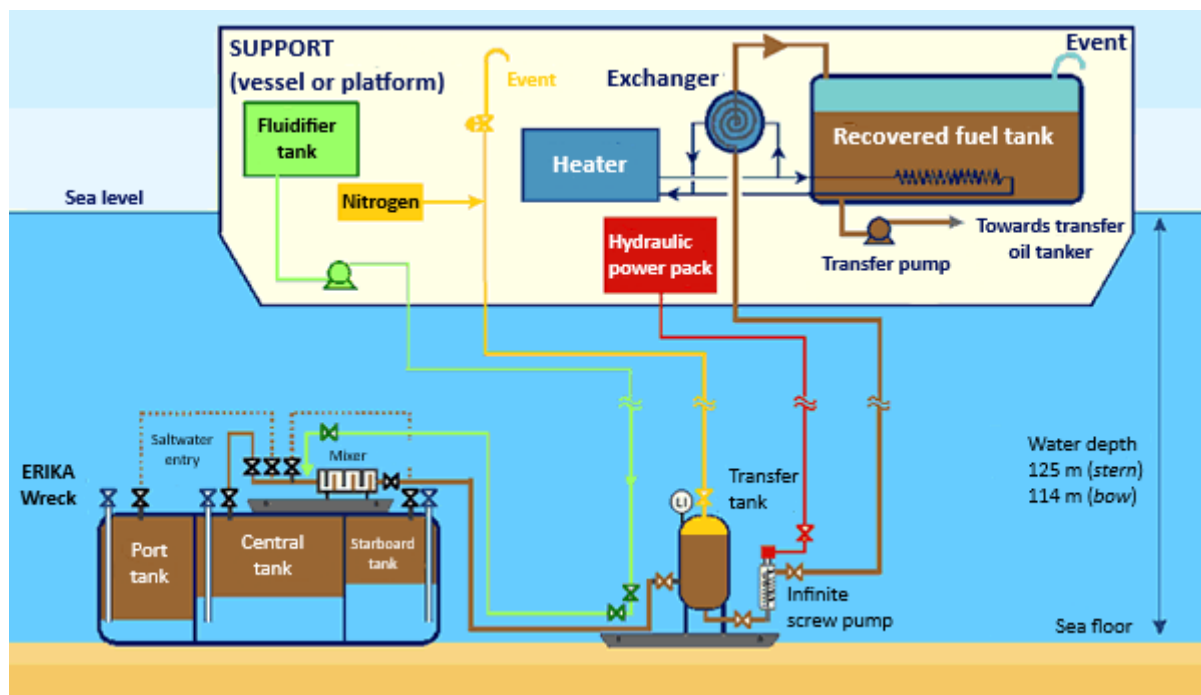


Illustration of the pumping system ©TOTAL

Various underwater response companies offered to work with TotalFina. After study, the company chosen to lead the operations was the French-Norwegian Coflexip/Stena Offshore/Stolt Offshore consortium. The preparation of both wrecks, separated by 10 km, started in mid-May with an assessment phase and the implementation of the worksite by the company. The hull was drilled and linking modules for the pumping system were installed at the beginning of June. They were installed using ROVs and divers operating in hard-to-reach areas. This phase started with the bow and ended with the stern, which was more complex to treat due to the amount of equipment on the deck. More than 10,000 tonnes of heavy fuel oil were collected during the main pumping operations, and 1,200 tonnes during fine cleaning.

Intervention from the European Commission

By Guido Ferraro, Civil Protection Unit – European Community

Since the implementation in the 1980s of the European Union actions regarding response on accidental pollution, particular measures were taken to support member States in improving their response capacity, individually or through mutual support, during incidents presenting a risk for the marine environment.

The community action, which until then benefited from the advice of a consultation committee, developed in three directions: training programmes, a community information system, and support for new actions and plans. These initiatives were mostly organised by the Civil Protection Unit of the General Directorate for the Environment from the European Commission.

During the Erika incident, the support provided by the European Commission and, through it, by other member States, proved essential in limiting and fighting the effects of pollution on the French coastline.

The fundamental task consisted in coordinating support from other countries to France. In fact, the incident of the Erika proved, once more, that even a country such as France, at the forefront of studies on pollution response techniques and equipped with great organisation, wasn't able to respond by themselves to such pollution. The community action helped ease the relations between member States, allowing France to send 11 response vessels at sea, gain access to 26 kilometres of floating booms and specific equipment to clean birds. During the first cleaning phase at sea, the provision by the Commission of a German liaison agent for French authorities was particularly useful.

Moreover, France benefited from support from three technical experts, (Italian, Swedish, Norwegian) sent to CEDRE by the European Commission to help go through and answer the hundreds of demands for equipment, products, and services which were sent during the first months of response.



The European Community also organised, in mid-January 2000, the visit of about 15 European observers (Norwegian, German, Dutch, Swedish, Italian, as well as a delegate from the Civil Protection Unit) so other member states could benefit from the experience acquired by France. During this visit, observers could meet with French authorities in charge of response at sea and on land, as well as go on site to visit multiple cleaning worksites in Loire-Atlantique and the waste storage site of Donges. This was an occasion to witness the scale of the pollution and the response resources needed.

Finally, during the whole operations, the Civil Protection Unit ensured regular information for other member States by publishing information sheets in English. It was indeed clear that the responsibility on information-sharing remained the sole responsibility of the French authorities, the European Commission guaranteed perfect transfer of information between France and other State. This helped lighten the workload of the French authorities which had to face high pressure from the media.

Sycopol and pollution from the Erika: an eventful year 2000



Le FLoc'h depollution worksite – La Bernerie (Loire-Atlantique) ©CEDRE

Members of the national Syndicate for equipment builders and service providers for pollution response on water (Sycopol) were heavily involved in response operations following the Erika incident. From mid-December 1999, the company Le Floc'h Dépollution was involved in recovery operations conducted at sea by the French Navy.



Bataille worksite – Pilier island (Vendée) ©CHANU

On the morning of 25 December 1999, by request from and funded by TotalFinaElf, the 4 response companies, Bataille, Djet, Le Floc'h Dépollution and Foselev/SIS, were mobilised on the coastline of Vendée to spray products provided by Ceca and REP. The effectiveness of this type of product was proven, but it still required trapping and immediate recovery of the oil.

It was however only in January 2000, with the beginning of the first heavy cleaning worksites managed by TotalFinaElf, that the level of involvement of Sycopol became clear. Their involvement only grew throughout the year, under the authority of the prefectures for Loire-Atlantique, Morbihan, Vendée and for TotalFinaElf, to reach its all-time high in mid-September. From then, Sycopol employed more than 450 operators on

the coastlines. Whether looking at the type of work to be done (cleaning of rocks and ripraps), or the accessibility of sites (islands, cliffs, creeks), almost all of the operations trusted to Sycopol operators were on complicated and very complicated worksites.

Sycopol proved, during this catastrophe, its reaction capacity and response ability. It also showed that, when exploited, the abilities of French companies in the area of oil spill response were at the highest level globally.



Djet worksite in Moutiers-en-Retz ©CEDRE

The amount of worksites handled by Sycopol is too high to cite them all but, as example, a non-comprehensive list of the communities where it operated is detailed below:

- **BATAILLE**

Saint-Brévin les Pins – Mindin – Pornichet – Le Pouliguen (44) – Ile du Pilier (85)

- **DJET**

Les sables d'Olonne – Château d'Olonne – La Chaume – Saint-Hilaire-de-Riez – Noirmoutier – Bouin (85) – La Bernerie-en-Retz – Port de Pornic – Préfailles – Saint Michel Chef-Chef – Pornic – Saint-Nazaire (44)

- **FOSELEV/SIS**

Ile de Noirmoutier – Pornichet – Batz-sur-Mer – Piriac-sur-Mer – Mesquer – Les Moutiers-en-Retz – Préfailles – Le Croisic – La Plaine sur Mer (44) – Belle Ile en Mer (56)

- **LE FLOC'H DEPOLLUTION**

Moelan – Clohars – Saint-Nicolas – Ile aux Moutons (29) – Belle Ile en Mer – Etel – Ile de Groix – Saint Gildas de Rhuys – Ile d'Hoëdic (56) – Port de la Turballe – Batz sur Mer – Le Pouliguen – Ile Dumet – Préfailles – Ile du Pilier et de Noirmoutier (85)



High-pressure cleaning of cliffs at the FOSELEV/SIS worksite (Loire-Atlantique) ©CEDRE

CEDRE actions

Upon alert, on 12 December, CEDRE was mobilised. Its response centre was quickly activated and the convention with Météo France was activated for the use of its drift model.

Multiple technical advisors were then made available to the maritime prefect at the Polmar-Sea command post, then in every land post upon activation of departmental plans. CEDRE's response centre was tasked with assisting the advisors present in the various Polmar command posts, act as interface between the Navy and Météo France, as well as to write the daily reports for the authorities.

In the Night of 12 to 13 December, TotalFina delivered 200 L of n°2 fuel from the Erika to CEDRE, from the refinery in Flanders. The Polludrome® was set up to test the behaviour and evolution of the product. Precise data on similar incidents and response resources used were provided by the documentary centre.

Data sharing and support research were carried out with foreign partners and the European Union. Technical discussions were also carried out with experts from the IOPC Funds.



Activation of the ACP in La Baule ©CEDRE

Regarding land support, 8 to 12 agents from CEDRE were mobilised permanently in the command posts and on site. Technical reports were written daily by CEDRE's response centre. To answer the multitude of questions sent from all sides, a special directory on CEDRE's website was rapidly deemed necessary to face increasing daily requests. The experiments, tests and product and equipment qualifications in CEDRE's infrastructure and on site multiplied.

But three unavoidable issues also arose in this kind of situation:

- Requests for information from authorities required fast, frequent, and more personalised answers;
- the presence of the media, more than 50 journalists per day. Who other than CEDRE could provide answers to the technical questions?
- finally, the overflow of inventors, providers and companies (more than 600) all requiring prioritised and personalised treatment. To do so, CEDRE asked the IFP, Ifremer, and European Union for help.

Preliminary analysis highlighted two elements:

- CEDRE was not at the right geographical scale for this pollution. Its manpower could not take on the mission in so many Polmar command posts simultaneously;
- CEDRE was not at the right media scale for this pollution. The work carried out for 20 years and the response ability in an emergency situation were not at the level expected by the public.

This was not a surprise. During the conference "20 years after the Amoco-Cadiz", which took place in Brest in October 1998, CEDRE's director declared: "We know that the risk is ever present and that we do not have a perfect solution for everything. Whatever we do to prevent incidents, to prepare, to organise the response operations, some observers cannot understand that we are not capable of everything, others will criticise and try to explain what should have been done after the facts".

Despite these difficulties, CEDRE assured its mission, which was noted in the report of the commission of the National Assembly as follows: "The investigation commission would like to pay tribute to the quality of the work done by this small association, despite its limited resources" (p. 335 - Après l'Erika, l'urgence - Tome 1 - rapport - Collection of information documents of the National Assembly).

Effects of the pollution

Economic repercussions

The economic repercussions of an oil spill can be calculated:

- On one side the funds invested: response costs at sea and on land (including bird saving), waste treatment, restoration if impacted sites and populations, treatment of the wreck;

- On the other side, the damages: economic damages suffered by the productive and commercial activities linked to the good state of the marine environment.

In this particular case, the costs, as announced by the paying entities, were of about 350 million Euros, including:

- 180 million Euros spent by the State for response operations at sea and on land;
- 140 million Euros spent by Total for the cleaning of hard-to-reach areas, waste treatment, wreck treatment;
- 30 Million Euros spent by local communities for the cleaning and restoration of the coastline.

These amounts correspond to actual spending, although those were not all correctly documented or reasonable according to the IOPC Funds. The State and Total accepted to only file compensation claims if there were remaining funds after the compensation of private claims. There was therefore no counter-estimate from the IOPC Funds for this category.

It was also noted that the first instance tribunal fully accepted, in its decision of January 2008, the 154 million Euro compensation claim of the French Government which had been filed. This sum was paid in full by Total in May 2008.

More than 7,000 fishermen, fish farmers, processors, sellers, restaurant owners, tourism professionals and other economic stakeholders filed compensation claims to the IOPC Funds and tribunals for a total amount of around 340 million Euros. To this day, no counter-assessment from the IOPC Funds is available.

Ecological repercussions

The ministry for the Environment financed during the second quarter of 2000, using resources from the Polmar plan, a scientific programme called "Suivi Erika". Launched multiple months after the pollution, without economic quantification formula for the observed ecological damage "Suivi Erika" was limited to qualitative information, which did not permit to calculate a global amount for the ecological impact. Multiple local communities did however calculate estimates for the areas and populations they managed, which they presented during the first instance ruling. The judge gave one of them compensation for environmental damage, which was a first for an oil slick in France, but only for a symbolic amount (less than 2 million Euros) and these amounts were attributed as compensation for preliminary expenses in favour of environmental protection which had been rendered useless by pollution.

As for most European countries, France had no tradition, legislations, or precedents regarding monetary valuation for ecological damage.

To discover more on the scientific programme "Suivi Erika": the Ministry of Regional Planning and the Environment was tasked with creating a programme for the "monitoring of ecological and ecotoxicological consequences of the oil spill", which would be co-animated by INERIS and Ifremer.

Societal impacts

The oil spill of the Erika was a shock for the general public and French politicians, which did not show interest in the successive pollutions of the [Aegean Sea](#) (1992 – Galicia), the [Braer](#) (1993 – Shetland) and the [Sea Empress](#) (1996 – Wales). The geographical dimensions of the pollution led Europe to feel involved and the wreck of the Prestige off the coast of Galicia in 2002 reinforced the awareness-raising in Europe. Measures (the Erika I, II, and III “packages”) followed with, among the most important ones, speeding up the phasing out of single-hull oil tankers in European waters, creating the European Maritime Safety Agency, and the creation of a complementary funds to the IOPC Funds, after the exertion of strong pressure by the International Maritime Organisation, enabling the maximum compensation for an incident to be raised to a billion Euros.

Trial of the Erika

The trial of the Erika started on 12 February 2007. A number of stakeholders were on trial, including:

- the shipowner, Giuseppe SAVARESE;
- the operations manager, Antonio POLLARA;
- the captain, Karun Sunder MATHUR;
- The classification organisation RINA;
- the charterer;
- The company TOTAL SA

For the following reasons “endangering others and causing water pollution”.

The French State, the regions of Brittany, Pays-de-la-Loire and Poitou-Charentes, as well as a number of departments, communities, associations and individuals constituted the prosecution. CEDRE was not a stakeholder in the trial of the Erika. It presented its costs for response to the IOPC Funds, which accepted about 80 %, following the decisions of its executive committee.

Criminal aspect

On 16 January 2008, the Tribunal de Grande Instance in Paris gave its verdict. G. SAVARESE and A. POLLARA, the classification organisation RINA and the company TOTAL SA were found guilty of “polluting French waters or navigation areas along the Atlantic front following an incident at sea, on 12 December 1999, in the EEZ or Environmental protected zone, by a foreign tanker-ship with a gross tonnage above 150 tonnes”. G. SAVARESE and A. POLLARA were individually condemned to a fine of 75,000 Euros. TOTAL SA and RINA were condemned to a fine of 375,000 Euros.

Civil aspect

G. SAVARESE and A. POLLARA as well as the companies RINA and TOTAL were condemned to a collective fine of 193 million Euros in damages for the impacted stakeholders, including 153 million for the State. A first step towards the acknowledgement of the ecological prejudice was taken when the tribunal acknowledged and compensated the “prejudice resulting from ecological damage” for the department of Morbihan and Birdlife France for a total amount of 1.3 million Euros.

The communities, regions and other associations were set aside with the reasoning that they did not dispose of “sufficient environmental capacities”.

Towards the cancellation of judicial proceedings?

In April 2012, a return to zero with the cancellation of all judicial proceedings was feared.

During the incident, the Erika was located within an Exclusive Economic Zone (EEZ). According to a detailed reasoning, the general attorney proved that the MARPOL international convention, and not the French law, should have been applied in this instance. This convention, ratified by France, noted that in events of maritime incidents in an EEZ, only the flag State was competent to judge the appropriate course of action. The trial of the Erika should have been held in Malta.

The court of cassation was assembled on 24 May. Exceptionally, it was held with ten judges, as opposed to three usually. The court of cassation was not forced to follow the decision of the general court. The impact of pollution on French territory rendered, according to lower courts, the French judges competent to handle the Erika file. The verdict was expected for 25 September. The compensation given to claiming parties were definitive and the decision of the court of cassation did not modify it. However, the compensation for ecological prejudice was highly threatened. The Erika trial was at the centre of major evolution: the compensation of environmental prejudices. Until then, only moral, material and economical prejudices were used as bases for compensation.

Commentary and effect of the trial

- Vigipol: mixed syndicate with the mission of protecting the North coast of Brittany against pollution risks linked to maritime transport and to defend the interests of local populations.
- LP0: Erika report including court records by Maître Kelidjian, lawyer for Birdlife France.
- Robin des bois: Erika trial report.
- Ministère de la Justice: Does nature have rights? By considering ecological prejudice in its decision « Erika » of 25 September 2012, the court of cassation answered by the affirmative to this question.

Appeal trial of the Erika

On 30 March 2010, the appeal court in Paris gave its verdict. It confirmed and added to the sanctions given by the high instance court.

Criminal aspect

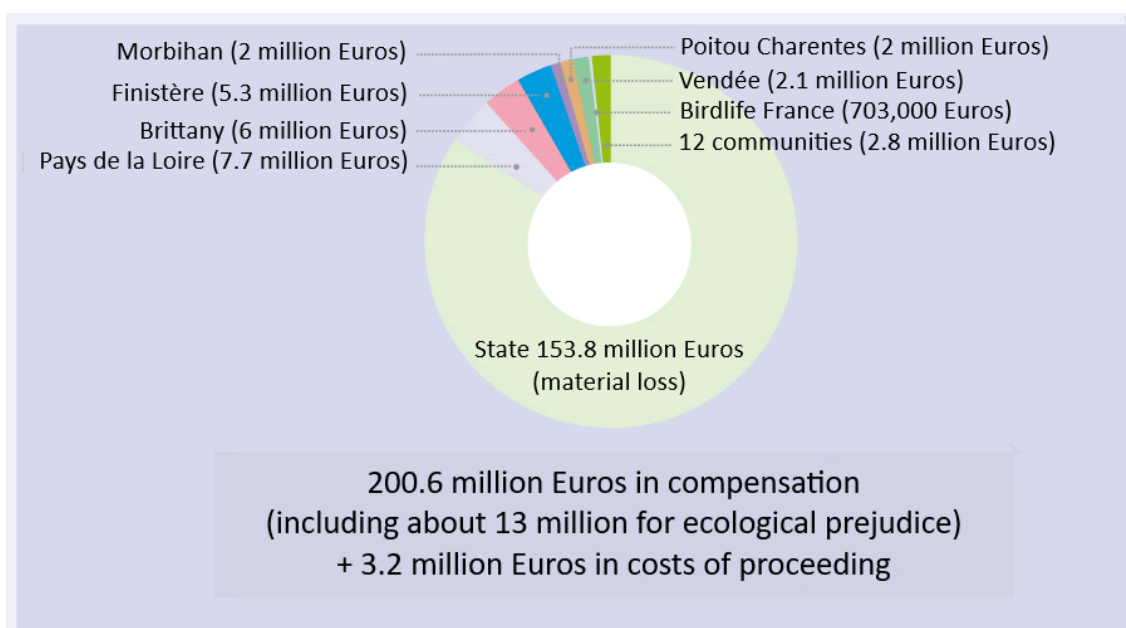
The court confirmed the criminal responsibility of the stakeholders in the maritime transport chain, as said in first instance. Indeed, for the court, “it appears that the incident at sea [...] suffered by the Erika on 12 December 1999, which caused the pollution of 400 Km of coastline, was the direct consequence of the major corrosion level on the vessel at the breaking point”. They were therefore forced to pay the fines announced in first instance.

The appeals court did however create precedent by re-qualifying Total as a “charterer”. Therefore, the company was exempted of the payment of compensation to the victims due to the CLC convention which stipulates that only the shipowner is responsible in the event of oil pollution.

Civil aspect

The appeal court in Paris pronounced the joint condemnation of G. Savarese, A. Pollara and the company RINA to pay 200.6 million Euros (including amounts paid by TOTAL SA during the first trial). The court of appeal explicitly recognise the ecological prejudice to all territorial communities since: “any damage to the environment not only directly undermines the well-being that the local authority seeks to provide for all its residents, but also thwarts the efforts it makes, within the scope of its powers, to improve their quality of life”.

In total, 18 territorial collectivities and 3 associations were compensated up to 13.9 million Euros. In 2001, the estimate for the prejudice realised by the office Mazars et Guérard (assessment of the economic, ecological, and social impacts following the wreck of the Erika in the territories of Brittany, Pays de la Loire and Poitou Charente) reached more than 900 million Euros (more than 6 billion Francs at the time).



Appeal trial of the Erika ©CEDRE

However, the Erika issue did not stop there since the four condemned filed for appeal on 6 April 2010 and asked for a definitive annulment of the procedure. The general attorney for the court of cassation recommended to “Set aside the judgement without referral to the decision under question”, meaning a definitive annulment of the procedure, on the basis that the French justice system was not competent in the matter. He argued that, as the incident took place in the EEZ, outside French territorial waters, the 1983 law on which the proceedings were based could therefore not apply.

On 25 September 2012, after 13 years of legal proceedings, the court of cassation did uphold all the convictions decided on 30 March 2010 regarding the companies TOTAL SA and RINA, as well as G. Savarese and A. Pollara. The court estimated that the French

justice system had jurisdiction to deliver judgement since “several provisions of the United Nations Convention on the Law of the Sea [...] justified France’s exercise of its judicial jurisdiction to impose sanctions for an accidental release of oil (within the French EEZ) by a foreign vessel resulting in serious damage to its territorial waters and coastline”. The stake regarding this decision of the court of cassation was not financial, since compensation paid to the plaintiffs had already been perceived and that such compensation was “definitive”. The plaintiffs feared that the judicial repercussions, if the court of cassation had not confirmed the decisions and new similar incidents happened.

Maritime safety after the Erika. What changed?

The sinking of the Erika exposed certain failures in terms of maritime safety. The emotion triggered by this environmental disaster led to the implementation, via the European Commission, of an EC-wide plan to prevent such an accident from occurring in the future. A series of measures, known as the Erika I, II and III packages, intended to reinforce maritime safety and the safety of oil transport by sea, was then proposed, adopted and gradually implemented.

In the Erika I package of 21 March 2000, the European Commission put forward proposals for immediate action and proposals for future action, which were more complex and would come under a second legislative package. The essential measures are as follows:

- the gradual phasing-out of single hull oil tankers and their replacement by double hull tankers or tankers of equivalent design, by 2015 at the latest
- the tightening and increase in vessel inspections in European ports
- stricter monitoring of classification societies

The Erika II package of 6 December 2000 focuses in particular on the following measures:

- setting up of a compensation fund to compensate victims of oil spills in European waters up to a limit of €1,000 million through the IOPC Funds
- reinforcement of the monitoring of maritime traffic in European waters, through the introduction of a system capable of locating vessels in real-time
- setting up of a European Maritime Safety Agency based in Lisbon

The Erika III package of March 2009 focuses on improving the fleet of ships using European ports while ensuring that Member States apply international maritime rules to vessels, mainly through:

- stepping up controls on ships in European ports and banning substandard ships
- the obligation for shipowners to take out insurance in case of environmental damage
- introduction of a traffic monitoring system in particular for vessels travelling long distances
- the designation of appropriate places of refuge that could receive a vessel in distress
- improvement in the rules in force relating to classification societies
- revision of the compensation for damage of passengers in the event of maritime accidents